Department of Energy
Albuquerque Operations Office
Los Alamos Area Office
Los Alamos, New Mexico 87544

OCT 14 1999

HAND DELIVERED

~~CERTIFIED MAIL - RETURN RECEIPT REQUESTED~~

John E. Kieling
RCRA Permits Management Program
Hazardous and Radioactive Materials Bureau
New Mexico Environment Department
2044 Galisteo Street, Building A
P. O. Box 26110
Santa Fe, NM 87505

Dear Mr. Kieling:

Subject: Transmission of the Reformatted Version of the Technical Area (TA) 36 RCRA Permit Application

The purpose of this letter is to transmit two hard copies and one electronic copy of the TA-36 reformatted permit application. We have taken the old format and updated it to reflect the new Technical Area specific approach that we have all agreed upon.

We have taken the liberty of adding a risk assessment to the application. It was an item that your staff requested through a request for supplemental information when they were reviewing the TA-14 application. We hope this will make the review easier.

If you should have any questions concerning this submittal, please feel free to address them to either me (505-665-5042) or Jack Ellvinger (505-667-0633).

Sincerely,

H. L. "Jody" Plum
Office of Environment

LAAME:6JP-161

3 Enclosures

2351

bcc w/o enclosures:
Hortense Haynes, Office of Counsel, LAAO
Michelle Cash, ESH-19, LANL, MS-P915
Jack Ellvinger, ESH-19, LANL, MS-K490

Document:	**LANL TA-36 Part B**
Revision No.:	**0.0**
Date:	**September 1999**

Part B Permit Application
Technical Area 36 Open Detonation Unit

Revision 0.0

Prepared by:
Los Alamos National Laboratory
Hazardous and Solid Waste Group (ESH-19)
Los Alamos, New Mexico 87545

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LIST OF ABBREVIATIONS/ACRONYMS

AEHA	U.S. Army Environmental Hygiene Agency
dB	decibel
EPA	U.S. Environmental Protection Agency
HRMB	Hazardous and Radioactive Materials Bureau
LANL	Los Alamos National Laboratory
20 NMAC 4.1	New Mexico Administrative Code, Title 20, Chapter 4, Part 1
NMED	New Mexico Environment Department
OD	open detonation
RCRA	Resource Conservation and Recovery Act
SOP	standard operating procedure
SWMU	solid waste management unit
TA	technical area

1.0 INTRODUCTION

This revised "Part B Permit Application: Technical Area 36 Open Detonation Unit≅ is submitted to address the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20 NMAC 4.1), revised January 1, 1997 [1-1-97], requirements specific to hazardous waste open detonation (OD) operations at TA-36. This permit application contains much of the same information for the TA-36 OD unit as was included in the APart B Permit Application: Open Burning/Open Detonation Units at Technical Areas 14, 15, 36, and 39," submitted in September 1996 (Los Alamos National Laboratory [LANL] 1996). The information in that application has been reformatted in this document to meet the permitting strategy outlined by the New Mexico Environment Department (NMED) Hazardous and Radioactive Materials Bureau (HRMB) in correspondence dated February 5, 1998. As presented in the correspondence, TA-specific permit applications, permit modification requests, and permit renewal documents will cover any details and/or requirements not addressed in the ALos Alamos National Laboratory General Part B Permit Application,≅ Revision 1.0 (LANL, 1998a), hereinafter referred to as the LANL General Part B. The LANL General Part B will serve in the operating permit as an "umbrella" document, covering the requirements of the New Mexico Hazardous Waste Act and implementing regulations, specifically 20 NMAC 4.1 [1-1-97], common to all TAs. Together, information provided in this document and in the LANL General Part B will meet the applicable requirements specified in 20 NMAC 4.1, Subparts V and IX [1-1-97]. This TA-36 Part B permit application is organized similar to the LANL General Part B and contains six primary sections and numerous attachments. Attachments A through F in this document correspond to Appendices A through F in the LANL General Part B. To expedite the permitting process, information is provided in this document to address topics the NMED included in a Notice of Deficiency and in a Request for Supplementary Information for open burning and OD operations at TA-14.

In accordance with HRMB=s permitting strategy, LANL submitted the ALos Alamos National Laboratory General Part A Permit Application≅ in April 1998 (LANL, 1998b). The LANL General Part A consolidated information from previous site-wide and TA-specific Part A submittals into one comprehensive document, identifying all hazardous and mixed waste treatment, storage, and disposal facilities subject to 20 NMAC 4.1, Subparts V, VI, and IX [1-1-97], at LANL as of April 30, 1998. The LANL General Part A serves as a companion document to the LANL General Part B and TA-specific permit applications, permit modification requests, and permit renewal documents, including this TA-36 Part B permit application.

In the LANL General Part A, the LANL General Part B, and this permit application, a unit to be permitted may sometimes be referred to as a "facility." The term "facility," as it appears in this context, is used only to denote building names and does not imply the regulatory meaning of "facility" as defined in 20 NMAC 4.1, Subpart I, 260.10 [1-1-97]. However, pursuant to 20 NMAC 4.1, Subpart I, 260.10 [1-1-97], the LANL facility as a whole does meet the regulatory definition of a facility.

Table 1-1 provides a list of regulatory references and the corresponding location in this permit application, as appropriate. Where applicable, regulatory citations in this document reference 20 NMAC 4.1, which adopts, with a few limited exceptions, all of the Code of Federal Regulations, Title 40, Parts 260 to 266, Part 268, Part 270, and Part 273.

Table 1-1

Regulatory References and Corresponding Permit Application Location

Regulatory Citation(s)	Description of Requirement	Location in this Document
∋270.14(b)(1)	General facility description	Attachment A[a]
∋270.14(b)(2)	Chemical and physical analyses	Attachment B[a]
∋270.14(b)(3)	Waste analysis plan	Attachment B[a]
∋264.13(b)	Development and implementation of waste analysis plan	Attachment B[a]
∋264.13(c)	Off-site waste analysis requirements	Attachment B[a]
∋270.14(b)(4)	Security procedures and equipment	Attachment I
∋264.14	Security	Attachment I
∋270.14(b)(5)	General inspection requirements	Attachment C[a]
∋264.15(b)	General inspection requirements	Attachment C[a]
∋264.174	Container inspections	NA[b]
∋264.193(i)	Tank inspections	NA
∋264.195	Overfill control inspections	NA
∋264.226	Surface impoundments monitoring and inspection	NA
∋264.254	Waste pile monitoring and inspection	NA
∋264.273	Land treatment design and operating requirements	NA
∋264.303	Landfill monitoring and inspection	NA
∋264.347	Incinerator monitoring and inspection	NA
∋264.602	Miscellaneous units	Attachment C[a]
∋264.1033	Process vent standards	NA
∋264.1052	Equipment leak air emission standards	NA
∋264.1053	Compressor standards	NA
∋264.1058	Standards for pumps, valves, pressure relief devices, flanges and connections	NA
∋264.1088	Subpart CC inspection and monitoring requirements	NA
∋270.14(b)(6)	Request for waiver from preparedness and prevention requirements of 264 Subpart C	NA
∋270.14(b)(7)	Contingency plan requirements under 264 Subpart D	Attachment E[a]
∋264, Subpart D	Contingency plan and emergency procedures	Attachment E[a]
∋264.227	Surface impoundment emergency repairs; contingency plans	NA
∋264, Subpart C	Preparedness and prevention	Attachment I
∋270.14(b)(8)	Preparedness and prevention	Attachment I

Refer to footnotes at end of table.

Table 1-1 (Continued)

Regulatory References and Corresponding Permit Application Location

Regulatory Citation(s)	Description of Requirement	Location in this Document
∋270.14(b)(8)(i)	Prevention of hazards in unloading operations (ramps and special forklifts)	Attachment I
∋270.14(b)(8)(ii)	Runoff prevention with berms, trenches, and dikes	2.0
∋270.14(b)(8)(iii)	Prevention of contamination of water supplies	Attachment I
∋270.14(b)(8)(iv)	Mitigation effects of equipment failure and power outages	Attachment I
∋270.14(b)(8)(v)	Prevention of undue exposure of personnel by use of personal protective equipment	Attachment I
∋270.14(b)(8)(vi)	Prevention of release to the atmosphere	Attachment I
∋270.14(b)(9)	Prevention of accidental ignition or reaction	2.0[a], Attachment I
∋264.17	General requirements for ignitable, reactive, or incompatible wastes	2.0[a], Attachment I
∋264.17(c)	Documentation of compliance with 264.17 (general requirements for ignitable, reactive, or incompatible wastes)	2.0[a], Attachment I
∋270.14(b)(10)	Traffic pattern, volume, and controls	Attachment A[a]
	Identification of turn lanes	Attachment A
	Identification of traffic/stacking lanes	Attachment A
	Description of road surface	Attachment A[a]
	Description of road load-bearing capacity	Attachment A[a]
	Identification of type and number of traffic controls	Attachment A
∋270.14(b)(11)	Facility/unit location information	Attachment A
∋264.18	Location standards	Attachment A
∋270.14(b)(11)(i)	Seismic standard applicability [264.18(a)]	Attachment A
∋270.14(b)(11)(ii)	Seismic standard requirements	Attachment A
∋270.14(b)(11)(ii)(A)	No fault within 3,000 feet (ft) with displacement in Holocene time	NA
∋270.14(b)(11)(ii)(A)(1)	Published geological studies	NA
∋270.14(b)(11)(ii)(A)(2)	Aerial reconnaissance of a five-mile radius from the facility	NA
∋270.14(b)(11)(ii)(A)(3)	Analysis of aerial photographs covering 3,000-ft radius from the facility/unit	NA
∋270.14(b)(11)(ii)(A)(4)	Reconnaissance based on walking portions of the area within 3,000 ft of the facility	NA

Refer to footnotes at end of table.

Table 1-1 (Continued)

Regulatory References and Corresponding Permit Application Location

Regulatory Citation(s)	Description of Requirement	Location in this Document
∋270.14(b)(11)(ii)(B)	If faults which have displacement in Holocene time are present within 3,000 ft, no faults pass within 200 ft of portions of the facility where treatment, storage, or disposal will be conducted	NA
∋270.14(b)(11)(iii)	100-year floodplain standard	Attachment A[a]
∋270.14(b)(11)(iv)	If facility is within 100-year floodplain	NA
∋270.14(b)(11)(iv)(A)	Engineering analyses of hydrostatic forces expected in a 100-year flood	NA
∋270.14(b)(11)(iv)(B)	Structural engineering studies for flood protection to prevent washout	NA
∋270.14(b)(11)(iv)(C)	Detailed description of procedures to remove hazardous waste to safety before flood reaches the waste	NA
∋270.14(b)(11)(iv)(C)(1)	Timing of removal	NA
∋270.14(b)(11)(iv)(C)(2)	Location to be moved to	NA
∋270.14(b)(11)(iv)(C)(3)	Dedicated equipment and personnel to ensure removal	NA
∋270.14(b)(11)(iv)(C)(4)	Potential for accidental discharge during movement	NA
∋270.14(b)(11)(v)	Plan to show how the facility will be brought into compliance with 264.18(b)	NA
∋270.14(b)(12)	Personnel training program	Attachment D[a]
∋270.14(b)(13)	Closure and post-closure plans	Attachment F[a]
∋264.112	Amendment of closure plan	Attachment F[a]
∋264.118	Post-closure plan; amendment of plan	Attachment F[a]
∋264.178	Closure/containers	NA
∋264.197	Closure/tanks	NA
∋264.228	Closure/post-closure/surface impoundments	NA
∋264.258	Closure/post-closure/waste piles	NA
∋264.280	Closure/post-closure/land treatment	NA
∋264.310	Closure/post-closure/landfills	NA
∋264.351	Closure/incinerators	NA
∋264.601	Miscellaneous units	Attachment F[a]
∋264.603	Post-closure care	Attachment F[a]
∋270.14(b)(14)	Post-closure notices (264.119)	Attachment F[a]
∋270.14(b)(15)	Closure cost estimate (264.142)	Attachment F[a]

Refer to footnotes at end of table.

Regulatory Citation(s)	Description of Requirement	Location in this Document
	Financial assurance (264.143)	Attachment F[a]

Table 1-1 (Continued)

Regulatory References and Corresponding Permit Application Location

Regulatory Citation(s)	Description of Requirement	Location in this Document
ɔ270.14(b)(16)	Post-closure cost estimate (264.144)	Attachment F[a]
	Post-closure care financial assurance (264.145)	Attachment F[a]
ɔ270.14(b)(17)	Liability insurance (264.147)	Attachment F[a]
ɔ270.14(b)(18)	Proof of financial coverage (264.149-150)	Attachment F[a]
ɔ270.14(b)(19)	Topographic map requirements	Attachment A[c]
ɔ270.14(b)(19)(i)	Map scale and date	Attachment A[c]
ɔ270.14(b)(19)(ii)	100-year floodplain	Attachment A[a]
ɔ270.14(b)(19)(iii)	Surface waters	Attachment A
ɔ270.14(b)(19)(iv)	Land use	Attachment A
ɔ270.14(b)(19)(v)	Wind rose	Attachment A
ɔ270.14(b)(19)(vi)	Map orientation	Attachment A[c]
ɔ270.14(b)(19)(vii)	Legal boundaries	Attachment A
ɔ270.14(b)(19)(viii)	Access controls	Attachment A
ɔ270.14(b)(19)(ix)	Wells	Attachment A
ɔ270.14(b)(19)(x)	Buildings	Attachment A
	Treatment, storage, and disposal operations	Attachment A
	Run-on/run-off control systems	2.0, Attachment A
	Storm sewer systems	Attachment A[a]
	Sanitary sewer systems	Attachment A[a]
	Process sewer systems	Attachment A[a]
	Loading/unloading areas	Attachment A
	Fire control facilities	Attachment A[a]
ɔ270.14(b)(19)(xi)	Drainage barriers	2.0, Attachment A
ɔ270.14(b)(19)(xii)	Location of operational units	2.0, Attachment A
ɔ270.14(b)(20)	Other federal laws	3.0[a]
ɔ270.3(a)	Wild and Scenic Rivers Act	3.0[a]
ɔ270.3(b)	National Historic Preservation Act	3.0[a]

Refer to footnotes at end of table.

Regulatory Citation(s)	Description of Requirement	Location in this Document
∋270.3(c)	Endangered Species Act	3.0[a]

Table 1-1 (Continued)

Regulatory References and Corresponding Permit Application Location

Regulatory Citation(s)	Description of Requirement	Location in this Document
∋270.3(d)	Costal Zone Management	3.0[a]
∋270.3(e)	Fish and Wildlife Coordination Act	3.0[a]
∋270.3(f)	Executive Orders	3.0[a]
∋270.14(b)(21)	Notice of extension approval for land disposal facilities	NA
∋270.14(c)	Groundwater monitoring requirements	Attachment A[a,] Attachment H
∋270.14(c)(1)	Groundwater monitoring under 265.90 through 265.94	NA
∋270.14(c)(2)	Identification of uppermost aquifer, groundwater flow rate and direction	Attachment H
∋270.14(c)(3)	A topographic map required under 270.14(b)(19) that identifies proposed point of compliance	NA
	Proposed location of groundwater monitoring wells under 264.97.	Attachment H
∋270.14(c)(4)	Description of plume of contamination that has entered groundwater	NA
∋270.14(c)(4)(i)	Extent of plume indicated on topographic map	NA
∋270.14(c)(4)(ii)	Identification of constituents and concentration for Appendix IX of 264	NA
∋270.14(c)(5)	Detailed plan and an engineering report describing proposed groundwater monitoring program under 264.97	NA
∋270.14(c)(6)	No releases detected in groundwater (264.98)	NA
∋270.14(c)(6)(i)	List of proposed indicator parameters	NA
∋270.14(c)(6)(ii)	Proposed groundwater monitoring system	NA
∋270.14(c)(6)(iii)	Background values for each proposed monitoring parameter	NA
∋270.14(c)(6)(iv)	Description of proposed sampling, analyses and statistical comparisons to be used	NA
∋270.14(c)(7)	Release detected at point of compliance requires corrective action under 264.100	NA
∋270.14(d)	Information requirements for solid waste management units (SWMU)	4.0
∋270.14(d)(1)(i)	Location of SWMUs on topographic map	4.0
∋270.14(d)(1)(ii)	Types of SWMUs	4.0

Refer to footnotes at end of table.

Regulatory Citation(s)	Description of Requirement	Location in this Document
ə270.14(d)(1)(iii)	Dimensions and descriptions of SWMUs	4.0
ə270.14(d)(1)(iv)	Dates of operation	4.0

Refer to footnotes at end of table.

Table 1-1 (Continued)

Regulatory References and Corresponding Permit Application Location

Regulatory Citation(s)	Description of Requirement	Location in this Document
∋270.14(d)(1)(v)	Waste types managed at SWMU	4.0
∋270.14(d)(2)	Information on releases from SWMUs	4.0
∋270.15	Containers	NA
∋270.16	Tank systems	NA
∋270.16(a)	Written assessment and certification	NA
∋270.16(b)	Capacity/dimensions	NA
∋270.16(c)	Systems and controls	NA
∋270.16(d)	Piping and process flow	NA
∋270.16(e)	External corrosion protection	NA
∋270.16(f)	Installation	NA
∋270.16(g)	Secondary containment system	NA
∋270.16(h)	Request for variance from secondary containment	NA
∋270.16(i)	Spill prevention	NA
∋270.16(j)	Ignitable, reactive, or incompatible wastes	NA

[a] Requirement or information is also addressed in the "Los Alamos National Laboratory General Part B Permit Application," Revision 1.0 (LANL, 1998a), as appropriate.

[b] NA = not applicable.

[c] Some of the topographic map requirements are addressed in the "Los Alamos National Laboratory General Part A Permit Application," Revision 0.0 (LANL, 1998b).

2.0 TREATMENT BY OPEN DETONATION

The information provided in this section is submitted to address the applicable miscellaneous unit requirements of the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20 NMAC 4.1), Subpart IX, 270.23, and 20 NMAC 4.1, Subpart V, Part 264, Subpart X, revised January 1, 1997 [1-1-97], as well as thermal treatment unit requirements in 20 NMAC 4.1, Subpart VI, Part 265, Subpart P [1-1-97]; and to provide additional instructive data that may expedite the permitting process. This section presents a brief description of the Technical Area (TA) 36 open detonation (OD) unit as well as information on waste management practices, operating requirements, and treatment effectiveness. Requirements for ignitable, reactive, and incompatible wastes and for inspections are also discussed. In addition, information on risk assessment; nearby archeological sites; and noise, minimum distance, and ground vibration is presented in this section. A summary of applicable miscellaneous unit regulatory references and the corresponding location where the requirement is addressed in this permit application is presented in Table 2-1.

2.1 HAZARDOUS WASTE OD UNIT NEAR TA-36, BUILDING 8 [20 NMAC 4.1, Subpart IX, 270.23; 20 NMAC 4.1, Subpart V, Part 264, Subpart X; and 20 NMAC 4.1, Subpart VI, Part 265, Subpart P]

A description of the TA-36 OD unit at Los Alamos National Laboratory (LANL) is provided below. The description includes the location, the physical parameters, and the maximum treatment capacity of the OD unit.

The OD unit located near TA-36, Building 8 (TA-36-8), may be used to treat solid and liquid hazardous explosive waste, including unexploded ordnance. A list of waste explosives that may be treated by OD at the TA-36 unit is presented in Supplement 2-1. Supplement 2-1 is provided for informational purposes; it is not intended for inclusion in the permit. The OD unit consists of an irregularly-shaped, sand- and grass-covered area (Figure 2-1) that measures approximately 500 feet east to west and 300 feet north to south. The western portion is relatively flat; the eastern portion is concave to minimize fragment dispersion. Because the OD unit consists simply of an area on soil-covered tuff, an engineering drawing cannot be developed for the unit. The topography and areal extent of the unit are shown on Figure A-2 in Attachment A.

The sandy soils at the TA-36 site are highly absorbent, thus minimizing storm water runoff potential and reducing the likelihood of hydraulic head being created to drive waste constituents into the vadose zone. Existing storm water controls include a run-on diversion channel to divert upstream

flow around the western area of the treatment unit, a berm east of the western area of the treatment unit, a bermed area surrounding the eastern portion of the treatment unit, and good housekeeping (e.g., keeping the diversion channel free of debris). The diversion channel and berms are inspected routinely and maintained, as necessary. The paved road just northwest of the eastern area of the treatment unit slopes northward and also helps to divert potential run-on away from the unit. Drainage control features near the TA-36 OD unit are shown on Figure A-8 in Attachment A.

The OD unit has a maximum treatment capacity of 2,000 pounds of explosive waste per detonation. The unit is used primarily for nontreatment-related experimental test detonations and may occasionally be used for treatment of hazardous explosive waste. Following waste placement at the unit, detonation operations are conducted from TA-36-8, the control building. Operations at the OD unit require post-detonation visual surveys as soon as practical for materials not consumed by the detonation. This practice minimizes the potential for precipitation contacting untreated hazardous waste, if any. Since Resource Conservation and Recovery Act (RCRA) Subtitle C regulations became effective in November 1980, an average of approximately 5,000 pounds of waste has been treated annually at the TA-36 OD unit; however, in recent years, the amount of waste treated has been much less than 5,000 pounds annually.

The wastes treated are both homogeneous (e.g., solid explosives, scrap explosives) and heterogeneous (e.g., explosives-contaminated paper, rags, wood). These wastes have been assigned the following potential U.S. Environmental Protection Agency (EPA) Hazardous Waste Numbers: D003 for reactivity; D005 for barium (which in the form of barium nitrate or barium carbonate is a common component of some explosives); D006 for cadmium; D007 for chromium; D008 for lead; D009 for mercury; D010 for selenium; D011 for silver; and D030 for 2,4-dinitrotoluene. Historically, there have been no significant changes in waste compositions. The wastes are treated to remove the characteristic of reactivity, although other characteristic hazardous waste (e.g., toxicity for barium) may be present in the wastes being treated. Nonreactive wastes may be treated at the OD unit at TA-36 to desensitize or declassify the waste. Ancillary components (e.g., containers, housing, and casings) used during waste treatment consist of nonhazardous materials only (e.g., aluminum, plastic).

2.2 WASTE MANAGEMENT PRACTICES [20 NMAC 4.1, Subpart V, Part 264, Subpart X]

There are two basic categories of explosives that may be managed at the TA-36 OD unit. The first category consists of explosives-contaminated waste; the second category consists of explosive material.

Explosives-contaminated waste includes make-up room wastes and firing site debris. Make-up room waste consists of explosives-contaminated waste, such as paper towels, swabs, and similar materials that contain no tangible pieces of explosives but are used in the preparation of shots in the make-up building. Firing site debris that is potentially contaminated with explosives consists of wood scraps, cardboard, burlap, Plexiglas®/Lexan®, plastic, glass, styrofoam, electrical cables, and metallic foils used for pin switches or metals such as target plates. Firing site debris also includes corrective action wastes or wastes generated as a result of investigation or remediation.

Explosive material includes identifiable scrap explosives that are safe to handle. It includes explosives assemblies and explosives, identifiable booster charge scrap, and any other process or cleanup wastes that are believed to be potentially reactive.

Waste containers for explosives-contaminated waste and explosive material generally consist of plastic bags or paper-lined cardboard boxes. Most explosives-contaminated waste and actual pieces of explosives are typically not packaged together; however, depending on their composition, some of these wastes may occasionally be packaged together. Explosives-contaminated waste will be placed within a container, sealed, and labeled appropriately. These waste containers will then be stored in a less-than-90-day storage area or a satellite accumulation area. Pieces of damaged explosives resulting from a misfire, sensitivity experiment, incomplete detonation, or exposure to severe testing will be packaged separately from excess explosives. Exceptions to handling will be done on special items, which will be handled safely and appropriately.

OD operations are conducted in accordance with the most recent, approved versions of LANL standard operating procedures (SOP) (see Attachment G). Waste to be treated is collected from various accumulation areas at the facility. When loading waste, the cargo compartment of the transport vehicle(s) is checked to ensure that it is clean and contains no loose items such as tools or pieces of metal. For transport, the wastes are placed in an enclosed compartment or secured with tie-downs. The load limit for transporting explosives is determined by the capacity of the transport vehicle(s). Wastes are transported by appropriately trained personnel in a designated vehicle(s) to the OD unit. Only the amount of waste that can be treated in one day is transported to the unit. The

waste is unloaded from the vehicle(s) and placed at the OD location by qualified technicians/specialists. A visual examination is conducted after unloading to ensure that no explosive material remains in the transport vehicle(s). Depending on preparation activities, the time during which waste may remain at the unit is typically several hours; however should operational or meterological conditions change rapidly and unexpectedly, the waste may remain at the unit for a day or more until conditions improve and treatment can be conducted. Preparation room operations and explosives charge handling and assembly are addressed in DX-4:SOP 05; packaging and transportation procedures are presented in DX-DO:SOP-3. OD of waste is accomplished by using a predetermined amount of explosive to initiate the detonation. The detonation may create temperatures up to 3,000 degrees Fahrenheit (1,649 degrees Celsius). Initiation for all waste treatment operations is performed remotely by qualified personnel from inside a control building.

LANL minimizes the impact to the environment by conducting treatment operations in strictly controlled, remote areas within the LANL boundaries. Treatment operations are not conducted during adverse conditions (see Attachment H, AEnvironmental Performance Standards≅) in order to minimize wind dispersal of ash and particulate matter to the environment. Releases of propellants, explosives, or pyrotechnics are minimized by following appropriate SOPs (see Attachment G) to ensure maximum detonations and to minimize misfires. Trained operators ensure that sufficient and appropriate initiating explosives are used so that these materials detonate rather than deflagrate. Any deflagrating material is carefully collected for detonation. Residues (metallic shards and occasional pieces of propellants, explosives, or pyrotechnics) are managed in accordance with SOPs for the OD unit; the SOPs require a thorough survey of the area after each detonation and collection of all identifiable pieces of material not consumed by the detonation. Materials not consumed during a detonation are collected for treatment only after the firing site leader ensures that the area is safe.

2.3 OPERATING REQUIREMENTS [20 NMAC 4.1, Subpart VI, Subpart P]

Treatment of hazardous waste at the TA-36 OD unit is conducted using a noncontinuous [batch] thermal treatment process, in accordance with the requirements specified in 20 NMAC 4.1, Subpart VI, 265.373 [1-1-97]. OD of wastes at the TA-36 OD unit will be conducted in a manner that does not threaten human health or the environment. Based on the unit=s maximum 2,000-pound treatment capacity, a minimum required distance of 1,730 feet will be maintained between the point of detonation and the property of others, as required in 20 NMAC 4.1, Subpart VI, 265.382 [1-1-97].

2.4 TREATMENT EFFECTIVENESS [20 NMAC 4.1, Subpart IX, 270.23(d)]

To address the applicable miscellaneous unit requirement specified in 20 NMAC 4.1, Subpart IX, 270.23(d) [1-1-97], a demonstration of treatment effectiveness must be included for the TA-36 OD unit. As indicated in the U.S. Army Environmental Hygiene Agency (AEHA) guidance document titled "RCRA Part B Permit Writer's Guidance Manual for Department of Defense Open Burning/Open Detonation Units" (AEHA, 1987), a demonstration of treatment effectiveness can be based on laboratory or field data. For wastes treated by OD, information demonstrating that any residues or fragments remaining after the detonation are not reactive (i.e., as defined by RCRA) should be provided. At the TA-36 OD unit, if any waste remains after the initial treatment, it is treated again to ensure that any residues or fragments remaining are not reactive. The area is visually inspected and explosive remnants are treated in place in conjunction with safety practices and SOPs.

2.5 IGNITABLE, REACTIVE, AND INCOMPATIBLE WASTES [20 NMAC 4.1, Subpart V, 264.17(a)]

Ignitable wastes are not treated at the TA-36 OD unit. Applicable requirements for the management of reactive and incompatible wastes will be met at the TA-36 OD unit. Pursuant to the requirements of 20 NMAC 4.1, Subpart IX, 270.14(b)(9) [1-1-97], a description of the precautions exercised by personnel at the unit to prevent accidental ignition or reaction of wastes is included in Attachment I (APrevention of Hazards≅) of this Part B permit application.

2.6 INSPECTION [20 NMAC 4.1, Subpart V, 264.15]

In accordance with the requirements of 20 NMAC 4.1, Subpart V, 264.15 [1-1-97], the TA-36 OD unit will be inspected daily when in use (i.e., when wastes are managed at the unit) and weekly when not in use. Inspection parameters are specified in Appendix C of the LANL General Part B (LANL, 1998a). Inspection records will be maintained by responsible personnel and a copy of the record will be sent weekly, as appropriate, to LANL's Hazardous and Solid Waste Group.

2.7 RISK ASSESSMENT

An evaluation of human health risks was conducted and includes a complete description of available on-site analytical data and off-site modeled concentrations (including those for surface soil and air). This evaluation also included an exposure assessment (with potential receptors and complete exposure pathways), a toxicity assessment, and a risk characterization which, together, assess the potential cumulative impact on human health and the environment as a result of operations at the

TA-36 OD unit. The evaluation of human health risks is included in Attachment J of this document, and includes both hazard quotients and incremental lifetime cancer risks. An estimate of the individual excess lifetime cancer risk is summarized in Table J-6 of Attachment J. The potential receptors at TA-36 include residential, occupational, and recreational. An evaluation of complete and incomplete exposure pathways for each of the potential receptors is also presented in Attachment J. For OD operations at TA-36, the primary receptor is an on-site worker.

An evaluation of ecological pathways and predicted risk is also presented in Attachment J. The ecological receptors selected include: a non-specific perennial plant, vagrant shrew (insectivore), western harvest mouse (omnivore), montane vole (herbivore), gray fox (omnivore/carnivore), American kestrel (insectivore), and Mexican spotted owl (carnivore). Using the 95 percent upper confidence limit of the mean concentration, potential ecological risk was only predicted for the vagrant shrew, harvest mouse, and montane vole exposed to 2,4-dinitrotoluene; for the montane vole exposed to HMX; for the American kestrel exposed to di-n-butyl phthalate; and for the Mexican spotted owl exposed to bis-2-ethylhexyl phthalate. TA-36 is not utilized by domestic animals or crops. Surface water associated with the site consists of infrequent runoff and was not evaluated as a source of drinking water.

Potential receptors are evaluated in Attachment J. For the human health evaluation, the only receptors are LANL employees. Calculations of lifetime cancer risk are summarized in Table J-6 of Attachment J. Included in these calculations are risks to on-site personnel during routine operations using on-site analytical data, and risks to off-site personnel using available air modeling concentrations. All major exposure pathways are included in the risk calculations. For surface soil, these pathways include ingestion, dermal contact, and inhalation of fugitive dust. A complete description of the exposure models used in the risk calculations is also provided in Attachment J. Several ecological receptors occupying different trophic levels were used in the ecological risk assessment for TA-36. In each instance, the lower value of either the maximum detected concentration in soil or the 95 percent upper confidence limit of the mean concentration was used as the exposure concentration.

2.8 ARCHEOLOGICAL SITES

A brief historical description of TA-36 and the OD unit is provided in Attachment A of this document. There are 23 archeological sites within a 1,200-foot radius of the OD unit; the closest site is approximately 263 feet from the unit (Larson and McClure, 1996).

2.9 NOISE, MINIMUM DISTANCE, AND GROUND VIBRATION CONSIDERATIONS

Noise resulting from treatment activities is controlled by conducting treatment in a remote area within LANL boundaries. Impulse noise measurements were made at the control building (TA-36-8) for the OD unit during the detonation of explosives on three separate occasions in 1997. On two of those occasions, impulse noise measurements were also made at a location approximately 0.75 miles from the OD unit. The noise data are provided in Supplement 2-2.

On April 3, 1997, the noise levels of a 500-pound detonation were recorded at the two locations. The reading in the control building was 126 decibels (dB), and the distant reading was 135 dB; there was a cloud cover during this event. A 250 to 300-pound detonation was conducted at the TA-36 OD unit on April 24, 1997. The noise level recorded at the distant location was 114 dB; a light cloud cover was present during this event. Impulse noise measurements were also made at the two locations during an 800-pound detonation on June 5, 1997. The reading in the control building was 132 dB, and the distant reading was 139 dB.

Although noise level readings were not taken beyond the distant location, it is reasonable to assume that the noise level exposure to the nearest public receptor nearly 9,000 feet away would also be within acceptable limits. Workers involved in actual OD operations are stationed in the control building during detonation and, based on the levels measured, would receive exposure between approximately 126 and 132 dB, which is below the occupational exposure limit of 140 dB set by the American Conference of Governmental Industrial Hygienists.

LANL fully meets the minimum distance requirements of 20 NMAC 4.1, Subpart VI, 265.382 [1-1-97]. The maximum amount of waste that can be treated at the OD unit at TA-36 is 2,000 pounds; this amount requires a minimum distance of 1,730 feet from the property of others, per 20 NMAC 4.1, Subpart VI, 265.382 [1-1-97]. As can be seen on Figure A-2 of Attachment A, LANL maintains a safe distance greatly exceeding the minimum required distance.

LANL does not measure ground vibration during OD treatment operations. Due to the unit's remote location and the infrequency of treatment operations (an approximate average of 12 OD treatment operations per year), potential impacts to human health and the environment resulting from ground vibration are reasonably assumed to be minimal.

2.10 RECORDKEEPING REQUIREMENTS [20 NMAC 4.1, Subpart V, Part 264, Subpart E]

Recordkeeping requirements applicable to the TA-36 OD unit are discussed in the following sections.

2.10.1 Biennial Report [20 NMAC 4.1, Subpart V, 264.75]

LANL will prepare and submit a biennial report to the New Mexico Environment Department (NMED) by March 1 of each even-numbered year. The biennial report will be submitted to the NMED on EPA Form 8700-13B (revised July 1997 or update). The report will cover facility activities during the previous calendar year and will include:

- X The EPA identification number, name, and address of the facility;
- X The calendar years covered by the report;
- X A description and the quantity of each hazardous waste the facility received during the year;
- X The method of treatment, storage, or disposal for each hazardous waste;
- X For generators who treat, store, or dispose of hazardous waste on site, a description of the efforts undertaken during the year to reduce the volume and toxicity of waste generated;
- X For generators who treat, store, or dispose of hazardous waste on site, a description of the changes in volume and toxicity of waste actually achieved during the year in comparison to previous years to the extent such information is available for the years prior to 1984; and
- X The certification signed by LANL or an authorized representative.

2.10.2 Unmanifested Waste Report [20 NMAC 4.1, Subpart V, 264.76]

Waste from off-site sources may be accepted on a limited basis at LANL provided that such waste is properly characterized and manifested and meets the requirements listed in Section 2.1.5 of the LANL General Part B (LANL, 1998a). If LANL accepts any wastes for treatment or storage from an off-site facility without an accompanying manifest, or without an accompanying shipping paper as described in 20 NMAC 4.1, Subpart V, 264.76 [1-1-97], LANL will prepare and submit an Unmanifested Waste Report (EPA Form 8700-131B) to NMED within fifteen days after receiving the waste. The report will include the following:

- X The EPA identification number, name, and address of the facility;

X The date the facility received the waste;

X A description and the quantity of each unmanifested hazardous waste a facility received;

X The method of treatment, storage, or disposal for each hazardous waste;

X The certification signed by LANL or an authorized representative; and

X A brief explanation of why the waste was unmanifested, if known.

2.10.3 Additional Reports [20 NMAC 4.1, Subpart V, 264.77]

In accordance with the requirements of 20 NMAC 4.1, Subpart V, 264.77 [1-1-97], LANL will also report the following to the NMED:

X Releases and unanticipated fires and explosions that require implementation of the contingency plan, as specified in 20 NMAC 4.1, Subpart V, 264.56(j) [1-1-97]

X Facility closures, as specified in 20 NMAC 4.1, Subpart V, 264.115 [1-1-97]

X As otherwise required by 20 NMAC 4.1, Subpart V, Part 264, Subparts F, BB, and CC [1-1-97].

Table 2-1

Miscellaneous Unit Regulatory References and Corresponding Permit Application Location

Regulatory Citation(s)	Description of Requirement	Location in this Permit Application
∋264.601(a)	Prevention of release of contaminants to groundwater	Attachment H
∋264.601(a)(1)	Volume and characteristics of waste considering potential for migration through containing structures	2.0, Attachment H
∋264.601(a)(2)	Hydrologic/geologic characteristics	Attachment H
∋264.601(a)(3)	Quality of groundwater including other sources of contamination and their cumulative impact on groundwater	Attachment H
∋264.601(a)(4)	Quantity and direction of groundwater flow	Attachment H
∋264.601(a)(5)	Proximity to and withdrawal rates of potential groundwater users	Attachment H
∋264.601(a)(6)	Regional patterns of land use	Attachment A, Attachment H
∋264.601(a)(7)	Potential for deposition and migration of waste constituents	Attachment H
∋264.601(a)(8)	Potential for health risks caused by human exposure to waste constituents	Attachment J
∋264.601(a)(9)	Potential for damage to domestic animals, wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents	Attachment H, Attachment J
∋264.601(b)	Prevention of release of contaminants to surface water	Attachment H
∋264.601(b)(1)	Volume and characteristics of the waste	2.0, Attachment H
∋264.601(b)(2)	Effectiveness and reliability of containment, confinement, and collection systems and structures	2.0
∋264.601(b)(3)	Hydrologic characteristics of the unit and local area	Attachment H
∋264.601(b)(4)	Regional precipitation patterns	Attachment H
∋264.601(b)(5)	Quantity, quality, and direction of groundwater flow	Attachment H
∋264.601(b)(6)	Proximity of the unit to surface water	Attachment A, Attachment H
∋264.601(b)(7)	Current and potential uses of nearby surface waters and water quality standards for those waters	Attachment H
∋264.601(b)(8)	Quality of surface waters and soils including other sources of contamination and their cumulative impact on surface waters and soils	Attachment H

Refer to footnote at end of table.

Table 2-1 (Continued)

Miscellaneous Unit Regulatory References and Corresponding Permit Application Location

Regulatory Citation(s)	Description of Requirement	Location in this Permit Application
∋264.601(b)(9)	Regional patterns of land use	Attachment A
∋264.601(b)(10)	Potential for health risks caused by human exposure to waste constituents	Attachment J
∋264.601(b)(11)	Potential for damage to domestic animals, wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents	Attachment H, Attachment J
∋264.601(c)	Prevention of release of contaminants to air	Attachment H
∋264.601(c)(1)	Volume and characteristics of waste including its potential for emission	2.0, Attachment H
∋264.601(c)(2)	Effectiveness and reliability of systems/structures to reduce/prevent emissions of hazardous constituents to the air	2.0, Attachment H
∋264.601(c)(3)	Operating characteristics of the unit	2.0, Attachment H
∋264.601(c)(4)	Characteristics of the unit and the surrounding area	2.0, Attachment H
∋264.601(c)(5)	Existing quality of the air including other sources of contaminants and their cumulative impact on the air	Attachment H
∋264.601(c)(6)	Potential health risks caused by human exposure to waste constituents	Attachment J
∋264.601(c)(7)	Potential for damage to domestic animals, wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents	Attachment H, Attachment J
∋264.602	Monitoring, analysis, inspection, response, reporting, and corrective action	2.0, 4.0, Attachment H
∋264.603	Post-closure care	Attachment F[a]
∋264.15	General inspection requirements	Attachment C[a]
∋264.33	Testing and Maintenance of Equipment	Attachment I
∋264.75	Biennial report	2.0
∋264.76	Unmanifested waste report	2.0
∋264.77	Additional reports	2.0
∋264.101	Corrective action for solid waste management units	4.0

[a] Requirement or information is also addressed in the "Los Alamos National Laboratory General Part B Permit Application," Revision 1.0 (LANL, 1998a), as appropriate.

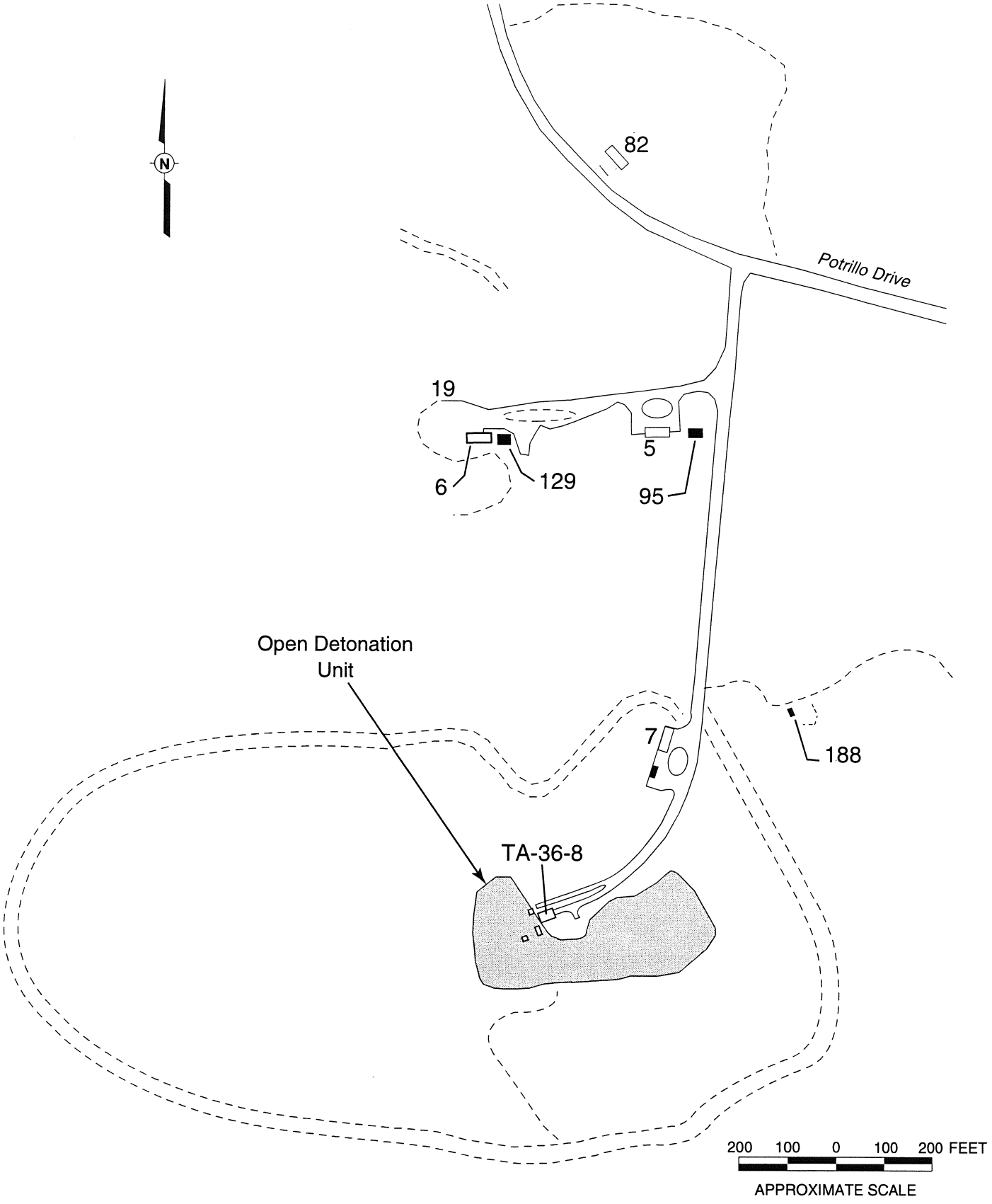

Figure 2-1
Location Map Showing the Open Detonation Unit near Technical Area (TA) 36, Building 8

SUPPLEMENT 2-1

Waste Explosives Detonated at Technical Area 36

(This supplement is provided for informational purposes only.)

Waste Explosives Detonated at the TA-36 OD Unit

Explosives	Other Names, Compositions, or Reference
AN	Ammonium nitrate
DATB	Diaminotrinitrobenzene
DINGU	Dinitroglycoluril
DINA	Di(nitroethyl) nitramine, Dioxyethyl dinitrate
EDNA	Ethylenedinitramine, Halite
HMX	Cyclotetramethylenetetranitramine, Octogen
LAX-112	Bis-diaminotetrazine N-oxide
NQ	Nitroguanidine, Picrite
NTO	1,2,4-Nitro-tiazole-5-one
PETN	Pentaerythritoltetranitrate
Picric Acid	1,3,5-TrinitrophenolNote: Picric acid forms impact-sensitive compounds with metal ions.
RDX	Cyclo-1,3,5-trimethylene-2,4,6-trinitramine; Hexogen, Cyclonite
TATB	1,3,5-Triamino-2,4,6-trinitrobenzene
Tetryl	2,4,5-Trinitrophenylmethylnitramine
HNS	Hexanitrostilbene
TNT	2,4,6-Trinitrotoluene; Trotyl
FEFO	1,1'[Methylene bis(oxy)]bis[2-fluoro-2,2-dinitroethane]
NM	Nitromethane
ANFO	Ammonium nitrate/fuel oil
Boracitol	60 wt% Boric acid/40 wt% TNT
Baratol	76 wt% Barium nitrate/24 wt% TNT
Calcitol	40 wt% TNT/55-60 wt% $CaCO_3$/0-2 wt% Talc/1-2 wt% Microballoons, X-0533
CH-6	97.5 wt% RDX/1.5 wt% Calcium stearate/0.5 wt% Polyisobutylene/0.5 wt% Graphite
Comp. A	91 wt% RDX/9 wt% Beeswax
Comp. A-2	91 wt% RDX/9 wt% Synthetic wax
Comp. A-3	9085, 91 wt% RDX/9 wt% Beeswax
Comp. A-4	97 wt% RDX/3 wt% Beeswax
Comp. A-5	98.5 wt% RDX/1.5 wt% Beeswax
Comp. B	64 wt% RDX/36 wt% TNT, Comp B, Hexolite, Hexotol
Comp. B-3	60 wt% RDX/40 wt% TNT
Comp. C-3	9080, 88 wt% RDX/12 wt% Wax
Comp. C-4	9081, 91 wt% RDX/2.1 wt% Polyisobutylene/1.6 wt% Motor oil/5.3 wt% Di(2-ethylhexyl) sebacate
Cyclotol 75/25	75 wt% RDX/25 wt% TNT

Waste Explosives Detonated at the TA-36 OD Unit (Continued)

Explosives	Other Names, Compositions, or Reference
Cyclotol 70/30	70 wt% RDX/30 wt% TNT
Detasheet C	63 wt% PETN/8 wt% NC/29 wt% Elastomeric binder
Detasheet D	75 wt% PETN/25 wt% Elastomeric binderNote: This material is usually red, but it is an explosive, not an inert material.
EDC-8	76.0 wt% PETN/24.0 wt% RTV Silicone
EDC-28	94 wt% RDX/6 wt% FPC 461
EDC-32	85 wt% HMX/15 wt% Viton A
EDC-37	91 wt% HMX/1 wt% Nitrocellulose/8 wt% K-10 Liquid
EDC-38	94.5 wt% HMX/3.5 wt% K-10 Liquid/2 wt% Polyurethane
HBX-1	40 wt% RDX/38 wt% TNT/17 wt% Al/4.5 wt% Wax/0.5 wt% $CaCl_2$
LX-04	85.5 wt% HMX/15.0 wt% Viton A
LX-07	90 wt% HMX/10 wt% Viton A
LX-10	95.0 wt% HMX/5.0 wt% Viton A
LX-14	95.5 wt% HMX/4.5 wt% Estane 5702-F1 (X-0282)
MDF	Mild Detonating Fuse
Nonel	RDX-Lined Metal Tubing
Octogen	94.5 wt% HMX/4.5 wt% Wax/1 wt% Graphite
Octol	75 wt% HMX/25 wt% TNT
PBX 9001	90 wt% RDX/8.5 wt% Polystyrene/1.5 wt% Dioctyl phthalate
PBX 9007	90 wt% RDX/9.1 wt% Polystyrene/0.5 wt% Dioctyl phthalate/0.4 wt% Resin
PBX 9010	90 wt% RDX/10 wt% Kel-F 3700 Elastomer
PBX 9011	90 wt% HMX/10 wt% Estane-5703 F-1
PBX 9205	92 wt% RDX/6 wt% Polystyrene/2 wt% Dioctyl phthalate
PBX 9206	92 wt% HMX/8 wt% Kel-F 3700 Elastomer
PBX 9404	94 wt% HMX/3 wt% NC/3 wt% Tris(b-chloroethyl) phosphateNote: PBX-9404 is unusually sensitive to certain types of impact, in particular, skidding.
PBX 9401	94.2 wt% RDX/3.6 wt% Polystyrene/2.2 wt% Trioctyl phosphate
PBX 9405	93.7 wt% HMX/3.15 wt% Nitrocelulose/3.15 wt% Tricloroethyl phosphate
PBX 9407	94 wt% RDX/6 wt% Exon-461
PBX 9501	95 wt% HMX/2.5 wt% Estane/2.5 wt% BDNPA or BDNPF, X-0242
PBX 9502	95 wt% TATB/5 wt% Kel-F 800, X-0290
PBX 9503	80 wt% TATB, superfine/15 wt% HMX/5 wt% Kel-F 800, X-0351
PBXN-5	See LX-10

Waste Explosives Detonated at the TA-36 OD Unit (Continued)

Explosives	Other Names, Compositions, or Reference
PBXN-9	92 wt% HMX, 2 wt% Hycar 4454 (Hytemp 4454), 6 wt% Dioctyl Adipate (DOA)
PBXN-110	88 wt% HMX/5.4 wt% Polybutadiene/5 wt% Isodecyl pelargonate
PBXW-113	See PBX N110
Primacord	Assorted PETN & RDX Loaded Commercial Detonating Fuse
Pentolite	50 wt% PETN/50 wt% TNT
Tritonal	80 wt% TNT/20 wt% Aluminum powder
X-0208	See XTX-8004
X-0233	5-40 wt% HMX; 40-95 wt% Tungsten, 0-10 wt% Polystyrene, 0-5 wt% Plasticizer
X-0242	See PBX 9501
X-0282	See LX-14
X-0290	See PBX 9502
X-0309	75% TNT, 19% Aluminum powder, 5% D-2 Wax, 1% Acetylene black (carbon)
X-0351	See PBX 9503
X-0407	69.8 wt% TATB/25.0 wt% PETN/0.2 wt% Dye/5 wt% Kel-F 800
X-0533	See Calcitol
X-0534	50 wt% TNT/16-24 wt% $CaCO_3$/25-33 wt% Talc/1-2 wt% Microballoons
XTX-8003	80 wt% PETN/20 wt% Sylgard 182
XTX-8004	80 wt% RDX/20 wt% Sylgard 182, Formerly X-0208
Black powder	Standard commercial and military grades only; 74 wt% Potassium nitrate/15.6 wt% Charcoal/10.4 wt% Sulfur
Benite	Black powder based mixture
Commercial sporting	Any commercially available smokeless gun propellant for sport use is approved.
HARP-1,-2	HARP propellants are Al/AP/HMX composites.
HELP-1,-2	HELP propellants are NC/NG/HMX composites.
Smokeless PowderSingle, Double, or Triple Base	Standard military grades.Military research explosives are specifically not included.
VTP 25540	HMX based High Energy Propellant
Liquid Gun Propellant LGP 1846	DX-11 SOP:15-11-4.20, “LGP 1846, TA-36-3”
3E-1 Detonator	3 E-1 SWP
Al-ANFO	Ammonium nitrate/Fuel oil/Aluminum powder
BDNPA	Bis(dinitropropyl) acetal
BDNPF	Bis(dinitropropyl) formal

Waste Explosives Detonated at the TA-36 OD Unit (Continued)

Explosives	Other Names, Compositions, or Reference
BTX	5,7-Dinitro-1-picrylbenzotriazole (transportation only)
DNPA	2,2-Dinitropropyl acrylate polymer
DNT	Dinitrotoluene
HBX-1	40 wt% RDX/38 wt% TNT/17 wt% Al/5 wt% Wax/0.5 wt% $CaCl_2$
Methane/Oxygen	Explosive mixtures of methane and oxygen gases
NC	Nitrocellulose
PYX	2,6-Bis(picrylamino)-3,5-dinitropyridine
STRATABLAST C	Storage and transportation only
TAGN	Triaminoguanadine nitrate
TAL-1005E	Storage and transportation only
TNS	Trinitrostilbene
TNT/NC	80 wt% TNT/20 wt% NC
TPM	Tripicryl malamine
DAAF	Diaminoazoxyfurazan (residuals only)
BATTZ	Bisaminotetrazolyltetrazine (residuals only)
TNAZ	Trinitroazetidine (residuals only)

Sources: DX-4: SOP 3, "General Safety," Attachment 1, HE Routinely Used at DX Division Firing Areas; DX personnel.

Note: Additional types of explosives may be developed and used and the wastes subsequently detonated at the OD unit.

SUPPLEMENT 2-2

Impulse Noise Measurements at Technical Area 36

Los Alamos

NATIONAL LABORATORY

To/MS: John McAfee, DX-4 (C925)
From/MS: Ernesto A. Vigil, ESH-5 (K494) EAV
Lloyd Wheat, ESH-5 (K494) LW
Phone/FAX: 5-9268/7-1945
Symbol: ESH-5:97-11653
Date: June 23, 1997

memorandum

Environment, Safety and Health Division
Industrial Hygiene and Safety Group (ESH-5)

SUBJECT: IMPULSE NOISE MEASUREMENT AT MINIE SITE AND MOE HILL

Impulse noise measurements were made at Minie site bunker (inside Building 8) and at Moe Hill during a destruct shot on 6/5/97. The HE being disposed of was 800 lbs. of XO533 with 9404 booster. The reading in Building 8 was 132 dB and the reading at Moe Hill approximately ¾ mile away was 139 dB. The measurements were made with a Gen Rad Type 1 meter , ESH-5 # 147 for the Moe Hill reading, and a Quest type 1 meter ESH-5 # 668 for the Building 8 measurement. Instrument settings were flat weighting ; impulse; and peak hold. Instruments were calibrated pre and post use.

The occupational exposure limit(OEL) for impulse/impact noise at the Laboratory is based on the threshhold limit values set by the American Conference of Governmental Industrial Hygienists (ACGIH). The maximum worker exposure (without hearing protection) to impact noise is 140 dB. The number of impulses or impacts permitted daily at 140 dB is 100. No exposures above 140 dB are permitted.

Even though the measured levels do not exceed the OEL, it is recommended that hearing protection be used during shots of this size or sizes approaching this magnitude to preclude any affect on those individuals that may be unknowingly sensitive to impulse noise.

Please call me at 5-9268 if you have any questions or desire further discussion.

EAV:ns

Cy: G. D. Vasilik, DX-4 (C925)
K. Firestone, DX-DO (P915)
IHFS Files, ESH-5 (K494)

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Los Alamos

NATIONAL LABORATORY

memorandum

Environment, Safety and Health Division
Industrial Hygiene and Safety Group (ESH-5)

To/MS: John McAfee, DX-4 (C925)
From/MS: E. A. Vigil, ESH-5 (K494)
L. D. Wheat, ESH-5 (K494)
Phone/FAX: 5-9268/7-1945
Symbol: ESH-5:97-11590
Date: June 2, 1997

SUBJECT: IMPULSE NOISE MEASUREMENT AT MOE HILL

An impulse noise measurement was made at Moe Hill during a destruct and demonstration shot at TA-36-8 (Minie) on April 24, 1997. The material destroyed was 250-300 lb of TNT and 9404 booster. The reading obtained was 114 dB with instrument settings on flat weighting and impulse. The measurement was made with a Gen Rad Type 1 meter, ESH-5 #170 with pre and post measurement calibration.
A light cloud cover was present during this event.

The occupational exposure limit(OEL) for impulse noise at the Laboratory is based on the threshhold limit values set by the American Conference of Governmental Industrial Hygienists (ACGIH) . The maximum worker exposure allowed (without hearing protection) to impulse noise is 140 dB. Exposures above 140 dB are not permitted.

Please call Ernie at 5-9268 or Lloyd at 7-4251 if you have any questions or desire further discussion.

EAV:ns

Cy: Gary Laabs, DX-4 (C925)
G. Vasilik, DX-4 (C925)
K. Firestone, DX-DO (P915)
V. Sandoval, DX-4 (P942)
IHFS Files, ESH-5(K494)

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Los Alamos

NATIONAL LABORATORY

memorandum

Environment, Safety and Health Division
Industrial Hygiene and Safety Group (ESH-5)

To/MS: John McAfee, DX-4 (C925)
From/MS: Ernesto A. Vigil, ESH-5 (K494)
Lloyd Wheat, ESH-5 (K494)
Phone/FAX: 5-9268/7-1945
Symbol: ESH-5:97-10867
Date: April 23, 1997

SUBJECT: IMPULSE NOISE MEASURMENT AT MINIE SITE AND MOE HILL

Impulse noise measurements were made at Minie site bunker (inside Building 8) and at Moe Hill during a destruct shot on 3APR97. The HE being disposed of was 500 lbs. of a combination of 9501, 9502 and 9404. The reading in Bldg 8 was 126 dB and the reading at Moe Hill approximately ¾ mile away was 135 dB. The measurement at Minie site was made with the IVIE sound level meter, Type I, ESH-5 #677. The measurement at Moe Hill was made with a Gen Rad Type 1 meter , ESH-5 # 170. Instrument settings were flat weighting; impulse; and peak hold. Instruments were calibrated pre and post use. There was cloud cover during this event.

The occupational exposure limit(OEL) for impulse/impact noise at the Laboratory is based on the threshhold limit values set by the American Conference of Governmental Industrial Hygienists (ACGIH). The maximum worker exposure (without hearing protection) to impact noise is 140 dB. The number of impulses or impacts permitted daily at 140 dB is 100. No exposures above 140 dB are permitted.

Even though the measured levels do not exceed the OEL, it is recommended that hearing protection be used during shots of this size or sizes approaching this magnitude to preclude any affect on those individuals that may be unknowingly sensitive to impulse noise.

Please call me at 5-9268 if you have any questions or desire further discussion.

EAV:ns

Cy: Gary Laabs, DX-45 (C925)
G. D. Vasilik, DX-4 (C925)
K. Firestone, DX-DO (P915)
IHFS Files, ESH-5 (K494)

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3.0 OTHER FEDERAL LAWS

A discussion of federal laws, as required by the New Mexico Administrative Code, Title 20, Chapter 4, Part 1, Subpart IX, 270.3 and 270.14(b)(20), revised January 1, 1997, is provided in Section 3.0 of the ALos Alamos National Laboratory General Part B Permit Application,≅ Revision 1.0 (LANL, 1998a).

4.0 CORRECTIVE ACTION FOR SOLID WASTE MANAGEMENT UNITS

This section describes selected solid waste management units (SWMU) that have been identified in Technical Area (TA) 36 at Los Alamos National Laboratory (LANL). Because this TA encompasses a large area and contains a large number of or widely distributed SWMUs, this section addresses only those SWMUs that may reasonably be expected to potentially impact the unit included in this Part B permit application. Information on the remaining SWMUs in this TA is contained in Revision 1.0 of LANL's "Solid Waste Management Units Report" (LANL, 1990), hereinafter referred to as the 1990 SWMU Report, and in the ARFI Work Plan for Operable Unit 1130" (LANL, 1993). The information in this section is being submitted in response to regulatory requirements in the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20 NMAC 4.1), Subpart IX, 270.14(d), revised January 1, 1997 [1-1-97].

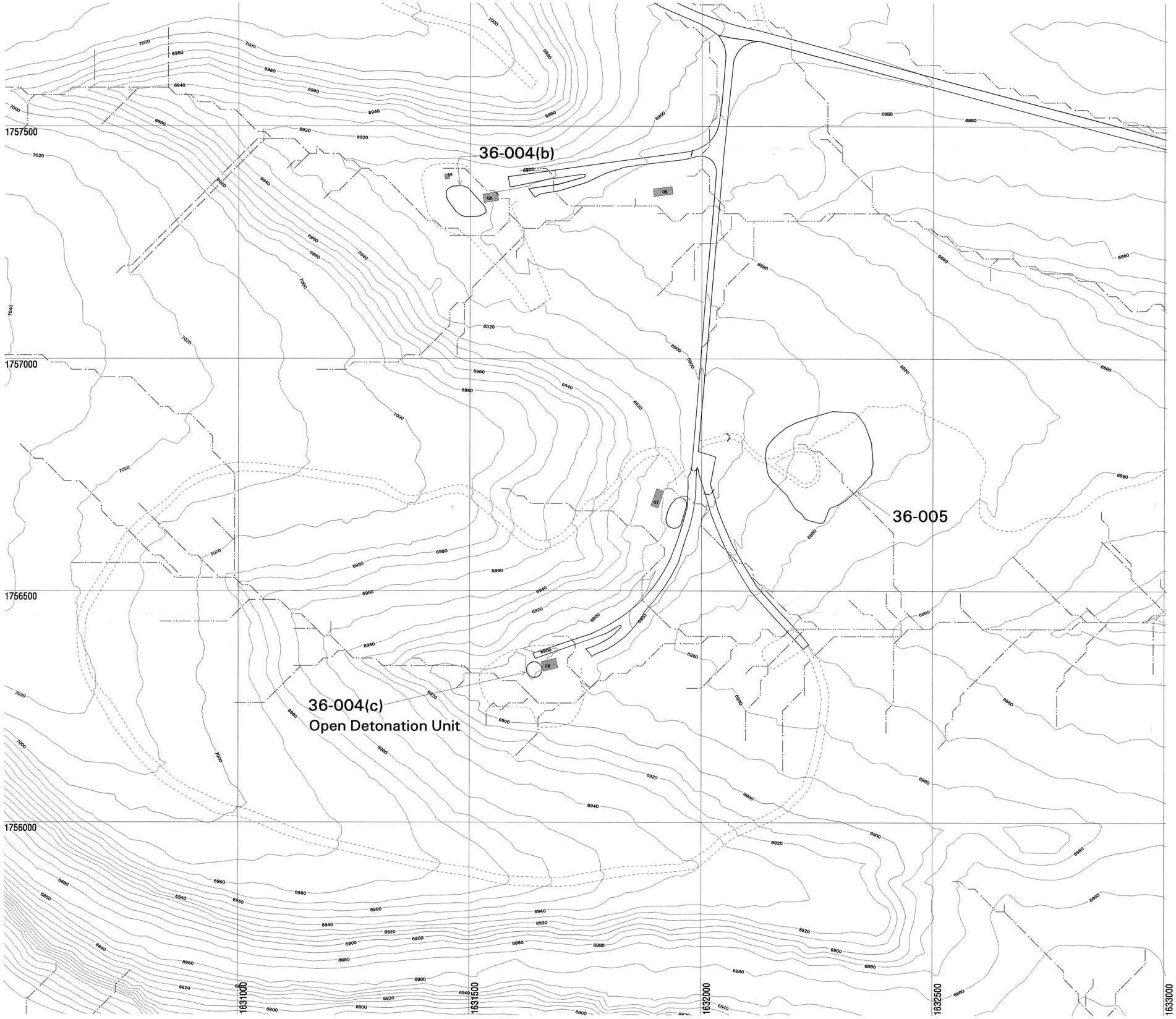
LANL uses the definition of a SWMU presented in "Module VIII: Special Conditions Pursuant to the 1984 Hazardous and Solid Waste Amendments to RCRA for Los Alamos National Laboratory, EPA I.D. NM0890010515" (U.S. Environmental Protection Agency [EPA], 1994), hereinafter referred to as Module VIII. This definition states that SWMUs are "any discernible unit at which solid wastes have been placed at any time, irrespective of whether the unit was intended for the management of solid or hazardous waste. Such units include any area at or around a facility at which solid wastes have been routinely and systematically released."

4.1 SWMU DESCRIPTIONS

Several types of SWMUs are present in TA-36. These SWMUs include those identified for corrective action in Module VIII, as modified following Class III permit modifications effective May 19, 1994 and December 23, 1998; and SWMUs that are active hazardous waste management units. Descriptions of the SWMUs identified for corrective action in Module VIII and those that are active units are presented below. These descriptions were compiled from the "RFI Work Plan for Operable Unit 1130" (LANL, 1993) and from the 1990 SWMU Report. Brief unit and waste descriptions are also provided in Table 4-1. Figure 4-1 shows the locations of the selected SWMUs at TA-36.

4.1.1 TA-36 SWMUs

SWMUs at TA-36 and in the vicinity of the TA-36 open detonation (OD) unit include active firing sites and a storage area.



LEGEND

- Contour, 100 ft
- Contour, 10 ft
- Drainage
- Road, Dirt
- Road, Paved
- Road/Trail
- Permanent Structure
- SWMU Outline
- SWMU (point location)

2351-B

Figure 4-1:
Solid Waste Management Units (SWMU) in the Vicinity of the Open Detonation Unit near Technical Area (TA) 36, Building 8

University of California
Los Alamos National Laboratory
Earth and Environmental Sciences Division

EES-5 GIS TEAM

Produced by: Marcia Jones
Date: September 01, 1999 GIS Plot ID: G108045

N

State Plane Coordinate System, New Mexico Central Zone.
1983 North American Datum

Grid provides NM State Plane coordinates in feet.
Grid interval, in feet: 500
Feet per inch on map = 100

SCALE 1:1200

0 30 60 90 120

METERS

0 100 200 300 400

FEET

Notice: The information on this map is provisional and the accuracy has not been confirmed. Feature locations are dependent on scale and symbology and should not be relied upon to establish legal claims. Basemap Sources: Boundary, structure, and utility data are from Los Alamos National Laboratory Engineering Division and Los Alamos County Utility and Engineering Departments. Contour data is from Los Alamos National Laboratory Environmental Restoration Program aerial survey, September 1991.

4.1.1.1 Firing Sites

Constructed in 1950, the TA-36-6 firing site is located at the headwaters of Fence Canyon. This site is comprised of a magazine building, a control bunker, and an impact area and has been used for extensive gun testing (LANL, 1993). Potential constituents at this site may include depleted uranium, various heavy metals, plastics, explosives, and various other chemicals. This active firing site is identified in the 1990 SWMU Report as SWMU No. 36-004(b).

The TA-36-8 firing site [SWMU No. 36-004(c)] was constructed in 1950 and is located approximately 800 feet south of TA-36-6. The TA-36-8 active firing site has been used for armor-piercing experiments involving the use of various metal penetrators (LANL, 1993). The site may also operate under the requirements of 20 NMAC 4.1, Subpart VI [1-1-97], for treatment by OD of explosives-contaminated waste, and is the unit for which this Part B permit application is being submitted. Potential constituents at the TA-36-8 firing site are the same as those described above for TA-36-6.

4.1.1.2 Storage Area

A surface storage area, known as the Boneyard, is located near TA-36-7. The Boneyard is an undeveloped area measuring approximately 500- by 300-feet that was used from the late 1970s until the late 1980s for storage of large items that had been used in explosives testing. Items stored at the Boneyard included metal drums, cans, cylinders, and scrap metals such as lead sheets, copper, uranium-contaminated steel, and iron. The Boneyard was extensively cleaned up in response to a 1986 field survey and is now used to store nonwaste items (LANL, 1993). It is identified in the 1990 SWMU Report and in Module VIII as SWMU No. 36-005.

4.2 RELEASES

Some of the SWMUs listed in Table 4-1 are known or are suspected to have released hazardous waste or hazardous constituents. Samples collected from the Boneyard [SWMU No. 36-005] indicate the presence of various metals (e.g., chromium, lead, silver, and copper) and radioactive isotopes (e.g., thorium-232, uranium isotopes, potassium-40, and cesium-137). Explosives residue and shrapnel from nearby firing sites at TA-36 are also present at the Boneyard (LANL, 1993).

4.2.1 Characterization of Releases

Potential releases from SWMUs, if any, are described in the 1990 SWMU Report and in the ARFI Work Plan for Operable Unit 1130" (LANL, 1993). The descriptions include the material released and the nature of the release. However, because of the nature of the releases, the exact volume

released is not known. The timing of the releases can only be estimated by the period of operation and sampling events.

4.2.2 Corrective Action

Pursuant to 20 NMAC 4.1, Subpart V, 264.101(a) [1-1-97], corrective action is required only for releases of hazardous waste or hazardous constituents. The SWMUs at TA-36 will be investigated and remediated, as necessary and with New Mexico Environment Department approval, during LANL Environmental Restoration Project corrective action activities. Corrective action will generally follow the Resource Conservation and Recovery Act Facility Investigation/Corrective Measures Study process.

5.0 CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Robert H. Day
Division Director for Dynamic Experimentation Division
Los Alamos National Laboratory
Operator

4 Oct 99.
Date Signed

Dennis J. Erickson
Division Director for Environment, Safety, and Health Division
Los Alamos National Laboratory
Operator

12 OCT 99
Date Signed

David A. Gurulé, P.E.
Area Manager, Los Alamos Area Office
U.S. Department of Energy
Albuquerque Operations
Owner/Operator

10/12/99
Date Signed

6.0 LIST OF REFERENCES

AEHA, see U.S. Army Environmental Hygiene Agency.

EPA, see U.S. Environmental Protection Agency.

LANL, see Los Alamos National Laboratory.

Larson, Beverly, and Don McClure, 1996 (draft), AFiring Site Impacts to Cultural Resources,≅ Cultural Resource Survey Report No. 131, Cultural Resource Team, Ecology Group, Los Alamos National Laboratory, Los Alamos, New Mexico.

Los Alamos National Laboratory (LANL), 1998a, ALos Alamos National Laboratory General Part B Permit Application,≅ Revision 1.0, Los Alamos National Laboratory, Los Alamos, New Mexico.

Los Alamos National Laboratory (LANL), 1998b, ALos Alamos National Laboratory General Part A Permit Application,≅ Revision 0.0, Los Alamos National Laboratory, Los Alamos, New Mexico.

Los Alamos National Laboratory (LANL), 1996, APart B Permit Application: Open Burning/Open Detonation Units at Technical Areas 14, 15, 36, and 39,≅ Los Alamos National Laboratory, Los Alamos, New Mexico.

Los Alamos National Laboratory (LANL), 1993, ARFI Work Plan for Operable Unit 1130,≅ LA-UR-93-1152, Los Alamos National Laboratory, Los Alamos, New Mexico.

Los Alamos National Laboratory (LANL), 1990, "Solid Waste Management Units Report," Revision 1.0, LAUR 90-3400, Los Alamos National Laboratory, Los Alamos, New Mexico.

New Mexico Environmental Improvement Board (NMEIB), 1997, "New Mexico Administrative Code," Title 20, Chapter 4, Part 1, NMEIB, Santa Fe, New Mexico.

U.S. Army Environmental Hygiene Agency (AEHA), 1987, "RCRA Part B Permit Writers' Guidance Manual for Department of Defense Open Burning/Open Detonation Units," U.S. Army Environmental Hygiene Agency, Aberdeen Proving Ground, Maryland.

U.S. Environmental Protection Agency (EPA), 1998, 1994, "Module VIII: Special Conditions Pursuant to the 1984 Hazardous and Solid Waste Amendments to RCRA for Los Alamos National Laboratory, EPA I.D. NM0890010515," effective date May 19, 1994, and December 23, 1998, U.S. Environmental Protection Agency, Region 6, Hazardous Waste Management Division, Dallas, Texas.

ATTACHMENT A

FACILITY DESCRIPTION

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF ABBREVIATIONS/ACRONYMS

LANL	Los Alamos National Laboratory
20 NMAC 4.1	New Mexico Administrative Code, Title 20, Chapter 4, Part 1
OD	open detonation
TA	technical area

ATTACHMENT A
FACILITY DESCRIPTION

The information provided in this attachment is submitted in accordance with the applicable requirements of the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20 NMAC 4.1), revised January 1, 1997 [1-1-97]. The following subject areas are addressed in this attachment:

- A general description of Technical Area (TA) 36 at Los Alamos National Laboratory (LANL) [20 NMAC 4.1, Subpart IX, 270.14(b)(1)];
- Site-specific traffic patterns, volume, and control [20 NMAC 4.1, Subpart IX, 270.14(b)(10)];
- Site-specific location information for compliance with the seismic standard and floodplain requirements [20 NMAC 4.1, Subpart IX, 270.14(b)(11), and 20 NMAC 4.1, Subpart V, 264.18(a) and (b)];
- Site-specific topographic map requirements [20 NMAC 4.1, Subpart IX, 270.14(b)(19)];
- Site-specific groundwater monitoring and protection information [20 NMAC 4.1, Subpart IX, 270.14(c), and 20 NMAC 4.1, Subpart V, 264.90(a)].

A LANL-wide facility description addressing additional regulatory requirements is provided in Appendix A of the ALos Alamos National Laboratory General Part B Permit Application,≅ Revision 1.0 (LANL, 1998a), hereinafter referred to as the LANL General Part B.

A.1 TA-36 GENERAL DESCRIPTION [20 NMAC 4.1, Subpart IX, 270.14(b)(1)]

TA-36 is located in the east-central portion of LANL (Figure A-1) and is spread over several mesa tops between a branch of Pajarito Canyon to the north and Water Canyon to the south. Mesa-top elevations at TA-36 range from approximately 6,380 to 7,120 feet above mean sea level. TA-36 contains an open detonation (OD) unit, several firing sites, and supporting offices where research is conducted with various types of explosives (LANL, 1993).

The OD unit near TA-36-8 is located in the southern portion of TA-36. The unit consists of an irregularly shaped area near TA-36-8, as shown on Figure A-2. Solid and liquid hazardous explosive waste may be treated (i.e., open detonated) at the unit. Nontreatment-related experimental test detonations (i.e., shots) are also currently performed at this location.

A.2 TRAFFIC PATTERNS [20 NMAC 4.1, Subpart IX, 270.14(b)(10)]

General traffic pattern information, traffic volumes, and traffic control signals for the LANL-wide facility are provided in Appendix A of the LANL General Part B (LANL, 1998a).

A.2.1 Routes of Travel

The primary traffic routes used to transport hazardous waste to the OD unit at TA-36 include West Jemez Road (State Road 501), Anchor Ranch Road, R Site Road, and Potrillo Drive (Figures A-3 and A-4).

A.2.2 Traffic Volumes

Due to the nature of operations at TA-36 and because the TA is in a secured area, traffic volume in the area of the OD unit at TA-36 is kept to an absolute minimum to conduct safe treatment operations (typically between 2 and 5 vehicles per treatment). Vehicle types are generally cars, light- and medium-duty trucks and vans, and sometimes forklifts and cranes. During routine operations, vehicles are usually parked in the parking area east of TA-36-8 and/or adjacent to TA-36-7; occasionally, a truck or van may drive on the gravel road adjacent to the OD unit. During treatment operations, there are no vehicles at the site.

A.2.3 Traffic Control Signals

Traffic control signals within TA-36 include stop signs, posted speed limits, and other traffic and pedestrian control signs. The locations of existing signs near the OD unit at TA-36 are shown on Figure A-4.

A.2.4 Road Surfacing and Load-Bearing Capacity

Roads within TA-36 are generally two-lane roads with asphaltic concrete surfaces. Load-bearing capacity for these roads is 32,000 pounds per axle. These roads are typically constructed with a 6-inch-thick base overlain with a 3-inch-thick asphaltic concrete surface. These roads were designed and constructed to meet the American Association of State Highway and Transportation Officials specification HS-20.

A.3 LOCATION INFORMATION [20 NMAC 4.1, Subpart IX, 270.14(b)(11)]

A.3.1 Seismic Standard [20 NMAC 4.1, Subpart IX, 270.14(b)(11)(i and ii) and 20 NMAC 4.1, Subpart V, 264.18(a)]

The hazardous waste management unit at TA-36 is exempt from the seismic standards in 20 NMAC 4.1, Subpart IX, 270.14(b)(11), and 20 NMAC 4.1, Subpart V, 264.18(a) [1-1-97], because this unit

existed prior to January 25, 1985, when the State of New Mexico received hazardous waste authorization. Consistent with the criteria provided in 20 NMAC 4.1, Subpart IX, 270.14(b)(11)(i), and 20 NMAC 4.1, Subpart V, 264.18(a) [1-1-97], the waste management unit at TA-36 existed prior to the effective date of regulations; thus, the seismic standards are not applicable.

A.3.2 Floodplain Standard [20 NMAC 4.1, Subpart IX, 270.14(b)(11)(iii through v) and 270.14(b)(19)(ii); 20 NMAC 4.1, Subpart V, 264.18(b)]

The unit at TA-36 is located on a mesa top. In accordance with 20 NMAC 4.1, Subpart IX, 270.14(b)(11)(iii through v) [1-1-97], the hazardous waste unit at TA-36 is not located within the 100-year floodplain boundary.

LANL has mapped all 100-year floodplain boundaries within the LANL complex, as required in "Module VIII: Special Conditions Pursuant to the 1984 Hazardous and Solid Waste Amendments to RCRA for Los Alamos National Laboratory, EPA I.D. NM0890010515" (EPA, 1994). A report was published documenting the floodplain mapping procedures (McLin, 1992). This report, which shows that the mesa top is not within the 100-year floodplain, is included as Supplement 5 of the LANL General Part B (LANL, 1998a).

A.4 TOPOGRAPHIC MAPS [20 NMAC 4.1, Subpart IX, 270.14(b)(19)]

Topographic maps and figures are provided herein or referenced to meet the requirements of 20 NMAC 4.1, Subpart IX, 270.14(b)(19) [1-1-97]. The maps clearly show the map scale, the date of preparation, and a north arrow. The maps and figures used to fulfill these regulatory requirements include the following:

- A LANL-wide 100-year floodplain map is provided on page 36 of the report included as Supplement 5 of the LANL General Part B (LANL, 1998a).
- A map showing surface waters, including intermittent streams, near TA-36 is included as Figure A-2.
- Surrounding land uses (e.g., residential, recreational) are depicted on Figure A-1.
- Wind roses for TA-49, the location of the closest wind observation tower to TA-36 at LANL, are shown on Figures A-5 and A-6.
- A map showing the legal boundaries of LANL (including TA-36) is provided as Map 1 in the “Los Alamos National Laboratory General Part A Permit Application” (LANL, 1998b), hereinafter referred to as the LANL General Part A.

- ∃ The access control feature nearest the TA-36 OD unit (i.e., the entry gate) is shown on Figure A-7.

- ∃ A map showing supply wells, monitoring wells, test wells, springs, and surface-water sampling stations near TA-36 is included as Figure A-2.

- ∃ The locations of buildings and structures, the hazardous waste management unit, and the terrain for a distance of at least 1,000 feet beyond the OD unit at TA-36 are shown on Figure A-2.

- ∃ A map showing National Pollutant Discharge Elimination System discharge structure locations is included in the LANL General Part A (LANL, 1998b).

- ∃ Storm, sanitary, and process sewer systems at LANL are shown on Map A-1 of the LANL General Part B (LANL, 1998a).

- ∃ Drainage control features are shown on Figure A-8.

- ∃ Natural surface drainages are shown on the topographic map included herein as Figure A-2.

- ∃ Fire stations serving LANL and the County of Los Alamos are shown on Figure E-2 of Appendix E in the LANL General Part B (LANL, 1998a).

- ∃ The equipment cleanup area for LANL is located at TA-50-1. The location of TA-50-1 is shown on a map in the LANL General Part A (LANL, 1998b).

- X A map showing all existing and proposed wells and holes within an approximate three-mile radius of TA-36 is included as Figure A-9. To ensure greater legibility, a map showing the locations of pertinent wells (i.e., alluvial and regional wells proposed in LANL's "Hydrogeologic Workplan" [LANL, 1998c], environmental surveillance groundwater monitoring wells, and water supply wells) within an approximate three-mile radius of TA-36 is included as Figure A-10.

Contour lines on all topographic maps are in intervals sufficient to detail natural drainage at LANL and in the vicinity of the waste management unit. As provided in 20 NMAC 4.1, Subpart IX, 270.14(b)(19) [1-1-97], LANL has submitted the maps to the New Mexico Environment Department at these scales and contour intervals due to the size of the waste management unit, the extent of the LANL facility, and the topographic relief in the area.

A.5 GROUNDWATER MONITORING [20 NMAC 4.1, Subpart IX, 270.14(c) and 20 NMAC 4.1, Subpart V, 264.90(a)]

Groundwater monitoring information is provided in Appendix A of the LANL General Part B (LANL, 1998a).

A.6 OTHER PERMIT ACTIVITIES

Other types of Resource Conservation and Recovery Act permits include, but are not limited to, the following;

- Permits by Rule
- Emergency Permits
- Hazardous Waste Incinerator Permits
- Permits for Land Treatment Demonstrations Using Field Test or Laboratory Analyses
- Interim Permits for Underground Injection Control Program Wells
- Research, Development, and Demonstration Permits
- Permits for Boilers and Industrial Furnaces Burning Hazardous Waste.

Currently, none of these permit types are relevant for operations at TA-36.

A.7 REFERENCES

EPA, see U.S. Environmental Protection Agency.

LANL, see Los Alamos National Laboratory.

Los Alamos National Laboratory (LANL), 1998a, "Los Alamos National Laboratory General Part B Permit Application," Revision 1.0, Los Alamos National Laboratory, Los Alamos, New Mexico.

Los Alamos National Laboratory (LANL), 1998b, "Los Alamos National Laboratory General Part A Permit Application," Revision 0.0, Los Alamos National Laboratory, Los Alamos, New Mexico.

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Los Alamos National Laboratory (LANL), 1993, ARFI Work Plan for Operable Unit 1130,≅ LA-UR-93-1152, Los Alamos National Laboratory, Los Alamos, New Mexico.

McLin, S. G., 1992, "Determination of 100-Year Floodplain Elevations at Los Alamos National Laboratory," LA-12195-MS, Los Alamos National Laboratory, Los Alamos, New Mexico.

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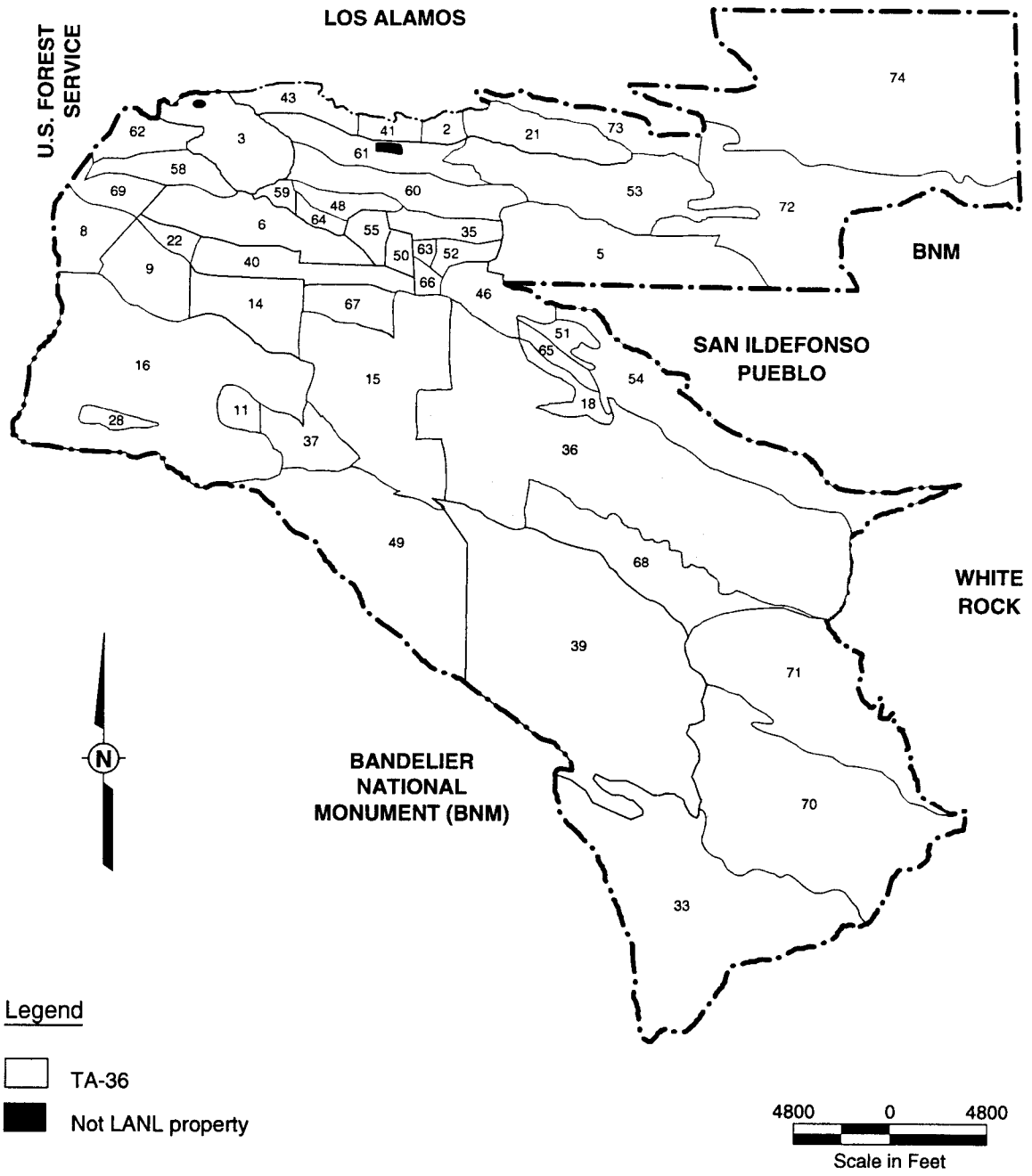
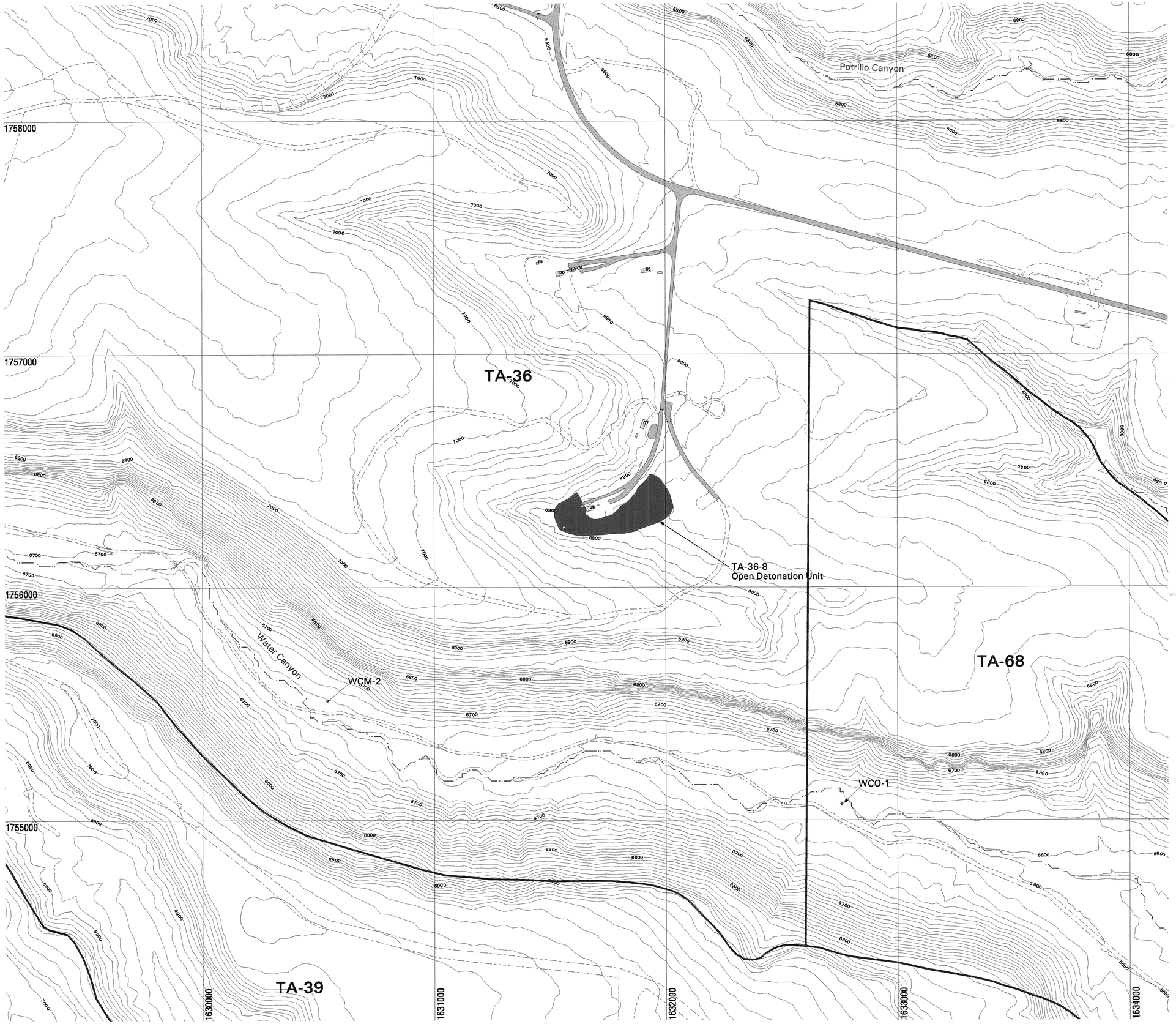


Figure A-1
Location Map of Technical Area (TA) 36 at Los Alamos National Laboratory (LANL)



LEGEND

- Boundary, TA
- Contour, 10 foot
- Contour, 100 foot
- Fence, Industrial
- Fence, Security
- Road, Paved
- Road, Dirt
- Road/Trail
- Stream, Intermittent
- Stream, Perennial
- Structure
- Regulated Unit

PERCHED ALLUVIAL MONITORING WELLS
(Old wells are pre-1990, new wells installed since 1990 according to EPA guidelines)

- New Dry Well
- Old Dry Well
- New Saturated Well
- Old Saturated Well

MAIN AQUIFER WELLS

- Water Supply Well
- Test Well

OTHER

- Abandoned/Plugged Well
- LAOR Well
- Other Monitoring Well

- Surface Water Sampling Station
- Spring

Figure A-2.
Contour Map Showing the Location of the Hazardous Waste Unit at Technical Area (TA) 36

2351-A

University of California
Los Alamos National Laboratory
Earth and Environmental Sciences Division

EES-5 GIS TEAM

Produced by: Marcia Jones
Date: September 01, 1999 GIS Plot ID: G108046

N

State Plane Coordinate System, New Mexico Central Zone,
1983 North American Datum

Grid provides NM State Plane coordinates in feet.
Grid interval, in feet: 1000
Feet per inch on map = 200

SCALE 1:2400

0 81 122 183 244

METERS

0 200 400 600 800

FEET

Notice: The information on this map is provisional and the accuracy has not been confirmed. Feature locations are dependent on scale and symbology and should not be relied upon to establish legal claims. Basemap Sources: Boundary, structure, and utility data are from Los Alamos National Laboratory Engineering Division and Los Alamos County Utility and Engineering Departments. Contour data is from Los Alamos National Laboratory Environmental Restoration Program aerial survey, September 1991.

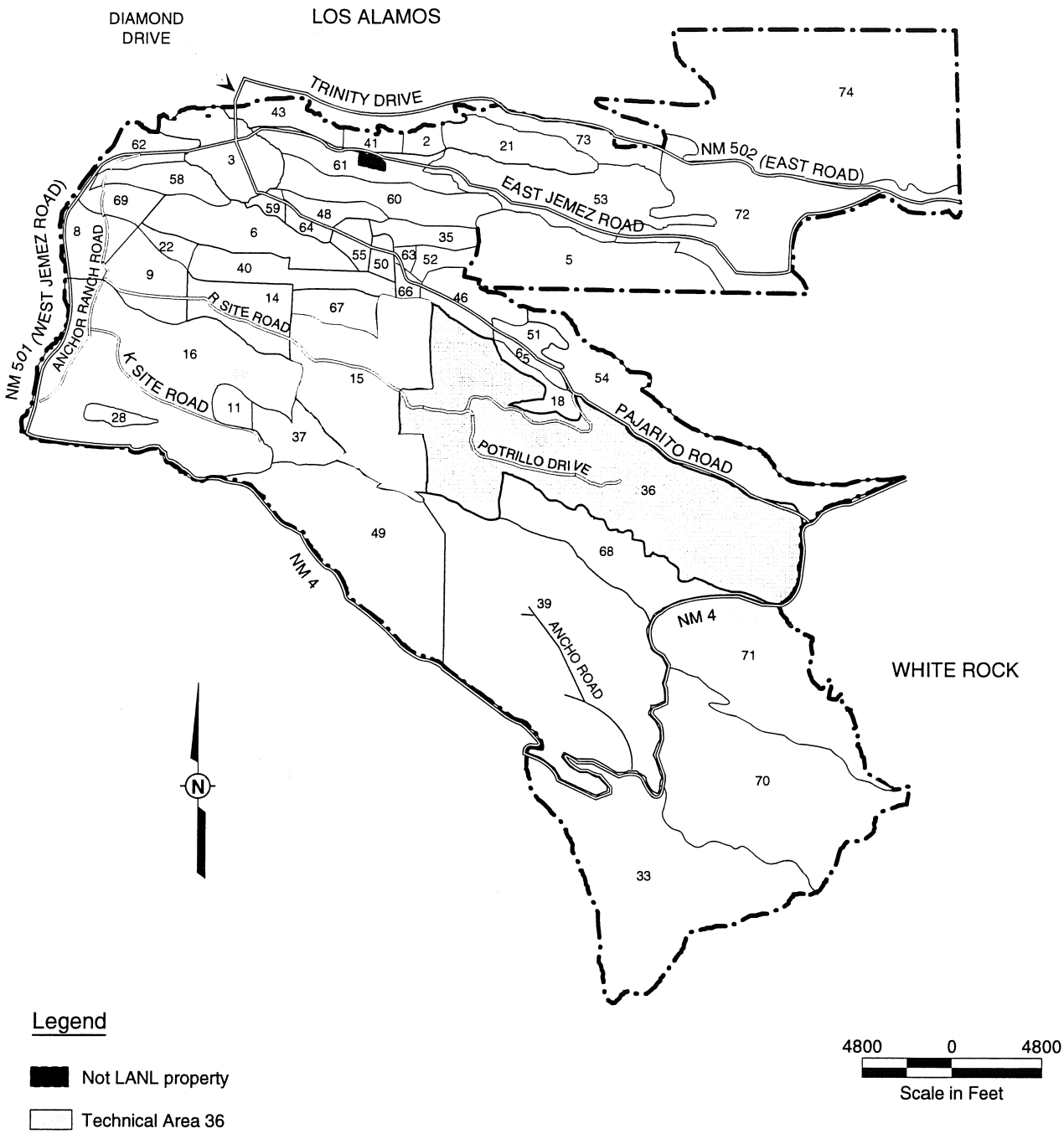


Figure A-3
Major Roads at Los Alamos National Laboratory (LANL)

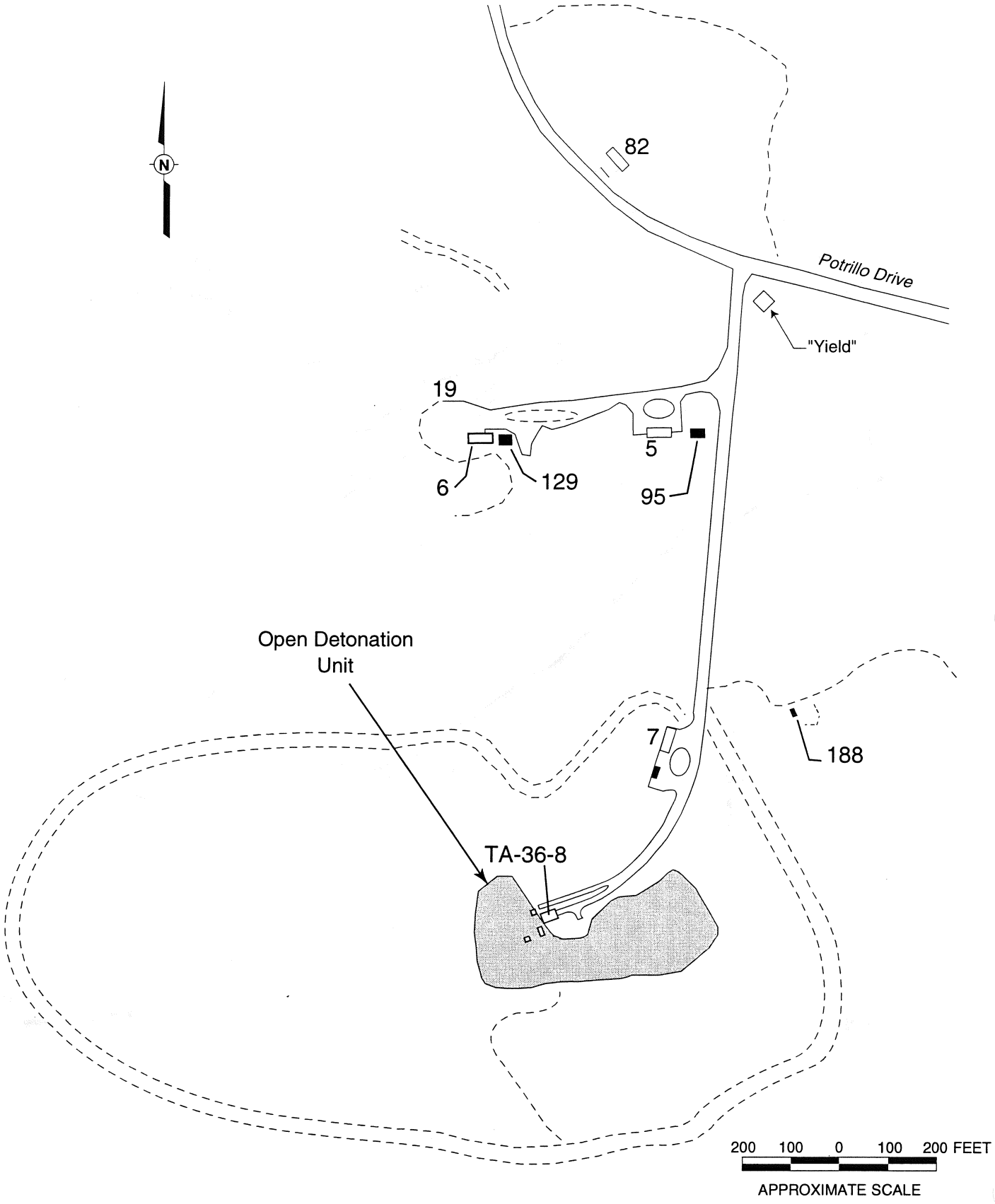
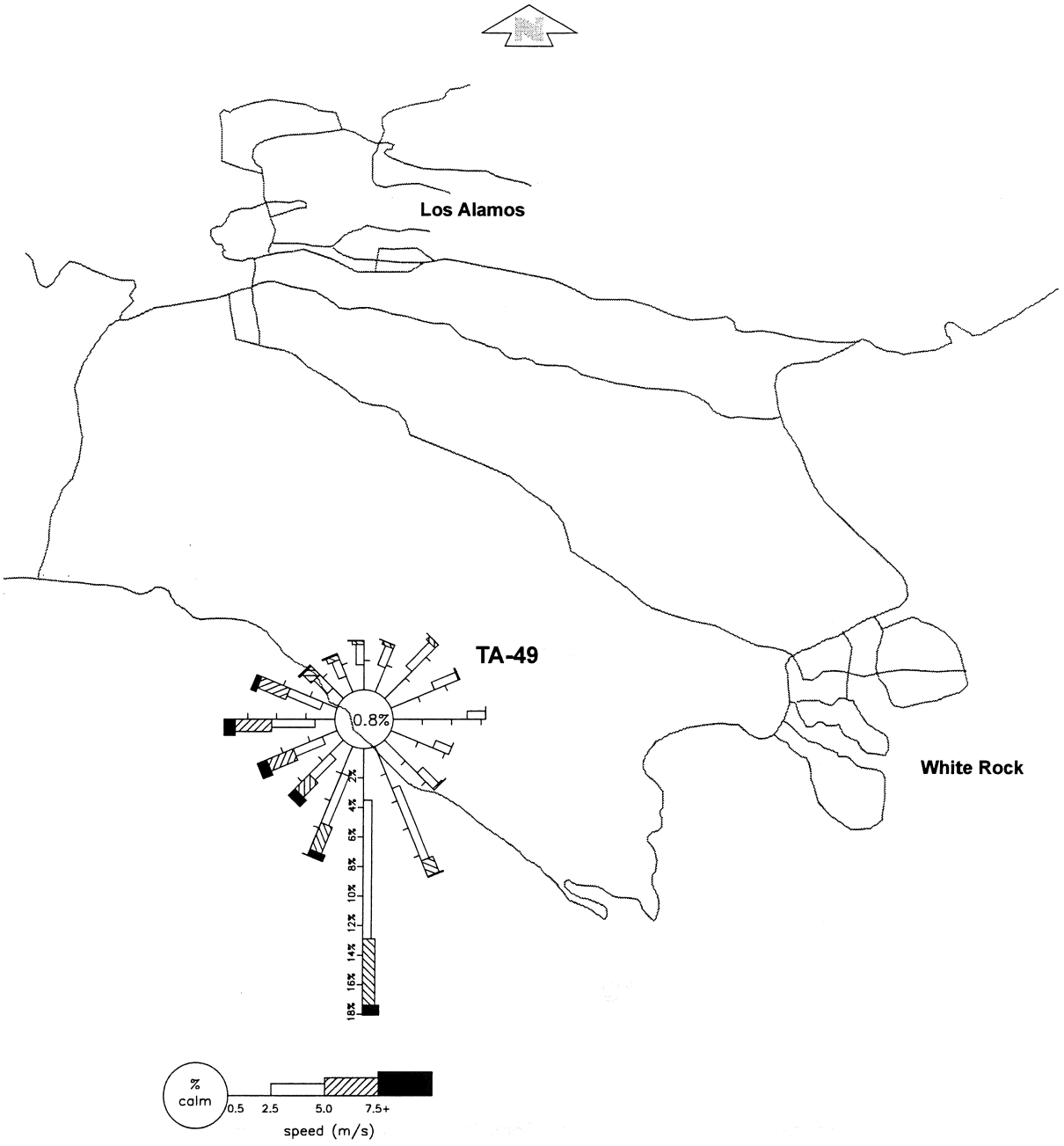
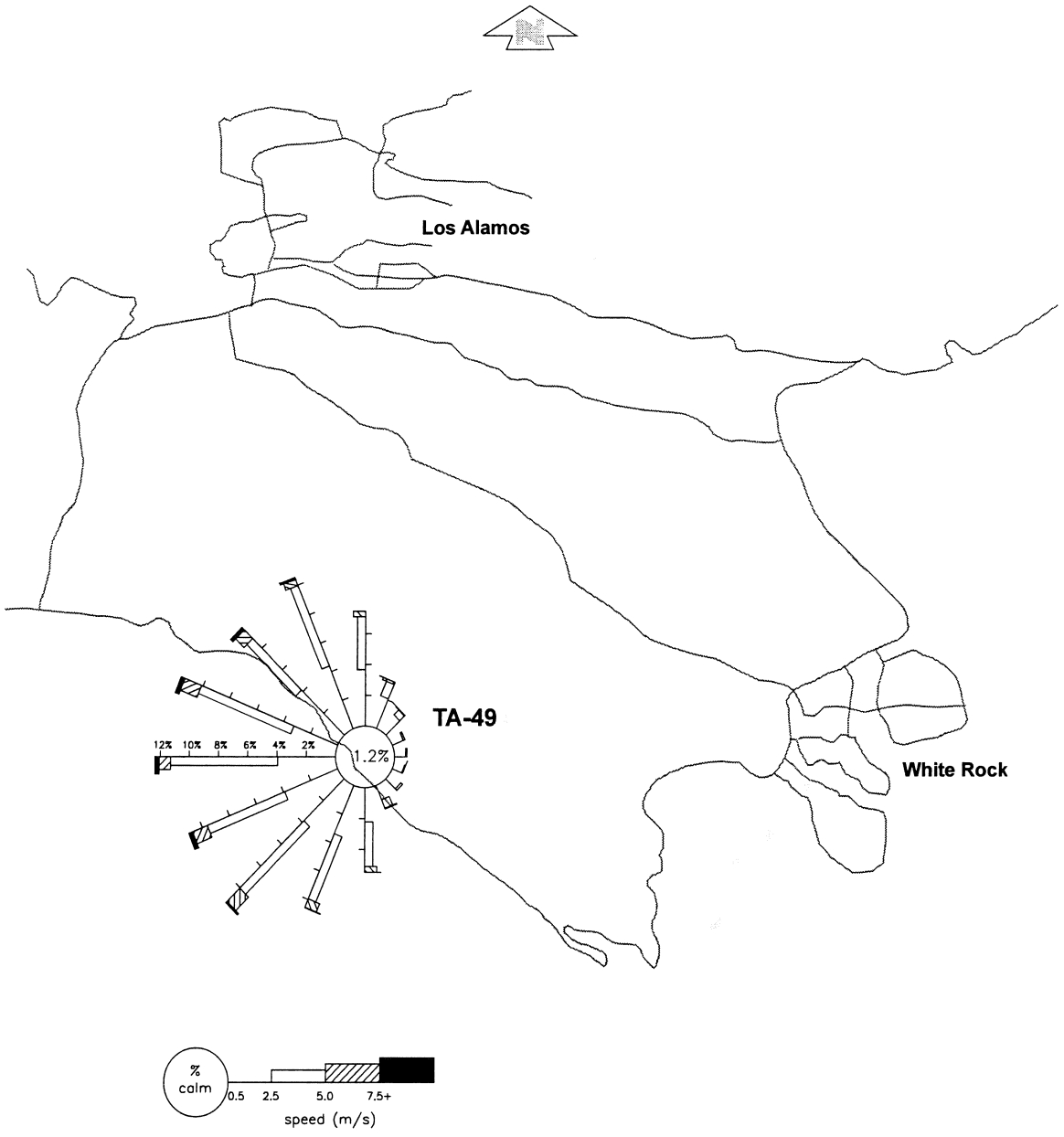


Figure A-4
Location Map of Access Roads and Traffic Control Signs in the
Vicinity of the Open Detonation Unit near Technical Area (TA) 36, Building 8



Modified from: "Environmental Surveillance and Compliance at Los Alamos During 1996," 1997, LA-13343-ENV, Los Alamos National Laboratory, Los Alamos, New Mexico.

Figure A-5
Annual Wind Roses for Technical Area (TA) 49 at Los Alamos National Laboratory (LANL)--Day



Modified from: "Environmental Surveillance and Compliance at Los Alamos During 1996," 1997, LA-13343-ENV, Los Alamos National Laboratory, Los Alamos, New Mexico.

Figure A-6
Annual Wind Roses for Technical Area (TA) 49 at Los Alamos National Laboratory (LANL)--Night

774830/TA-36 A17

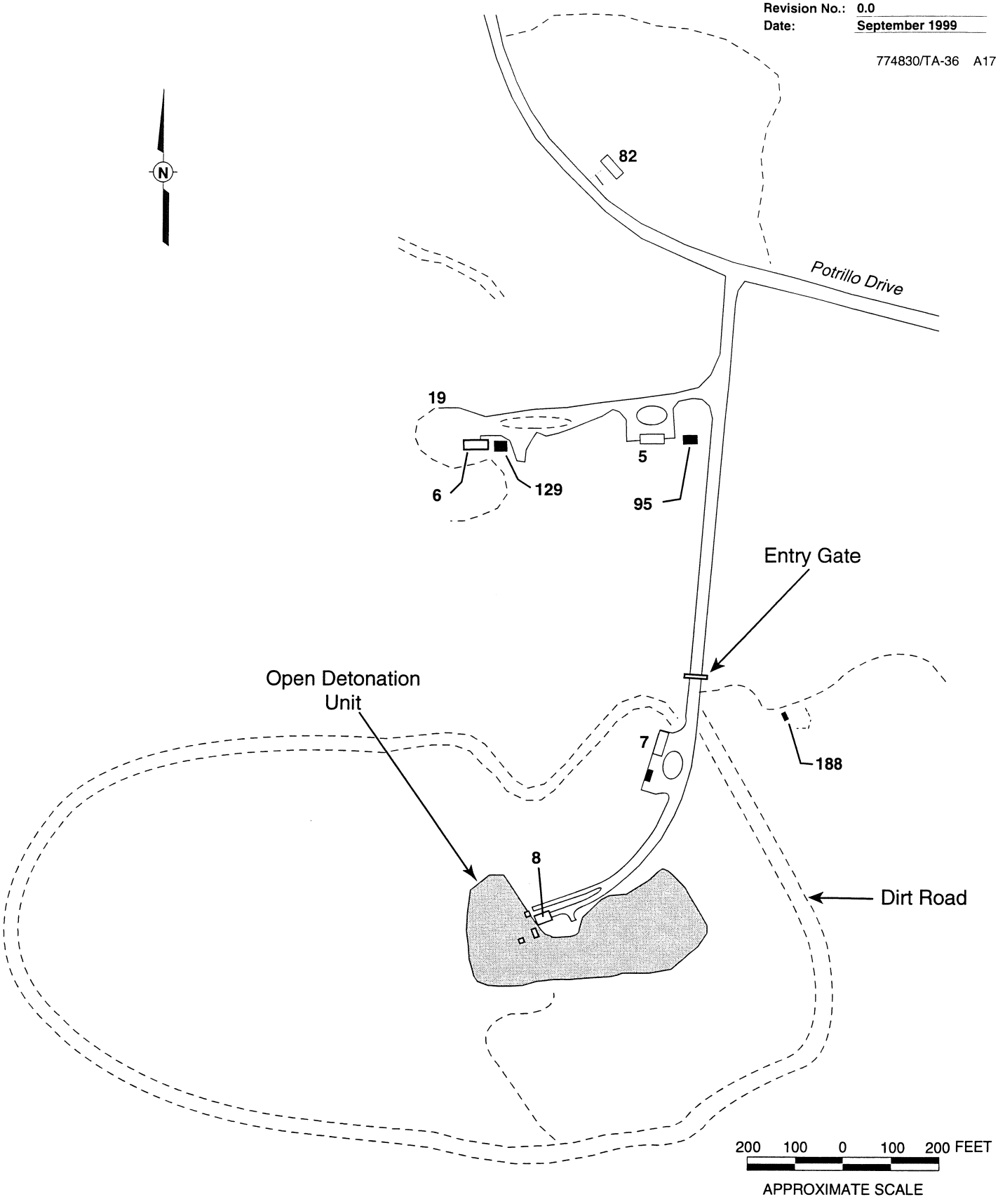
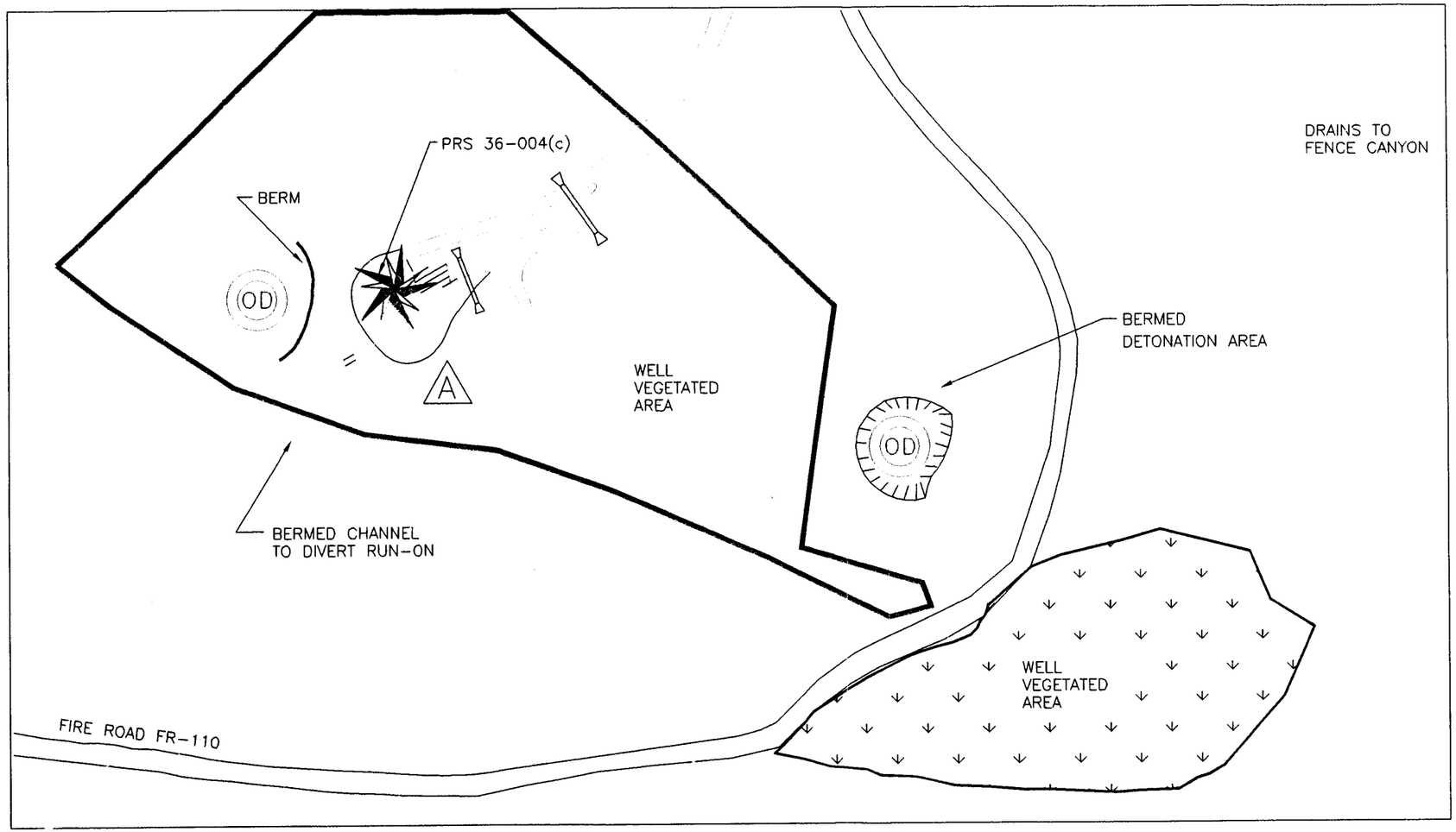


Figure A-7
Location Map Showing Entry Gate in the Vicinity of the Open Detonation Unit
near Technical Area (TA) 36, Building 8

TA-36 POINT 8



NOTES:

1. DRAINAGE BOUNDARY DENOTES DRAINAGE AREA ASSOCIATED WITH INDUSTRIAL ACTIVITY.
2. NATURAL DRAINAGE MAY OCCUR BEYOND INDICATED DRAINAGE BOUNDARY.
3. CONTOURS 10-FT. INTERVALS
4. SANDY SOIL, EST. C=0.10.
5. INSPECT AREA AFTER CONTROLLED BURN; INSTALL ROCK CHECK DAMS OR OTHER CONTROLS IN CHANNELS AS REQUIRED.

AREA OF DESIGNATED DRAINAGE BOUNDARY	
A	220,000 ± SQ. FT.

SYMBOLS LEGEND	
	ACTIVE FIRING SITE
	CULVERT
	DIRECTION OF STORM WATER FLOW
	DIRT ROAD
	DRAINAGE BOUNDARY
	EXISTING BUILDING
	PAVED ROAD
(OD)	RCRA OPEN DETONATION (OD) SITE
	STORM WATER DISCHARGE POINT

N

NOT TO SCALE

Figure A-8

Drainage Control Features near the Open Detonation Unit at Technical Area (TA) 36, Building 8

NO.	DATE	CLASS REV.	REVISIONS	DWN	DES	CHKD	SUB	APP

MERRICK Engineers & Architects
195 East Road / Los Alamos, NM / 87544 / USA
505/662-0606 / Fax 505/662-3851

STORM WATER POLLUTION PREVENTION PLAN

DX FIRING SITES
TA-36 POINT 8

DRAWN	D. MAYS
DESIGN	D. MAYS
CHECKED	S. VEENIS
DATE	11/3/97

SUBMITTED | APPROVED FOR RELEASE

Los Alamos — Los Alamos National Laboratory, Los Alamos, New Mexico 87545

SHEET C7 — 7 OF 15

CLASSIFICATION | REVIEWER | DATE

PROJECT ID	DRAWING NO.	REV.
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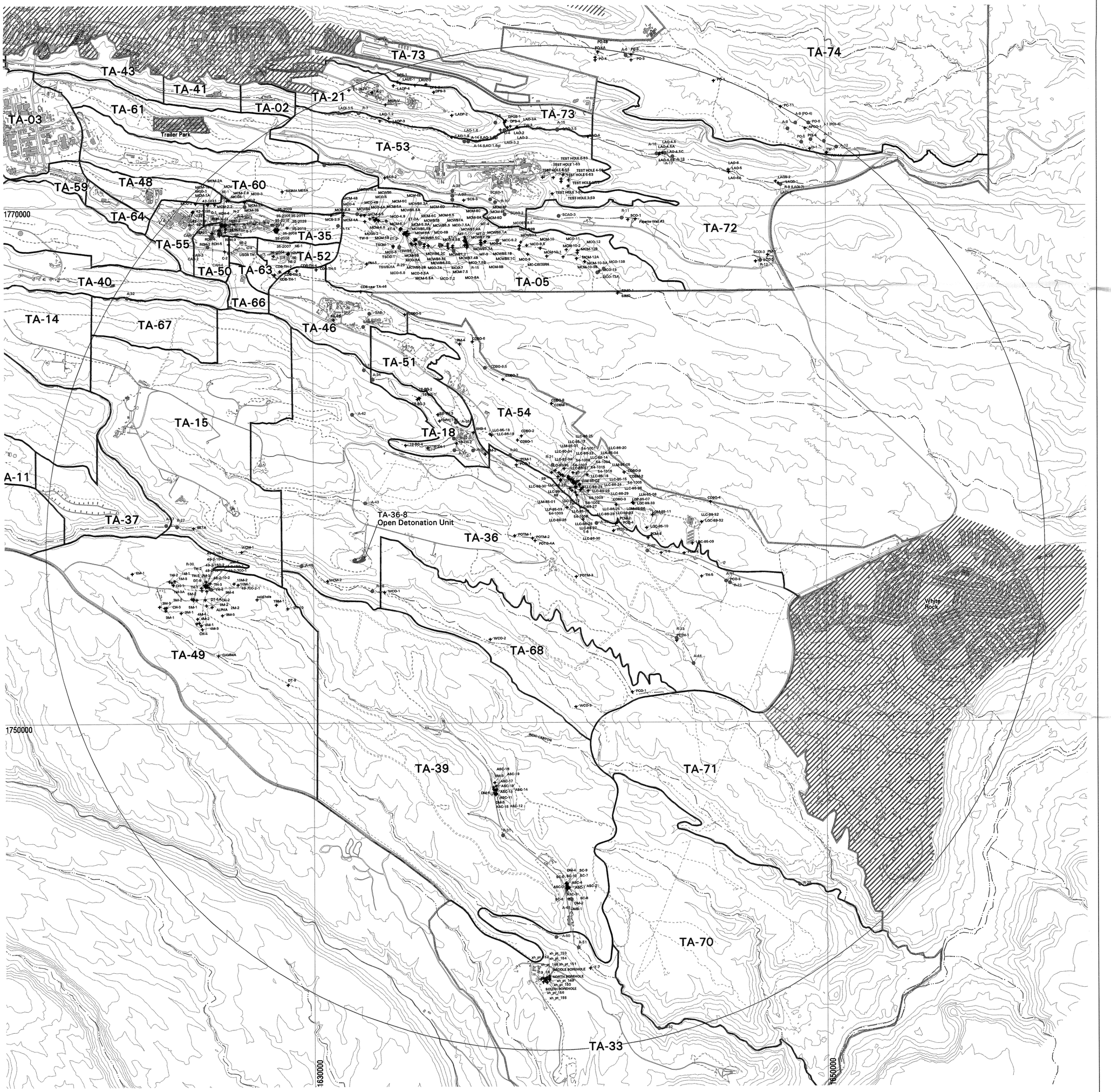

LEGEND

- Boundary, Los Alamos National Laboratory
- Boundary, Technical Area (TA)
- Contours, 100 foot
- Roads, Dirt
- Roads, Paved
- Road/Trail
- Stream, Intermittent
- Stream, Perennial
- Building
- Open Detonation Unit
- Residential Areas
- Existing Wells and Holes
- Proposed Wells and Holes

2351-C

Figure A-9:
All Existing and Proposed Wells and Holes Within an Approximate Three-Mile Radius of Technical Area (TA) 36

University of California
Los Alamos National Laboratory
Earth and Environmental Sciences Division

EES-5 GIS TEAM

Produced by: Marcia Jones
Date: September 01, 1999 GIS Plot ID: G108047

State Plane Coordinate System, New Mexico Central Zone.
1983 North American Datum

Grid provides NM State Plane coordinates in feet.
Grid interval, in feet: 20000

0 457 914 1371 1828
METERS
0 1500 3000 4500 6000
FEET

LEGEND

- Boundary, Los Alamos National Laboratory
- Boundary, Technical Area (TA)
- Contours, 100 foot
- Roads, Dirt
- Roads, Paved
- Road/Trail
- Stream, Intermittent
- Stream, Perennial
- Building
- Open Detonation Unit
- Residential Areas
- Existing Wells and Holes
- Proposed Wells and Holes

TA-03
TA-43
TA-41
TA-61
TA-21
TA-02
TA-73
TA-74
TA-53
TA-59
TA-48
TA-60
TA-64
TA-35
TA-55
TA-52
TA-50
TA-63
TA-72
TA-05
TA-40
TA-66
TA-14
TA-67
TA-46
TA-51
TA-54
TA-15
TA-18
TA-11
TA-37
TA-36-8
Open Detonation Unit
TA-36
TA-49
TA-68
TA-39
TA-71
TA-70
TA-33
Trailer Park
White Rock
1770000
1750000
1630000
1650000

2351-E

Figure A-10:
Pertinent Existing and Proposed Wells and Holes Within an Approximate Three-Mile Radius of Technical Area (TA) 36

University of California
Los Alamos National Laboratory
Earth and Environmental Sciences Division

EES-5 GIS TEAM

Produced by: Marcia Jones
Date: September 01, 1999 GIS Plot ID: G108048

State Plane Coordinate System, New Mexico Central Zone.
1983 North American Datum

Grid provides NM State Plane coordinates in feet.
Grid interval, in feet: 20000
Feet per inch on map = 1500

SCALE 1:18000

0 457 914 1371 1828 METERS

0 1500 3000 4500 6000 FEET

ATTACHMENT B

WASTE ANALYSIS PLAN

ATTACHMENT B
WASTE ANALYSIS PLAN

In accordance with the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20 NMAC 4.1), Subpart IX, 270.14(b)(2); 20 NMAC 4.1, Subpart V, 264.13, "General Waste Analysis;≅ and 20 NMAC 4.1, Subpart VIII, 268.7, "Waste Analysis and Record-Keeping," revised January 1, 1997, waste analysis requirements for hazardous wastes managed at Technical Area 36 are addressed in Appendix B of the ALos Alamos National Laboratory General Part B Permit Application,≅ Revision 1.0. A copy of Appendix B will be maintained at the Dynamic Experimentation Facility Management Office. Personnel from the Hazardous and Solid Waste Group will be primarily responsible for updating the plan.

ATTACHMENT C

INSPECTION PLAN

ATTACHMENT C
INSPECTION PLAN

In accordance with the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20 NMAC 4.1), Subpart IX, 270.14(b)(5), and 20 NMAC 4.1, Subpart V, 264.15, "General Inspection Requirements," revised January 1, 1997, inspection requirements for the hazardous waste management unit at Technical Area 36 are addressed in Appendix C of the ALos Alamos National Laboratory General Part B Permit Application,≅ Revision 1.0.

ATTACHMENT D

PERSONNEL TRAINING PLAN

ATTACHMENT D

PERSONNEL TRAINING PLAN

In accordance with the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20 NMAC 4.1), Subpart IX, 270.14(b)(12), and 20 NMAC 4.1, Subpart V, 264.16, "Personnel Training," revised January 1, 1997, training requirements for treatment, storage, and disposal facility workers who work at the Technical Area 36 open detonation unit are addressed in Appendix D of the ALos Alamos National Laboratory General Part B Permit Application," Revision 1.0.

ATTACHMENT E

CONTINGENCY PLAN

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LIST OF ABBREVIATIONS/ACRONYMS

DX	Dynamic Experimentation
20 NMAC 4.1	New Mexico Administrative Code, Title 20, Chapter 4, Part 1
OD	open detonation
TA	technical area

ATTACHMENT E

CONTINGENCY PLAN

In accordance with the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20 NMAC 4.1), Subpart V, Part 264, Subpart D, "Contingency Plan and Emergency Procedures," and 20 NMAC 4.1, Subpart IX, 270.14(b)(7), revised January 1, 1997, contingency measures applicable to the hazardous waste management unit at Technical Area (TA) 36 are provided in Appendix E of the "Los Alamos National Laboratory General Part B Permit Application," Revision 1.0 (LANL, 1998), hereinafter referred to as the LANL General Part B. Specific information on emergency response resources and release prevention/mitigation at TA-36 is provided below. A copy of this Contingency Plan and the Contingency Plan from Appendix B in the LANL General Part B will be maintained at the Dynamic Experimentation (DX) Facility Management Office. Personnel from the Hazardous and Solid Waste Group will be primarily responsible for updating the plan.

Figure E-1 shows the evacuation route and muster area that may be used at the TA-36 open detonation (OD) unit in the event of an emergency. In addition, a listing of emergency equipment currently available for use at the TA-36 OD unit is included as Table E-1. The evacuation route, muster area location, and emergency equipment are subject to change.

E.1 EMERGENCY RESPONSE RESOURCES

The DX Division is responsible for the hazardous waste OD unit at TA-36. DX personnel have been trained in emergency procedures.

E.2 RESPONSIBILITY

At TA-36, DX Division is responsible for correction of a nonsudden release from the hazardous waste management unit if the correction can be performed safely with normal maintenance and management procedures. Personnel from the Emergency Management and Response Office may provide assistance in mitigating releases. Any correction methods for nonsudden releases that have resulted in an impact to the environment will be coordinated with the New Mexico Environment Department.

E.3 REMEDIAL ACTION

Contingency or emergency measures are unanticipated "fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste ..." for which a schedule of remedial actions cannot be reasonably ascertained. Any remedial actions carried out under the provisions of the contingency

plan will be performed as soon as possible to ensure protection of human health and the environment, as described in Appendix E of the LANL General Part B. As stated in the LANL General Part B, these remedial actions include site cleanup; proper handling of recovered waste, contaminated soil, or contaminated surface water; decontaminating equipment, as needed; replacing or repairing equipment, as needed; and testing to verify successful cleanup.

DX Division personnel conduct regularly scheduled inspections at TA-36 to detect deterioration and/or failure of containment at the TA-36 OD unit. If an inspection reveals deterioration or failure, DX Division personnel ensure that maintenance or replacement is performed, as appropriate.

E.4 REFERENCES

Los Alamos National Laboratory (LANL), 1998, ALos Alamos National Laboratory General Part B Permit Application,≅ Revision 1.0, Los Alamos National Laboratory, Los Alamos, New Mexico.

Table E-1

Emergency Equipment near the Technical Area (TA) 36 Open Detonation (OD) Unit[a]

Emergency equipment at TA-36-8 available for personnel conducting activities at the TA-36 OD unit:

FIRE CONTROL EQUIPMENT:

Fire extinguishers

Locations:

A carbon dioxide (CO_2) fire extinguisher is located in the control building (TA-36-8).

A water (A) fire extinguisher is located in TA-36-8.

An ABC fire extinguisher is located in each vehicle used to transport explosive material.

Description of General Capabilities:

The fire extinguishers may be used by any employee in case of a fire. The water fire extinguisher is for use on wood or brush fires. The CO_2 fire extinguisher is for use on electrical fires. Fire extinguishers may be used in the event of an uncontrolled fire at the firing site.

A fire alarm pull station is located in the main chamber of TA-36-8.

Description of General Capabilities:

Manually-operated fire alarms may be activated by any employee in the event of a fire to notify the Central Alarm Station (CAS).

An automatic thermal alarm system is located in TA-36-8.

Description of General Capabilities:

Two alarms are connected to this system. One is located on the ceiling of the main chamber and one is located on the ceiling of the camera room.

In the event that treatment by OD should result in a potential fire hazard, local fire department personnel may be asked to stand by during treatment to control any fires that may be started.

COMMUNICATION EQUIPMENT:

Telephones and two-way radios

Locations:

Telephones are located inside TA-36-8.

A portable telephone is available at the firing site.

A two-way radio is located in the make-up building (TA-36-7).

A two-way radio is located inside TA-36-8.

A two-way radio is issued to each firing site vehicle.

Table E-1

Emergency Equipment near the Technical Area (TA) 36 Open Detonation (OD) Unit[a] (Continued)

Emergency equipment at TA-36-8 available for personnel conducting activities at the TA-36 OD unit (continued):

Description of General Capabilities:
Telephones for internal and external communication are available for use by any employee.

Fire and evacuation alarms

Description of General Capabilities:
The fire alarm is activated in the event of a fire to notify the CAS. The evacuation alarm, which consists of horns and sirens, is used at the OD unit to alert personnel to clear the area and/or to warn of test operations.

DECONTAMINATION EQUIPMENT:

An eyewash station and Material Safety Data Sheets (MSDS) are available in the main chamber of TA-36-8.

A portable eyewash station is available in the immediate area, when required.

Description of General Capabilities:
Eyewashes may be used by personnel who receive a chemical splash to the eyes. Specific MSDSs should be obtained prior to working with hazardous waste to determine if the application of water is indicated for decontamination.

PERSONAL PROTECTIVE EQUIPMENT:

Two self-contained breathing apparatus are located in TA-36-8. First aid kits and hearing protection are also located in TA-36-8.

OTHER:

See Table E-2 in Appendix E of the ALos Alamos National Laboratory General Part B Permit Application,≅ Revision 1.0, for equipment available in Hazardous Material vehicles and trailers.

[a] Equipment types and locations are subject to change.

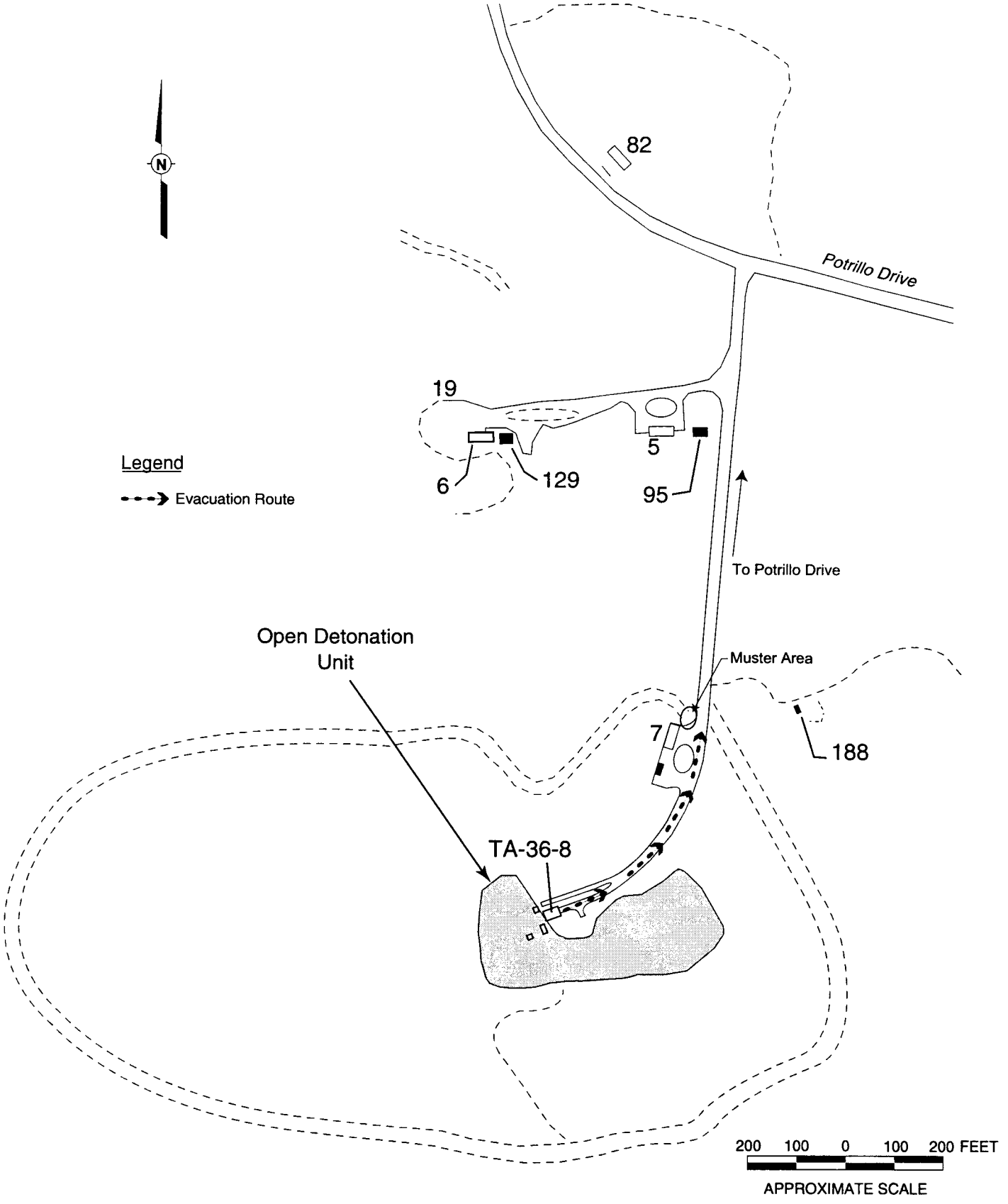

Figure E-1
Evacuation Route and Muster Area for the Open Detonation Unit near Technical Area (TA) 36, Building 8

ATTACHMENT F

CLOSURE PLAN FOR TECHNICAL AREA 36
OPEN DETONATION UNIT

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LIST OF ABBREVIATIONS/ACRONYMS

DX	LANL=s Dynamic Experimentation Division
EPA	U.S. Environmental Protection Agency
ESH-5	LANL's Industrial Hygiene and Safety Group
ESH-19	LANL=s Hazardous and Solid Waste Group
LANL	Los Alamos National Laboratory
20 NMAC 4.1	New Mexico Administrative Code, Title 20, Chapter 4, Part 1
NMED	New Mexico Environment Department
OD	open detonation
PPE	personal protective equipment
QA	quality assurance
QC	quality control
RCRA	Resource Conservation and Recovery Act
SW-846	EPA=s "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods"
TA	technical area

ATTACHMENT F

CLOSURE PLAN FOR TECHNICAL AREA 36 OPEN DETONATION UNIT

The information provided in this closure plan is submitted to address the applicable closure requirements specified in the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20 NMAC 4.1), Subpart IX, 270.14(b)(13), and 20 NMAC 4.1, Subpart V, Part 264, Subparts G and X, revised January 1, 1997 [1-1-97]. This closure plan describes the activities necessary to close the hazardous waste open detonation (OD) unit at Los Alamos National Laboratory (LANL) Technical Area (TA) 36. General closure information applicable to all hazardous and mixed waste management units at LANL and specific sampling and analytical procedures to be used during closure activities are presented in Appendix F of the ALos Alamos National Laboratory General Part B Permit Application,≅ Revision 1.0 (LANL, 1998), hereinafter referred to as the LANL General Part B. The general closure information referenced addresses closure performance standards; amendment of the closure plan; closure cost estimate, financial assurance, and liability requirements; closure certification and report; and survey plat and post-closure requirements. A copy of this closure plan and the LANL General Part B closure plan will be maintained at the Dynamic Experimentation (DX) Facility Management Office. Personnel from the Hazardous and Solid Waste Group (ESH-19) will be primarily responsible for updating the plan.

F.1 CLOSURE PROCEDURES FOR THE TA-36 OD UNIT [20 NMAC 4.1, Subpart V, 264.112; 20 NMAC 4.1, Subpart VI, 265.381]

The hazardous waste OD unit addressed in this Part B permit application is located at TA-36 at LANL. Figure F-1 shows the location of TA-36 at LANL. Figure F-2 shows the specific location of the OD unit at TA-36. A detailed unit description is provided in Section 2.0 of this Part B permit application. The closure schedule for the OD unit is outlined in Table F-1. LANL typically revises closure plans to address conditions at the time of actual closure. The revised closure plan will be submitted to the New Mexico Environment Department (NMED) for review and approval. The location and disposition of all wastes generated during closure will be documented in the final closure report. The estimated year of closure of the OD unit is 2100.

LANL fully intends to achieve clean closure of the OD unit by decontamination or removal of contaminated structures or media. However, should clean closure not be achieved, a post-closure plan meeting the requirements of 20 NMAC 4.1, Subpart V, 264.603 [1-1-97], will be developed for the OD unit and submitted to the NMED for approval.

F.1.1 Description of Waste/Estimate of Maximum Waste Capacity

The TA-36 OD unit located adjacent to TA-36-8 is used to treat solid and liquid hazardous explosive waste by OD. The OD unit has a maximum treatment capacity of 2,000 pounds of waste per detonation. LANL does not intend to reduce the areal extent of the TA-36 OD unit during the active life of the unit. The unit will eventually undergo closure; LANL does not anticipate leaving unclosed portions of this unit. Both the design capacity and the areal extent are addressed in this section, as provided in the ≅RCRA Guidance Manual for Subpart G Closure and Post-Closure Care Standards and Subpart H Cost Estimating Requirements≅ (U.S. Environmental Protection Agency [EPA], 1987). Waste that may be treated at the TA-36 OD unit includes waste generated during research and development activities and processing and recovery operations at various TAs throughout LANL. Information on the hazardous component of these wastes is provided in Appendix B of the LANL General Part B (LANL, 1998).

F.1.2 Removal of Waste

Prior to the initiation of closure activities, wastes will be treated at or removed from the OD unit. If removal is required, the wastes will be transported to an active, permitted treatment unit in accordance with the most current and approved applicable standard operating procedures. See Section 2.2 of this document for procedures regarding removal of residues. Containers and packaged waste may be removed from the unit manually or with container-handling equipment, depending on the size, shape, and weight of the container. Flatbed trucks or trailers may be used for transport of the wastes. Appropriate shipping papers will accompany the wastes during transport. Remaining hazardous wastes will be moved to an approved on-site storage unit or to an off-site permitted treatment, storage, and disposal facility.

F.1.3 Closure Procedure and Decontamination

To the extent possible, contaminated structures associated with the TA-36 OD unit will be decontaminated (if necessary) and removed. Structures and media that cannot be decontaminated will be containerized and managed in compliance with appropriate regulations. Sampling conducted during closure and decontamination will be done in accordance with quality assurance (QA)/quality control (QC) procedures.

Before proceeding with closure activities, the OD unit and associated structures will receive a thorough visual inspection for unexploded explosive scrap. Personal protective equipment (PPE)

and monitoring requirements will be determined by LANL's Industrial Hygiene and Safety (ESH-5) Group and groups within DX Division (for explosive handling) following the initial field inspection. Chemical monitoring will occur throughout closure activities, as appropriate. If contamination is found, the contaminated material will be decontaminated (if possible) or containerized and taken to an approved storage location at LANL appropriate for the waste type.

Personnel involved in closure activities will wear appropriate PPE, specified by ESH-5 and DX, and will follow good hygiene practices to protect themselves from exposure to hazardous waste. The level of PPE that will be required will depend upon the levels of chemical contamination that are detected, if any. If ESH-5 and DX surveys do not indicate detectable contamination levels, minimum PPE requirements will consist of coveralls, steel-toed footwear, and safety glasses or face shields. If an overhead danger is present, a hard hat will be worn. Workers involved in closure activities will be required to have appropriate training and medical monitoring. Contaminated PPE will either be decontaminated or managed in compliance with appropriate regulations.

Before decontamination activities begin, two samples of clean water and detergent (washwater) solution squeezed from mops and/or sponges prior to use will be collected for analysis of the appropriate parameters listed in Table E-3 of Appendix E (the Contingency Plan) in the LANL General Part B to provide a baseline for decontamination verification. Structures at the OD unit that require decontamination will be wiped down with washwater solution. Mops and/or sponges will be used to minimize the amount of liquid waste generated as a result of decontamination activities. The used washwater solution will be contained using portable berms and/or other containment structures and equipment, as appropriate.

Used washwater will be collected and transferred to containers and sampled for the appropriate parameters listed in Table E-3 of Appendix E of the LANL General Part B (LANL, 1998). The wash cycles will continue until the structures at the OD unit have been cleaned to established levels (see Section F.1.5). The used washwater will be managed appropriately in accordance with LANL policy.

Prior to the initiation of closure activities, background soil samples will be collected in the vicinity of the OD unit and analyzed for the appropriate parameters listed in Table E-3 of Appendix E of the LANL General Part B (LANL, 1998). After the structures have been decontaminated (if possible), removed, and managed, as appropriate, a statistically representative number of soil samples will be collected at the OD unit and analyzed for the appropriate parameters listed in Table E-3 of Appendix

E of the LANL General Part B. Samples will be collected at a frequency and depth to ensure that samples are representative of the entire area covered by the OD unit. Soil sampling will be conducted by the methods described in Section F.2 of the LANL General Part B. If contamination is found in any of the soil samples as a result of treatment activities, the appropriate criteria in Section F.1.5 will be applied.

F.1.4 Decontamination Equipment

Prior to use, reusable decontamination equipment will be rinsed with distilled water. Decontamination equipment rinsate blanks will be collected and analyzed in accordance with QA/QC procedures. Reusable protective clothing, tools, and equipment used during closure activities will be scraped as necessary to remove any residue and cleaned with a washwater solution. Residue, disposable equipment, and reusable equipment that cannot be decontaminated will be containerized and managed appropriately at an approved on-site facility, depending on the regulated constituents present.

F.1.5 Decontamination Verification

Sufficient sampling and analysis will be required to demonstrate that hazardous waste or hazardous waste residue is not present at the site after closure. Two samples of clean washwater solution squeezed from mops and/or sponges prior to use will be collected before initial washdown of any structures associated with the OD unit. The samples will be analyzed for the appropriate parameters, as discussed in Section F.1.3. Analytical procedures will conform to methods found in the most current version of "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (*SW-846*) (EPA, 1986). Used washwater will be analyzed for the same parameters. Used washwater will be considered contaminated if it shows a significant increase (i.e., determined using statistical methods defined in *SW-846*) in the analytical parameters over the clean washwater solution. If subsequent washdowns are deemed necessary, an additional sample of clean washwater solution squeezed from mops and/or sponges prior to use will be taken for each additional washdown event.

Successful decontamination meets one of the following criteria:

- ∃ No detectable Resource Conservation and Recovery Act (RCRA)-regulated constituent residues from treatment of authorized RCRA-regulated wastes are identified in samples collected during closure activities.

- Detectable concentrations of RCRA-regulated constituents in samples collected during closure activities are at or below existing regulatory action levels, as agreed upon with the NMED.

- Detectable concentrations of RCRA-regulated constituents in samples collected during closure activities identify no statistically significant concentrations of RCRA-regulated constituents above baseline data.

- Detectable concentrations of RCRA-regulated constituents in samples collected during closure activities are at or below levels agreed upon with the NMED to be protective of human health and the environment based on the results of a risk assessment.

- Detectable concentrations of RCRA-regulated constituents that cannot be removed or decontaminated to acceptable levels as described above will be allowed to remain, provided that these RCRA-regulated constituents do not pose an unacceptable risk when combined with technical or administrative control measures agreed upon with the NMED.

An alternative demonstration of decontamination may be proposed and justified at the time of unit closure, as circumstances indicate. NMED will evaluate the proposed alternative in accordance with the standards and guidance then in effect and, if approved, incorporate the alternative into this closure plan.

F.1.6 References

EPA, see U.S. Environmental Protection Agency.

LANL, see Los Alamos National Laboratory.

Los Alamos National Laboratory (LANL), 1998, "Los Alamos National Laboratory General Part B Permit Application," Revision 1.0, Los Alamos National Laboratory, Los Alamos, New Mexico.

U.S. Environmental Protection Agency (EPA), 1987, ARCRA Guidance Manual for Subpart G Closure and Post-Closure Care Standards and Subpart H Cost Estimating Requirements,≅ *EPA/530-SW-87-010*, Office of Solid Waste, Washington, D.C.

U.S. Environmental Protection Agency (EPA), 1986 and all approved updates, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," *EPA-SW-846*, Office of Solid Waste and Emergency Response, U.S. Government Printing Office, Washington, D.C.

Table F-1

Schedule for Closure Activities at the Technical Area 36 Open Detonation Unit

Activity	Maximum Time Required[a]
Let contract request for proposals	-90 Days
Notify the New Mexico Environment Department (NMED)	-45 Days
Receive proposals	-30 Days
Select contractor and award contract	-10 Days
Collect background samples (if appropriate)	-5 Days
Final treatment of waste	Day 0
Begin closure activities (perform washdown of structures)	Day 10
Perform initial sampling of the waste management unit	Day 15
Analyze samples	Day 45
Perform additional washdown (if necessary)	Day 50
Perform additional sampling (if necessary)	Day 60
Analyze samples (if necessary)	Day 90
Perform final cleanup (e.g., removal of decontamination wastes)	Day 120
Verify decontamination	Day 150
Submit final report to NMED	Day 180

[a] The schedule above indicates calendar days from the beginning by which activities will be completed. Some activities may be conducted simultaneously and/or may not require the maximum time listed. Extensions to this schedule may be requested, as necessary.

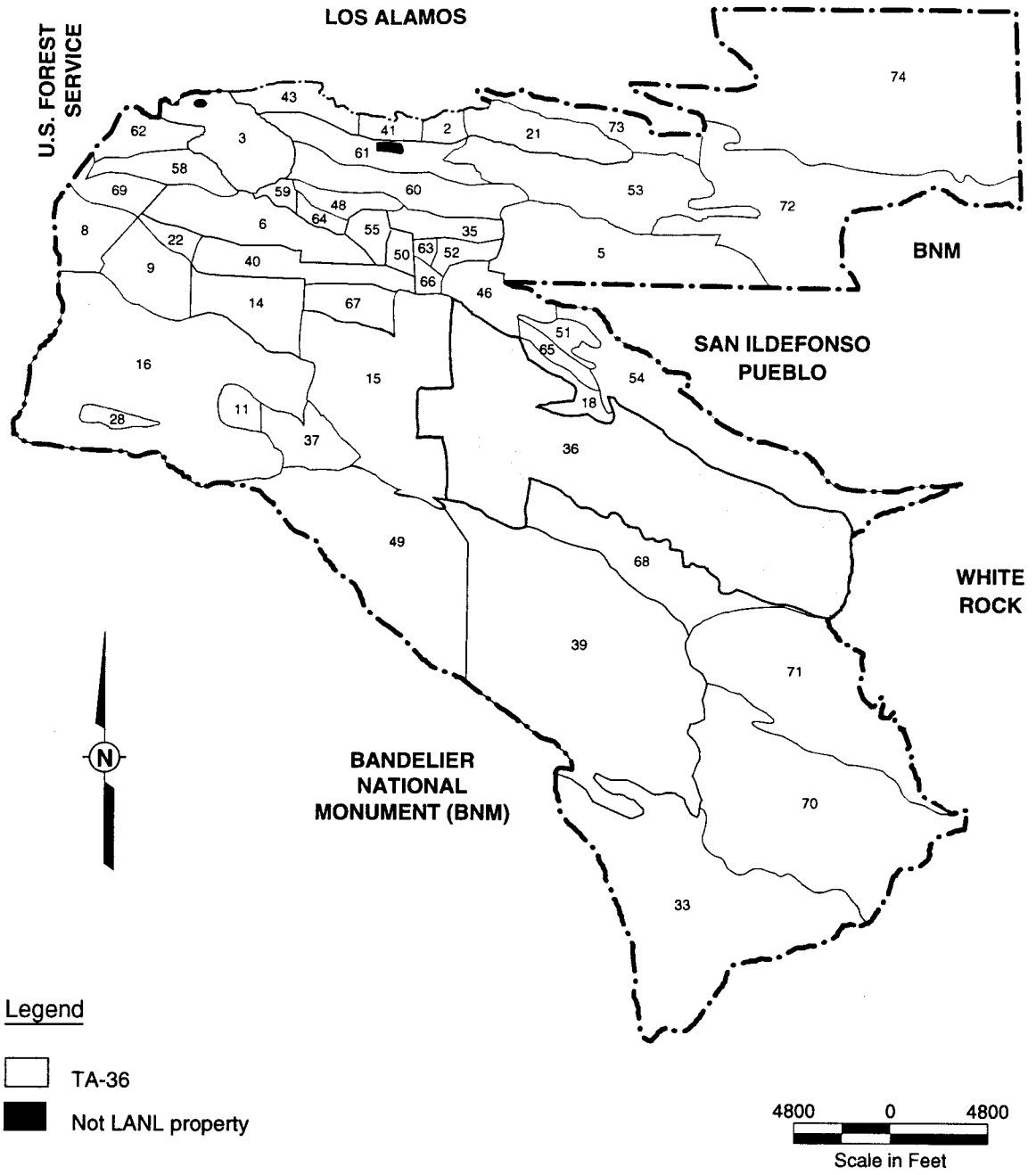

Figure F-1
Location Map of Technical Area (TA) 36 at Los Alamos National Laboratory (LANL)

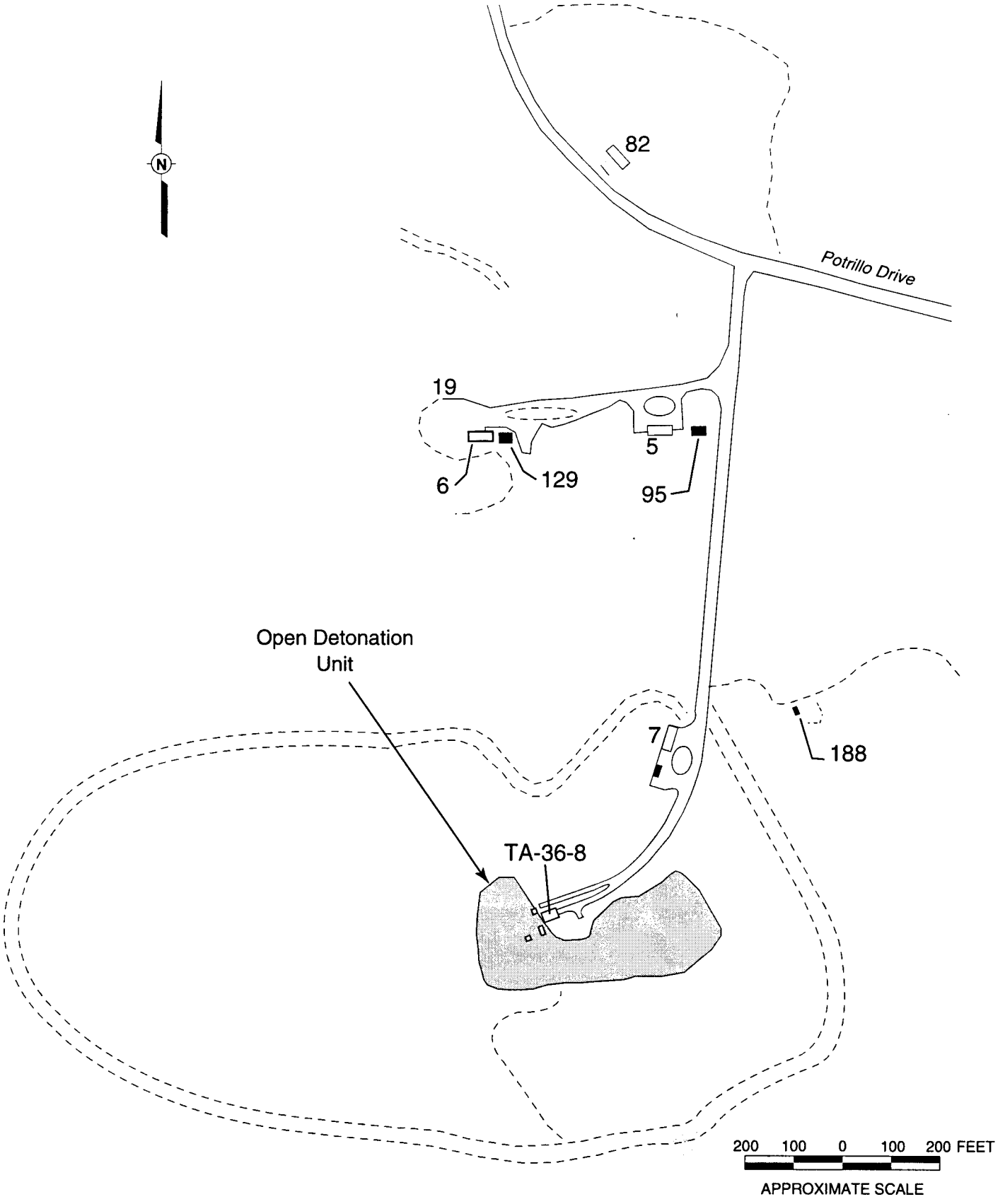

Figure F-2
Location Map Showing the Open Detonation Unit near Technical Area (TA) 36, Building 8

ATTACHMENT G

STANDARD OPERATING PROCEDURES APPLICABLE TO OPEN DETONATION UNITS

Disclaimer

The standard operating procedures (SOP) in this document are for informational purposes only. These SOPs are the most current available and are amended periodically.

STANDARD OPERATING PROCEDURE

FOR

WASTE MANAGEMENT AND

GENERATOR WASTE CERTIFICATION PROGRAM

IN DX-DIVISION

DX-DO: SOP 01

Prepared by: _____ Date: _____
M. M. Cash, DX-DO/ESH-19

Prepared by: _____ Date: _____
J. B. Richardson, DX-2

Prepared by: _____ Date: _____
G. Jio, DX-2

Approved by: _____ Date: _____
G. D. Vasilik, DX-DO ES&H Coordinator

Approved by: _____ Date: _____
C. A. Nelson, Deputy Facility Manager for ES&H

Approved by: _____ Date: _____
C. M. Montoya, DX-DO Operations Coordinator

Controlled Document Number: ☐

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1.0 INTRODUCTION

The Dynamic Experimentation (DX) Division encompasses a 22 square mile area and is involved in a wide variety of disciplines involving explosives research, development, testing, production and applications. DX Division operates a number of research facilities including firing sites, some of which are Resource Conservation and Recovery Act (RCRA) Open Burn (OB) or Open Detonation (OD) treatment units. The research facilities involve the research, development, production and application of existing explosives, new explosives, and detonators. The firing sites involve the testing and application of explosives and detonators. The RCRA OB/OD units treat explosive wastes that are generated within DX and ESA Divisions as well as any other explosives found at the Laboratory. The Federal Government and the State of New Mexico regulate storage, treatment and disposal of hazardous waste. This Standard Operating Procedure (SOP) describes methods to assure waste generators are in compliance with the regulations.

2.0 PURPOSE

The purpose of this SOP is to describe the procedures for handling, packaging, marking, labeling, segregating, minimizing, and storing regulated wastes. For the purposes of this document, regulated wastes include hazardous, radioactive, mixed, PCB, asbestos, NM Special, and administratively controlled wastes.

This SOP implements LIR 404-00-03 "Hazardous and Mixed Waste Requirements for Generators" and LIR 404-00-01 "Waste Acceptance, Characterization and Certification Program".

3.0 SCOPE

This SOP is applicable to all waste generators associated with DX-Division operations.

4.0 DEFINITIONS

4.1 Definitions

Acceptable Knowledge — Includes process knowledge, supplemental waste analysis data, and facility records or analysis as applied to waste characterization.

Acutely Hazardous (P-listed) Waste: — Commercial chemical products, manufacturing chemical intermediates, off-specification commercial chemical products or technical grades of the chemicals that are identified in 40 CFR 261.33(e) as acute hazardous waste. (See Attachment No. 1)

Administratively Controlled Waste:	Waste that is both non-hazardous and non-radioactive but cannot be disposed of at the county landfill due to special considerations. This includes, but is not limited to, classified waste, sensitive waste, New Mexico special waste, and empty containers 30 gallons and larger.
Container:	Any portable device in which material is stored, transported, treated, or otherwise handled.
Explosives Waste:	Any explosive in powder, consolidated, or liquid form; or any item or material visibly contaminated with it; that is a waste from an operation or has no further use.
Hazardous Waste:	Any solid waste is generally hazardous if 1) not excluded from regulation as a hazardous waste; 2) is listed in regulations as a hazardous waste (See Attachment No. 1); 3) exhibits any of the defined characteristics of hazardous waste (ignitability, corrosivity, reactivity, or toxicity; or 4) is a mixture of solid waste and hazardous waste. Hazardous wastes generated in DX-Division include explosives, research chemicals, solvents, acids, bases, carcinogens, compressed gases, and heavy metals. This may also include equipment, containers and other items intended for disposal that are contaminated with hazardous waste. (LIR404-00-03.0).
Low Level Radioactive Waste (LLW):	Radioactive or radioactively contaminated waste that is not classified as high level waste, transuranic waste, spent nuclear fuel or by-product material as defined in section 11e(2) of the Atomic Energy Act (AEA) of 1954, as amended. Test specimens of fissionable material irradiated for research and development only and not for the production of power or plutonium may be classified as LLW, provided that the level of transuranics is less than 100nCi/g.
Mixed Waste:	Waste containing both radioactive and hazardous components as defined and regulated by the AEA and RCRA (LIR404-00-03.0).
New Mexico Special Waste:	The following types of solid waste, which have unique handling, transportation, or disposal requirements to assure protection of the environment, public health,

	welfare, and safety: treated formerly characteristic hazardous waste; asbestos waste; ash; infectious waste; sludge; industrial solid waste; spill of a chemical substance or commercial product; dry chemicals which, when wetted, become characteristically hazardous; and petroleum-contaminated soil (20 NMAC 9.1.105BZ).
Orphaned Waste:	Any material or waste with an unknown origin, history, or generator. Also, any material or waste that was abandoned at the Laboratory or does not have a defined owner.
Radioactive Waste:	Solid, liquid, or gaseous waste that contain radionuclides regulated under the AEA
Radiological Controlled Area (RCA):	An area to which access is controlled to protect individuals from exposure to radiation and/or radioactive materials. (For a complete definition of RCA see DX-DO SOP 06).
Satellite Accumulation Area (SAA):	An area registered with the Hazardous and Solid Waste Group (ESH-19) where a generator may accumulate up to 55-gal. of hazardous waste or 1-qt of acutely hazardous waste in closed containers at or near the point of generation.
Solid Waste:	Any discarded material, either abandoned, recycled, or inherently waste-like, including liquids, solids, semisolids, and contained gases.
Storage Area Contact	The person responsible for ensuring waste at a storage areas is properly managed and acts as the single point of contact for the area.
Transuranic (TRU) Waste:	Waste that is contaminated with alpha emitting radionuclides with 1) half-lives greater than 20 years, 2) concentrations greater than 100 nCi/g at the time of assay, and 3) atomic numbers greater than 92. (Some radioactive sources in DX may fit this definition for disposal purposes. Contact a WMC for guidance).
Universal Waste Area	An area registered with ESH-19 where a generator may accumulate certain hazardous waste (batteries, pesticides,

and thermostats – mercury containing).

Waste Acceptance Criteria (WAC): Restrictions placed on waste form, content, radioactivity, packaging, labeling, etc. that must be met before waste is accepted for treatment, storage or disposal.

Waste Generator: Any person whose act or process produces hazardous or otherwise regulated waste, or whose act first causes a waste to be subject to regulation.

Waste Minimization: Any effort that reduces or eliminates the toxicity, mass or volume of the waste. Minimization methods include substitution, process modification, segregation, housekeeping, reuse, and recycling. (AR 10-8).

< 90-Day Storage Area: An area registered with ESH-19 where a generator is allowed to store RCRA hazardous waste for up to 90 days provided certain operating requirements are met.

4.2 Acronyms

AK Acceptable Knowledge

CWDR: Chemical Waste Disposal Request (Form 1541), (See Attachment No. 2).

ESA Engineering, Science and Application Division

EM/SWO Environmental Management/Solid Waste Operations

HEWTF High Explosives Wastewater Treatment Facility

GWCP Generator Waste Certification Program

OB/ODs: Open burn/Open detonation units, permitted by the State to treat explosives waste. These include the TA-14 Burn Cage, TA-14 Firing Mound 3, TA-36 Kappa 8, TA-39-6&57 firing points, TA-15-184 firing point, and the TA-16 Burn Ground.

RCRA Resource Conservation and Recovery Act

RCT Radiological Control Technician

TSDF Treatment, Storage, and Disposal Facility

WMC: Waste Management Coordinator: A person who is trained in the regulations and administrative requirements for characterizing, storing, and arranging for treatment and/or disposal of waste.

WPF: Waste Profile Form (Form 1346). (See Attachment No. 3), and LIR 404-00-03.0.

5.0 RESPONSIBILITIES

5.1 DX Division Director

The DX Division Director is responsible for:

- ensuring waste is properly characterized,
- DX Division personnel are appropriately trained and qualified.
- implementing and ensuring conformance with the SOP/GWCP, and
- ensuring that waste acceptance criteria are met for facilities accepting DX Division waste.
- provide waste volume projections per LIR404-00-01.2.

5.2 DX-Division Line Management

Ensures that the necessary policies, procedures, equipment, expertise (training and qualified), and manpower are available for safe handling, storage, and treatment of hazardous wastes.

5.3 Waste Management Coordinator (WMC)

- Communicates waste acceptance criteria to the waste generators.
- Acts as liaison between generators and Laboratory waste management organization, as described in LS105-01.0, Waste Management Coordinator Program.
- Ensures that generators complete waste characterization documentation accurately and correctly. Sampling will be performed in accordance with methods described in LIR404-00-01.2.
- Notifies generators of any new policies or regulations concerning waste management.
- Completes the CWDR, schedules waste disposal and/or transportation in compliance with applicable regulations, and signs the waste manifest.
- Provides the most current waste related forms to the generator.
- Attends required training related to the management, packaging, and transportation of waste.
- Assists generators in proper management of regulated waste at generator's site according to State and federal laws and Laboratory policies.
- Conducts inspections of RCRA storage and treatment areas.
- Keeps line management and division management informed of non-compliance issues.
- WMCs are assigned by geographical areas (See Attachment No. 4).

5.4 Waste Generators

- Comply with all federal, State, DOE, LANL and DX-Division regulations/policies concerning waste generation, handling, and storage.

- Properly characterize, certify, and document their regulated waste streams using a Waste Profile Form.
- Notify a WMC of waste management problems or questions involving waste characterization (See Attachment No. 5).
- Segregate their TRU, low-level, mixed, hazardous, and non- hazardous waste streams.
- Ensure that waste is packaged, marked, labeled, and stored properly according to applicable laws and policies.
- Comply with applicable WAC.
- Complete waste generator training courses provided by ES&H Training Group before generating any waste.
- Minimize waste generation as much as technically and economically feasible. (AR 10-8).
- Log any waste added to an SAA or UWA. (See Attachment No. 6). Include the name of the person placing the waste in the area, the waste constituents, the amount of waste, and date placed in the container.
- Act as storage area contact (responsible person) as appropriate.
- Label the main container with the waste constituents as well as the words "Hazardous Waste."
- Maintain required records as required.

5.5 Training

Workers are required to be assigned to and meet the requirements of the Laboratory training plan(s) associated with their work responsibilities as defined in the following table. They shall also complete the required reading of DX Division SOPs as identified by their supervisor and be trained in accordance with the DX Division Training and Qualification Manual.

Responsibility	Training Plan #	Additional Information
Hazardous Waste Generator (Generates hazardous or other regulated waste, or causes a waste to be subject to regulation).	2810	
Satellite Accumulation Area Worker (Has responsibility for one or more SAAs).	295	
<90 Day Storage Area Worker (Has responsibility for one or more <90 Day Storage Area).	293	Must complete appropriate training within 6 months of assuming duty. May only work under supervision until training is complete.
OB/OD Treatment Unit Worker (Treats hazardous waste at an OB/OD Unit).	256	Must complete appropriate training within 6 months of assuming duty. May only work under supervision until training is complete.
Waste Management Coordinator	135	Must complete training outlined in LS 105-01.0.

6.0 PRECAUTIONS AND LIMITATIONS

6.1 General Precautions

- Before starting any new waste generating process or changing an existing process, the generator shall contact the WMC for assistance in planning for the waste that will be generated.
- Before accumulating wastes, including radioactive and radioactively contaminated materials or equipment, the generator shall contact a WMC for assistance in characterizing the waste and completing necessary forms. For radioactive waste or radioactively contaminated or suspect contaminated materials or equipment, an RCT shall be contacted to facilitate characterization of the waste.
- Because of the problems associated with mixed waste, a WMC shall be contacted for assistance in possibly avoiding the creation of mixed waste. The WMC will also aid in characterization of the waste, completing necessary forms, and determining if there is a path for the waste generated.

- If in doubt about waste characterization or storage issues, contact a WMC.
- As appropriate, proper personal protective equipment shall be employed when handling waste (contact your supervisor, IH and/or RCT).
- Abbreviations are not acceptable in labeling hazardous waste. The words "hazardous waste" and the common chemical name(s) of the constituents causing the waste to be hazardous must be legibly spelled out on any hazardous waste container. Chemical formulas are not acceptable unless the compound does not have a common chemical name.
- All operations and waste management practices will adhere to DX Division SOPs, permits, DOE Explosives Safety Manual, DX Division Operations Manual, WAC and any other relevant documents to ensure the health and safety of DX Division employees and anyone else in the area.
- A WMC will assist the waste generator on the proper characterization and treatment of explosive wastes at an appropriate TSDF (OB/OD, HEWTF, or TA-16 Burn Ground).
- For a complete listing of the hazardous waste management requirement see LIR 404-00-03. For a complete listing of the generator waste certification program requirements see LIR 404-00-01.
- Individually store pieces of explosive, as appropriate, to prevent friction of parts.
- If ignitable waste is being stored then appropriate fire codes must be followed. Contact Facility Management's Zone Team Leader for more information regarding fire codes.
- Waste contaminated with volatile or semi-volatile organic compounds must be stored in airtight containers to prevent the release of organic vapors into the atmosphere. For cellulose products contaminated with these compounds a Zip-lock bag can be used to prevent the release of vapors and then placed in the main waste container.
- The weight of explosive waste shall be determined to ensure that the posted explosives weight limit of the operations or storage area is not exceeded.
- Waste explosive in powder, consolidated or liquid form must be properly stored both as explosive and hazardous waste.

7.0 PROCEDURAL STEPS

7.1 Storage Area Requirements

The following sections are an abbreviated DX-specific synopsis of LANL policies and RCRA hazardous waste storage requirements.

7.1.1 Universal Waste Area (UWA)

A UWA is for the accumulation of specific types of hazardous or mixed waste. The three (3) types of universal waste are: 1) Batteries – for example: lead acid,

silver, mercury, or lithium batteries; 2) Pesticides; and 3) Mercury containing thermostats. A quick reference sheet will be provided at each UWA which will detail all appropriate requirements.

7.1.2 Satellite Accumulation Area (SAA)

A SAA may serve a process, a room or a suite of rooms in the immediate vicinity. The accumulation area may serve more than one room/area provided that physical and/or administrative controls/policies govern the access to the SAA. Physical controls of the SAA can be assured by access control to the area or room, including, but not limited to, door locks and cabinet locks. Administrative controls must include, but are not limited to, a consultation with the WMC prior to the establishment of the SAA, the posting of the name and phone number of the storage area contact and establishment of a list of "authorized users" of the SAA. The persons on this list are the only waste generators that may use this SAA (See Attachment No. 7). Multiple users of an SAA will have their names or their waste profile numbers on their respective containers or inventory system.[1] If different waste generators generate the same waste stream, they may agree to share a waste container. SAAs not secured by physical controls must have administrative controls in place. SAAs located outdoors must have physical controls. If at any time the waste generator has difficulty following this policy the WMC must be contacted. A quick reference sheet will be provided at each SAA which will detail all appropriate requirements.

7.1.3 < 90 Day Storage Areas

The person placing the waste in the <90 day storage area shall write on the container the date the waste was first placed in the <90 day storage area. The <90 day storage area contact shall have knowledge of the kinds, compatibility and amounts of waste being stored. Generators may not place waste in the area without the express knowledge and consent of the storage area contact. Unless performing his/her own inspections, prior to placing waste in a <90 day storage area a generator shall contact the WMC so that the required inspection (See Attachment No. 8) may be conducted that same day. A WMC shall also be contacted the same day waste is removed from a <90 Day Storage Area. Two-way communications must be present when any operations or inspections take place. A quick reference sheet will be provided at each <90 Day Storage Area which will detail all appropriate requirements.

7.1.4 Open Burn/Open Detonation Units (OB/OD)

[1] An inventory system may include, but is not limited to, a log sheet/book, which indicates the type of waste put in a container, the date, by whom, and the volume.

OB/OD units have strict requirements, which are found in each unit's permit or interim status documents and in 40 CFR 265. Operating records for the units must be retained for a minimum of 3 years after formal closure is complete, and must include:

- Approved WPFs or an equivalent description of the waste, the quantity of each hazardous waste stream received, and date of treatment;
- Summary reports and details of all incidents that require implementing the Contingency Plan;
- Records and results of required inspections and corrective actions when required.
- See DX-4 SOP 28, Operations of OB/OD's and TA-36-12 Burn Area (CAA), for details on operations.

7.2 Notification of Storage Area Deficiency

The WMC works with the waste generators to ensure compliance with applicable regulations regarding handling, treating and storing of waste. The WMCs also have a responsibility to the DX Division Director and DX line management to keep them informed in the event of employees' non-compliance with State and federal laws and Laboratory policies. The DX Division RCRA Self Inspection Checklist (See Attachment No. 9) may be used as a communication tool between the WMCs and line management. Copies of the checklist must be forwarded to the respective Group Leader or Deputy Group Leader, ES&H Officer and Division ES&H Coordinator.

7.3 DX Division Self-Inspection Program

The WMC will conduct a formal self-inspection of all RCRA regulated units (UWAs, SAAs, <90 Day Storage Areas, and OB/OD units) by the end of each calendar month. A checklist (See Attachment No. 9) will be used, the information will be summarized and sent to the DX Division Director by the 10^{th} of the following month. This summary will then be sent, as required, to the Associate Laboratory Director for Operations by the 15^{th} of the month. The individual WMC's summaries will be retained for three (3) years as part of DX Divisions operating records for RCRA compliance.

7.4 Waste Streams

The following is a list of waste streams specific to DX Division operations and requirements specific to those waste streams. For a list of general requirements see section 6.0 Precautions and Limitation of this SOP.

7.4.1 Explosives and Explosives Contaminated Waste (non firing site debris)

In addition to the general requirements in the Precautions and Limitation section 6.0 of this SOP the following are required for this particular waste stream:

7.4.1.1 Keep waste stream segregated in securely closed containers.

7.4.2 Liquid Hazardous and Liquid Explosives Wastes

In addition to the general requirements in the Precautions and Limitation section 6.0 of this SOP the following are required for this particular waste stream:

7.4.2.1 Place material in a securely closed container, such as a Nalgene bottle (only liquids containing less than 33% explosive may be placed in a screw top container).

7.4.2.2 Place the container in secondary containment such as a spill tray adequate to contain the volume of waste being accumulatred.

7.4.3 Firing Site Debris

Firing site debris consists of all materials resulting from the partial or complete detonation of an explosives operation, and may or may not be considered a hazardous waste. All material should be carefully segregated according to its hazard. Any firing site debris managed as municipal refuse must have an approved WPF. The WPF must be available to facilities accepting DX firing site debris.

7.4.3.1 Waste Explosives

A WMC shall be contacted for guidance on proper treatment at an OB/OD unit.

7.4.3.2 Explosives Contaminated Waste

Any material that is visibly contaminated with explosives shall be segregated into burnable (wood, cardboard, paper, etc.) and non-burnable (glass, metal, cables, etc). The presence of soot on various materials used in the course of firing a shot does not, of itself, constitute explosives contamination.

7.4.3.3 DU Contaminated Waste

Note: For any waste contaminated with DU, also see DX-DO: SOP 06 "Radiological Controls".

7.4.3.3.1 Burnable firing site debris that is DU contaminated and not explosive contaminated will be treated at a Clean Air Act permitted area (see DX-4: SOP 28 for more information).

7.4.3.3.2 Burnable firing site debris that is DU and explosive contaminated will be treated at an appropriate OB/OD unit (see DX-4: SOP 28 for more information).

7.4.3.4 Other Firing Site Debris

Waste not meeting any of the above categories but suspected to contain a hazardous constituent (See Attachment No. 1) should be segregated and characterized by the waste generator for proper storage/treatment. Waste streams which are known to contain no radioactive material and no explosives or other regulated constituents should be sent to the County landfill as municipal refuse or recycled as appropriate. Items that have trace (non-visible) amounts of explosive and are not reactive, should not be considered explosive-contaminated, and may be managed as municipal refuse. Such items can include shot stands, insulation, shot assembly aids, firing cables, optical components including mirrors, sand bags, barriers, electrical equipment, and metal assemblies.

7.4.4 Detonators

Complete detonator assemblies (those loaded with explosive) and intended for treatment will be considered to be explosive waste. Individual detonator components intended for disposal will be characterized according to their constituents (explosives, RCRA metals, etc.). Spent detonators with no visible residual explosive and no RCRA metals (See Attachment No. 1) may be disposed as municipal refuse.

7.4.5 Trash in Explosive Areas

Care should be exercised to segregate trash from explosive contaminated waste in explosive areas such as Prep Rooms. Not all waste from a preparation room is explosive contaminated. Containers should be kept for each type of waste for proper segregation and shall be clearly labeled as to the contents. Trash that is NOT contaminated with explosives should be placed in a receptacle for trash destined for the County landfill.

7.4.6 Management of Other Radioactive Wastes

Before beginning a process that may create a new radioactive or mixed waste stream, a WMC shall be contacted for assistance in planning for the proper management of any waste generated and determining if there is a path for waste treatment, storage, or disposal.

7.4.7 Treatment of Waste Explosives from Sumps and Settling Tanks

Treatment of waste from sumps and settling tanks is controlled by ESA. The Waste Generator shall notify the WMC when wastes have accumulated in the sumps and/or settling tank. The WMC will assist in completing the proper paperwork and arranging for pick-up and treatment by ESA (See Attachment No. 10). An approved WPF must be available for the waste stream before ESA will accept the waste for treatment. ESA will not treat any waste not meeting their WAC, a copy of which is available from any DX WMC. Changes to liquid waste streams destined for the TA-16 HEWTF should be made only after consideration is given to whether the waste stream will continue to meet the ESA HEWTF WAC. Contact a WMC for assistance. An approved WPF must be available for the waste stream before ESA will accept the waste for treatment.

7.5 Waste Minimization

Waste minimization will be handled according to the *DX-Division Operations Manual, AR 10-8,* and SOP/GWCP .

Waste generated from any operation must be minimized as much as technically and economically feasible. To meet this objective, the waste minimization practices of material substitution, hazard segregation, recycling and good housekeeping must be incorporated into all waste generating activities. All waste generators are responsible for making every practical effort to minimize the amount of waste being produced. Waste generators shall make every reasonable effort to reduce the volume of radioactive waste generated by controlling the movement of materials through identified radioactive material work areas. Contact a WMC for assistance with waste minimization practices.

7.6 Orphan or Unknown Waste

If orphan or unknown waste is found contact your WMC immediately. Never attempt to open the container. Store the orphan or unknown waste in the safest way possible and in an established SAA (preferred) or <90 Day Storage Area. Segregate this waste from other wastes in the area, label "PENDING HAZARDOUS WASTE DETERMINATION" and place the date the waste was found on the label. The WMC will see that sampling and analysis takes place as soon as possible.

7.7 Classified Waste

Classified or sensitive waste that is also hazardous or mixed waste is subject to all the requirements in this SOP. All reasonable attempts must be made to declassify/desensitize the waste.

7.8 Treatment by the Waste Generator

Treatment by the waste generator (without a permit) is allowed under the current RCRA regulations, provided all specified regulatory requirements are met. Contact a WMC BEFORE conducting treatment or if you are interested in conducting generator treatment on a waste stream.

7.9 Recyclable Materials

When practical, discarded materials must be recycled or salvaged according the Laboratory procedures. The following materials and items are prime candidates for recycling:

- Elemental mercury,
- Precious and strategic metals,
- Compressed gas cylinders,
- Lead-acid batteries,
- Solvents,
- Unused laboratory chemicals,
- Scrap metal and solder waste,
- Uncontaminated soil (soil to which no hazardous or radioactive constituents have been added),
- Used oil from various sources, and
- Empty drums.

Contact a WMC regarding recyclable materials.

Note: Compressed gas cylinders can be returned to the Gas Processing Facility but compressed gas cylinders above atmospheric pressure that cannot be returned to the Gas Processing Facility must be handled as waste by the generating organization.

7.10 Emergency Procedures

- **Dial 911**

In the event of an emergency, the Site Emergency Plan (SEP) and DX-DO: SOP 07 Division Emergency Guide shall be followed. The SEP and DX-DO: SOP 07 shall be available in the building and the operators shall be familiar with its contents.

7.11 Quality Assurance Program

DX Division has a Quality Assurance Program incorporated in the DX Division Operations Manual.

8.0 REQUIRED RECORDS

- Waste Profile Form (WPFs)
- Chemical Waste Disposal Requests (CWDRs)
- Hazardous Waste Manifest
- Waste characterization documentation (analytical data, AK, radiological survey, etc.)
- Non Conformance Reports (NCRs)
- Storage Area Deficiency Notification
- DX Division Self Inspection documentation
- Hazardous and Mixed Waste Facility Inspection Record Form (IRF)
- Training Records

9.0 REFERENCES

- DOE Explosives Safety Manual
- DX-Division Operations Manual
- DX Division Training Plan
- DX-DO: SOP 06 Radiological Controls
- DX-DO: SOP 07 Division Emergency Guide
- DX-4: SOP 28 Operations of OB/ODs and TA-36-12 Burn Area (CAA) Operations
- LIR 404-00-01.2, "Waste Acceptance, Characterization, and Certification Program"
- LS105-01.0, Waste Management Coordinator Program
- LIR404-00-03.0, "Hazardous and Mixed Waste Requirements for Generators"
- AR 10-8, "Waste Minimization"
- PLAN-WASTEMGMT-002,R.1.3, "LANL Waste Management Facilities WAC"
- Atomic Energy Act of 1954
- Resource Conservation Recovery Act (40 CFR 260 through 279)

- DOE Order 5820
- DOE Order 5400.5
- HEWTF Waste Acceptance Criteria
- Explosive Review Committee
- LIR300-00-01 Safe Work Practices

10.0 ATTACHMENTS

1. F-, P-, and U-listed wastes; and TCLP metals (40 CFR 261)
2. Chemical Waste Disposal Request (CWDR)
3. Waste Profile Form (WPF)
4. List of DX Division WMCs and geographic areas of responsibility
5. Contacting a DX-Division Waste Management Coordinator
6. Log of Waste
7. Persons Authorized to Use This Satellite Accumulation Area (SAA)
8. Hazardous and Mixed Waste Facility Inspection Record Form (IRF)
9. DX Division RCRA Self Inspection Checklists
10. Disposal at ESA Burning Ground

Attachment 1

P-Listed Hazardous Waste Constituents— Unused Chemicals *(Acutely Hazardous)*

40 CFR 261.33(e)

Legend

The following letter codes may appear in parentheses after some of the constituents.

(C) Corrosive waste
(E) Toxicity characteristic waste
(I) Ignitable waste
(II) Acute hazardous waste
(R) Reactive waste
(T) Toxic waste

Acetaldehyde, chloro-	P023
Acetamide, 2-fluoro-	P057
Acetamide, N-(aminothioxomethyl)-	P002
Acetic acid, fluoro-, sodium salt	P058
1-Acetyl-2-thiourea	P002
Acrolein	P003
Aldicarb	P070
Aldrin	P004
Allyl alcohol	P005
Aluminum phosphide (R,T)	P006
5-(Aminomethyl)-3-isoxazolol	P007
4-Aminopyridine	P008
Ammonium picrate (R)	P009
Ammonium vanadate	P119
Argentate(1-), bis(cyano-C)-, potassium	P099
Arsenic acid H 3 AsO 4	P010
Arsenic oxide As 2 O 3	P012
Arsenic oxide As 2 O 5	P011
Arsenic pentoxide	P011
Arsenic trioxide	P012
Arsine, diethyl-	P038
Arsonous dichloride, phenyl-	P036
Aziridine	P054
Aziridine, 2-methyl-	P067
Barium cyanide	P013
Benzenamine, 4-chloro-	P024
Benzenamine, 4-nitro-	P077
Benzene, (chloromethyl)-	P028
1,2-Benzenediol, 4-[1-hydroxy-2-(methylamino)ethyl]-,(R)-	P042
Benzeneethanamine, alpha,alpha-dimethyl-	P046
Benzenethiol	P014
2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenyl-butyl)-, & salts, when present at concentrations greater than 0.3%	P001

Benzyl chloride	P028
Beryllium	P015
Bromoacetone	P017
Brucine	P018
2-Butanone, 3,3-dimethyl-1-(methylthio)-, O-[(methyl-amino)carbonyl] oxime	P045
Calcium cyanide	P021
Calcium cyanide Ca(CN)2	P021
Carbon disulfide	P022
Carbonic dichloride	P095
Chloroacetaldehyde	P023
p-Chloroaniline	P024
1-(o-Chlorophenyl)thiourea	P026
3-Chloropropionitrile	P027
Copper cyanide	P029
Copper cyanide Cu(CN)	P029
Cyanides (soluble cyanide salts), not otherwise specified	P030
Cyanogen	P031
Cyanogen chloride	P033
Cyanogen chloride (CN)Cl	P033
2-Cyclohexyl-4,6-dinitrophenol	P034
Dichloromethyl ether	P016
Dichlorophenylarsine	P036
Dieldrin	P037
O,O-Diethyl O-pyrazinyl phosphorothioate	P040
Diethyl-p-nitrophenyl phosphate	P041
Diethylarsine	P038
Diisopropylfluorophosphate (DFP)	P043
1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-, (1alpha, 4alpha, 4abeta, 5alpha, 8alpha, 8abeta)-	P004
1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexa-chloro-1,4,4a,5,8,8a-hexahydro-, (1alpha, 4alpha, 4abeta, 5beta, 8beta, 8abeta)-	P060
2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahyro-(1aalpha, 2beta, 2aalpha, 3beta, 6beta, 6aalpha, 7beta, 7aalpha)-	P037
2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-,(1aalpha, 2beta, 2abeta, 3alpha, 6 alpha, 6abeta, 7beta, 7aalpha)-, and metabolites	P051
Dimethoate	P044
alpha, alpha-Dimethylphenethylamine	P046
4,6-Dinitro-o-cresol, & salts	P047
2,4-Dinitrophenol	P048

Dinoseb	P020
Diphosphoramide, octamethyl-	P085
Diphosphoric acid, tetraethyl ester	P111
Disulfoton	P039
Dithiobiuret	P049
Endosulfan	P050
Endothall	P088
Endrin	P051
Endrin, & metabolites	P051
Epinephrine	P042
Ethanedinitrile	P031
Ethanimidothioic acid, N-[[(methylamino)carbonyl]oxy]-, methyl ester	P066
Ethyl cyanide	P101
Ethyleneimine	P054
Famphur	P097
Fluorine	P056
Fluoroacetamide	P057
Fluoroacetic acid, sodium salt	P058
Fulminic acid, mercury(2+) salt (R,T)	P065
Heptachlor	P059
Hexaethyl tetraphosphate	P062
Hydrazine, methyl-	P068
Hydrazinecarbothioamide	P116
Hydrocyanic acid	P063
Hydrogen cyanide	P063
Hydrogen phosphide	P096
Isodrin	P060
3(2H)-Isoxazolone, 5-(aminomethyl)-	P007
Mercury fulminate (R,T)	P065
Mercury, (acetato-O)phenyl-	P092
Methanamine, N-methyl-N-nitroso-	P082
Methane, isocyanato-	P064
Methane, oxybis[chloro-	P016
Methane, tetranitro- (R)	P112
Methanethiol, trichloro-	P118
6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-,3-oxide	P050
4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-	P059
Methomyl	P066
Methyl hydrazine	P068
Methyl isocyanate	P064
Methyl parathion	P071
2-Methyllactonitrile	P069
alpha-Napthylthiourea	P072
Nickel carbonyl	P073

Nickel carbonyl Ni(CO)4 , (T-4)-	P073
Nickel cyanide	P074
Nickel cynaide Ni(CN)2	P074
Nicotine, & salts	P075
Nitric oxide	P076
p-Nitroaniline	P077
Nitrogen dioxide	P078
Nitrogen oxide NO	P076
Nitrogen oxide NO 2	P078
Nitroglycerine (R)	P081
N-Nitrosodimethylamine	P082
N-Nitrosomethylvinylamine	P084
Octamethylpyrophosphoramide	P085
Osmium oxide OsO 4 , (T-4)-	P087
Osmium tetroxide	P087
7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid	P088
Parathion	P089
Phenol, 2,4,6-trinitro-, ammonium salt (R)	P009
Phenol, 2,4-dinitro-	P048
Phenol, 2-(1-methylpropyl)-4,6-dinitro-	P020
Phenol, 2-cyclohexyl-4,6-dinitro-	P034
Phenol, 2-methyl-4,6-dinitro-, & salts	P047
Phenylmercury acetate	P092
Phenylthiourea	P093
Phorate	P094
Phosgene	P095
Phosphine	P096
Phosphoric acid, diethyl 4-nitrophenyl ester	P041
Phosphorodithioic acid, O,O-diethyl S-[(ethylthio)methyl] ester	P094
Phosphorodithioic acid, O,O-diethyl S-[2-(ethylthio)ethyl] ester	P039
Phosphorodithioic acid, O,O-dimethyl S-[2-(methylamino)-2-oxoethyl] ester	P044
Phosphorofluoridic acid, bis(1-methylethyl) ester	P043
Phosphorothioic acid, O,O-dimethyl O-(4-nitrophenyl) ester	P071
Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl) ester	P089
Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester	P040
Phosphorothioic acid, O-[4-[(dimethylamino) sulfonyl]phenyl] O,O-dimethyl ester	P097
Plumbane, tetraethyl-	P110
Potassium cyanide	P098
Potassium cyanide K(CN)	P098
Potassium silver cyanide	P099
1,2,3-Propanetriol, trinitrate (R)	P081
Propanal, 2-methyl-2-(methylthio)-, O-[(methylamino) carbonyl]oxime	P070
Propanenitrile	P101
Propanenitrile, 2-hydroxy-2-methyl-	P069
Propanenitrile, 3-chloro-	P027

2-Propanone, 1-bromo-	P017
Propargyl alcohol	P102
2-Propen-1-ol	P005
2-Propenal	P003
1,2-Propylenimine	P067
2-Propyn-1-ol	P102
4-Pyridinamine	P008
Pyridine, 3-(1-methyl-2-pyrrolidinyl)-, (S)-, & salts	P075
Selenious acid, dithallium(1+) salt	P114
Selenourea	P103
Silver cyanide	P104
Silver cyanide Ag(CN)	P104
Sodium azide	P105
Sodium cyanide	P106
Sodium cyanide Na(CN)	P106
Strontium sulfide SrS	P107
Strychnidin-10-one, & salts	P108
Strychnidin-10-one, 2,3-dimethoxy-	P018
Strychnine, & salts	P108
Sulfuric acid, dithallium(1+) salt	P115
Tetraethyl lead	P110
Tetraethyl pyrophosphate	P111
Tetraethyldithiopyrophosphate	P109
Tetranitromethane (R)	P112
Tetraphosphoric acid, hexaethyl ester	P062
Thallic oxide	P113
Thallium oxide Tl 2 O 3	P113
Thallium(I) selenite	P114
Thallium(I) sulfate	P115
Thiodiphosphoric acid, tetraethyl ester	P109
Thiofanox	P045
Thioimidodicarbonic diamide [(H 2 N)C(S)]2 NH	P049
Thiophenol	P014
Thiosemicarbazide	P116
Thiourea, (2-chlorophenyl)-	P026
Thiourea, 1-naphthalenyl-	P072
Thiourea, phenyl-	P093
Toxaphene	P123
Trichloromethanethiol	P118
Vanadic acid, ammonium salt	P119
Vanadium oxide V 2 O 5	P120
Vanadium pentoxide	P120
Vinylamine, N-methyl-N-nitroso-	P084
Warfarin, & salts, when present at concentrations greater than 0.3%	P001
Zinc cyanide	P121
Zinc cyanide Zn(CN)2	P121

Zinc phosphide Zn 3 P 2 , when present at concentrations greater than 10% (R,T)	P122

U-Listed Hazardous Waste Constituents— Unused Chemicals

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Acetaldehyde (I)	U001
Acetaldehyde, trichloro-	U034
Acetamide, N-(4-ethoxyphenyl)-	U187
Acetamide, N-9H-fluoren-2-yl-	U005
Acetic acid ethyl ester (I)	U112
Acetic acid, (2,4-dichlorophenoxy)-, salts & esters	U240
Acetic acid, lead(2 +) salt	U144
Acetic acid, thallium(1 +) salt	U214
Acetone (I)	U002
Acetonitrile (I,T)	U003
Acetophenone	U004
Acetyl chloride (C,R,T)	U006
2-Acetylaminofluorene	U005
Acrylamide	U007
Acrylic acid (I)	U008
Acrylonitrile	U009
Amitrole	U011
Aniline (I,T)	U012
Arsinic acid, dimethyl-	U136
Auramine	U014
Azaserine	U015
Azirino[2',3':3,4]pyrrolo[1,2-a]indole-4,7-dione, 6-amino-8-[[(aminocarbonyl)oxy]methyl]-1,1a,2, 8,8a,8b-hexahydro-8a-methoxy-5-methyl-,[1aS-(1aalpha, 8beta, aalpha, 8balpha)]-	U010
Benz[a]anthracene	U018
Benz[a]anthracene, 7,12-dimethyl-	U094
Benz[c]acridine	U016
Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-	U157
Benzal chloride	U017
Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propynyl)-	U192
Benzeneacetic acid, 4-chloro-alpha-(4-chlorophenyl)-alpha-hydroxy, ethyl ester	U038
Benzenamine (I,T)	U012
Benzenamine, 2-methyl-	U328
Benzenamine, 2-methyl-, hydrochloride	U222
Benzenamine, 2-methyl-5-nitro-	U181
Benzenamine, 4,4'-carbonimidoylbis[N,N-dimethyl-	U014
Benzenamine, 4,4'-methylenebis[2-chloro-	U158
Benzenamine, 4-chloro-2-methyl-, hydrochloride	U049
Benzenamine, 4-methyl-	U353

Benzenamine, N,N-dimethyl-4-(phenylazo)-	U093
Benzene (I,T)	U019
Benzene, (1-methylethyl)- (I)	U055
Benzene, (dichloromethyl)-	U017
Benzene, (trichloromethyl)-	U023
Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-chloro-	U061
Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-methoxy-	U247
Benzene, 1,1'-(2,2-dichloroethylidene)bis[4-chloro-	U060
Benzene, 1,2,4,5-tetrachloro-	U207
Benzene, 1,2-dichloro-	U070
Benzene, 1,3,5-trinitro-	U234
Benzene, 1,3-dichloro-	U071
Benzene, 1,3-diisocyanatomethyl- (R,T)	U223
Benzene, 1,4-dichloro-	U072
Benzene, 1-bromo-4-phenoxy-	U030
Benzene, 1-methyl-2,4-dinitro-	U105
Benzene, 2-methyl-1,3-dinitro-	U106
Benzene, chloro-	U037
Benzene, dimethyl- (I,T)	U239
Benzene, hexachloro-	U127
Benzene, hexahydro- (I)	U056
Benzene, methyl-	U220
Benzene, nitro-	U169
Benzene, pentachloro-	U183
Benzene, pentachloronitro-	U185
Benzenebutanoic acid, 4-[bis(2-chloroethyl) amino]-	U035
Benzenediamine, ar-methyl-	U221
1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester	U028
1,2-Benzenedicarboxylic acid, dibutyl ester	U069
1,2-Benzenedicarboxylic acid, diethyl ester	U088
1,2-Benzenedicarboxylic acid, dimethyl ester	U102
1,2-Benzenedicarboxylic acid, dioctyl ester	U107
1,3-Benzenediol	U201
Benzenesulfonic acid chloride (C,R)	U020
Benzenesulfonyl chloride (C,R)	U020
Benzidine	U021
1,2-Benzisothiazol-3(2H)-one, 1,1-dioxide, & salts	U202
Benzo[a]pyrene	U022
Benzo[rst]pentaphene	U064
1,3-Benzodioxole, 5-(1-propenyl)-	U141
1,3-Benzodioxole, 5-(2-propenyl)-	U203
1,3-Benzodioxole, 5-propyl-	U090
2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenylbutyl)-, & salts, when present at concentrations of 0.3% or less	U248
p-Benzoquinone	U197
Benzotrichloride (C,R,T)	U023
2,2'-Bioxirane	U085

[1,1'-Biphenyl]-4,4'-diamine	U021
[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dichloro-	U073
[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethyl-	U095
[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethoxy-	U091
Bromoform	U225
4-Bromophenyl phenyl ether	U030
1,3-Butadiene, 1,1,2,3,4,4-hexachloro-	U128
1-Butanamine, N-butyl-N-nitroso-	U172
1-Butanol (I)	U031
2-Butanone (I,T)	U159
2-Butanone, peroxide (R,T)	U160
2-Butenal	U053
2-Butene, 1,4-dichloro- (I,T)	U074
2-Butenoic acid, 2-methyl-, 7-[[2,3-dihydroxy-2-(1-methoxyethyl)-3-methyl-1-oxobutoxy]methyl]-2,3,5,7a-tetrahydro-1H-pyrrolizin-1-yl ester, [1S-[1alpha(Z),7(2S*,3R*), 7aalpha]]-	U143
n-Butyl alcohol (I)	U031
Cacodylic acid	U136
Calcium chromate	U032
Carbamic acid, methylnitroso-, ethyl ester	U178
Carbamic acid, ethyl ester	U238
Carbamic chloride, dimethyl-	U097
Carbamodithioic acid, 1,2-ethanediyl- bis-, salts and esters	U114
Carbamothioc acid, bis(1-methylethyl)-, S-(2,3-dichloro-2-propenyl) ester	U062
Carbon oxyfluoride (R,T)	U033
Carbon tetrachloride	U211
Carbonic acid, dithallium(1 +) salt	U215
Carbonic difluoride	U033
Carbonochloridic acid, methyl ester (I,T)	U156
Chlornaphazin	U026
Chloral	U034
Chlorambucil	U035
Chlordane, alpha & gamma isomers	U036
p-Chloro-m-cresol	U039
4-Chloro-o-toluidine, hydrochloride	U049
Chlorobenzene	U037
Chlorobenzilate	U038
2-Chloroethyl vinyl ether	U042
Chloroform	U044
Chloromethyl methyl ether	U046
beta-Chloronaphthalene	U047
o-Chlorophenol	U048
Chromic acid H 2 CrO 4, calcium salt	U032
Chrysene	U050

Creosote	U051
Cresol (Cresylic acid)	U052
Crotonaldehyde	U053
Cumene (I)	U055
Cyanogen bromide (CN)Br	U246
2,5-Cyclohexadiene-1,4-dione	U197
Cyclohexane (I)	U056
Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1alpha, 2alpha, 3beta, 4alpha, 5alpha, 6beta)-	U129
Cyclohexanone (I)	U057
1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-	U130
Cyclophosphamide	U058
2,4-D, salts & esters	U240
DDD	U060
DDT	U061
Daunomycin	U059
Di-n-octyl phthalate	U107
Di-n-propylnitrosamine	U111
Diallate	U062
Dibenz[a,h]anthracene	U063
Dibenzo[a,i]pyrene	U064
1,2-Dibromo-3-chloropropane	U066
Dibutyl phthalate	U069
1,4-Dichloro-2-butene (I,T)	U074
o-Dichlorobenzene	U070
m-Dichlorobenzene	U071
p-Dichlorobenzene	U072
3,3'-Dichlorobenzidine	U073
Dichlorodifluoromethane	U075
Dichloroethyl ether	U025
1,1-Dichloroethylene	U078
1,2-Dichloroethylene	U079
Dichloroisopropyl ether	U027
Dichloromethoxy ethane	U024
2,4-Dichlorophenol	U081
2,6-Dichlorophenol	U082
1,3-Dichloropropene	U084
1,2:3,4-Diepoxybutane (I,T)	U085
O,O-Diethyl S-methyl dithiophosphate	U087
Diethyl phthalate	U088
1,4-Diethyleneoxide	U108
Diethylhexyl phthalate	U028
N,N'-Diethylhydrazine	U086
Diethylstilbesterol	U089
Dihydrosafrole	U090
3,3'-Dimethoxybenzidine	U091
Dimethyl phthalate	U102
Dimethyl sulfate	U103

Dimethylamine (I)	U092
p-Dimethylaminoazobenzene	U093
7,12-Dimethylbenz[a]anthracene	U094
3,3'-Dimethylbenzidine	U095
alpha, alpha-Dimethylbenzylhydroperoxide (R)	U096
Dimethylcarbamoyl chloride	U097
1,1-Dimethylhydrazine	U098
1,2-Dimethylhydrazine	U099
2,4-Dimethylphenol	U101
2,4-Dinitrotoluene	U105
2,6-Dinitrotoluene	U106
1,4-Dioxane	U108
1,2-Diphenylhydrazine	U109
Dipropylamine (I)	U110
Epichlorohydrin	U041
Ethanal (I)	U001
Ethanamine, N-ethyl-N-nitroso-	U174
Ethane, 1,1'-[methylenebis(oxy)]bis[2-chloro-	U024
Ethane, 1,1'-oxybis-(I)	U117
Ethane, 1,1'-oxybis[2-chloro-	U025
Ethane, 1,1,1,2-tetrachloro-	U208
Ethane, 1,1,1-trichloro-	U226
Ethane, 1,1,2,2-tetrachloro-	U209
Ethane, 1,1,2-trichloro-	U227
Ethane, 1,1-dicholro-	U076
Ethane, 1,2-dibromo-	U067
Ethane, 1,2-dichloro-	U077
Ethane, hexachloro-	U131
Ethane, pentachloro-	U184
1,2-Ethanediamine, N,N-dimethyl-N'-2-pyridinyl-N'-(2-thienylmethyl)-	U155
Ethanethioamide	U218
Ethanol, 2,2'-(nitrosoimino)bis-	U173
Ethanol, 2-ethoxy-	U359
Ethanone, 1-phenyl-	U004
Ethene, (2-chloroethoxy)-	U042
Ethene, 1,1-dichloro-	U078
Ethene, 1,2-dichloro-, (E)-	U079
Ethene, chloro-	U043
Ethene, tetrachloro-	U210
Ethene, trichloro-	U228
Ethyl acetate (I)	U112
Ethyl acrylate (I)	U113
Ethyl carbamate (urethane)	U238
Ethyl ether (I)	U117
Ethyl methacrylate	U118
Ethyl methanesulfonate	U119
Ethylene dibromide	U067

Ethylene dichloride	U077
Ethylene glycol monoethyl ether	U359
Ethylene oxide (I,T)	U115
Ethylenebisdithiocarbamic acid, salts & esters	U114
Ethylenethiourea	U116
Ethylidene dichloride	U076
Fluoranthene	U120
Formaldehyde	U122
Formic acid (C,T)	U123
Furan (I)	U124
Furan, tetrahydro- (I)	U213
2-Furancarboxaldehyde (I)	U125
2,5-Furandione	U147
Furfural (I)	U125
Furfuran (I)	U124
Glucopyranose,2-deoxy-2-(3-methyl-3-nitrosoureido)-, D-	U206
D-Glucose, 2-deoxy-2-[[(methylnitrosoamino)-carbonyl]amino]-	U206
Glycidylaldehyde	U126
Guanidine, N-methyl-N'-nitro-N-nitroso-	U163
Hexachlorobenzene	U127
Hexachlorobutadiene	U128
Hexachlorocyclopentadiene	U130
Hexachloroethane	U131
Hexachlorophene	U132
Hexachloropropene	U243
Hydrazine (R,T)	U133
Hydrazine, 1,1-dimethyl-	U098
Hydrazine, 1,2-diethyl-	U086
Hydrazine, 1,2-dimethyl-	U099
Hydrazine, 1,2-diphenyl-	U109
Hydrofluoric acid (C,T)	U134
Hydrogen fluoride (C,T)	U134
Hydrogen sulfide	U135
Hydrogen sulfide H 2 S	U135
Hydroperoxide, 1-methyl-1-phenylethyl- (R)	U096
2-Imidazolidinethione	U116
Indeno[1,2,3-cd]pyrene	U137
1,3-Isobenzofurandione	U190
Isobutyl alcohol (I,T)	U140
Isosafrole	U141
Kepone	U142
Lasiocarpine	U143
Lead acetate	U144
Lead phosphate	U145
Lead subacetate	U146
Lead, bis(acetato-O)tetrahydroxytri-	U146
Lindane	U129
MNNG	U163

Maleic anhydride	U147
Maleic hydrazide	U148
Malononitrile	U149
Melphalan	U150
Mercury	U151
Methacrylonitrile (I,T)	U152
Methanamine, N-methyl- (I)	U092
Methane, bromo-	U029
Methane, chloro- (I,T)	U045
Methane, chloromethoxy-	U046
Methane, dibromo-	U068
Methane, dichloro-	U080
Methane, dichlorodifluoro-	U075
Methane, iodo-	U138
Methane, tetrachloro-	U211
Methane, tribromo-	U225
Methane, trichloro-	U044
Methane, trichlorofluoro-	U121
Methanesulfonic acid, ethyl ester	U119
Methanethiol (I,T)	U153
4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-	U036
Methanol (I)	U154
Methapyrilene	U155
1,3,4-Metheno-2H-cyclobuta[cd]pentalen-2-one, 1,1a,3,3a,4,5,5,5a,5b,6-decachloro-octahydro-	U142
Methoxychlor	U247
Methyl alcohol (I)	U154
Methyl bromide	U029
Methyl chloride (I,T)	U045
Methyl chlorocarbonate (I,T)	U156
Methyl chloroform	U226
Methyl ethyl ketone (MEK) (I,T)	U159
Methyl ethyl ketone peroxide (R,T)	U160
Methyl iodide	U138
Methyl isobutyl ketone (I)	U161
Methyl methacrylate (I,T)	U162
4-Methyl-2-pentanone (I)	U161
1-Methylbutadiene (I)	U186
3-Methylcholanthrene	U157
Methylene bromide	U068
Methylene chloride	U080
4,4'-Methylenebis(2-chloroaniline)	U158
Methylthiouracil	U164
Mitomycin C	U010

5,12-Naphthacenedione, 8-acetyl-10-[(3-amino-2,3,6-trideoxy)-alpha-L-lyxo-hexopyranosyl) oxy]-7,8,9,10-tetrahydro-6,8,11-trihydroxy-1-methoxy-, (8S-cis)-	U059
1-Naphthalenamine	U167
2-Naphthalenamine	U168
Naphthalenamine, N,N'-bis(2-chloroethyl)-	U026
Naphthalene	U165
Naphthalene, 2-chloro-	U047
1,4-Naphthalenedione	U166
2,7-Naphthalenedisulfonic acid, 3,3'-[(3,3'-dimethyl[1,1'-biphenyl]-4,4'-diyl)bis(azo)bis[5-amino-4-hydroxy]-, tetrasodium salt	U236
1,4-Naphthoquinone	U166
alpha-Naphthylamine	U167
beta-Naphthylamine	U168
Nitric acid, thallium(1 +) salt	U217
5-Nitro-o-toluidine	U181
Nitrobenzene (I,T)	U169
p-Nitrophenol	U170
2-Nitropropane (I,T)	U171
N-Nitroso-N-ethylurea	U176
N-Nitroso-N-methylurea	U177
N-Nitroso-N-methylurethane	U178
N-Nitrosodi-n-butylamine	U172
N-Nitrosodiethanolamine	U173
N-Nitrosodiethylamine	U174
N-Nitrosopiperidine	U179
N-Nitrosopyrrolidine	U180
1,2-Oxathiolane, 2,2-dioxide	U193
2H-1,3,2-Oxazaphosphorin-2-amine, N,N-bis(2-chloroethyl)tetrahydro-, 2-oxide	U058
Oxirane (I,T)	U115
Oxirane, (chloromethyl)-	U041
Oxiranecarboxyaldehyde	U126
Paraldehyde	U182
Pentachlorobenzene	U183
Pentachloroethane	U184
Pentachloronitrobenzene (PCNB)	U185
1,3-Pentadiene (I)	U186
Pentanol, 4-methyl-	U161
Phenacetin	U187
Phenol	U188
Phenol, 2,2'-methylenebis[3,4,6-trichloro-	U132
Phenol, 2,4-dichloro-	U081
Phenol, 2,4-dimethyl-	U101
Phenol, 2,6-dichloro-	U082
Phenol, 2-chloro-	U048
Phenol, 4,4'-(1,2-diethyl-1,2-ethenediyl)bis-, (E)-	U089

Phenol, 4-chloro-3-methyl-	U039
Phenol, 4-nitro-	U170
Phenol, methyl-	U052
L-Phenylalanine, 4-[bis(2-chloroethyl)amino]-	U150
Phosphoric acid, lead(2 +) salt (2:3)	U145
Phosphorodithioic acid, O,O-diethyl S-methyl ester	U087
Phosphorus sulfide (R)	U189
Phthalic anhydride	U190
2-Picoline	U191
Piperidine, 1-nitroso-	U179
Pronamide	U192
1-Propanamine (I,T)	U194
1-Propanamine, N-nitroso-N-propyl-	U111
1-Propanamine, N-propyl- (I)	U110
1,3-Propane sultone	U193
Propane, 1,2-dibromo-3-chloro-	U066
Propane, 1,2-dichloro-	U083
Propane, 2,2'-oxybis[2-chloro-	U027
Propane, 2-nitro- (I,T)	U171
Propanedinitrile	U149
1-Propanol, 2,3-dibromo-, phosphate (3:1)	U235
1-Propanol, 2-methyl- (I,T)	U140
2-Propanone (I)	U002
2-Propenamide	U007
1-Propene, 1,1,2,3,3,3-hexachloro-	U243
1-Propene, 1,3-dichloro-	U084
2-Propenenitrile	U009
2-Propenenitrile, 2-methyl- (I,T)	U152
2-Propenoic acid (I)	U008
2-Propenoic acid, 2-methyl-, ethyl ester	U118
2-Propenoic acid, 2-methyl-, methyl ester (I,T)	U162
2-Propenoic acid, ethyl ester (I)	U113
n-Propylamine (I,T)	U194
Propylene dichloride	U083
3,6-Pyridazinedione, 1,2-dihydro-	U148
Pyridine	U196
Pyridine, 2-methyl-	U191
2,4-(1H,3H)-Pyrimidinedione, 5-[bis(2-chloroethyl)amino]-	U237
4(1H)-Pyrimidinone, 2,3-dihydro-6-methyl-2-thioxo-	U164
Pyrrolidine, 1-nitroso-	U180
Reserpine	U200
Resorcinol	U201
Saccharin, & salts	U202
Safrole	U203
Selenious acid	U204
Selenium dioxide	U204
Selenium sulfide	U205
Selenium sulfide SeS 2 (R,T)	U205

L-Serine, diazoacetate (ester)	U015
Streptozotocin	U206
Sulfur phosphide (R)	U189
Sulfuric acid, dimethyl ester	U103
1,2,4,5-Tetrachlorobenzene	U207
1,1,1,2-Tetrachloroethane	U208
1,1,2,2-Tetrachloroethane	U209
Tetrachloroethylene	U210
Tetrahydrofuran (I)	U213
Thallium chloride TlCl	U216
Thallium (I) acetate	U214
Thallium (I) carbonate	U215
Thallium (I) chloride	U216
Thallium (I) nitrate	U217
Thioacetamide	U218
Thiomethanol (I,T)	U153
Thioperoxydicarbonic diamide [(H 2 N)C(S)]2 S 2 , tetramethyl-	U244
Thiourea	U219
Thiram	U244
Toluene	U220
Toluene diisocyanate (R,T)	U223
Toluenediamine	U221
o-Toluidine	U328
p-Toluidine	U353
o-Toluidine hydrochloride	U222
1H,1,2,4-Triazol-3-amine	U011
1,1,2-Trichloroethane	U227
Trichloroethylene	U228
Trichloromonofluoromethane	U121
1,3,5-Trinitrobenzene (R,T)	U234
1,3,5-Trioxane, 2,4,6-trimethyl-	U182
Tris(2,3-dibromopropyl) phosphate	U235
Trypan blue	U236
Uracil mustard	U237
Urea, N-ethyl-N-nitroso-	U176
Urea, N-methyl-N-nitroso-	U177
Vinyl chloride	U043
Warfarin, & salts, when present at concentrations of 0.3% or less	U248
Xylene (I)	U239
Yohimban-16-carboxylic acid, 11,17-dimethoxy-18-[(3,4,5-trimethoxybenzoyl)oxy]-, methyl ester, (3beta, 16beta, 17alpha, 18beta, 20alpha)-	U200
Zinc phosphide Zn 3 P 2 , when present at concentrations of 10% or less	U249

WASTE CONTAMINANTS LISTED FOR TOXICITY

EPA Waste Code	Chemical Name	CAS#	Limit(ppm)
D004	Arsenic.	7440-38-2	5.0
D005	Barium.	7440-39-3	100.0
D018	Benzene.....	71-43-2	0.5
D006	Cadmium.....	7440-43-9	1.0
D019	Carbon tetrachloride...	56-23-5	0.5
D020	Chlordane.....	57-74-9	0.03
D021	Chlorobenzene.....	108-90-7	100.0
D022	Chloroform.....	67-66-3	6.0
D007	Chromium.....	7440-47-3	5.0
D023	o-Cresol.....	95-48-7	{4} 200.0
D024	m-Cresol.....	108-39-4	{4} 200.0
D025	p-Cresol.....	106-44-5	{4} 200.0
D026	Cresol		{4} 200.0
D016	2,4-D.....	94-75-7	10.0
D027	1,4-Dichlorobenzene.	106-46-7	7.5
D028	1,2-Dichloroethane.	107-06-2	0.5
D029	1,1-Dichloroethylene...	75-35-4	0.7
D030	2,4-Dinitrotoluene	121-14-2	{3} 0.13
D012	Endrin.....	72-20-8	0.02
D031	Heptachlor (and its epoxide)	76-44-8	0.008
D032	Hexachlorobenzene	118-74-1	{3} 0.13
D033	Hexachlorobutadiene.....	87-68-3	0.5
D034	Hexachloroethane.....	67-72-1	3.0
D008	Lead	7439-92-1	5.0
D013	Lindane.....	58-89-9	0.4
D009	Mercury	7439-97-6	0.2
D014	Methoxychlor	72-43-5	10.0
D035	Methyl ethyl ketone.....	78-93-3	200.0
D036	Nitrobenzene.....	98-95-3	2.0
D037	Pentrachlorophenol.....	87-86-5	100.0
D038	Pyridine	110-86-1	{3} 5.0
D010	Selenium	7782-49-2	1.0
D011	Silver	7440-22-4	5.0
D039	Tetrachloroethylene.....	127-18-4	0.7
D015	Toxaphene	8001-35-2	0.5
D040	Trichloroethylene	79-01-6	0.5
D041	2,4,5-Trichlorophenol	95-95-4	400.0
D042	2,4,6-Trichlorophenol	88-06-2	2.0
D017	2,4,5-TP (Silvex)	93-72-1	1.0
D043	Vinyl chloride	75-01-4	0.2

{1} Hazardous waste number.
{2} Chemical abstracts service number.
{3} Quantitation limit is greater than the calculated regulatory level. The quantitation limit therefore becomes the regulatory level.
{4} If o-, m-, and p-Cresol concentrations cannot be differentiated, the total cresol (D026) concentration is used. The regulatory level of total cresol is 200 mg/l.

Hazardous wastes from non-specific sources.

(a) The following solid wastes are listed hazardous wastes from non-specific sources unless they are excluded under §§ 40 CFR 260.20 and 260.22.

EPA Code		Haz. Code
F001	The following spent halogenated solvents used in degreasing:	(T)
	Tetrachloroethylene, richloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, and chlorinated fluorocarbons; all spent solvent mixtures/blends used in degreasing containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	
F002	The following spent halogenated solvents:	(T)
	Tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2-trifluoroethane, ortho-dichlorobenzene, trichlorofluoromethane, and 1,1,2-trichloroethane; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those listed in F001, F004, or F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	
F003	The following spent non-halogentated solvents:	(I)*
	Xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol; all spent solvent mixtures/blends containing, before use, only the above spent non-halogenated solvents; and all spent solvent mixtures/blends containing, before use, one or more of the above non-halogenated solvents, and, a total of ten percent or more (by volume) of one or more of those solvents listed in F001, F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	
F004	The following spent non-halogenated solvents:	(T)
	Cresols and cresylic acid, and nitrobenzene; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	
F005	The following spent non-halogenated solvents:	(I,T)
	Toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2-ethoxyethanol, and 2- nitropropane; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, or F004; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	

Attachment 3

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WASTE PROFILE FORM

Contact (if other than given below)	For rapid processing, complete all sections in black or blue ink and mail to: EM-SWO at **MS J595.** For assistance with completing this form, call EM-SWO at **5-4000**.	Reference Number (For EM-SWO use only.)

Generator's Z Number	Waste Generator's Name (print)	WMC's Z Number	WMC's Name (print)

Generator's Telephone	Generator's Mail Stop	Waste Generating Group	Waste Stream Technical Area	Building	Room

Waste Accumulation (Check only one.)
- ☐ Satellite Accumulation Area — Site no: _____
- ☐ Less-than-90-days Storage Area — Site no: _____
- ☐ TSDF — Site no: _____
- ☐ Universal Waste Storage Area — Site no: _____
- ☐ None of the Above

ER Use Only
- ☐ ER Site — PRS #: _____

Method of Characterization (Check as many as apply.)
- ☐ Analysis/Documents Attached
- ☐ Chemical/Physical Analysis — Sample #: _____
- ☐ Radiological Analysis — Sample #: _____
- ☐ PCB Analysis — Sample #: _____
- ☐ Acceptable Knowledge Documentation — Documentation #: _____
- ☐ MSDS

Section 1 - Chemical and Physical Information

Waste Type (Check only one.)
- ☐ Unused/Unspent Chemical (Complete all sections as appropriate.)
- ☐ Process Waste/Spent Chemical/ other (Complete all sections.)
- ☐ Green is Clean Waste (Complete all sections as appropriate.)

Waste Classes

Radiological Information
Was Waste Generated in a RCA?
- ☐ Yes ☐ No
- ☐ Non-radioactive
- ☐ Radioactive
  - ☐ Low-Level
  - ☐ Transuranic

Wastewater Information
- ☐ Wastewater for SWSC (TA-46) **(Complete Attachment 1)**
- ☐ Wastewater for RLWTF (TA-50/TA-21) **(Complete Attachment 2)**
- ☐ Wastewater for TA-16 (HE)

Classification Information
- ☐ Unclassified
- ☐ Classified/Sensitive

Waste Category (Check as many as apply.)
- ☐ Inorganic
- ☐ Organic
- Volatile Organics ☐ < 500 ppm ☐ ≥ 500 ppm
- ☐ Solvent *
- ☐ Degreaser *
- ☐ Dioxin
- ☐ Electroplating
- ☐ Treated Hazardous waste residue
- ☐ Explosive process
- ☐ Infectious/Medical
- ☐ Biological
- ☐ Beryllium
- ☐ Empty Container (See instructions)
- ☐ Battery (See instructions)
- Asbestos ☐ friable ☐ non-friable
- PCB Source Concentration
  - ☐ PCB < 50 ppm
  - ☐ PCB ≥ 50 - < 500 ppm
  - ☐ PCB ≥ 500 ppm
- ☐ Other (Describe below)

* Concentrations 10% or greater before use.

Waste Source (Check only one.)

Routine Waste
- ☐ Decon
- ☐ Materials Processing/Production
- ☐ Research/Development/Testing
- ☐ Scheduled Maintenance
- ☐ Housekeeping - Routine
- ☐ Spill Cleanup - Routine
- ☐ Sampling - Routine Monitoring
- ☐ Other (Describe below)

Non-routine Waste
- ☐ Abatement
- ☐ Construction/Upgrades
- ☐ Demolition
- ☐ Decon/Decom
- ☐ Investigative Derived
- ☐ Orphan/Legacy
- ☐ Remediation/Restoration
- ☐ Repacking (Secondary)
- ☐ Unscheduled Maintenance
- ☐ Housekeeping - Non-routine
- ☐ Spill Cleanup - Non-routine
- ☐ UST - Non-petroleum
- ☐ UST - Petroleum
- ☐ Other (Describe below)

Waste Matrix (Check only one.)

Gas
- ☐ ≤ 1.5 Atmospheres pressure
- ☐ > 1.5 Atmospheres pressure
- ☐ Liquefied compressed gas

Liquid
- ☐ Aqueous
- ☐ Non-aqueous
- ☐ Suspended Solids/ Aqueous
- ☐ Suspended Solids/ Non-aqueous

Solid
- ☐ Powder/Ash
- ☐ Solid
- ☐ Sludge
- ☐ Absorbed liquid

Matrix Type (Check only one.)
- ☐ Homogeneous
- ☐ Heterogeneous (Describe below)

Waste/Process Description (Chemical formulas may be used in this field.)

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Attachment 3
WASTE PROFILE FORM

Section 2 - Characteristics

Ignitability (Check only one.)

(°F)	(°C)
☐ < 73	< 22.8
☐ 73 - 99	22.8 - 37.2
☐ 100 - 139	37.8 - 59.4
☐ 140 -200	60.0 - 99.3
☐ > 200	> 99.3
☐ EPA Ignitable - Non-liquid	
☐ DOT Flammable Gas	
☐ DOT Oxidizer	
☐ Not ignitable	

Corrosivity (Check only one.)

(pH)

- ☐ ≤ 2.0
- ☐ 2.1 - 4.0
- ☐ 4.1 - 6.0
- ☐ 6.1 - 9.0
- ☐ 9.1 - 12.4
- ☐ ≥ 12.5
- ☐ Liquid corrosive to steel
- ☐ Non-aqueous

Reactivity (Check as many as apply.)

- ☐ RCRA Unstable
- ☐ Water Reactive
- ☐ Cyanide Bearing (> 250 ppm)
- ☐ Sulfide Bearing (> 500 ppm)
- ☐ Pyrophoric
- ☐ Shock Sensitive
- ☐ Explosive - DOT Div. _____
- ☐ Non-reactive

Boiling Point (Check only one.)

(°F)	(°C)
☐ ≤ 95	≤ 35
☐ > 95	> 35

☐ Not applicable

Identify for all contaminants listed.	Characterization Method: AK	TCLP	Total	Concentration of Contaminants: None or Non-detect	Present Below Regulatory Limit	Above Regulatory Limit: Minimum	Maximum
Toxicity Characteristic Metals						(Concentration in ppm only.)	
Arsenic	☐	☐	☐	☐	☐ < 5.0 ppm	_____ to	_____ ppm
Barium	☐	☐	☐	☐	☐ < 100.0 ppm	_____ to	_____ ppm
Cadmium	☐	☐	☐	☐	☐ < 1.0 ppm	_____ to	_____ ppm
Chromium (Total)	☐	☐	☐	☐	☐ < 5.0 ppm	_____ to	_____ ppm
Lead	☐	☐	☐	☐	☐ < 5.0 ppm	_____ to	_____ ppm
Mercury	☐	☐	☐	☐	☐ < 0.2 ppm	_____ to	_____ ppm
Selenium	☐	☐	☐	☐	☐ < 1.0 ppm	_____ to	_____ ppm
Silver	☐	☐	☐	☐	☐ < 5.0 ppm	_____ to	_____ ppm
Toxicity Characteristic Organics							
Benzene	☐	☐	☐	☐	☐ < 0.5 ppm	_____ to	_____ ppm
Carbon tetrachloride	☐	☐	☐	☐	☐ < 0.5 ppm	_____ to	_____ ppm
Chlorodane	☐	☐	☐	☐	☐ < 0.03 ppm	_____ to	_____ ppm
Chlorobenzene	☐	☐	☐	☐	☐ < 100.0 ppm	_____ to	_____ ppm
Chloroform	☐	☐	☐	☐	☐ < 6.0 ppm	_____ to	_____ ppm
o - cresol	☐	☐	☐	☐	☐ < 200.0 ppm	_____ to	_____ ppm
m - cresol	☐	☐	☐	☐	☐ < 200.0 ppm	_____ to	_____ ppm
p - cresol	☐	☐	☐	☐	☐ < 200.0 ppm	_____ to	_____ ppm
Cresol - mixed	☐	☐	☐	☐	☐ < 200.0 ppm	_____ to	_____ ppm
2,4-D	☐	☐	☐	☐	☐ < 10.0 ppm	_____ to	_____ ppm
1,4-Dichlorobenzene	☐	☐	☐	☐	☐ < 7.5 ppm	_____ to	_____ ppm
1,2-Dichloroethane	☐	☐	☐	☐	☐ < 0.5 ppm	_____ to	_____ ppm
1,1-Dichloroethylene	☐	☐	☐	☐	☐ < 0.7 ppm	_____ to	_____ ppm
2,4-Dinitrotoluene	☐	☐	☐	☐	☐ < 0.13 ppm	_____ to	_____ ppm
Endrin	☐	☐	☐	☐	☐ < 0.02 ppm	_____ to	_____ ppm
Heptachlor (& its epoxide)	☐	☐	☐	☐	☐ < 0.008 ppm	_____ to	_____ ppm
Hexchlorobenzene	☐	☐	☐	☐	☐ < 0.13 ppm	_____ to	_____ ppm
Hexchlorobutadiene	☐	☐	☐	☐	☐ < 0.5 ppm	_____ to	_____ ppm
Hexchloroethane	☐	☐	☐	☐	☐ < 3.0 ppm	_____ to	_____ ppm
Lindane	☐	☐	☐	☐	☐ < 0.4 ppm	_____ to	_____ ppm
Methoxychlor	☐	☐	☐	☐	☐ < 10.0 ppm	_____ to	_____ ppm
Methyl ethyl ketone	☐	☐	☐	☐	☐ < 200.0 ppm	_____ to	_____ ppm
Nitrobenzene	☐	☐	☐	☐	☐ < 2.0 ppm	_____ to	_____ ppm
Pentachlorophenol	☐	☐	☐	☐	☐ < 100.0 ppm	_____ to	_____ ppm
Pyridine	☐	☐	☐	☐	☐ < 5.0 ppm	_____ to	_____ ppm
Tetrachloroethylene	☐	☐	☐	☐	☐ < 0.7 ppm	_____ to	_____ ppm
Toxaphene	☐	☐	☐	☐	☐ < 0.5 ppm	_____ to	_____ ppm
Trichloroethylene	☐	☐	☐	☐	☐ < 0.5 ppm	_____ to	_____ ppm
2,4,5-Trichlorophenol	☐	☐	☐	☐	☐ < 400.0 ppm	_____ to	_____ ppm
2,4,6-Trichlorophenol	☐	☐	☐	☐	☐ < 2.0 ppm	_____ to	_____ ppm
2,4,5-TP (Silvex)	☐	☐	☐	☐	☐ < 1.0 ppm	_____ to	_____ ppm
Vinyl chloride	☐	☐	☐	☐	☐ < 0.2 ppm	_____ to	_____ ppm

Attachment 3

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WASTE PROFILE FORM

Section 3 - Additional Constituents

Additional Constituents and Contaminates. Please account for 100% of waste. Ranges should be given within guidelines of LIG 404-00-03 of individual constituents. List all other constituents (including inerts) not identified above and attach any applicable analysis. No chemical formulas allowed in this field. Continue in Section 3 Additional Information as necessary. CAS Numbers are needed for all chemical constituents. for material without a CAS Number enter "No CAS Number." Contact Waste Services at 5-4000 for assistance.

CAS No.	Name of constituent	Minimum	Maximum
			to %
			to %
			to %
			to %
			to %
			to %
			to %
			to %
			to %
			to %
			to %
			to %
	Total of max. ranges of this section		**in %**
	Total of max. ranges from page 2.		**in ppm**

Additional Information (Use additional sheet if necessary.)

If additional information is available on the chemical, physical, or radiological character of the waste not covered on this form, provide it below:

WASTE GENERATOR CERTIFICATION: Based on my knowledge of the waste and/or chemical/physical analysis, I certify that the information on this form is correct. I understand that this information will be made available to regulatory agencies and that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Signature	Date

WASTE MANAGEMENT COORDINATOR: I have reviewed this form and to the best of my knowledge, the information is complete and accurate.

Signature	Date

Attachment 3

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WASTE PROFILE FORM

Attachment 1 - Wastewater Characteristics for SWSC (TA-46)

For help in completing this section, call ESH -18 at 7-4882. Identify presence of any constituents listed below.
Use of Acceptable Knowledge in lieu of analytical data must be pre-approved by ESH-18.

Microtox Analysis #: _____ NOTE: Microtox analysis **must be** performed. Contact JCI/ENV to schedule analysis.

Are there any detectable levels of gross Alpha, gross Beta, gross Gamma, and/or Tritium? ☐ No ☐ Yes

All methods of analysis must conform to those approved pursuant to 40 CFR 136 unless an alternative method has been approved by ESH-18.
All metal concentrations are for the dissolved fraction present in the sample unless otherwise indicated.

	☐ Flow Rate of 100 gallons/day or less			☐ Flow Rate of greater than 100 gallons/day		
Flow Rate Parameters	None/ Non-detect	Within Regulatory Limits	Above Limit	None/ Non-detect	Within Regulatory Limits	Above Limit
pH		☐ 5 -11 SU	☐		☐ 5 -11 SU	☐
Chemical Oxygen Demand (COD)		☐ ≤ 750 mg/l	☐		☐ ≤ 500 mg/l	☐
Microtox results (a)		☐ < 55% screen	☐		☐ < 50% screen	☐
(b)		☐ > 20% EC50	☐		☐ > 25% EC50	☐
Temperature		☐ ≤ 180 °F	☐		☐ ≤ 140 °F	☐
Cyanide (Total)	☐	☐ < 5.0 mg/l	☐	☐	☐ < 1.0 mg/l	☐
Fluoride	☐	☐ < 200.0 mg/l	☐	☐	☐ < 50.0 mg/l	☐
Iron	☐	☐ < 100.0 mg/l	☐	☐	☐ < 35.0 mg/l	☐
Magnesium	☐	☐ < 100.0 mg/l	☐	☐	☐ < 50.0 mg/l	☐
Manganese	☐	☐ < 5.0 mg/l	☐	☐	☐ < 1.0 mg/l	☐
Metals (Total)	☐	☐ < 40.0 mg/l	☐	☐	☐ < 10.0 mg/l	☐
Nickel	☐	☐ < 50.0 mg/l	☐	☐	☐ ≤ 3.0 mg/l	☐
Nitrogen (Total)	☐	☐ ≤ 100.0 mg/l	☐	☐	☐ ≤ 50.0 mg/l	☐
Oil and Greases	☐	☐ < 100.0 mg/l	☐	☐	☐ < 50.0 mg/l	☐
Phosphorus (Total)	☐	☐ < 100.0 mg/l	☐	☐	☐ < 50.0 mg/l	☐
Silver	☐	☐ < 5.0 mg/l	☐	☐	☐ < 0.5 mg/l	☐
Total Suspended Solids (TSS)	☐	☐ ≤ 400.0 mg/l	☐	☐	☐ ≤ 300.0 mg/l	☐
Zinc	☐	☐ < 25.0 mg/l	☐	☐	☐ < 5.0 mg/l	☐

Wastewater contaminants **Identify for all constituents listed**	**None/Non-detect**	**Present within Regulatory Limits**	**Above Limit**
Dissolved Aluminum	☐	☐ < 5.0 mg/l	☐
Dissolved Arsenic	☐	☐ < 0.2 mg/l	☐
Barium	☐	☐ < 100.0 mg/l	☐
Beryllium	☐	☐ < 5.3 mg/l	☐
Dissolved Boron	☐	☐ < 5.0 mg/l	☐
Dissolved Cadmium	☐	☐ < 0.05 mg/l	☐
Chlorine (Total Residual)	☐	☐ < 3.0 mg/l	☐
Dissolved Chromium	☐	☐ < 1.0 mg/l	☐
Dissolved Cobalt	☐	☐ < 1.0 mg/l	☐
Dissolved Copper	☐	☐ < 0.5 mg/l	☐
Dissolved Lead	☐	☐ < 0.1 mg/l	☐
Total Mercury	☐	☐ < 0.01 mg/l	☐
Molybdenum	☐	☐ < 75.0 mg/l	☐
Polychlorinated Biphenyls (PCB)	☐	None Detected	☐
Dissolved Selenium	☐	☐ < 0.05 mg/l	☐
Dissolved Vanadium	☐	☐ < 0.1 mg/l	☐
Dissolved Zinc	☐	☐ < 25.0 mg/l	☐

Attachment 3

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WASTE PROFILE FORM

Attachment 2 - Wastewater Characteristics for RLWTF (TA-50 & TA-21)

For help in completing this section, call 7-4301.

Indicate if waste was: ☐ Accelerator produced ☐ Reactor produced ☐ Other (Describe in WPF Section 1 "Waste/Process Description.")

Radionuclide Contaminants

Identify for the following:	Present At Or Below LOC (in Ci/l)	Range if above LOC in Ci/l Min. / Max.	Identify for the following:	Present At Or Below LOC (in Ci/l)	Range if above LOC in Ci/l Min. / Max.
As-74	☐ ≤ 4.0 E -8	_____ / _____	Rb-84	☐ ≤ 1.0 E -8	_____ / _____
Be-7	☐ ≤ 1.0 E -6	_____ / _____	Sc-46	☐ ≤ 2.0 E -8	_____ / _____
Ce-141	☐ ≤ 5.0 E -8	_____ / _____	Sc-48	☐ ≤ 2.0 E -8	_____ / _____
Cs-134	☐ ≤ 2.0 E -9	_____ / _____	Se-75	☐ ≤ 2.0 E -8	_____ / _____
Cs-137	☐ ≤ 3.0 E -9	_____ / _____	Na-22	☐ ≤ 1.0 E -8	_____ / _____
Co-56	☐ ≤ 1.0 E -8	_____ / _____	Sr-85	☐ ≤ 7.0 E -8	_____ / _____
Co-57	☐ ≤ 1.0 E -7	_____ / _____	Sr-89	☐ ≤ 2.0 E -8	_____ / _____
Co-58	☐ ≤ 4.0 E -8	_____ / _____	Sr-90	☐ ≤ 1.0 E -9	_____ / _____
Co-60	☐ ≤ 5.0 E -9	_____ / _____	Sn-113	☐ ≤ 5.0 E -8	_____ / _____
Eu-152	☐ ≤ 2.0 E -8	_____ / _____	V-48	☐ ≤ 2.0 E -8	_____ / _____
H-3	☐ ≤ 2.0 E -8	_____ / _____	Y-88	☐ ≤ 3.0 E -8	_____ / _____
I-133	☐ ≤ 1.0 E -8	_____ / _____	Zn-65	☐ ≤ 9.0 E -9	_____ / _____
Mn-52	☐ ≤ 2.0 E -8	_____ / _____	Am-241	☐ ≤ 0.1 E -6	_____ / _____
Mn-54	☐ ≤ 5.0 E -8	_____ / _____	Pu-238	☐ ≤ 0.1 E -6	_____ / _____
Ra-226 + 228	☐ ≤ 3.0 E -11	_____ / _____	Pu-239	☐ ≤ 0.1 E -6	_____ / _____
Rb-83	☐ ≤ 2.0 E -8	_____ / _____	U-234	☐ ≤ 5.0 E -8	_____ / _____
Others:			**Others:**		
_____		_____ / _____	_____		_____ / _____
_____		_____ / _____	_____		_____ / _____
_____		_____ / _____	_____		_____ / _____

Other Contaminants

Metal Contaminants	Present Below LOC (in ppm)	Range if above LOC (in ppm) Min. / Max.
Aluminum	☐ ≤ 5.0	_____ to _____ ppm
Boron	☐ ≤ 5.0	_____ to _____ ppm
Cobalt	☐ ≤ 1.0	_____ to _____ ppm
Copper	☐ ≤ 1.0	_____ to _____ ppm
Vanadium	☐ ≤ 0.10	_____ to _____ ppm
Zinc	☐ ≤ 95.40	_____ to _____ ppm

Additional Contaminants	Min. / Max
Chemical Oxygen Demand (COD)	_____ to _____ mg/l
Total Suspended Solids (TSS)	_____ to _____ mg/l
☐ Total Nitrogen or ☐ Total Nitrates (only one entry needed)	_____ to _____ mg/l

Radioactive Contaminant Totals:

Total Alpha _____ Ci/l
Total Beta _____ Ci/l
Total Gamma _____ Ci/l

For TA-55 use only.

Wastewater will be discharged through one of the following:

☐ Acid Line ☐ Caustic Line ☐ Industrial Waste Line

☐ Yes ☐ No Scintillation Cocktail Brand Name _____ Volume _____ Unit _____

☐ Yes ☐ No Chemical Treatment for Boilers / Water Chillers

☐ Yes ☐ No Industrial Cleaner Type _____ Volume _____ Unit _____

Average daily volume when discharge occurs: _____ ☐ Gallons/day ☐ Liters/day

Maximum daily volume when discharge occurs: _____ ☐ Gallons/day ☐ Liters/day

Estimated number of days per year discharge will occur: _____

Estimated total volume per year discharged to the Radioactive Liquid Waste Collection System at TA-50 / TA-21: _____ ☐ Gallons ☐ Liters

Attachment 4

DX DIVISION WASTE MANAGEMENT COORDINATORS (WMCs)

NAME:	PHONE	PAGER	E-MAIL	ASSIGNED TECH AREAS:
Michelle Cash	5-0223	104-4012 (V)	cash@	3, 8, 35, 39 and 69
Gordon Jio	7-4325	104-8478	jio@	9, 14, and 16
Joe Richardson	5-4844	104-2974	avgjoe@	15, 22, 36, and 40

Attachment 5

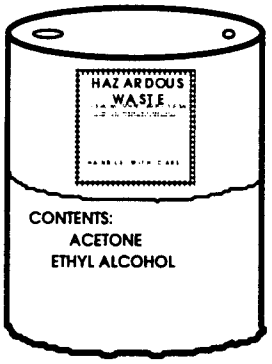
SATELLITE ACCUMULATION AREAS (SAAs)

LABEL ALL CONTAINERS..... Call, we'll get you labels.

KEEP CONTAINERS <u>SECURELY</u> CLOSED WHEN NOT IN USE.

LABEL CONTENTS
(what is it?)

1 May be labeled on outside of primary container, or, if more than one kind of waste, label each secondary container inside of main container
2 Write the words "HAZARDOUS WASTE" on each secondary container or call us for pre-printed tape.



DO I NEED A WASTE PROFILE FORM? HOW DO I FILL ONE OUT?... Call us.

KEEP A LOG OF YOUR WASTE.... Call, we have log sheets.

KNOW WHO YOUR SAA CONTACT IS... Who is responsible for your SAA?

NOT SURE WHAT IT IS? WHERE IT CAME FROM???... Call, we'll help.

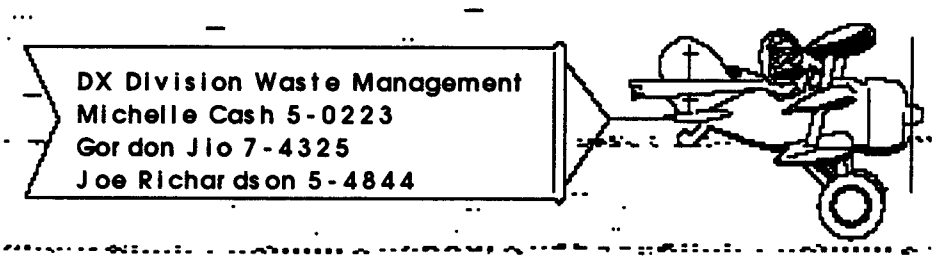
HOW DO I GET RID OF THIS STUFF??..... Call us.

THE CONTAINER IS GETTING FULL. ..... Call us.

IS THIS STUFF I HAVE EVEN HAZARDOUS??.. We can give you guidance.

WE DO: ASBESTOS, PCBs, RADIOACTIVE, MIXED RADIOACTIVE, CHEMICAL, CARCINOGENIC AND OTHER HAZARDOUS AND NON-HAZARDOUS WASTE.

QUESTIONS? NOT SURE? NEED HELP?



Attachment 6

LOG of WASTE

This Waste Generated at TA:_____ BLDG:_____ ROOM:_____

DATE	NAME	DESCRIPTION OF WASTE	VOL. OF WASTE (in gal.)	TOTAL VOL. (in gal.)
				=
			+	=
			+	=
			+	=
			+	=
			+	=
			+	=
			+	=
			+	=
			+	=
			+	=
			+	=
			+	=
			+	=

1 liter = 0.264 gallons
100 mL = 0.0264 gallons

500 mL = 0.132 gallons
50 mL = 0.013 gallons

250 mL = 0.066 gallons

Attachment 7

Persons authorized to use this Satellite Accumulation Area (SAA):

See Area Contact for authorization

Name	Group	Phone Number

The above persons agree to adhere to all Federal, State, LANL and DX-Division regulations regarding the proper handling and storage of waste.

Attachment 8

HAZARDOUS AND MIXED WASTE FACILITY INSPECTION RECORD FORM

[1] FACILITY: [2] Site ID #:	[3] ❑ <90-DAY ACCUMULATION AREA ❑ TREATMENT, STORAGE, OR DISPOSAL UNIT	[4] START DATE:	[5] END DATE:

[6] ❑ Containers ❑ Landfill ❑ Thermal Treatment
❑ Physical Treatment ❑ Biological Treatment ❑ Chemical Treatment
❑ Tank ❑ UST ❑ Miscellaneous Unit (OB/OD, Cementation)

PART I- Enter condition of the item inspected (**OK**, **NA** [Not Applicable], or **AR** [Action Required]) in column for day inspected.

ITEM	INSPECTED FOR:	MON	TUE	WED	THU	FRI	SAT	SUN
[7] NO USE	No waste opened, moved, received, treated, or removed; or no waste stored							
[8] COMMUNICATIONS EQUIPMENT	Availability and proper operating condition							
[9] WARNING SIGNS	Posted, legible, and bilingual							
[10] SECURITY	Condition of fences, gates, locks, and other access control equipment							
[11] WORK SURFACES/ FLOORS	Any conditions that could lead to an accident or spill							
[12] SPILL/FIRE EQUIPMENT	Present, appropriate, and in proper operating condition							
[13] EYEWASHES/ SAFETY SHOWERS	Proper operating condition							
[14] WIND SOCK	Proper operating condition and checked for damage							
[15] SECONDARY CONTAINMENT	Standing water/waste, integrity, vegetation, and erosion							
[16] RUN-ON/OFF CONTROL	Ponding, integrity, erosion, and damage							
[17] COVER/LID OF CONTAINERS	Closed and secured properly							
[18] LABELS	Proper labels on all tanks and containers							
[19] ACCUMULATION START DATE	Present and legible							
[20] COMPATIBILITY	Separated according to compatibility							
[21] INTEGRITY (Containers, tanks, and ancillary equipment)	Integrity, leakage, deterioration, corrosion, and damage							
[22] (UN)LOADING AREA	Spills and deterioration							
[23] AISLE	Appropriateness and							

Figure C-1
Hazardous and Mixed Waste Facility Inspection Record Form

HAZARDOUS AND MIXED WASTE FACILITY INSPECTION RECORD FORM

SPACE/STACKING	adequacy							
ITEM	**INSPECTED FOR:**	**MON**	**TUE**	**WED**	**THU**	**FRI**	**SAT**	**SUN**
[24] PALLETS AND RAISED CONTAINERS	Any condition that could result in failure							
[25] TANK SYSTEMS (Above ground portions)	Discharge controls, leakage, fill level, and corrosion							
[26] TREATMENT TANKS	Proper operating condition and leakage							
[27] SHAFTS	Presence and condition of cover							
[28] FILTER VESSELS (for open burning)	Deterioration and sand condition							
[29] OPEN BURNING UNITS	Deterioration, vegetation, sand condition, erosion, and leakage							
[30] OPEN DETONATION UNITS	Condition, vegetation, and erosion							
[31] CEMENTATION UNITS	Structural integrity and condition of equipment and systems							

	MON	**TUE**	**WED**	**THU**	**FRI**	**SAT**	**SUN**
[32] **DATE**							
[33] **TIME**							
[34] **SIGNATURE OF INSPECTOR(S)**							

Figure C-1 (Continued)
Hazardous and Mixed Waste Facility Inspection Record Form

HAZARDOUS AND MIXED WASTE FACILITY INSPECTION RECORD FORM

FACILITY:	Site ID #:	START DATE:	END DATE:

Part II- For any AR (Action Required) in PART I, describe below: action required, action taken, date, and time of action. Attach additional sheets if necessary. If more than one action is required, number each AR.

35

Figure C-1 (Continued)
Hazardous and Mixed Waste Facility Inspection Record Form

Attachment 9

DX DIVISION RCRA SELF INSPECTION CHECKLIST

SITE ID #	TA	BLDG	ROOM	GROUP	DATE	☐ SAA ☐< 90 ☐ UWA

☐ No concerns ☐ With concerns ☐ Inactive/Removed ☐ Active but not storing ☐ Comments

WMC: ☐ Joe Richardson ☐ Gordon Jio ☐ Michelle Cash Other:

GENERAL REQUIREMENTS		
F	1. Has the generator initiated a hazardous waste determination/ characterized waste?	☐ YES ☐ NO ☐ NA
F	2. Are containers in good condition?	☐ YES ☐ NO ☐ NA
F	3. Is waste compatible with containers?	☐ YES ☐ NO ☐ NA
F	4. Are all containers closed?	☐ YES ☐ NO ☐ NA
F	5. Are hazardous waste containers marked with the words "HAZARDOUS WASTE"?	☐ YES ☐ NO ☐ NA
	Is mixed waste labeled "RADIOACTIVE"?	☐ YES ☐ NO ☐NA
F	6. Are constituents of waste on container"?	☐ YES ☐ NO ☐ NA
F	7. A. Have all hazardous waste spills or leaks been cleaned up?	☐ YES ☐ NO ☐ NA
	B. Has the resultant clean up materials been handled as hazardous waste?	☐ YES ☐ NO ☐ NA
L	8. If storage area is outside, is the waste in a dry sheltered area and on pallets or similar devices so they are off the ground?	☐ YES ☐ NO ☐ NA
F	9. Are incompatible waste segregated properly?	☐ YES ☐ NO ☐ NA
F	10. Are hazardous waste segregated from nonhazardous waste?	☐ YES ☐ NO ☐ NA
L	11. Has ESH-19 been notified of the location of the hazardous waste Storage areas or any changes in the area?	☐ YES ☐ NO ☐ NA
F	12. Does the waste/material have a known owner/generator?	☐ YES ☐ NO ☐ NA
UNIVERSAL WASTE		
F	1. Is there an accumulation start date on containers?	☐ YES ☐ NO ☐ NA
F	2. Has waste exceeded the one year time limit?	☐ YES ☐ NO ☐ NA
L	3. Is the universal waste area sign prominently posted and visible?	☐ YES ☐ NO ☐ NA
SATELLITE ACCUMULATION AREA		
F	1. Is waste accumulated "at or near the point of generation"?	☐ YES ☐ NO ☐ NA
F	2. Is waste "under the control of the operator of the process Generating the waste"?	☐ YES ☐ NO ☐ NA
L	3. Do users of the SAA have an inventory system or their names And waste profiles numbers on containers?	☐ YES ☐ NO ☐ NA
L	4. Does the SAA have ☐ administrative or ☐ physical controls?	☐ YES ☐ NO ☐ NA
L	5. If the SAA is outside does it have physical controls?	☐ YES ☐ NO ☐ NA
F	6. Is there more than 55 gallons of hazardous waste or 1 quart of acutely hazardous waste?	☐ YES ☐ NO ☐ NA
	A. If waste volume has been exceeded, are containers marked With the date the excess began?	☐ YES ☐ NO ☐ NA
	B. Has the excess amount been held for more than 3 days?	☐ YES ☐ NO ☐ NA
L	7. Is the storage area free of obstacles and deterioration?	☐ YES ☐ NO ☐ NA
L	8. Is the satellite accumulation area sign prominently posted and visible?	☐ YES ☐ NO ☐ NA

< 90 DAY	
F 1. Is there an accumulation start date on every waste container in the <90 day storage area?	☐ YES ☐ NO ☐ NA
F 2. Has waste exceeded the 90 day time limit?	☐ YES ☐ NO ☐ NA
F 3. Is the <90 day storage area inspected at least weekly?	☐ YES ☐ NO ☐ NA
F 4. If deficiencies are noted they corrected in a timely manner?	☐ YES ☐ NO ☐ NA
F 5. Is the <90 day storage area sign and danger sign prominently Posted and visible?	☐ YES ☐ NO ☐ NA
F 6. For ignitable liquids, is the storage area grounded and bonded?	☐ YES ☐ NO ☐ NA
F 7. Does the <90 day storage area have the following required Equipment readily available?	
Spill control equipment	☐ YES ☐ NO ☐ NA
Emergency equipment	☐ YES ☐ NO ☐ NA
Communication equipment, and	☐ YES ☐ NO ☐ NA
Decontamination equipment	☐ YES ☐ NO ☐ NA
Is all of the equipment operable?	☐ YES ☐ NO ☐ NA
F 8. Is there adequate aisle space between containers in the <90 day Storage area?	☐ YES ☐ NO ☐ NA
F 9. Have the operators/inspectors for the <90 day storage area Completed all required training?	☐ YES ☐ NO ☐ NA
F 10. Is the storage area free of obstacles and deterioration?	☐ YES ☐ NO ☐ NA
F 11. Is a copy of the Contingency Plan at the <90 day storage area?	☐ YES ☐ NO ☐ NA
COMMENT:	

Attachment 10

DISPOSAL AT ESA BURNING GROUND

This form must be filled out and sent to the ESA-WMM Materials Section Leader, Mail Stop C930 before materials designated for disposal at the ESA Burning Ground can be picked up. In the case of materials to be received from 90 Day Storage Areas, this form ***must be submitted at least 30 days before 90 day period expires*** ESA Disposal Unit will not guarantee disposal before the deadline.

DATE: _____

REQUESTER_____ GROUP_____ PHONE_____

CHARGE CODE_____ COST CODE_____ WORK PACKAGE_____

1. High Explosives (HE) Scrap

Type _____

_____

History _____

_____

Approximate Weight _____ Approximate Volume _____

2. HE Contaminated Materials*

Type _____

_____

History _____

_____

3. Special instructions to Disposal Unit Leader (**not to be completed by requester**)

_____

_____

4. *All HE contaminated materials must be certified non-radioactive by ESH-1 RCR and free of lead, beryllium, oil, PCBs, and asbestos.

5. A waste profile form must be included with disposal request for waste acceptance.

6. Bar code/PN _____ Nomenclature _____
Model _____ Serial No. _____

Approved _____ **Date** _____
HE Processing Team Leader

Date of Disposal _____

From: Disposal Request Form
ESA-WMM-233
Revised: May 5, 1998

DX DIVISION

STANDARD OPERATING PROCEDURE

FOR

PACKAGING AND TRANSPORTATION OF

HAZARDOUS MATERIALS

SOP-3

Prepared by: _____ Date: _____
Stephen J. DePaula, DX-1

Approved by: _____ Date: _____
Kathy Smith, Group DX-1 ES&H Officer

Approved by: _____ Date: _____
ESH Deployed Team

Approved by: _____ Date: _____
B. Pruit Ginsberg, DX-1 Group Leader

Approved by: _____ Date: _____
DX-DO Operations Coordinator

CONTENTS

1.0 INTRODUCTION

The Dynamic Experimentation Division (DX) conducts operations and performs experiments requiring the use of various hazardous materials (HAZMAT) such as: Explosives, Gases, Flammable liquids and solids, Oxidizers, Poisons, Radioactive materials, Corrosives, and miscellaneous hazardous materials. Laboratory policy requires that all hazardous materials be packaged and shipped safely and in full compliance with all applicable regulations. This policy is intended to help ensure that personal, public and environmental exposures associated with the packaging and transportation of hazardous materials are minimized. Packaging and transportation of hazardous materials is regulated by the federal government and the DOE Explosives Safety Manual. This Standard Operating Procedure (SOP) describes methods to ensure DX Division personnel involved with all aspects of packaging and transportation of hazardous materials are in compliance with these regulations and policies.

2.0 PURPOSE

The purpose of this SOP is to describe the requirements and procedures to facilitate the safe handling and shipment of hazardous materials for movement within or outside of the Division.

3.0 SCOPE

This SOP is applicable to all DX-Division personnel involved the packaging and transportation of hazardous materials within the DX-Division Technical Areas (On-site), on public roads within Los Alamos County (Intra-Laboratory), and outside the Laboratory (Off-site).

4.0 DEFINITIONS

Authorized Personnel — A DX-Division employee who has demonstrated to his/her line manager the skills required to perform tasks associated with handling and transportation of hazardous materials. Individual is specifically authorized, in writing, by name, group, task and hazardous materials.

Hazardous Material (HAZMAT) — A material or substance that has been determined by the Secretary of Transportation to be capable of posing an unreasonable risk to health, safety and property when transported in commerce. The term includes hazardous substances, hazardous wastes, marine pollutants, and

elevated temperature materials as defined in 49 CFR 171.8, materials listed in the Hazardous Materials Table 49 CFR 172.101 and 172.102, and materials that meet the defining criteria for hazard classes and divisions listed in 49 CFR 173.2.

HAZMAT Employee

A person employed by a HAZMAT employer who in the course of employment directly affects hazardous materials transportation safety. This term includes owner-operators of motor vehicles that transport hazardous materials in commerce. It also includes any individual who during the course of employment:

1. Loads, unloads or handles hazardous materials;
2. Tests, reconditions, repairs, modifies, marks or otherwise represents containers, drums, or packaging as being qualified for use in the transportation of hazardous materials;
3. Prepares hazardous materials for transportation;
4. Is responsible for safety of transporting hazardous materials; or
5. Operates a vehicle used to transport hazardous materials.

HAZMAT Employer

An employer who uses one or more of its employees in connection with the activities listed for a HAZMAT employee. The Los Alamos National Laboratory and its subcontractors are HAZMAT Employers.

Hazardous Materials Transfer Form (HMTF)

The Laboratory form that acts as a shipping manifest for non-radioactive hazardous materials shipped within the Laboratory. It contains such information as the names of the hazardous materials being transported, the quantities of HAZMAT being transported and an emergency response telephone number. (See attachments for an example of this form).

Intra-Laboratory

The movement of hazardous materials between Laboratory buildings, Technical Areas or across public roadways to which the public has uncontrolled access. Intra-Laboratory shipments must conform to DOT regulations.

Material Safety Data Sheet (MSDS)	The document that provides detailed technical information relating to a specific hazardous material. Required by OSHA to accompany hazardous materials in the workplace.
Off-Site	The movement of hazardous materials beyond the confines of the Laboratory to another site. The shipment must conform to DOT regulations.
On-Site	The transfer of hazardous materials between Laboratory buildings within controlled areas (not across roadways to which the public has access). The transfer must conform to the requirements of the LANL Packaging and Transportation Manual. On-Site is sometimes referred to as "behind the fence".
Originator (Customer)	The person or organization that owns the hazardous material and wishes to make an off-site, intra-laboratory or on-site shipment.
Packager	Performs the physical preparation of HAZMAT packaging, i.e. places material in packages, assembles internal packaging components, secures and fastens packaging, marks and labels the package.
Qualified Personnel	Personnel trained and certified to perform tasks associated with hazardous material packaging and transportation.
Radioactive Material Transfer Form (RMTF)	Same as HMTF. Specifically for Radioactive Materials.
Shipper	The person or organization shipping the hazardous material. Shipping includes classifying, preparing or signing shipping documents to ship or offer materials for shipment. LANL training requirements must be met before a person can be authorized as a qualified shipper at LANL.

UN Packaging — A packaging which conforms to the specifications in 49 CFR or the International Air Transport Association (IATA) Dangerous Goods Regulations. Sometimes referred to as UN Standard or Performance Oriented Packaging (POP).

5.0 RESPONSIBILITIES

5.1 DX-Division Line Management

- Ensures that the necessary policies, procedures, and resources are provided for Division personnel to perform the tasks required to safely package and transport hazardous materials.
- Provide a current listing of personnel within DX-Groups authorized to perform tasks associated with the handling and movement of hazardous materials within the Group.

5.2 DX-Division Packaging & Transportation Coordinator

- Identify, package, handle, mark, label and transport hazardous material and non-hazardous material for shipment on-site, intra-Laboratory and off-site.
- Prepare required shipping documentation for hazardous materials and non-hazardous materials. Documentation includes: HMTFs, RMTFs, Purchase Requests (PRs) Checklists and Shipping Manifests (SMs).
- Coordinate with Laboratory "Shippers of Record" for Division hazardous material shipments.
- Implement DOT, DOE, LANL, DX-Division, and DX-Group P&T policies and procedures.
- Develop and maintain the DX-Division P&T database for HAZMAT shipments.
- Earn and maintain certifications and qualifications as a LANL HAZMAT Shipper, Packager, Shipper by Air, RAM Shipper, Waste Shipper, and Explosives Shipper. Provide technical guidance for training requirements for DX-Division HAZMAT employees.
- Ensure that DX-Division P&T activities are in full compliance with all established directives.
- Mitigate improperly prepared HAZMAT shipments.
- Act as and coordinate oversight for all DX-Division internal and external P&T audits and assessments.
- Develop DX-Division P&T policies and procedures.
- Receive hazardous materials for the Division.

5.3 P&T Customer

- Submit DX-Division P&T Request for services in a timely manner to provide P&T Coordinators reasonable time to prepare shipment and meet Customer's required delivery date.
- Provide adequate information to enable P&T Coordinators to properly identify, package, mark, label and prepare required shipping papers to facilitate shipment. This includes an accurate, up-to-date MSDS for the material being shipped.
- Ensure that Consignee is authorized to receive HAZMAT.

6.0 PRECAUTIONS AND LIMITATIONS

6.1 Many of the chemicals used in homes on a daily basis are not regulated; however, once they are put to use in a "Laboratory Environment," they may be regulated and require that specific P&T procedures be followed for on-site, intra-laboratory and off-site shipment. If there is doubt whether a material is hazardous or not, contact the P&T Coordinators for a determination.

6.2 Currently, the Laboratory is permitted to move hazardous materials On-Site- within the confines of Laboratory recognized controlled access areas (behind the fence). These movements of HAZMAT are authorized by DOE because of controls demonstrated by the Laboratory. These controls, in the form of access control, employee training, and written safety procedures, allow for relief from DOT regulations and permit movement of hazardous materials as what normally would be a prohibited practice. DOE requires that On-Site movement of hazardous materials demonstrate the maximum control and safety of operation as practicable to accomplish the mission.

All Intra-Laboratory and Off-Site shipments of hazardous materials form DX Division shall be coordinated through the Division P&T Team.

6.3 DX-Division Line Management is required to identify and designate authorized personnel within specific groups who are permitted to handle and transport hazardous materials on-site. The DX-Division P&T Coordinators are the Laboratory certified/qualified shippers of HAZMAT for intra-Laboratory and off-site hazardous material shipments for the Division. DX-Division Waste Management Coordinators are the recognized shippers of waste for the Division.

6.4 A HAZMAT employee who performs any function regulated by hazardous material regulations may not perform that function unless he or she has received training as described in Subpart H of Part 172 of 49 CFR. Every HAZMAT employee must receive both initial and recurrent training that includes--

- General awareness/familiarization training

- Function-specific training
- Safety training
- Testing

In DX Division, personnel assigned to the P&T Team and the Waste Management Coordination Team are trained/certified HAZMAT Employees.

6.5 The P&T Customer is responsible for ensuring that materials being shipped are correctly identified as either hazardous or nonhazardous. Nonhazardous materials shall be screened to ensure they contain no explosive or radioactive contamination.

6.6 General Explosives Transportation Requirements (See attachment VII).

6.7 The P&T Customer is responsible for ensuring that persons or organizations intended to receive hazardous materials shipped from DX-Division are authorized and prepared to receive these shipments and that approved storage facilities exist for the materials shipped. For On-Site and Intra-Laboratory shipments this requirement is addressed in the LANL Administrative Manual, AR 6-6. Explosive shipments intended for non-DOE facilities shall be approved by the LANL Explosives Review Committee prior to shipment.

6.8 Off-Site shipments of hazardous materials are required to be processed through the Laboratory "Shipper of Record." Explosives, classed 1.1, 1.2 and 1.3, are transferred from DX-Division to ESA-WMA for Off-site shipment. Explosives, classed 1.4, may be transferred to ESA-WMA or BUS-4 for Off-Site shipment. Gases are transferred to the LANL Gas Plant for Off-site shipment. Wastes are transferred to CST for Off-site shipment. All other hazardous materials, to include Radioactive Materials, are transferred to BUS-4 for shipment Off-site.

7.0 PROCEDURAL STEPS

7.1 On-Site, Intra-Laboratory & Off-Site Shipments

7.1.1 On-Site

See **Attachment X** for On-Site P&T procedures.

On-Site shipments of hazardous materials are not regulated by DOT; however, Laboratory policy requires that site-specific activities be described and defensible with respect to the methodology and compliance process used to meet packaging and transportation safety requirements. Only authorized personnel may participate in packaging and shipping functions. These shipments may be of a routine nature, customary, usual, and/or repetitive to the organization. **Routine shipments** are

normally conducted using approved packaging that meets the requirements of the DOE Explosives Safety Manual and DOT Regulations. **Nonroutine On-Site shipments** are emergency or one-time shipments of hazardous materials within controlled access areas for which there is no approved packaging. Line management shall decide that deviation from standard procedures is necessary to mission accomplishment and permit the deviation. Packages used in the transportation of nonroutine On-Site shipments of HAZMAT shall be adequate and provide the maximum safety possible. The package shall be designed to ensure that there will be no significant release of hazardous material into the environment. The containment measures shall take into account the likelihood and consequences of accidents, route and time of transit. An HMTF or RMTF shall be completed as appropriate and shall accompany the shipment. Emergency response information shall be entered on the transfer form with the person identified as the point of contact available/reachable during the time the shipment is in transit. The package shall be marked and labeled as appropriate to describe the hazards of the material being shipped. Vehicles used to transport hazardous materials shall be approved for such purposes, have the necessary installed safety and emergency equipment and shall be placarded when applicable (See Attachment VII). **Personnel performing On-Site hazardous material P&T functions shall be authorized to perform those tasks by their Group Management.** (See Attachment IX)

7.1.2 Intra-Laboratory

See **Attachment XI** for Intra-Laboratory P&T procedures.

Intra-Laboratory shipments of hazardous materials must comply with the requirements of DOE Orders, 49 CFR, other applicable regulations and Laboratory policies and procedures. Intra-Laboratory shipments of hazardous materials, in packaging that does not meet DOT requirements, become On-Site shipments and must be transferred over closed roads. Intra-Laboratory shipments of hazardous materials shall be made in authorized government vehicles operated by qualified Laboratory personnel. Training and safety requirements of 49 CFR and the Federal Motor Carrier Safety Regulations apply. An HMTF or RMTF, as appropriate, shall be completed and approved, to include emergency response information, for each Intra-Laboratory shipment and shall act as the Shipping Document. Procedural steps governing Off-site shipments shall be followed for Intra-Laboratory shipments of hazardous materials.

Only qualified HAZMAT personnel may perform Intra-Laboratory hazardous material P&T tasks.

7.1.3 Off-Site

See **Attachment XI** for Off-Site P&T procedures.

Off-site shipments of hazardous materials must be packaged, documented and transported by certified personnel in full compliance with applicable international, federal, state and Laboratory regulations. Off-site shipments of hazardous materials shall be processed through the appropriate Laboratory Shipper of Record. Before shipping hazardous materials off-site, the originator must include emergency response information in the shipping papers. The emergency response point of contact named on the shipping document must then be available to be contacted on a 24 hour basis while the shipment is in transit. The Laboratory Shipper of Record shall forward the emergency response information to the Laboratory emergency response organization before the shipment is released to the commercial carrier. A Shipping Manifest, HMTF or RMTF, as appropriate, shall be completed and approved and together with the MSDS, Emergency Response Guide Book extracts and any applicable exemptions, accompany the shipment to the Shipper of Record.

Only qualified HAZMAT personnel may perform Off-Site hazardous material P&T tasks.

7.2 Shipment Preparation

7.2.1 On-Site Shipments: (See Attachment X)

7.2.2 Intra-Laboratory Shipments: (See Attachment XI)

7.2.3 Off-Site Shipments: (See Attachment XI)

7.3 Quality Assurance

DX-Division P&T activities are conducted under the "umbrella" of the LANL Quality Assurance Plan for Hazardous Material Packaging and Transportation dated May 20. 1993.

7.4 Emergency Procedures

In case of a spill, the Division Waste Management Coordinator, the DX Division Facility Management Designee and the Building Contact shall be notified. If the spill occurs outdoors, the Team Leader with ownership for the area will be notified. If emergency help is needed, call 911. During all emergencies or incidents, Group Management shall be called as soon as possible.

Should an emergency situation arise while transporting explosives on-site, the driver is expected to use a two-way radio. Radios shall be available in HE transport vehicles to enable employees to call for assistance should an emergency or breakdown situation occur.

Instructions and guidelines to follow in the event of an emergency or breakdown with a vehicle carrying High Explosives

7.4.1 Accident / Fire

- Inspect the load for evidence of fire. If there is a fire but the explosive material is not presently or imminently involved, attempt to prevent the fire from spreading to the load. The fire may be fought using the vehicle's fire extinguisher. If explosive items are removed from the vehicle, ensure their security.
- If there is a fire that presently or imminently involves the load, evacuate all personnel to a minimum distance of 1250 feet from the vehicle. Block or divert traffic from the accident or fire. Notify and/or evacuate any potentially affected personnel.
- Unless the explosive cargo is imminently involved in the fire, the operator shall stay with the vehicle until proper disposition of the cargo is accomplished. Immediately notify the fire department of the accident / fire and provide information on the general type and a quantity of explosives involved. Notify the Group office.
- Because of the potential of toxic and radioactive fumes in the event of a fire, the transporter should move "upwind" if possible from the burning vehicle. The emergency radiation exposures and risk of injury to individuals involved in rescue and recovery shall be kept ALARA per 10 CFR 835.1302 and RPP 107-7 of the Radiation Protection Standards.

7.4.2 Mechanical Breakdown

- Remove the vehicle from the roadway as far as practical.
- Notify the appropriate authorities of the situation.
- Maintain visual contact with the vehicle
- If necessary, unload the vehicle to facilitate repair.

8.0 REQUIRED RECORDS - Not Applicable

9.0 REFERENCES

- Department of Transportation (DOT) Code of Federal Regulations (CFR) 49

- International Air Transport Association (IATA) Dangerous Goods Regulations
- Department of Energy (DOE) Orders 460.1/460.2, "Packaging and Transportation Safety"
- DOE Explosives Safety Manual
- Los Alamos National Laboratory (LANL) Environment, Safety and Health Manual
- LANL Packaging and Transportation Manual
- LANL BUS-4 Site Specific Work Procedures
- ESA-WMA Hazardous Materials (HAZMAT) Transportation Procedures
- DX-Division Operations Manual
- DX-Division Training and Qualification Manual
- 10 CFR 835 and RPP 107-7 (Radiation Protection Standards)

10.0 ATTACHMENTS

I. DX-Division P&T Request

II. LANL Hazardous Materials Transfer Form (HMTF), Form 1468 (2/95)

III. LANL Radioactive Materials Transfer Form (RMTF), Form 1586 (2/95)

IV. DX-Division HAZMAT Checklist for Off-Site / Intra-Laboratory Shipments

V. DX-Division Checklist for On-Site Explosives Shipments

VI. DX-Division Checklist for Off-Site / Intra-Laboratory Explosives Shipments

VII. General Explosives Transportation Requirements

VIII. DX-Division Personnel Authorized to Perform HAZMAT Functions

IX. Hazardous Materials Advisory Council Hazardous Materials Regulatory Reminder (HMAC HMRR) Checklist

X. DX Division On-Site P&T Procedures

XI. DX Division Intra-Laboratory and Off-Site P&T Procedures

XII. Record Of Annual Inspection

XIII. Driver's Vehicle Inspection Report

ATTACHMENT VII

GENERAL EXPLOSIVES TRANSPORTATION REQUIREMENTS

1. Vehicles used to transport HE shall have wheel chocks, tie down straps and tie down points/rings to secure the load.
2. When transporting HE, there shall be no loose items, such as handling gear, in the cargo compartment of the vehicle.
3. Rear view mirrors shall be installed/mounted on each side of an HE designated vehicle.
4. One fire extinguisher with a minimum rating of 2A:10BC shall be installed on all HE vehicles.
5. An annual inspection of all HE vehicles shall be accomplished during the annual review of this SOP (See Attachment XII). An operational safety inspection shall be conducted on each HE vehicle prior to daily operation (See Attachment XIII).
6. Safety related equipment checks and repairs shall be performed by maintenance personnel during regularly scheduled maintenance periods.
7. The speed limit for vehicles transporting HE within DX-Division Technical Areas (TAs) is 25 MPH. The speed limit for vehicles transporting HE on roads between TAs is 35 MPH unless a lower speed limit is posted.
8. Explosives shall not be left in vehicles overnight or in unattended vehicles (out of sight of operator).
9. When parking an HE vehicle equipped with a manual transmission, the ignition switch shall be turned off, the vehicle transmission placed in first gear and the emergency brake set. Vehicles equipped with automatic transmissions shall be placed in "park" and the emergency brake set when parked.
10. A rear wheel shall be secured front and rear with wheel chocks when an HE vehicles is parked on a significant grade.
11. Group management approvals shall be obtained prior to transporting explosives.
12. The driver shall, at all times, demonstrate professional actions, behavior, manners and attitude.
13. Fueling or maintenance of vehicles containing explosives is forbidden.
14. No smoking or spark/flame producing devices are allowed within 100 feet of vehicles containing explosives.
15. Explosive containers shall not be opened while inside a vehicle. An exception to this requirement is when explosives must be inspected in an emergency.
16. Government vehicles transporting HE shall not push or tow other vehicles.

17. Vehicle engines shall be off during loading and unloading of HE.

18. Vehicles shall not be operated closer than 25 feet of exposed explosives, magazines, or other HE buildings when the facility doors are open.

19. Low energy electro-explosive devices (EEDs) shall not be transported with other explosives.

20. Personnel are forbidden from riding in the cargo compartment of a vehicle transporting explosives.

21. Explosives shall not be transported during poor visibility, heavy snowfall, fog or during heavy rainfall.

22. Transportation of explosives during a lightning storm is forbidden.

23. When transporting explosives, the driver shall keep a two-way radio with him/her at all times.

24. A physical barrier shall be installed/in-place between the driver and the cargo compartment of vehicles transporting explosives.

Attachment VIII

DX PERSONNEL AUTHORIZED TO PERFORM HAZMAT FUNCTIONS ON-SITE

Name	Group	HAZMAT	Tasks/Authorizations

ATTACHMENT X

DX DIVISION ON-SITE P&T PROCEDURES

N/A	YES	NO	TASK
			Authorized to perform P&T task.
			Authorized to handle this hazardous material.
			Recipient authorized to receive this hazardous material
			Vehicle inspected and equipped for transporting HAZMAT
			HAZMAT Identified
			Proper Shipping Name
			Technical Name (if required)
			Hazard Class and Division
			UN Number
			Other (Hazardous Substance, Materials Poison By Inhalation)
			Packaging
			Quantity per package
			Authorized packaging (Group Management approval required if packaging used is non-standard)
			General packaging requirements met
			Marking
			Proper Shipping Name
			Technical Name (s)
			UN Number
			To and From Address
			Orientation Arrows (if required)
			Hazardous Substance (if required)
			Inhalation Hazard (if required)
			Exemption # (if used)
			Radioactive Materials (if required)
			Class 1 EX Number (if required)
			Labeling
			Primary Hazard
			Subsidiary Hazard (if required)
			Placement
N/A	**YES**	**NO**	**TASK**
			HMTF or RMTF completed

			Hazardous Materials securely tied-down
			Vehicle Placarded (if required)
			Obtain Group Management (or designee) approval to transport
			Consignee available to receive hazardous material
			Consignee signs HMTF or RMTF as receipt
			HMTF or RMTF filed

ATTACHMENT XI

A. Identification

The first step in the procedure to be followed by all HAZMAT employees, who offer products for transportation, is to determine if the material that is being shipped is regulated as a hazardous material. If the material is regulated as a hazardous material, it must be shipped using the prescribed shipping name and description, packaging, labeling, marking, and must be handled as required by regulations.

You must also be aware of any exceptions which may be authorized within the regulations for specific quantities or hazard classes of materials. An exception means that, when authorized within the regulations, and when specific conditions are met, certain materials may not require full compliance with all of the regulations.

The key to proper identification of a hazardous material is information. Gather as much information as possible prior to beginning the shipping process. Sources of information include: MSDSs, asking specific questions about the material and past practices, if they were done correctly.

Determine if the material is regulated as hazardous material, in the intended mode of transportation, in the quantity being shipped. Using the Hazardous Materials Table (HMT) in 49 CFR 172.101 and the following checklist, determine the proper shipping name (PSN):

1. Is the material listed by technical name in Column (2)?

Yes. It is a regulated hazardous material. Go to Item 2.
No. It MAY be a regulated hazardous material. Go to Item 6.

2. Is the material listed in Column (2) in Roman Type (not italics)?

Yes. It IS a proper shipping name. Go to Item 3.
No. It MAY NOT be used as a proper shipping name.
See the entry following the name in italics. Go to Item 3.

3. Is the material listed in Column (2) technically pure?

Yes. It may be used as the proper shipping name, Go to Item 5.
No. You may need to select an alternate proper shipping name. Go to Item 4.

4. **Is the material in a mixture or solution with other materials, either hazardous or non-hazardous?**

Yes. Select an alternate PSN using the information in Step #1, such as n.o.s., mixture or solution descriptions, etc. For materials which meet the definition of more than one hazard class, consult the Precedence of Hazard Table (49 CFR 173.2(b)). Go to Item 5.
No. Go to Item 5.

5. **After selecting the PSN for the material, check Column (1) of the HMT. Is there a symbol in Column (1), preceding the entry you have selected?**

Yes. Review 49 CFR 172.101(b) that describes the applicability of the symbol in Column (1) to determine if the material is regulated in the intended mode of transportation and if the PSN is authorized. Go to Item 6.
No. The material is regulated by all modes using the PSN you have selected, unless otherwise excepted. Go to Item 6.

6. **If the material identified by the PSN is listed in Appendix "A" of the HMT (49 CFR 172.101) and meets or exceeds the reportable quantity (RQ) listed, it is also an environmentally hazardous substance.**

- Is the material being shipped a hazardous substance?
- Is the material being shipped a marine pollutant?
- Is it both a hazardous substance and a marine pollutant?

Yes. Review Step #1 to select the PSN.
No. Continue - Go to Item 7.

7. **Do the PSN, Hazard Class/Division, UN Identification Number, Packing Group, Special Provisions, Packaging authorization, Quantity limitations, and physical characteristics meet the regulatory requirements and modal considerations for this shipment?**

Yes. Go to Item 8.
No. Review Step #1.

8. **Are the materials poisonous by inhalation?**

Yes. (Keep in mind for Marking - 7.2.3 Item 7, Labeling and Shipping Papers)
No. Checklist complete. Proceed to Package Selection.

B. Package Selection

Each hazard class presents its own unique characteristics which have been take into consideration for determining the safest and most efficient packaging to be use during transportation. As a result of historical experience and extensive testing, specific packaging has been selected for each material to be shipped. This selected packaging is referred to as "authorized" packaging. Only authorized packaging may be used to transport hazardous materials.

When specification packaging is required, hazardous materials shipments must only be offered for transportation when the applicable packaging has been used and the required performance testing has been conducted to qualify the packaging for use. The criteria for testing packages and packaging are found in 49 CFR 178.602-609.

When tests are conducted and packages or packaging are certified as meeting the UN Standard, the packaging manufacturer or other persons conducting the testing, must mark each container with the required specification marking which serves as the official certification. Records of the testing, names and locations where the testing was conducted and the results of those tests are retained for two years and are subject to DOT review at any time. The standards for packaging and the codes for each are found in 49 CFR 178.504 through 178.523. HM 181 and 49 CFR require that all packages and packaging meet or exceed UN Standards.

Using the Proper Shipping Name (PSN) selected, use the following checklist to determine the appropriate package/packaging for <u>each</u> hazardous material to be shipped.

1. Does an entry appear in Column (8A)?

Yes. Go to Item 2.
No. Go to Item 3.

2. Read the section listed in Column (8A) and proceed to Section 173.-----. Does the material to be shipped qualify for an exception in the quantity and type of packaging selected?

Yes. Follow the packaging instructions for the "exceptions" as authorized. Go to Item 8.
No. Go to Item 3.

3. Will the material be shipped in a non-bulk packaging (49 CFR 171.8)?

Yes Read the section listed in Column (8B) and select authorized packaging. Go to Item 5.
No. Go to Item. 4.

4. **Will the material be shipped in Bulk packaging (49 CFR 171.8)?**

   Yes. Read the section listed in Column (8C) and select authorized packaging. Go to Item 5.
   No. Go to Item 6.

5. **Are special provisions listed in Column (7)?**

   Yes. Read and follow the appropriate Special Provisions in 172.102 which correspond to the code in Column (7), in addition to the packaging authorization in Column (8). Go to Item 6.
   No. Go to Item 6.

6. **Check Column (5) of the HMT. Check the performance level (X,Y,Z for Packing Group qualification) code within the UN package marking. If a Packing Group is listed in Column (5) does the packaging selected meet or exceed the performance level testing criteria and marking for that Packing Group?**

   Yes. Go to Item 7.
   No. Select an alternate packaging which meets the performance level for the Packing Group listed. Go to Item 7.

7. **Is the packaging marked with the proper code within the UN marking to qualify it for use with the material which will be put in the container?**

   Yes. Go to Item 8.
   No. Select an alternate packaging which qualifies for use with the intended contents. Go to Item 8.

8. **Does the completed package comply with the General Packaging Standards for all packages in 49 CFR 173?**

   Yes. Go to Item 9.
   No. Make necessary corrections. Go to Item 9.

9. **If specification packaging is required, has the package been tested and marked to show that it is qualified to be used in transportation, for the material contained within the package, by displaying the appropriate UN or DOT specification markings and packaging manufacturers symbol?**

   Yes. Checklist completed.
   No. Review Step #1. Select alternate packaging.

NOTE!!! DO NOT EXCEED THE QUANTITY PER PACKAGE.

C. Marking

Markings on packaging containing hazardous materials offered for transportation provide essential information for communicating the hazards which may be present in the package, and for verifying that the package is appropriate for the contents.

Using the PSN and the package selected, use the following checklist to determine the appropriate Marking for the shipment.

1. The container is a non-bulk package.

Yes. Go to Item 2.
No. It is a bulk package. Go to Item 9. (Item 9 deleted)

2. The material has been re-named Consume Commodity and re-classified as ORM-D as permitted in Column (8A) of the HMT.

Yes. Mark the package with the PSN and the ORM-D marking. Go to Item 8.
No. Go to Item 3.

3. The material is being shipped under the Limited Quantity exception as permitted in Column (8A) of the HMT.

Yes. Mark the package with the PSN and the words "Limited Quantity." Go to Item 4
No. Go to Item 4.

4. Has the PSN, Technical Name, and any other required additional descriptions, and the identification number with the UN or NA prefix been legibly marked in English on the package?

Yes. Go to Item 5.
No. Review the marking requirements in 49 CFR 172.300 and make corrections as appropriate. Go back to Item 1.

5. Does the package contain inside containers with liquid contents?

Yes. Pack with closure upward and mark with orientation arrows to show "this end up". Go to Item 6.
No. Go to Item 6.

6. Does the package require marking with the name and address of the consignee or consignor?

Yes. Check for the required marking. Go to Item 7.
No. Go to Item 7.

7. **Does the package contain Division 2.3 materials or 6.1 poisonous liquids which will be identified as "Poison--Inhalation Hazard" on the shipping paper? (reference 7.2.1, Item 8)**

Yes. Check the package for the marking "Inhalation Hazard" in association with the required labels. Go to Item 8.
No. Go to Item 8.

8. **Does the package contain material identified as a Hazardous Substance?**

Yes. Check the package for the letters "RQ" in front of the PSN. Go to Item 9.
No. Go to Item 9.

9. **Item 9 deals with Marine Pollutants. Disregard unless shipping by water. Go to Item 10.**

10. **Are all required markings visible on the package and unobstructed by labels or other markings that could make them ineffective?**

Yes. Go to Item 11.
No Review marking requirements in 49 CFR and make corrections. Go to Item 11.

11. **Have additional markings, when appropriate, been applied such as Warning for Class 6.1 (toxic) plastic containers, DOT-E _____, Radioactive Materials, Overpack, Class 1 EX Number?**

Yes. Checklist completed.
No. Review additional marking requirements in 49 CFR, make corrections. Checklist completed.

D. Labeling

Labels are a very important means of communicating the fact that hazardous materials are contained in a package offered for transportation, and also provide an easily recognized means of identifying the type of hazards involved. Labels communicate the hazards of the material contained within a package by means of their shape, color, and content. Each label required by DOT to be displayed on a package containing hazardous materials must be produced according to specifications in 49 CFR 172.407.

Using the PSN selected, determine the appropriate labeling to be applied to package of hazardous materials using the following checklist:

1. **Is the material identified as a regulated material in the HMT?**

   Yes. Check Column (6) of the HMT, note all labels listed. Go to Item 2.
   No. No labels required. Checklist completed.

2. **Is the material being shipped under an exception as "limited quantity", "small quantity", or other as listed in Column (8A) of the HMT?**

   Yes. Check the requirements of the 49 CFR 173 Section found in Column (8A). Go to Item 3.
   No. Go to Item 3.

3. **Has the material been classified as an ORM-D (Consumer Commodity) as authorized by Part 173?**

   Yes. No labels required. Checklist completed.
   No. Go to Item 4.

4. **Does the material meet the definition of any other hazard class, even though additional labels are not listed in Column (6)?**

   Yes. Follow Subsidiary Hazard Labels Table in 49 CFR. Go to Item 5.
   No. Go to Item 5.

5. **Does the package require labels representing the hazard class of the materials actually contained therein?**

   Yes. Affix the required labels to the package. Go to Item 6.
   No. No labels may be displayed on the package. Go to Item 6.

6. **Are labels affixed as indicated below?**

- Securely affixed to any surface other than the bottom
- On the SAME side as the PSN marking if the package is large enough
- On a background of contrasting color or have a contrasting border
- Visible and not obscured by markings or attachments
- Multiple labels, when required, displayed next to each other (subsidiary should be adjacent to the right and below primary)
- Primary hazard label with Class and/or Division number in lower quadrant
- Subsidiary hazard with NO Class or Division number displayed in lower quadrant.
- Multiple labels when required for larger packages
- Proper color, size, specification and orientation (diamond on point, writing horizontal, readable left to right)
- ALL labels visible when overpacked or placed inside an outer container OR additional labels on the outside container

- All modal label requirements checked and labels or stick-on type markings affixed if required (CARGO AIRCRAFT ONLY, MARINE POLLUTANTS, etc.)

  Yes. Labels comply. Checklist completed.
  No. Review 49 CFR 172.401-450, make corrections and complete checklist again

E. Prepare Shipping Papers

The Shipping Paper is a very important part of the communication process for identifying hazardous materials which are offered in transportation and, if properly prepared, provides vital information for emergency response personnel in the event of an accident.

DX-Division personnel do not prepare shipping papers since shipping papers are prepared by the Laboratory "Shipper of Record" for the hazardous material being shipped. However, the Shipper of Record will require specific information from DX-Division P&T personnel to facilitate the shipment. DX-Division P&T personnel shall provide shipping paper information in draft form to the Laboratory Shipper of Record.

The following information is required as appropriate:

- Proper Shipping Name
- Technical Name
- Hazard Class/Division
- UN/NA Number
- Packing Group
- Total Quantity (Gross or Net)
- 24 Hour Emergency Response Names (2)
  Work Telephone Number
  Home Telephone Number
- DOT- E Number
- Limited Quantity
- Hazardous Substance (RQ / Name)
- Dangerous When Wet
- Poison / Name
- Inhalation Hazard / Zone
- Hazardous Wastes
- RESIDUE: Last Contained

F. Placarding

Placards are used to communicate the hazards within a cargo transport vehicle which contains certain packages of hazardous materials when offered for transportation. Placards are required to be constructed of durable material with minimum dimensions specified in 49 CFR 172.519. When properly displayed in transportation, placards provide emergency responders with a warning sign identifying hazardous materials which may pose health or safety problems in an accident.

DX-Division personnel are not normally required to transport hazardous materials in commerce. Placarding of vehicles transporting hazardous materials Off-site and Intra-Laboratory is the responsibility of the Laboratory Shipper of Record and the Carrier.

However, DX-Division HAZMAT personnel may be required to transport HAZMAT On-Site, thus requiring placards.

DX-Division HAZMAT personnel transporting hazardous materials ON-Site shall placard the transport vehicle as required by 49 CFR 172.504, Table 1 or 2. If Placards are required, they shall comply with display requirements outlined in 49 CFR 172.504-519.

G. Exceptions

1. General Procedures

Elements of DX-Division as well as other organizations in the DOE Complex create new explosives to be used and tested for future projects. A new explosive is (1) an explosive produced by a person who has not previously produced that explosive or (2) an explosive previously produced by a person who has made a change in the formulation, design or process so as to alter any of the properties of the explosive.

Transportation regulations require new explosives be approved by a competent authority. The authority in the United States is the Associate Administrator for Hazardous Material Safety.

New explosives made by or under the supervision of the DOD or the DOE may be approved in the same manner as commercial explosives producers through Bureau of Explosives or the Bureau of Mines; or through examination, testing and approval by either the designated Army, Navy, or Air Force component of DOD, or by the Department of Energy. The classifying entity sponsoring development of an explosive item or assembly is responsible for developing necessary data. This data is used to assign an appropriate hazard class/division, compatibility group, DOT shipping description, DOT label and UN number. A report of each approval granted by DOD or DOE(with supporting laboratory data) must be filed with the DOT Associate Administrator and an acknowledgment must be received prior to offering the new explosive for transportation.

2. Interim Hazard Classifications

An Interim Hazard Classification (IHC) exemption temporarily authorizes transportation of new explosives when offered by DOE contractors under commercial bills of lading. The IHC is not applicable for shipment of explosives by private contractors for non-DOE contracts. The organization sponsoring development of an explosive substance or assembly is responsible for requesting the IHC and for providing supporting data to the responsible DOE IHC authority. Any change in packaging or explosive components in an item requires reexamination of the item by the responsible IHC authority to ascertain the need for revision of the IHC. An IHC exemption may be issued for a period up to one year. Extension beyond one year requires a request from the originator, with justification, for renewal by the issuing organization.

3. Explosive Numbers (EX Numbers)

EX Numbers are assigned to new explosives after considerable testing and analysis. A written request for a permanent classification action is prepared stating the proposed classification, method of packaging, marking, labeling, and mode of transportation. Applicable supporting data is submitted along with the request to the responsible DOE Operations Office. Upon review and determination that the request is proper and the data supports the hazard classification assignment, the operations office will approve the request, assign permanent classification, and issue a classification approval document. Copies of the classification approval document and supporting data are submitted to DOE Headquarters for a submittal review and filing with DOT. The official submittal by HQ/DOE to DOT formally requests the DOT registration of the material being classified. Under DOT's new explosives classification program DOT Competent Authority Approval is provided along with the registration (EX-Number).

4. DOT Exemptions

The use of DOT Exemptions for the packaging and transportation of hazardous materials is authorized in accordance DOT regulations specified in 49 CFR 171-180. The DOT exemption procedures for DOE contractors are detailed in DOE Order 1540.2, "Hazardous Material Packaging for Transport - Administrative Procedures."

DX-DO

STANDARD OPERATING PROCEDURE

FOR

FOR TA-8, 9, 14, 15, 22, 36, 39, 40 & 69

DIVISION EMERGENCY GUIDE

SOP 07

Prepared by: _____ Date: _____
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Approved by: _____ Date: _____
C. M. Montoya, DX-DO Operations Coordinator

Controlled Document Number: [ ]

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EMERGENCY – 911
Emergency Management Office – 7-6211
Facility Manager Office (when dialing out of the Laboratory, dial 665-9800, 104-2926 then your phone number)
Emergencies during operations at Firing Sites,
Contact: The Access Control Office at 7-6742 As Soon As Possible (ASAP)

1.0 INTRODUCTION

In an emergency, the well-being of those individuals nearest the hazard should be the overwhelming concern, with decisions to evacuate and/or administer first-aid being the primary consideration of individuals on the scene.

2.0 PURPOSE

This document describes some emergency responses within DX Division.

3.0 SCOPE

This Guide applies to all personnel working at or visiting sites operated by **DX Division**. All personnel will comply with emergency guidance for those locations.

4.0 DEFINITIONS

- **EM&R** - Emergency Management and Response.
- **FMD** – Facility Manager Designee for DX-Division, Pager No. 104-2926 (FMD rotate on a weekly basis).
- **On-Scene-Commander** - person in charge on scene until released by the Incident Commander or a person with higher authority from the division.
- **Emergency Management Coordinator** - appointed by Division Managers as needed in time of emergency.
- **Critical Duty Personnel** - Manager in charge, individual(s) securing files, operations, and those performing final evacuation sweeps.
- **Incident Commander** - person from LA Fire Department or EM&R will be in charge on scene.

5.0 RESPONSIBILITIES

5.1. Line Management

Line management will ensure that all personnel are familiar with and will comply with this Guide.

5.2 Workers and Visitors

Workers and visitors will comply with this Guide and will work in a manner that provides for their own safety, the safety of their fellow workers and minimizes environmental insult.

6.0 PRECAUTIONS AND LIMITATIONS

Under no circumstances will anyone be directed or allowed to place themselves in additional danger by attempting to rescue others or mitigate the situation. Notification of individuals who will be responsible for directing emergency procedures should not be at the expense of prolonged exposure of anyone to imminent danger.

7.0 PROCEDURAL STEPS

7.1 Emergency Response

- Survey the area and help the injured if possible.
- If possible keep the problem from spreading.
- Do not add yourself to the list of victims.
- Reader shall contact Group Office as soon as possible.
- **The most important thing that you can do is to call 911 as soon as possible for fire and/or medical emergencies, for all other emergencies call EM&R at 667-6211.**
  - When you call **911**; answer all questions as clearly as you can.
  - Stay on the line until you are told to hang up.
  - Listen to the person on the line and not others in the area.
  - Remember, help is on the way and don't hang up until you are told to.
  - As soon as you are finished with the call to **911**, take charge of the situation and make your way to a point (or assign someone to do this) where you can intercept emergency personnel when they arrive.
  - Ask others in the area to make sure that personnel are accounted for at the muster point (See Attachment 1) and to call your Group Office/Line Management as soon as possible. **A follow-up call to 911 is recommended.**

DX DIVISION	PHONE NUMBER
DX-DO	7-5653
DX-1	7-6604
DX-2	7-4411
DX-3	7-4425
DX-4	7-4246
DX-5	7-4624
DX-6	5-5833
DX-7	7-5255
DX-8	5-5830
FMD's	Page 104-2926 / 8-1-505-699-1765

The Group Office/Line Management will contact DX-DO, the Facility Manager, and others as necessary. Limit the use of telephones, two-way radios and the paging systems for important communications. Only use the paging system for site-wide announcements.

When emergency response personnel arrive, advise the Incident Commander of the situation and release control. Stay available for consultation until the situation is under control or you are released.

7.2 Types of Emergencies

The following is a list of possible emergency situations to be considered:

- personal injury
- unplanned release of hazardous or toxic materials
- fire
- confined spaces rescue
- explosion
- natural disaster
- civil disturbance
- national emergency
- electrical shock

7.3 Communication

Telephones, paging systems, two-way radios, automatic fire alarm pull boxes may be used to alert personnel for emergency situations.

7.3.1 Telephone

Use the telephone to call for help (**911**). Keep the telephone free in case emergency personnel need to call back.

If the emergency causes a power failure, modern electronic telephones are unreliable. They depend on house power to light the line indicators and to sound the ring tone. Certain communications equipment throughout the division have Uninterruptable Power Supplies (UPS), but the life of these systems is short.

7.3.2 Paging Systems

- Limit paging system, use for necessary communications.
- Use paging system announcements to call for help or alert people in the immediate area.

7.3.3 Two-Way Radio

Two-way radio contact is preferred. Each site has personnel who carry hand-held radios and each group office has radio communications.

DX Division Group	Two-Way Radio Channel
DX-1	1
DX-2	2
DX-3	3
DX-4	4
DX-5	5
DX-6	6
DX-7	7
DX-8	4
DX-DO	8
LANL Emergency Channel	Last Channel(s)

- A hand-held radio can be used if a telephone is not available.
- Press the button on the left side and wait for the beep then speak normally.
- Release the button when you are finished speaking.

All hand held radios have been programmed, such that the last channel(s) (clockwise to stop) is the LANL Emergency Channel.

7.3.4 Automatic Alarms

High-temperature detectors are located throughout the division and automatically signals the fire department. They sound a local alarm (usually a siren or bell) to warn you. Buildings with automatic sprinkler systems signal the fire department and sound a local alarm when activated.

7.3.5 Fire Alarm Pull Box

Most DX occupied facilities have fire alarm pull boxes used for summoning assistance. **Familiarize yourself with their locations**.

Follow up with a call to **911** as soon as possible.

7.4 Coordination

7.4.1 As soon as a call to **911** is complete, send someone to meet emergency response personnel and have someone call your Group Office from another telephone. The Group Office will ask a number of questions (See Attachment 2), to document the situation. If you need additional help, ask the Group Office to try to get help before the report is completed.

7.4.2 The Division maintains a listing of personnel called Facility Manager Designees (FMD). The FMD will act as the single point of contact for all outside entities needing response to incidents involving the DX Division. The individual on call will notify line management or other personnel, as appropriate, about all incidents and actions taken.

7.4.3 Once notified, line management will appoint a Emergency Management Coordinator and a core team to handle emergencies as needed.

- When notified, each group will provide the following information to the core team: 1) initial/standard hazards associated with each of the buildings they are responsible for, 2) any changes in status, 3) names of individuals (critical duty personnel) to be called in case of emergencies (after hours), 4) utility concerns, 5) equipment concerns (group/building) and, 6) specific on-going operations.

- The Emergency Management Coordinator will keep Division and Group Management appraised of the situation.

- Group Management will contact critical duty personnel, at the request of the Emergency Management Coordinator, and tell them where to report. These personnel will provide support to the core team.

- If critical duty personnel report after hours, each will be provided with a radio, will be logged in, and will be provided with a phone number to call when entering and exiting specific areas. The Emergency Management Coordinator will provide PTLA and The LANL Emergency Operations Center (7-6211) with the names of these individuals and their locations. The purpose of this is to maintain a head count of personnel who are in the area. The form in Attachment 2 may be used for this effort.

- The core team will direct the response to the emergency until the emergency can be declared over.

•

7.5 Emergency Procedures Guidance

The following procedures should be used as a guide to responses, however, experience and common sense are your best guides. If you are trained in the use of fire-extinguishers, (**Familiarize yourself with locations of fire extinguishers in your work areas**) and believe that you can safely fight a fire, do so.

Basic actions in any emergency are:

Don't become a victim

- Call **911** as soon as possible.
- Call your Group Office as soon as possible.
- Determine if the scene is safe, help the injured, if possible, without endangering yourself and others, get to safety, and stay at the muster or safe location area until told to leave.
- If possible keep the emergency from spreading.
- Do not enter a confined space to aid an injured person. Call for rescue personnel.

7.5.1 Personal Injury

- Call for help (**911**)
- Provide first aid as needed
- Shout for help in case anyone is nearby
- Stay with the victim until help arrives
- Call your Group Office as soon as practical

7.5.2 Fire In An Explosives Area (Orange No. 1 Sign)

- If a fire is discovered in or near an explosives facility, all personnel shall leave the fire area immediately and shall make no attempt to control or extinguish the fire. Personnel should go to the nearest safe location, sweeping the area as they go. Notify your Group Office as soon as possible, giving them your location and the situation.

- When fire does not involve explosives, is not too big, and if you are trained in the use of fire extinguishers, you can fight the fire safely. Try to smother it or fight it with a fire-extinguisher. If you can't fight the fire, shout a warning to others in the area and get away. If possible, help the injured and call for help as soon as possible. Use a pull box if one is available. Call **911** from the

nearest safe telephone and go to the muster area for that location. Call your Group Office as soon as possible.

If the fire involves explosives or is in proximity to explosives, leave the area immediately, notify others in the area, call 911; as soon as possible, call the FMD on Pager No. 104-2926 they will contact DX-Division Office and appropriate Group Office. ~~and call your Group Office as soon as possible.~~

7.5.3 Fire In A Non-Explosives Area

If the fire is not too big, you may try to put it out by smothering or use of a fire extinguisher. If you can't fight the fire, shout a warning to others in the area and get away. If possible, help the injured, and call for help as soon as possible. Use a pull box if one is available. Call **911** from the nearest, safe telephone and go to the muster area for that location. The fire department must respond to any fire to ensure the fire is out. From a safe location, call your Group Office as soon as safe and practical.

7.5.4 Fire In An Area Containing Flammable Liquids

Fire near flammable liquids is very dangerous because the material may give off toxic gases or the container may explode. You may smother a small fire in a beaker or tray, but do not try to fight a larger fire. If you can't fight the fire, shout a warning to others in the area and get away. If possible, help the injured, and call for help as soon as possible. Use a pull box if one is available. Call **911** from the nearest safe telephone in any case, and go to the muster area for that location. Call your Group Office as soon as safe and practical.

7.5.5 Fire In Electrical Equipment

- Turn the equipment off if you can do so safely. Use only type C fire extinguishers on an electrical fire. If you can't fight the fire, shout a warning to others in the area and get away. If possible, help the injured after making sure that they are not in contact with live wiring. Call for help as soon as possible. Use a pull box if one is available. Call **911** from the nearest safe telephone in any case, and go to the muster area for that location. Even if you put the fire out, call **911**. Call your Group Office as soon as it is safe and possible.

- TA-39: **(One exception)** is a fire produced by the discharge of pulse power equipment (if limited to that equipment) this may not be an emergency situation, as determined by a qualified operator.

7.5.6 Grass Fire

In cases where a grass fire is caused by firing site activities, and the fire department is not on stand-by at the site, call **911** and then, if you can safely control the spread of the fire, you may do so until the fire department arrives. (Call your Group Office as soon as safe and practical).

7.5.7 Natural Gas Fire

Do not fight a gas fire. If you can do so safely, turn off the gas at the main. Each regulator is equipped with a wrench for this purpose. Familiarize yourself with their locations. If you see a regulator without a wrench, notify the Facility Area Coordinator. If you see a gas fire, shout a warning to others in the area and get away. If possible, help the injured, and call for help as soon as possible. Use a pull box if one is available. Call **911** from the nearest safe telephone in any case, and go to the muster area for that location. Call your Group Office as soon as safe and practical.

7.5.8 Explosion

- If an accidental explosion occurs, shout a warning to others in the area and get away. Help the injured, if possible, and call for help as soon as possible. Use a pull box if one is available. Call **911** from the nearest safe telephone, and go to the muster area for that location. Call your Group Office as soon as safe and possible.

7.5.9 Release Of Hazardous Material

Released hazardous material can be deadly. If you encounter a large release of hazardous material, shout a warning to others in the area and get away. Help the injured, if possible, and call for help as soon as possible. Call **911** (explain the hazard as best as you can) from the nearest telephone, and go to the muster area for that location. Call your Group Office and have them notify the Division Spill Coordinators so they can be at the scene when help arrives. If personnel are injured, and you know what material was released, refer to the Material Safety Data Sheet (MSDS) for first aid instructions.

7.5.10 Confined Spaces

Do not enter these spaces~~,~~ in an attempt to aid an injured person. Call 911 and wait for help and keep others from going into the area. Call your Group Office as soon as safe and possible.

7.5.11 Vehicular and Industrial Accidents

Vehicular or other types of industrial accidents are more likely to occur within the DX Division than any other injury-causing accident (including accidents involving explosives). Any employee encountering an accident should give whatever aid is possible at the time. When an accident occurs, first stop and aid the injured. Call **911** then notify your Group Office. Inspect the accident site to determine whether any condition exists that might cause injury to rescue personnel. Continue to give first aid until rescue personnel arrive.

7.6 After Hours Emergencies

Call **911**, and then call the Facility Manager's On Call Designee.

7.7 Site-wide Emergency

In the event of a site wide emergency, DX Management/EM&R will instruct personnel within DX operation areas of actions to be taken which may include taking shelter, evacuation routes, muster areas and/or other necessary information.

7.7.1 If a location needs to be evacuated, two levels of evacuation will be performed. The first level is the evacuation of non-critical duty personnel. Personnel should close all doors and windows as they are leaving. The second level of evacuation is the evacuation of all personnel. In this level, critical duty personnel perform a sweep of the area as they evacuate.

7.7.2 Evacuation routes: Except for Ancho Canyon, TA-16, and TA-3 operations, personnel should exit through Gate 431 (formerly gate 502). Once an evacuation is announced, gates at S-Site and at TA-36 may also be opened. Ancho Canyon will evacuate as informed by DX Management or EMO. TA-16 & TA-3 will evacuate according to the Emergency Guides in the FMU they reside in.

7.8 Emergency Drills

Building evacuation procedures will be tested annually. As time permits, other specific emergency drills will be conducted. When a test or drill is conducted, be prepared to critique your response. "Practice makes perfect".

7.9 Handling Classified Matter

For Handling Classified Matter & SNM ~~D~~during ~~E~~emergency e~~E~~vacuation ~~D~~drills and/or ~~D~~during an~~An A~~actual ~~E~~emergency ~~E~~evacuation. (See Attachment ~~4~~3).

8.0 REQUIRED RECORDS

None

9.0 REFERENCES

LANL Emergency Response Plan

10.0 ATTACHMENTS

- Attachment 1 - Muster Areas
- Attachment 2 - Emergency Call Report and Occurrence Call Report
- ~~Attachment 3 - Emergency Call List~~
- Attachment 43 - Handling Classified Matter & SNM

Attachment 1 - Muster Areas

TA-8

Emergency Location	Muster Area
Building 21	Northeast of ~~B~~building in ~~P~~parking ~~L~~lot

TA-9

Emergency Location	Muster Area
Building 21, 29	Southwest ~~Corner~~ corner of the ~~P~~parking ~~L~~lot
Buildings 46, 48	Southwest of ~~B~~building 48

TA-14

Emergency Location	Muster Area
All buildings	North of ~~B~~bunker at ~~a~~access gate

TA-15

Emergency Location	Muster Area
Buildings ~~R50, R20, R194~~R40, R305	South~~west~~ p~~Corner of P~~arking ~~L~~lot, next to guard building
Buildings~~183, 446~~ R50, R20, R194, R203	South~~ea~~west ~~C~~corner of ~~P~~parking ~~L~~lot
~~Buildings 313, R285, 447, 448, 456, 464, 465, 466, 468, 476~~Buildings 183, 446	South~~wee~~east ~~C~~corner of ~~P~~parking ~~L~~lot
Buildings 313, R285, 447, 448, 456, 464, 465, 466, 468, 476	Southwest corner of parking lot
Building R306	In Bunker, unless instructed to assemble at Access Control Office
Building 446	West of ~~B~~building ~~N~~north ~~E~~edge of ~~P~~parking ~~L~~lot
Building 312	Southeast corner of parking lot

TA-22

Emergency Location	Muster Area
Building 90	Southwest corner of the parking lot in front

	of ~~Building~~ building 90
All other buildings	Southwest corner of the parking lot west of ~~Building~~ building 5

Attachment 1(continuation) - Muster Areas

TA-36

Emergency Location	Muster Area
~~Building 183~~For all building and firing sites at TA-36	~~Instructed to assemble at Access Control Office~~Assemble at nearest bunker, unless instructed to assemble at Access Control Office TA-15-~~446~~

TA-39

Emergency Location	Muster Area
Buildings 2, 62, 98, and 103	East - ~~Side~~ side of ~~P~~parking ~~L~~lot
All other buildings	Assemble ~~N~~at nearest ~~B~~bunker, unless instructed to assemble at a different location

TA-40

Emergency Location	Muster Area
Building 1, 23, and 90	Near the swinging arm gate
All Firing Sites TA-40 Buildings	Nearest ~~Bunker~~bunker, unless instructed to assemble at a different location

TA-69

Emergency Location	Muster Area
Trailers	Outside the ~~G~~gate at ~~S~~station 431

Attachment 2

EMERGENCY CALL REPORT AND OCCURRENCE CALL REPORT

Date: _____

Time: _____

Call Received by: _____

Caller: _____

Caller Phone Number: _____

EMERGENCY LOCATION

Technical Area: _____ Building: _____

Room: _____ Other: _____

Nature of Emergency:

_____

_____

_____

_____

_____

_____

_____.

Special Hazards (explosives, electrical, radiological, etc.):

_____

_____

_____.

Did caller call 911: _____

Follow up call to 911: _____

Notify Facility Manager Designee (104-2926): _____

Notify Division or Group Safety Officer: _____

Notify Group Management: _____

Notify Division Office: _____

Attachment 3

HANDLING CLASSIFIED MATTER & SNM DURING EMERGENCY EVACUATION DRILLS

All evacuation drills must be clearly announced as drills.

Prior to evacuation of personnel, all classified matter and SNM must be secured.

Alternative to securing classified matter in approved repositories during a drill is to designate specific appropriately-cleared personnel to remain.

During evacuation drills, material surveillance procedures must be maintained for all Category I and II SNM.

HANDLING CLASSIFIED MATTER & SNM DURING AN ACTUAL EMERGENCY EVACUATION

If life and safety are in jeopardy, leave all classified matter and SNM as is and leave the area immediately.

If life and safety are not in jeopardy, normal locking and alarming procedures should be followed before evacuating.

If small amounts of material are involved, evacuee may carry material out if it can be fully protected from loss or compromise. SNM and other hazardous products must not be removed from area during evacuation.

Evacuees must report to their supervisors any material or repositories left unattended and any material hand-carried outside the Security Area. All classified material left unattended must be accounted for.

No security infractions will be issued for failure to completely follow locking and alarming procedures during an emergency evacuation.

If classified matter is missing after an evacuation, S-6 must be notified immediately of the discrepancy.

If SNM is missing after an evacuation, S-4 must be notified immediately of the discrepancy.

HE STORAGE

IN

DX DIVISION

DX-DO: SOP 08

Prepared by: _____ Date: _____
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Controlled Document Number: ☐

Table of Contents

1.0 INTRODUCTION

This SOP covers the safe handling and storage of high explosives (HE), energetic materials (EM), and explosive-containing devices at DX Division storage magazines. Storage is approved at designated DX Division storage magazines for allowed explosives.

2.0 PURPOSE

This SOP describes allowed storage procedures and protocols, identifies the hazards involved in storage operations, and specifies ways to minimize these hazards. Quantities allowed in storage are designated by magazine. Storage compatibility groupings, personnel limits, and operating procedures are specified in section six (6). All quantities allowed in storage at DX Division magazines have been calculated using the appropriate quantity-distance formulas for the type of magazine and its proximity to inhabited work areas or public access areas (see DOD 6055.9 STD). Compatibility groupings are in accordance with the provisions set forth in the DOE Explosives Safety Manual, (DOE M440.1-1, Rev. 8).

3.0 SCOPE

This SOP applies to all explosives, personnel, operations, and equipment in or near DX Division magazines.

4.0 DEFINITIONS

- **Allowed Explosive** - Any explosive that may be stored in DX Division Magazines or used in DX Division preparation rooms, without special permission or special procedures. A list of routinely used allowed explosives is given in Attachment 2.
- **Approved Container -** The following containers are approved for storing explosives.
  Containers approved and used by ESA Division for on-site and public road shipment.
  Containers approved by the Department of Transportation (DOT) for interstate shipment.
  Containers approved by the DX Group Leader(s) or designee, for unique packaging requirements.
- **EBW** - Exploding bridgewire
- **ECD** - Explosive containing device (includes experimental assemblies with HE attached)
- **EED** - Electroexplosive device containing a reaction mixture (explosive or pyrotechnic) which is initiated electrically, and may contain primary explosives.
- **Energetic Material:** Any material that liberates energy with or without oxygen which includes but is not limited to explosives, propellants, pyrotechnics and gas generates.
- **EP** - Explosion Proof
- **ERC** - Explosives Review Committee
- **Explosives:** - Explosives are defined in the *DOE Explosives Safety Manual* as any chemical compound or mechanical mixture that will burn or explode if heated, exposed to impact, pinched

between moving surfaces, or subjected to an electric discharge or strong shock. The term applies to materials that either detonate or deflagrate.

- **Explosives Allowed Area** - Any area where explosives or explosive containing components are allowed.
- **Explosives Load Limit** - The total net explosive weight permitted in the magazine. The explosive load limit is posted on each magazine.
- **Handling** - Operations in which explosives are stored, manipulated or prepared for firing.
- **Incompatible materials** - Materials that produce unsafe conditions when in proximity to or in contact with explosives.
- **Long Term Storage** - Greater than 180 days.
- **Low Energy EEDs** - All (electro explosive devices), EEDs except exploding bridgewire (EBW) and slapper detonators. Low energy EEDs include hot wire initiators, squibs, blasting caps, etc.
- **Magazine** - A structure designed for long term (greater than 180 days) storage of explosives.
- **Magazine Assistant Manager** - Same as the magazine manager.
- **Magazine Manager** - The person who is authorized by the Group Leader as being responsible for all activities associated with magazine(s) operation.
- **Personnel Limit** - The posted number of persons permitted in the magazine.
- **Primary Explosives** - Explosives with a sensitivity greater than pentaerythritoltetranitrate (PETN) (for example, lead azide, lead styphnate or mercury fulminate). DX Division does not use primary explosives except with specially approved procedures or when included in EEDs.
- **Service Magazine** - A small magazine containing no more than 500 kg of explosives, usually located adjacent to a Preparation Room, and traditionally used for short-term storage.
- **Short-Term Storage** - Storage for less than 180 days.
- **SOP** - Standard Operating Procedure
- **Storage Review Period** - the length of time (as determined by the ERC) between inspections and/or testing of stored HE.
- **SWP** - Special Work Permit
- **Vault** - (or wing vault) A locked closet exterior to the body of the magazine (usually in the concrete wing).

5.0 RESPONSIBILITIES

5.1 Personnel

5.1.1 Magazine Manager

- Performs or directs operations to ensure the proper maintenance of the magazines including allowed explosive storage, load limits, cleanliness, security, and HE inventory.
- Ensures that personnel and explosive load limits are posted at or on each magazine.

5.1.2 Assistant Magazine Manager

- Responsible for operation of the magazine when the Magazine Manager is absent or requires assistance.

5.2 Training

5.2.1 Explosive handling shall be performed only by personnel with a minimum training of four months supervised on-the-job training and supervisory approval in accordance with DX Division Training and Qualification Manual.

6.0 PRECAUTIONS AND LIMITATIONS

6.1 Hazards

The general hazards associated with HE or ECDs are fire, blast, and fragments. Even small quantities of HE may pose a life threatening hazard.

Hazardous operations include any operations whereby HEs or ECDs are or may be exposed to open flame, heat, electrical spark, friction, impact or exposure to contaminants or chemical agents (such as glues) with which the HE or ECD may be incompatible and can develop violent chemical reactions.

6.2 Load Limits and Personnel Limits

6.2.1 Personnel and HE Limits

Personnel and HE Limits for each magazine shall be posted at or on the exterior of the building and shall be obeyed. Exceptions will be approved by the group leader or designee. The limits for DX Division magazines are listed in Attachment 4.

6.3 Permitted Explosives

6.3.1 Storage Compatibility Classes

Explosives will be segregated in storage according to the Explosives Storage Compatibility Classes described in the *DOE Explosives Safety Manual.* These classes are included in Attachment 1, for easy reference.

6.3.2 Allowed Explosives

Energetic materials, explosives or explosive-containing devices that have been approved by the ERC or listed in (ESA) WX-3: SOP 1.1.0, Tables 1 & 2 may be stored. The list of routinely used explosives is given as Attachment 2 in this SOP.

6.3.2.1 Newly Synthesized Energetic Materials

All newly synthesized energetic materials shall be storage compatibility Group "L" and stored in a magazine so designated. The review date will be in 90 days. After sufficient testing the data may be submitted to the ERC for a determination of an appropriate storage compatibility group and review period.

6.3.3 Exceptions

If an explosive cannot be stored in accordance with this SOP, the SOP must be revised or a SWP must be written and approved.

6.3.4 MSDS Forms for Explosives

The MSDS forms describing explosives are maintained by the ESH officers and shall be available to all persons who work in DX Division Magazines.

6.4 Working Alone

Knowledgeable employees may go alone to magazines to inspect or transfer material. Details of the DX Division policy on working alone are given in the DX Division Operations Manual and in group specific SOPs. Maintaining communication is required. Do not use radios or cellular phones in the proximity of low energy EEDs.

6.5 Controlled Temperature

Temperature-controlled magazines have the required thermometer mounted inside, indicating the maximum and minimum temperatures that have occurred inside the magazine. Personnel entering the magazine should note the indicated temperature extremes and report the occurrence of temperatures outside the desired range of 60F to 90F to the magazine manager.

6.6 Permitted Operations

Those operations incident to storage, or removal from storage, are permitted.

- Only one container of explosives shall be opened at one time in a magazine.
- The lids of containers may be opened and explosives inspected only for inventory purposes, if the packaging allows inspection without removal of the explosive, or extensive unpacking of inert contents.
- Handling of HE should be minimized.
- Explosives shall be kept in proper packaging, as specified by the DOE Explosives Safety Manual.
- Magazines shall be kept clear of extraneous equipment, components, fixtures, and the like that could interfere with handling operations. Aisles, corridors, and safety exits shall not be blocked.
- The mechanical stability of an item must be maintained at all times during storage, inventory, and addition or removal of containers.
- No hand or machine tools shall be used in a magazine except for use of scoops for surveillance samplings. Any opening, closing, or modification of containers will be done after removal of the container to a prep room or an outdoor area remote from the magazine.
- Lights and heaters in magazines are explosion-proof. No lights or heaters may be used in a magazine, except those already permanently installed there, without an SWP. In rare cases where there are electrical outlets in magazines, they are explosion proof (EP).
- Explosives will not be removed from their containers in magazines except for sampling.
- For removal of permanent fasteners, such as nails, screws, or metal banding, take the container to a preparation room or an outside area remote from the magazine in order to maintain proper Quantity/Distance relations.
- Adding appropriate liquids to adjust the liquid level for wet Group D explosives is allowed.
- Inspection and surveillance sampling of compatibility Group D and bulk propellants of Group C materials are permitted, provided each storage container sampled is in good condition.

6.6.1 Flammable liquids are prohibited in the magazines. Any exception will be covered under an SWP. Nitromethane and other liquid explosives listed as Allowable Explosives are considered explosives under the terms of this SOP.

6.6.2 No excess combustibles will be stored in a magazine. This includes empty packaging.

6.6.3 Non-DX personnel performing maintenance or custodial work in a magazine must be escorted by DX personnel. An SWP may be required for maintenance work. Removal of all explosives may be required for maintenance work. Sweeping the grit and sand from magazines will be done as needed by the regular users of the magazine, the Magazine Manager or Assistant Manager, using proper tools.

6.7 Signs

6.7.1 Fire Department

Octagonal orange signs bearing the number "1" shall be readily visible on the exterior of all magazines, or at the entrance to a fenced group of magazines ("magazine farm"). These signs warn that explosives are present, and no fire should be fought which involves a magazine.

6.8 Vehicles

Vehicle engines must be off when the magazine door is open. Private vehicles must approach no nearer than 100 feet to a magazine, unless a fire extinguisher is either on the vehicle or on the magazine, and the vehicle exhaust is equipped with a catalytic converter or spark arrestor.

6.8.1 Keep magazine doors closed when a LANL or DOT equipped vehicle with its engine running is within 8 m (25 ft) of the door.

6.9 Communications

6.9.1 Radio Communication

Handheld radios and mobile RF transmitters (e.g., cell phones) are generally allowed for use within the Explosives Firing Areas. However, in areas where low energy EEDs are stored, special control must be exercised.

Areas that are sometimes restricted:

- TA-22 Magazines and TA-22-34
- TA-40-5, -6, and -7
- TA-36-11 and -12, and other rocket-sled areas.
- TA-15-310

Whenever low energy EEDs are present, it shall be the responsibility of the DX operating personnel in the potentially restricted areas to inform the appropriate access control personnel that all RF transmitters in these areas are prohibited. Operating personnel will inform access control personnel in the TA-9 Group Office, TA-22 (DX-1) Group Office, the TA-15 Access Control Office, or the TA-39 Administrative Office, who will then restrict visiting personnel from using RF transmitters. Further, operators will place signs on all routine entrances to these areas informing personnel to turn off all RF transmitting devices before entering these areas. The operating personnel will assure that all personnel within the restricted area are informed of the prohibitions.

6.10 Lightning

Magazine operations shall be suspended and magazines shall be closed during electrical storms.

6.11 General

6.11.1 There shall be no smoking in or near magazines. No matches, lighters, or other fire, flame, or spark-producing devices shall be taken in or near magazines, except with written authorization (SWP).

6.11.2 Clearly label all containers to identify the contents.

6.11.3 Transport of HE will be in accordance with the DX Division SOP governing Packaging and Transport.

6.11.4 Explosives may be stored on shelves where provided, but shall be placed no more than 2 meters off the floor. Safely and securely position all explosives containers. Stacked explosives containers must be placed in stable arrays. Under normal circumstances, do not store explosives on the floor. When necessary, explosives in their protective containers may be stored on the floor or on ESA delivery carts. Leave a 1m aisle to the door and make sure containers do not crowd the magazine or prevent safe operations. Do not leave material suspended by booms, cranes, or hoists.

6.12 Inventory and Storage Review

6.12.1 When explosives are added to or removed from the magazine, update the inventory. Provide the information to the DX group member in charge of the explosives inventory for entry in the data base.

6.12.2 A physical inventory of all of DX Division magazines will be performed annually. Magazine contents will be reviewed for compliance with Storage Review Period provisions. The inventory will be checked against the magazine contents, against the HE Inventory database and records and storage review dates will be checked. During the inventory, magazines will be inspected to ascertain that they meet the conditions for storage.

6.12.3 A storage review date will be assigned to every bulk explosive placed in storage. This date will be listed in the inventory records.

6.12.4 Some materials such as propellant may require review more frequently than annually. Storage review and inspection for these materials will be scheduled accordingly.

6.12.5 Check and replenish the liquid level in storage containers for wet explosives at least once a year. Maintain a log of these checks.

6.12.6 Remove and destroy excess explosives and/or materials that cannot be properly identified.

6.13 Storage Containers

6.13.1 HEs or ECDs must be placed in appropriate containers prior to being stored in a DX Division magazine. The **sole exception** shall be for the temporary storage of experimental assemblies in a magazine with the approval of the Group Leader.

6.13.2 Except for liquid explosives such as FEFO, nitromethane, and hydrogen peroxide, no explosives shall be stored in primary containers with screw-threaded lids.

6.13.3 HE or ECD containers may only be opened within a magazine for purposes of inventory or inspection sampling. If the HE or ECD is to be handled or transferred to another container, **it must be removed** from the magazine and transported to a facility approved for this type of operation. Exceptions will be covered under a current SWP.

6.14 Access Control

6.14.1 For access to a magazine, an employee contacts the Magazine Manager or Assistant. If they cannot be reached, the employee can report to the Access Control Office or local Access Control Office and sign for a temporary key to the storage area. For TA-39 magazines, several knowledgeable employees in addition to the Magazine Manager have keys. These keys are kept in an administrative safe after hours, for access during emergencies. The keys to TA-40 and TA-22 magazines are available at the DX-1 Group Office, at TA-22. The Appropriate Group Leader may waive any of the requirements for access to any DX Division magazine under sufficient conditions.

All magazines shall be properly secured upon exiting. In the event that a magazine is found unsecured, notify the appropriate Magazine Manager, Security Officer, and Team Leader. Never leave a magazine unsecured, even if it was unsecured when you found it.

6.15 Low Energy EEDs

Low energy EEDs must have their electrical connections shorted when in storage or when being handled. See DX-1 SOP 175, "Manufacture, Handling, and Inspection of Low Energy EEDs" for further details.

6.16 Handling

6.16.1 Only authorized DX Division personnel may receive explosives.

6.16.2 Containers without permanent fasteners may be opened on the shelf outside of the wing vaults, one box at a time.

6.16.3 Manually handling explosives - Containers may be moved by hand under the following constraints:

- One person can handle up to 25 kg.
- Two people can handle up to 50 kg.
- For heavier charges or for any charge or container a person feels uncomfortable handling, two or more persons and/or mechanical aids (hand truck, etc.) shall be used in moving the HE parts or ECDs.

6.16.4 Handling Explosives by Crane or Forklift

- Any lift involving explosives is a high-consequence lift, and shall be performed only by certified operators (see Sec 14.4 and 16.1.4 of the DOE Explosives Safety Manual or DX-4 SOP, *Repetitive-Type High Consequences Lifts*).

6.17 Facilities

6.17.1 The footing where the storage or handling operation is conducted shall be adequate. Do not perform explosives-handling operations when magazine entrances are covered with ice or, for any reason, do not provide adequate footing.

6.17.2 Explosive storage areas shall have vegetation growth controlled by mowing at least 15 meters around the facility area to prevent rapid transmission of fire and to remove any tripping hazards which may be caused by vegetation growth.

6.17.3 Storage areas must be kept as clean as possible. Combustible materials such as packing material and empty boxes shall not be stored in these areas. A non-sparking dustpan, a bench brush, and a broom should be available for cleaning the floors and shelves.

6.17.4 Two fire extinguishers with a minimum rating of 2A:10BC should be available while in the magazine area. These extinguishers may be permanently located in the area or available on a vehicle. These extinguishers should be used only for small external or magazine fires where there is no immediate risk of involvement of explosives.

7.0 PROCEDURAL STEPS

N/A

8.0 REQUIRED RECORDS

Inventory/Transfer Forms
Hazardous Material Transfer form
MSDSs for explosives

9.0 REFERENCES

- DOE Explosives Safety Manual, DOE M440.1-1, Rev. 8
- DOD 6055.9 STD (October 1992)
- DX Division Building/Site Emergency Plans
- DX-4: SOP 03 General Safety
- DX-4: SOP 1.0 General Access Control
- DX-4: SOP 06 Repetitive Type-High Consequence Lifts
- DX DO: SOP 03 Packaging and Transportation of Explosives
- DX-1: SOP 175 Manufacture, Handling, and Inspection of Low Energy EEDs
- DX Division Operations Manual
- DX Division Training and Qualifications Manual
- Los Alamos National *Laboratory Environment, Safety, and Health* Manual,
  AR 6-2 and AR 6-6, Explosives,
  AR 10-3, Chemical, Hazardous, and Mixed Waste,
  AR 13-2, Cranes, Hoists, Lifting Devices, and Rigging, and AR 10-8.
- (ESA) WX-3 1.1.0

10.0 ATTACHMENTS

Attachment 1. Explosives Storage Classes
Attachment 2. HE Routinely Used at DX Division Firing Areas
Attachment 3. DX Division Preparation Rooms
Attachment 4. DX Division Magazine Personnel & HE Limits

ATTACHMENT 1

Explosives Storage Groups

Group	Contents	Description
A	initiating explosives	Bulk initiating explosives that have the necessary sensitivity to friction, heat, or shock to make them suitable for use as initiating elements in an explosives train. Examples are lead azide, lead styphnate, mercury fulminate, and tetracene.
B	Detonators	Detonators and similar initiating devices not containing two or more independent safety features. Items containing initiating explosives that are designed to initiate or continue the functioning of an explosives train. Examples are detonators, (all types, excluding EBWs and slappers), blasting caps, small arms primers, and fuzes.
C	propellants	Bulk propellants, propellant charges, and devices containing propellants with or without their own means of initiation. Items that will deflagrate, explode, or detonate upon initiation. Example are single-, double-, triple-base, and composite propellants, rocket motors (solid propellant), and ammunition with inert projectiles.

D	High Explosives	High Explosives (HE) and devices containing explosives without their own means of initiation and without a propelling charge, or articles containing a primary explosive substance and containing two or more effective protective features. This group shall include explosives and ammunition that can be expected to explode or detonate when any given item or component thereof is initiated.
E	Ammunition and Rockets	Explosive devices without their own means of initiation and with propelling charge (other than one containing a flammable or hypergolic liquid). Examples are artillery ammunition and rockets.
F	Artillery shells and Bombs	Explosive devices with their own means of initiation and with or without propelling charge.
G	pyrotechnics	Pyrotechnic materials and devices containing pyrotechnic materials. Examples are devices that, when functioning, result in an incendiary, illumination, lachrymatory, smoke, or sound effect.
L	uncharacterized or none of the above	Explosives or ammunition not included in other compatibility groups that present a special risk requiring isolation of each type. This group shall include explosives or ammunition having characteristics that do not permit storage with other similar or dissimilar materials. Examples are damaged or suspect explosives devices or containers, explosives that have undergone severe testing, fuel/air explosive devices, and water-activated devices. Also included are experimental explosives, explosives of temporary interest, newly synthesized compounds, new mixtures and salvaged explosives

		until they have been established to be compatible with the original materials. Types presenting similar hazards may be stored together.
S	no significant hazard	Explosives, explosives devices, or ammunition presenting no significant hazard. Explosives or ammunition so designed or packed that, when in storage, all hazardous explosives effects are confined and self-contained within the item or package. An incident may destroy all items in a single pack, but must not be communicated to other packs.

ATTACHMENT 2

HE routinely used at DX Division Firing Areas

NORMAL EXPLOSIVES

This list contains the names and identification numbers of all explosives and detonators approved for normal explosives operations. Only explosives on this list may be received or handled by DX Groups unless a separate SWP or SOP exists covering the operations, or a request for limited tests is approved.

- **Primary explosives** - Explosives with a sensitivity greater than PETN (for example, lead azide, lead styphnate or mercury fulminate) are not used by DX-Division except with specially approved procedures.

SINGLE-COMPONENT EXPLOSIVES

Explosives	ESA-2 Mat. Code	Other Names, Composition, or Reference	Storage Rev. Period
AN	130LN	Ammonium nitrate	20 years
DATB	1201	diaminotrinitrobenzene	20 years
DINGU		Dinitroglycouril	
DINA		Di(nitroethyl) nitramine, dioxyethyl dinitrate	20 years
EDNA	1101	ethylenedinitramine, Halite	20 years
HMX	03NN	cyclotetramethylenetetranitramine, Octogen	20 years
LAX-112			
NM		Nitromethane	10 years in 55 gal drum
NQ	07NN	Nitroguanidine, Picrite	20 years
NTO		1.2.4-nitro-tiazole-5-one	
PETN	06NN	pentaerythritoltetranitrate	20 years
Picric Acid		1,3,5-trinitrophenol note: Picric acid forms impact-sensitive compounds with metal ions.	2 years
RDX	02NN	cyclo-1,3,5-trimethylene-2,4,6-trinitramine; Hexogen, Cyclonite	20 years
TATB	1701	1,3,5-triamino-2,4,6-trinitrobenzene	20 years
Tetryl*	04NN	2,4,5-trinitrophenylmethylnitramine	20 years
HNS	3001	Hexanitrostilbene	20 years
TNT	010N	2,4,6-trinitrotoluene; Trotyl	20 years

* Tetryl has greater toxicity and greater sensitivity to electric spark than the other permitted explosives

LIQUID EXPLOSIVES

Explosive	ESA-2 Mat. Code	Other Names, Composition, or Reference	Storage Rev. Period
FEFO		1,1'-[methylene bis(oxy)]bis[2-fluoro-2,2-dinitroethane]	90 days
Nitromethane		NM, see also under single-component explosives	10 years in 55 gal drum
H_2O_2		Stored at TA-40-40T only	5 years

MIXED EXPLOSIVES INCLUDING CAST AND PRESSED FORMULATIONS

Explosives	ESA-2 Mat. Code	Other Names, Composition, or Reference	Storage Rev. Period
ANFO		Ammonium nitrate/fuel oil	90 days
Boracitols		60 wt% boric acid/40 wt% TNT	20 years
Baratol	76NN	76 wt% barium nitrate/24 wt% TNT	20 years
Calcitol		40 wt% TNT/55–60 wt% $CaCO_3$/0–2 wt% talc/1–2 wt%, microballoons, X-0533	90 days

MIXED EXPLOSIVES
INCLUDING CAST AND PRESSED FORMULATIONS, Continued

Plastic Bonded Explosives - Formed from one or more of the explosive compounds listed individually in "Single-component Explosives," above, mixed with binders and, in some cases, nonexplosive ingredients. Production forms of plastic bonded explosives are identified in numbered series denoted by the letter "PBX" (originated by Los Alamos); "LX" (originated by Lawrence Livermore); "EDC" (originated by the United Kingdom); and "PBXN" (originated by the US Navy). Also permitted are experimental plastic bonded formulations originated at Los Alamos and identified by the prefix "X-" and a four-digit number.

CH-6		97.5 wt% RDX/1.5 wt% calcium stearate/0.5 wt% polyisobutylene/0.5 wt% graphite	20 years
Comp. A			
Comp. A-2			
Comp. A-3	9085	9085, 91 wt% RDX/9 wt% beeswax	20 years
Comp. A-4		97 wt% RDX/3 wt% beeswax	20 years
Comp. A-5		98.5 wt% RDX/1.5 wt% beeswax	20 years
Comp. B	60NN	64 wt% RDX/36 wt% TNT, Comp B, Hexolite, Hexotol	20 years
Comp. B-3	60NN	60 wt% RDX/40 wt% TNT	20 years
Comp. C-3	9080	9080, 88 wt% RDX/12 wt% wax	20 years
Comp. C-4	9081	9081, 91 wt% RDX/2.1 wt% polyisobutylene/ 1.6 wt% motor oil/5.3 wt% di(2-ethylhexyl) sebacate	20 years
Cyclotol 75/25	750N	75 wt% RDX/25 wt% TNT	20 years
Cyclotol 70/30	700N	70 wt% RDX/30 wt% TNT	20 years
Detasheet C	6300	63 wt% PETN/8 wt% NC/29 wt% elastomeric binder	10 years
Detasheet D	6301	75 wt% PETN/25 wt% elastomeric binder **NOTE: THIS MATERIAL IS USUALLY RED, BUT IT IS AN EXPLOSIVE, NOT AN INERT**	10 years
EDC-8		76.0 wt% PETN/24.0 wt% RTV Silicone	20 years
EDC-28		94wt% RDX/6 wt% FPC 461	20 years
EDC-32		85wt% HMX/15 wt% Viton A	20 years
EDC-37		91wt% HMX/8 wt% K10/1 wt% NC	20 years
EDC-38			20 years

HBX-1		40 wt% RDX/38 wt% TNT/17 wt% Al/4.5 wt% wax/0.5 wt% $CaCl_2$	20 years
LX-04	LX04	85.5 wt% HMX/15.0 wt% Viton	20 years
LX-07	LX07	90 wt% HMX/10 wt% Viton	20 years
LX-10	LX10	95.0 wt% HMX/5.0 wt% Viton A	20 years
LX-14	LX14	95.5 wt% HMX/4.5 wt% Estane 5702-F1 (X-0282)	20 years
MDF		Mild Detonating Fuse	20 years
Nonel		RDX lined metal tubing & HMX lined metal tubing	20 years
Octogen		94.5 wt% HMX/4.5 wt% wax/1 wt% graphite	20 years
Octol	740N	75 wt% HMX/25 wt% TNT	20 years
PBX 9001	9001	90 wt% RDX/8.5 wt% polystyrene (PS)/ 1.5 wt% dioctyl phthalate (DOP)	20 years
PBX 9007	9007	90 wt% RDX/9.1 wt% polystyrene (PS)/ 0.5 wt% dioctyl phthalate /0.4 wt % resin	20 years
PBX 9011	9011	90 wt% HMX/10 wt% Estane-5703	20 years
PBX 9205	9205	92 wt% RDX/6 wt% polystyrene (PS)/ 2 wt% dioctyl phthalate (DOP)	20 years
PBX 9206	9206	92 wt% HMX/8 wt% Kel-F elastomer	20 years
PBX 9010	9010	90 wt% RDX/10 wt% Kel-F 3700	20 years

MIXED EXPLOSIVES
INCLUDING CAST AND PRESSED FORMULATIONS, Continued

PBX 9404	9404	94 wt% HMX/3 wt% NC/3 wt% tris(b-chloroethyl) phosphate (CEF) note: PBX-9404 is unusually sensitive to certain types of impact, in particular, skidding.	1st period-20 years, 10 years thereafter
PBX 9401	9401	94.2 wt% RDX, 3.6 wt% polystyrene, 2.2 wt% trioctyl phosphate	
PBX 9405	9405	93.7 wt% HMX, 3.15 wt% nitrocellulose, 3.15 wt% trichloroethyl phosphate	20 years
PBX 9407	9407	94 wt% RDX/6 wt% Exon-461	20 years
PBX 9501	9501	95 wt% HMX/2.5 wt% Estane/2.5 wt% BDNPA and BDNPF, X-0242	20 years
PBX 9502	9502	95 wt% TATB/5 wt% Kel-F 800, X-0290	20 years
PBX 9503	9503	80 wt% TATB, superfine/15 wt% HMX/5 wt% Kel-F, X-0351	20 years
PBXN-5		See LX-10	20 years
PBXN-9		92.0 wt% HMX 2.0 wt% Hycar 4454 (Hytemp 4454)	20 years

		6.0 wt% dioctyl adipate (DOA)	
PBXN-110		88 wt% HMX/5.4 wt% polybutadiene/5 wt% isodecyl pelargonate	20 years
PBXW-113		See PBXN110	
Primacord		Assorted PETN & RDX loaded commercial detonating fuse	20 years
Pentolite	5001	50 wt% PETN/50 wt% TNT	20 years
Tritonal		80 wt% TNT/20 wt% aluminum powder	20 years
X-0208	X-0208	See XTX-8004	20 years
X-0233	X-0233	5-40 wt% HMX; 40-95 wt% tungsten, 0-10 wt% polystyrene, 0-5 wt% plasticizer	90 days
X-0242		See PBX 9501 (weight percentages differ)	20 years
X-0282	X-0282	See LX-14	20 years
X-0290	X-0290	See PBX 9502	20 years
X-0309	X-0309	75% TNT, 19% aluminum powder, 5% D-2 wax, 1% acetylene black (carbon)	90 days
X-0351		See PBX 9503	20 years
X-0407	X-0407	69.8 wt% TATB, 25.0 wt% PETN, 0.2 wt% dye, 5 wt% Kel F-800	90 days
X-0533	X-0533	See Calcitol	90 days
X-0534	X-0534	50 wt% TNT/16–24 wt% $CaCO_3$/25–33 wt% talc/1–2 wt% microballoons	90 days
XTX-8003		80 wt% PETN/20 wt% Sylgard 182	20 years
XTX-8004		80 wt% RDX/20 wt% Sylgard 182, formerly X-0208	20 years

PROPELLANTS

Explosives	**ESA-WMM Mat. Code**	**Other Names, Composition, or Reference**	**Storage Rev Period**
Black powder		Standard commercial and military grades only	20 years if unopened, 2 years if opened
Benite		Black powder based mixture	2 years
Commer-cial sporting		Any commercially available smokeless gun propellant for sport use is approved	20 years if unopened, 2 years if opened
HARP-1,-2		HARP propellants are Al/AP/HMX composites	2 years
HELP-1, -2		HELP propellants are NC/NG/HMX composites	2 years

Smokeless Powder Single, Double, or Triple Base		Standard military grades. Single or multi-perforated grains of colloided NC. Stabilizers, plasticizers, inorganic nitrates, and other modifying agents may also be present. Military research explosives are specifically not included.	2 years
UTP 25540		HMX based High Energy Propellant	2 years

DETONATORS

The following high-energy detonators have been approved for DX use in test devices. All listed detonators have a storage review period of 20 years.

1E23	ER-353	RP-1
1E26	ER-370	RP1/31
1E26B	ER-371	RP-2
1E27	ER-377	RP-80
1E29	ER-379	RP-83
1E30	ER-380	RP-84
1E31	ER-383	RP-87
1E33	ER-396A	SE-1
1E34	ER-396B	SE-1/31
1E36	ER-400	SC-101
1E38	ER-402	
1E38 T.F.	ER-403	
ER-213	EX-12	
ER-235	EX-12B	
ER-312	MC1991	
ER-312B	MC2320	
ER-344	MC2427	
ER-347	MK13C	
ER-349	MK20	
ER-350	MK22A	
ER-351	RL1	
ER-352	RL2	

MUNITIONS

Military munitions are allowed if no further assembly or disassembly operations are involved. An adequate description should be kept in the DX-4 file. Internal devices that contain primary explosive are allowed if they are "out-of-line" and are not used as the initial initiation point. The initiator must remain in a safe state until the first ignition source is activated following standard operating procedures. Any configuration where the primary explosive unit is external or is to be used as the first initiation or ignition source becomes a special operation requiring a separate SOP or SWP.

Some of the DX-4 military munitions are listed as rejects or defective lots because they do not meet either physical specifications or performance testing specifications. There are no safety issues related to their rejection. Any arriving munitions marked as rejects will be treated as Storage Compatibility Group L until the reason for rejection is known.

SPECIAL EXPLOSIVES

The use of these explosives is limited to the provisions of the indicated SOPs.

Explosive	Pertinent SOP References	Storage Rev. Period
Liquid Gun Propellant LGP 1846	DX-11 SOP: 15-11-4.20, "LGP 1846, TA-36-3"	2 years
3E-1 Detonator	3E-1 SWP	20 years

COMPOUNDS FOUND in TA-16 SOP 1.1.0, "Established Explosives at TA-16," but not listed in any DX Division list.

Al-ANFO

BDNPA

BDNPF

BTX (5,7-dinitro-1-picrylbenzotriazole) (transportation only)

DNPA (2,2-dinitropropyl acrylate polymer)

DNT

HBX-1

Methane/ Oxygen mixtures

Nitrocellulose (NC)

PYX (2,6-Bis(picrylkamino0-3,5-dinitropyridine

STRATABLAST C (storage and transportation only)

TAGN (triamino guanadine nitrate)

TAL-1005E (storage and transportation only)

TNS (Trinitrostilbene)

TNT/NC

TPM (tripicryl melamine)

ATTACHMENT 3

DX Division Preparation Rooms

Location of charge preparation rooms at TA -15 and TA-36:

Building TA-15-242

Building TA-36-4, Room A, serves Eenie Site

Building TA-36-5, Room A, serves Meenie Site

Building TA-36-7, Room A, serves Minie Site

Building TA-36-11, Room A, serves Lower Slobbovia

Building TA-36-82, Daisy Mae-Kup

Assembly and preparation areas at TA-40:

Building TA-40-14 serves Firing Chamber 15 and 8

Building TA-40-11 Room 106 administered by DX-1 as part of crystal growing operation at TA-40-12

Building TA-40-6 serves Firing Chamber 5

Building TA-40-41 serves Firing Chamber 4 and 8 and miscellaneous large shots

Building TA-40-3 is administered by DX-1, as a part of gas gun operations.

The assembly and preparation area at TA-14 Q Site is

Building TA-14-23 Room 104.

Test preparation facilities at TA-39 are:

Building TA-39-4 trim shack
Building TA-39-111 test assembly building

Building TA-39-77 propellant assembly for gas guns is administered by DX-1.

ATTACHMENT 4

Explosives Load and Personnel Limits at TA-9 Magazines (DX-2)

structure	load limit (kg)	load limit (lbs)	personnel limit	compatibility group
TA-9-22	**11.3**	25	**3**	**C,D,E,F,G**
TA-9-23	**11.3**	25	**3**	**A,B**
TA-9-24	**11.3**	25	**3**	**L**
TA-9-25	**11.3**	25	**3**	**A,B**
TA-9-26	**11.3**	25	**3**	**L**
TA-9-27	**11.3**	25	**3**	**C,D,E,F,G**
TA-9-36	**454**	1000	**3**	**C,D,E,F,G**
TA-9-39	**329**	725	**3**	**C,D,E,F,G**
TA-9-44	**454**	1000	**3**	**C,D,E,F,G**
TA-9-47	**454**	1000	**3**	**C,D,E,F,G**
TA-9-49	**318**	700	**3**	**C,D,E,F,G**
TA-9-51 BONDED STORAGE	**WAREHOUSE STORAGE**		**N/A**	**N/A**
TA-9-52	**340**	750	**3**	**A,B**
TA-9-53	**455**	1000	**3**	**C,D,E,F,G**
TA-9-54	**909**	2000	**3**	**D**
TA-9-55	**2273**	5000	**3**	**D**
TA-9-208-A	4.5 per cubicle	10 per cubicle	**3**	**C,D,E,F,G**
TA-9-208-B	4.5 per cubicle	10 per cubicle	**3**	**D**
TA-9-208-C	4.5 per cubicle	10 per cubicle	**3**	**L**

Explosives Load and Personnel Limits at TA-14, Q-Site Magazines (DX-2)

structure	load limit (kg)	load limit (lbs)	personnel limit	Compatibility group
TA-14-22	**136**	**300**	**2**	**C,D,E,F,G**
TA-14-23 Wall	**.45**	1	**2**	**B**
TA-14-24	**11.3**	25	**2**	**C,D,E,F,G**
TA-14-30	**45**	100	**3**	**C,D,E,F,G**

Explosives Load and Personnel Limits at TA-15 Magazines

structure	load limit		personnel limit	notes	Compatibility Group
	(kg)	(lbs)			
TA-15-41	91 (propellant)	200 (propellant)	2	3 rooms, 2 storage and 1 preparation room	C
TA-15-42 wing vault	1272	2800	4		D
TA-15-43 (2) Wing Vault	909 1000 dets	2000 1000 dets	3		D
TA-15-241	681	1500	3		L
TA-15-243	1363	3000	3		D

Explosives Load and Personnel Limits at TA-22 Magazines

structure	load limit		personnel limit	compatibility group
	(kg)	(lbs)		
TA-22-07	2.00	4.41	2	B
TA-22-08	2.00	4.41	2	B
TA-22-09	2.00	4.41	2	D
TA-22-10	3.50	7.72	2	A
TA-22-11	3.50	7.72	2	D
TA-22-12 BONDED STORAGE	10.00	22.05	2	D
TA-22-14	0.40	0.88	2	A
TA-22-15	2.00	4.41	2	B
TA-22-16	45.00	99.00	2	D

TA-22-17	100.00	220.00	2	D
TA-22-18	175.00	385.00	2	D
TA-22-19	250.00	550.00	2	A
TA-22-20	300.00	660.00	2	D
TA-22-21	250.00	550.00	2	D
TA-22-22	300.00	660.00	2	D
TA-22-23 BONDED STORAGE	500.00	1100.00	3	A
TA-22-24	150.00	330.00	2	A
	load limit			
structure	(kg)	(lbs)	personnel limit	compatibility group
TA-22-39 ROOM 107-108	0.10		4	N/A
TA-22-69	N/A	N/A	N/A	N/A
TA-22-96-1	2.54	5.9	4	A
TA-22-96-2	2.54	5.9	4	D
TA-22-96-3	2.54	5.9	4	<90 / L
TA-22-96-4	2.54	5.9	4	D
TA-22-96-5	2.54	5.9	4	L

Explosives Load and Personnel Limits at TA-36 Magazines

structure	load limit		personnel limit	notes	compatibility Group
	(kg)	(lbs)			
TA-36-4, west end Eenie magazine	454	1000	5	Magazine	D
TA-36-7, south end Minie Site magazine	1000	2200	5	Magazine	D
TA-36-9 DetMoe	363	800	2	Only Storage Compatibility Group D detonators, booster pellets, and Group B explosives	D B
TA-36-10 Moe	3181	7000	5	No explosives may be examined, nor boxes moved when more than **three**	D

				persons are present in the magazine.	
TA-36-11, south end Lower Slobbovia	1000	2200	5	primarily used for LGP storage	C
TA-36-83 Promoe	9,091	20,000	7	No explosives may be examined, nor boxes moved when more than **five** persons are present in the magazine.	D
TA-36-83 Promoe side rooms (2)	1002 each part of 70,454 total	2205 each part of 155,323 total	2	Up to 12 kg of compatibility Group L material may be separately stored temporarily in each of the side rooms.	D
TA-36-205 Ammunition transportainer	451	992	3	"Q-45" formerly 14-45	E
TA-37-13	18,144	39,916	3		D

Explosives Load and Personnel Limits at TA-39 Magazines

BUILDING	EXPLOSIVES load limit		PERSONNEL	COMPATIBILITY GROUP
	kg	lbs		
TA-39-3	2727	6,000	4	D
TA-39-5	1000	2,200	4	D
Vaults/each	4.5	10		
TA-39-77 (DX-1)	136	300	2	C

Explosives Load and Personnel Limits at TA-40 Magazines

structure	Load limit (kg)	Load limit (lbs)	personnel limit	compatibility group
TA-40-2 wing vault	363 2.0	800 4	3	L A
TA-40-7 wing vault	2.3 2.0	50 4	4	D
TA-40-10 (DX-1)	1.0	2.2	3	A
TA-40-13 wing vault	681 2.0	1500 4	3	D
TA-40-36	409	900	3	D
TA-40-37	409	900	3	D
TA-40-38	681	1500	3	D
TA-40-39 (DX-1)	57	126	3	D
TA-40-40	2727	6000	4	D
TA-40-40T		55 gal	N/A	Only H_2O_2 is allowed to be stored here

DX-4

STANDARD OPERATING PROCEDURE

FOR

GENERAL ACCESS CONTROL

SOP 1.0

Prepared by: _____ Date: _____
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Prepared by: _____ Date: _____
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Approved by : _____ Date: _____
C. M. Montoya, DX-DO Operations Coordinator

Controlled Document Number: 

Table of Contents

It is strictly forbidden to pass any barricade, closed gate, roadblock, or warning sign.

Visitors encountering any of these access restrictions should return to the Access Control Office or Local Access Office or wait until the restriction is removed by the cognizant Firing Leader or designee.

Only the Firing Leader may grant permission to remove any such restriction. This permission can be granted only through direct verbal contact (includes radio and telephone). Visitor escorts will explicitly inform their charges of the acquired permission and the circumstances of its granting.

Travelers in the Firing Areas should check with the Access Control Office or the Local Access Office before traveling.

1.0 INTRODUCTION

Access Control prevents people from accidentally being in the vicinity of an explosives test or other hazardous operation such as radiography, by imposing physical barriers and administrative restrictions. DX Division personnel conduct test-firing operations involving explosives at DX Division firing sites at TA-14, TA-15, TA-36, TA-39, and TA-40. All personnel must be assured of a safe working environment while they are in the DX Division firing areas.

2.0 PURPOSE

This Standard Operating Procedure (SOP) describes the general precautions and procedures for administering access to the DX Division firing areas.

3.0 SCOPE

This SOP applies to all individuals who require access to firing areas of TA-14, TA-15, TA-36, TA-39 and TA-40. Maps and site descriptions are given in~~as~~ Attachment 1.

This SOP does not describe detailed area Clearance Procedures conducted at each Firing Site. Clearance Procedures are described in DX-4 General Firing Operations and Site-specific SOPs.

4.0 DEFINITIONS

Access Control: Access Control is governed by ~~three~~four Access Control Offices. The Access Control Office in TA-15-446 administers access into firing areas at TA-15, TA-36, and TA-39, and oversees the exchange badge process and controls visitor access into these firing areas. Access to TA-40 is administered by the DX-1 Group Office at TA-22-90. Access to TA-14 is via the DX-2 Group Office at TA-9-21. Access to TA-39 is handled through the Administrative Office at TA-39-2. Access control can also be handled through TA-15-446 if no one is in the TA-39 office.

Access Gates: Gates or chains that can be locked. The keys are administratively controlled by the Access Control Office and Local Access Offices.

Perimeter Gate: A gate at the Boundary of the explosives buffer area. The keys are administratively controlled by the Access Control Office at TA-15-446.

~~A gate at the boundary of the explosive buffer area. Keys are kept in the Access Control Office at TA-15-446.~~

Safety Gate: A gate that marks the entrance to a Firing Point. The last gate b~~b~~efore hazard is encountered, the safety gate may be interlocked.

Area K-I: Encompasses Kappa Site (TA-36), and the northern part of R-Site (TA-15) mesa east of the safety fence.

Area III: Encompasses the south leg of R-Site mesa where the R310 firing site is located. It includes all of the mesa leg east of the North-South-running safety fence with the north, east, and south bounded by canyon rims.

Barricade: A portable device, such as a sawhorse, with an appropriate sign, used to halt traffic into an area that is hazardous or is about to become hazardous.

Clearance Plans: Procedures that protect personnel within the firing areas by controlling access during explosive experiments, radiographic operations, or other potentially hazardous operations. The level of the clearance plan determines the control procedures to be followed, and the extent of the cleared area.

Cleared Area: An area that has been physically patrolled by a person performing assigned duties, and/or an area in which all personnel have been

accounted for. A Cleared Area has been declared safe for firing operations to proceed.

Escort: *During hazardous operations*, ~~an~~ safety escort is defined as a ~~—~~Knowledgeable Person, who is familiar with procedures and operations in the firing areas and who assumes responsibility for the safety of assigned visitors at the firing site. A Security~~*During non-firing operations.*~~ escort refers to a Q-cleared person ~~—~~accompanying a non-Q-cleared person in secure areas.

Firing Area: The areas where firing operations are conducted. Access to these areas is controlled, and is through an Access Gate. These areas are Area K-I, Area III, TA-40 Firing Area, TA-39 Firing Area, and TA-14.

Firing Point or Site: The actual location of an explosive test and its exclusion area behind the appropriate safety gate.

Firing Leader: A full-time DX Division employee, authorized by DX-4 line management to supervise, conduct, and be responsible for operations at the site of the test. This person's accumulated knowledge and experience are crucial to all explosives firing operations.

Knowledgeable Person: ~~—~~A person, authorized by the DX-4 Group Leader or Designee deemed eligible for a pictured exchange badge or area access key because of specified training and experience. This authorization is recorded in the Authorizations and Assignments Document. All other personnel are visitors. All required reading, institutional training, and OJT requirements must be completed before authorization as a knowledgeable person or employee is assigned. A designation as a knowledgeable person or employee only allows unescorted access to Firing Areas. Many operations in firing areas require additional authorization or licensing (for example: operating cranes or forklifts, or handling HE).~~A person, designated by the DX-4 Group Leader or Designee, deemed eligible for a pictured exchange badge where required because of specified training and experience. All other personnel are visitors. All required reading, institutional training, and OJT requirements must be completed before becoming a knowledgeable person or employee. These requirements are specified in Site Specific SOPs or the Authorizations and Assignments Document.~~

Local Access Office: Access to TA-14, TA-39, and TA-40 is governed by Local Access Offices at TA-9, TA-39, and TA-22, respectively. These offices supplement the duties of the Access Control Office at TA-15-446.

Radiological Control Technician (RCT): A~~n~~ ESH-1 Employee who is DOE certified to perform and document radiological surveys according to specified Laboratory and DOE procedures. A specialist who monitors personnel, equipment, or firing sites for radioactivity, and documents the results.

Roadblock: A roadblock is established by having a DX Division employee or trained Knowledgeable Person (Clearance Patrolman) in the road to stop traffic. The roadblock may be an employee with a radio, or an employee with a radio and a vehicle. This person maintains contact with the Firing Leader and the Access Control Office as necessary. ~~The roadblock may be a barricade in the center of the road with a sign stating that hazardous operations are in progress.~~

Safety Fence: A fence placed to indicate a separation of areas, usually a supplement to, and continuation of, a safety gate or an access gate.

TLD Badges: Thermoluminescent Dosimeter - A dosimeter which is in the form of a badge, intended to record the radiation dose received by the whole body of the wearer.

Visitor: A person in a firing area who has not met the requirements for a "Knowledgeable Person."

Escorted - Visitors who have not received site-specific training or are unfamiliar with operations, or who lack a Q-clearance, and are escorted into firing areas.

Unescorted - A visitor who has received site-specific access orientation, and/or any required training, and a Visitor's Badge, ~~and~~ may be in a firing area unescorted when no firing operations are in progress.

Visitor's Badge (V Badge): A badge bearing a "V" instead of a picture, to be given to Q-cleared visitors who are not knowledgeable in local operations and procedures, but have received site-specific training.

5.0 RESPONSIBILITIES

5.1 Knowledgeable Person

- Responsible for safety and security of firing operations.
- Responsible for ensuring that access control and clearance procedures are properly conducted.
- Accepts personal ownership of working areas.
- In case of ES&H concerns, takes personal responsibility to see that proper actions are requested and implemented.
- May escort visitors.

5.2 Firing Leader

- Determines who is allowed access during firing or other hazardous operations.
- Oversees the safety of personnel, equipment, and facilities at the firing site.

5.3 Access Control Officer

- Administers personnel access into firing areas, and manages exchange badges where they are used.
- Verifies that requirements for visitor access are met. Maintains visitor access documents and records.
- Participates in clearance procedures as appropriate. Interacts with Firing Leader for firing operations.

6.0 PRECAUTIONS AND LIMITATIONS

6.1 Clearance Plans

Clearance Plans ~~have been developed to~~ protect personnel within the firing areas. Clearance Plans are specified for explosives firing operations, for radiographic operations or pulsed-power operations, or for experiments that may release toxic material.

For specific details of clearance plans, see Area-specific SOPs for Clearance and Firing Operations.

It is strictly forbidden to pass any barricade, closed gate, roadblock, or warning sign.

Visitors encountering any of these access restrictions should return to the Access Control Office or Local Access Office or wait until the restriction is removed by the cognizant Firing Leader or designee.

Only the Firing Leader may grant permission to remove any such restriction. This permission can be granted only through direct verbal contact (includes radio and telephone). Visitor escorts will explicitly inform their charges of the acquired permission and the circumstances of its granting.

Travelers in the Firing Areas should check with the Access Control Office or the Local Access Office before traveling.

~~**It is strictly forbidden to pass any barricade or roadblock. Visitors encountering these should return to the Access Control Office or Local Access Office or wait until the restriction is removed. Travelers should check with the Local Access Office before starting.**~~

6.2 Smoking, Matches, and Flame-Producing Devices in Firing Areas

- Matches and lighters must be left at the Access Control Office at TA-15-446~~TA-15-183~~ or at the local offices at TA-9, TA-22, and TA-39 as appropriate.
- No one may take matches, lighters, or other flame-producing devices into the firing areas. ~~Matches and lighters must be left at the Access Control Office at TA-15-446 or at the local access offices at TA-9, TA-22, and TA-39 as appropriate.~~
- Exceptions are discussed in DX-4 SOP 03 General Safety.

6.3 Fire Department Notices

- Fire Department notices for Firing Operations are given by the Access Control Office at TA-15-446, for every firing site.
- Fire Department access procedures are specific to individual firing sites and are discussed in Site-specific SOPs.

7.0 PROCEDURAL STEPS

7.1 General Access Requirements

- Access Control Personnel administer access into the firing areas. They instruct visitors on site hazards, make arrangements for enhanced visitor training for off-road access, oversee visitor orientation, and issue the required exchange and dosimetry (TLD) badges. Access Control Personnel appropriate matches, lighters, and other flame-producing items. Access Control Personnel may issue radios or cell phones to

visitors who might otherwise be out of communication with firing site staff, allowing personnel in firing areas to be located or warned when firing or other hazardous operations are about to begin.

- Access to TA-15 and TA-36~~,~~ sites is via the Access Control Office, located at TA-15-446. TA-40 Firing Sites are administered by the DX-1 Group Office at TA-22-90. Access to TA-14 is via the DX-2 Group Office at TA-9-21. Access to TA-39 firing site is administered by the TA-39 Administrative Office.
- Safety orientations will be given to all visitors entering Firing Areas, to inform them of special rules. Details may vary from area to area. The orientation need only be given once a year to each particular visitor, but may be requested at any time. The visitor~~'s~~ register is signed for every entry and exit. Access Control personnel will retain records of orientation.
- Fire department access to firing areas must be controlled to avoid exposing the firemen to explosive hazards, but access must be rapid in case of a fire. The Access Control Office at TA-15-446 will communicate with and advise the Fire Department when they are needed, and arrange for access to be available and safe. Access Control at TA-15-446 will be notified of all emergency Fire Department activities.
- Exchange badges are issued by Access Control Personnel to personnel crossing certain boundaries. Exchange badge systems may serve a variety of functions; badges may be used as a counting system to locate personnel, they may serve as a token that specific training has been received or RADCON requirements have been met, or they may bear necessary keys, and ~~denot~~indicates who has these keys.
- When exchange badges are used, they are received upon every entry and exchanged immediately upon exiting from a firing area. Exceptions may be granted by the DX-4 Group Leader or his Designees in Area III under special circumstances when there are no explosive operations planned for an extended period.
- The DX-4 Group Leader or his Designee may ~~establish~~authorize deviations from normal exchange badge policy.
- Uncleared personnel shall be escorted into all areas. L-Cleared personnel shall be escorted into all Q-Cleared areas. Neither uncleared nor L-Cleared personnel will be issued exchange badges.
- Special keys are found on visitor exchange badges. These keys unlock access gates. **These keys must not be removed from the exchange badges.**
- Perimeter gate keys are administratively controlled by the Access Control Office at TA-15-446. Perimeter gates and barricades are listed in Attachment 1, "Site Description."
- The Access Control Office will be manned after hours for explosives operations at all sites, and in Area III, for A Minor radiation operations if visitors are present. After hours, hazardous operations in any area require Access Control at TA-15-446 to be informed

before the close of business (4:00 PM), so that a central point of contact exists for informing all emergency personnel or other traffic in the area. Any visitors remaining at TA-15 or TA-36 firing areas will inform the Access Control Office before (4:00 PM), and make appropriate arrangements for recovering their regular technical badges from the exchange badge rack. The TA-22 DX-1 Group Office will inform the TA-15-446 Access Control Office of any personnel conducting hazardous operations at TA-40 after hours. Personnel conducting hazardous operations at TA-39 after hours will inform the Access Control Office before the close of business.

7.2 Visitors

All visitors must report to the Access Control Office or to the proper Local Access Office (TA-9, TA-15, TA-22, or TA-39) for permission to enter firing areas.

7.2.1 Access Control Office at TA-15-446

- Normal working hours at TA-15-446 are 8:00 AM - 4:00 PM. Work before or after normal working hours needs to be arranged through Access Control.
- Before entering the firing area for the first time, visitors will receive safety instructions, read a visitor orientation packet, and sign the visitor information sheet to certify that they have read and understand the information. They must also sign the visitor log book on each entry and departure.

7.2.2 Tours

Tours of a firing area are not given while firing operations or other hazardous operations are in progress in that area. Experiment Observation is not considered a tour. The DX-4 Group Leader or his Designees may waive any Exchange Badge requirement for tours involving a large number of people. In such cases, the escort will have a pictured exchange badge where required, and will report the number of people in the tour to the Access Control Office or local access offices where appropriate information will be attached to the escort's technical badge.

7.2.3 Experiment Observation List

A person on site solely to passively observe a experiment is classed as a visitor. Experiment Observation does not constitute a tour. Observers will be escorted, and their presence at the observation point will be checked against the Experiment Observation list at appropriate times.

7.3 Vehicle Access

It is strictly forbidden to pass any barricade,

closed gate, roadblock, or warning sign.

Visitors encountering any of these access restrictions should return to the Access Control Office or Local Access Office or wait until the restriction is removed by the cognizant Firing Leader or designee.

Only the Firing Leader may grant permission to remove any such restriction. This permission can be granted only through direct verbal contact (includes radio and telephone). Visitor escorts will explicitly inform their charges of the acquired permission and the circumstances of its granting.

Travelers in the Firing Areas should check with the Access Control Office or the Local Access Office before traveling.

~~**It is strictly forbidden to pass any barricade or roadblock. Visitors encountering these should return to the Access Control Office or Local Access Office or wait until the restriction is removed. Travelers should check with the Local Access Office before starting.**~~

~~The Lead Clearance Patrolman and the Firing Leader are authorized to restrict any travel that would affect personnel safety or would delay any firing operation.~~

7.4 Emergency Procedures

7.4.1 Building or Site Emergency

If an emergency situation should occur, follow ~~the Buildi~~DX-DO: SOP 07 DX-Division Emergency Guide.~~ng Emergency Plan (BEP)/Site Emergency Plan (SEP). The BEP/SEP must be available in the building and the operators shall be familiar with its contents.~~

7.4.2 Personal Injury

In any emergency involving injury to a person or persons, the employee encountering the accident should use good judgment on the procedures to be followed, depending on the circumstances. Decisions made by a DX Division employee at the scene of an accident will be supported by the DX Division management.

If there is a serious injury or accident~~:~~:

~~dial 911, aid victims, direct emergency vehicles, notify the Group Office, record accident details.~~

- Call 911
- Provide First Aid as needed
- Stay with the victim until help arrives

- Call your Group Office as soon as possible

8.0 REQUIRED RECORDS

- Daily Visitor Log.
- Visitor and Training Databases.
- Visitor Information Sheet.

9.0 REFERENCES

- ***DOE Explosives Safety Manual.***
- **Los Alamos *Environment, Safety, and Health* Manual, AR 6-6, "Explosives."**
- **DX Division Operations Manual**
- DX-4 SOP 03 General Safety
- DX-4 SOP 04 General Firing Operations

10.0 ATTACHMENTS

ATTACHMENT 1. Maps and Site Descriptions

- TA-14
- TA-15
- TA-36
- TA-39
- TA-40

DX-4

STANDARD OPERATING PROCEDURE

FOR

ACCESS CONTROL at AREA K-I,

TA-15 and TA-36

SOP 1.2

Prepared by: _____ Date: _____
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Approved by: _____ Date: _____
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Approved by: _____ Date: _____
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Controlled Document Number: ☐

Table of Contents

1.0 INTRODUCTION

Access Control prevents people from accidentally being in the vicinity of an explosives test or other hazardous operation by imposing physical barriers and also administrative restrictions. DX Division personnel conduct test-firing operations involving explosives at TA-15 and TA-36 Firing Sites. All personnel must be assured of a safe working environment while they are in the DX firing areas.

2.0 PURPOSE

This Standard Operating Procedure (SOP) describes the general precautions and procedures for administering access to the Area K-I firing sites at TA-15 and TA-36.

3.0 SCOPE

This SOP applies to all individuals who require access to the Area K-I firing sites at TA-15 or TA-36. Maps of Area K-I is given as Attachment 1 and 2.

General Clearance Procedures and definitions of terms are described in DX-4: SOP 04 -General Firing Operations, -DX-4: SOP 1.0 General Access Control, and clearance procedures are also discussed in Area K-I SOPs for DX Site-Specific Firing Operations.

4.0 DEFINITIONS

Area K-I — Encompasses Kappa Site (TA-36), and the northern part of R-Site (TA-15) mesa east of the safety fence.

Local Access Office: — Each firing area has a Local Access Office as a convenience for visitors. The Local Access Office for Area K-I at TA-15 and TA-36 is the DX-4 Access Control Office at TA-15-446~~TA-15-183~~.

Perimeter Gate: — A gate at the boundary of the explosives buffer area. Two perimeter gates (2 and 3) are found along Pajarito Road, and five perimeter gates (4 through 8) are found on State road 4 between White Rock and Ancho Canyon. East ——

Gate is also considered a perimeter gate. Keys are kept in the Access Control Office at TA-15-446~~TA-15-183~~.

Safety Fence: The fence running north and south across the R-Site mesa, separating the administrative area from the firing areas.

5.0 RESPONSIBILITIES

5.1 Firing Site Leader

- Determines who is allowed access during firing or other hazardous operations.
- Responsible for the safety of personnel, equipment, and facilities at the firing site.

5.2 Access Control Officer

- Authorized by Group Leader or designee to administer personnel access into Area K-I firing areas.
- Works at the Access Control Office at TA-15-446~~TA-15-183~~.
- Responsible for managing the visitor exchange badge process as appropriate.
- Verifies that requirements for visitor access are met. Maintains visitor access documents and records.
- Interacts with Firing Site Leader for firing operations. Participates in clearance procedures as appropriate. In particular, Access Control Officers at TA-15-446~~TA-15-183~~ participate in Fire Department access into Area K-I Firing Sites.

6.0 PRECAUTIONS AND LIMITATIONS

It is strictly forbidden to pass any barricade, closed gate, roadblock, or warning sign.

Visitors encountering any of these access restrictions should return to the Access Control Office or Local Access Office or wait until the restriction is removed by the cognizant Firing Leader or designee.

Only the Firing Leader may grant permission to remove any such restriction. This permission can be granted only through direct verbal contact (includes radio and telephone). Visitor escorts will explicity inform their charges of the acquired permission and the circumstance of its granting.

~~It is strictly forbidden to pass any barricade or roadblock. Visitors encountering these will return to the Access Control Office or Local Access Office or wait until the restriction is removed. Travelers must check with the Access Control Office before starting into the area.~~

6.21 Smoking, Matches, and Flame-Producing Devices in Firing Areas

- No one may take matches, lighters, or other flame-producing devices into the firing areas. Matches and lighters must be left at the Access Control Office at TA-15-446~~TA-15-183~~.
- Exceptions are discussed in DX-4: SOP 03 General Safety.

6.32 Fire Department Notices

- Fire Department notices for Firing Operations are given by the Access Control Office at TA-15-446~~TA-15-183~~, for every firing site.
- Fire Department access procedures are specific to individual firing sites and are discussed in DX-4: SOPs 22 for Site Specific Firing Operations in Area K-I.

7.0 PROCEDURAL STEPS

7.1 Exchange Badges

- For Knowledgeable personnel, no exchange badge is required for entry to area K-I. Requirements for obtaining keys to the access gate are the same as requirements were previously for obtaining exchange badges; at least four months' experience working in a firing area as verified or accepted by the DX-4 Group Leader or Designee, having met the training requirements stipulated by DX-4, and being judged competent to perform safely in an authorized firing area.
- Exchange badges bearing a "V" are used for visitors. They are obtained at TA-15, at the DX-4 Access Control Office. They provide a key to open the access gate that

separates the Firing Areas from the TA-15 Administrative areas. These keys must not be removed from the exchange badges. Exchange badges must be exchanged immediately upon exiting from a firing area. The recipient is given a site-specific safety orientation which is valid for a year. The DX-4 Access Control Office keeps a visitor log for all recipients of visitor badges.

7.1.1 Emergency Response In Area K-1

- Knowledgeable Personnel will provide escorts for emergency personnel during normal working hours.

- The Access Control Office will handle emergency response through Station 431 for emergencies occurring between West Gate and the bottom of Ridge Road (intersection of Ridge Road east of IJ intersection).

- The Access Control Office will handle emergency response through Station 223 for emergencies occurring on Potrillo Drive between East Gate and Lower Slobbovia.

7.2 Visitors

- All visitors must report to the Access Control Office at TA-15-446~~TA-15-183~~ for permission to enter the firing areas. Before entering the firing area for the first time, visitors will receive safety instructions, read a visitor orientation packet, and sign the visitor information sheet to certify that they have read and understand the information. They must also sign the visitor log book, ~~on each entry and departure.~~

- **Unescorted visitors** shall have a Q-clearance, and obey all aspects of the site-specific orientation. Unescorted visitors may escort **Escorted Visitors.** Escorted Visitors shall obey and stay with their escort at all times while in the firing area. L-Cleared and Uncleared Visitors do not receive an exchange badge, but are listed under their escorts exchange badge.

- During hazardous operations, all visitors must be under the escort of knowledgeable personnel.

- All visitors who require off road access will be given enhanced visitor training. Additionally, visitors will be required to be monitored by a Radiological Control Technician (RCT) or knowledgeable employee upon exit from Area K-I.

- The Access Control Office will determine if individuals require an escort. If there is any question regarding the need for an escort, the Access Control Office will contact the DX-4 Group Leader or designee.

- Unescorted visitors may remain in Area K-I after normal working hours only with prior permission from the DX-4 Group Leader or designee. Appropriate arrangements will be made for recovering their regular technical badges from exchange badge rack.

7.2.1 Tours

- Exchange badges are required for visitors before they may enter Area K-I. However, the DX-4 Group Leader or designee my waive the Exchange Badge requirement for tours involving a large number of people. In such cases, the escort will be a knowledgeable employee and will report the number of people in the tour to the Access Control Office, where appropriate information will be

noted.

7.3 Vehicle Access

~~It is strictly forbidden to pass any barricade or roadblock. Visitors encountering these will return to the Access Control Office at TA-15-183 or wait until the restriction is removed. Travelers must check with the Access Control Office before starting into the area~~ **It is strictly forbidden to pass any barricade, closed gate, roadblock, or warning sign.**

Visitors encountering any of these access restrictions should return to the Access Control Office or Local Access Office or wait until the restriction is removed by the cognizant Firing Leader or designee.

Only the Firing Leader may grant permission to remove any such restriction. This permission can be granted only through direct verbal contact (includes radio and telephone). Visitor escorts will explicity inform their charges of the acquired permission and the circumstance of its granting.

The Clearance Patrolmen and the Firing Leader are authorized to restrict any travel that would affect personnel safety or would delay any firing operation.

7.4 Radios

Radios will be issued as required at TA-15-446~~TA-15-183~~, Access Control Office, to help keep track of traffic to Firing Sites and non-site areas, such as canyons adjoining TA-15.

7.5 Opening and Closing Access Gate

The first person entering Area K-I at the beginning of each work day has the responsibility to close the Area K-I access gate. The last person to exit at the end of the work day has the responsibility to leave the gate open, and place the switch in the open position (in case of power failure during the night). This will allow security patrols to continue with their required checks. The Access Control Office will monitor this activity

7.6 Area K-I Gates and Chains to Non-Firing Areas

- The Access Control Office is responsible for access through Area K-I gates and chains to non-firing areas. IJ, EF, R44, R45, fire roads are included in these areas. These are not normal working areas and will not be cleared unless the gate is open or chain is down, to indicate that people are present in these areas.

- Personnel who require access through these gates or chains and who have received permission will be instructed to leave them unlocked and opened while in the administratively controlled area. Gates must be closed and chains brought up when leaving these areas unless instructed by Access Control to do otherwise.

- EF and some Areas of IJ are subject to radiological monitoring requirements.

7.6.1 K-I East Gate at TA-36

- The East Gate will be locked and only knowledgeable personnel or emergency personnel will be allowed access through this gate.
- Personnel who pass through the East Gate will make sure the gate is locked immediately after entry or exit.

NOTE: The East Gate will never be left unlocked without The DX-4 Group Leader or Designee approval.

7.7 Emergency Procedures

In the event of an emergency situation, the DX-DO: SOP 07 Division Emergency Guide~~Building Emergency Plan (BEP)/ Site Emergency Plan (SEP)~~ shall be followed. The DX-DO: SOP 07 Division Emergency Guide~~BEP/SEP~~ shall be available in the building and the operators shall be familiar with its contents.

8.0 REQUIRED RECORDS

- ~~•~~ Daily Visitor Log~~;~~
- ~~•~~ Visitor and Training Databases~~;~~
- ~~•~~ Visitor Information Sheet~~;~~

9.0 REFERENCES

- ~~—~~DOE Explosives Safety Manual~~:~~
- ~~—~~Los Alamos Environment, Safety, and Health Manual, AR 6-6, "Explosives."
- ~~—~~DX Division Operations Manual
- DX-4: ~~—DX-4~~ SOP~~:~~ -1.0 General Access Control
- DX-4: ~~—DX-4~~ SOP~~:~~ -03.~~0~~ General Safety
- DX-4: ~~—DX-4~~ SOP~~:~~ ~~4~~04 .~~0~~ General Firing Operations
- DX-4:
- ~~—~~SOP 22 for Site Specific Firing Operations in Area K-~~HI~~ ~~(Site-Specific)~~
- DX-DO: SOP 07 Division Emergency Guide

10.0 ATTACHMENTS

ATTACHMENT 1 and 2. Maps of Area K-~~I~~I~~:~~, TA-15 and TA-36.

DX-4

STANDARD OPERATING PROCEDURE

FOR

GENERAL SAFETY

SOP 03

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Controlled Document Number: ☐

TABLE OF CONTENTS

1.0 INTRODUCTION

At Los Alamos, DX-4's primary mission is to support experimental research and development and application of explosives for the Los Alamos Nuclear Weapons Program and other customers. We define the safety envelope, operational expertise, and experimental facilities for all Los Alamos explosives firing operations in the Division.

2.0 PURPOSE

This SOP is one of the series of DX-4 SOPs that provides necessary information, describes the hazards, and specifies safety procedures for all Los Alamos areas and operations under the purview of the Field Operations and Experiment Support Group, DX-4. The purpose of this SOP is to provide general information and to identify the general hazards to which personnel may be exposed and to specify ways to minimize these hazards. This document provides part of the common reference material and the basic procedures and protocols that are part of ensuring a safe working environment.

3.0 SCOPE

This SOP is applicable to all personnel who perform work in, or visit the areas listed below, or who are authorized to perform explosives firing operations in the areas operated by DX-4. These Explosives Firing Areas are described below and identified on the Maps attached as Figure 1:

- Area III (R-Site) includes the area south and east of Building TA-15-446 (Access Control), and east of the safety fence.
- K-I (Kappa Site) includes all DX-Division areas between the R40 gate and the East Gate.
- TA-39 (Ancho Canyon) includes all areas north of the firing area access gate (but excludes the gas gun building 69 and support buildings 56 and 89).
- TA-40 (DF Site) includes all TA-40 DX-4 facilities south of Buildings 1 and 23.
- TA-14 (Q-Site) includes TA-14, Q-Site buildings.

This SOP applies to all personnel, operations, and equipment involved in these experimental areas.

4.0 DEFINITIONS

- **Access Control** -- Access Control is a series of procedures that must be completed to gain authorized entry to any Firing Area. Access Control is performed according to the General Access Control DX-4: SOP 1.0 and area-specific access control SOPs. Access Control is governed by the Access Control Office, and by Local Access Offices. The Access Control Office in TA-15-446 administers access into firing areas at TA-15, TA-36, and TA-39, and oversees the exchange badge process and controls visitor access into these firing areas. Access to TA-39 is also handled through the Administrative Office at TA-39-2. Access to

TA-40 is administered by the DX-1 Group Office at TA-22-90. Access to TA-14 is via the DX-2 Group Office at TA-9-21.

- **Access Gates** -- Gates or chains that can be locked. The keys are administratively controlled by the Access Control Office and Local Access Offices.
- **Area K-I** -- Kappa Site Area I includes R-306 at TA-15, all (five) firing sites at TA-36, and the northern part of R-Site mesa east of the safety fence.
- **Area III** -- Encompasses the south leg of R-Site mesa where the PHERMEX and DARHT firing sites are located. It includes all of the mesa leg south and east of the Access Control Office R-446 and east of the safety fence. The north, east, and south are bounded by canyon rims.
- **Authorizations and Assignments Document** -- A DX-Division document that lists those individuals with special authorizations and/or assignments in the areas of explosives firing operations, firing area access, general industrial safety, special operations, and other areas of ES&H.
- **Barricade** -- A portable device, such as a sawhorse, with an appropriate sign, used to halt traffic into an area that is hazardous or is about to become hazardous.
- **Clearance Plans** -- Procedures that protect personnel within the firing areas by controlling access during explosive experiments, radiographic operations, or other potentially hazardous operations. The level of the clearance plan determines the control procedures to be followed, and the extent of the cleared area.
- **Cleared Area** -- An area that has been physically patrolled by a person performing assigned duties, or an area in which all personnel have been accounted for. A Cleared Area has been declared safe for firing or other operations to proceed.
- **EED** - Electroexplosive Device.
- **ERC** - Explosive Review Committee.
- **ES&H** - Environment, Safety, and Health.
- **Escort** - During hazardous operations, an escort is defined as a Knowledgeable Person, who is familiar with procedures and operations in the firing areas and who assumes responsibility for the safety of assigned visitors at the firing site.
  During non-firing operations, escort refers to a Q-cleared person accompanying a non-Q-cleared person in secure areas.
- **Explosives --** Explosives are defined in the *DOE Explosives Safety Manual* as any chemical compound or mechanical mixture that will burn or explode if heated, exposed to impact, pinched between moving surfaces, or subjected to an electric discharge or strong shock. The term applies to materials that either detonate or deflagrate. Because explosives do not all behave in the same way, they are divided into classes. Those of most interest to DX Division are initiating, boostering, and bursting-charge (secondary) explosives, propellants, and some types of military ammunition. A list of approved explosives is given in Attachment 1.
- **Explosives Allowed Area --** Any area authorized to store, manipulate, prepare, or set-up for firing explosives or explosive-containing components.
- **Explosives Excluded Area --** An area where no explosive, explosive contamination, or operations with explosives are allowed. Generally, these are firing and diagnostic bunkers, offices, and buildings not specifically designated for explosives use or operations.

- **Firing Areas** -- The areas where firing operations are conducted. Access to these areas is controlled administratively and by an area Access Gate. These areas are Area K-I, Area III, TA-40 Firing Area, TA-39 Firing Area, and TA-14.
- **Firing Keys** -- Strictly controlled keys that unlock firing circuits.
- **Firing Leader** -- A full-time DX Division employee, authorized by DX-4 line management to supervise, conduct, and be responsible for operations and safety at the site of the test. This person's accumulated knowledge and experience are crucial to all explosives firing operations.
- **Firing Mound** -- Firing mound refers to the sand pile or steel firing pad on which the shot assembly is placed.
- **Firing Point or Site** - The actual location of an explosive test and its exclusion area behind the appropriate safety gate.
- **Hazard Circle** -- A region, not always circular in shape, that is evacuated in a clearance plan because shrapnel from the shot is expected to land within that region. May also be called a hazard zone or a fragment area. However, the definition of a hazard circle is only a guideline, fragments occasionally land outside of them.
- **HE** -- High Explosive.
- **Knowledgeable Person or Employee** -- A person, authorized by the DX-4 Group Leader or the Deputy Group Leader, deemed eligible for a pictured exchange badge or permanently-assigned area-access key because of specified training and experience. This authorization is recorded in the Authorizations and Assignments Document. All other personnel are visitors. All required reading, institutional training, and OJT requirements must be completed before authorization as a knowledgeable person or employee.
- **Local Access Office** -- Access to TA-14, TA-39, and TA-40 is governed by Local Access Offices at TA-9, TA-39, and TA-22, respectively. These offices supplement the Access Control Office, and handle some visitor access. (See Access Control).
- **Low Energy EEDs** -- Hot-wire initiators, squibs, blasting caps, etc.
- **Pictured Exchange Badge** -- A badge bearing the employee's picture, given to employees who are authorized to have unescorted access to a particular firing area.
- **Primary Explosives** -- Explosives with a sensitivity greater than PETN.
- **Safety Fence** -- A fence placed to indicate a separation of areas, usually a supplement to, and continuation of, a safety gate or an access gate.
- **Safety Gate** -- A gate that marks the entrance to a Firing Point. The last gate before hazards may be encountered, the safety gate may be interlocked, or manually locked.
- **SOP** -- Standard (or Safe) Operating Procedure.
- **SWP** -- Special (or Safe) Work Permit.
- **Visitor's Badge (V Badge)** -- A badge bearing a "V" instead of a picture, to be given to visitors who are not knowledgeable in local operations and procedures, but have received site-specific training.
- **Visitor** -- a person in a firing area who is not authorized as a "Knowledgeable Person."
  Escorted -- Visitors who have not received site-specific training or are unfamiliar with operations, or who lack a Q clearance, and are escorted into firing areas.
  Unescorted -- A visitor who has received site-specific access orientation, and a Visitor's Badge, and may be in a firing area unescorted.

5.0 RESPONSIBILITIES

The responsibilities described below are common to all DX-4 SOPs.

5.1 All Employees

By Laboratory policy, the primary responsibility for ES&H rests with line management. However, the individual employee is the one best able to assure his or her personal safety. Employees must not undertake any operation they believe will be unsafe or contribute to an unsafe condition; rather, they must report such to their line supervisor or ES&H Officer who will resolve the concern or seek further guidance from line management.

> **Urgency is never an excuse for performing an unsafe operation or violating an ES&H rule.** Line supervisors are responsible for establishing a safe work environment; the employees, in turn, must follow all ES&H rules for their own safety and the protection of their fellow employees and the environment.

5.0.1.1 All individuals shall comply with the SOPs governing any activity in which they are engaged. Ignorance of the contents of an SOP does not excuse any violation. Any confusion or uncertainty regarding an SOP or a proposed operation should be clarified before an operation begins.

5.0.1.2 All employees are encouraged, at all times, to suggest changes to an SOP or procedure. For example, a change might make an SOP easier to read, or an operation safer or more efficient.

5.0.1.3 In situations where an approved SOP cannot or should not be strictly adhered to, the SOP must be revised or a deviation be formally approved (i.e. SWP). Violations of SOPs (or any other action which jeopardizes safety), whether willful or unintentional, cannot be tolerated and must be reported to the Group Leader for appropriate action. If a violation is committed by someone other than a DX-4 employee, that person's organization will be notified by the Group Leader.

5.2 Supervisors

Each line supervisor must know the SOPs that apply to operations under their control and will be responsible for assuring that these SOPs are kept current and enforced.

5.3 Firing Leader

The Firing Leader shall have immediate responsibility for the operational safety of an operation, and shall be the final authority on questions of safety and procedure during operations at a Firing Point.

The Firing Leader is:

- Responsible for the safety and security of the firing operations.
- Responsible for personnel control on the firing mound or in the firing chamber.
- Responsible for overseeing the safety of the firing crew, other personnel, equipment, and facilities at the firing site.
- Responsible for selecting or confirming the choice of the appropriate clearance plan (hazard circle) for the shot, based on details of the experiment.
- Responsible for firing keys during firing operations.
- Knowledgeable about group SOPs and operations.

and shall

- Ensure that safety and operational equipment is used properly.
- Not permit firing until all personnel within the hazard zone of the shot are in safe shelters, or are removed from the hazard zone.
- Participate in inspections and ensure that any defects found during routine maintenance and inspection are corrected by the appropriate personnel.
- Assist in critiques and accident investigations, and report occurrences.

and may

- Delegate some responsibilities to authorized personnel when appropriate.

5.4 Knowledgeable Persons

Knowledgeable Persons shall obey the safety and security procedures for firing operations, obey access control and clearance procedures, and assist others in the proper conduct of firing area operations. Knowledgeable Persons must exhibit personal ownership of working areas and, if there are any ES&H concerns, take personal responsibility to see that proper actions are requested and implemented.

Designation as a Knowledgeable Person only allows unescorted access to Firing Areas. Many operations in Firing Areas require additional authorization or licensing (for example: operating cranes or forklifts, or handling HE). Knowledgeable persons may escort all types of visitors.

5.5 Unescorted Visitors

Unescorted visitors shall have a clearance as specified in the site-specific access control SOP, and obey all aspects of the site-specific access control SOP and visitor orientation. Appropriately cleared unescorted visitors will be given V badges for entry to TA-15, -36, -39, and -40. Specifics of access will be determined by the Access Control Office and Local Access Offices according to the site-specific SOPs.

5.6 Escorted Visitors

Escorted Visitors shall obey and stay with their escort at all times while in a firing area.

5.7 Required Reading

5.7.1 Each employee must read all the SOPs that apply to their job at the time of their assignment and yearly thereafter. Revisions to the SOPs must be read prior to performing the operations described.

5.7.2 Line supervisors will be responsible for determining which SOPs are required for their employees.

5.8 Training

5.8.1 The line supervisors are responsible for on-the-job-training, documentation of that training, detailed instruction, and monitoring of the operators' competence and adherence to instructions.

5.8.2 Explosive operations shall be performed only by authorized personnel with proper training and supervisory approval.

5.8.3 All training is to be in accordance with the DX Division Training and Qualifications Manual.

5.9 Waste Minimization and Management

5.9.1 Waste minimization will be handled according to DX-DO: SOP 01 Waste Management in DX-Division and the Waste Minimization section of the DX Division Operations Manual and the LANL ES&H Manual, AR 10-8.

5.9.2 Waste generated from operations must be reduced as much as technically and economically feasible. To meet this objective, the waste minimization practices of material substitution, good housekeeping, and hazard segregation must be incorporated into all waste generating activities. All waste generators are responsible for making every practical effort to reduce the amount of waste produced.

5.9.3 All waste will be handled according to DX-DO: SOP 01 Waste Management in DX-Division and the LANL ES&H Manual, LIR 404-00-03.0.

6.0 PRECAUTIONS AND LIMITATIONS

Precautions: The general hazards associated with DX-4 operations include mechanical equipment (from hand tools to mobile cranes), electrical sources (wall outlets to high voltage capacitors and power supplies), laser and X-Ray radiation, DU or other radioactive materials, chemicals (Hazardous and non-hazardous materials (chemicals, etc.) are included in experiments. Industrial Hygiene, support is available to mitigate the different types of hazards that may be encountered. Contact your ES&H officer or an Industrial Hygienist for this support). The foremost hazard is high explosives. The precautions and limitations for each of these hazards are given in the SOPs that cover particular operations or locations. Because explosives are the common element of most DX-4 operations, the precautions and limitations for their use are detailed here.

6.0.1 The hazards associated with explosives and explosive devices are blast, fragments, violent deflagration, and possible toxicity.

6.0.2 Explosives are energetic materials that can react violently. Explosives will be protected from abnormal stimuli or environments, including:

- friction forces
- excessive pressures
- impact, shock, pinching
- deformation
- electrical sparks, abrasive or welding sparks, open flame
- contamination
- excessive temperature

6.0.3 An approved SOP/SWP shall be available before any explosives operation is performed. Such SOPs/SWPs shall be readily available in the work areas to which they apply.

6.1 Housekeeping and Personnel Hygiene

Housekeeping in all areas shall be maintained at extremely high levels. Aisles, corridors, and safety exits shall not be blocked.

6.1.1 Spilled explosives shall be cleaned up immediately, then, if necessary, disposed of according to the DX Division Waste Management SOP.

6.1.2 In addition to being an explosive hazard, explosives also are a possible toxic hazard, with respect both to inhalation and to contact with the skin. Some people are

more sensitive than others and can, for example, develop a skin rash, or get headaches from the nitroglycerin in propellants. For these reasons, personnel shall maintain a high degree of personal hygiene by washing their hands after handling explosives, especially before eating or smoking.

6.1.3 Personnel handling explosives shall visually check their work clothing to be sure no explosives are carried from an explosives area to a non-explosives area. Personnel shall not consume any food or drink item in any Explosives Allowed Area.

6.1.4 All maintenance and custodial personnel shall be cleared into any explosive area prior to any maintenance work. The DX-4 SOP governing Custodial and Maintenance Activities in Firing Areas discusses the procedures and limitations to be followed by all personnel doing such work. The removal of any equipment from an explosives work area shall meet the requirements of this SOP. Maintenance work in an Explosives Allowed Area may require an SWP.

6.1.5 Use of flammable solvents in an explosives area considerably increases the explosive hazard because of the ease-of-ignition of the solvent with a possible spread of fire to explosives. Therefore, solvent use and evaporation shall be kept to a minimum. Solvent use will take place in well-ventilated areas, and with proper personal protective equipment.

6.2 Hearing Protection

Hearing protection must be provided at all operations where there is a potential for hearing damage, and must be worn when appropriate.

6.3 Barricades, Gates, Roadblocks, and Warning Signs

It is strictly forbidden to pass any barricade, closed gate, roadblock, or warning sign.

Visitors encountering any of these access restrictions should return to the Access Control Office or Local Access Office or wait until the restriction is removed by the cognizant Firing Leader or designee.

Only the Firing Leader may grant permission to remove any such restriction. This permission can be granted only through direct verbal contact (includes radio and telephone). Visitor escorts will explicitly inform their charges of the acquired permission and the circumstances of its granting.

Travelers in the Firing Areas should check with the Access Control Office or the Local Access Office before traveling.

Typical warning signs are indicated below. All personnel are required to obey the restrictions indicated by any sign in all areas. A warning sign near the firing mound can read:

DANGER
EXPLOSIVES
Return to lights if horn or siren is sounding.

A warning sign used for barricading an access road during a clearance procedure can read:

DANGER
KEEP OUT
High-Explosive Operations in Progress

A warning sign used for barricading an access road during a radiographic operation can read:

DANGER
KEEP OUT
X-Ray Operation in Progress

6.4 Warning Lights, Horns, and Sirens

The particular sequence of lights, horns, sirens, and pauses differs in detail at the various firing sites. An exact description of the horn-siren sequence for a given Firing Point is found in the Site-Specific SOP for that Firing Point. In general:

- Horns sounded alone (and flashing lights where installed) indicate an experiment will commence in the next several minutes. All personnel should be under cover or at a safe distance. If not, they should seek safe shelter or distance immediately.
- A siren sounding for more than 30 seconds indicates that explosives may be fired within a few minutes. All personnel should be under cover or at a safe distance.
- Two short siren soundings indicates an "All Clear" or safe condition now exists on the Firing Point.

6.5 Radio Communication

Communication on the DX Division radio networks shall be brief, necessary, and unclassified.

6.5.1 Multiple Division Radio Nets

There are several frequencies available for DX Division operations. All of the nets are accessible from Division radios. A list of the net names, call signs, frequencies, and normal use areas is given in Attachment 4.

6.5.2 Use of Radios During a Test or Experiment

There is free-channel radio communication among all firing bunkers, vehicles used for clearance operations, the Access Control Office, the Group Office, several offices of DX Division, and Division members whose expertise is often needed during shot operations. During the time that the firing circuit is unlocked, the radio should be reserved for communication concerning the shot being fired and emergencies.

6.5.3 Restrictions

Handheld radios and mobile RF transmitters (e.g., cell phones) are generally allowed for use within the Explosives Firing Areas. However, in areas where low energy EEDs are stored or used in assemblies or test devices, special control must be exercised. Likely restricted areas include:

- TA-14-22 and 23
- TA-22-34
- TA-22-93
- TA-22, all magazines
- TA-40-5, 6, and 7
- TA-36-11, 12, and 83

6.5.3.1 Whenever low energy EEDs are present, it shall be the responsibility of the authorized Firing Leader in the potentially restricted areas to inform the appropriate access control personnel that all RF transmitters in these areas must be turned off. This will be accomplished by informing access control personnel in the TA-22 (DX-1) Group Office, the R-446 Access Control Office, the TA-39 Administrative Office, or the TA-9 (DX-2) Group Office; who will then restrict visiting personnel from using RF transmitters. Further, operators will place signs on all routine entrances to these areas informing personnel to turn off all RF transmitting devices before entering these areas. The Firing Leader will assure that all personnel within the restricted area are informed of the prohibitions.

6.6 Motor Vehicles

All motor vehicles shall be operated with extreme care, particularly when approaching or leaving the firing points, or while in the proximity of placarded explosives-carrying vehicles. Vehicles authorized to carry explosives will comply with all the requirements of the DOE Explosives Safety Manual.

6.7 Requirements for Documentation

An approved SOP/SWP shall be available before any explosives operation is performed. Such SOPs/SWPs shall be readily available in the work areas to which they apply.

6.7.1 An assessment of the hazards must be written for every new, proposed testing program or new process so that foreseeable hazards involved may be examined and mitigations instituted. This shall be done by the most knowledgeable person involved in the test or process with the advice and consent of the Division ES&H Committee, as appropriate. All SWPs will be written and approved according to the process given in the DX Division Writers Guide.

6.8 Approved Explosives and Glues

All explosives or explosive-containing devices that have been approved by the ERC or listed in (ESA) WX-3: SOP 1.1.0, Tables 1 & 2 may be used at DX-Division Firing Sites. Attachment 1 is a list of HE routinely used in DX Division. The list includes explosives in (ESA) WX-3: SOP 1.1.0.

6.8.1 No explosive powders or primary explosives will be handled at DX-4 without prior approval or appropriate SOPs/SWPs.

6.8.2 A list of approved glues for use with identified explosives is given in Attachment 2.

6.9 Control of Access Through Firing-Area Gates

DX-Division knowledgeable personnel and other knowledgeable personnel gain access to the firing areas by using administratively controlled keys. All other individuals must clear through either the Access Control Office (for TA-15, TA-36, and TA-39), the DX-1 Group Office (for TA-40), the DX-2 Group Office (for TA-14), or the Administrative Office at TA-39 before they will be allowed access to a firing area. Qualified Office personnel instruct visitors on the site hazards, have them read the appropriate visitor information, and enter their names in a log. Access Control Procedures are discussed in detail in DX-4 Access Control SOPs, including "General Access Control" (DX-4: SOP 1.0).

6.10 Working Alone

Authorized DX employees with current safety training and experience in explosive operations may work alone under appropriate circumstances, such as assembly, measurement, gluing, inspection, and clamping of certain consolidated explosives and explosive devices.

6.10.1 This working alone procedure authorizes personnel to work alone performing HE operations. When working alone with HE, employees will use a procedure appropriate for the particular work area. These procedures require Access Control, Local Access Office, or a coworker to have the following information:

- Who is working alone,
- Where they are located,
- How long they will be working alone (with a completion time).

6.10.2 All operations shall be performed in accordance with existing SOPs/SWPs. Personnel shall be assigned in a manner such that each worker's presence is frequently monitored, for example via radio or physical check. New, special, or non-routine operations will require a separate assessment and an SWP.

6.11 Electrical Equipment

All operations shall be performed in accordance with LANL Electrical Safety Policies.

6.11.1 All permanent electrical equipment and wiring for those areas containing explosive hazards shall conform to the standards of National Electrical Code (NEC), Hazardous Locations, Class II or Class I & II (dual rated), as modified by the DOE Explosives Safety Manual.

6.11.2 Certain electrical equipment not rated NEC Class I or II is permitted for administratively controlled use within the Explosive Preparation Rooms. A list of those rooms is given in Attachment 3. The equipment listed in DX-4 SOP 4 "General Firing Operations" is approved as intrinsically safe when used under the restrictions noted. No electrical equipment may be used unless it is considered NEC Class I or II or listed in "General Firing Operations."

6.12 Protective Clothing and Equipment

6.12.1 Eye Protection

It is a requirement that eye protection be worn at all times when there are eye hazards. Operations can involve a wide range of eye hazards making it difficult and impractical to categorize the type of eye protection necessary for each specific operation involved.

- Eye protection must be worn in all areas in which eye hazards are known to exist, whether working with explosives or not (e.g., machine shops, carpenter shops, operations involving chemicals). Eye protection may be removed only as required for use of optical and other inspection devices.
- All personnel entering posted eye hazard areas must wear the appropriate eye protection for that area, except as permitted below.
- The requirement for eye protection may be waived by the Group Leader or designee for persons who are included in a guided tour where operations have been suspended. The waiver may apply to a room, building, or to all buildings to be visited.
- Visitors, other than those described above, must wear the appropriate eye protection in the designated eye hazard areas. It is the responsibility of every knowledgeable person in the area to assure that visitors are provided with the necessary eye protection.

6.12.2 Clothing

Generally, clothing provided by the Laboratory for the protection of employees (e.g., safety shoes, clothing for working out-of-doors, hard hats) should not be taken off the Laboratory premises. All involved personnel are expected to wear appropriate and/or required protective clothing according to the operations being performed. Questions regarding requirements and best practices will be resolved by line management.

- Coveralls (without cuffs) or lab coats shall be worn, at all times, if a potential for explosive-contamination by dust or chips on clothing exists. Explosive-contaminated clothing shall not be removed from the Explosives Allowed Area except for final disposal.
- Certain SOPs or SWPs may require that non-sparking soles, conductive shoes or leg stats be worn, therefore a check of the SOP or SWP covering the operations shall always be made.
- Visitors shall wear shoe coverings if their footwear does not meet the requirements for workers in areas where they are visiting.

6.13 Explosives Load Limits

Each magazine, explosives preparation room, and firing point has a maximum limit on the amount of explosive that can be present during normal operations. These limits are generally expressed in terms of "Pounds (or kg) of TNT explosive equivalent." The limits for DX-Division facilities are listed in Attachment 5, and in the Firing-Point, Prep Room or Magazine SOPs.

6.14 Lightning

All operations involving explosives shall be suspended during electrical storms in accordance with the DOE Explosives Safety Manual. Personnel shall be cleared from the Firing Mound during this suspension.

6.15 Explosives Excluded Areas

No explosives-contaminated equipment may be moved to an explosive-excluded area. Every effort should be made to avoid moving explosive contamination to an explosives-excluded area.

7.0 PROCEDURAL STEPS

7.1 Emergency Procedures

7.1.1 In all emergencies, call **911**. In the event of an emergency or incident, notify DX-4 management as soon as possible. Follow the DX Division Operations Manual to report any incidents or accidents.

7.1.2 The DX-DO: SOP 07 Division Emergency Guide will be followed. It covers what to do, depending on the circumstance.

7.1.3 If a spill occurs, the DX-DO: SOP 07 Division Emergency Guide will be followed, then the Waste Management Coordinators will be contacted.

7.1.4 In the event of eye damage, suspected eye damage, or tissue burns due to laser radiation, the source of injury shall be turned off or removed (as practical and safe), and the injured person taken to the Occupational Medicine Group (ESH-2) for treatment.

7.1.5 Any person receiving an electrical shock must report to the Occupational Medicine Group (ESH-2) for evaluation and/or treatment.

7.2 Handling of Explosives

The following general criteria apply to all operations that involve explosives:

- Handling of HE should be minimized.
- The distance that an item will fall if accidentally dropped must be minimized.
- Hard surfaces or sharp edges that could be struck by a bare piece of HE in the event of an accidental drop should be padded or otherwise protected.
- Floor areas where the handling of HE items is most likely to occur should be covered with an approved tile to reduce the danger in the event of an accidental drop.

- The work area surrounding an HE item that is to be handled shall be kept clear of extraneous tools, components, fixtures, and other impediments that could interfere with handling operations.
- The sliding of bare HE on surfaces should be avoided because HE surfaces are relatively susceptible to marring by scratching or slipping. This is important from a quality as well as from a safety standpoint.
- The stability of an item must be maintained during all operations. The operator must evaluate the forces that will be acting on an item during the operation. If the operational forces will result in an unstable or unsecured situation, alternate procedures must be developed. Any uncertainty or question should be directed to the line supervisor for appropriate action.
- After an operation on an item has been completed, the item must be placed in a secure location and left in a stable configuration. When possible, all items destined for storage or movement elsewhere should be placed in suitably designed containers. **An item must not be left in any position at any time where it can be easily toppled.**

7.3 Fires

In the event of fire involving or imminently threatening explosives,

Clear the area and report the fire. Do not attempt to fight any fire involving explosives in any DX Division explosive area.

7.3.1 Fire extinguishers at magazines are for the purpose of fighting small external fires.

7.3.2 Vehicle-mounted fire extinguishers should be used on fires where explosives are not presently or imminently involved. Should a fire occur, an attempt to prevent the fire from spreading to the load should be made. If safe and possible, the explosives should be removed. If the fire presently or imminently involves the explosive load, evacuate all personnel to a safe distance. This distance should be at least 1,250 feet.

7.3.3 There shall be no smoking, except in designated locations. No matches, lighters, or other fire, flame, or spark-producing devices shall be taken into an Explosives Allowed Area, except with written authorization (SWP). There are electrical lighters provided at locations.

7.4 Personnel Authorizations

7.4.1 Firing Leader -- The list of authorized Firing Leaders, and the Firing Points they are authorized for, is given in the Authorizations and Assignments Document. Only the DX-4 Group Leader can authorize additions or deletions from the list of authorized Firing Leaders.

7.4.2 Knowledgeable Personnel have at least four months experience working in a firing area as verified or excepted by the DX-4 Group Leader. Knowledgeable persons will meet the training requirements stipulated by DX-4. Persons will be designated as "Knowledgeable" when they are judged competent to have unescorted access to an authorized firing area. Each of the five firing areas requires separate authorization.

8.0 REQUIRED RECORDS

- Daily Visitor Log
- Visitor and Training Databases
- Visitor Information Sheet
- Authorizations and Assignments Document

9.0 REFERENCES

- DOE Explosives Safety Manual
- Los Alamos Environment, Safety, and Health Manual, AR 6-6, "Explosives"
- DX-Division Operations Manual
- DX-Division Electrical Safety SOP
- DX-DO: SOP 01 Waste Management in DX-Division
- DX-DO: SOP 06 Radiological Controls
- DX-DO: SOP 07 Division Emergency Guide

10.0 ATTACHMENTS

Attachment 1. HE routinely used at DX Division Firing Areas.
Attachment 2. Adhesives and Glues routinely used at DX Division Firing Areas.
Attachment 3. DX Division Preparation Rooms.
Attachment 4. List of the net names, call signs, frequencies, and normal use areas for radios.
Attachment 5: Load Limits for DX Division Facilities.
Attachment 6: TNT Equivalent of some Common Explosives.
Attachment 7: Definition of explosive contamination. Memo from the ERC.

Attachment 4

List of the net names, call signs, for radios.

MODEL: GE-M-RK		MODEL: GE-M-PA	
DX-Radio Channel	Organizational Call Letters	DX-Radio Channel	Organizational Call letters
1	DX-1	1	DX-1
2	DX-2	2	DX-2
3	DX-3	3	DX-3
4	DX-4	4	DX-4
5	DX-5	5	DX-5
6	DX-6	6	DX-6
7	DX-7	7	DX-7
8	DX-DO	8	DX-DO
9	DX Fleet	9	DX Fleet
10	Emergency	10	Local 1
11	Emergency	11	Local 2
12	Emergency	12	Local 3
13	Emergency	13	Local 4
14	Emergency	14	Emergency
15	Emergency	15	Emergency

DX-4

STANDARD OPERATING PROCEDURE

FOR

GENERAL FIRING OPERATIONS

SOP 04

Prepared by: _____ Date: _____
G. D. Vasilik, DX-4

Approved by: _____ Date: _____
G. D. Vasilik, DX-4 ES&H Officer

Approved by: _____ Date: _____
J. M. McAfee, DX-4 Group Leader

Approved by: _____ Date: _____
A. L. Cucchiara, ESH Deployed Team Leader, DX-FMST/RSO

Approved by: _____ Date: _____
C. M. Montoya, DX-DO Operations Coordinator

Controlled Document Number: ☐

Table of Contents

1.0 INTRODUCTION

This SOP covers the conduct of explosives test-firing operations and nonexplosive tests conducted at DX Division firing sites. This document is not to be used as a "stand alone" document. Further training and understanding a site-specific SOP are required before conducting firing operations at any DX Division firing area or site.

2.0 PURPOSE

This SOP provides necessary information, describes the hazards, and specifies safety procedures common to all Firing Areas. Detailed descriptions of operations at particular firing sites may be found in the Site-specific SOPs for those firing sites. This SOP also generally describes the procedures for preliminary preparations, circuit testing, clearance, firing operations, misfires, test failures, and post experiment activities at DX Division firing sites.

3.0 SCOPE

This SOP is applicable to all personnel who frequent the areas listed below, or who are authorized to perform explosives firing operations at the areas operated by DX-4. In addition, DX-4 support personnel (staff members, appropriate clerical personnel, etc.) shall also be familiar with this SOP.

This SOP covers operations at the following firing sites.

Building or Site	Common Reference
TA-14-34	Q-Site
TA-15-306	R306
TA-15-310	R310, PHERMEX/MOC
TA-36-3	Eenie Site
TA-36-6	Meenie Site
TA-36-8	Minie Site
TA-36-12	Lower Slobovia
TA-39-6	Point 6
TA-39-57	Point 57
TA-39-88	Point 88
TA-40-4	Chamber 4
TA-40-5	Chamber 5
TA-40-8	Chamber 8 (10-kg vessel)
TA-40-15	Chamber 15

These Explosives Firing Sites are identified on the Maps in Attachment 1.

Gun facilities at TA-39 and at TA-40 are under the jurisdiction of DX-1.

Access to the firing areas are covered in the DX-4: SOP 1.0 General Access Control, and by area-specific SOPs for TA-14, TA-39, TA-40, TA-15 Area III, and TA-15/36 Area K-I.

4.0 DEFINITIONS

- **Aborted Experiment** -- An aborted experiment is one that for any reason cannot be fired as planned and is to be returned to storage.
- **Access Gates** -- Gates or chains that can be locked. The keys are administratively controlled by the Access Control Office and the Local Access Offices.
- **Barricade** -- A portable device, such as a sawhorse, with an appropriate sign, used to halt traffic into an area that is hazardous or is about to become hazardous.
- **Bunker** -- The main protective building at a firing site, housing the control room, and usually the CDU, camera and diagnostics.
- **CDU** -- Capacitor Discharge Unit (~~a~~also called Firing Unit or X-Unit).
- **Chamber** -- Bunker. The main protective building at a firing site, housing the control room, and usually the CDU, camera and diagnostics.
- **Clearance** -- Process by which an exclusion area is established and determined to be free of unprotected personnel, and safe for a firing operation.
- **Clearance Checklist** -- A step by step guide to ensure that each element of the clearance plan is executed and documented.
- **Clearance Patrolman** -- A Knowledgeable Person who physically inspects a clearance area or manually observes a barricade to assure that people are excluded from hazard zones.
- **Clearance Plans** -- Procedures that protect personnel within the firing areas by controlling conditions during explosive experiments, radiographic operations, or other potentially hazardous operations. The level of the clearance plan determines the control procedures to be followed ~~a~~and the extent of the cleared area.
- **Cleared Area** -- An area that has been physically patrolled by a ~~p~~person performing assigned duties, or an area in which all personnel have been accounted for. A Cleared Area has been declared safe for firing operations to proceed.
- **Detonator Cable** -- The electrical conductor connecting a detonator to a CDU, or any initiating device to a firing unit.
- **~~D~~DCO** -- Detonator Circuit Ohmmeter only the PT 2204, SE 3065 or T-27 may be used ~~t~~to test continuity of detonator circuits.
- **EED** -- Electroexplosive Device.
- **EBW** -- Exploding Bridgewire.
- **Experiment Information Packet** -- For the Fire Department, a list of hazardous materials included in experiments that they attend, and MSDS forms for those materials.
- **Firing Area** -- The areas where firing operations are conducted. Access to these areas is controlled, and is through an Access Gate. These areas are TA-15/36 Area K-I, TA-15 Area III, TA-40 Firing Area, TA-39 Firing Area, and TA-14.

- **Firing Cable** -- The electrical conductor conveying a trigger or firing pulse to a CDU or other firing unit.
- **Firing Checklist** -- (may include clearance checklist). A list of steps to be taken in preparing to fire and firing. Used as a reminder to ensure that no steps are forgotten, and all steps are documented.
- **Firing Keys** -- Strictly controlled ~~u~~unique keys that unlock firing circuits.
- **Firing Leader** -- A ~~f~~full time DX Division employee, authorized by DX-4 line management to supervise, conduct, and be responsible for operations at the site of the test. This person's accumulated knowledge and experience are crucial to all explosives firing operations.
- **Firing Mound** -- Firing mound refers to the sand pile or steel firing pad on which the experiment assembly is placed.
- **Firing Point or Site** - The actual location of an explosive test and its exclusion area behind the appropriate safety gate.
- **Hazard Circle** -- A region, not always circular in shape, that is evacuated in a clearance plan because shrapnel from the experiment is expected to land within that region. May also be called a hazard zone or a fragment area. However, the definition of a Hazard Circle is only a guideline, fragments occasionally land outside of them.
- **Hazard Zone** -- Hazard Circle.
- **HE** -- High Explosives.
- **HV** -- High Voltage.
- **HVPS** -- High Voltage Power Supply.
- **Low Energy EEDs** -- Hot-wire initiators, squibs, blasting caps, etc.
- **Misfire** -- That which occurs when there is no evidence of detonation or energy release after pulsing the firing circuit.
- **Partial Firing** -- When one or more of the explosive charges in an experiment fail to initiate. Often significant quantities of unreacted explosives are scattered on and around the firing mound.
- **PFN** -- Pulse Forming Network. (includes pin boards and pulse boosters).
- **Roadblock** -- A roadblock is established by having a DX Division employee or trained Knowledgeable Person (Clearance Patrolman) in the road to stop traffic. The roadblock may be an employee with a radio, or an employee with a radio and a vehicle. This person maintains contact with the Firing Leader and the Access Control Office as necessary.
- **Safety Gate** -- A gate at the entrance to a Firing Site. The last gate before hazard is encountered. A safety gate may be interlocked.
- **Test Mode (Firing circuit)** -- A condition in which firing circuits may have power on them, while clearance conditions are not met, by use of a special key and a special procedure. Administrative requirements for using test mode are defined in site-specific SOPs. Neither detonators nor explosives are connected to the firing circuit in test mode.

5.0 RESPONSIBILITIES

5.1 Personnel Responsibilities

5.1.1 Firing Leader

Shall have immediate responsibility for the operational safety of an operation, and shall be the final authority on questions of safety and procedure during operations at a Firing Point. Also, the Firing Leader is:

- Knowledgeable about group SOPs and operations.
- Responsible for selecting or confirming the choice of the appropriate clearance plan (hazard circle) for the experiment, based on experience, knowledge of experiment design, calculations, DOE or DoD guidelines, and weather conditions.
- Responsible for overseeing the safety of the firing crew, other personnel, equipment, and facilities at the firing site. Responsible for the safety and security of the firing operations.
- Responsible for personnel control on the firing mound or in the firing chamber.
- Shall not permit firing until all personnel within the hazard zone of the experiment are in safe shelters, or are removed from the hazard zone.
- Responsible for firing keys during firing operations.
- Ensures that safety and operational equipment is used properly.
- Participates in inspections; ensures that any defects found during routine maintenance and inspection are corrected by the appropriate personnel.
- Assists in critiques and accident investigations; reports occurrences.
- May delegate some responsibilities to authorized personnel.

5.1.2 Access Control Officer

- Participates in clearance procedures as appropriate. Interacts with Firing Leader for firing operations.
- Interacts with Lead Clearance Patrolman during a clearance.
- Administers personnel access into firing areas.
- Responsible for managing the exchange badge process, both pictured exchange badges when used for Knowledgeable employees, and visitor badges.
- Responsible for the flow of personnel to and from firing areas.
- Verifies that requirements for visitor access are met. Maintains visitor access documents and records.
- Is the single point of contact between the firing sites and the Fire Department.
- Frequently handles communication to DX-4 Group Office, DX Division Office, and security personnel, on behalf of the Firing Leader.

5.1.3 Clearance Patrolman

- Assists activities in the firing area, including communications, traffic, and visitor control, when a clearing or firing operation is in progress.
- Responsible for the successful performance of clearance processes.
- Erects and controls barricades as necessary along access routes. Locks safety gates with key controlled by the Firing Leader or Lead Clearance Patrolman as necessary; posts warning signs for approaching traffic and removes barricades when clearance is lifted.

5.2 Required Reading

5.2.1 Each employee who participates in firing operations must read this SOP, other applicable general SOPs, and the Site-specific SOP(s) applying to the firing site(s) used.

5.2.2 The DX-4 Group Leader or designated line supervisors will determine who must read these SOPs.

5.3 Training

5.3.1 All training is to be in accordance with the DX Division Training and Qualifications Manual. Explosive operations shall be performed only by personnel with proper training and supervisory approval.

5.3.2 Supervisors are responsible for on-the-job training, documentation of on-the-job training (as required), detailed instruction, and for monitoring the operators for competence and adherence to instructions.

5.3.3 All personnel conducting or involved in on-site preparation or firing activities shall have read, understood, and agreed to adhere to the established procedure and requirements of this SOP, the DX Division Operations Manual, ~~the DX Division Electrical Safety Guide.~~and the ~~D~~DX-DO: SOP 07 Division Emergency Guide~~, and the local Building and Site Emergency Plans~~.

5.3.4 All visitors present during a firing operation shall have read, understood, and agreed to adhere to the Visitor Instruction Packet and to the instructions given by the Firing Leader or his designee.

5.3.5 The Fire Department shall be provided with the Visitor Information Packet, and the Experiment Information packet (MSDSs of hazardous materials) for each experiment they attend.

5.4 Waste Minimization/~~W~~Waste Management

5.4.1 Waste minimization will be handled according to the Waste Minimization section of the DX Division Operations Manual and the LANL ES&H Manual, ~~A~~AR 10-8.

5.4.2 Waste generated from firing operations must be reduced as much as technically and economically feasible. Material substitution, good housekeeping, and hazard segregation must be incorporated into all waste generating activities, in order to meet this objective.

5.4.3 All waste will be handled according to the DX-Division~~O~~: SOP 01 Waste Management in DX Division and ~~the~~ LANL ~~ES&H Manual~~, ~~L~~LIR 404-00-03.0.

6.0 PRECAUTIONS AND LIMITATIONS

6.1 Administrative

6.1.1 Appropriate Standard Operating Procedures (SOPs) or Special Work Permits (SWPs) shall be available before any explosives operation is performed. Such SOPs or SWPs shall be available at the site of the operation and shall be understood and obeyed. When operations will be performed that will change or bypass these procedures or introduce additional hazards, a Special Work Permit (SWP) or another SOP will be written and approved to cover each operation.

6.1.2 Any major departure from previously approved experiment configurations must be reviewed by the DX-4 Group Leader or designee before firing. A change in configuration includes any change in hazard resulting from alterations in firing protocol, materials, shrapnel potential or direction, heating methods, invasive diagnostics, electrical equipment, location on firing mound, or any other modifications.

6.2 Identified Hazards

Explosives, high voltage, x radiation, laser radiation, chemicals, and normal industrial hazards are the hazards identified with firing operations. These and other hazards associated with firing and other DX-4 operations are described here, in the DX-4: SOP 03 General Safety SOP, and other operation- or site-specific SOPs. Some of the general hazards to be aware of are:

- Explosives testing is loud. Hearing protection must be provided at all operations where there is a potential for hearing damage.
- Electrical hazards exist due to the firing circuits and High Voltage circuits or those used to power the circuits that are used to gather data.

- Lightning is a hazard, particularly where explosives are present. All operations involving explosives are suspended during electrical storms in accordance with the DOE Explosives Safety Manual. Any person perceiving a safety hazard from lightning may suspend the operation.
- Cranes and crane operations, are discussed in the DX-4: SOP 06 ~~R~~Repetitive-Type High ~~C~~Consequence.
- Vacuum and high pressure lines or vessels, or use of HE under vacuum, present serious mechanical and explosive hazards which are discussed in the DX-4: SOP 23 ~~V~~Vacuum Use ~~i~~in Field Tests.
- Radiography is covered by site-specific Firing SOPs, the DX-4: SOP 17 Flash X-Ray Generators, and the DX-DO: SOP 06 ~~R~~Radiological Controls.

6.3 General Considerations

6.3.1 Access to Firing Areas and Firing Sites

Access to all DX-Division Firing Areas is administratively controlled by the issuance of keys and through access control procedures detailed in the General Access SOP and Firing-Area-specific SOPs. Firing Areas are entered through key-operated gates. During hazardous ~~-~~operations, firing Sites are entered with permission of the Firing Leader ~~o~~or the Firing Leaders ~~D~~Designee.

DX-4 knowledgeable personnel and other knowledgeable personnel gain access to the firing areas by using administratively-controlled keys. All other individuals must clear through either the Access Control Office (for TA-15, TA-36, and TA-39), the DX-1 Group Office (for TA-40), the DX-2 Group Office (for TA-14), or the Administrative Office at TA-39 before they will be allowed access to a firing area. Qualified Office personnel instruct visitors on the site hazards, have them read the appropriate visitor information, and enter their names in a log. Access Control Procedures are discussed in detail in DX-4 Access Control SOPs including "General Access Control."

6.3.2 Explosive (Load) Limits During Firing Operations

The firing load limit is the maximum amount of explosive that may be fired at a firing site without special authorization. The maximum amount may be reduced by location of the experiment relative to the portglass and the bunker. See site-specific SOPs.

Typical HE Firing Limits at Firing Sites

Building or Site	Limit (kg)	Limit (lbs)
TA-14-34	see site-specific SOP	see site-specific SOP
TA-15-306	68	150
TA-15-310*	68	150
TA-36-3	227	500
TA-36-6	907	2000
TA-36-8	907~~7~~	2000
TA-36-12	2268	5000
TA-39-6	91	200
TA-39-57	227	500
TA-39-88	907~~7~~	2000
TA-40-4	25	55
TA-40-5	0.45	1
TA-40-8	10	22
TA-40-15	25	55

*Limits away from the runway at R310 can be exceeded only with the approval of the DX-4 Group Leader or designee.

These limits may be modified by permission of the DX-4 Group Leader through the SWP process.

6.3.3 Personnel Limits During Firing Operations

The number of personnel present on the firing mound during experiment preparation must be minimized, to minimize the number of people injured or killed in an accident and to reduce~~/~~ disruption~~turbance~~ of the firing crew.

The maximum number of personnel allowed at the firing site when explosives are present is given in the site specific SOP for each firing site. For stated times and purposes, changes in the personnel limits may be authorized by the DX-4 Group Leader or designee.

6.4 Pre-experiment

There are a number of limitations that are determined prior to the firing of a experiment. These include identification of the hazard zone, clearance plan, and requirements for Fire Department support.

6.4.1 Hazard Circles

Hazard circles (zones) are pre-defined, and the appropriate size area (not necessarily circular) is chosen for each experiment, according to the hazards associated with the size, materials, configuration, and explosives in the experiment. The choice of hazard circle dictates the particular Clearance Plan which will be used. The area inside the Hazard circle is cleared before the experiment, according to the Clearance Plan for the particular Firing Site. Specifics of clearance plans, and maps of most hazard circles, can be found in site-specific SOPs for the Firing Sites.

6.4.2 Clearance Plans

Clearance Plans have been developed to protect personnel within the hazard zones. Clearance Plans are specified for explosives firing operations, for the production of radiation or pulsed-power discharges, or for experiments that may release toxic material.

Specific details of clearance plans are given in Site-specific SOPs for Firing Operations. Each Clearance Plan is based on a defined hazard circle within which all personnel must either be excluded or inside a bunker. Before the experiment, a clearance procedure is used to locate personnel within the hazard area, remove them, and then physically block entrance to the area until the experiment is done and the area is safe again.

- At TA-15 and 36, Clearance Plans are called A-Minor, A, B, and C, increasing in radius by increments of 250 meters. (See Attachment 3).
- At TA-39, Plans are called levels 1, 2, 3, 4, and 5, and a separate safety gate exists for each level, at greater and greater distances from the Firing Site.
- At TA-40-4, two hazard circles exist.
- At TA-40-5, -8, and -15 and TA-14, a single hazard circle and Clearance Plan is used for every experiment at a given Firing Site, based on the largest experiment that will normally be fired at that site.

Provision for large experiments can be made for any area at any time, using the SWP process.

6.4.3 Clearance Notices

When a experiment is planned, a notice will be posted in one ~~o~~or more of four places, depending on the firing area:

- Area K-I, Area III - in the Access Control Office at TA-15-~~4~~4446
- TA-40 firing area - at TA-22-90, TA-40-1 and TA-15-~~4~~4446
- TA-39 - on the experiment board in TA-39-2 and TA-15-~~4~~4446
- TA-14 - in ~~R446 and~~ the DX-2 Group Office at TA-9-21 and TA-15-446~~.~~

The Access Control Office at R~~4~~4446 will be informed of every experiment, or series of experiments regardless of location. The notice will include the firing point, the date and time scheduled for firing, the level of the Clearance Plan, the Firing Leader, experiment number, and other pertinent details. This notice will remain in place until a safe condition exists.

6.4.4 Clearance Checklists

A "Clearance Checklist" is used by the Firing Leader or Clearance Patrolman for each Clearance Plan. Checklists may indicate the area to be cleared, the hazard radius, traffic control requirements, firing data, clearance announcement requirements, the names of the Lead Clearance Patrolman (if applicable) and Firing Leader, and other information about the experiment. Clearance checklists are included in Firing Site SOPs. They may be part of the firing checklist.

6.4.5 Fire Department Notices

Fire department access to firing areas is controlled to avoid exposing the firemen to explosive or other hazards, but access must be rapid in case of a fire.

6.4.5.1 The Access Control Office at TA-15-446 will be notified if Fire Department activity is needed at any firing area. Access Control Personnel communicate with and advise the Fire Department when they are needed, and arrange for access to be available, rapid, and safe.

6.4.5.2 When the Fire Department is called to stand by, the hazardous materials in each experiment must be identified, and a packet of MSDS forms prepared, in case of a fire involving the experimental assembly. If the Fire Department is called to fight an unexpected fire that is caused by a experiment, it is the Firing Leader's responsibility to inform the Fire Department of the presence and identity of all hazardous materials.

6.4.5.3 Fire Department access is discussed in the site specific SOP for each Firing Site.

6.4.5.4 If more than one experiment is fired with the Fire Department on standby, the Firing Leaders, Access Control, and the Fire Department will be in agreement that the first experiment is complete and the area is safe, before the second experiment can proceed.

6.5 Operations with High Explosives

Explosives operations usually begin with the receipt and storage of explosives and explosives-containing devices. Preparations of tests (assembly, gluing, etc.) can then be performed. These operations are described in the following SOPs; ~~or~~ DX-DO: SOP 03 Packaging and Transportation of Hazardous Materials. DX-DO: SOP 08 HE Storage, and DX-4: SOP 05 Preparation Room Operations Explosive Charge Handling and Assembly.

6.5.1 Handling and Transfer of Explosives

The general precautions for handling HE are given in the DX-4: SOP 03 General Safety SOP. Particular caution should be exercised in the movement of HE. Explosives will not be transported over walkways which are hazardous because of ice, snow, weed overgrowth, or other adverse conditions. Explosive handling shall be permitted only where handling areas are free of obstructions.

- Experiments should be carried to the Firing Point with attention to footing and to tripping hazards such as sand, weeds, and cables.
- Experiments must be placed by DX-Division knowledgeable personnel under the direction of the Firing Leader.
- Only qualified operators may operate cranes or ~~f~~forklifts used to lift explosives assemblies. **All lifts involving explosives are to be considered high-consequence lifts.**

6.5.2 Tools and Materials

Various tools and materials may be used on the Firing Point in the assembly of an experiment and the associated diagnostics. Equipment and materials not specifically allowed by this and other DX-4 SOPs (with attachments) and SWPs is forbidden. In experiments involving other groups, equipment needed to prepare their part of the experiment is permitted on the firing point only if it is covered by a DX-4 SOP or SWP, or an approved SOP from that group; and if its use is not prohibited by the Firing Leader.

Mechanical and Thermal

- Ordinary hand tools may be used near the charge, but may not be used to strike, cut, or otherwise work on the charge. The only forming and cutting operations on solid explosives which may be performed as a part of the assembly procedure are the hand forming of ~~P~~PBX-N110, C129, XTX, Composition C, and the cutting of Primacord and DuPont Detasheet with a razor blade. Bending of DuPont Detasheet explosive is allowed, as long as the radius of the curvature is greater than four times the sheet explosive thickness, to prevent tears.
- A staple gun may be used to secure wires or other non-explosive items to the charge stand or container.
- Equipment listed in Attachment 4 may be used on the firing point during the setting of the experiment.
- When any of this equipment is used, appropriate shielding shall be used to prevent sparks, heat, or impact from reaching the explosive.
- ~~N~~No powered hand tool or appliances (except for a soldering gun) shall be used within ~~6~~60 cm (2 ft) of bare explosive without an SWP. Bare explosive is explosive that is ~~n~~not protected by a barrier that can withstand fragments, sparks, heat, or tool bits ~~(~~(and broken tool bits) from damaging the explosive.
- ~~S~~Soldering may be done with a battery powered soldering gun or a soldering gun that ~~d~~does not remain hot when not in use. The hot tip is always kept at least 30 cm (1 ft) ~~f~~from any bare exposed explosive(s), and is kept one meter (3 ft) or more from any ~~e~~exposed explosive(s) when not in use. (See Attachment 2).

Electrical

- Any ~~110 volt alternating current~~ power source >50 vac that is used when personnel are present on the firing mound shall be Ground Fault Circuit Interrupt (GFCI) protected, unless GFCI renders the equipment inoperable (e.g. inductive motors). Equipment using a 110 volt alternating current must be kept a minimum of one meter from exposed explosives, or else an~~d~~ SWP will be used. Appropriate measures shall be taken to prevent such equipment from any contact with explosive(s). An insulating barrier such as Plexiglas between the power source~~110V~~ and the explosive allows closer proximity. After the mound area is clear of personnel, GFCI protection is not required.~~a normal 110 volt alternating current circuit may be used.~~

6.5.3 Electronic Devices and Diagnostics

Many experiments have electrically charged pins or switches incorporated into the assembly for diagnostic purposes. A variety of pin and gauge diagnostics are used in contact with bare explosive and propellant assemblies. It may be necessary to test experimental equipment and pin circuits with pulse-forming-network (PFN) pin voltage

or other electrical sources turned on. General precautions for energizing these devices are given here. Details are specific to individual diagnostics and firing sites.

- Pin circuits may be assembled and attached to the transit-time electrodes with crimp connectors or alligator clips. Pin circuits and potential shorts in explosive monitoring pin and foil circuits may be checked using an approved ohmmeter powered with a 1.5-V battery such as a Simpson 160 or 260. The meter must be certified as specified in DOE Explosives Safety Manual latest revision.
- Pins that are in direct contact with the explosive (co-ax, foil, painted switches, etc.) are often wired to separate plugs (known as H.E. plugs) so they can be identified and isolated from the PFN voltage supply. These plugs must be specifically labeled and verified by DX-Personnel. These special plugs must never be connected to the PFN when the power is on. Before the firing party retires to the control room for a firing operation, the explosive pin and foil monitors are connected to the PFN with the power off.
- If the voltage and current are limited to less than 5 V and to 200 mA, then the power can be applied to the diagnostics without clearing the firing site.
- If the diagnostic power supply applies voltage greater than 5 V, or current >200 mA, then the supply is controlled by the firing control panel so that voltage cannot be applied to the gauge unless the firing panel/voltage key is used in the test or Fire Mode. If a test mode is available and is used, then the clearance for the experiment must be in place, before applying current or voltage to the diagnostic on the bare explosive. After all personnel are in the control room or bunker, the PFN voltage can be turned on. If it is necessary to return to the firing point, the voltage to the HE plugs will be turned off and remain off until everyone has returned to shelter.

6.5.4 Vacuum

Some experiment designs call for the use of a vacuum chamber. Any experiment that requires a vacuum will comply with the procedures in the DX-4: SOP 223 Vacuum Use in Field Tests.

6.5.5 Fissile Material

All weapons-mockup experimental assemblies are monitored for fissile material according to pit-verification procedures described in the site or experiment specific SOPs. The Firing Leader is responsible for overseeing monitoring. Another member of the firing crew verifies the monitoring.

6.5.6 Gas Handling

If the experiment involves filling a pressure vessel with gas or using methane in a confined assembly, special gas-handling procedures must

be followed. These are described in the DX-4: SOP 10, Filling Pits with Gases at Firing Points. All other gas handling operations (e.g. Ar, Xe flashers, X-rays, and low pressure hydrogen fills) will be done in accordance with AR 14-1 ~~of~~or applicable LIR.

6.5.7 Assembling Experiments on the Firing Mound

Experiments may be assembled at the firing mound. Experiments delivered as separate components are assembled by the firing crew and placed on the experiment stand. The firing crew shall take special care to ensure that all piece numbers have been recorded during assembly to allow accurate and complete reporting of expended materials.

- Ordinarily the firing crew will not bring more explosive to the firing mound than will be fired in one experiment. Extra explosive, or experiments in a series, will be kept in a service magazine or a preparation room until the previous experiment is complete. Rounds for small arms are an exception.
- Explosives handling on the firing mound should be kept to a minimum.
- All experiment assemblies and support stands shall be designed to be stable once the assembly is placed on the experiment stand.
- Explosive charges may be assembled on the firing mound or in the charge preparation rooms using approved glues, tapes, clamps and jigs, and chemicals, as described in the DX-4: SOP 005, Preparation Room Operations Explosive Charge Handling and Assembly. When necessary, argon, methane, propane, and xenon gases may be used for light generation, intensification or quenching. Chemicals not listed as permitted in preparation rooms require an SWP for use in conjunction with explosives on the firing mound.
- All firing cables, vacuum lines, electrical cables, etc., used in an explosive assembly must be protected and secured so that the experiment will not move if anyone accidentally steps on or trips over the lines. It is good practice to route firing cables well away from diagnostic cables.
- Sandbags, experiment design, or other measures will be used when necessary to mitigate (or control) blast and fragments per TIC-11268, DOE Manual for the Prediction of Blast and Fragment Loading on Structures, AMCP 706-181 (Army Material Command Pamphlet), and NWC-TP 5780 (Naval Weapons Center-Technical Publication).
- Whenever possible, detonators shall be attached to the explosive as a last step in the assembly of the experiment.

6.5.8 Charge Protection from Weather

A cover or tent may be set up on the firing mound to shield the charge and associated equipment from the sun and weather. The Firing Leader will make sure that the cover or tent is secured against wind; if necessary, solid anchors will be used, including the anchor points on the firing chamber.

Lightning is a hazard, particularly where explosives are present. All operations involving explosives are suspended during electrical storms in accordance with the DOE Explosives Safety Manual. Any person perceiving a safety hazard from lightning may suspend the operation.

6.5.9 Unattended Assemblies

Experiment assemblies may be left unattended ((~~S~~Security precautions must always be ~~t~~taken into consideration) on the firing mound during normal working hours, provided the exclusion area is cleared of all personnel, the safety gate is closed and locked, and the group office is notified as appropriate~~.~~ (See 6.4.3), and the Access Control Office is ~~are~~ notified. Prudent practice dictates that the number and duration of unattended experiment assemblies on the firing mound shall be kept to a minimum.

6.5.10 Working Alone

DX-4 knowledgeable employees may only work alone in an area that has an approved "working alone" procedure in the site-specific SOP for that Firing Site. When working alone with HE, employees will use the "working alone" procedure appropriate for the particular work area. The minimum requirements for working alone are given in the DX-4: SOP 03 General Safety SOP. Performing firing operations alone has the following requirements:

~~1~~1) Only authorized Firing Leaders may fire explosives alone.
- All operations shall be performed in accordance with existing SOPs/SWPs.
- Working alone on firing operations is permitted only during normal working hours or when Access Control is manned.
- Personnel shall be assigned in a manner such that each worker's presence is periodically monitored via radio or a physical check, in case assistance becomes necessary.
- Any person conducting firing operations alone will be in contact with the Access Control Office.

~~2~~2) A Firing Leader working alone will notify Access Control before taking explosives to the firing mound.

~~3~~3) When a proper clearance can be accomplished and assured, Firing Leaders may conduct firing operations alone.

6.6 Safety Keys

Each safety key described in this section operates a switch that must be in the off or open position before the key can be removed. (The high-voltage disconnect key at R306 and R310 is the sole exception, because it unlocks a padlocked junction box, rather than a switch). The keys and their function described are typical. Detailed descriptions of functions are found in the site-specific SOPs.

> **Keys will never be left in unattended equipment**. This includes portable x-ray machines, 3B and 4 lasers, microwave sources, and other equipment. The Firing Leader will control keys to portable x-ray machines when people are on the firing mound.

- **Firing Control Key** -- Each firing circuit is locked, and each unit can only be operated with the safety key. Only authorized Firing Leaders have keys to these locks. Spare keys are locked in the Access Control key box, and require DX-4 Group Leader~~Office~~ approval for removal. These keys will be under the control of the Firing Leader during experiment assembly.
- **CDU Key** -- The CDU key controls the power supply that furnishes the high voltage to the CDU. The Firing Leader or Chamber Operator has control of the CDU key when personnel are working on or around the firing point when explosives are present~~.~~
- **Voltage Key** -- The voltage key(s) control(s) all high voltage to diagnostic circuits on the firing mound.

6.7 Firing Systems

There are several firing systems used at DX-Division firing sites. Although configurations can be quite different, a firing system generally consists of a control system, a power supply (low or high voltage), a CDU, triggering units, and the connections (cables) to the detonators or EEDs. Any changes or modification to firing control equipment must be reviewed by the "Firing System Safety Review Panel". ~~This panel is part of the Explosive Review Committee.~~

6.7.1 Firing Units

Descriptions of the various types with common precautions follow:

6.7.1.1 Category I CDUs. This category is restricted to firing units where both the CDU and the high-voltage supply are located inside the firing bunker, or the CDU is in the CDU bunker. They are designed to fire several detonators on long (>5 m) firing cables. (For example, the standard 50-point unit.) All current firing units in this category attach to

an external high-voltage supply. Detonator cable connections are made at the CDU after the hazard zone has been cleared and the bunker door shut, except at TA-40-5.

6.7.1.2 Category II CDUs. There are two groups of Category II CDUs, those with the HVPS remote from the firing unit, and those in which the HVPS is included in the unit.

- **Separate HVPS**. Certain detonator types and experiment assemblies must be fired with the CDU less than 2 m from the charge. These firing units have the CDU located on the firing mound. The control circuit, HVPS and the triggering unit are located in the bunker. The detonator may be connected to the CDU before clearing the hazard zone.
- **Incorporated HVPS**. Firesets with unique applications may have the HVPS incorporated into them. No firesets with self-charging capability will be used unless a site-specific SOP or a current SWP sanctions that use.

6.7.1.3 Low-Voltage Initiator Systems. These specialized systems are generally used to ignite low energy EEDs such as squibs, blasting caps, and ignitors. These operations often require an SWP, although some of these operations are covered under Site-specific SOPs for some firing sites, and do not require an SWP to be used at those sites.

- **Low Voltage CDU**. This is a low-voltage (50-V) CDU system used to ignite pyrofuse initiators, electronically initiated primers, and similar devices. This CDU has an internal supply, but it is powered through relays controlled by the firing key, arming switch, and firing switch.
- **AC Firing Unit**. This is an isolated 115-V ac and 300-V ac firing unit used primarily to operate solenoids that operate mechanical primers to fire guns, and to fire other experiments requiring mechanical initiation. The output is supplied by a relay controlled by the firing key, arming switch, and firing switch so that power cannot accidentally be applied at the output of the firing unit. The firing sequence is identical to that used for high-voltage CDUs. The 115-V ac and 300-V ac outputs use Reynolds 21 and 31 connectors, respectively, so that they cannot be confused with each other or with other connectors.

6.7.1.4 Attachment 5 is a list of Capacitive Discharge Units (CDUs) and firesets that has ~~ve~~ been provided to define the associated electrical hazard inherent in each and any hazard mitigation incorporated in the design of each. Procedures implemented for the operation and maintenance of each unit shall be based upon this hazard definition.

6.7.2 Firing Cables

Firing Cables must be clearly identified ~~o~~or identifiable. Care will be taken protect these cables from damage by routing them outside normal walkways (where possible) and

avoiding blast mats or other objects with sharp edges. They are separated from other cables associated with the experiment as much as possible, to avoid confusion leading to misidentification, and to prevent any possibility of induction of spurious current in diagnostic cables.

- When all firing cables have been laid out, they will be taped to the experiment table or otherwise secured to prevent any strain when they are connected to the detonator.
- Firing cables shall not be inserted into the CDU enclosure nor connected to an expendable CDU until people are accounted for and in protected areas, and the Firing Leader is ready to begin the arming process.

6.7.3 Firing System Interlocks

The ability to fire a experiment is limited, as a safety measure, by a set of interlocks which assure that doors and gates are closed and other safety measures are met before the experiment can be fired. The interlocks operate a relay that deactivates the high voltage power supply (HVPS) when the interlocks are not made. Other interlocks deactivating the HVPS include a delay siren relay and a foot switch or a second hand switch. A firing key switch controls the high voltage to the firing unit(s). Details of the interlock systems are given in the site-specific SOPs. In general:

- The firing-bunker doors are interlocked with the firing circuit and must remain secured throughout the firing sequence. The sole exception is the Control Room door at TA-40-5. If any special firing procedure requires the door to be opened, an SWP will be written for each.
- All HVPS units used in the firing system or delivering HV to the mound will be connected to interlocked power.
- All safety systems and devices associated with firing will be checked and documented at least annually. The most recent and best schematic of the firing circuits is to be on file at the site of the operation and will be updated as required.

6.7.4 Bypass Systems

A bypass system exists at some DX Division firing sites. These bypasses may allow the CDUs to be charged and triggered without the usual audible and visual warnings and/or without closing the interlock systems. Extensive constraints on the use of these systems are described in site-specific SOPs for individual Firing Sites.

6.7.5 Final Arming and Energizing

Final arming procedures are specific to each Firing Site and are described in site-specific SOPs.

6.8 Camera and Optical Diagnostics Room

Direct optical access to an experiment can present hazards inside the firing bunker, either from port-glass shards or experiment fragments. In general, rooms in which there is line-of sight access to a experiment, such as through the port glass in a camera room, should be evacuated and have the door closed during experiments, whenever possible. The Firing Leader may prohibit people from entering the optical diagnostics room during any given experiment or operation.

6.8.1 Commercial Rotating-Mirror Cameras

Commercial Rotating-Mirror Cameras used in DX Division will contain any debris from a broken mirror. Even so, it is prudent practice to keep the door to the camera room closed and permit no one in the camera room when the rotating mirror in the camera is operating. This also protects operators from the noise generated by the spinning mirror. Some firing sites do not have a separate camera room, and may use commercial cameras in the bunker.

6.8.2 Home-Made Rotating Mirror Cameras

Home-Made Rotating Mirror Cameras used in DX Division are not proven to contain debris from a broken mirror. Therefore, they may only be used in a separate camera room, and it is required to keep the door to the camera room closed and permit no one in the camera room when the rotating mirror in the camera is operating.

6.9 Warning Signals

Warning signals that may consist of lights, horns, and sirens are present at all DX Division firing sites. Site-specific SOPs describe the exact warning to be found at any particular firing site.

- At all firing sites, an audible signal, a horn or siren, is sounded for more than one minute prior to firing. An "all clear" signal of two or more short blasts shall be used to denote the "all clear" condition on all operations involving a siren.
- When warning signals are tested, or if a "nonhazard" test includes warning signals, this should first be announced over the radio and public address (PA) system.

6.10 Explosive Contamination of Firing Point

If the firing point is contaminated with HE by a partial or incomplete detonation, or with pieces or powder from explosives, the point shall be decontaminated ffollowing appropriate pprocedures before it is used again.

6.11 Housekeeping of Firing Points

All Firing Points shall be cleaned of experimental firing site debris as soon as practicle. Firing site debris should not be left on the mound during inactive periods. For example; a series of experiments in a given week may be cleaned up at the end of the series.

7.0 PROCEDURAL STEPS

7.1 Test Assembly

- Upon delivery of explosive at the site, the Firing Leader shall make sure that the safety keys (at TA-39, the control panel key) are secured in the lock box or under the control of the Firing Leader. Keys will stay secured until the appropriate point in the firing sequence.
- When a charge is on the firing mound, the Firing Leader or an assistant will control access to the firing mound. At least one knowledgeable person shall be present at the firing site and be responsible for (ref. 6.5.9) the explosive while it is on the firing mound, or else the firing site will be closed and appropriate notices posted.

7.2 Fire Department Procedures

For experiments requiring the Fire Department, the Firing Leader will contact the Access Control Office at least one day preceding the scheduled experiment. The Access Control Office will contact the Fire Department and will notify the DX Division Office of the scheduled firing time and advise them that the Fire Department has been called.

- On the day of a experiment, the Access Control Officer will be responsible for maintaining communications with the Fire Department at reasonable time intervals, according to the needs of the Firing Leader.

- When the experiment is fired and clearance(s) lifted, the Fire Department is allowed to enter the area. A DX Division employee will remain on-site until the Fire Department leaves.

- Fire Department access procedures are discussed in Site specific SOPs for Firing Sites.

7.3 Clearance Procedures

It is imperative that the hazard zone be carefully cleared before any potentially hazardous operation is initiated, because people might mistakenly be within the anticipated hazard area for explosive tests. Only DX Division Knowledgeable Personnel or people accompanied by such will be allowed to remain within the hazard zone. Persons remaining within the hazard zone must be in a firing bunker or designated hardened building, and not in either a magazine or a charge preparation room, unless the preparation room is hardened.

Detailed clearance procedures for each firing site are given in the site-specific SOPs. However, a number of procedural steps and restrictions are common to all DX-Division firing activities:

- The Firing Leader will make every effort to notify the Access Control Office the day before the scheduled firing time. Posting of the Clearance Notice is the first step in assuring safe

operations. Explosives shall never be moved to the firing mound for firing without notification of Access Control (if Clearance Notice was not posted).

- The extent of the clearance for a given experiment is the responsibility of the Firing Leader conducting the firing operation. A Firing Leader may decide to clear to a larger hazard zone because of a larger explosive mass, a new energetic compound, a special experiment configuration or fragment potential, or for any other appropriate reason.
- It is strongly recommended that there be no work done on explosives nor handling of explosives while a experiment is being fired nearby. ~~T~~The firing leader will evaluate this on a ~~e~~case by case basis.
- Simultaneous firing site clearances are discouraged for nearby firing sites. If operational necessity or efficiency requires, two or more sites may fire under the same clearance operation if the Firing Leaders determine that no unusual hazards will be created by more than one firing operation under a single clearance. However, under no circumstances shall one firing site commence a clearance while a nearby firing site is proceeding with a Firing Sequence. Otherwise radio net communication may be confused, or clearance personnel may be endangered.
- More than one experiment at a firing site may be fired under a single clearance for efficiency. Clearance procedures in this case are site-specific. More than one experiment under a single clearance shall not be permitted if a fire is probable.
- If the Fire Department is on standby, the Firing Leaders, Access Control, and the Fire Department will be in agreement that the first experiment is complete and the area is safe, before the second experiment can proceed.

7.3.1 Steps Before the Clearance

- Selection of clearance plan
- Determination of fire department requirements
- Posting of clearance notice and fire department notice
- Announcement of clearance (site specific)
- Briefing of clearance patrolmen and access control

7.3.2 Clearing the Firing Site (Hazard Zone)

During clearance procedures, the cleared area is established and maintained by using locked gates, interlocked gates, barricades, and/or roadblocks. The emergency warning lights on a roadblock vehicle will be operated throughout the clearance operation. The clearance procedure lists locations and procedures for closing the hazard zone. The clearance checklist will be filled out as clearance is established. Personnel remaining within the area must take shelter.

In the process of checking and clearing buildings within the hazard area, a building with all of the doors locked or external padlocks in place will be considered empty with exceptions covered in site specific SOPs. The Clearance Patrolman will enter or contact all unlocked buildings and notify the occupants, if any, of the planned experiment and

that they must either leave the hazard area or remain in a shelter area until the All Clear is sounded. If a building is unlocked and there is no response to hailing, then the door will be locked, if possible, from the outside, and the building will be considered empty. An unattended vehicle will be considered evidence that a person is in the hazard area, and that person must be found and directed to a safe location before the clearance is considered complete. The Clearance Patrolman will report the location(s) of all personnel within the hazard area to the Firing Leader.

When the preparation of the experiment is complete, the clearance is started. During the clearance, patrolmen conduct the site-specific plan to assure that personnel are out of the hazard area or otherwise protected, and that no unaccounted person is in hazard zone. Specific clearance procedures generally include the following:

- Clearance checklist
- Access Control informed
- Other Firing Leaders informed, if necessary
- Clearance patrolman executes site-specific procedures, usually includes:
    - sweeps, visual and physical
    - closes gates and interlocks
    - establishes roadblocks, barricades
    - informs Firing Leader that tasks are done and the area is cleared

7.3.3 Post-Experiment Procedures

- Firing staff waits for area to be cleared of explosive products and shrapnel hazard.
- Firing Leader inspects firing area.
- Firing Leader makes preliminary check for fires.
- Firing Leader declares area safe with regard to explosive hazards.
- All firing staff make a thorough inspection for fires.
- Firing Leader lifts the clearance: informs clearance patrolmen and Access Control of safe area.
- Fire Department and other access allowed.
- ~~A~~All personnel in the hazard area will be informed when the area is all clear.

7.3.4 Unexpected Breaking of a Clearance

7.3.4.1 If anyone passes a blockade and enters a hazard zone:

- The person manning the roadblock shall immediately notify the Firing Leader to **STOP** the firing sequence.
- The person manning the roadblock shall remain at his/~~h~~her station and shall not attempt to chase the persons who have passed the roadblock.

- The Firing Leader shall immediately discontinue the firing sequence, confirm receipt of the message and place operations in a safe condition.

7.3.4.2 If any interlock is opened, the Firing Leader **must**:

- immediately discontinue the firing sequence and investigate.
- reclear the area before restarting the firing sequence.

7.3.5 Clearance Outside Normal Working Hours

- If a experiment will be fired outside of the normal work day (8:00 AM to 4:00 PM), or if explosives will be left overnight, the Firing Leader will notify the Access Control Office, Access Control will call DX-DO, PTLA, and EM&R. Clearance procedures modified under an SWP may be used for experiments fired outside normal working hours.
- For a late experiment, or if explosives are left overnight on a firing pad, the firing area access gate will be left in the closed position. When the hazard zone extends beyond the boundaries of the site at which the experiment is to be fired, a more extensive exclusion area will be used.

7.4 Detonator Connections and Arming

Arming begins when any part of the firing ~~e~~circuit is energized. Arming commences only when clearance procedures are completed.

7.4.1 Continuity Measurement (Resistance Measurement, "DCOing")

Resistance of a detonator is checked only with a meter (DCO) certified by DX-1, ~~u~~unless that check is performed after the area is cleared for firing.

- **Category I CDUs:** Usually the resistance of the detonator and cable is measured from within the bunker, just before hooking the cables to the CDU. The clearance is in place.
- **Category II CDUs**: The resistance of a detonator and cable is measured on the firing mound, before connection to the fireset or during connection to the fireset (depending on the connector type).
- **Low Voltage Initiators:** Connecting and firing of low voltage initiators such as squibs and ignitors requires quite different procedures from firing detonators. Normally, the firing cable is shorted at all times ~~u~~until the last practicea<u>l</u> moment. The short will be as close as practical to the initiator. Details of procedures for low voltage initiators are given in Firing site-specific SOPs or in SWPs.

Never DCO a Low Voltage Initiator.

7.4.2 Detonator Connection

Exact procedures are found in the site-specific SOPs.

When a detonator is not initially an integral part of the experiment assembly, it is prudent practice to attach the detonator to the firing cable before attaching it to the experiment. A visual check will assure that the firing cable is in view, and is not hooked to the firing unit, before the detonator is attached. The detonator is fastened to the firing cable, then continuity (of both cable and detonator) is measured, using a ~~D~~DCO approved by DX-1.

Whenever possible, detonators shall be attached to the explosive only as a last step in the assembly of the experiment. When Category II CDUs are used, all HV cables to CDUs **except the HV monitor cable** must be shorted before installation of detonators. Exceptions must be specifically discussed in Firing site-specific SOPs, or in an SWP. The detonator firing cable(s) may be connected to the CDU or alternate initiation device under the supervision of the Firing Leader or a designee.

7.4.2.1 CDU inside bunker. Make detonator cable connections at the CDU **after** the hazard zone has been cleared and the firing sequence has been started. The high-voltage supply cable may be disconnected inside the bunker and shorted, to assure that the CDU cannot be charged. When the HVPS cable is hard-wired to the CDU, this connection is left, and other safeguards prevent charging of the CDU.

7.4.2.2 CDU outside bunker. When the CDU is outside the bunker, the Firing Leader must connect the detonator to the CDU before clearing the hazard area. Because this is a more complex operation, use the following procedure.

1. Do not connect a detonator cable to an outside CDU unless directly authorized by the Firing Leader.
2. Before authorizing this connection, the Firing Leader will ensure that;
   - the firing and test circuits are off and locked and,
   - the high-voltage supply cable is disconnected inside the bunker and shorted. This assures that the CDU cannot be charged.
   - HV monitor cable is connected to both the CDU and the HV monitor to assure that no HV is on the CDU.
3. With the Firing Leader's authorization, connect the detonator cable to the CDU.
4. After the hazard area has been cleared and the firing sequence started, connect the high-voltage supply to the CDU from within the firing bunker.
5. After the experiment, check the high-voltage monitor to ascertain that the CDU is totally discharged. Disconnect the high voltage supply, monitor, and

trigger cables.

7.5 General Firing Steps

The following steps illustrate the procedural steps used for firing experiments. Exact procedures are found in the site specific SOPs.

7.5.1 Using a Category I CDU

- exclusion area cleared
- detonators connected to cables (not to CDU)
- final alignment check
- everyone inside, door shut, dropouts set
- interlocks shut, made
- safe condition to fire ascertained (interlocks, observation)
- firing sequence engaged (computer timing sequence, if present)
- DCO
- firing cables connected to Cat. I CDU (CDU inside)
- siren runs for 1 min. or more
- ready-fire switch closed (footswitch or handswitch)
- HV applied to CDU
- Experiment is fired
- check that CDU discharged
- allow time for fragments to fall
- disconnect firing cables
- allow prudent time for detonation product gases to clear before going outside.
- all clear- 2 or more short blasts
- complete firing operations

7.5.2 Using a Category II CDU

- exclusion area cleared
- detonators connected to cables (not to CDU)
- final alignment check
- connect the detonators (with at least one interlock open)
- everyone inside, door shut, dropouts set
- safe condition to fire ascertained
- CDU connected to HVPS and trigger (CDU outside)
- Firing Leader makes connections as last step, then retires to firing bunker.
- computer timing sequence, if present, engaged
- siren runs for 1 min. or more
- ready-fire switch closed (footswitch or handswitch)
- HV applied to CDU

- Experiment is fired
- allow time for fragments to fall
- all clear- 2 or more short blasts
- check that CDU discharged, especially if outside
- disconnect firing cables
- allow prudent time for detonation product gases to clear before going outside.
- complete firing operations

7.6 Special Procedures

The following gives the procedures used for situations that occur occasionally during firing operations.

7.6.1 Misfires

- In case of a misfire, reduce the firing voltage to zero. Check the HV monitor to be sure that the CDU(s) is discharged.
- Turn off the camera/turbine supply (if in use). Once all the circuits are deemed safe and the appropriate firing system cables have been disconnected, personnel shall first attempt to view the firing pad through the optical port or through the camera periscope. Without terminating the firing sequence, look for possible obvious causes (such as an unconnected detonator cable).
- At this time, the firing cable and detonator(s) may be checked for continuity, if possible. This check will be done from within the safety of the bunker. If it is necessary to go to a CDU bunker to do this check, the ten minute wait described below must be completed before the CDU check.
- One or more attempts to fire may be made, at the descretion of the Firing Leader. If the experiment still does not fire, inform Access Control and **wait ten minutes**. Visual inspection may be performed by the person blocking the road, or a person coming from outside the exclusion area to a safe distance from the mound. If it is necessary to go to a CDU bunker to do this check, the Firing Leader and one other person may go, after waiting for ten minutes.
- Be sure the CDU is disarmed before approaching the experiment~~shot~~. Before other personnel are allowed to leave the cover of the bunker, one qualified person shall carefully approach and examine the setup to verify that it is safe.
- If an unexpected situation develops on the firing pad posing apparent danger, seek safety inside the bunker then notify the Access Control Office.
- For experiments at elevated temperatures, 10 minutes may be an insufficient wait time, and Group Management should be consulted before anyone ventures near the firing mound. ~~T~~The HE must be below 75 degrees C before anyone goes onto the ~~f~~firing mound.

7.6.2 Partial Firings

In the case of known or suspected partial firing **all personnel will remain inside the bunker.** Notify the DX-4 Group Office and Access Control. A 30 minute waiting period shall be observed. If the explosive is burning, or if there is smoke in the general vicinity, wait at least 15 minutes after these signs have disappeared before approaching the assembly. The following steps and precautions shall be followed:

- Notify Access Control and the DX-4 Group Office.
- Continue to run siren.
- Disconnect and de-energize all electrical power sources connected to the experiment, and turn off the camera/turbine supply (if in use). Disconnect all firing cables (and/or charge and trigger cables) from the CDU, where feasible.
- Ensure that all personnel in the hazard area are aware that a failure has occurred and that they must remain under cover until notified otherwise.
- Check all possibilities for the cause of the test failure from inside the bunker. When all circuits are deemed safe, attempt to view the experiment via the port glass or camera periscope. Alternately, a person can view the firing mound from a safe distance.
- Before any personnel are permitted to leave the cover of the bunker, a **30-minute** waiting period shall be observed.
- A carefully prepared review of the situation in consultation with another knowledgeable person such as line management, a line supervisor, or the ES&H Officer~~Coordinator~~ should be initiated.
- Before personnel are allowed to leave the cover of the bunker, one qualified person shall carefully approach and examine the setup to verify that it is safe.
- In the event of an expected test failure containing only detonators or actuators and no HE charge, a 5 minute waiting period shall be observed before going out onto the firing mound.

See the DX-4: SOP 10 Firing Small-and Large-Bore Guns for procedures covering experiments involving projectiles (bullets, shaped charges, etc.) that are fired into targets containing energetic material.

7.6.3 Disarming

- The Firing Leader and no more than one assistant will disarm all experiments.
- The Firing Leader and the assistant (if present) will observe and certify on the Firing Point Checklist that all firing cables are disconnected from the CDU. Cables are removed from the CDU chamber or firing bunker (whichever is appropriate).
- If a Category II CDU is being used, disconnect and short the high-voltage supply cable and the trigger cable.

7.6.4 Aborted Experiments

Either the experimenter or the Firing Leader decides if a experiment should be aborted. Both together determine whether the explosives assembly is safe for return to storage.

7.6.5 Firing Sequence Interrupt or Shutdown

In some cases, it may be necessary for the firing procedure to be interrupted or reversed (e.g. a person intrudes into a hazard area or equipment has malfunctioned). If any of these instances should occur, follow the steps listed in the site-specific SOPs. In general:

- Release the redundant ready-fire switch (foot switch or hand switch).
- First turn off the HV key switch. This allows the voltage to return to zero.
- Check the HV monitor to be sure that the CDU(s) is discharged.
- Disconnect all Det, HV, power supply, and trigger cables going to the firing pad as appropriate.

Firing will be prevented if the drop-out relay of the firing site safety gate interlock circuit or any other interlock is not in a closed position. This can occur because someone has entered the area after the gate was closed. **Do not resume the firing sequence until a complete check of the area inside the gate has been made.** After such a check, the interlocks can be reset and the firing procedure repeated.

7.6.6 Rotating Mirror Cameras

In general, it is prudent practice to stay out of the camera room and leave the camera room door shut when the mirror is running and for one minute after the camera air is turned off, or until the mirror has stopped rotating.

Many rotating mirror cameras have mirrors made of beryllium, which is poisonous when present as a dust. If it is determined that a beryllium mirror has broken while in operation, **do not** open the camera room door or the camera housing. Turn off the camera air and high voltage. Evacuate the building and do not reenter until ESH-5 has evaluated any possible hazards and given permission to reenter. If the housing of the shut down camera needs to be opened to determine that the mirror has failed, leave the room as soon as the failure is apparent.

7.7 Emergency Procedures

7.7.1 Building or Site Emergency

If an emergency situation should occur, follow the DX-DO: SOP 07 ~~Building Emergency Plan (BEP)/Site Emergency Plan (SEP)~~ Division Emergency Guide. The DX-DO: SOP 07 Division Emergency Guide~~BEP/SEP~~ must be available in the building and the operators shall be familiar with its contents. ~~T~~There are Emergency channels on all ~~r~~radios used in DX, they may be used to immediately contact Los Alamos Fire or The ~~E~~Emergency Management and Response Officials.

7.7.2 Personal Injury

In any emergency involving injury to a person or persons, the employee encountering the accident should use good judgment on the procedures to be followed, depending on the circumstances. Decisions made by a DX-4 employee at the scene of an accident will be supported by the DX-4 management. If there is a serious injury or accident, follow this procedure:

1. Dial 911 to contact the Fire Department Rescue Squad and ambulance. Say where the emergency is and stay on the line until the operator has finished getting information from you.

2. Aid victims if possible, but do not endanger them, yourself, or others. Request first aid and CPR help if needed. Take measures necessary to prevent further damage or injury.

3. Dispatch individuals to direct emergency vehicles.

4. Notify the Group Office. The Group Office will:

   - notify the DX Division Office,
   - alert guard stations to expect emergency vehicles and personnel:
   - For TA-15: Station 431 (7-4850)
   - For TA-36: Station 223 (7-4051)
   - For TA-40: Station 431 (7-4850)
   - TA-39 Local Access Office personnel will open the main gate to the site, to allow emergency vehicles to enter.
   - call the FMD (Facility Manager Designee) at 8-1-(505) 699-1765.

- call the Emergency Management Office to notify them of the incident
  (7-6211 during working hours, 7-7080 after hours).

5. Inspect the accident site to see if anything might cause injury to rescue personnel. If possible, consult with the Group Leader or other senior DX-4 employees. Otherwise, the people at the accident scene have the authority to proceed or limit access at their discretion. Fires involving explosives, or imminently involving explosives, will not be fought. All personnel will instead seek shelter in a bunker.
6. Continue to give first aid until the Rescue Squad arrives.
7. Record accident details including personnel involved, injuries, property damage, and witnesses.
8. Remain at your regular location if you are not directly providing aid.
9. Do not disturb evidence that may be important for later investigation.

7.7.3 Electrical Shock

Any employee who receives an electrical shock must report to ESH-2 for evaluation.

7.7.4 Lasers

Any employee who receives an injury from a laser must report to ESH-2 for evaluation.

8.0 REQUIRED RECORDS

- Experiment request form
- Experiment schedule
- Expended materials reports
- Explosives Inventory Reports
- Post-Experiment Reports (on file at TA-15-446 Access Control)
- Site Log Books, if applicable
- Clearance checklists (on file at TA-15-446 Access Control)
- Firing checklists

9.0 REFERENCES

- DOE Explosives Safety Manual, DOE M440.1-1, ~~C~~Current Revision
- Army Material Command Pamphlet, 706-181 (Blast and Fragments)
- DOE Manual for the Prediction of Blast and Fragment Loading on Structures,

TIC-11268

- Naval Weapons Center-Technical Publication, 5780 (Blast and Fragments)
- LANL Electrical Safety Program
- DX Division Operations Manual
- DX Division Training and Qualifications Manual

~~Building/Site Emergency Plans~~

- Los Alamos National Laboratory ES&H Manual
- ~~D~~DX-DO: SOP 01 Waste Management DX Division
- DX-DO: SOP 03 Packaging and Transportation of Hazardous Materials
- ~~D~~DX-DO: SOP 06 Radiological Controls
- DX-DO: SOP 07 Division Emergency Guide
- DX-DO: SOP 08 HE Storage
- DX-4: SOP 03 General Safety
- DX-4: SOP 05 Preparation Room Operations Explosive Charge Handling and Assembly
- DX-4: SOP 06 Repetitive-Type High Consequence Lifts
- DX-4: SOP 08 Firing Small and Large-Bore Guns
- DX-4: SOP 10 Filling Pits With Gases
- ~~D~~DX-4: SOP 14 Charge Temperature Control During Firing Operations
- DX-4: SOP 17 Flash X-Ray Generators
- DX-4: SOP 23 Vacuum Use in Field Tests
- Los Alamos National Laboratory's Environment, Safety and Health Manual Administrative Requirement (AR) 6-6, "Explosives," (AR) 12-1, "Personal Protective Equipment," and LIR 4402-600-01.0, "Electrical Safety."

10.0 ATTACHMENTS

ATTACHMENT 1~~:~~ Maps
ATTACHMENT 2~~:~~ Soldering, details of operations
ATTACHMENT 3~~:~~ Specific Hazard Circles and Clearance Plans
ATTACHMENT 4.~~-~~ Equipment Approved for Use on the Firing Point During the Setting of a Experiment.
ATTACHMENT 5. CDU Specification Sheet

ATTACHMENT 2

Soldering, Details of operations:

As a final step in constructing the shot assembly, it may be necessary to solder electrical leads to it. This operation must be performed carefully, using a soldering gun with a momentary switch, a battery-operated soldering tool, or other soldering gun that does not remain hot when not in use.

The Firing Leader is responsible for ensuring that only proper soldering equipment is used.

The hot tip is always kept at least 30 cm (1 Ft) from any bare exposed explosive(s) and is kept one meter or more from any exposed explosive(s) when not in use.

The soldering iron, and especially the flexible cord, must be examined for defects before it is used.

Any AC soldering gun used at a firing site must meet UL and OSHA standards for electrical safety.

All personnel who use soldering equipment near explosives must be aware that heat could reach the explosive by conduction. All soldering operations shall be performed so that material in contact with the explosive never becomes more than warm to the touch.

Interposed barriers must be used to ensure that neither the hot soldering iron nor molten solder dropping from it comes in contact with the explosive.

Soldering directly to pins or other objects that are in contact with explosives and can conduct heat to the explosive is prohibited.

Whenever possible, soldering operations shall be done beside or below the assembly rather than above it.

When soldering is completed, the soldering gun must be unplugged and placed in a stable position at least 60 cm (2 ft) from any exposed explosive.

ATTACHMENT 3

6.2a.5 Table of Hazards and Hazard Circles for Clearance Plans at TA-15 and TA-36

Plan	Hazard Radius	Application
A-Minor	75 m (2246)	Contained detonator firing. Pulsed-power discharges. Radiation production. Firing-point access control. Small-arms firing.
A-Minor Special	75 m (2446)	Contamination control. Specific to PHERMEX.
A	250 m (8820 ft)	Explosive shots.
B	500 m (1640 ft)	Explosive shots.
C	750 m (2460 ft)	Explosive shots.
C Special	750 m (2460 ft)	Contamination control. Confined shots with potential for a hazardous material release. Specific to PHERMEX.
D	1000 m (3280 ft)	Explosive shots.
E	1250 m (4100 ft)	Explosive shots.

TA-39:

Clearance Plans - Each test using HE must be evaluated by the shot leader to determine its hazard potential and what safety plan must be used The safety plans listed below are in ascending order as risk increases. For new operations, or for those with which we have little experience, the highest reasonable hazard level shall be chosen. Each safety plan uses barriers to control traffic. Barriers may never be crossed without explicit permission of the Firing Leader.

TA-39:

Level-1. Level-1 hazard areas are approximately 46 m (150 ft) from the firing points and have barricade with a sign stating "Level-1 Hazard - Do Not Pass." Operations that do not involve the detonation of HE may be conducted using Level-1 safety plan (see SOP DX-15-55). In general, the firing of detonators requires Level-2 (or higher) safety plan; however capacitor bank operations may use a Level-1 plan. This safety plan is also used to exclude personnel from the firing pad when HE is present and there is no hazardous operation in progress.

Level-2. Gate 2 located 750 m (2460 ft) from Point 57, labeled "Level-2 Hazard Area - Do Not Pass," defines the hazard area for the safety plan available for shots meeting the general criteria or explicitly listed in Attachment 1.

Level-3. Systems that do not meet the criteria for a Level-2 hazard are automatically Level-3 hazard shots. Gate 3 (near the entrance to Firing Point 6) provides a hazard circle of 1350 m (4400 ft). This gate is labeled "Level-3 Hazard - Do Not Pass.

Level -4. Shots that have the following properties should use the gate labeled, "Gate 4 - Do Not Pass," unless there is specific experience with the system or rather extensive shrapnel mitigation techniques are being used.

Confined explosives systems with more than 100-lb. HE and having metal (e.g., steel, Cu) walls of 2 in. thick or more.
Shots with completely random shrapnel containing more than 100 lb. of HE.
Shots with heavy metal shrapnel that must be directed down the canyon.

NOTE: Remember that State Road 4 is closer to the firing points in two locations than Gate 4, and TA-36 firing points are roughly the same distance from Gate 4 but in the opposite direction. If the shrapnel in the specific shot in question cannot be directed away from the road with certainty, extra mitigation for shrapnel in these directions must be used.

Level-5. A final option is to close the gate labeled, "Gate 5 - Do Not Pass." One may utilize this closure option when particle trajectories will be in the direction of the explosive magazines and extensive shrapnel mitigation measures have been taken to protect State Road 4 and TA-36. The shrapnel mitigation measures must be in place before the HE-containing assembly is brought to the firing area, or must be installed simultaneously with the placing of the HE. The closure of Gate 5 provides additional personnel protection within Ancho Canyon. A safety plan using Gate 5 to define the hazard area will be approved by the Group Leader and the Safety Committee

TA-40 Hazard Circles

Chamber 15 The hazard circle for Chamber 15 extends from the safety gate.

Chamber 5 The hazard circle for Chamber 5 is defined by the confinement on the firing pad, because of the very small load limit at this chamber.

Chamber 4 The hazard circle for Chamber 4 extends from the safety gate.

Chamber 8 The hazard circle for Chamber 8 is defined by the Firing Vessel. There is no hazard area outside the Firing Vessel.

ATTACHMENT 4

EQUIPMENT APPROVED FOR USE ON THE FIRING POINT DURING THE SETTING OF A SHOT

1. Portable electric screwdriver or drill motor.
2. Normal hand tools such as hammers, screw drivers, pliers, saws, wrenches, tape measures, and knives.
3. DCO meters approved by DX-1 for checking resistance of detonator bridge-wires.
4. Battery-operated V/Ohm meters to check continuity in cables and circuits isolated from explosive.
5. -Mmeters to check for shorts in explosive-monitoring pin and foil circuits.
6. Scintillators with incorporated power supplies.
7. Sources for checking scintillators.
8. Soldering gun (see Attachment 2).
9. Telephone, microphones, and loud speakers.
10. Vacuum pumps and gauges.
11. Pressurized bottled gases, regulators, and gauges.
12. Cameras. (see the DX-4: SOP 13, " Shot Illumination.").
13. Optical alignment apparatus. Mirrors, lasers up to eClass III A.
14. Films, intensifier screens, and cassettes for radiography.
15. Electric water heater (element not exposed).
16. Radios.

Optical equipment, flashlamps and lasers are discussed in detail in the DX-4: SOP 13 on Shot Illumination. ~~, or in the DX Division Laser SOP.~~

General Firing Operations Tools typically used on Firing Mound

Hammers_____	Crimpers		Cutting Tools
Wrenches_____	Handsaws		Circular Saw
Socket sets_____	Files	_____	Jig Saw
Screwdrivers_____	C-Clamps		Drill Motors
Levels_____	Tape Measures		Alignment Lasers
Squares_____	Pry Bars		Impact Wrenches
Chalkline_____	Chisels		_____Volt Ohm Meter
Pliers _____	_____Micrometers		

ATTACHMENT 5

DX-DIVISION - CDU SPECIFICATION SHEET

Date: 7/98

CDU / X-Unit	Inherent Safing (bleeder, dump relay, etc.)	Voltage	Capacitance	Stored Energy ($1/2CV^2$)	Hazard Exposure
TSD 26	Bleeder	4.2kv Max 2.3KV-3.2kv Normal	1 f	8.82 J Max 2.65 - 5.12 Normal	N
TSD 23	Bleeder	5kv Max 2.5kv - 4kv Normal	1 f	12.2 J Max 3.12 - 8 Normal	N
CDU BM7	Bleeder	4.5kv Max 2.5kv - 3.2kv Normal	1 f	10.12 J Max 2.65 - 5.12 Normal	N
TSD 56	Bleeder	10kv Max 6kv - 8kv Normal	1 f	50 J Max 18.0 - 32.0 Normal	N
50 point 1 ea Bldg-6 3 ea Bldg-88	Dump Relay	2500	50 f	156 joules	N
24 point 3 ea Bldg-6 3 ea Bldg-88	Dump Relay	2500	24 f	75 joules	N
8 point 4 ea Bldg-88	Dump Relay	2500	16 f	50 joules	N
50 point 1 ea. Bldg 12	Dump Relay	2500	50 f	156 joules	N
4 point 4 ea. Bldg 12	Dump Relay	2500	7 f	22 joules	N
50 point 1 ea. Bldg.8	Dump Relay	2500	50 f	156 joules	N
50 point 1 ea. Bldg. 6	Dump Relay	2500	50 f	156 joules	N
50 point 1 ea. Bldg. 3	Dump Relay	2500	50 f	156 joules	N
8 point 1 ea. Bldg. 3	Dump Relay	2500	16 f	50 joules	N
4 point 2 ea. Bldg. 3	Dump Relay	2500	7 f	22 joules	N
50 point 2 ea. Bldg. R-306	Dump Relay	2500	50 f	156 joules	N
4 point 4 ea. Bldg. R-306	Dump Relay	2500	7 f	22 joules	N
50 point 2 ea. Bldg. R-310	Dump Relay	2500	50 f	156 joules	N
4 point 12 ea. Bldg. R-310	Dump Relay	2500	7 f	22 joules	N
Bldg. 88-Module A	Dump Relay	2.5 kv	8 f	25 joules	N
Bldg. 88-Module B	Dump Relay	2.5 kv	8 f	25 joules	N
Bldg. 88-Module C	Dump Relay	2.5 kv	8 f	25 joules	N
Bldg. 88-Module D	Dump Relay	2.5 kv	8 f	25 joules	N

ATTACHMENT 5

DX-DIVISION - CDU SPECIFICATION SHEET

Date: 7/98

CDU / X-Unit	Inherent Safing (bleeder, dump relay, etc.)	Voltage	Capacitance	Stored Energy ($1/2CV^2$)	Hazard Exposure
Bldg 88-Module 24A	Dump Relay	2.5. kv	24 f	75 joules	N
Bldg 88-Module 24B	Dump Relay	2.5 kv	24 f	75 joules	N
Bldg 88-Module 24C	Dump Relay	2.5 kv	24 f	75 joules	N
Bldg 88-Module 50 A	Dump Relay	2.5 kv	50 f	156 joules	N
Bldg 88-Module 50B	Dump Relay	2.5 kv	50 f	156 joules	N
Bldg 88-Module 50C	Dump Relay	2.5 kv	50 f	156 joules	N
Bldg. 6 - Module 50	Dump Relay	2.5 kv	50 f	156 joules	N
Bldg 6-Module 24A	Dump Relay	2.5 kv	24 f	75 joules	N
Bldg 6-Module 24B	Dump Relay	2.5 kv	24 f	75 joules	N
Bldg 6-Module 24 C	Dump Relay	2.5 kv	24 f	75 joules	N
Bldg 6-Module Det SW	Dump Relay	2.5 kv	16 f	50 joules	N

DX-4

PPREPARATION ROOM OPERATIONS

EXPLOSIVE CHARGE HANDLING

ASSEMBLY

SOP 05

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Controlled Document Number: 

Table of Contents

1.0 INTRODUCTION

This SOP describes the methods to be used in the preparation of explosive charges for firing at DX Division firing sites. Explosives handling, assembly, measuring, trimming, and gluing operations are discussed. All requirements of this SOP are in accordance with the DOE Explosives Safety Manual. Long-term storage is described in the DX-4 DO: SOP 08, HE Storage in DX Division.

2.0 PURPOSE

This Standard Operating Procedure (SOP) provides guidelines and rules for the safe performance of the operations used in the preparation and assembly of explosive charges in DX Division DX-4 charge preparation rooms. It describes the precautions and procedures for safely performing explosive charge preparation operations.

3.0 SCOPE

This SOP covers all explosive assembly and preparation operations at DX Division 4 Preparation Rooms. This SOP applies to all personnel who are authorized to perform operations in DX Division DX-4 charge preparation rooms.

Location of charge preparation rooms at TA-15 and TA-36:

Building TA-15-242
Building TA-36-4, Room A (Eenie Site)
Building TA-36-5, Room A (Meenie Site)
Building TA-36-7, Room A (Minie Site)
Building TA-36-11, Room A (Lower Slobbovia)
Building TA-36-82 (Daisy Mae-Kup)

Assembly and preparation areas at TA-40:

Building TA-40-14 serves Firing Chamber 15
Building TA-40-11 room 106 is administered by DX-1 as part of crystal growing operation at TA-40-12
Building TA-40-6 serves Firing Chamber 5
Building TA-40-41 serves Firing Chambers 4 and & 8, and miscellaneous large shots experimental assemblies

Assembly and preparation area at TA-14 Q Site is:

Building TA-14-23 Room 104.
Building TA-40-3 is administered by DX-1, as a part of gas gun operations.

~~Assembly and preparation area at TA-14 Q Site is~~

~~Building TA-14-23 room 104.~~

~~Shot~~ Experiment preparation facilities at TA-39 are:

Building TA-39-4 ~~trim~~ Trim ~~s~~Shack
Building TA-39-111 Experiment Assembly Building
~~**Building TA-39-111 shot assembly building**~~
~~**Building TA-39-77 propellant assembly for gas guns, is administered by DX-1.**~~

~~**Ignorance of the contents of an SOP does not excuse any violation.**~~

Any confusion regarding an SOP should be clarified before an operation begins.

In situations where an approved SOP cannot or should not be strictly adhered to, the SOP must be revised or a deviation be formally approved in an SWP.

4.0 DEFINITIONS

- **Approved ~~explosive~~Explosive, ~~p~~Propellant, or ~~d~~Detonator** - Those detonable materials which DX Division allows in magazines, preparation rooms, and operations. Approved explosives are listed in Attachment 1 of this SOP.
- **Assembly** - Operations that involve installing explosives as part of an experimental assembly.
- **Assembly Building** - A large preparation room (TA-39-111) designated for the assembly of large systems containing explosives. The Assembly Building may be used for explosive storage under rigid restrictions. Only the HE for the assembly being worked on may be in the assembly building.
- **EED** - Electroexplosive Device.
- **EP** - Explosion Proof.
- **ERC** - Explosive Review Committee. A laboratory committee that has final authority on many explosives safety issues within the Laboratory, including acceptance of explosives not on the "Approved Explosives" list.
- ~~MSDS~~ MSDS - Material Safety Data Sheet.
- **Explosives** -- Explosives are defined in the DOE Explosives Safety Manual as any chemical compound or mechanical mixture that will burn or explode if heated, exposed to impact, pinched between moving surfaces, or subjected to an electric discharge or strong shock. The term applies to materials that either detonate or deflagrate. Because explosives

——do not all behave in the same way, they are divided into classes. Those of most interest to DX Division are initiating, boostering, and bursting-charge (secondary) explosives, propellants, and some types of military ammunition. A list of approved explosives is given in Attachment 1.

- **Explosives Allowed Area** - Any area where explosives or explosive-containing components are stored, manipulated, prepared, or set up for firing.
- **Explosives Excluded Area** - An area where no explosive, explosive contamination, or operations with explosives are allowed. Generally, these are firing and diagnostic bunkers, offices, and buildings not specifically designated for explosives use or operations.
- **Explosives Load Limit** - The amount of explosives permitted in a magazine or preparation room, as posted on the building of each magazine or preparation room.
- **HE** - High Explosive.
- **Incompatible ~~materials~~ Materials** - Materials that may produce unsafe conditions when in contact with explosives. Glues and solvents are commonly encountered incompatible materials.
- **Knowledgeable Personnel**: A person, authorized by the DX-4 Group Leader or the Deputy Group ~~l~~Leader, deemed eligible for a pictured exchange badge or permanently-assigned area-access key because of specified training and experience. This authorization is recorded in the Authorizations and Assignments Document. All other personnel are visitors. All required reading, institutional training, and OJT requirements must be completed before authorization as a knowledgeable person or employee.~~A knowledgeable person (includes "knowledgeable visitors") can only be designated by the DX-4 Group Leader or the DX-4 Deputy Group Leader. All other personnel are visitors. Knowledgeable persons have at least four months experience working in a firing area, as verified by the DX-4 Group Leader. They have met the training requirements stipulated by DX-4, and are judged competent to safely perform various assigned tasks. Knowledgeable Personnel are eligible for pictured exchange badges where they are required. All required reading, institutional training and OJT requirements must be completed before becoming a knowledgeable person or employee. These requirements are specified in Site Specific SOPs or the Authorizations and Assignments Document. They may escort visitors.~~
- **Low Energy EEDs** - Hot-wire initiators, squibs, blasting caps, etc.
- **Magazine, Storage Magazine** - A structure designed for long term storage of explosives. No operations may be carried out in magazines.
- **Personnel Limit** - The number of personnel allowed in a magazine or preparation room for either explosive operations or inspections. The personnel limit is posted on the door of each magazine.
- **Preparation Areas** - Rooms and buildings designated as explosive preparation and assembly areas.
  NOTE: If necessary, the firing pads may be used as preparation areas for final assembly.~~If this is done, extra caution must be exercised since there are steel floors and uneven surfaces.~~

- **HE - Storage** - Operations that involve storing explosives until time for its use. During storage, no operation may be done to the HE.

- **Suitable Storage Container** - A container for storing explosives that is constructed according to the DOE Explosives Safety Manual, II.17.5 under "approved containers."

5.0 RESPONSIBILITIES

5.1 Required Reading

~~———~~**5.1.1** Each employee who holds a key to, or uses explosives preparation rooms in ~~DX~~ DX-4 ~~Division~~ must read this SOP yearly, and should suggest and review revisions to the SOP as required.

5.1.2 Line supervisors will be responsible for determining which SOPs are required for their employees.

5.2 Training

All training is to be in accordance with (the DX Division Training and Qualifications ManualPlans).

5.2.1 Personnel Training Requirements. Personnel with less than four months' training with explosives at DX Division may work in a preparation room only under the direct supervision of a qualified Division group member who has been granted access to the preparation room.

The DX-4 Group Leader or Designee Deputy Group LLeader may waive this requirement for individuals with other pertinent experience and knowledge.

5.2.2 The team leaders will determine, with input from the Group ES&H officer Officer and the Division Training Generalist, what type of training is required for their team members.

5.2.3 Required reading is an important part of each employee's training and qualification. All employees shall be required to read and understand all the appropriate SOPs and other procedures for each assigned task and for each piece of of equipment that they use. A required reading list will be maintained for each employee by the Group ES&H Officer DX-4 Firing Operation Team Leader and will be part of the employee's qualification, if required.

5.2.4 The line supervisors are responsible for on-the-job-training, detailed instruction, and monitoring of the operators' competence, and adherence to instructions and documentation of (OJT).

5.2.5 Documentation of on-the-job training (OJT), and job-related or job-required training will be maintained by the Division Training Generalist and or supervisor in individual training files.

5.3 Waste Minimization

5.3.1 Waste minimization will be handled according to the Waste Minimization section of the DX Division Operations Manual and the LANL ES&H Manual, AR 10-8.

5.3.2 Waste generated from Prep Room operations must be reduced as much as technically and economically feasible. To meet this objective, the waste minimization practices of frugality, material substitution, and hazard segregation must be incorporated into waste generating activities in Prep Rooms. All operators should make every practical effort to reduce the amount of waste produced.

5.3.3 All waste will be handled according to the DX-DO-Division-: SOP 01 Waste Management and Generator Waste Certification Programin DX DivisionSOP, DX-DO: Division_ SOP 06.-Radiological Controls,- DX Division SOP 1, Haz Waste,-and the LANL ES&H Manual. and LIR404-00-03.0.AR 10-3.

6.0 PRECAUTIONS AND LIMITATIONS

6.1 Hazards

The principle hazards associated with explosive operations are blast, fragment production and propulsion, and rapid deflagration (burning) of the explosive charge or assembly. Explosives can developdevelop violent chemical reactions from such stimuli as being heated, burned, impacted, or dropped. Even small quantities may pose a life threatening hazard.

Explosives will be protected from abnormal stimuli or environments, including:

- friction forces
- excessive pressures
- impact, shock, pinching
- deformation
- electrical sparks, abrasive or welding sparks, open flame
- contamination.

Explosives may be toxic, irritant, or ~~provoke~~ cause a skin rash or other physiological effects. In particular, propellants and materials containing nitroglycerine can have a physiological effect, and gloves should be worn when handling these materials. Personnel should contact their supervisor and ESH-2 should symptoms arise. Personnel shall wash their hands after handling explosives, especially before eating or smoking. In addition, when assembling and preparing explosive charges, the potential exists for exposure of personnel to solvents, glues, and other chemicals that may be irritating or harmful. Hazards from contact, ingestion, or inhalation are listed in MSDSs for the explosives and chemicals in question, which are available at the Preparation Rooms~~.~~ ~~P~~personnel should be familiar with the MSDSs ~~for the explosives and chemicals they use.~~ . These chemicals are used in small quantities which normally do not require ventilation hoods.

Personnel must ensure there is adequate ventilation when required.

6.2 ~~6.2~~ Handling of Explosives: General Precautions

- Handling of HE should be minimized.
- Explosives shall be kept in a stable position, away from the edges of workbenches, tables, and away from other objects which may tip or fall onto them.
  After an operation on an item has been completed, the item must be placed in a secure location and left in a stable configuration. When possible, items should be placed in suitably designed containers. ~~**An item must not be left in any position at any time where it can be easily toppled.**~~
- .
- Special care shall be taken to prevent and protect explosives from dropping, bumping, or scraping.

~~The distance that an item will fall if accidentally dropped must be minimized.~~

- Floor areas where the handling of HE items is most likely to occur should be covered with an approved tile to reduce the danger in the event of an accidental drop. Floors must be kept clean, to prevent abrasion should a part be dropped.
- Hard surfaces or sharp edges that could be struck by a bare piece of HE in the event of an accidental drop should be padded or otherwise protected.

- The sliding of bare HE on surfaces should be avoided because HE surfaces are relatively susceptible to marring by scratching or slipping. This is important from a quality as well as from a safety standpoint.
- The work area surrounding an HE item that is to be handled shall be kept clear of extraneous tools, components, fixtures, and the like that could interfere with handling operations.
- An explosive sign or placard shall be placed on or next to all unattended explosives.
- All explosives shall be transported in accordance with the DX ~~Division~~ O: SOP 03 Packaging and Transportation of Hazardous Materials ~~SOP~~.

Limitations

- Mechanical force cannot be applied in such a manner that stress concentrations are developed in explosive parts, e.g. a sharp object in contact with the explosives.
- Mechanical clamps cannot be used in a manner that creates sufficient tensile stresses within the explosives to cause fracture.
- Abrasion of explosive charges by rough or sharp edges is not allowed.
- Hair felt material is not to be used with Detasheet because it builds static charges.
- Acetone is used directly only on particular explosives, and only with caution. In general, no solvents should ever be poured on explosives.

6.3 Personnel and Explosives Load Limits

Each Explosives Preparation Room has a maximum limit on the amount of explosive that can be present during normal operations. The limits for DX Division Preparation Rooms are listed on the door of the Preparation Room.

Personnel limits are established to prevent crowding of the preparation room from causing an accident, and to limit casualties in case of an accident.

The DX-4 Group Leader may approve a temporary change in occupancy limits.

6.3.1 Personnel and Explosive Load Limits at TA-15 Preparation Room

Building No.	Personnel Limit	Explosives (lbs)

	operators/casuals	
TA-15- 242	~~64~~	~~200~~ 200 lbs

~~6.3.1 Personnel and Explosive Load Limits at TA-15 Preparation Room~~

6.3.2 Personnel and Explosive Load Limits at TA-36 Preparation Rooms

Building No.	Personnel Limit operators/casuals	Explosives (kg)
TA-36-4	4	100
TA-36- 5	4	100
TA-36- 7	~~4~~4	100
TA-36-11	5	100
TA-36-82, each room	5	100~~100~~

If the weight of a single ~~shot~~ experiment exceeds the specified limits or if a shipment must be received that exceeds the specified limits, the DX-4 Group Leader may approve an increase to 250 kg in Buildings 4, 5, 7, and 11 for up to two weeks. These actions must be recorded in the Site Record Log Book.

6.3.3 Personnel and Explosive Load Limits at TA-39 Preparation Rooms

Building	Personsnel Limit operators/casuals	Explosives (lbs)
TA-39-4 Trim Shack	6	500 lbs
TA-39-111	9	1000 lbs

Assembly Building		

6.3.4 ~~6.3.4~~ Personnel and Explosive Load Limits TA-40

The personnel and explosive load limits for the Prep Room facilities used by DX-4 are listed below.

Building No.	Personnel Limit operators/casuals	Explosives (kg)
TA-40-6	5	2
TA-40-14	4	25~~25~~
TA-40-41	5	36

6.3.5 Personnel and Explosive Load Limits TA-14

Building No.	Personnel Limits operators/casuals	Explosives (lbs)
TA-14-23 ~~room~~ Room 104	3	50 lbs

6.3.6 Detonators and Pellets

- A limit of 150 approved detonators (~~see~~ See Attachment 1, "Allowable Explosives") and 100 booster pellets may be kept in all charge preparation rooms for use in making up charges. ~~**Note: This is 6 trays.**~~
- Detonators and pellets must not be stored in the same container. Each category must be stored in nonpropagating containers approved or supplied by DX-1. These limits do not include detonators or pellets incorporated in charges delivered to the preparation rooms from a source outside DX Division.
- Detonators, pellets, and explosives consumed in ~~shots~~ experiments must be documented on the ~~shot~~ experiment sheet. ~~so that HE inventory is always current.~~

6.4 Explosives Allowed in Charge Preparation Rooms

No explosive powders or primary explosives will be handled by DX-4 without prior approval or appropriate SOPs/SWPs.

All explosives or explosive-containing devices that have been approved by the ERC ~~or~~ are listed in (ESA) WX-3: SOP 1.1.0, Tables 1 & 2 may be used at DX-4. See Attachment 1 for a list of Explosives routinely used at DX-4.

- Special allowable explosives that are specifically permitted in Attachment 1 under "Special Explosives Operations," may be kept and handled in the charge preparation rooms.

6.5 Compatible Materials

Compatibility rules must be observed when working with explosives. Substances incompatible with explosives can produce heat or a chemical reaction that leads to a more sensitive or less stable explosive. Only compatible materials can be used in contact with explosives. Group DX-2 approves all materials for compatibility.

6.5.1 Adhesives and Coatings

Only approved adhesives and coatings, listed in Attachments 2 and 3, may be allowed in contact with explosives. Care must be taken in cleaning explosives with solvents, since many explosives will dissolve in common solvents such as acetone.

6.5.2 Flammable sSolvents

Use of flammable solvents in an explosives area considerably increases the explosive hazard because of the greater ease-of-ignition of the solvent may lead to a fire involving explosives. Therefore, solvent use and evaporation shall be kept to a minimum. Solvent use will take place in well-ventilated areas, or with proper personal protective equipment. Prudent practice dictates storage of no more than one day's supply of solvents and other flammables in a preparation room.

6.6 Storage of Explosives in Preparation Rooms

Preparation areas are not normally used for the storage of explosives. However, prepared assemblies of explosive components and assemblies of explosives and inert materials may be left in preparation areas, provided this is necessary to avoid compromising the integrity of the assembly by moving it or storing it in a magazine. Only HE for the shots experiments being assembled may be kept in the preparation room. Shots Experiments under construction or explosives otherwise in process may be kept in the preparation room.

6.6.1 Temporarily Storing Assembled Charges

- If charges are approved for storage in a Preparation room, either they must not interfere with other operations, or else operations will be suspended.
- Every effort should be made to limit the amount of explosives in the Preparation Room to the minimum necessary for the experiment or test being assembled.
- If charges stored in the charge preparation room significantly reduce the available floor space, the DX-4 Group Leader or responsible Firing Leader shall reduce the occupancy limit until the charges are removed. Such explosives should be moved to a magazine, if possible, before this constraint is needed.
- If an experiment is canceled, the charge for that experiment will be disposed of or will be moved to an appropriate storage magazine before a new operation is started.
- Explosive assemblies not scheduled for firing within a reasonable length of time should be moved to an appropriate storage location.

6.6.2 Emptied Containers

Before reusable high explosive storage containers can be returned for reuse, the containers shall be inspected, to be sure they are empty. The inspection requires the removal of all inner liners and packing materials to verify that all high explosives have been removed. An "empty" tag shall be affixed to the empty container after the inspection.

Empty containers should not be stored in preparation areas.

6.7 Safety Equipment (Personal Protective Equipment)

6.7.1 Safety Glasses or Goggles

Safety glasses or goggles (ANSI Z87.1) are to be worn in accordance with DX-4: SOP 03 General Safety, except when eye protection must be removed for the use of optical and other inspection devices.

6.7.2 Gloves

Suitable gloves are recommended to be worn when working with solvents and adhesives. unless other means of preventing their contact with the skin are used. In cases where the gloves do not compromise the safety of the operation, surgeons gloves may be worn when handling small or precision pieces of explosive, primarily to keep the explosive free of skin oils, but also to protect the operator against skin rashes that may result from exposure to explosives.

In particular, propellants and materials containing nitroglycerine can have a physiological effect, and gloves should be worn when handling these materials.

6.7.3 Protective Clothing

- Flame-retardant or nonstatic clothing is not required for normal DX-4 operations.
- Personnel working with explosives should wear Laboratory-issued coveralls or laboratory coats, depending on the operation, to prevent contaminating personal apparel.
- Explosive-contaminated clothing shall not be removed from the Explosives Allowed Area except for cleaning or final disposal.
- If protective clothing has been contaminated, or if contamination is suspected, the clothing must be monitored for HE contamination, properly packaged, and delivered to ESA for cleaning.
- When working with DU, sseee DX-4: SOP SOP 2.14 DU Storage and Handling of Depleted Uranium Components.

6.8 Approved Electrical/Electronic Equipment

6.8.1 Explosion-proof (EP) outlets and equipment will be used in environments that have an explosive atmosphere.

6.8.2 Equipment using a 110 volt alternating current must be kept a minimum of one ———meter from exposed explosives. or else an SWP will be used. Appropriate measures ——shall be taken to prevent such equipment from any contact with explosives. An ———insulating barrier such as plexiglas between the 110V and the explosive allows closer——— proximity.

6.8.3 Tools producing sparks or high velocity chips or tools with any potential for producing fragments (such as grinding wheels and high speed drill motors) shall not be used around explosives.

6.8.4 Certain electrical equipment not rated NEC Class I or II is permitted for administratively controlled use within the Explosive Preparation Rooms. The equipment

listed in Attachment 4 is approved as intrinsically safe when used under the restrictions noted. No electrical equipment may be used unless it is considered NEC Class I or II as modified by the DOE Explosives Safety Manual, or listed in Attachment 4.

6.8.5 Cellular phones and other RF Equipment

Handheld radios and mobile RF transmitters (e.g., cell phones) are generally allowed for use within the Explosives Firing Areas. However, in areas where low energy EEDs are stored or used in assemblies or test devices, special control must be exercised.

Likely restricted areas include:

- TA-22-34,
- TA-22-93,
- TA-22-Magazines
- TA-40-5, 6, and 7,
- TA-36-11, 12.

6.8.5.1 Whenever low energy EEDs are present, it shall be the responsibility of the Firing Leader in the potentially restricted areas to inform the appropriate access control personnel that all RF transmitters in these areas are prohibited. This will be accomplished by informing access control personnel in the TA-22 (DX-1) Group Office, the TA-15-446 ~~183~~ Access Control Office, or the TA-39-2 Administrative Office, who will then restrict visiting personnel from using RF transmitters. Further, operators will place signs on all routine entrances to these areas informing personnel to turn off all RF transmitting devices before entering these areas. The Firing Leader will assure that all personnel within the restricted area are informed of the prohibitions.

6.9 Spilled Explosives

Spilled explosives shall be cleaned up immediately, then disposed of per the DX-~~Division~~O: SOP 01 Waste Management SOP if necessary.

6.10 Eating

Personnel shall not consume any food or drink item in any Preparation Room.

6.11 Operating Vehicles Near Charge Preparation Rooms

Do not drive private or government vehicles that do not have spark arrestors or catalytic converters closer than 25 ft. to any charge preparation building or a charge that is on a firing mound. Turn off the engine before opening any door to a charge preparation area.

Vehicles authorized to carry explosives will comply with all the requirements of the DOE Explosives Safety Manual.

6.12 Working Alone

DX-4 employees with current safety training and who are experienced in explosive operations may work alone under appropriate circumstances, such as assembly, measurement, gluing, inspection, and clamping of certain consolidated explosives and explosive devices.

~~———~~6.12.1 This working alone procedure ~~authorizes~~ allows personnel to work alone in DX Division HE Operations. When working alone with HE, employees will use a procedure appropriate for the particular work area. These procedures require Access Control, Local Access Office, or a coworker to have the following information.

- Who is working alone,
- Where they are located,
- How long they will be working alone (with a completion time).

6.12.2 All operations shall be performed in accordance with existing SOPs/SWPs. Personnel shall be assigned in a manner such that each worker's presence is frequently monitored, for example, via radio, or by a physical check. New, special, or nonroutine operations will require a separate assessment and an SWP before being performed by a person working alone.

6.13 Lightning

All operations involving explosives in Preparation Rooms shall be suspended during electrical storms, as described in the DOE Explosive Safety Manual.

7.0 PROCEDURAL STEPS

7.1 Assembly Practices

7.1.1 Permitted Operations in Charge Preparation Rooms

- Gluing of plastic, metal, and other approved materials to explosives is allowed with approved adhesives listed in Attachment 2. Assembly may involve application of metal foils or pins to charges.

- Mechanical fixtures used to hold parts together that could create excessive pressures during the gluing process must be approved by the DX-4 Group Leader or a designee. This approval process may include review by the ERC for novel applications.

- Inclusion of explosive parts in a close tolerance mechanical assembly is allowed, as long as there is no mechanical force brought to bear on the charge.

- Inspection and measurement of explosive pieces and assemblies is permitted, using rulers, local or commercially manufactured micrometers, dial indicators, cathetometers, chemical balances, microscopes, height gauges, and similar measuring equipment.

- Equipment such as microscopes or electronic balances, and approved meters may be used if the electrical wiring is protected from contamination with explosive dust.

- A portable low-voltage (<12-V) flashlight may be used for local illumination during assembly and measurement operations.

- Battery powered soldering pencils with momentary switches may be used, provided the HE is protected from hot solder or the hot iron.

- Working with Comp C-4, ~~or~~Nitroguanadine, Anfo or XTX by hand is allowed.

- Painting on or spraying on of coatings is allowed. Approved coatings are listed in Attachment 3.

- Cleaning inert portions of an assembly with alcohol or acetone is allowed.

- Cleaning explosives charges with water, alcohol, or a dry tissue is allowed. Acetone may be used if it doesn't dissolve explosive or binder.

- Detonators and boosters may be assembled to a charge in the Preparation Room or on the Firing Pad. It is good practice to attach detonators as late in an operation as possible.

- DX-4: SOP 13See Photo and Shot Illumination. SOP.

7.1.2 Cutting and Boring Operations

Cutting Primacord, Detasheet, PBXN110, C129, and XTX-8003 with a razor blade or other sharp blade is —allowed. Inspect the tool for cleanliness and sharpness before cutting. Cut the Detasheet—— on a plastic or rubber surface.

Detasheet may also be cut with a cork-boring tool. Use the cork-boring tool only for cutting Detasheet.

Bending or shaping Detasheet is allowed with the following restrictions:

- Curvature must be in one direction only.
- Bend or roll the dDetasheet to a radius of curvature not less than four times the sheet thickness, to prevent tearing.
- Grinding operations at TA-40-41 will be covered under a separate SOP/SWP.

7.1.3 Housekeeping

Prior to any HE operation, the operators must inspect the floor, benchtops, flats, and other work areas to ensure that it isthey are free from debris such as coarse sand or larger particles. If the floor is dirty, it must be swept If surfaces are dirty, they must be cleaned prior to beginning the explosive operation.

Similarly, the benchtops, flats, and other work areas are to be kept free of grit and particles.

7.1.4 Handling Explosives

Charges may be moved by hand within and between buildings in storage containers.

- One person can handle up to 25 kg.
- Two people can handle up to 50 kg.
- Good footing conditions must exist, with no snow, ice, or weeds on the pavement.

7.2 Unapproved Adhesives

~~To avoid mistakes, do not take unapproved glues into the charge preparation rooms, except for short times on occasions when they will be used. Store these adhesives outside the preparation rooms.~~Glues not approved for use on explosives may be taken in to preparation rooms to glue non-explosive parts, but must be removed immediately after operation is completed.

Glues not approved for use on explosives may be used to assemble nonexplosive parts of charge assemblies when

- the glue will not be in contact with explosives, and
- if possible, the gluing should be done elsewhere than the charge preparation room.

These glues must be cured before the assembly is combined with explosives parts.

If a detonator assembly must be sealed so that it can be immersed in water or other liquid, use GE Silicone Rubber RTV 162, 732, Barco Bond, Green Glue, ~~urethane~~ Urethane 7200, or Sylgard.

The above materials function with detonators. However, in general, if a liquid smells like vinegar, do not use it on a detonator; there is evidence that acetic acid and other organic vapors may desensitize the PETN in detonators which could negatively affect detonator performance.

Consult Group DX-1 for their recommendation about the suitability of any other glue, even those allowable for HE, for use in assembling detonators.

7.43 Allowable Mixtures with Nitromethane

Nitromethane may be mixed with acetone or toluene, B_4C particles, cab-o-sil or diethylene triamine. Obtain approval from the Group Leader before using any other solvent.

7.54 Attaching Diagnostics to Charges

1. Attach metal foils or pins to charges with glue or tape.
2. Pins may be inserted in Primacord, Detasheet, or plastic explosive.
3. Attach "pin" circuits leads with clips or crimp connectors, or with a battery-powered soldering pencil with a momentary switch, and test the assembly with a battery-operated volt-ohmmeter certified for use in the charge preparation room by DX-1.

7.65 Applying Protective Coatings

Coat explosives when necessary to protect the surface, to reduce light, and for other purposes. Select coating fluid to be used in contact with explosives from the list in Attachment 3. If a coating fluid is not on the list, it must be approved by the DX-4 Group Leader before it is used.

7.76 Using Hand Tools

Tools producing high velocity chips or tools with any potential for producing fragments (such as grinding wheels and high speed drill motors) should not be used around explosives.

- Do not use tools that are designed to produce sparks.~~, without an SWP.~~

~~Maintain and use hand tools as needed.~~

- Do not use tools directly on the explosive, except as explicitly described under "cutting and boring" in this procedure.
- Measuring tools such as micrometers may be used ~~with care~~.

7.87 Performing Continuity Checks

Test the detonator before mounting on the main charge.

- Use a continuity meter supplied or approved by DX-1 to check continuity of detonators.

7.98 Emergency Procedures

7.98.1 In all emergencies, call 911. In the event of an emergency or incident, notify DX-4 management as soon as possible. Follow the ~~DX Division Operations Manual, Section 10.3 to report any incidents or accidents.~~DX-DO: SOP 07 Division Emergency Guide.

7.98.2 The Building/Site Emergency Plan will be followed. It covers what to do, depending on the circumstance.

7.98.3 If a spill occurs, the Building/Site Emergency Plan will be followed, then the Waste Management Coordinators shall be called. The DX-DO: SOP 01 Division Waste Handling and Management SOP in DX-Division shall be followed.

7.98.4 In the event of eye damage or suspected eye damageinjury the injured person will be taken to the Occupational Medicine Group (ESH-2) or LAMC for treatment.

7.98.5 Any person receiving an electrical shock must report to the Occupational Medicine Group (ESH-2) or LAMC for evaluation and/or treatment.

7.109 Fires

In the event of fire involving or imminently threatening explosives,

CLEAR THE AREA AND REPORT THE FIRE.
DO NOT ATTEMPT TO FIGHT ANY FIRE INVOLVING OR THREATENING EXPLOSIVES IN ANY DX DIVISION EXPLOSIVE AREA.

7.109.1 There shall be no smoking at DX-4 Preparation Rooms. No matches, lighters, or other fire, flame, or spark-producing devices shall be taken into an Explosive Allowed Area, except with written authorization (SWP).

8.0 REQUIRED RECORDS

- Site Record Log Book
- Hazardous Material Transfer formForm.
- Lists of Allowed Explosives and Adhesives

9.0 REFERENCES

- DX-4: SOP 03 General Safety
- DX-4: SOP 09 Loading and Reloading Ammunition
- DX-4: SOP 1.0 General Access Control
- DX-DO: SOP 01 Waste Management and Generator Waste Certification Program in DX-Division
- DX-DO: SOP 03 Packaging and Transportation of Hazardous Materials
- DX-DO: SOP 07 Division Emergency Guide
- DX-4DO: SOP, 08 "HE Storage" in DX-Division

DX-4: SOP 1.0SOP DX-4-1.0, "General Access Control"
DX-DivisionO: SOP, 01 " Disposal of Explosive Waste and Explosive Contaminated Waste"

- DX Division Training and Qualifications Manual
- DX Division Operations Manual

DX Division SOP, "Shipping, Receiving, and Transporting Explosives"

- DOE Explosives Safety Manual
- LANL Environment, Safety and Health Manual, AR 6-6, "Explosives" and AR 12-1, "Personnel Protective Equipment, and AR 10-3, "Chemical, Hazardous, and Mixed Waste

DX-11 SOP: 15-11-4.5, "Loading and Reloading Ammunition"

10.0 ATTACHMENTS

Attachment 1. List of ExplosivesHE +Routinely used at DX Division Firing Areas
Attachment 2. List of Approved Adhesives.
Attachment 3. List of Approved Coating Fluids.
Attachment 4. Allowed Electrical Tools.
Attachment 5. TA-39-111 Assembly Building Experiments for HEPP

Attachment 1
HE Routinely used at DX Division Firing Areas

NORMAL EXPLOSIVES

This list contains the names and identification numbers of all explosives and detonators approved for normal explosives operations. Only explosives on this list may be received or handled by Group DX-4, unless a separate SWP or SOP exists covering the operations, or a request for limited tests is approved.

• **Primary explosives** - Explosives with a sensitivity greater than PETN (for example, lead azide, lead styphnate or mercury fulminate) that are not used by DX-4 except with specially approved procedures.

SINGLE-COMPONENT EXPLOSIVES

Explosives	**ESA-2 Mat. Code**	**Other Names, Composition, or Reference**	**Storage Rev. Period**
AN	130LN	Ammonium nitrate	20 years
DATB	1201	diaminotrinitrobenzene	20 years
DINGU		Dinitroglycouril	
DINA		Di(nitroethyl) nitramine, dioxyethyl dinitrate	20 years
EDNA	1101	ethylenedinitramine, Halite	20 years
HMX	03NN	cyclotetramethylenetetranitramine, Octogen	20 years
LAX-112			
NM		Nitromethane	10 years in 55 gal drum
NQ	07NN	Nitroguanidine, Picrite	20 years
NTO		1.2.4-nitro-tiazole-5-one	
PETN	06NN	pentaerythritoltetranitrate	20 years
Picric Acid		1,3,5-trinitrophenol note: Picric acid forms impact-sensitive compounds with metal ions.	2 years
RDX	02NN	cyclo-1,3,5-trimethylene-2,4,6-trinitramine; Hexogen, Cyclonite	20 years
TATB	1701	1,3,5-triamino-2,4,6-trinitrobenzene	20 years
Tetryl*	04NN	2,4,5-trinitrophenylmethylnitramine	20 years
HNS	3001	Hexanitrostilbene	20 years
TNT	010N	2,4,6-trinitrotoluene; Trotyl	20 years

* Tetryl has greater toxicity and greater sensitivity to electric spark than the other permitted explosives

LIQUID EXPLOSIVES

Explosive	ESA-2 Mat. Code	Other Names, Composition, or Reference	Storage Rev. Period
FEFO		1,1'-[methylene bis(oxy)]bis[2-fluoro-2,2-dinitroethane]	90 days
Nitromethane		NM, see also under single-component explosives	10 years in 55 gal drum

MIXED EXPLOSIVES INCLUDING CAST AND PRESSED FORMULATIONS

Explosives	ESA-2 Mat. Code	Other Names, Composition, or Reference	Storage Rev. Period
ANFO		Ammonium nitrate/fuel oil	90 days
Boracitols		60 wt% boric acid/40 wt% TNT	20 years
Baratol	76NN	76 wt% barium nitrate/24 wt% TNT	20 years
Calcitol		40 wt% TNT/55–60 wt% $CaCO_3$/0–2 wt% talc/1–2 wt%, microballoons, X-0533	90 days

MIXED EXPLOSIVES INCLUDING CAST AND PRESSED FORMULATIONS, Continued

Plastic Bonded Explosives - Formed from one or more of the explosive compounds listed individually in "Single-component Explosives," above, mixed with binders and, in some cases, nonexplosive ingredients. Production forms of plastic bonded explosives are identified in numbered series denoted by the letter "PBX-" (originated by Los Alamos); "LX-" (originated by Lawrence Livermore); "EDC-" (originated by the United Kingdom); and "PBXN-" (originated by the US Navy). Also permitted are experimental plastic bonded formulations originated at Los Alamos and identified by the prefix "X-" and a four-digit number.

CH-6		97.5 wt% RDX/1.5 wt% calcium stearate/0.5 wt% polyisobutylene/0.5 wt% graphite	20 years
Comp. A			
Comp. A-2			
Comp. A-	9085	9085, 91 wt% RDX/9 wt% beeswax	20 years

3			
Comp. A-4		97 wt% RDX/3 wt% beeswax	20 years
Comp. A-5		98.5 wt% RDX/1.5 wt% beeswax	20 years
Comp. B	60NN	64 wt% RDX/36 wt% TNT, Comp B, Hexolite, Hexotol	20 years
Comp. B-3	60NN	60 wt% RDX/40 wt% TNT	20 years
Comp. C-3	9080	9080, 88 wt% RDX/12 wt% wax	20 years
Comp. C-4	9081	9081, 91 wt% RDX/2.1 wt% polyisobutylene/ 1.6 wt% motor oil/5.3 wt% di(2-ethylhexyl) sebacate	20 years
Cyclotol 75/25	750N	75 wt% RDX/25 wt% TNT	20 years
Cyclotol 70/30	700N	70 wt% RDX/30 wt% TNT	20 years
Detasheet C	6300	63 wt% PETN/8 wt% NC/29 wt% elastomeric binder	10 years
Detasheet D	6301	75 wt% PETN/25 wt% elastomeric binder **NOTE: THIS MATERIAL IS USUALLY RED, BUT IT IS AN EXPLOSIVE, NOT AN INERT**	10 years
EDC-8		76.0 wt% PETN/24.0 wt% RTV Silicone	20 years
EDC-28		94wt% RDX/6 wt% FPC 461	20 years
EDC-32		85wt% HMX/15 wt% Viton A	20 years
EDC-37			20 years
EDC-38			20 years
HBX-1		40 wt% RDX/38 wt% TNT/17 wt% Al/4.5 wt% wax/0.5 wt% $CaCl_2$	20 years
LX-04	LX04	85.5 wt% HMX/15.0 wt% Viton	20 years
LX-07	LX07	90 wt% HMX/10 wt% Viton	20 years
LX-10	LX10	95.0 wt% HMX/5.0 wt% Viton A	20 years
LX-14	LX14	95.5 wt% HMX/4.5 wt% Estane 5702-F1 (X-0282)	20 years
MDF		Mild Detonating Fuse	20 years
Nonel		RDX lined metal tubing	20 years
Octogen		94.5 wt% HMX/4.5 wt% wax/1 wt% graphite	20 years
Octol	740N	75 wt% HMX/25 wt% TNT	20 years
PBX 9001	9001	90 wt% RDX/8.5 wt% polystyrene (PS)/ 1.5 wt% dioctyl phthalate (DOP)	20 years

PBX 9007	9007	90 wt% RDX/9.1 wt% polystyrene (PS)/ 0.5 wt% dioctyl phthalate /0.4 wt % resin	20 years
PBX 9010	9010	90 wt% RDX/10 wt% Kel-F 3700	20 years
PBX 9011	9011	90 wt% HMX/10 wt% Estane-5703	20 years
PBX 9205	9205	92 wt% RDX/6 wt% polystyrene (PS)/ 2 wt% dioctyl phthalate (DOP)	20 years
PBX 9206	9206	92 wt% HMX/8 wt% Kel-F elastomer	20 years
PBX9110	C129	89% HMX and 11% Poly Lauryl Methacrylate	20 years
PBX 9404	9404	94 wt% HMX/3 wt% NC/3 wt% tris(b-chloroethyl) phosphate (CEF) note: PBX-9404 is unusually sensitive to certain types of impact, in partucular, skidding.	1st period-20 years, 10 years thereafter
PBX 9401	9401	94.2 wt% RDX, 3.6 wt% polystyrene, 2.2 wt% trioctyl phosphate	
PBX 9405	9405	93.7 wt% HMX, 3.15 wt% nitrocelulose, 3.15 wt% tricloroethyl phosphate	20 years
PBX 9407	9407	94 wt% RDX/6 wt% Exon-461	20 years
PBX 9501	9501	95 wt% HMX/2.5 wt% Estane/2.5 wt% BDNPA or BDNPF, X-0242	20 years
PBX 9502	9502	95 wt% TATB/5 wt% Kel-F 800, X-0290	20 years
PBX 9503	9503	80 wt% TATB, superfine/15 wt% HMX/5 wt% Kel-F, X-0351	20 years
PBXN-5		See LX-10	20 years
PBXN-110		88 wt% HMX/5.4 wt% polybutadiene/5 wt% isodecyl pelargonate	20 years
PBXW-113		See PBX N110	
Primacord		Assorted PETN & RDX loaded commercial detonating fuse	20 years
Pentolite	5001	50 wt% PETN/50 wt% TNT	20 years
Tritonal		80 wt% TNT/20 wt% aluminum powder	20 years
X-0208	X-0208	See XTX-8004	20 years
X-0233	X-0233	5-40 wt% HMX; 40-95 wt% tungsten, 0-10 wt% polystyrene, 0-5 wt% plasticizer	90 days
X-0242		See PBX 9501	20 years
X-0282	X-0282	See LX-14	20 years
X-0290	X-0290	See PBX 9502	20 years

X-0309	X-0309	75% TNT, 19% aluminum powder, 5% D-2 wax, 1% acetylene black (carbon)	90 days
X-0351		See PBX 9503	20 years
X-0407	X-0407	69.8 wt% TATB, 25.0 wt% PETN, 0.2 wt% dye, 5 wt% kel F800	90 days
X-0533	X-0533	See Calcitol	90 days
X-0534	X-0534	50 wt% TNT/16–24 wt% $CaCO_3$/25–33 wt% talc/1–2 wt% microballoons	90 days
XTX-8003		80 wt% PETN/20 wt% Sylgard 182	20 years
XTX-8004		80 wt% RDX/20 wt% Sylgard 182, formerly X-0208	20 years

PROPELLANTS

Explosives	ESA-2 Mat. Code	Other Names, Composition, or Reference	Storage Rev. Period
Black powder		Standard commercial and military grades only	20 years if unopened, 2 years if opened
Benite		Black powder based mixture	2 years
Commercial sporting		Any commercially available smokeless gun propellant for sport use is approved	20 years if unopened, 2 years if opened
HARP-1,-2		HARP propellants are Al/AP/HMX composites	2 years
HELP-1, -2		HELP propellants are NC/NG/HMX composites	2 years
Smokeless Powder Single, Double, or Triple Base		Standard military grades. Single or multi-perforated grains of colloided NC. Stabilizers, plasticizers, inorganic nitrates, and other modifying agents may also be present. Military research explosives are specifically not included.	2 years
VTP 25540		HMX based High Energy Propellant	2 years

DETONATORS

The following high-energy detonators have been approved for Group DX-4 use in test devices. All listed detonators have a storage review period of 20 years.

1E23	ER-213	EX-12	SE-1
1E26	ER-235	EX-12B	SE-1/31
1E26B	ER-312		
1E27	ER-312B	MC1991	SC-101
1E29	ER-344	MC2320	
1E30	ER-347	MC2427	
1E31	ER-352		
1E33	ER-353	MK13C	
1E34	ER-370	MK20	
1E36	ER-349	MK22A	
1E38	ER-350		
1E38 T.F.	ER-351	RL1	
	ER-371	RL2	
	ER-377		
	ER-379	RP-1	
	ER-380	RP1/31	
	ER-383	RP-2	
	ER-396A	RP-80	
	ER-396B	RP-83	
	ER-400	RP-84	
	ER-402	RP-87	
	ER-403		

MUNITIONS

Military munitions are allowed if no further assembly or disassembly operations are involved. An adequate description should be in the DX-4 file. Internal devices that contain primary explosive are allowed if they are "out-of-line" and are not used as the initial initiation point. The initiator must remain in a safe state until the first ignition source is activated following standard operating procedures. Any configuration where the primary explosive unit is external or is to be used as the first initiation or ignition source becomes a special operation requiring a separate SOP or SWP.

Some of the military munitions are listed as rejects or defective lots because they do not meet either physical specifications or

performance testing specifications. There are no safety issues related to their rejection. Any arriving munitions marked as rejects will be treated as Storage Compatibility Group L until the reason for rejection is known.

SPECIAL EXPLOSIVES

The use of these explosives is limited to the provisions of the indicated SOPs.

Explosive	**Pertinent SOP References**	**Storage Rev. Period**
Liquid Gun Propellant LGP 1846	DX-11 SOP: 15-11-4.20, "LGP 1846, TA-36-3"	2 years
3E-1 Detonator	3E-1 SWP	20 years

COMPOUNDS FOUND in TA-16 SOP 1.1.0, "Established Explosives at TA-16,"

but not listed in any DX Division list.

Al-ANFO

BDNPA

BDNPF

BTX (5,7-dinitro-1-picrylbenzotriazole) (transportation only)

DNPA (2,2-dinitropropyl acrylate polymer)

DNT

HBX-1

Methane/ Oxygen mixtures

Nitrocellulose (NC)

PYX (2,6-Bis(picrylkamino0-3,5-dinitropyridine

STRATABLAST C (storage and transportation only)

TAGN (triamino guanadine nitrate)

TAL-1005E (storage and transportation only)

TNS (Trinitrostilbene)

TNT/NC

TPM (tripicryl melamine)

Attachment 2

Adhesives, glues, and coatings routinely used at DX Division Firing Areas.

- Methylmethacrylate/solvent glues (Duco, Testor's model cement, other proprietary materials of equivalent composition).
- 3M Industrial Adhesive-226.
- CTA-2 linoleum cement for Detasheet only.
- Elvanol.
- CPR-1009-78 adhesive.
- Silastic TRV-140, -731, -732, -892, -3145
- Eastman 910, Perma Bond 910 adhesive, Loctite 495 adhesive, and other cyanoacrylate ester adhesives .
- 3M Aerosol spray adhesive.
- Aralhex.
- GE Silicone Rubber RTV 162.
- Polad [10 wt% Polacure-740M diamine (Polaroid Corp.)/38 wt% Adiprene 5333/52 wt% acetone].
- Polyurethane 7200, with sets A and B.

When necessary, the following chemicals and gases may be used for light intensification or quenching.

Aluminum Fluorosilicate **(This is a poison; wash hands after use.)**
Aluminum Oxide
Butane
Krylon Spray Paint
Magnesium Oxide
PETN paint

Approved Glues and Adhesives

- An epoxy -polyamide adhesive know as "Green Glue" and formulated from Epon 828 and Versamid 140 is approved for use in detonator and HE assemblies. This adhesive is covered under Mound Facility's Specification 1-9600.

- Cyanoacrylate adhesives such as Eastman 910 may not be used in direct contract with PETN.

- Devcon 5-minute epoxy is approved for permitted explosives, except TNT and explosive compositions containing TNT, and is permitted for assemblies which will hold liquid explosives after the adhesive is cured.

- Barco Bond 165 and 185 - The curing reaction for this material is exothermic: therefore, the thickness of the adhesive layers must not exceed 1.5mm (1/16 in.).
- Sylgard 182, 184, and 186
- DC 93-119
- GE 630
- CPR-1009-78 + Component "T"

Adhesive	Additive or Catalyst	Remarks
Aerobond 2017	Trimethoxy-boroxine	Compatible with HE. Exothermic reaction. Don't make more than 50 g at a time.
VEEP 1579 be VEEP 1579T	Versamid 140 DMP-30	Not compatible with all HE. May used on PBX 9502, TATB, an mixtures of TATB and inert materials.
Torr Seal	Polyamide	Can be used on HE as described in report #250. Ideal for vacuum applications, sealing leaks.
Polamine 1000		Compatible with HE. Slight foaming cured polyurethanes from moisture. Do not breathe vapors.

Attachment 3

LIST OF APPROVED COATING FLUIDS

Coating fluids used in contact with explosives must be selected from the following list. If a coating fluid is not on this list, it must be approved by the Group Leader before it is used.

- Microballoons in silicone, hydrocarbon grease, or in polyvinyl alcohol and water
- Apiezon wax
- Mineral oil.
- Petroleum greases and oils.
- Glazing compound, modeling clay, and putty.
- Krylon or other methylmethacrylate spray.
- Isopropyl alcohol or ethyl alcohol.
- Silicone grease.
- Water.
- Acetone.
- Aluminized Mylar.

When necessary, the following chemicals and gases may be used for light intensification or quenching.

Aluminum Fluorosilicate **(This is a poison; wash hands after use).**
Aluminum Oxide
Butane
Krylon Spray Paint
Magnesium Oxide
PETN paint

Attachment 4

APPROVED ELECTRICAL EQUIPMENT IN PREPARATION ROOMS

	Restrictions	
Bendix height gauge indicator model - BXT-1		(2)
Chicago multi tester		(6)
Fluke Multimeter, Model 8012A/AD	(3)	
Fowler 12" calipers		
Fowler depth gauge		
Hewlett Packard calculator, model 55		
Laser HE-NE-AERO-Tech. model LSR2P		
Ledu Corp., portable lamp. model 060333		(2)
Mettler Balance, model PE360	(1)	
Mettler Scale, model PM-400	(1)	
Minolta 35mm camera, model X700		(2)
Minolta Electro Flash, model 280 PX	(2)	
Mitutoyo height gauge, model 519-106		(2)
Mitutoyo height gauge, model 519-302		(2)
Mitutoyo height gauge readout, model 122		(2)
Mitutoyo height gauge readout, model 8943G		(2)
Mitutoyo indicator, model ID-ISOE		(2)
Nikon camera, model F	(2)	
Ohaus Balance	(1)	
Ohaus Scale, model T600S		(1)
Polaroid camera, model Spectra System		(2)
Polaroid camera, model SX70	(2)	
Sartorius Scale, model P6		(1)
Sartorius Scale, model P600		(1)
Sunpack Autoflash, model 30DX		(2)
Texas Instruments TI 55III calculator		
Triplet VOM Meter, model 630	(6)	
Unitron inverted microscope with light source, model 7530		(2)
WAHL Soldering Station, model 7500		(2)
Weller Soldering Station, model WTCPN		(2)
Olympus Digital Camera D-300L		

^^
^^^^^^^^^

(1) Balances will be inspected, cleaned, and calibrated biannually.
(2) Not for use at work stations with loose powder.
(3) Approved for use as a Detonator Circuit Ohmmeter (DCO).
(4) Locate illuminator in ventilated enclosure.
(5) For use in a work station with no HE present.

(6) Not approved for DCO use.

DX-4

STANDARD OPERATING PROCEDURE

FOR

AREA K-1 (SITE SPECIFIC)

SOP 22

Prepared by: _____ Date: _____
V. M. Sandoval, DX-4

Approved by: _____ Date: _____
G. D. Vasilik, DX-4 ES&H Officer

Approved by: _____ Date: _____
J. M. McAfee, DX-4 Group Leader

Approved by: _____ Date: _____
ESH Deployed Team Leader

Approved by: _____ Date: _____
DX-Division Operations Leader

Controlled Document Number: [ ]

Table of Contents

1.0 INTRODUCTION

This SOP covers the conduct of explosives test firing operations and non explosives tests conducted at the DX-4-K-1 Firing sites. This document is not to be used as a stand alone document. It should be used in conjunction with the DX-4: SOP 4 General Firing and other applicable DX SOP's.

2.0 PURPOSE

This SOP describes specific operations, procedures and protocols by which a safe environment is ensured for all personnel at TA-15-R-306, TA-36-3, 6, 8 and 12 during preliminary preparations, circuit testing, clearance, firing operations, abort, partial firing, and misfire procedures.

3.0 SCOPE

This SOP presents the procedure for conducting test-firing operations involving explosives at TA-15-R-306, TA-36-3 (Eenie Site), TA-36-6 (Meenie Site), TA-36-8 (Minie Site) and TA-36-12 (Lower Slobbovia) and at their associated firing mounds.

4.0 DEFINITIONS

Definitions are covered in DX-4: SOP 3 General Safety and DX-4: SOP 4 General Firing Operations.

5.0 PERSONNEL RESPONSIBILITIES

5.1 Required Reading

Each person who participates in firing operations in area K-1 must read the following SOPs, the General Firing Operations SOP, the General Access Control SOP, the General Safety SOP and any other applicable SOPs, as determined by their supervisor.

5.2 Working Alone

The following are the minimum requirements for working alone with HE in the K-1 Firing Area.

- Only authorized Firing Leaders may conduct firing operations alone.
- All operations shall be performed in accordance with all applicable DX SOPs.
- Working alone on firing operations is permitted only during normal working hours or when Access Control is manned.
- Personnel shall be assigned in a manner such that each worker's presence is periodically monitored via radio or a physical check, in case assistance becomes necessary.
- Any person conducting firing operations alone should be in contact with the Access Control Office or another knowledgeable employee.

6.0 PRECAUTIONS AND LIMITATIONS

6.1 Firing-Area Gate

Access is controlled to the K-1 firing sites by means of a key operated gate located just to the East of TA-15- 446 (Refer to General Access Control SOP).

6.2 Firing-Control Keys

Each firing circuit is locked, and only authorized DX-Firing Leaders and Chamber operators have keys to these locks. Keys to firing panels at TA-36 are kept in the firing leaders possession, while keys for the firing panel and the CDU's at TA-15-R-306 are kept in a lock box at the site until needed. Only authorized Firing Leaders have access to this lock box by way of a combination lock. Spare keys are locked in a safe at the TA-15-183 Access Control Office and may be issued only with the approval of the Group Leader or his Designee.

6.3 Interlocks

6.3.1 Door Interlocks

Firing-bunker doors are interlocked with the firing circuit and, except as provided in Special Firing Procedure outlined in Attachment 1 of this SOP, it must remain secured throughout the firing sequence.

6.3.2 Firing-System Interlocks

The firing-system interlock prevents the connection of a detonator cable to the 2500-V CDU, the low-voltage firing systems (44V), or the 110V Firing Unit while electronic maintenance and tests are being performed.

6.4 Firing-Circuit Test Mode (see Attachment 1)

Before actual firing, but after a charge has been assembled on the firing mound, personnel may want to test various aspects of the firing-control circuits; this may include charging and triggering the CDU. A test mode system is installed at each of the TA-36 firing sites. These are actuated by turning a firing-circuit lock switch to "Test Mode," which permits the CDU's to be charged and triggered without the audible and visual warnings and without closing the interlock systems. Each system is interlocked with a cable trap door, through which the detonator cables must pass to be connected to the CDU. Thus, passing a cable through the trap door disables the "Test Mode" by-pass function, thereby preventing the firing of a test when the warning system is not operating.

At TA-15-R-306 there is a CDU bunker with a lock on the door and a lock box located inside the firing bunker. When operating in test mode the Firing Leader must assure that the CDU bunker is closed, locked and that there are no firing cables entering the CDU bunker. The Firing Leader may then make the connections at the lock box and the test sequence may begin.

6.5 Warnings

6.5.1 Warning Lights

Flashing red lights are located at the entrance to each firing site. The lights at TA-36 Firing Sites operate automatically when the firing circuit is activated. The firing control system indicates that the light and horn circuits have been activated. The lights at TA-15-R-306 are controlled by a switch on the firing board.

6.5.2 Warning Horns

A horn sounds automatically when the firing circuit is activated. Hearing protection should be worn by any person outside the bunker and near the horn because the noise level is above the recommended short-term exposure limit. R-306 has only a siren, as described in the firing sequence section of this SOP.

6.5.3 Warning Signs

TA-36 Warning signs on site gates read:

DANGER
DO NOT ENTER
EXPLOSIVES OPERATIONS
IN
PROGRESS

6.6 Personnel Limits on Firing Mound when HE is Present

The number of personnel present on the firing mound during test preparation must be minimized, to limit the number of people involved in the case of an accident and to reduce distractions.

All TA-36 Firing Sites: Whenever explosives are present on the firing mound the total number of personnel shall not exceed Five.

TA-15-R-306: Whenever explosives are present on the firing mound the total number of personnel shall not exceed eight.

These personnel limits may be increased with the approval of the Group Leader or his Designee. These personnel limits may be decreased at the discretion of the Firing Leader.

6.7 Explosive Load Limits at K-1 Firing Sites

Refer to DX-4 SOP 3 General Safety, Attachment 5

6.8 Communication During Firing Operations

6.8.1 Radio

There is free-channel radio communication among all firing bunkers and vehicles used for clearance operations, the Access Control Office, and the DX-4 Group Office. During the time that the firing circuit is unlocked, the radio shall be reserved solely for communication concerning the test being fired and emergencies. To reduce the possibility of confusion or misinterpretations of radio messages, the following are suggested. Reserve the use of words such as **hold** and **stop** for emergency communications to have the Firing Leader immediately terminate the firing sequence until further notification. Use the name of the individual being contacted by radio, in addition to the site designation, during any radio communications involving hazardous operations.

Refer to DX-4 sites by these designations in radio transmissions:

- BUNKER 3 (Eenie Site)
- BUNKER 6 (Meenie Site)
- BUNKER 8 (Minie Site)
- BUNKER 12 (Lower Slobbovia)
- BUNKER R-306 (R-306)

6.8.2 Telephone

During the time that the firing circuit is activated, the telephone line to the site shall be reserved solely for calls concerning the test being fired.

6.9 Firing Units

All electrical work shall be conducted in accordance with the LANL Electrical Safety Program.

6.9.1 TA-36 Firing Units

The Category I firing units, the low-voltage firing units (44V) and the 110V capital firing units are located inside the firing bunker. The detonator cables are disconnected from the firing system after each test and are not reconnected for another test until all personnel are inside shelter.

6.9.2 TA-15-R-306 Firing Units & TA-36-12 Test Remote CDU Bunker

The Category I firing units are located inside the CDU Bunker. The detonator cables are disconnected from the firing system after each test and are not reconnected for another test until all personnel are inside shelter.

6.9.3 Category II Firing Units

For those tests in which the firing unit must be located adjacent to the test assembly, the high-voltage power supply shall be located within the firing bunker (TA-36) or the CDU Bunker (TA-15-R-306). The trigger cable and the monitor cable may be connected in advance, but the High Voltage cable shall be disconnected from the Firing Unit within the building and not reconnected until a clear area and roadblocks have been established.

6.10 Fire Department

If, in the opinion of the Firing Leader, there is a probability that a fire will be started as a result of a planned test, Firing Leaders shall inform Access Control as far in advance as possible of tests scheduled (24 hours if possible). The Access Control Office will make arrangements with the Fire Department. On the actual test day, a one-hour confirmation time will be called directly to the Fire Department by the Access Control Office. If an earlier firing time is desired, the Firing Leader must contact the Access Control Office which will contact the Fire Department to reschedule, if possible. The Fire Department must be rescheduled if the prearranged time is delayed by more then 45 minutes. When reporting standby requirements, the Firing Leader should give the test a fire hazard category—low, medium, or high. (Probability of starting Fires). The Firing Leader may instruct another individual to handle the communications with the Access Control Office or Fire Department. The Fire Department will decide the number of tankers to be assigned to the test. Special consideration should be given to tests involving Depleted uranium, copper, or tantalum. During the firing procedure, Fire Department personnel shall remain outside the area cleared for the firing operation until they are cleared for entry.

- For Tests fired at TA-36-3(Eenie Site) TA-36-6(Meenie Site), and TA-36-8(Minie Site) the Fire Department shall standby at the bottom of IJ hill.
- For Tests fired at TA-36-12(Lower Slobbovia) the Fire Department shall standby at the top of Lower Slobbovia hill.
- For Tests fired at TA-15-R-306 the Fire Department shall standby at the TA-15-R-40 Access Gate.

7.0 PROCEDURAL STEPS

7.1 Preliminary Preparations

7.1.1 Test Assembly

The Test should be assembled as much as possible in the site prep room. (Refer to DX-4 SOP 05 Preparation Room Operations, DX-4 SOP 03 General Safety and DX-4 SOP 04 General Firing Operations).

7.1.2 Test with a large number of diagnostics and or visitors

At the discretion of the Firing Leader for tests involving a large number of diagnostics and or visitors a Second Firing Leader may be assigned to the test. One Firing Leader will be responsible for supervising the setup of the test on the mound. This will leave the other Firing Leader free to oversee the entire operation from a safety standpoint.

7.1.3 Escorted visitors attending tests

Visitors who must be escorted during tests will not be assigned to a Firing Leader working on a test as he is already well burdened. Visitors can be assigned to any other Knowledgeable Person.

7.2 Clearance

Visitors who are not knowledgeable about DX-4 firing procedures may be within the anticipated hazard area. Therefore, it is imperative that the hazard zone be carefully cleared before any potentially hazardous operation is initiated. Only Knowledgeable Personnel or people accompanied by a Knowledgeable Person will be allowed to remain within the hazard zone in a safe place. Persons remaining within the hazard zone must be in the firing bunker and not in either a day magazine or a charge preparation room.

Clearance is accomplished by using one or more clearance Patrolmen who sweep the site or sites in a radio-equipped vehicle and proceed to a safe position appropriate for the clearance level. In each case described below, roadblocks will be established by parking the radio-equipped vehicle in the center of the access road, with the clearance patrolman in radio contact with the firing bunker. The Patrolman doing the clearing will then notify the Firing Leader by radio that the firing area is clear for firing. The Patrolman shall use the following format for this radio transmission:

"Calling (Name of Firing Leader) at Bunker (No.) from (Name of Patrolman); the firing area has been cleared to (Location)."

The Firing Leader will then confirm the transmission as follows:

"This is (Name of Firing Leader) at Bunker (No.), confirming roadblock at (Location)."

The manned roadblock will remain in place until the Firing Leader notifies the Patrolman that a safe condition exists.

The emergency warning lights on the vehicle will be operated throughout the clearance operation. If anyone passes a blockade and enters a hazard zone, the Clearance Patrolman manning the roadblock shall immediately notify the Firing Leader to "STOP" the firing sequence. The Clearance Patrolman manning the roadblock shall remain at his station and shall not attempt to chase the person or persons who have passed the roadblock. The Firing Leader shall immediately discontinue the firing sequence and confirm receipt of the message by stating:

"The firing sequence has been stopped at Bunker _."

The Firing Leader should then take steps to clear the area again before restarting the firing sequence.

7.2.1 Clearance Procedure for Plan B & C Tests

The Firing Leader starts the clearance procedure by calling the Access Control office and asks the Access Control Officer to initiate the appropriate clearance.

The Access Control Officer begins by locating all visitors in the K-1 area and insures that they either exit the area or remain in a safe location

The Access Control Officer then notifies the Firing Leader that all Visitors have been located and are accounted for.

The Firing Leader now directs the Clearance Patrolman or men to begin the appropriate Clearance Sweep. Clearance patrolmen shall be equipped with two way radios that will be set to the DX-4 frequency.

7.3 Clearance Plans

A table of Clearance plans and Hazard Circles for TA-15-R-306 and TA-36 is presented in the DX-4: SOP 4 General Firing Operations, Attachment 3.

7.3.1 Plan A-Minor

(Contained detonator firing, pulse-power discharges, radiation production, firing point access control).

All K-1 Firing Sites

Clearance Patrolman sweeps the area to the Site Safety Gate where the manned roadblock is then established.

Note: In an operation where no explosives will be fired the Patrolman may close and lock the safety gate and is not required to man the roadblock.

7.3.2 Plan A

(Explosives Tests- 1 LB maximum -No Fragments, small arms firing)

All TA-36 Firing Sites

Clearance Patrolman sweeps the area to the Site Safety Gate where the manned roadblock is established.

TA-15-R-306

One Clearance Patrolman sweeps the area to the R-306, Ridge road intersection where the manned roadblock is established. The Firing Leader must sweep the tunnel between bldg. R-306 and bldg. R-280 and then standby outside of R-280 to ensure that no one enters the site while the Patrolman sweeps the tank farm and the roads leading to R-44 and R-45 ensuring

that the safety chains are up at the entrances to these sites. The roadblock is then established at the R-306, Ridge Road intersection.

7.3.3 Plan B

(Explosive Tests)

TA-36-3 (Eenie Site)

Two Clearance Patrolmen sweep the area in two directions. One Patrolman must block the road at the Eenie intersection while the other patrolman clears out Daisy Makeup. After this has been accomplished the Patrolmen continue to clear the area with one manned roadblock being setup at the IJ turnoff and the other at the Meenie, Minie turnoff.

TA-36-6 (Meenie Site)

Two Clearance Patrolmen sweep the Meenie area and the Minie area. One Patrolman must block the Meenie intersection while the other clears out the Minie area. A manned roadblock is then set up at the Meenie, Minie turnoff.

Note: A barricade with the words DANGER DO NOT ENTER EXPLOSIVES OPERATIONS IN PROGRESS may be used to block the Meenie intersection while the Minie area is cleared if a second Patrolman is not available.

TA-36-8 (Minie Site)

Two Clearance Patrolmen sweep the Minie area and the Meenie area. One Patrolman must block the Minie entrance while the other clears out the Meenie area. A manned roadblock is then set up at the Meenie, Minie turnoff.

Note: A barricade with the words DANGER DO NOT ENTER EXPLOSIVES OPERATIONS IN PROGRESS may be used to block the Minie entrance while the Meenie area is cleared if a second Patrolman is not available.

TA-36-12 (Lower Slobbovia)

Clearance Patrolman sweeps the Pixy area, the Sled Track area, the Lower Slobbovia Makeup area and then proceeds to the top of Lower Slobbovia hill where the manned road block is established.

The Firing Leader will standby outside of Bunker 12 to ensure that no one enters the area while the area is swept.

TA-15 R-306

Using radio equipped vehicles two Clearance Patrolmen sweep the area. The Firing Leader must sweep the tunnel between bldg. R-306 and bldg. R-280. One Patrolman will block the road in front of R-280 to ensure that no one enters the site while the other Patrolman sweeps the tank farm and the roads leading to R-44 and R-45 ensuring that the safety chains are up at the entrances to these sites. The Patrolmen then continue their sweeps in two directions with one setting up a manned roadblock at the intersection to the new access road and the other at the IJ entrance gate.

7.3.4 Plan C

(Large Explosive Tests)

TA-36-3 (Eenie Site) TA-36-6 (Meenie Site) TA-36-8 (Minie Site)

The plan C clearance for Eenie, Meenie and Minie are identical, requiring two vehicles. One driver clears the Meenie, Minie area while the driver of the second vehicle blocks the Meenie, Minie turnoff. After Meenie Site and Minie Site have been cleared, the vehicles will meet at the Meenie , Minie turnoff. One Patrolman will standby at the Meenie, Minie turnoff while the other Patrolman clears out Daisy Makeup and Eenie Site. Eenie Site may be cleared by sweeping the site or by contacting Eenie-Site personnel and asking them to clear the site, in which case the person conducting the clearance must not leave the Eenie-Site entrance until the site personnel have informed him that Eenie Site is clear. The drivers will then proceed separately to Moe Hill and the IJ-Point turnoff where the manned roadblocks are established.

TA-36-12 (Lower Slobbovia)

Clearance Patrolman sweeps the Pixy area, the Sled Track area, the Lower Slobbovia Makeup area and then proceeds to the Moe Turnoff where the manned road block is established.
The Firing Leader will standby outside of Bunker 12 to ensure that no one enters the area while the area is swept.

TA-15 R-306

Two Clearance Patrolmen sweep the area. The Firing Leader must sweep the tunnel between bldg. R-306 and bldg. R-280. One Patrolman will block the road in front of R-280 to ensure that no one enters the site while the other Patrolman sweeps the tank farm and the roads leading to R-44 and R-45 ensuring that the safety chains are up at the entrances to these sites. The Patrolmen then continue their sweeps in two directions with one setting up a manned roadblock at the intersection to the new access road and the other at IJ Hill.

Note: If the IJ site gate is open this site must be cleared before proceeding. This may be done by placing a barricade in the road with the words DANGER DO NOT ENTER EXPLOSIVES OPERATIONS IN PROGRESS while the Patrolman sweeps the site or it may be cleared through radio contact with someone at the site.

Note: More than one site may fire under the same clearance operation if the Firing Leaders determine that no unusual hazards will be created by more than one firing operation under a single clearance.

7.4 Site by Site Roadblock Clearance Positions

7.4.1 Eenie Site TA-36-3

A-Minor Safety Gate
Plan-A Safety Gate
Plan-B IJ Turnoff & Meenie, Minie Turnoff
Plan-C IJ Turnoff & Moe Hill

7.4.2 Meenie Site TA-36-3

A-Minor Safety Gate
Plan-A Safety Gate
Plan-B Meenie, Minie Turnoff
Plan-C IJ Turnoff & Moe Hill

7.4.3 Minie Site TA-36-8

A-Minor Safety Gate
Plan-A Safety Gate
Plan-B Meenie, Minie Turnoff
Plan-C IJ Turnoff & Moe Hill

7.4.4 Lower Slobbovia TA-36-12

A-Minor Safety Gate
Plan-A Safety Gate
Plan-B Top of Lower Slobbovia Hill
Plan-C Moe Turnoff

7.4.5 R-306

A-Minor Safety Gate
Plan-A R-306 & Ridge road intersection
Plan-B IJ site gate & intersection to the new access road
Plan-C Top of IJ Hill & intersection to the new access road

7.5 Sequence Timer for Warnings and Circuit Charging

The timing of warnings and firing-circuit charging is controlled by the fire control system. The sequence timer is started by turning the key switch on.

7.5.1 (TA-36 Firing Sites)

A four minute period (during which the horn is sounding) is provided as a back-up clearance prompt. After the four minute period, a 30-second siren warning is sounded. This is followed by a 30-second period without the siren sounding, followed by a 45 second siren sounding. The selected firing unit is then enabled and can be fired. The siren will continue to sound until the key switch is turned off.

7.5.2 (TA-15-R-306 Firing Site)

At R-306 there is no horn. A 30-second siren warning is sounded, followed by a 30-second period without the siren sounding, followed by the siren sounding for 90 seconds. The selected firing unit then is enabled and can be fired. The siren will continue to sound until the key switch is turned off.

7.5.3 Arm Switch

A spring-loaded "Arm Switch" controls the charging of the CDU, or the arming of the firing system. It enables the high-voltage power supply that is attached to the capacitor bank in the CDU. Pushing the "Arm Switch" disconnects a shunt across the capacitor bank and connects the bank to the high-voltage supply. The high-voltage power supply is interlocked so that pushing the arm switch enables output from the supply. These arming relays are energized by the operator actuating the "Arm Switch," as the final event in the timed sequence.

7.6 Firing Of Test

7.6.1 TA-36 Firing Sites

When the Firing Leader receives notification that the hazard zone has been cleared, he will secure the firing-bunker door, activate the firing circuit (thus starting it), and make certain that the horn is operating. Although the fire control system indicates when power is applied to the horn and to the siren, the Firing Leader must confirm by listening that they are sounding. If the horn or siren fails to operate, he shall shut down the firing operation without firing. Firing operations with a non operational horn or siren may be executed only with explicit approval of the Group Leader or his designee.

If all equipment is operating in a normal manner he may connect the detonator cable to the firing system and proceed with any other preparatory activities required while the normal firing sequence progresses.

Just before actuating the "Arm Switch," the Firing Leader will contact the Clearance Patrolman at each roadblock by radio to ensure clear radio contact. The format of this transmission shall be as follows:

"This is a radio check from BUNKER (No.)"

The Patrolman shall respond:
"Received loud and clear at (Location)."

After the Firing Leader has assured himself that all radio checks have been received, he may then proceed to fire the test at his discretion.

7.6.2 TA-15-R-306

When the Firing Leader receives notification that the hazard zone has been cleared, he will make certain that he has the High Voltage Keys and the CDU Keys in his possession. He will then make certain that all firing cables are disconnected at the lock box in the firing bunker. He may then proceed to the CDU Bunker and make the connections to the appropriate CDU's. He will return to the firing bunker , secure the door behind him and make the appropriate connections at the lock box. After this is accomplished he will turn over the keys to the Detection Chamber Operator and inform him that the area is clear and the test is armed. At this point the Detection Chamber Operator will take over the firing of the test. Although the fire control system indicates when power is applied to the siren, the Firing Leader must confirm by listening that they are sounding. If the horn or siren fails to operate, he shall shut down the firing operation without firing. Firing operations with a non operational horn or siren may be executed only with explicit approval of the Group Leader or his designee.

Just before actuating the "Arm Switch," the Firing Leader will contact the Clearance Patrolman at each roadblock by radio to ensure clear radio contact. The format of this transmission shall be as follows:

"This is a radio check from BUNKER (No.)"
The Patrolman shall respond:
"Received loud and clear at (Location)."

After the Firing Leader has assured himself that all radio checks have been received, he may then direct the Detection Chamber Operator to fire the test at his discretion.

7.7 Checklists

7.7.1 TA-36 Firing Sites

At all TA-36 firing sites Firing leaders will use the DX-4 Firing Operations Checklist which encompasses clearance and firing.(Attachment D of this SOP).

7.7.2 TA-15-R-306

Firing Leader will use DX-4 Firing Operations Checklist and Detection Chamber Operator will use R-306 Test Checklist. (Attachment D of this SOP).

7.8 Misfires, Abort Conditions, and Partial Firing

If the Firing Leader or the Detection Chamber Operator pushes the "FIRE" button and the test fails to fire, he will try, without sounding the "All Clear," to determine whether the failure creates a potential hazard.

Without terminating the firing sequence, he will look for possible trivial causes (such as an unconnected detonator cable). If a trivial cause is determined, he may attempt to fire the test a second time after ensuring that no diagnostics have been jeopardized. If the cause is not located or is not trivial, he will disconnect the firing cables and wait 30 minutes. After this waiting period, a remote visual inspection will be performed for any sign of reaction (smoke, fire, etc.), either through the camera or periscope, or by the person blocking the road. If no evidence is noted, the Firing Leader will then terminate the firing sequence, as indicated below. If there are any unusual circumstances, conditions, or any indication of reaction (Partial Firing) the Group Leader or Group Safety Officer will be contacted for special instructions on terminating the firing sequence. The warning signals should not be continued for longer than ten minutes unless a hazardous condition exists that cannot be safely removed. After finding the apparent cause of the misfire (except for trivial causes) and before attempting to fire the test a second time, the Firing Leader will contact the Group Leader or another Firing Leader and review the operation and the corrective measures taken.

7.8.1 Tests involving projectiles fired into energetic material

Tests involving projectiles (bullets, shaped charges, etc.) fired into targets containing energetic material are covered in DX-4 SOP-8 (Firing Small and Large-Bore Guns).

7.8.2 Tests where there is a suspicion that one piece of HE detonated but the second did not

For tests in which there is a possibility that one piece of HE detonates but the second does not, the Firing Leader will disconnect the firing cables and wait five minutes. After the waiting period and a remote visual inspection, but not less than 10 minutes, the Firing Leader or his designee will inspect the area for damaged explosives before signaling the all clear.

Note: If damaged HE is discovered the Firing Leader will contact the Group Leader or Group Safety Officer for special instructions on terminating the firing sequence.

7.9 Completion of Firing Operations

7.9.1 Firing Completion and Shutdown

The firing operation is completed by disconnecting the detonator cables from the firing unit, permitting the siren to sound for an additional 60 seconds to allow time for the shrapnel to fall, and then locking the firing circuit. An "All Clear" of two short blasts of the siren is then sounded.

7.9.2 Emergency Shutdown

In an emergency shutdown of the firing operation before the charge is fired, the 60 second sounding of the siren may be omitted.

7.9.3 Notice of completion or cancellation

Notice of completion or cancellation of the firing operation must originate with the Firing Leader and be transmitted to all involved personnel. The format for this transmission shall be as follows:

"The test at BUNKER (No.)
is ALL CLEAR and it is now safe to enter."
No one is to leave shelter until he/she receives this notice.

8.0 REQUIRED RECORDS

DX-4 Post Test Sheet
DX-4 Firing Operations Checklist
R-306 Test Checklist

9.0 REFERENCES

- LIR 402-600-01.0 "Electrical Safety"
- LIG402-600-01.0 "Electrical Safety Implementation Guide"

9.1 Maps

General maps and descriptions of the firing sites are presented in Attachment 1 of the DX-4 SOP 1.0 General Access Control

9.2 Standard Operating Procedures

- DX-DO:SOP 06 Radiological Controls
- DX-DO:SOP 07 Emergency Plan
- DX-4: SOP 03 General Safety
- DX-4: SOP 04 General Firing Operations
- DX-4: SOP 05 Preparation Room Operations
- DX-4: SOP 06 Repetitive-Type High Consequence Lifts
- DX-4: SOP 08 Firing Small and Large-Bore Guns
- DX-4: SOP 09 Loading and Reloading Ammunition
- DX-4: SOP 13 Shot Illumination
- DX-4: SOP 14 Charge Temperature Control During Firing Operations
- DX-4: SOP 17 Flash X-Ray Generators
- DX-4: SOP 23 Vacuum Use in Field Tests
- DX-4: SOP 1.0 General Access Control
- DX-4: SOP 1.2 Access Control at Area K-1, TA-15 & 36
- DX-4: SOP 2.14 Storage and Handling of Depleted Uranium

10.0 ATTACHMENTS

1. Special firing procedure at TA-36 Firing Sites
2. Evaluation of Fragment Hazards (Bill Davis Rule)
3. Procedure for CDU Backvoltage Test
4. Clearance and Firing Checklists
5. Allowable Distances for Kappa Sites

ATTACHMENT 1

SPECIAL FIRING PROCEDURE AT TA-36 FIRING SITES

This procedure provides for a by-pass action at the TA-36 firing sites during standard firing practices that are outlined in the main text of this SOP.

The purpose of the deviation is to secure important advantages, through simplification of the charge make-up or through improvement in the quality of the experimental results, by minimizing the time between the final adjustments to the charge and the firing of it. Use of this procedure will be kept to a minimum.

Approvals

Each application of this procedure will require individual approval by the Group Leader, or Designee. Before approval is given by one of the above, he/she will determine that the Firing Leader requesting approval is familiar with the remaining items of this SOP. When a particular application of this procedure is approved, the Access Control Officer will issue an interlock key to the Firing Leader. Issuance of the key will be by direct authorization from the Group Leader, Acting Group Leader or Designee.

Precautions and Limitations

After the test setup is ready on the firing mound, the Firing Leader and his assistants will go inside the firing chamber, and the hazard area will be cleared as provided in this SOP. The following steps and precautions will then be taken.

Begin sequence to bypass the firing-chamber door interlock.

- Insert firing-panel key, and switch to RUN mode.
- Use the computer mouse to grab the INTERLOCK menu.
- Double-click on the DOOR INTERLOCK option. A comment box will come on the screen. Read, then proceed.
- Insert the interlock key and switch to ON. (Do not turn past ON.)
- Now firing sequence should be proceeding with countdown. If not, use the mouse to grab the INTERLOCK menu again and choose the CLEAR INTERLOCKS option, then repeat the above steps.
- Establish that the external firing-unit grounding switch is in the ground position.
- Ensure that all detonator cables are disconnected from the firing unit.

Procedural Steps

During the firing sequence, the Firing Leader or a person authorized by him will go to the firing mound and make final adjustments to the charge. If it is absolutely necessary and it will improve the safety of the operation, more than one person will be allowed on the mound. This person will then reenter the firing chamber and will close and latch the door.

After the Firing Leader has determined that all personnel are safe and that it is appropriate to fire the test, he will connect the detonator cables to the firing unit and proceed with the firing sequence.

After the test has been fired or aborted, the door interlock bypass key will be removed and returned to Access Control on the same day that the key was issued.

ATTACHMENT 2

Evaluation of Fragment Hazards

BILL DAVIS' RULE

$$\text{Fragment Distance} = \frac{\text{Density of Fragment}}{\text{Density of Air}} \times \text{Thickness of Fragment /(Ft.) in direction of travel} \times \text{Safety factor}$$

where:

Density of Air = 10^{-3} g/cm3 at Los Alamos altitude

Safety Factor: 5 for cars, and buildings
8 for people

FOR TYPICAL FRAGMENTS (NO BARRIER OR BARRICADES)

Material	Density g/cm3	Fragment Thickness (in.)	Fragment Distance (Ft.) (Safety Factor = 8)
Aluminum	2.7	1/4"	450
		1/2"	900
		1"	1800
Brass	8.4	1/4"	1400
		1/2"	2800
		1"	5600
DU	18.7	1/4"	3116
		1/2"	6233
		1"	12,466 (2.3 miles)

Attachment 3

Procedure For CDU Backvoltage Test

The following is the procedure for backvoltage testing the 2500-volt CDU's at all TA-36 Firing Sites and TA-15-R-306. A Peschel Instruments, Model #H10 Backvoltage Tester will be used in this procedure. CDU's should be backvoltage tested before the first shot of every month by the firing site POC documented in the site logbook.

Note: Exercise Extreme Caution With High Voltage At All Times.

1. Identify CDU to be tested.
2. Disconnect all load cables and voltage dividers from all outputs.
3. Verify that the highvoltage adjustments on the tester is set to zero volts, tester off.
4. Connect tester to one of the CDU's outputs.
5. Turn on tester.
6. Check that tester is reset.
7. Increase tester High Voltage: Note voltage at breakdown.
8. Reduce voltage: Reset.
9. Repeat steps 7 and 8 several times.
10. Ensure that the tester highvoltage adjustment is set to zero volts and the tester meter indicates zero volts.
11. Turn off and disconnect tester.
12. Record voltage breakdown for that CDU.
13. Restore all CDU output connections.

DX-4

STANDARD OPERATING PROCEDURE

FOR

OPERATIONS OF OB/ODs and

TA-36-12 BURN AREA (CAA) OPERATIONS

SOP 28

Prepared by: _____ Date: _____
R. P. Archuleta, DX-4

Prepared by: _____ Date: _____
V. M. Sandoval, DX-4

Approved by: _____ Date: _____
M. A. DeMaria, DX-4 ES&H Officer

Approved by: _____ Date: _____
G. W. Laabs, Acting DX-4 Group Leader

Approved by: _____ Date: _____
C. A. Nelson, DX-ES&H Deputy Facility Manager

Approved by: _____ Date: _____
C. M. Montoya, DX-DO Operations Leader

Controlled Document Number: ☐

Table of Contents

1.0 INTRODUCTION

Explosive waste, reactive waste, and explosive-contaminated waste are generated as a result of DX Division R & D activities, Firing Site operations and other LANL operations. A small percentage of the tests conducted by DX Division also contain depleted uranium. Within this document, the materials that comprise explosive waste, explosive-contaminated waste and radioactive contaminated waste are defined; and their treatment procedures are described.

2.0 PURPOSE

The purpose of this SOP is to describe the procedures for treating experimental related wastes, debris, and excess explosives.

3.0 SCOPE

This SOP is applicable to all DX-Division personnel who treat waste at the following DX-4 Firing areas:

- TA-14 Mound 3 OB/OD
- TA-36-8 (OD)
- TA-36-12 (CAA Burn Area)
- TA-39-6 (OD)

4.0 DEFINITIONS/ACRONYMS

- OB/OD - Open Burn/Open Detonation
- CAA - Clean Air Act

Definitions are covered in DX-4: SOP 03 General Safety, DX-4: SOP 04: General Firing Operations, and DX-DO: SOP 01 Waste Management in DX-Division.

5.0 PERSONNEL RESPONSIBILITIES

5.1 Required Reading

Each person who performs operations described in this SOP must read DX-4: SOP 03 General Safety, DX-4: SOP 04 General Firing Operations, DX-4: SOP 1.0 General Access Control (SOPs) and any other applicable SOPs, as determined by their supervisor.

5.2 Training

RCRA OB/OD treatment unit operators are required to be assigned to and meet the requirements of the RCRA Hazardous/Mixed Waste Worker Training Plan #256. The RCRA and CAA unit operators shall be trained in accordance with the DX DivisionTraining Plan.

6.0 PRECAUTIONS AND LIMITATIONS

6.1 Waste Minimization

Waste generated from operations must be reduced as much as technically and economically feasible. To meet this objective, the waste minimization practices of material substitution, recycling, good housekeeping, and hazard segregation must be incorporated into all waste generating activities. All waste generators are responsible for making every practical effort to reduce the amount of waste produced. All firing operations will be conducted under site specific SOPs and appropriate permits.

6.2 DX Waste Treatment Form

This form includes a description of the waste to be treated, the WPF number or waste codes associated with the waste, the quantity of each hazardous waste to be treated, the date of its treatment, where the waste came from, and the facility where the waste is treated. (See Attachment 3).

This form will be completed for each treatment operation for the units described above. The form shall be completed as soon as possible following the operation, but no longer than 5 working days. The original form will be included as part of the shot record and a copy sent to DX-Division Environmental Team. This form will be kept for the life of the OB/OD unit, plus 3 years.

6.3 Location of OB/OD Areas and CAA Burn Area

The following is a list of treatment locations and applicable SOPs:

6.3.1 TA-14 (OB/OD) and Site Specific Firing Operations are covered by DX-4: SOP 27 Q-Site East (TA-14) Firing Operations.

6.3.2 TA-36-8 (OD) Site Specific Firing Operations are covered by DX-4: SOP 22 Area K-1, Site Specific.

6.3.3 TA-36-12 (CAA Burn Area) Burn operations are covered by this SOP and other applicable SOPs

6.3.4 TA-39-6 (OD) Site Specific Firing Operations are covered by DX-4: SOP 21 Explosives Firing Operations at TA-39-6, 57, & 88.

6.4 Weight Limitations

- As applicable in appropriate permits.

6.4.1 TA-14 (Q-Site) Mound 3 Weight Limitations

Weight limitations are as follows.

Operation	Weight Limitation
Burning	50 lbs of combustibles per burn
Detonation	9 kgs/20 lbs

6.4.2 TA-36-8 Weight Limitations

Operation	Weight Limitation
Detonation	907 kg/2000 lbs

6.4.3 TA-36-12 CAA Burn Area

Operation	Volume Limitation
Burning	300 cubic meters per burn and 250 lbs lexan and/or plexiglass

6.4.4 TA-39-6 Weight Limitations

Operation	Weight Limitation
Detonation	91 kg/200 lbs

7.0 PROCEDURAL STEPS

7.1 CAA Burn Area at TA-36-12

7.1.1 Notification Requirements for TA-36-12 Burn Area (CAA)

Advance (five working days) notification indicating the date, time and place of the controlled burn must be sent to the following;

- DX-4 Group Leader/Team Leader/ES&H Officer
- DX ES&H Coordinator/Operations Coordinator
- DX-Division Environmental Team (See Attachment 1)
- Fire Department

The DX-Division Environmental Team will contact:

- ESH-17 Air Compliance Team
- EM&R (Emergency Management and Response)
- PA-1 (Public Information Group)

7.1.2 Burning of Debris

The Lower Slobbovia area will be cleared and the site safety gate will be closed. In addition the safety chain at the entrance to the road that services the burn area and the sled track will be closed. The entire burning operation will be continually monitored by DX personnel. The firing site debris will be ignited 3 hours after sunrise in accordance with permit requirements. (See Attachment 3-Open Burn Checklist).

Paper and/or kimwipes with diesel fuel or kerosene will be used to aid in the ignition of the debris. A weed burner or matches will be used to ignite the paper and wood. Only DX personnel knowledgeable in burning operations will be allowed to ignite the pile. (See DX-4 authorizations and assignments document).

Fire department personnel will be present while the debris is being ignited but they will be located at a safe distance specified by the DX person in charge. Firefighters will remain on site until the Fire Department Supervisor at the scene determines that they may safely leave the burning material to be watched by DX personnel.

If the burn has not been completed by the end of the workday, a minimum of two DX employees will remain on site until the burn has been completed. DX-4 Group Management, the Fire Department, Station 100 (LANL Security Force Communications Center), and the DX Division Office must be notified that DX personnel will be present through the night to monitor the burning debris.

The DX-4 Group Leader or his Designee will make the determination of when the burn has been completed.

Note: Fire Department must be scheduled at least 24 hours in advance of the burn.

7.2 RCRA OB/OD Operations

7.2.1 Open Burning Operations at TA-14 (Q-Site)

HE and HE-contaminated waste shall be burned in the burn cage located on Mound 3. The cage shall be positioned so that it is in full view from the observation ports in Room 101 of Building 23.

Only small amounts of HE waste that would pose no hazard to the burn cage or the area, shall be burned.

Follow the procedures below for treating HE and HE Contaminated Waste.

Step	Action
1	• Notify DX-Division Environmental Team (See Attachment 1) no less than 48 hours prior to the scheduled burn.
2	• Clear Q-Site West (TA-14-34) and Mound 5 Q Site East to make sure that no unauthorized personnel are within the site. • Alert any personnel at Q-Site West that a burn operation is to occur and inform them of the type of material involved. Personnel can leave the area or if they stay in area they must remain under cover until given permission to leave by the Firing Leader.
3	Make sure that plenty of fuel (kerosene for example) is available to completely destroy the waste and the containers.
4	• Uncover the burn cage • Check the burn cage to see that no foreign objects are in the middle section where the waste will be placed, and • Remove any that are found.
5	Check the bottom, for undestroyed material and treat properly.
6	Place the waste on the grate.
7	Short the end of the detonator cable.
8	Attach two igniters in parallel to the detonator cable and place them in the fuel space.
9	Sprinkle fuel on the waste to aid in the ignition. Note: Use only volatile hydrocarbons, such as acetone, or kerosene.
10	Cover the top of the burn cage with wire mesh to minimize the escape of burning particles.
11	Fire the ignitors using the firing control unit in Room 101 of Building Q-23 (See DX-4: SOP 27 Q-Site East (TA-14) Firing Operations). Note: The siren will go through its normal sequence, but the Firing Leader may turn the siren off after determining that the burn is progressing satisfactorily.
12	• Wait for at least 10 minutes after visible reaction has stopped and • Then the Firing Leader will check the burn cage to determine if a safe condition exists. • Then sound the "all-clear" signal.
13	In the event of a misfire, do not approach the area until at least 10 minutes have elapsed without any evidence of reaction in the burn cage (See Attachment 2).
14	DO NOT use the burn cage for another burn operation for 24 hours.
15	After 24 hours or more, remove the ashes and place in the satellite accumulation area outside Building 23.
16	Cover the burn cage with a tarp.

7.2.2 RCRA Open Detonation Operations at TA-36-8, TA-39-6, and TA-14

7.2.2.1 TA-36-8 Procedures for this operation are covered in DX-4 SOP 22, (Area K-1, Site Specifics)

7.2.2.2 TA-39-6 Procedures for this operation are covered in DX-4 SOP 21 (Explosives Firing Operations at TA-39-6, 57, and 88)

7.2.2.3 TA-14 Procedures for this operation are covered in DX-4: SOP 27 Q-Site East (TA-14) Firing Operations

8.0 REQUIRED RECORDS

- Waste Profile Form (OB/OD)
- Hazardous and Mixed Waste Facility Inspection Form (OB/OD)
- Shot Request Form (OD)
- Expended Materials Report (OD)
- Post Shot Report (OD)
- Firing Checklist (OD)
- Completed and signed TA-14 Q-Site Test Sheet (TA-14 only)
- Q-Site Check List Burning of HE and HE-Contaminated Waste (TA-14 only)
- DX Waste Treatment Form (all locations)

9.0 REFERENCES

- 5 Year Open Burn Permit (August 15, 1997 to December 31, 2002)
- DOE Explosives Safety Manual
- DX-DO: SOP 01 Waste Management and Generator Waste Certification Program in DX-Division
- DX-DO: SOP 03 Packaging and Transportation of Hazardous Materials
- DX-DO: SOP 07 Division Emergency Guide
- DX-4: SOP 03 General Safety
- DX-4: SOP 04 General Firing Operations
- DX-4: SOP 1.0 General Access Control
- DX-4: SOP 18 Firing at TA-15 PHERMEX Firing Point
- DX-4: SOP 21 Explosives Firing Operations at TA-39-6, 57, & 88
- DX-4: SOP 22 Area K-1 Site Specific
- DX-4: SOP 27 Q-Site East (TA-14) Firing Operations
- AR 10-8 Waste Minimization
- RCRA Interim Status Documents and Permit Applications for OB/OD

10.0 ATTACHMENTS

Attachment 1. DX-Division Environmental Team
Attachment 2. DX-2 Check List for Burning of HE-Contaminated Waste
Attachment 3. DX Waste Treatment Form

Attachment 1

DX-Division Environmental Team

The DX-Division Environmental Team contacts are:

Franco Sisneros 665-6978 and Michelle Cash 665-0223 -- dxenv@lanl.gov

At least one of the people listed above must be contacted preferably through e-mail, a minimum of two days prior to a burn at Q-Site (TA-14) and a minimum of 5 days at TA-36-12.

The DX-Division Environmental Team member will then contact ESH-17.

Attachment 2

Check List for
Burning of HE-Contaminated Waste (TA-14)

Requester _____ Date Burned _____
Charge Code _____

This checklist is intended for use as a safety supplement to DX-4: SOP 27 "Q-Site East (TA-14) Firing Operations." All Q-Site users must be familiar with DX-4: SOP 27. This checklist should be referred to by the Firing Leader subsequent to burning in the burn cage and prior to final arming. In the event of a misfire, follow the checklist on the other side of this page.

OK	N/A	
❑	❑	1) Contact DX-Division Environmental Team
❑	❑	2) Secure and clear area.
❑	❑	3) Fuel Available
❑	❑	4) Ensure burn cage is clean.
❑	❑	5) Open all glass and plastic containers.
❑	❑	6) Place waste material to be burned on grate.
❑	❑	7) Short end of detonator cable.
❑	❑	8) Attach ignitors to detonator cable and place ingitors near waste materi
❑	❑	9) Sprinkle fuel on waste material.
❑	❑	10) Cover top of burn cage with wire mesh.
❑	❑	11) Connect detonator cable to the Capacitor Discharge Unit (CDU).
❑	❑	12) Start firing sequence.
❑	❑	13) Fire ignitors.
❑	❑	14) Observe burning.
❑	❑	15) Turn off siren; (do NOT sound "all-clear").
❑	❑	16) Wait 10 min. after flame has stopped and sound "all-clear."
❑	❑	17) Another batch cannot be burned until 24 hours has elapsed.
❑	❑	18) Clean up ashes (after 24 hours) and place in satellite storage outside TA-23.
❑	❑	19) Cover burn cage with tarp.

Signature _____ Date _____
Firing Supervisor

Form Date 8/21/98 Approved by: _____Date _____

In the event of a misfire, the following procedure will be followed:

OK	N/A	
❑	❑	1) Do not sound the "all clear" and DO NOT LEAVE CONTROL ROOM.
❑	❑	2) Check all electrical connections and firing voltage in the control room.
❑	❑	3) Attempt to fire the ignitor again.
❑	❑	4) If the ignitor still does not fire, turn off all power to firing system.
❑	❑	5) Notify any personnel who are at Q-Site of the misfire.
❑	❑	6) Wait a time considered appropriate by the firing leader (nominally 10 minutes) while observing the burn cage for any signs of smoke or activity.
❑	❑	7) If during the waiting period no activity is observed, <u>one</u> person shall approach the burn cage and disconnect the detonator cable from the CDU.
❑	❑	8) Disconnect the ignitor from the detonator cable.
❑	❑	9) Check detonator leads and cable for continuity with an approved ohm meter.
❑	❑	10) If the problem has been identified and corrected, firing operations may be checked by firing one or more ignitors.
❑	❑	11) If the problem cannot be identified, notify the DX-2 and DX-4 Group Offices and DX-4 ES&H Officer, secure the area, and await further instructions.

ATTACHMENT 3

DX WASTE TREATMENT FORM

Date of Treatment ____________________ Treatment Operator ____________________

Location of Treatment: ☐ TA-14 (OD) ☐ TA-14 (OB) ☐ TA-36-8 (OD)

☐ TA-39-6 (OD) ☐ TA-36-12 (CAA)

****

WPF#/Waste Code(s): ________________________ Point of Origin: ____________________

Description of Waste: ____

____

Quantity/Volume: ____________ ☐ pounds ☐ grams ☐ kilograms
☐ gallons ☐ other ____________

(ensure weight limitations are met & for TA-36-12 indicate weight of wood and weight of Lexan/plexiglas)

****

WPF#/Waste Code(s): ________________________ Point of Origin: ____________________

Description of Waste: ____

____

Quantity/Volume: ____________ ☐ pounds ☐ grams ☐ kilograms
☐ gallons ☐ other ____________

(ensure weight limitations are met & for TA-36-12 indicate weight of wood and weight of Lexan/plexiglas)

****

WPF#/Waste Code(s): ________________________ Point of Origin: ____________________

Description of Waste: ____

____

Quantity/Volume: ____________ ☐ pounds ☐ grams ☐ kilograms
☐ gallons ☐ other ____________

(ensure weight limitations are met & for TA-36-12 indicate weight of wood and weight of Lexan/plexiglas)

****

Signature of Operator____________________________

Original to be included as part of the shot record.
Send copy to the DX Division Environmental Team @ MS P915, fax 7-0288 or dxenv@lanl.gov
within 5 working days of treatment operation.
If sending form by e-mail, the e-mail address from the sender/operator will suffice as the signature

ATTACHMENT H

ENVIRONMENTAL PERFORMANCE STANDARDS

TABLE OF CONTENTS

LIST OF TABLES

LIST OF ABBREVIATIONS/ACRONYMS

AEHA	U.S. Army Environmental Hygiene Agency
cm/hr	centimeters per hour
cm	centimeter
DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency
HWP	LANL's "Hydrogeologic Workplan"
LAAO	Los Alamos Area Office
LANL	Los Alamos National Laboratory
20 NMAC 4.1	New Mexico Administrative Code, Title 20, Chapter 4, Part 1
NMED	New Mexico Environment Department
NPDES	National Pollutant Discharge Elimination System
OD	open detonation
RCRA	Resource Conservation and Recovery Act
SOP	standard operating procedure
SWPP	Storm Water Pollution Prevention
TA	technical area

LIST OF SUPPLEMENTS

ATTACHMENT H

ENVIRONMENTAL PERFORMANCE STANDARDS

The TA-36 open detonation (OD) unit is located in a remote area of Los Alamos National Laboratory (LANL). The unit will be operated, maintained, and closed in a manner that will ensure protection of human health and the environment, in accordance with the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20 NMAC 4.1), Subpart V, 264.601, revised January 1, 1997 [1-1-97]. Geologic and hydrologic characteristics of the LANL facility and land use patterns in the Los Alamos area are discussed in Section 2.0 of the ALos Alamos National Laboratory General Part B Permit Application,≅ Revision 1.0 (LANL, 1998a), hereinafter referred to as the LANL General Part B.

The OD unit at Technical Area (TA) 36 has been designed to facilitate safe handling and treatment of wastes in order to prevent adverse human health and environmental impacts. Design information and waste management practices for this unit are detailed in Sections 2.1 and 2.2 of this permit application. The waste analysis plan for this unit is included as Appendix B of the LANL General Part B. A description of emergency response actions to be taken to minimize adverse impacts of unanticipated events are described in the contingency plan (see Attachment E of this document and Appendix E of the LANL General Part B).

Standard operating procedures (SOP) are followed at the TA-36 OD unit to minimize the potential for environmental contamination that may result from precipitation contacting treatment residues. Residues resulting from treatment activities may consist of metallic shards and occasional pieces of propellants, explosives, or pyrotechnics. SOPs for OD units require that the firing site leader thoroughly survey the area after each detonation and collect all identifiable pieces of explosives. The damaged explosives are then weighed and an estimate of the amount of material remaining at the unit is recorded in the site record logbook. Every effort is made to minimize the quantity of explosive and nonexplosive residues remaining at a unit. SOPs that are applicable for access and operations at the TA-36 OD unit are included as Attachment G. They are provided for informational purposes only.

H.1 PROTECTION OF GROUNDWATER/VADOSE ZONE [20 NMAC 4.1, Subpart V, 264.601(a)]

As required by 20 NMAC 4.1, Subpart V, 264.601(a) [1-1-97], the TA-36 OD unit is located in a remote area and is operated in a manner that prevents releases that may have adverse affects to

human health or the environment due to migration of waste constituents through the vadose zone to groundwater. The following sections provide information on the potential for adverse effects on human health or the environment as a result of operations at the TA-36 OD unit as well as describe monitoring and reporting efforts that have been or will be undertaken to assess the impact of OD operations.

H.1.1 Hydrogeologic Assessment and Potential Pathways and Exposure Routes

The TA-36 OD unit is located in a semiarid, temperate, mountain climate. The average annual precipitation in Los Alamos is 18.73 inches (LANL, 1996a). The evaporation rate of free-standing water exceeds the average annual precipitation. Permeability rates for soils in the vicinity of the TA-36 OD unit range from 5 to 15 centimeters per hour (cm/hr) in the top 10 cm to 1.5 to 15 cm/hr from 10 to 50 cm depth. The available water-holding capacity is 0.07 to 0.21 cm/cm (Nyhan et al., 1978). In addition, it is estimated that 600 to 1,200 feet of unsaturated tuff and volcanic rock separate the facility's soil surface from the regional aquifer. Collectively, the depth to the uppermost aquifer and the annual moisture deficit significantly limit the potential for contaminants to migrate through the vadose zone to groundwater.

An evaluation of possible waterborne waste transport pathways for groundwater and their potential for migration is included as Supplement H-1, which lists the possible contaminants of concern and shows their origin and nature.

The only aquifer in Los Alamos capable of municipal and industrial water supply is the regional aquifer. No supply wells or test wells are located within the boundary of TA-36 or within 3,500 feet of the TA-36 OD unit.

A detailed description of the hydrogeologic characteristics immediately below the OD unit at TA-36 is not currently documented in published or internal reports. However, a discussion of surface water, the vadose zone, and groundwater specific to Operable Unit 1130, which includes TA-36, and a conceptual hydrogeologic model of the area is presented in Sections 3.5 and 3.6 of the "RFI Work Plan for Operable Unit 1130" (LANL, 1993a). Published precipitation data for TA-36 do not exist; however, a precipitation measurement site is located at TA-49, southwest of TA-36, and annual precipitation at this site is 22.27 inches per year (LANL, 1998b). As stated above, no supply wells are located within 3,500 feet of the TA-36 OD unit, and there are no supply wells located within the boundaries of TA-36. The closest production well, PM-2, is located 6,250 feet northeast of the

TA-36 OD unit. The groundwater flow direction beneath LANL is generally east-southeast. It is highly unlikely that any measurable pumping effects from PM-2 will be seen at TA-36. Therefore, withdrawal rates are not applicable to the TA-36 OD unit at LANL.

H.1.2 Monitoring and Reporting

LANL has an established groundwater monitoring system to assess the quality of groundwater in the Los Alamos area. The monitoring network includes test wells, supply wells, gaging stations, observation wells, and other hydrogeologic devices located both inside and outside LANL boundaries. Figures A-9 and A-10 in Attachment A show existing and proposed wells and holes within an approximate three-mile radius of TA-36. Figure A-9 illustrates the locations of all types of wells; Figure A-10 shows the locations of pertinent wells (i.e., alluvial and regional wells proposed in LANL=s AHydrogeologic Workplan≅ (HWP) [LANL, 1998c], environmental surveillance groundwater monitoring wells, and water supply wells). These figures are provided for informational purposes only. Their incorporation into the permit would be inappropriate due to the potential dynamic nature of proposed well locations.

Routine samples are analyzed for toxic constituents, basic water quality, and resource depletion. The sampling results are published in annual environmental surveillance reports and annual water supply reports. These documents are provided regularly to the New Mexico Environment Department (NMED). A table listing the existing routinely monitored wells shown on Figure A-10 and the monitoring schedule for these wells is included as Table H-1. This table is provided for informational purposes only. Details on the Environmental Surveillance Groundwater Monitoring Plan can be found in the "Groundwater Protection Management Program Plan" (LANL, 1995).

The U.S. Army Environmental Hygiene Agency's (AEHA) "RCRA Part B Permit Writer's Guidance Manual for Department of Defense Open Burning/Open Detonation Units" (AEHA, 1987) states that "OD units, where proper operational procedures are followed (particularly management of residuals), are exempt from the ground-water protection requirements." It goes on to state that "ground-water monitoring at OD units was deemed to be both impractical and unnecessary." Proper operational procedures are followed at the TA-36 OD unit and materials not consumed in a detonation are collected for treatment by detonation. The proper operating procedures at the OD unit meet the criteria for exemptions from groundwater monitoring.

The NMED's August 17, 1995, letter to the U.S. Department of Energy (DOE) Los Alamos Area Office (LAAO) (see Supplement H-2) required LANL to develop a Resource Conservation and Recovery Act (RCRA) site-wide hydrogeologic workplan and to submit this workplan to the NMED and the U.S. Environmental Protection Agency (EPA) for review and approval. Part of the workplan objective was to address RCRA groundwater monitoring requirements for regulated units; implementation of the plan will also provide information on the hydrology below the OD unit at TA-36. The HWP was developed as a comprehensive, facility-wide approach rather than a unit-by-unit program. The most recent HWP (LANL, 1998c) was prepared and submitted to the NMED in December 1996, and was approved in March 1998.

The HWP proposes the construction and subsequent sampling of four (4) alluvial wells and four (4) regional aquifer wells upgradient from, adjacent to, and down gradient from TA-36 in Cañon de Valle, Water Canyon, and Potrillo Canyon. Well installation will characterize the alluvial, intermediate perched, and regional aquifer zones for a more complete understanding of the hydrogeologic setting. However, the proposed iterative characterization and well installation process will incorporate new data with existing data as input to modeling activities and will then be used to reassess additional data needs; therefore, it may be determined that one or more of the wells are not necessary. In any case, the general objectives of the eight (8) proposed wells near TA-36 are described in Sections 4.3.6.2 and 4.3.6.4 of the workplan and are summarized herein.

The planned alluvial wells include A-43 and A-44 down gradient in Potrillo Canyon, A-47 upgradient near the confluence of Cañon de Valle and Water Canyon, and A-48 upgradient in Water Canyon. Alluvial well A-43 is proposed to identify the presence and quality of alluvial groundwater and will serve to track contaminants moving in the alluvial groundwater. Alluvial well A-44 will be located about 0.25 mile west of the confluence with Fence Canyon and will be used to evaluate the presence and quality of alluvial groundwater. Alluvial well A-47 is proposed to evaluate the presence of alluvial water and to measure the saturated thickness, water quality, and parameters controlling infiltration and contaminant migration. Well A-48 will be used to determine the presence and downstream extent of alluvial water.

There is no final schedule for installation of the alluvial wells proposed in the HWP (LANL, 1998c). The wells were proposed in the workplan for potential characterization purposes (e.g., to identify the presence of alluvial water, measure alluvial parameters that control infiltration and contaminant migration, analyze the alluvial water quality, evaluate possible migration of contaminants, and/or

measure saturated thickness). The number of proposed wells may increase or decrease, and the locations of the proposed wells may change, depending on characterization needs. Schedules for installation of these proposed wells will be developed when the work plans for various canyons investigations are prepared; monitoring schedules will then be determined and discussed with the NMED only after installation and initial characterization are completed, and a determination is made that repetitive monitoring is necessary.

The planned regional aquifer wells include R-23 down gradient in Potrillo Canyon, R-27 upgradient and near the confluence of Cañon de Valle and Water Canyon, and R-28 and R-29 down gradient in Water Canyon. All of the regional aquifer wells will characterize the intermediate perched zone(s) as the wells are drilled. The purpose of well R-23 will be to investigate the presence of intermediate perched zones and to characterize the water quality of these zones down gradient from firing sites in Potrillo Canyon. Data from well R-23 will also be used to provide water quality data for the regional aquifer. Well R-27 will be located below the confluence of Water Canyon and Cañon de Valle, which is upgradient from the OD unit at TA-36. This well will be used to identify intermediate perched zones and the depth to the regional aquifer, and data from this well will be used to characterize the water quality of the intermediate perched zones and the regional aquifer. Wells R-28 and R-29 will be located down gradient of well R-27. Data from well R-28 will also be used to provide water quality information for any intermediate perched zones and the regional aquifer. Data from well R-29 will be used to provide water quality information for any intermediate perched water zones and the regional aquifer as well as to provide regional aquifer water-level information. In addition, water chemistry data from the intermediate perched zones and the regional aquifer at well R-29 will be compared to that from springs to identify potential flow paths near the Rio Grande.

The anticipated installation sequence for the regional wells proposed in LANL's HWP is presented in Table 4-2 of that plan. As LANL=s understanding of the hydrogeologic setting and contaminant distributions improves over time, additions, deletions, or location changes of some proposed regional wells may occur. A schedule for monitoring any proposed regional wells deemed necessary will be discussed with the NMED after installation and initial characterization are completed.

Well designs will follow specifications in Section 4.1.1 of the HWP. As presented in Sections 4.1.3 and 4.1.4 of the workplan, sample collection, preservation, shipment, quality assurance/quality control procedures, sampling and analysis procedures, data evaluation, and reporting will be

conducted according to Environmental Restoration Project Quality Assurance Project Plans, SOPs, RCRA Facility Investigation workplans, and sampling and analysis plans. The parameters that will be analyzed for include those listed in Table K-1 in Attachment K of this document. Monitoring well evacuation will be conducted in accordance with guidelines in EPA's "RCRA Ground-Water Monitoring Technical Enforcement Guidance Document" (EPA, 1986). Background groundwater values will be collected from planned alluvial well A-45 and planned regional aquifer well R-24. These background data will be used to calculate a background mean and variance, per the guidance in Appendix IV of 20 NMAC 4.1, Subpart V [1-1-97]. Data collected during activities performed for the HWP will provide more detailed information on groundwater direction and flow rate, and on plume migration rate in case of groundwater contamination.

Previous hydrogeologic studies at LANL (IT Corporation, 1987) have shown very low moisture content in the Bandelier Tuff, the empirical determination that moisture from precipitation does not infiltrate below a depth of 10 to 22 feet, and very low calculated flux rates. The combination of these factors suggests that aqueous transport of contaminants through the tuff is not a viable mechanism for contaminant migration from mesatops. Therefore, it is highly unlikely that shallow and regional groundwater systems in the vicinity of the TA-36 unit have been impacted by OD activities. Furthermore, the risk assessment conducted for TA-36 concludes that after nearly 50 years of operations at TA-36, the current level of contaminants for surface soil does not pose a threat to human health (see Attachment J). Therefore, rather than conducting vadose zone monitoring for the OD unit at TA-36, LANL proposes to first address surface systems (surface water, soil, and sediments) and use resulting surface systems analytical data in conjunction with existing data in an iterative manner to reassess additional data needs and thus optimize characterization and monitoring activities. Soil and sediment data will be collected as described in Attachment K for soil monitoring; surface storm water discharge data will be collected in accordance with the National Pollutant Discharge Elimination System (NPDES) Storm Water Pollution Prevention (SWPP) Plan for the site, as required by the NPDES Multi-Sector General Permit. The proposed iterative process for the OD unit at TA-36 will promote technical efficiency by first addressing the surface systems; proceeding with vadose zone monitoring would then be conducted only if continuing reassessments indicate a need, depending on the interpretation of the surface data. If surface sampling data indicate that RCRA contaminants resulting from OD treatment are present and if the mobility of these contaminants so warrants, a vadose zone monitoring program will then be established and conducted.

H.2 PROTECTION OF SURFACE WATER/WETLANDS [20 NMAC 4.1, Subpart V, 264.601(b)]

As required by 20 NMAC 4.1, Subpart V, 264.601(b) [1-1-97], the TA-36 OD unit is located in a remote area and is operated in a manner that prevents any releases that may have adverse affects on human health or the environment due to migration of waste constituents in surface waters or wetlands. The following sections provide information on the potential for adverse effects to human health or the environment as a result of operations at the OD unit as well as describe monitoring and reporting efforts that have been or will be undertaken at the unit to assess the impact of operations.

H.2.1 Hydrologic Assessment and Potential Pathways and Exposure Routes

Net annual precipitation for the Los Alamos area, including the site of the TA-36 OD unit, is low. In addition, surface waters within LANL are limited to ephemeral, interrupted, or intermittent flows in the canyon bottoms that result from rainfall or snowmelt. The locations of these surface waters, including intermittent streams, are shown on Figure A-2 in Attachment A. The TA-36 site is located near the headwaters of Fence Canyon, which connects geographically to Potrillo Canyon but does not discharge to it.

Canyon bottom surface waters from Potrillo Canyon downstream of the firing site at TA-36 eventually flow into Water Canyon. A gaging station in Water Canyon, located about 2.5 miles upstream of the Rio Grande, recorded a maximum discharge of 0.21 cubic feet per second in the 1995 water year. There was no flow most of the time (LANL, 1996a). In the 1998 water year, there was no flow all year (LANL, 1998d).

The TA-36 OD unit is a part of the University of California/DOE NPDES Multi-Sector General Permit for storm water discharges associated with industrial activity (Permit Numbers NMR05A509 and NMR05A510, effective January 1, 1999). An SWPP Plan, as required by the NPDES Multi-Sector General Permit, has been developed for the TA-36 OD unit. The plan is designed to identify any potential pollutants and to provide pollution prevention or control methods to prevent the discharge of pollutants in storm water runoff at the unit and the surrounding area. Under the SWPP Plan, the facility is required to implement best management practices to reduce the likelihood of pollutants entering the storm water discharges. To this end, the following practices have been adopted at the TA-36 OD unit:

Good Housekeeping

- Regular maintenance of the area is performed to ensure that it is clean and orderly
- SOPs have been written specifying proper waste handling to minimize the exposure of waste and waste residues to precipitation
- Regular inspections of the area are performed to ensure SOPs are being followed

Spill Prevention and Response

- Personnel are trained in material handling and release notification procedures

Visual Inspections

- Pollution prevention personnel inspect and log information concerning site drainage, erosion, non-storm-water discharges, and changes in adjacent facilities that may affect the potential for storm water pollution.

Under the NPDES Multi-Sector General Permit, the measures described in Supplement H-3 also apply to the TA-36 OD unit.

An evaluation of possible waterborne waste transport pathways for surface water and their potential for migration is included as Supplement H-1, which lists some possible contaminants of concern and shows their origin and nature.

As stated previously, the TA-36 OD unit is located in the vicinity of the headwaters of Fence Canyon. Fence Canyon is geographically connected to Potrillo Canyon, which discharges to Water Canyon; however, Fence Canyon does not have a discharge into Potrillo Canyon. The stream flow in Fence Canyon and Potrillo Canyon is ephemeral and occurs only as the result of rainfall or snow melt. A discharge sink, which is a geomorphologic feature, has been identified in Potrillo Canyon. The discharge sink absorbs stream flow and traps incoming sediments. Immediately downstream from the sink, there is no evidence of stream flow. Surface waters from the upstream portion of the Potrillo Canyon watershed do not contribute to flows that reach the Rio Grande through Water Canyon (LANL, 1993a).

Contaminants that may potentially be released from the TA-36 OD unit are likely to include residual explosives or RCRA metals (e.g., lead) (LANL, 1994, 1993b). These contaminants may reach nearby surface waters in one or more of the following ways: (1) direct (airborne) deposition from OD operations; (2) transport by surface water runoff; and (3) wind erosion and deposition of

contaminated soils. The nature and extent of soil contamination at the TA-36 firing site is presented in Section H.3.

H.2.2 Monitoring and Reporting

Under the current NPDES Multi-Sector General Permit, surface water monitoring is required and will be conducted following LANL=s Watershed Management Plan (LANL, 1999 [in preparation]). Currently, there are no surface water data available for the TA-36 OD site. The following paragraphs detail surface water reporting and proposed monitoring strategies for the TA-36 OD unit, in accordance with the requirements in 20 NMAC 4.1, Subpart V, 264.602 [1-1-97].

In order to maintain compliance with the NPDES Multi-Sector General Permit, semiannual site inspections are conducted at TA-36 to evaluate the effectiveness of the SWPP Plan. The inspections are documented in an inspection report that describes any major observations, incidents of noncompliance with the SWPP Plan, corrective actions, and any observations or changes made with respect to the SWPP Plan.

The SWPP Plan for the TA-36 OD unit proposes quarterly storm water quality sampling near the unit. Monitoring strategies proposed in the AWatershed Management Plan≅ (LANL, 1999 [in preparation]) include sampling at existing environmental surveillance surface water stations and at NPDES storm water runoff stations to provide storm water monitoring by watershed rather than by individual sites. As conditions allow, each station will be sampled four (4) times per year on a quarterly basis. Should conditions preclude quarterly seasonal sampling, samples will be collected four (4) times per year as flow is available. Where stations experience little or no flow, samples will be collected whenever there is flow, up to four (4) times per year.

H.3 PROTECTION OF SOIL SURFACE [20 NMAC 4.1, Subpart V, 264.601(b)]

As required by 20 NMAC 4.1, Subpart V, 264.601(b) [1-1-97], the TA-36 OD unit is located in a remote area and is operated in a manner that minimizes or prevents releases that may have adverse affects to human health or the environment due to migration of waste constituents on the soil surface. The following sections provide information on the potential for adverse effects to human health or the environment as a result of operations at the TA-36 OD unit as well as describe monitoring and reporting efforts that have been or will be undertaken to assess the impact of operations at the unit.

H.3.1 Geologic Assessment and Potential Pathways and Exposure Routes

The texture of the soils in Los Alamos County range from very fine clay and sandy loams to gravelly, sandy loams and stony, clay loams. Soil erosion by storm water or winds could potentially transport contaminants from the TA-36 OD unit to surrounding areas. Natural sediment storage features created by surface water runoff, such as stream bank and bar deposits or drainage channels, could contain heavy metals or explosives residues redistributed from the TA-36 OD unit.

SOPs for the unit have been developed and are followed to limit the amount of contamination that may enter or remain in the soil after a detonation. Preventative measures include good housekeeping procedures (as specified in SOPs) and using a sufficient charge to ensure complete destruction and effective treatment of the wastes.

H.3.2 Monitoring and Reporting

The following paragraphs detail soil monitoring efforts that have been or are proposed to be performed at the TA-36 OD unit, in accordance with the requirements in 20 NMAC 4.1, Subpart V, 264.602 [1-1-97].

In August and September of 1992, soil, sediment, and rinsate samples were collected from the TA-36 OD unit area (LANL, 1993b). Samples were laboratory-analyzed for Toxicity Characteristic Leaching Procedure metals, total metals (aluminum, barium, beryllium, copper, iron, and lead), semivolatile organic compounds, total uranium, and explosives residues. The results of the 1992 soil sampling surveys are summarized in Supplements H-4 and H-5; the analytical results are included in Attachment L. Potential contamination is believed to be limited to the surface (i.e., the first few inches) of the site.

LANL proposes a Soil Monitoring Program as the preferred approach to meet the monitoring and analysis requirements of 20 NMAC 4.1, Subpart V, 264.602 [1-1-97]. The proposed ASoil Monitoring Program and the Post-Detonation Soil Sampling and Analysis Plan for the Open Detonation Unit at Technical Area 36" are included herein as Attachment K.

H.4 PROTECTION OF THE ATMOSPHERE [20 NMAC 4.1, Subpart V, 264.601(c)]

As required by 20 NMAC 4.1, Subpart V, 264.601(c) [1-1-97], the TA-36 OD unit is located in a remote area within LANL boundaries and is operated in a manner that prevents any releases that may have adverse affects to human health or the environment due to migration of waste

constituents to the atmosphere. The following sections provide information on the potential for adverse effects to human health or the environment as a result of operations at the TA-36 OD unit as well as describe monitoring and reporting efforts that have been or will be undertaken to assess the impact of operations at the unit.

H.4.1 Meteorologic Assessment and Potential Pathways and Exposure Routes

Surface winds in Los Alamos are light, averaging seven miles per hour. The predominant prevailing wind direction is from the southwest to the northeast. Under normal conditions, resuspension of particulates is limited. Figures A-5 and A-6 in Attachment A of this permit application show the wind roses for TA-49, where the wind observation tower closest to the TA-36 OD unit is located.

By definition, OD units do not utilize air pollution control equipment. Releases resulting from the treatment of waste at the TA-36 OD unit are not likely to exceed a maximum exposure duration of 15 minutes and would most likely be a one-time exposure for any individual receptor. Various types of explosives mixtures are treated at the TA-36 OD unit. The regulated pollutants produced as a result of these detonations are the criteria pollutants (e.g., carbon monoxide, nitrogen oxides, and particulate matter), some heavy metals (e.g., lead), and a small amount of hazardous air pollutants (e.g., hydrogen chloride, hydrogen fluoride).

An EPA-type gaussian plume model was employed with a puff type release function to simulate the airborne release resulting from the TA-36 OD unit. The worst-case waste treatment and receptor location were used in the scenario (i.e., a 2,000-pound treatment). Release heights and release fractions for a detonation cloud resulting from a typical 50-pound explosive detonation were determined. Airborne effluents were assumed to be transported directly to the potential receptors, using median dispersion factors for the Los Alamos area. Source terms or the pollutants generated during treatment activities were estimated using published emission factors (AP-42, developed by EPA [EPA, 1995]), mass balance calculations, process knowledge, and engineering estimates. Impacts were evaluated for pollutants generated as a result of treatment and regulated under National and New Mexico Ambient Air Quality Standards. The results of this analysis indicate that none of the regulated air contaminant concentrations exceed federal or state ambient air quality standards.

H.4.2 Monitoring and Reporting

The following details atmospheric monitoring efforts that have been or are scheduled to be performed at the TA-36 OD unit, in accordance with the requirements in 20 NMAC 4.1, Subpart V, 264.602 [1-1-97].

Air quality impact modeling, provided as Supplement H-6, shows that a worst-case scenario using the maximum allowable treatment capacity of the OD unit at TA-36 resulted in concentrations far below the ambient air quality standards. In addition, the National Park Service, the NMED, and LANL all agreed in 1994 that the low levels of ambient air criteria pollutants measured over a three-year period at the site of the nearest receptor did not warrant further ambient air monitoring. Therefore, ambient air quality monitoring is not warranted at the TA-36 OD unit.

H.4.3 Operating Conditions/Effectiveness and Reliability of Systems and Structures

Operating conditions for the TA-36 OD unit include not conducting detonation operations during adverse weather conditions (e.g., electrical storms, high winds) and accepting only a maximum of up to 2,000 pounds of waste explosives per treatment by detonation. Beginning in 1990, NMED operated the LANL-owned criteria pollutant (ambient air) monitoring station at TA-49, adjacent to Bandelier National Monument and approximately 10,000 feet west-southwest of the TA-36 OD unit. The original purpose of this site was to collect baseline data for Bandelier National Monument over a three-year period. In 1994, the National Park Service, the NMED, and LANL all agreed that the original purpose of the study was fulfilled and that the low levels of pollutants measured did not warrant further study at the site (LANL, 1996b). Therefore, the ambient air monitoring was discontinued on September 30, 1994.

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Table H-1

Pertinent Existing Wells Within a Three-Mile Radius of Technical Area 36

Existing Well ID	Well Type	Purpose	Monitoring/Sampling Frequency	Analyses	Notes
MCO-4/-4B	Alluvial	Observation	Annually	Radiochemistry (R), Metals (M), General Inorganics (GI)	Old MCO-4 out of service; MCO-4B installed pursuant to requirements in the HSWA Module.
	---	---	Triennially	Organics (O)	
	---	---	Quarterly for 1995	R, M, GI, O	
MCO-4A	Alluvial	Observation	Quarterly for 1995	R, M, GI, O	HSWA Module[a]. Well is dry.
MCO-5	Alluvial	Observation	Annually	R, M, GI	
	---	---	Triennially	O	
MCO-6	Alluvial	Observation	Annually	R, M, GI	
	---	---	Triennially	O	
	---	---	Quarterly for 1995	R, M, GI, O	
MCO-6A	Alluvial	Observation	Quarterly for 1995	R, M, GI, O	HSWA Module. Well is dry.
MCO-6B	Alluvial	Observation	Quarterly for 1995	R, M, GI, O	HSWA Module.
MCO-7	Alluvial	Observation	Annually	R, M, GI	
	---	---	Triennially	O	
	---	---	Quarterly for 1995	R, M, GI, O	
MCO-7A	Alluvial	Observation	Quarterly for 1995	R, M, GI, O	HSWA Module.
MCO-7.5/-7.5A	Alluvial	Observation	Annually	R, M, GI	MCO-7.5 demolished by falling tree; MCO-7.5A now sampled.
	---	---	Triennially	O	

Table H-1 (Continued)

Pertinent Existing Wells Within a Three-Mile Radius of Technical Area 36

Existing Well ID	Well Type	Purpose	Monitoring/Sampling Frequency	Analyses	Notes
MCO-8/-8A	Alluvial	Observation	Annually	M, GI, Module II Organics	MCO-8 damaged beyond repair in 1976. MCO-8A for Module II. Well is usually dry.
WCO-1	Alluvial	Observation	Quarterly for 1995	R, M, GI, O	HSWA Module. Well is dry.
CDBO-4	Alluvial	Observation	Annually	R, M, GI	Well is dry.
	---	---	Triennially	O	
CDBO-5	Alluvial	Observation	Annually	R, M, GI	Well is dry.
	---	---	Triennially	O	
CDBO-6	Alluvial	Observation	Annually	R, M, GI	Volume sometimes insufficient to sample.
	---	---	Triennially	O	
CDBO-7	Alluvial	Observation	Annually	R, M, GI	Well is sometimes dry.
	---	---	Triennially	O	
CDBO-8	Alluvial	Observation	Annually	R, M, GI	Well is dry.
	---	---	Triennially	O	
CDBO-9	Alluvial	Observation	Annually	R, M, GI	Well is dry.
	---	---	Triennially	O	
LAO-2	Alluvial	Observation	Annually	R, M, GI	
	---		Triennially	O	
LAO-3	Alluvial	Observation	Annually	R, M, GI	
	---	---	Triennially	O	

Table H-1 (Continued)

Pertinent Existing Wells Within a Three-Mile Radius of Technical Area 36

Existing Well ID	Well Type	Purpose	Monitoring/Sampling Frequency	Analyses	Notes
LAO-4	Alluvial	Observation	Annually	R, M, GI	
	---	---	Triennially	O	
LAO-4.5	Alluvial	Observation	Annually	R, M, GI	
	---	---	Triennially	O	
DT-5A	Regional	Monitoring	Annually	R, GI	
	---	---	Triennially	M, O	
DT-9	Regional	Monitoring	Annually	R, GI	
	---	---	Triennially	M, O	
DT-10	Regional	Monitoring	Annually	R, GI	
	---	---	Triennially	M, O	
TW-1	Regional	Monitoring	Annually	R, GI	
	---	---	Triennially	M, O	
TW-1A	Intermediate	Monitoring	Annually	R, GI	
	---	---	Triennially	M, O	
TW-3	Regional	Monitoring	Annually	R, GI	
			Triennially	M, O	
TW-8	Regional	Monitoring	Annually	R, GI	
	---	---	Triennially	M, O	

Table H-1 (Continued)

Pertinent Existing Wells Within a Three-Mile Radius of Technical Area 36

Existing Well ID	Well Type	Purpose	Monitoring/Sampling Frequency	Analyses	Notes
PM-1	Regional	Water Supply	Annually	R, M, GI	
	---	---	Triennially	O	
PM-2	Regional	Water Supply	Annually	R, M, GI	
	---	---	Triennially	O	
PM-3	Regional	Water Supply	Annually	R, M, GI	
	---	---	Triennially	O	
PM-4	Regional	Water Supply	Annually	R, M, GI	
	---	---	Triennially	O	
PM-5	Regional	Water Supply	Annually	R, M, GI	
	---	---	Triennially	O	
O-1	Regional	Water Supply	Annually	R, M, GI	
	---	---	Triennially	O	
O-4	Regional	Water Supply	Annuallly	R, M, GI	
	---	---	Triennially	O	
SCO-1	Alluvial	Observation	Annually	R, M, GI	Well is dry.
	---	---	Triennially	O	
SCO-2	Alluvial	Observation	Annually	R, M, GI	Well is dry.
	---	---	Triennially	O	
APCO-1	Alluvial	Observation	Annually	R, M, GI	
	---	---	Triennially	O	

Table H-1 (Continued)

Pertinent Existing Wells Within a Three-Mile Radius of Technical Area 36

Existing Well ID	Well Type	Purpose	Monitoring/Sampling Frequency	Analyses	Notes
PCO-1	Alluvial	Observation	Annually	R, M, GI	
	---	---	Triennially	O	
PCO-2	Alluvial	Observation	Annually	R, M, GI	
	---	---	Triennially	O	
PCO-3	Alluvial	Observation	Annually	R, M, GI	
	---	---	Triennially	O	
WCO-2	Alluvial	Observation	Annually	R, M, GI	Well is dry.
	---	---	Triennially	O	
WCO-3	Alluvial	Observation	Annually	R, M, GI	Well is dry.
	---	---	Triennially	O	
CDBM-1	Alluvial	Moisture Access	Annually	R, M, GI	Well is dry.
	---	---	Triennially	O	
CDBM-2	Alluvial	Moisture Access	Annually	R, M, GI	Well is dry.
	---	---	Triennially	O	

Note: See Figure A-10 in Attachment A for the locations of these wells.

[a] HSWA Module = Hazardous and Solid Waste Amendments Module VIII in the Hazardous Waste Facility Permit for Los Alamos National Laboratory (NM0890010515)

SUPPLEMENT H-1

Potential Contaminant Migration Transport Pathways for Surface Water and Groundwater

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LIST OF TABLES

LIST OF ABBREVIATIONS/ACRONYMS

2,4-DNT	2,4-dinitrotoluene
amsl	above mean sea level
Ba $(NO_3)_2$	barium dinitrate
EPA	U.S. Environmental Protection Agency
ER	environmental restoration
EF	degree(s) Fahrenheit
ft	feet
HE	high explosives
in.	inch(es)
kg	kilogram
LANL	Los Alamos National Laboratory
20 NMAC 4.1	New Mexico Administrative Code, Title 20, Chapter 4, Part 1
µg/g	micrograms per gram
mi	mile(s)
OB	open burning
OD	open detonation
PCB	polychlorinated biphenyls
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
SAL	screening action level
SVOC	semivolatile organic compound
TA	technical area
TCLP	Toxicity Characteristic Leaching Procedure
U	total uranium
VOC	volatile organic compound
yr	year(s)

1.0 INTRODUCTION

1.1 PURPOSE

This supplement addresses the requirements of the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20 NMAC 4.1), Part 264, Subpart X, "Miscellaneous Units," revised January 1, 1997 [1-1-97]. The requirements of this subpart apply to owners and operators of facilities that treat, store, or dispose of hazardous waste in miscellaneous units. A model was constructed to simulate the migration of a contaminant that may result from contaminant spills followed by an unusually heavy rainstorm at the open burning (OB)/open detonation (OD) units at Los Alamos National Laboratory (LANL). This model specifically addresses the requirements of Subpart X that deal with potential contaminant migration transport pathways.

Table H-1-1 is a cross-reference guide, listing the requirements of Subpart X and the section where each requirement is addressed, either in the main body of the Part B permit application, or in this supplement.

1.2 SCOPE

Subpart X of 20 NMAC 4.1, Subpart V, Part 264 [1-1-97], requires permit applicants to show that they prevent any releases that may have adverse effects on human health or the environment due to migration of waste constituents in the groundwater, surface water, soil, or subsurface environment.

This supplement evaluates possible waterborne waste transport pathways and their potential for contaminant migration by use of a simple model. The supplement lists the possible contaminants of concern and shows their origin and nature. It presents scenarios for possible waterborne migration based on site geology, hydrology, and meteorology.

The model simulates the migration of a contaminant that may result from a contaminant spill followed by an unusually heavy rainstorm at two OD units. Contaminant concentrations were then estimated at the point where contaminants mix with runoff from the watershed associated with each OD unit, and where the runoff may reach receptors.

Maximum possible concentrations are estimated for contaminants of concern in the model and compared to LANL screening action levels (SAL).

2.0 SITE SELECTION RATIONALE

The OD units at Technical Area (TA) 39-6 and TA-39-57 were chosen for use in this demonstration because of their locations (see Figure A-2 in Attachment A of the "Part B Permit Application: Technical Area 39 Open Detonation Units" [LANL, 1999]). These sites are in the bottom of a tributary of Ancho Canyon and are in close proximity to intermittent streams. A heavy rainstorm of sufficient volume could possibly transport potential contaminants to the Rio Grande approximately three miles (mi) away. It is expected that runoff at these OD units in the canyon bottom have a greater chance of reaching the Rio Grande than runoff from the sites on the mesa tops. For this model, contaminant concentrations were estimated at each OD unit, at State Road 4, and at the Rio Grande.

3.0 SITE CONDITIONS

3.1 GEOLOGY

LANL is located on the Pajarito Plateau on the eastern flank of the Jemez Mountains. This area is dominated by volcanic deposits associated with caldera formation and collapse; these deposits form broad plateaus surrounding the Jemez Mountains. The Pajarito Plateau consists of narrow mesas separated by deep canyons formed by southeast-trending intermittent streams. TA-39 is drained by a number of intermittent streams and tributaries of the main stream channel that runs through Ancho Canyon and joins the Rio Grande in White Rock Canyon. All of the canyons through which these tributaries flow contain alluvium of unknown thickness. Other canyons on the plateau with a similar geology and topography (Mortandad, Cañada del Buey, and Pajarito) contain alluvial deposits that vary greatly in thickness, from less than 3 feet (ft) thick to greater than 100 ft thick (Devaurs and Purtymun, 1985).

LANL is perched on a plateau consisting of mostly upper Tshirege and lower Otowi members of the Bandelier Tuff. At TA-39, the Bandelier Tuff ranges in thickness from several ft along the northeastern margin of the site to 600 ft just west of TA-39 in Borehole DT9 (Purtymun, 1984).

3.2 HYDROLOGY

Ancho Canyon heads on the Pajarito Plateau on LANL property near the center of the southern LANL boundary and extends across the property to its confluence with the Rio Grande. The total drainage area of this canyon is approximately 7 square mi (LANL, 1993). The main channel length is approximately 6.9 mi long. The floor elevation of the canyon starts at just above 7,100 ft and drops to just below 5,400 ft at its confluence with the Rio Grande.

Ancho Canyon contains an ephemeral stream that is approximately 0.8 mi upstream from the canyon=s confluence with the Rio Grande and is within LANL boundaries. At this point, perennial flow to the Rio Grande is supported by a perennial spring, known as Ancho Spring. Ancho Canyon has no significant snowmelt runoff (LANL, 1996).

The surface of the main aquifer rises westward from the Rio Grande within the Santa Fe Group into the lower part of the Puye Conglomerate below the central and western part of the plateau. The main aquifer depths below the mesa top range from about 1,200 ft along the western margin of the plateau to about 600 ft at the eastern margin. The main aquifer is separated from the alluvium by 350 to 620 ft of tuff and volcanic sediments. The main aquifer is unconfined in the western part of the plateau and exhibits semiartesian to artesian conditions in the eastern part along the Rio Grande (Purtymun, 1994).

Available hydrologic data indicate that the major recharge area for the main aquifer is west of LANL, presumably in the Jemez Mountains, although this is still being investigated. Water in the main aquifer moves from its major recharge area toward the Rio Grande, where part is discharged into the river through seeps and springs. The hydraulic gradient of the aquifer averages about 60 to 80 ft/mi within the Puye Conglomerate but increases to 80 to 100 ft/mi along the eastern edge of the plateau as the water in the aquifer enters the less permeable sediments of the Santa Fe Group. The rate of water movement in the upper section of the aquifer varies, depending on the aquifer materials. Aquifer tests indicate the movement ranges from 20 ft/year (yr) in the Tesuque Formation to 345 ft/yr in the more permeable Puye Conglomerate (Purtymun, 1984). No supply wells or test wells are located within the boundaries of TA-39 or within 3,500 ft of the OD units at TA-39.

Perched groundwater zones of limited extent are known to occur below canyon alluvium and above the main aquifer in the Guaje Pumice bed at the base of the Bandelier Tuff and in the underlying conglomerates and basalts in parts of Pueblo Canyon, Los Alamos Canyon, and Sandia Canyon. Samples from these zones are routinely collected from two test wells and one spring that discharges from one of the zones (LANL, 1995).

Shallow alluvial groundwater zones are known to exist in Pueblo Canyon, Los Alamos Canyon, Mortandad Canyon, and Pajarito Canyon. Shallow groundwater may exist in parts of Water Canyon, Sandia Canyon, Potrillo Canyon, and Cañon de Valle; however, several boreholes and observation wells have failed to confirm its presence. Alluvium in Ancho Canyon probably contains groundwater

due to recharge from storm runoff. While the extent of saturation in the alluvium is not known at present, it is probably small and occurs seasonally.

3.3 METEOROLOGY

3.3.1 Precipitation

Total annual precipitation, which includes rainfall and water-equivalent snowfall, averages approximately 19 inches (in.) at Los Alamos. Annual precipitation declines eastward, with the normal White Rock precipitation at 13.5 in., and increases westward to more than 25 in. in the Jemez Mountains. The higher precipitation toward the mountains is very noticeable during the summer when thundershowers develop over the mountains. Showers tend to form, or be stronger, over the mountains for much of the year. Winter storms associated with upslope winds drop more snow at higher elevations on the plateau.

Los Alamos precipitation is characteristic of a semiarid climate. Variations in precipitation from year to year are quite large. Annual precipitation extremes range from 6.80 to 30.34 in. over a 71-year period. In 1986, 30.01 in. fell at the North Community site, near the Jemez Mountains (LANL, 1994).

3.3.2 Temperature

Despite Los Alamos' southern location, temperatures are cool at the 7,400-ft above mean sea level (amsl) elevation. Mean temperatures vary with altitude, averaging 5 degrees Fahrenheit (EF) higher in and near the Rio Grande Valley (6,500 ft amsl) and 5EF to 10EF lower in the nearby Jemez Mountains (8,500-10,000 ft amsl).

Winter temperatures typically range from 15EF to 25EF during the night and from 30EF to 50EF during the day. Cold arctic air masses occasionally invade the Los Alamos area from the north and northeast, but often a shallow layer of coldest air is dammed to the east by the Sangre de Cristo Mountains. Occasionally, Los Alamos temperatures drop to 0EF or below.

Summers have moderately warm days and cool nights. Afternoon temperatures are in the 70s and 80s (EF) and occasionally reach 90EF. The relatively thin air, light winds, clear skies, and dry atmosphere cause nighttime temperatures to drop to the 50s (EF), even after the warmest day (LANL, 1994).

3.4 WATER, SOIL, AND AIR QUALITY

Surface water, groundwater, soil, and sediments are routinely sampled at LANL as part of environmental surveillance and environmental restoration (ER) activities. Data on the concentrations of various chemical constituents of interest in these media are published annually in environmental surveillance reports (e.g., Environmental Surveillance at Los Alamos during 1992 [LANL, 1994]), and at scheduled times in ER Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) reports.

4.0 POTENTIAL CONTAMINANTS

LANL's Environmental Protection Group collected surface soil, sediment, and rinsate samples at the TA-39-6 and TA-39-57 OD units for the Corrective Activities Program.

At each site, four transects radiating outward from the center of the detonation areas were sampled. Sampling plans (Fresquez, 1993) indicate that samples were screened for gross alpha, gross beta, and gross gamma. Samples were analyzed for:

- ∃ Toxicity Characteristic Leaching Procedure (TCLP) metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver)
- ∃ Total beryllium, lead, and mercury
- ∃ Semivolatile organic compounds (SVOC)
- ∃ Volatile organic compounds (VOC)
- ∃ Polychlorinated biphenyls (PCB)
- ∃ Total uranium (U)
- ∃ High explosive (HE) residues.

Summary memos (Fresquez, 1994) discuss the analytical results.

At TA-39-57, no metals were detected above U.S. Environmental Protection Agency (EPA) action levels. Five SVOCs were detected in samples; only 2,4-dinitrotoluene (2,4-DNT) was detected above EPA action levels. Four VOCs were detected at parts per billion levels and were below EPA action levels. No PCBs were detected. The average concentration of total U over this site was 134.2 (∀ 243.8) micrograms per gram (µg/g) compared to an upper limit for total U in background

samples in the Los Alamos area of 3.4 µg/g. Some HE residues were detected within 80 ft of the detonation area.

At TA-39-6 four soil samples exceeded TCLP-lead proposed EPA action levels. All other metals analyzed were below EPA action levels. Four different SVOCs were detected below EPA action levels. Five VOCs were detected at parts per billion levels and were below EPA action levels. One soil sample contained traces of PCBs at 1.1 mg/g. No HE residues were detected. Total U in samples ranged in concentration from 0.833 to 72.3 µg/g, with the average concentration over the site being 15.35 (∀ 21) µg/g.

The results of these sampling events give a limited picture of potential contaminants at the sites. Additional sampling is proposed at these sites to meet ER requirements for potential release site characterization. It is proposed that samples be analyzed for a more complete analytical suite, collected at depth as well as at surface levels, and collected at biased locations.

5.0 ACTION LEVELS

The ER Project at LANL takes its primary direction from EPA guidance (EPA, 1989). Subsequent guidance, ACorrective Action for Releases from Solid Waste Management Units at Hazardous Waste Management Facilities; Proposed Rule≅ (Subpart S) (EPA, 1990), a proposed regulation under RCRA, presents a methodology for calculating action levels to determine the need for further evaluation of contamination in various environmental media (i.e., groundwater, surface water, air, and soil). The action levels are calculated using chemical-specific toxicity values and default exposure parameters. In order to comply with the LANL Hazardous and Solid Waste Amendments Module (Module VIII, effective May 23, 1990), SALs have been developed that follow the Subpart S methodology for exposure parameter defaults but incorporate more recent toxicity values available from the EPA's Integrated Risk Information System database (EPA, 1993) and Health Effects Assessment Summary Tables (EPA, 1992), which are updated periodically.

In deriving SALs for constituents in water, it is assumed that a 70-kilogram (kg) adult ingests water at a rate of 2 liters per day over a 70-year exposure duration. These SALs apply to constituents in both groundwater and surface water.

SAL derivations are based on assumptions and equations contained in proposed Subpart S. A complete discussion of assumptions and equations is given in the AInstallation Work Plan for Environmental Restoration,≅ Appendix J (LANL, 1993).

6.0 HYPOTHETICAL SCENARIO

The model simulates contaminant migration resulting from a contaminant spill followed by an unusually heavy rainstorm at two OD units. Contaminant concentrations were estimated at the point where contaminants mix with runoff from the watershed associated with each OD unit, and where the runoff may reach receptors.

6.1 CONTAMINANTS OF CONCERN FOR SCENARIO

Contaminants of concern for the OD units are those that may potentially migrate from the site in quantities above established SALs. Barium dinitrate and 2,4-DNT were chosen for this scenario. Barium dinitrate is a major compound present in HE before it is flashed, and 2,4-DNT was one of the SVOCs detected above EPA action levels in the Environmental Protection Group=s sampling activities, discussed in Section 4.0.

In the scenario it is assumed that significant quantities of barium dinitrate ($Ba[NO_3]_2$) and 2,4-DNT are spilled onto the soil surface. Rainfall in a 2-year 6-hour storm then falls on the spill, completely dissolving the $Ba(NO_3)_2$ and dissolving the 2,4-DNT to saturation. The water is then assumed to run off the spill area without attenuation of the contaminant concentrations and mix at two points downstream with runoff from the storm over a 24-hour period.

6.2 PRECIPITATION EVENT FOR SCENARIO

A 2-year 6-hour precipitation event will drop 0.82 in. of rain at TA-39-6 and 0.98 in. of rain at TA-39-57 (McLin, 1996). Table H-1-2 lists the discharges and the discharge volumes over a 24-hour period at locations downstream entering the main drainage, resulting from the hypothetical 2-year 6-hour precipitation event.

6.3 CONCENTRATION CALCULATIONS FOR SCENARIO

For the calculation it is assumed that barium and 2,4-DNT spills at TA-39-6 and at TA-39-57. Each consists of 0.5 kg of barium [as soluble $Ba(NO_3)_2$] plus pieces of 2,4-DNT with a total surface area each of 0.06 square ft. The mass of 2,4-DNT is sufficient to become saturated by rain falling on the surface area of the 2,4-DNT pieces over the entire storm event. The solubility of 2,4-DNT is 240 mg per liter. The solution is then diluted as the runoff moves away from the site and is combined with runoff from larger watersheds. Concentrations calculated at the site, at State Road 4, and at the Rio Grande are shown in Table H-1-3.

7.0 GROUNDWATER TRANSPORT

The potential for precipitation to carry contaminants from the canyon bottoms downward to groundwater aquifers is low due to the thickness and extreme dryness of the underlying soil and rock. Depth of penetration of the infiltrating waters will depend on the amounts and duration of rainfall and whether the waters intercept a fracture or fault.

Water will be present in the canyon bottom more frequently than during the 2-year 6-hour hypothetical precipitation event. This will dilute the waters that may contribute to groundwater, resulting in significantly lower concentrations. Barium will likely precipitate out of the infiltrating waters primarily as sulfate and build up in the upper soil horizon. 2,4-DNT will chemically precipitate in the soil horizon and will be degraded in a matter of months. While the canyon bottom is the most likely pathway to groundwater aquifers, the concentration of contaminants in these waters will be very low.

Additional sampling will further define constituents of concern and indicate areas where further analysis may be necessary.

8.0 CONCLUSIONS

The calculated concentrations are the results of an unlikely scenario where significant quantities of toxic materials remain on the ground after detonation. The concentrations calculated are higher than any values anticipated as a result of inadvertent releases from OD unit operations. Under this scenario, the concentration of only barium among the contaminants of concern are close to the SALs at one of the points calculated. These calculations ignore topography, degradation, and sorption to soils or sediments, as well as physical mass transport of HE solid particles. It was also assumed that momentary contact with rainwater is sufficient to cause full dissolution or chemical saturation. While these calculations are conservative, they do emphasize the importance of carefully evaluating the results of the planned sampling events.

While the concentrations are, in some cases, close to SALs, it should be noted that the SALs represent concentrations assuming that a 70-kg adult ingests water at a rate of 2 liters per day for 70 years. The numbers given were developed for a single precipitation event lasting 6 hours and occurring, on average, once every two years.

This simple analysis provides a conceptual model for evaluating the potential contribution to surface and groundwaters for contaminants that may be present at the sites. More comprehensive modeling

including the kinetics of dissolution, degradation, sorption to soils, particle transport, bioaccumulation, and groundwater contributions would be necessary to define a more accurate picture.

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Table H-1-1

Subpart X Cross Reference

Subpart X Requirement	Where Addressed
ə 264.601 Environmental performance standards. A miscellaneous unit must be located, designed, constructed, operated, maintained, and closed in a manner that will ensure protection of human health and the environment. Permits for miscellaneous units are to contain such terms and provisions as necessary to protect human health and the environment, including, but not limited to, as appropriate, design and monitoring requirements, and requirements for responses to releases of hazardous waste or hazardous constituents from the unit. Permit terms and provisions shall include those requirements of Subparts I through O of this Part, Part 270, and part 146 that are appropriate for the miscellaneous unit being permitted. Protection of human health and the environment includes, but is not limited to:	
(a) Prevention of any releases that may have adverse effects on human health or the environment due to migration of waste constituents in the groundwater or subsurface environment, considering:	
(1) The volume and physical and chemical characteristics of the waste in the unit, including its potential for migration through soil, liners, or other containing structures;	Part B permit app., Section 2.0 and Attachment H; Supplement H-1, Sections 4.0, 6.1
(2) The hydrologic and geologic characteristics of the unit and the surrounding area;	Part B permit app., Section 2.0 and Attachment H; Supplement H-1, Sections 3.1, 3.2
(3) The existing quality of groundwater, including other sources of contamination and their cumulative impact on the groundwater;	Part B permit app., Attachment H; Supplement H-1, Section 3.3
(4) The quantity and direction of ground-water flow;	Supplement H-1, Section 3.2
(5) The proximity to and withdrawal rates of current and potential groundwater users;	Part B permit app., Attachment H
(6) The patterns of land use in the region;	Part B permit app., Attachment A
(7) The potential for deposition or migration of waste constituents into subsurface physical structures, and into the root zone of food-chain crops and other vegetation;	To be addressed during ER Project characterizations for OU 1130
(8) The potential for health risks caused by human exposure to waste constituents;	To be addressed during ER Project characterizations for OU 1130
(9) The potential for damage to domestic animals, wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents;	To be addressed during ER Project characterizations for OU 1130
(b) Prevention of any releases that may have adverse effects on human health or the environment due to migration of waste constituents in surface water, or wetlands or on the soil surface considering:	
(1) The volume and physical and chemical characteristics of the waste in the unit;	Part B permit app., Section 2.0
(2) The effectiveness and reliability of containing, confining, and collecting systems and structures in preventing migration;	Part B permit app., Section 2.0
(3) The hydrologic characteristics of the unit and the surrounding area, including the topography of the land around the unit;	Part B permit app., Section 2.0 and Attachment H; Supplement H-1, Section 3.1, 3.2
(4) The patterns of precipitation in the region;	Supplement H-1, Section 3.3.1
(5) The quantity, quality, and direction of ground-water flow;	Supplement H-1, Section 3.2
(6) The proximity of the unit to surface waters;	Part B permit app., Section 2.0;Supplement H-1, Section 2.0, 3.2
(7) The current and potential uses of nearby surface waters and any water quality standards established for those surface waters;	Supplement H-1, Section 3.4
(8) The existing quality of surface waters and surface soils, including other sources of contamination and their cumulative impact on surface waters and surface soils;	Supplement H-1, Section 3.4
(9) The patterns of land use in the region	Part B permit app., Attachment A

Table H-1-1

Subpart X Cross Reference (Continued)

Subpart X Requirement	Where Addressed
(10) The potential for health risks caused by human exposure to waste constituents;	To be addressed during ER Project characterizations for OU 1130
(11) The potential for damage to domestic animals, wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents.	To be addressed during ER Project characterizations for OU 1130
(c) Prevention of any releases that may have adverse effects on human health or the environment due to migration of waste constituents in the air, considering:	
(1) The volume and physical and chemical characteristics of the waste in the unit, including its potential for the emission and dispersal of gases, aerosols and particulates;	Part B permit app., Section 2.0
(2) The effectiveness and reliability of systems and structures to reduce or prevent emissions of hazardous constituents to the air;	Part B permit app., Attachment H, Supplement H-6
(3) The operating characteristics of the unit;	Part B permit app., Section 2.0
(4) The atmospheric, meteorologic, and topographic characteristics of the unit and the surrounding area;	Supplement H-1, Section 3.0
(5) The existing quality of the air, including other sources of contamination and their cumulative impact on the air;	Part B permit app., Attachment H
(6) The potential for health risks caused by human exposure to waste constituents;	Part B permit app., Attachment J
(7) The potential for damage to domestic animals, wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents.	Part B permit app., Attachment J
э 264.602 Monitoring, analysis, inspection, response, reporting, and corrective action. Monitoring, testing, analytical data, inspections, response, and reporting procedures and frequencies must ensure compliance with ээ264.601, 264.15, 264.33, 264.75, 264.76, 264.77, and 264.101 as well as meet any additional requirements needed to protect human health and the environment as specified in the permit.	Part B permit app., Various sections and attachments
э 264.603 Post-closure care. A miscellaneous unit that is a disposal unit must be maintained in a manner that complies with э264.601 during the post-closure care period. In addition, if a treatment or storage unit has contaminated soils or groundwater that cannot be completely removed or decontaminated during closure, then that unit must also meet the requirements of э264.601 during post-closure care. The post-closure plan under э264.118 must specify the procedures that will be used to satisfy this requirement.	NA

Table H-1-2

Peak Discharges and Discharge Volumes From a 2-year 6-hour Precipitation Event

Cross Section	Peak Discharge (cubic feet per second)	24-Hour Discharge Volume (acre-feet)	24-Hour Discharge Volume (Liters)
FS[a]-6	1	0.20	246,723
FS-57	3	0.50	616,809
State Road 4	3	0.99	1,221,283
Rio Grande	1	0.50	616,809

[a] FS = Firing Site

Table H-1-3

Concentrations Calculated at Open Detonation Units Technical Area (TA)-39-6 and TA-39-57

Contaminant	TA-39-6 Discharge Point	TA-39-6 Concentration at Discharge Point	TA-39-57 Discharge Point	TA-39-57 Concentration at Discharge Point	SAL
	FS-6	2.0 mg/l	FS-57	0.8 mg/l	
	State Road 4	0.34 mg/l	State Road 4	0.27 mg/l	
Barium	Rio Grande	0.24 mg/l	Rio Grande	0.20 mg/l	2 mg/l
	FS-6	0.113 μg/l	FS-57	$5.4x10^{-2}$ μg/l	
	State Road 4	0.019 μg/l	State Road 4	$1.8x10^{-2}$ μg/l	
2,4-dinitrotoluene	Rio Grande	0.013 μg/l	Rio Grande	$1.4x10^{-2}$ μg/l	73 μg/l

Footnotes: SAL = screening action levels
FS = Firing Site
μg = micrograms
mg = milligrams
l = liter

SUPPLEMENT H-2

The New Mexico Environment Department=s August 17, 1995, Letter to the Department of Energy Los Alamos Area Office Regarding Comments Concerning Groundwater Contamination and Protection at Los Alamos National Laboratory (LANL), Los Alamos, New Mexico

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17 August 1995

Mr. Larry Kirkman
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Los Alamos Area Office
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RE: Comments Concerning Ground-water Contamination and Protection at Los Alamos National Laboratory(LANL), Los Alamos, New Mexico

Dear Mr. Kirkman:

The New Mexico Environment Department(NMED), Department of Energy Oversight Bureau(DOE OB) and Hazardous and Radioactive Material Bureau(HRMB) staff have assessed LANL's ground-water protection program, and have concluded that several problems concerning ground-water contamination and protection exist. The following summarizes major concerns of the NMED in relation to ground-water protection at LANL:

- From 1989 to 1993, water at approximately 271 ground-water monitoring stations(wells) exceeded Department of Energy, Environmental Protection Agency, New Mexico State drinking water standards or maximum contaminant levels, and NMED Water Quality Control Commission (WQCC) standards.

- Results of historical tritium concentration trend analyses, performed for seven LANL regional aquifer monitoring wells indicate that past laboratory releases of tritium-contaminated water may have commingled with the regional aquifer.

- LANL's Environmental Surveillance group recently reported preliminary data which indicate that the regional aquifer near production well O-4 contains strontium-90 at levels

four(4) times the New Mexico State drinking water standard and NMED WQCC standard.

- Both LANL and NMED DOE OB analytical data obtained from on-site and off-site springs are showing elevated concentrations of chlorinated solvents, high explosives, nitrates/nitrites as nitrogen and radionuclides.

- Preliminary modeling of the water balance in Mortandad Canyon by NMED suggests radionuclide-bearing effluent from LANL's liquid radioactive waste treatment facility(Tech Area 50) can leak out of the shallow(alluvium) aquifer and thus percolate towards the regional aquifer.

The above conditions warrant NMED's previous recommendations to develop a site-wide ground-water monitoring system to ascertain the impacts of laboratory operations to the groundwater regime. Currently, the impact to human health and the environment is unknown. A plan is required to determine adequately the effect past, current, and future laboratory operations have on the ground-water regime. The inadequacy of LANL's current ground-water monitoring system, the lack of basic hydrologic information, and the lack of compliance with both HSWA and RCRA ground-water monitoring requirements have previously been conveyed by NMED through memoranda, presentations, and letters. *(c.f. NMED internal letter, August 26, 1992; NMED letter to Jerry Bellows, November 25, 1992; NMED Initial Ground-Water Assessment Report, December 1992; NMED internal memo, February 5, 1993; NMED presentation at San Ildefonso, February 16, 1993; NMED/LANL meeting February 19, 1993; NMED letter to Diana Webb, March 10, 1993; NMED letter to Diana Webb, July 1, 1993; NMED letter to distribution, August 6, 1993; NMED memo to EPA, August 5, 1993; NMED internal memo, November 23, 1993; NMED letter to Diana Webb, February 28, 1994; NMED internal memo, February 22, 1994; NMED internal presentations, May 13, 1994; NMED letter to Joseph Vozella, July 7, 1994; NMED letter to EPA, January 23, 1995; NMED letter to EPA, January 24, 1995; NMED/DOE meeting, April 13, 1995; NMED letter to Larry Kirkman, May 30, 1995; NMED internal memo, July 5, 1995).*

Basic geology, hydrogeology, and pathways for contaminant transport have not been adequately addressed to date. At present, the following fundamental hydrogeologic issues/questio remain unresolved at LANL.

- Individual zones of saturation beneath LANL have not been adequately delineated, and the "hydraulic interconnection" between these is not understood. A facility-wide description of the hydrogeologic characteristics affecting ground-water flow beneath the facility cannot be made without adequate delineation of the perched-intermediate aquifer(s) beneath LANL.

- The recharge area(s) for the main and perched-intermediate aquifers have not been identified. It is unknown at this time if any significant quantity of water is recharging the main aquifer through fracture-fault zones which occur on the Pajarito Plateau. Characterization of these site-wide fault zones as potential pathways for aqueous migration is not complete. It is unknown what effect, if any, these zones may have on the direction of ground-water flow and hydraulic gradient of the main and perched-intermediate aquifers.

- The ground-water flow direction(s) of the main aquifer and perched-intermediate aquifer(s), as influenced by pumping of production wells are unknown.

- Aquifer characteristics cannot be determined without additional monitoring wells installed within specific intervals of the various aquifers beneath the facility. Locations of wells designed for aquifer testing cannot be addressed adequately without the delineation of individual zones of saturation beneath LANL.

At present, it appears that several different organizations(i.e., Environmental Restoration, Environmental Surveillance and Earth and Environmental Science divisions) at LANL are performing activities related to ground-water protection, monitoring and characterization. NMED does not consider that LANL's individual programs are adequately addressing the necessary requirements for a comprehensive ground-water protection program.

The hydrogeologic projects underway lack the integration necessary to meet the specific requirements of the HSWA permit and to address the fundamental hydrogeologic issues mentioned above. The lack of knowledge surrounding these fundamental hydrogeologic issues does not allow for compliance with the regulatory requirements of a site-wide characterization.

NMED is currently evaluating what work needs to be conducted and to what level of detail to assure compliance with both the HSWA hydrogeologic permit requirements and the requirements for ground-water monitoring of RCRA regulated units. This evaluation should be completed in October, 1995, and provided to EPA and then available to LANL.

During the course of NMED's investigation for the RCRA hydrogeologic evaluation, it has become evident to NMED that a RCRA site-wide hydrogeologic workplan should be developed and submitted to NMED and EPA for review and approval. A site-wide hydrogeologic workplan developed under the driver of RCRA will provide a mechanism to assure a compliance schedule with specific tasks to meet the permit objectives. The workplan should address both the HSWA hydrogeologic permit requirements and RCRA regulatory ground-water monitoring requirements.

Thank you for your attention in this matter. Should you have any questions concerning either technical or regulatory issues please contact Ms. Teri Davis of HRMB at (505) 827-1560. If you have any questions concerning technical matters please contact Mr. Michael Dale of DOE OB at (505) 672-0449.

Sincerely,

Ed Kelley PhD, Director, Water and Waste Management Division
New Mexico Environment Department

cc: Theodore Taylor, DOE LAAO, AAMEP, MS A316
Joseph Vozella, DOE LAAO, MS A316
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SUPPLEMENT H-3

Measures Implemented to Comply with the National Pollutant Discharge Elimination System Multi-Sector General Permit

Measures Implemented to Comply with the National Pollutant Discharge Elimination System Multi-Sector General Permit

Identify members of a Pollution Prevention Team to develop the Storm Water Pollution Prevention (SWPP) Plan and assist in the implementation, maintenance, and revision of the plan.

Provide a description of the potential pollutant sources exposed to storm water, including pollutant sources not associated with waste treatment.

Prepare a drainage map indicating an outline of the drainage area of each storm water outfall. The map includes structural control measures, if any, to reduce pollutant migration; surface water bodies; material storage areas; and other pollutant sources.

Maintain a current inventory of materials exposed to storm water, including a narrative description of materials handled, treated, stored, and disposed of since 1989.

Maintain a description of spills or leaks since 1989 and the actions taken to prevent a recurrence.

Maintain a summary of any surface water sampling data from the site, if any.

Prepare a narrative description of the potential pollutant sources associated with loading and unloading operations, outdoor storage, outdoor manufacturing or processing, dust and particulate generating activities, and on-site waste disposal activities.

Prepare a description of the measures and controls implemented to control and reduce the amount of pollutants in the storm water discharges. These measures and controls include:

- Good housekeeping
- Preventive maintenance program for storm water management devices
- Spill prevention and response procedures
- Inspections

- Employee training
- Recordkeeping and internal reporting procedures
- A listing of non-storm-water discharges, sediment and erosion control, and the management of runoff.

Prepare a self-conducted comprehensive site compliance evaluation to determine compliance with the site-specific SWPP Plan.

SUPPLEMENT H-4

Results Summary of the Soil Sampling Survey Conducted over Active Firing Site at Technical Area 36, Building 8

Results Summary of the Soil Sampling Survey Conducted over Active Firing Site at Technical Area 36, Building 8

In August and September of 1992, 24 soil samples were collected from both portions of the TA-36 open detonation area at the 0- to 3-inch depth along four directions at various distances away from the center of each portion. A sediment sample was collected from each drainage channel located near and downgradient from both portions of the detonation area. A sample was collected from rinsate of the scattered surface debris from around both portions of the detonation area. The soil and sediment samples were screened for gross alpha, beta, and gamma radioactivity. The soil, sediment, and rinsate samples were analyzed for Toxicity Characteristic Leaching Procedure (TCLP) metals; total metals (aluminum, barium, beryllium, copper, iron, and lead); semivolatile organic compounds (SVOC); total uranium; and high explosive (HE) residues. The results are listed below.

- One soil sample contained TCLP lead above the U.S. Environmental Protection Agency (EPA) proposed action level of 5 parts per million (ppm). No other TCLP metals were detected above regulatory levels in the soil, sediment, or rinsate samples.

- Five SVOCs were detected at seven soil sample locations and at one sediment sample location, but these SVOCs are considered complex compounds derived from plastics.

- HE residues were detected in many of the soil samples and in one sediment sample. No HE was detected in the rinsate sample.

SUPPLEMENT H-5

Correction of Data for the Soil Sampling Survey Conducted over Active Firing Site at Technical Area 36, Building 8

REPORT NUMBER: 20618

********** EM-9 ANALYTICAL REPORT **********

Prepared by: D GERTH on 20-Sep-1993

REQUEST NUMBER: 13501 MATRIX: SE ANALYST: MET PROGRAM CODE: N106

OWNER: Phillip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815

NOTEBOOK: R8149 PAGE: 132

CUSTOMER SAMPLES:

RCLP.

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	ANALYTICAL TECHNIQUE	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
PF-368-W-20	92.27444	AG	ICPES	< 0.01		MG/L	6/16/93	05261M
PF-368-W-20	92.27444	BA	ICPES	1.6	0.2	MG/L	6/16/93	05261M
PF-368-W-20	92.27444	CD	ICPES	0.036	0.003	MG/L	6/16/93	05261M
PF-368-W-20	92.27444	CR	ICPES	< 0.006		MG/L	6/16/93	05261M
PF-368-W-20	92.27444	PB	ICPMS	0.05	0.02	MG/L	6/16/93	05261M
PF-368-W-40	92.27445	AG	ICPES	< 0.01		MG/L	6/16/93	05261M
PF-368-W-40	92.27445	BA	ICPES	3.	0.3	MG/L	6/16/93	05261M
PF-368-W-40	92.27445	CD	ICPES	0.073	0.007	MG/L	6/16/93	05261M
PF-368-W-40	92.27445	CR	ICPES	< 0.006		MG/L	6/16/93	05261M
PF-368-W-40	92.27445	PB	ICPMS	0.1	0.03	MG/L	6/16/93	05261M
PF-368-W-60	92.27446	AG	ICPES	< 0.01		MG/L	6/16/93	05261M
PF-368-W-60	92.27446	BA	ICPES	1.9	0.2	MG/L	6/16/93	05261M
PF-368-W-60	92.27446	CD	ICPES	0.004	0.002	MG/L	6/16/93	05261M
PF-368-W-60	92.27446	CR	ICPES	< 0.006		MG/L	6/16/93	05261M
PF-368-W-60	92.27446	PB	ICPMS	< 0.03		MG/L	6/16/93	05261M
PF-368-W-100	92.27447	AG	ICPES	< 0.01		MG/L	6/16/93	05261M
PF-368-W-100	92.27447	BA	ICPES	4.	0.4	MG/L	6/16/93	05261M
PF-368-W-100	92.27447	CD	ICPES	0.13	0.01	MG/L	6/16/93	05261M
PF-368-W-100	92.27447	CR	ICPES	< 0.006		MG/L	6/16/93	05261M
PF-368-W-100	92.27447	PB	ICPMS	0.11	0.01	MG/L	6/16/93	05261M
PF-368-W-150	92.27448	AG	ICPES	< 0.01		MG/L	6/16/93	05261M
PF-368-W-150	92.27448	BA	ICPES	2.5	0.3	MG/L	6/16/93	05261M
PF-368-W-150	92.27448	CD	ICPES	< 0.003		MG/L	6/16/93	05261M
PF-368-W-150	92.27448	CR	ICPES	0.005	0.002	MG/L	6/16/93	05261M
PF-368-W-150	92.27448	PB	ICPMS	< 0.03		MG/L	6/16/93	05261M
PF-368-E-20	92.27449	AG	ICPES	< 0.01		MG/L	6/17/93	05261M
PF-368-E-20	92.27449	BA	ICPES	1.5	0.2	MG/L	6/17/93	05261M
PF-368-E-20	92.27449	CD	ICPES	0.028	0.003	MG/L	6/17/93	05261M
PF-368-E-20	92.27449	CR	ICPES	< 0.006		MG/L	6/17/93	05261M
PF-368-E-20	92.27449	PB	ICPMS	0.07	0.02	MG/L	6/17/93	05261M
PF-368-E-40	92.27450	AG	ICPES	0.013	0.001	MG/L	6/17/93	05261M
PF-368-E-40	92.27450	BA	ICPES	0.22	0.02	MG/L	6/17/93	05261M
PF-368-E-40	92.27450	CD	ICPES	< 0.003		MG/L	6/17/93	05261M
PF-368-E-40	92.27450	CR	ICPES	< 0.006		MG/L	6/17/93	05261M
PF-368-E-40	92.27450	PB	ICPMS	< 0.03		MG/L	6/17/93	05261M
PF-368-E-60	92.27451	AG	ICPES	0.018	0.002	MG/L	6/17/93	05261M
PF-368-E-60	92.27451	BA	ICPES	3.4	0.3	MG/L	6/17/93	05261M

REPORT NUMBER: 20618 (continued)

********** EM-9 QUALITY ASSURANCE REPORT **********

Prepared by: D GERTH on 20-Sep-1993

REQUEST NUMBER: 13501 MATRIX: SE ANALYST: MET PROGRAM CODE: 4106

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815

NOTEBOOK: R8149 PAGE: 132

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
00.27503	AG	2.2	0.2	MG/L	2.	0.08	6/18/93	UNDER CONTROL
00.27503	BA	9.8	1.	MG/L	10.	0.4	6/18/93	UNDER CONTROL
00.27503	CD	10.	1.	MG/L	10.	0.4	6/18/93	UNDER CONTROL
00.27503	CR	9.5	1.	MG/L	10.	0.4	6/18/93	UNDER CONTROL
00.27503	PB	10.	1.	MG/L	10.	0.4	6/18/93	UNDER CONTROL

SUMMARY OF CONTROL STATUS OF BLIND QC SAMPLES RUN WITH THIS BATCH

There were no blind Quality Control materials run with the samples reported above for one of the following reasons:

___ Only qualitative data requested

✓ Only Open (non-blind) QC samples run with this sample batch.

___ No QC samples run with this sample batch.

___ No QC samples for this constituent and matrix type available within EM-9

REPORT NUMBER: 20618

S D Morgan	D L Gerth	C Hill	mag
Analyst	Reviewer	Section Leader	QA Officer
9/22/93	9/22/93	9/22/93	9/22/93
Date	Date	Date	Date

PF-368-E-60	92.27451	CD	ICPES	0.057	0.006	MG/L	6/17/93 05261M
PF-368-E-60	92.27451	CR	ICPES	0.007	0.003	MG/L	6/17/93 05261M
PF-368-E-60	92.27451	PB	ICPMS	0.28	0.03	MG/L	6/17/93 05261M
PF-368-E-100	92.27452	AG	ICPES	< 0.01		MG/L	6/17/93 05261M
PF-368-E-100	92.27452	BA	ICPES	4.1	0.4	MG/L	6/17/93 05261M
PF-368-E-100	92.27452	CD	ICPES	0.032	0.003	MG/L	6/17/93 05261M
PF-368-E-100	92.27452	CR	ICPES	< 0.004		MG/L	6/17/93 05261M
PF-368-E-100	92.27452	PB	ICPMS	0.26	0.03	MG/L	6/17/93 05261M
PF-368-E-150	92.27453	AG	ICPES	< 0.01		MG/L	6/17/93 05261M
PF-368-E-150	92.27453	BA	ICPES	0.94	0.09	MG/L	6/17/93 05261M
PF-368-E-150	92.27453	CD	ICPES	< 0.003		MG/L	6/17/93 05261M
PF-368-E-150	92.27453	CR	ICPES	< 0.004		MG/L	6/17/93 05261M
PF-368-E-150	92.27453	PB	ICPMS	< 0.03		MG/L	6/17/93 05261M
PF-368-N-20	92.27454	AG	ICPES	0.012	0.003	MG/L	6/17/93 05261M
PF-368-N-20	92.27454	BA	ICPES	2.2	0.2	MG/L	6/17/93 05261M
PF-368-N-20	92.27454	CD	ICPES	0.041	0.004	MG/L	6/17/93 05261M
PF-368-N-20	92.27454	CR	ICPES	< 0.004		MG/L	6/17/93 05261M
PF-368-N-20	92.27454	PB	ICPMS	0.49	0.05	MG/L	6/17/93 05261M
PF-368-N-40	92.27455	AG	ICPES	< 0.01		MG/L	6/17/93 05261M
PF-368-N-40	92.27455	BA	ICPES	7.	0.7	MG/L	6/17/93 05261M
PF-368-N-40	92.27455	CD	ICPES	0.032	0.003	MG/L	6/17/93 05261M
PF-368-N-40	92.27455	CR	ICPES	< 0.004		MG/L	6/17/93 05261M
PF-368-N-40	92.27455	PB	ICPMS	0.03	0.02	MG/L	6/17/93 05261M
PF-368-N-60	92.27456	AG	ICPES	< 0.01		MG/L	6/17/93 05261M
PF-368-N-60	92.27456	BA	ICPES	1.8	0.2	MG/L	6/17/93 05261M
PF-368-N-60	92.27456	CD	ICPES	0.007	0.003	MG/L	6/17/93 05261M
PF-368-N-60	92.27456	CR	ICPES	0.006	0.003	MG/L	6/17/93 05261M
PF-368-N-60	92.27456	PB	ICPMS	< 0.03		MG/L	6/17/93 05261M
PF-368-N-100	92.27457	AG	ICPES	< 0.01		MG/L	6/17/93 05261M
PF-368-N-100	92.27457	BA	ICPES	6.5	0.7	MG/L	6/17/93 05261M
PF-368-N-100	92.27457	CD	ICPES	0.34	0.03	MG/L	6/17/93 05261M
PF-368-N-100	92.27457	CR	ICPES	0.011	0.004	MG/L	6/17/93 05261M
PF-368-N-100	92.27457	PB	ICPMS	0.03		MG/L	6/17/93 05261M
PF-368-N-150	92.27458	AG	ICPES	< 0.01		MG/L	6/17/93 05261M
PF-368-N-150	92.27458	BA	ICPES	3.6	0.4	MG/L	6/17/93 05261M
PF-368-N-150	92.27458	CD	ICPES	0.034	0.003	MG/L	6/17/93 05261M
PF-368-N-150	92.27458	CR	ICPES	< 0.004		MG/L	6/17/93 05261M
PF-368-N-150	92.27458	PB	ICPMS	< 0.03		MG/L	6/17/93 05261M
PF-368-S-20	92.27459	AG	ICPES	< 0.01		MG/L	6/17/93 05261M
PF-368-S-20	92.27459	BA	ICPES	0.58	0.06	MG/L	6/17/93 05261M
PF-368-S-20	92.27459	CD	ICPES	< 0.003		MG/L	6/17/93 05261M
PF-368-S-20	92.27459	CR	ICPES	0.012	0.001	MG/L	6/17/93 05261M
PF-368-S-20	92.27459	PB	ICPMS	< 0.03		MG/L	6/17/93 05261M
PF-368-S-40	92.27460	AG	ICPES	< 0.01		MG/L	6/17/93 05261M
PF-368-S-40	92.27460	BA	ICPES	2.9	0.3	MG/L	6/17/93 05261M
PF-368-S-40	92.27460	CD	ICPES	0.019	0.002	MG/L	6/17/93 05261M
PF-368-S-40	92.27460	CR	ICPES	0.011	0.001	MG/L	6/17/93 05261M
PF-368-S-40	92.27460	PB	ICPMS	< 0.03		MG/L	6/17/93 05261M
PF-368-S-60	92.27461	AG	ICPES	< 0.01		MG/L	6/17/93 05261M
PF-368-S-60	92.27461	BA	ICPES	3.1	0.3	MG/L	6/17/93 05261M
PF-368-S-60	92.27461	CD	ICPES	0.023	0.005	MG/L	6/17/93 05261M
PF-368-S-60	92.27461	CR	ICPES	0.008	0.001	MG/L	6/17/93 05261M
PF-368-S-60	92.27461	PB	ICPMS	< 0.03		MG/L	6/17/93 05261M
PF-368-S-100	92.27462	AG	ICPES	< 0.01		MG/L	6/17/93 05261M
PF-368-S-100	92.27462	BA	ICPES	2.3	0.2	MG/L	6/17/93 05261M
PF-368-S-100	92.27462	CD	ICPES	0.004	0.002	MG/L	6/17/93 05261M
PF-368-S-100	92.27462	CR	ICPES	0.013	0.001	MG/L	6/17/93 05261M
PF-368-S-100	92.27462	PB	ICPMS	< 0.03		MG/L	6/17/93 05261M
PF-368-S-150	92.27463	AG	ICPES	< 0.01		MG/L	6/17/93 05261M
PF-368-S-150	92.27463	BA	ICPES	1.6	0.2	MG/L	6/17/93 05261M

PF-368-S-150	92.27463	CD	ICPES	< 0.003		MG/L	6/17/93	05261H
PF-368-S-150	92.27463	CR	ICPES	0.016	0.005	MG/L	6/17/93	05261H
PF-368-S-150	92.27463	PB	ICPMS	< 0.03		MG/L	6/17/93	05261H
PF-368-SED	92.27464	AG	ICPES	< 0.01		MG/L	6/17/93	05261H
PF-368-SED	92.27464	BA	ICPES	3.4	0.3	MG/L	6/17/93	05261H
PF-368-SED	92.27464	CD	ICPES	0.004	0.002	MG/L	6/17/93	05261H
PF-368-SED	92.27464	CR	ICPES	0.006	0.002	MG/L	6/17/93	05261H
PF-368-SED	92.27464	PB	ICPMS	< 0.03		MG/L	6/17/93	05261H
PF-368-O-O	92.27465	AG	ICPES	< 0.01		MG/L	6/17/93	05261H
PF-368-O-O	92.27465	BA	ICPES	1.2	0.1	MG/L	6/17/93	05261H
PF-368-O-O	92.27465	CD	ICPES	0.018	0.002	MG/L	6/17/93	05261H
PF-368-O-O	92.27465	CR	ICPES	< 0.004		MG/L	6/17/93	05261H
PF-368-O-O	92.27465	PB	ICPMS	< 0.03		MG/L	6/17/93	05261H
PF-368-E60R	92.27466	AG	ICPES	0.019	0.002	MG/L	6/17/93	05261H
PF-368-E60R	92.27466	BA	ICPES	3.2	0.3	MG/L	6/17/93	05261H
PF-368-E60R	92.27466	CD	ICPES	0.054	0.005	MG/L	6/17/93	05261H
PF-368-E60R	92.27466	CR	ICPES	< 0.004		MG/L	6/17/93	05261H
PF-368-E60R	92.27466	PB	ICPMS	1.1	0.1	MG/L	6/17/93	05261H
PF-36A-RIN	92.27468	AG	ICPES	< 0.01		MG/L	9/20/93	
PF-36A-RIN	92.27468	BA	ICPES	< 0.07		MG/L	9/20/93	
PF-36A-RIN	92.27468	CD	ICPES	< 0.01		MG/L	9/20/93	
PF-36A-RIN	92.27468	CR	ICPES	< 0.01		MG/L	9/20/93	
PF-36A-RIN	92.27468	PB	ICPES	< 0.05		MG/L	9/20/93	
PF-368-RIN	92.27469	AG	ICPES	< 0.01		MG/L	9/20/93	
PF-368-RIN	92.27469	BA	ICPES	0.96	0.1	MG/L	9/20/93	
PF-368-RIN	92.27469	CD	ICPES	0.01	0.01	MG/L	9/20/93	
PF-368-RIN	92.27469	CR	ICPES	< 0.01		MG/L	9/20/93	
PF-368-RIN	92.27469	PB	ICPES	0.05	0.05	MG/L	9/20/93	

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1991,' LA-12436-MS, Vol. 1, pp. 21-22.

SUPPLEMENT H-6

Air Quality Impact Modeling

Air Quality Impact Modeling

Air emissions from the open detonation of wood and plastic waste at Technical Area (TA) 14, TA-15, TA-36, and TA-39 are regulated under National and New Mexico Ambient Air Quality Standards. Air emissions from these operations could include criteria pollutants such as carbon monoxide, oxides of nitrogen, particulate matter, sulfur dioxide, and volatile organic compounds. In addition, some hazardous air pollutants such as hydrogen chloride and hydrogen fluoride are emitted as a result of combustion of the binders used to form the high explosives. Impacts from operations of this type must meet ambient air standards for all criteria pollutants[1]. In addition, the waste had the potential for being contaminated with other hazardous materials, such as lead and depleted uranium (DU).

Source terms or the amount of pollutants generated during treatment activities (i.e., detonation) were estimated using published emission factors (AP-42[2], developed by the U.S. Environmental Protection Agency [EPA]), mass balance calculations, process knowledge, and engineering estimates. In addition, estimates were based on waste profiles containing 90% wood/cardboard/burlap, 10% plastics/paper, and 0.192 pound (lb) of DU per pound of waste detonated.

An EPA-type gaussian plume model was employed with a puff type release function to simulate the airborne release resulting from the explosive treatment of the waste. The worst-case waste treatment and receptor location was used in the scenario (i.e., a 2,000-lb treatment at TA-36). Multiple treatments were used for comparison to those standards having 7-day or more averaging periods. Release heights and release fractions for a typical 50-lb explosive "shot" were determined by Church's method and are shown in Table H-6-1[3]. Airborne effluents were assumed to be transported directly to the potential receptors, using median dispersion factors for the Los Alamos area. The modeled concentration values for the above scenario are provided in Table H-6-2.

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1 Hazardous Air Pollutant (HAP) emission standards are regulated under the New Mexico Administrative Code, Title 20, Chapter 2, Part 70. For the LANL facility, these emission standards are 10 tons per year for any one HAP or 25 tons per year for any combination of HAPs. Subsequently, impacts for hydrogen chloride and hydrogen fluoride releases were not included in this modeling analysis.

2 U.S. Environmental Protection Agency, “Compilation of Air Pollution Emission Factors,” 4th edition (updates through Supplement F, 1995).

3 ACloud Rise from High-Explosives Detonations, Sandia Laboratories," H.W. Church, June 1969, TID-4500 (53rd ed., UC-41, Health and Safety, SC-RR-68-903).

Table H-6-1

Detonation Cloud Height and Material Distribution

Height (meters)	Percent Distribution of Release Fraction in the Cloud
162	20%
121	35%
81	25%
40	16%
0	4%

Source: Church, H.W., June 1969, "Cloud Rise from High-Explosives Detonations, Sandia Laboratories," TID-4500 (53rd ed., UC-41, Health and Safety, SC-RR-68-903).

Table H-6-2

Air Quality Impacts from Explosive Destruction of Waste

Chemical	Ambient Air Quality Standards (New Mexico Administrative Code, Title 20, Chapter 2)			Air Concentrations at:	
				Pajarito Road (800 m NNE)	White Rock (2980 m ESE)
Carbon Monoxide	8-hour average	0.5 mg/m^3	8.7 ppm	0.02 mg/m^3	0.01 mg/m^3
	1-hour average	2.0 mg/m^3	13.1 ppm	0.16 mg/m^3	0.02 mg/m^3
Nitrogen Oxides	24-hour average	5.0 $\mu g/m^3$	0.1 ppm	5.25E-04 $\mu g/m^3$	1.96E-04 $\mu g/m^3$
	annual arithmetic average	1.0 $\mu g/m^3$	0.05 ppm	1.15E-05 $\mu g/m^3$	4.29E-06 $\mu g/m^3$
Total Suspended Particulates	24-hour average	150 $\mu g/m^3$		1.4 $\mu g/m^3$	0.51 $\mu g/m^3$
	7-hour average	110 $\mu g/m^3$		0.39 $\mu g/m^3$	0.15 $\mu g/m^3$
	30-day average	90 $\mu g/m^3$		0.37 $\mu g/m^3$	0.14 $\mu g/m^3$
	annual geometric mean	60 $\mu g/m^3$			
Sulfur Dioxide	24-hour average	5.0 $\mu g/m^3$	0.1 ppm	0.054 $\mu g/m^3$	0.020 $\mu g/m^3$
	annual arithmetic average	1.0 $\mu g/m^3$	0.02 ppm	0.001 $\mu g/m^3$	0.000 $\mu g/m^3$
Primary Federal Standards (Code of Federal Regulations, Title 40, Chapter 50)					
Lead and its compounds	calendar quarter	1.5 $\mu g/m^3$		4.3E-6 $\mu g/m^3$	1.6E-6 $\mu g/m^3$
Ozone (as VOC)	1-hour average	490 $\mu g/m^3$ (estimated)	0.12 ppm	130 $\mu g/m^3$	48 $\mu g/m^3$
	8-hour average	327 $\mu g/m^3$ (estimated)	0.08 ppm		
National Emission Standards for Hazardous Air Pollutants (Code of Federal Regulations, Title 40, Chapter 61, Subpart H)					
Depleted Uranium	annual maximum	10 mrem		NA	>0.001 mrem

Footnotes:
m NNE = meters north-northeast
m ESE = meters east-southeast
mg = milligrams
m^3 = cubic meters
ppm = parts per million
μg = microgram
VOC = volatile organic compound, a precursor to ozone
mrem = millirem
NA = not applicable

ATTACHMENT I

PROCEDURES TO PREVENT HAZARDS

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LIST OF ABBREVIATIONS/ACRONYMS

LACFD	Los Alamos County Fire Department
LANL	Los Alamos National Laboratory
20 NMAC 4.1	New Mexico Administrative Code, Title 20, Chapter 4, Part 1
MSDS	Material Safety Data Sheets
OD	open detonation
PPE	personal protective equipment
SOP	standard operating procedure
TA	technical area

ATTACHMENT I

PROCEDURES TO PREVENT HAZARDS

The information provided in this attachment is submitted in accordance with the applicable requirements of the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20 NMAC 4.1), revised January 1, 1997 [1-1-97], for the following subject areas:

- X Security procedures and equipment [20 NMAC 4.1, Subpart IX, 270.14(b)(4), and 20 NMAC 4.1, Subpart V, 264.14];
- X Access control [20 NMAC 4.1, Subpart IX, 270.14(b)(19)(viii)];
- X Preparedness and prevention requirements [20 NMAC 4.1, Subpart V, Part 264, Subpart C];
- X Procedures, structures, and equipment for preventing hazards [20 NMAC 4.1, Subpart IX, 270.14(b)(8)];
- X General waste management practices for ignitable, reactive, and incompatible waste [20 NMAC 4.1, Subpart IX, 270.14(b)(9), and 20 NMAC 4.1, Subpart V, 264.17].

I.1 SECURITY [20 NMAC 4.1, Subpart IX, 270.14(b)(4) and 270.14(b)(19)(viii); 20 NMAC 4.1, Subpart V, 264.14]

The following describes the security features in place at the open detonation (OD) unit located at Technical Area (TA) 36 at Los Alamos National Laboratory (LANL), in accordance with the requirements of 20 NMAC 4.1, Subpart IX, 270.14(b)(4) and 270.14(b)(19)(viii), and 20 NMAC 4.1, Subpart V, 264.14 [1-1-97].

In compliance with LANL standard operating procedures (SOP) for the OD unit (see Attachment G for SOPs), manned roadblocks are established along access roads in the vicinity of the OD unit to further reduce the possibility of entry into this area during actual treatment operations. Personnel manning the roadblocks maintain two-way radio contact with access controllers and firing site personnel and can stop the operation should a breach of security occur. In accordance with 20 NMAC 4.1, Subpart IX, 270.14(b)(19)(viii) [1-1-97], the location of the entry gate in the vicinity of the unit at TA-36 is shown on Figure I-1. The location of industrial and security fences in the TA-36 region are shown on Figure I-2. Collectively, these security procedures and the security features discussed below prevent the unknowing entry and minimize the possibility for unauthorized entry of persons into the OD unit, in accordance with the requirements of 20 NMAC 4.1, Subpart V, 264.14(b)(2) [1-1-97].

The OD unit at TA-36 is located within a secured area at which security is maintained through both administratively controlled and physical barriers. Access to the area can only be gained through controlled entry stations by persons possessing appropriate security clearance. Entry stations are located on Anchor Ranch Road for access through TA-69 off of West Jemez Road, and on Potrillo Drive for access through TA-18 off of Pajarito Road. The entry stations are manned by Protection Technology Los Alamos security personnel 24 hours a day. In addition, an industrial fence surrounds portions of TA-36. Fences are inspected on a regular basis by security personnel, and repairs are made as necessary. Warning signs are posted at the entrance to the OD unit area and can be seen by personnel approaching the area. The legend on the signs indicates "Danger Explosives Area." Signs reading "Authorized Personnel Only" are posted on gates on interior access roads in the vicinity of the OD unit. All warning signs are legible from a distance of 25 feet and are written in English and Spanish.

I.2 PREPAREDNESS AND PREVENTION REQUIREMENTS [20 NMAC 4.1, Subpart V, Part 264, Subpart C]

The following sections present how operations at the TA-36 OD unit comply with the preparedness and prevention requirements of 20 NMAC 4.1, Subpart V, Part 264, Subpart C [1-1-97]. Health and safety procedures followed by site personnel during routine operations are discussed in SOPs (see Attachment G).

I.2.1 Required Equipment [20 NMAC 4.1, Subpart V, 264.32]

In accordance with the requirements of 20 NMAC 4.1, Subpart V, 264.32 [1-1-97], the TA-36 OD unit is equipped with adequate emergency equipment, which includes internal and external communication equipment, alarm systems, fire extinguishers, and fire control and decontamination equipment. Emergency equipment specific to the OD unit at TA-36 is discussed in the following sections and is summarized in Table E-1 in Attachment E of this Part B permit application. LANL-wide emergency equipment available for use at any of the LANL waste management units is presented in Appendix E of the ALos Alamos National Laboratory General Part B Permit Application,≅ Revision 1.0 (LANL, 1998), hereinafter referred to as the LANL General Part B.

Alarm systems are in place at the OD unit at TA-36 and are used to alert personnel to clear the area. The alarm systems, which consist of sirens and red flashing lights, are activated prior to and during treatment operations. The sirens are also sounded at the completion of treatment operations to signal that an area is clear. In addition, emergency "kill" switches are located at the OD unit and

may be activated by any personnel to halt operations in the event of abnormal or unusual conditions. A fire alarm pull station is located in TA-36-8, the control building. This pull station can be accessed by personnel working at the OD unit. Upon activation of the fire alarm system, an audible alarm sounds to alert personnel of emergency conditions. Manual pull stations are connected to the Los Alamos County Fire Department (LACFD) through LANL's central alarm system at all times (see Appendix E of the LANL General Part B).

Conventional telephones are available during treatment operations at the OD unit to provide adequate communication and to summon external emergency assistance, if necessary. Telephones are located in the control building. These telephones may be used in an emergency to communicate the location and nature of hazardous conditions to personnel in the area.

Fire extinguishers are located in TA-36-8. In addition, each vehicle used to transport explosives is equipped with an ABC fire extinguisher. Depending on the size of the fire and the fuel source, fire extinguishers may be used by on-site personnel. However, LANL policy encourages immediate evacuation of the area and notification of appropriate emergency personnel.

Although permanent sources of water (i.e., a fire hydrant) are not available in the immediate vicinity of the OD unit, arrangements can be made with the LACFD to provide water tanker trucks to the site for use in an emergency. The water tanker trucks are capable of supplying water at adequate volume and pressure for use in fire-suppression activities to meet the requirements of 20 NMAC 4.1, Part V, 264.32(d) [1-1-97]. SOPs are in place that describe when and how fire department assistance is to be used.

Spill control equipment is not stored at the TA-36 OD unit. This equipment is available at the Lower Slobbovia site at TA-36 and can be made accessible, if necessary, to personnel at the TA-36 OD unit.

An eyewash station is located in TA-36-8, and a portable eyewash station is available in the immediate area of the OD unit, when required. Self-contained breathing apparatus are located in TA-36-8.

Material Safety Data Sheets (MSDS), which provide useful exposure information, are available at the group office. MSDSs, first aid kits, and hearing protection equipment are also available at the TA-36 OD unit.

I.2.2 Testing and Maintenance of Equipment [20 NMAC 4.1, Subpart V, 264.33]

Communications and alarm systems and fire protection and decontamination equipment located at the TA-36 OD unit are tested and/or maintained according to the inspection schedule detailed in Appendix C of the LANL General Part B. The frequency of inspection is adequate to assure proper operation in the event of an emergency. Repair and replacement of emergency equipment are performed, as needed.

I.2.3 Access to Communications or Alarm System [20 NMAC 4.1, Subpart V, 264.34]

Whenever treatment operations are being conducted at the TA-36 OD unit, involved personnel have immediate access to an emergency communication device, either directly or through visual or voice contact with another individual. In the event of an emergency, communication equipment at the TA-36 OD unit allows personnel to contact the operating group management, the Emergency Management and Response Office, and/or the Central Alarm Station operator (refer to Appendix E of the LANL General Part B). In addition to the communications and alarm systems described in this section, two-way radios, pagers, and/or cellular telephones are also used at the TA-36 OD unit to provide additional means of communication between on-site personnel and/or to contact LANL emergency support personnel.

I.2.4 Space Requirements [20 NMAC 4.1, Subpart V, 264.35]

At the OD unit, adequate space is maintained to allow the unobstructed movement of personnel and fire protection, spill control, and decontamination equipment in the event of an emergency.

I.2.5 Support Agreements with Outside Agencies [20 NMAC 4.1, Subpart V, 264.37]

Information on support agreements with outside agencies, as required by 20 NMAC 4.1, Subpart V, 264.37 [1-1-97], is presented in Section 2.0 of the LANL General Part B.

I.3 PREVENTIVE PROCEDURES, STRUCTURES, AND EQUIPMENT [20 NMAC 4.1, Subpart IX, 270.14(b)(8)]

Descriptions of the preventive procedures, structures, and equipment at the TA-36 OD unit are presented below. This information is provided in accordance with the requirements of 20 NMAC 4.1, Subpart IX, 270.14(b)(8) [1-1-97]. Adherence to the procedures and proper use of the structures

and equipment will help to prevent hazards, prevent undue exposure of personnel to hazardous waste, and prevent releases to the environment.

At the TA-36 OD unit, large containers of explosives-contaminated waste or explosive materials are typically handled using mechanical equipment such as a truck-mounted crane or a hydraulic lift gate. Small containers of waste are handled manually or with a dolly. The use of proper handling equipment, appropriate to a container's size and weight, helps to prevent hazards while moving containers at the OD unit. Additionally, personnel involved in waste handling and container handling operations at the OD unit are knowledgeable of the physical and chemical properties of the waste managed at the site and take additional precautions, as necessary, to ensure that containers are handled safely.

Pursuant to the requirements of 20 NMAC 4.1, Subpart IX, 270.14(b)(19)(xi) [1-1-97], Figure A-2 in Attachment A shows surface contours and drainage around the TA-36 OD unit. Engineering controls are in place at the OD unit to prevent runoff of wastes from the unit to other areas of the facility or to the environment (see Figure A-8 in Attachment A).

For several reasons, it is not anticipated that there will be any impact to groundwater or other water supplies as a result of treatment operations at the TA-36 OD unit. The depth to groundwater at LANL ranges from 600 feet to 1,200 feet. Geologic units underlying the area include layers of unsaturated volcanic tuff and ash, the moisture content of which is generally less than 10 percent (Daniel B. Stephens & Associates, Inc., 1995). Because the moisture content is insufficient for moisture migration through the Bandelier Tuff, no impact to groundwater is expected. In addition, all water supply lines are under pressure and are equipped with backflow prevention devices.

Electrical power is supplied to the control building near the TA-36 OD unit. Supplied power at this building is used to operate lighting and telephone and alarm systems. Operations at the OD unit would be discontinued temporarily if electrical power was not restored quickly.

Safety shoes, safety glasses, and other personal protective equipment (PPE) required in explosives areas are worn by workers during routine operations at the OD unit. Additional appropriate PPE is available should abnormal or unusual conditions require such equipment.

Releases to the atmosphere resulting from treatment activities at the TA-36 OD unit cannot be prevented. However, assuming a conservative scenario of treatment activities at the unit (as discussed in Section H.4 of Attachment H), estimated resulting emissions will not exceed regulatory levels and, therefore, will not adversely affect human health or the environment.

I.4 PREVENTION OF ACCIDENTAL IGNITION OR REACTION OF IGNITABLE, REACTIVE, OR INCOMPATIBLE WASTE [20 NMAC 4.1, Subpart IX, 270.14(b)(9), 270.15(c) and (d) and 20 NMAC 4.1, Subpart V, 264.17, 264.176, and 264.177]

This section details the precautions taken to prevent accidental ignition or reaction of ignitable, reactive, or incompatible wastes at the TA-36 OD unit.

Ignitable wastes are not treated at the TA-36 OD unit. Containers holding reactive wastes are or will be located at least 50 feet from the facility's property line at all times and will be protected from sources of reaction. Smoking is not permitted in areas where wastes are managed. Signs indicating "No Smoking Except in Designated Areas" are conspicuously placed at the entrances to the OD unit, as required by 20 NMAC 4.1, Subpart V, 264.17(a) [1-1-97]. Together, these measures meet the requirements of 20 NMAC 4.1, Subpart V, 264.17(a) and (b) and 264.176 [1-1-97].

Incompatible wastes, if managed at the TA-36 OD unit, are segregated to prevent adverse reactions from occurring through commingling of the wastes. In addition, no incompatible wastes will be mixed, and no waste will be placed in a container that previously held an incompatible waste, as required by 20 NMAC 4.1, Subpart V, 264.177(a) and (b), and 20 NMAC 4.1, Subpart IX, 270.15(d) [1-1-97]. If incompatible wastes are managed at the OD unit, the requirements of 20 NMAC 4.1, Subpart V, 264.177(c) [1-1-97], will also be met. Only containers made of or lined with materials that will not react with and are otherwise compatible with the waste to be managed will be used at the OD unit.

I.5 REFERENCES

LANL, see Los Alamos National Laboratory.

Daniel B. Stephens & Associates, Inc., 1995, ALaboratory Analysis of Soil Hydraulic Properties of LANL Mixed Waste Disposal Project Soil Samples,≅ Daniel B. Stephens & Associates, Inc., Albuquerque, New Mexico.

Los Alamos National Laboratory (LANL), 1998, ALos Alamos National Laboratory General Part B Permit Application,≅ Revision 1.0, Los Alamos National Laboratory, Los Alamos, New Mexico.

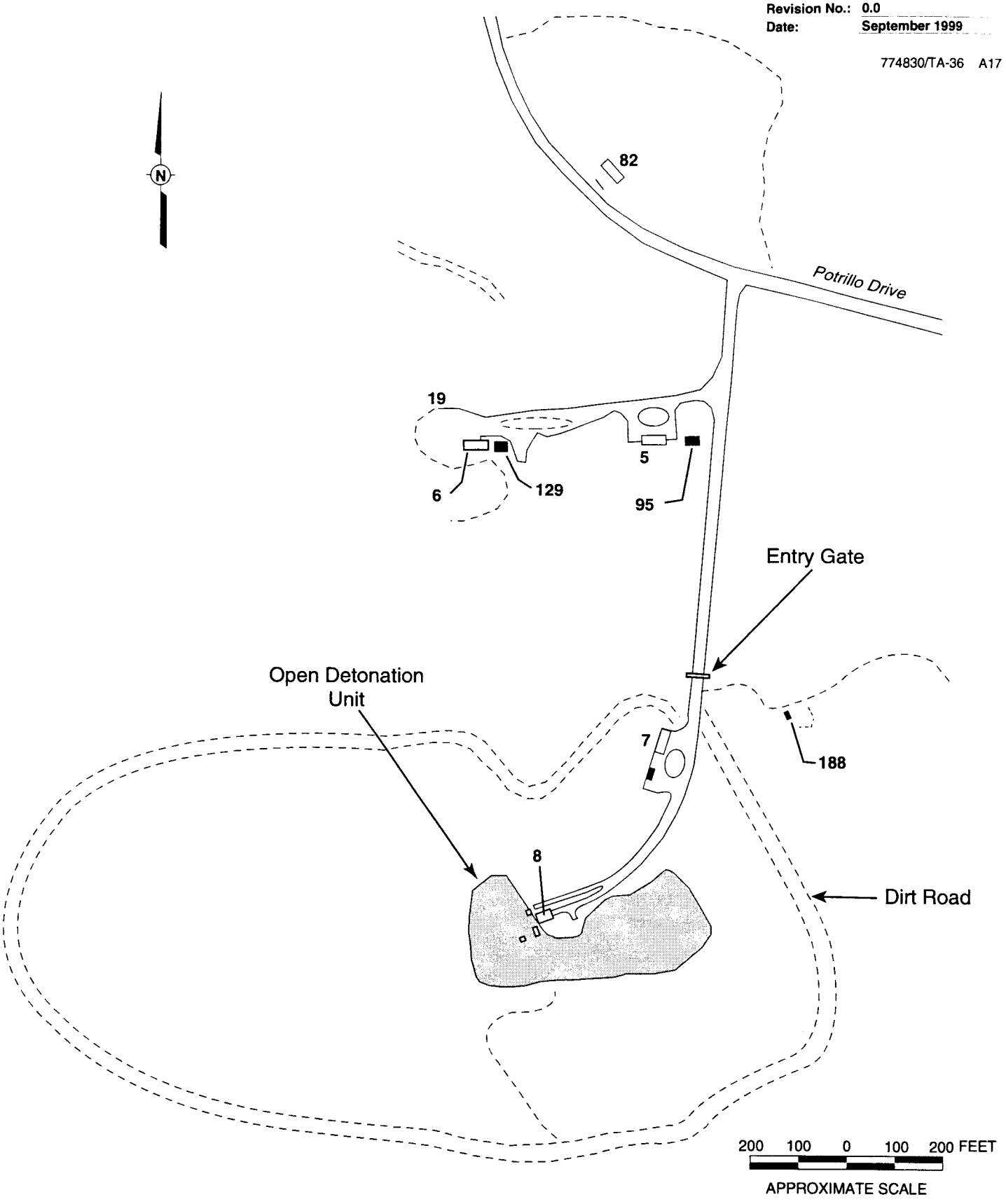
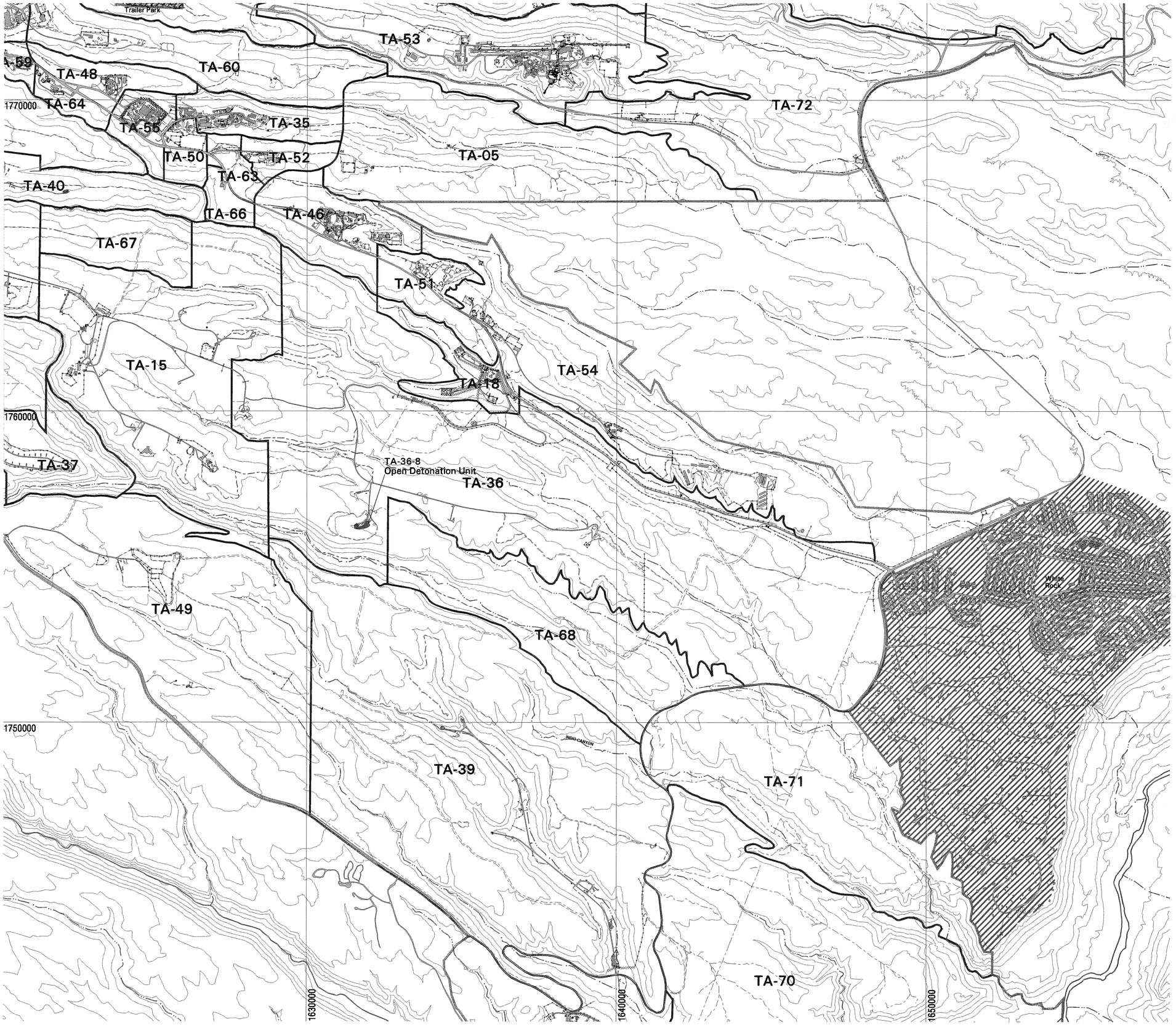


Figure I-1
Location Map Showing Entry Gate in the Vicinity of the Open Detonation Unit near Technical Area (TA) 36, Building 8



LEGEND

- Boundary, Los Alamos National Laboratory
- Boundary, Technical Area (TA)
- Contours, 100 foot
- Fence, Industrial
- Fence, Security
- Roads, Dirt
- Roads, Paved
- Road/Trail
- Stream, Intermittent
- Stream, Perennial
- Building
- Open Detonation Unit
- Residential Areas

2351-D

Figure I-2:
Contour Map Showing Industrial and Security Fences in the Region near Technical Area (TA) 36

University of California
Los Alamos National Laboratory
Earth and Environmental Sciences Division

EES-5 GIS TEAM

Produced by: Marcia Jones
Date: September 01, 1999 GIS Plot ID: G108049

N

State Plane Coordinate System, New Mexico Central Zone, 1983 North American Datum

Grid provides NM State Plane coordinates in feet.
Grid interval, in feet: 10000
Feet per inch on map = 1500

SCALE 1:18000

0 457 914 1371 1828 METERS

0 1500 3000 4500 6000 FEET

Notice: The information on this map is provisional and the accuracy has not been confirmed. Feature locations are dependent on scale and symbology and should not be relied upon to establish legal claims. Basemap Sources: Boundary, structure, and utility data are from Los Alamos National Laboratory Engineering Division and Los Alamos County Utility and Engineering Departments. Contour data is from Los Alamos National Laboratory Environmental Restoration Program aerial survey, September 1991.

ATTACHMENT J

BASELINE HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT FOR TECHNICAL AREA 36-8

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LIST OF ABBREVIATIONS/ACRONYMS

cm^2	square centimeter(s)
COPC	chemical of potential concern
COPEC	chemicals of potential ecological concern
EPA	U.S. Environmental Protection Agency
g	gram(s)
g/m^2-hr	gram(s) per square meter per hour
HEAST	Health Effects Assessment Summary Tables
HI	hazard index
hr	hour(s)
HQ	hazard quotient
hr/day	hours per day
ILCR	incremental lifetime cancer risk
IRIS	Integrated Risk Information System
kg	kilogram(s)
LANL	Los Alamos National Laboratory
LD_{50}	lethal dose to 50 percent of the test population
LOAEL	lowest-observed-adverse-effect-levels
log	logarithm
m/sec	meter(s) per second
m^2	square meter(s)
m^3	cubic meter(s)
mg	milligram(s)
mg/day	milligram(s) per day
mg/kg	milligram(s) per kilogram
mg/kg-day	milligram(s) per kilogram(s) per day
mg/L	milligram(s) per liter
N	number of samples
NCP	National Contingency Plan
NOAEL	no-observed-adverse-effect-level
OD	open detonation
OU	operable unit
RAGS	Risk Assessment Guidance for Superfund
RfD	reference dose

LIST OF ABBREVIATIONS/ACRONYMS (continued)

RME	reasonable maximum exposure
SF	slope factor
TA	technical area
TES	threatened, endangered, or sensitive
UCL	upper confidence limit
UTL	upper tolerance limit

J.1 INTRODUCTION

This attachment addresses the overall baseline human health and ecological effects of exposure to chemicals of potential concern (COPC) in surface soil, sediment, and air for the Technical Area (TA) 36-8 open detonation (OD) unit at Los Alamos National Laboratory (LANL).

The human health risk assessment is an estimation of potential risk which may occur at TA-36-8 under normal operating conditions. This risk assessment was performed in accordance with the "Risk Assessment Guidance for Superfund" (RAGS) (U.S. Environmental Protection Agency [EPA], 1989) and additional guidance provided by EPA.

The ecological risk assessment process performed for the TA-36-8 site is a screening level assessment. Methodology used is based on screening level guidance presented by EPA (EPA, 1992a; 1997; 1998) and by Wentsel et al. (1996) and is consistent with a phased approach. This assessment utilizes conservatism in the estimation of ecological risks; however, ecological relevance and professional judgement are also incorporated, as recommended by EPA (1998) and Wentsel et al. (1996), to ensure that the predicted exposures of selected ecological receptors reasonably reflect those expected to occur at the site.

This report consists of the following major elements: identification of COPCs (Section J.2), human health risk assessment (Section J.3), and ecological risk assessment (Section J.4).

J.2 IDENTIFICATION OF CHEMICALS OF POTENTIAL CONCERN

This section identifies the COPCs for TA-36-8 at LANL. Pertinent data collection considerations are discussed, and the data evaluation process is presented.

Data collected during the investigations were evaluated for use in this risk assessment in accordance with EPA guidance (EPA, 1989). This process included evaluating the sample collection and analytical methods used, evaluating the quality of the data, and selecting the COPCs. The goal of the COPC selection process was three-fold: (1) to identify those chemicals that are likely to be site-related, (2) to determine the acceptability of the analytical data for use in the risk assessment, and (3) to focus the risk assessment on those constituents that represent the dominant potential risks at the site. The various analytical data used are provided in Attachment L of this Part B permit application.

J.2.1 Site Description

TA-36 is spread over several mesa tops between a branch of Pajarito Canyon to the north and Water Canyon to the south. The mesa tops are primarily woodlands and savanna. Mesa-top elevations range from approximately 6,380 feet to 7,120 feet above mean sea level. TA-36 contains several firing sites and supporting offices where research is conducted with various types of explosives. TA-36-8 is located in the southern portion of TA-36.

J.2.2 Methodology for Selection of Chemicals of Potential Concern

This section presents the procedure used to identify the COPCs for TA-36-8. The analytical data were organized by medium into individual data sets (e.g., surface soil data). For individual data sets that contained nondetections (i.e., data which were "U" or "UJ" qualified), the detection limit of the nondetected result was divided by two before any statistical calculation was performed. These steps are in accordance with EPA guidance (EPA, 1989). All statistical calculations were performed using STATISTICA® (Statsoft, 1996) for Windows, Version 5. The following statistical manipulations were performed on each of the individual data sets:

- Frequency Sampled - Number of samples that were collected and analyzed for a particular chemical in a specific medium.
- Number of Detections - Number of detections of a particular chemical in a specific medium.
- Maximum Concentration - Highest concentration of a particular chemical in a specific medium.
- Minimum Concentration - Lowest concentration of a particular chemical in a specific medium. This value may be one half of the detection limit for data sets which contain nondetections.
- Mean Concentration - Arithmetic mean of a particular chemical in a specific medium.
- Standard Deviation - Sample standard deviation of a particular chemical in a specific medium.
- Upper 95-Percent Confidence Limit of the Mean (UCL) - 95-percent UCL was calculated for a chemical in a specific medium using the Student's *t* statistic and assuming that the analytical data were normally distributed.
- Upper 95-Percent Tolerance Limit (UTL) - 95-percent UTL was calculated for a chemical in a specific medium for comparison to background.

Subsequent to the statistical calculations, analytical results were screened using criteria from EPA guidance (EPA, 1989) to focus the risk assessment process on those constituents that were COPCs. The screening criteria included the following:

- COPCs which were 100 percent nondetections for a given medium were eliminated from consideration.
- If inorganic chemicals were present in soil at naturally occurring background levels, they were eliminated from consideration. The 95-percent UTL for the TA-36-8 analytical data were compared to 95-percent UTL regional background concentrations. If the TA-36-8 UTL was less then the regional background UTL, the inorganic chemical was eliminated as a COPC.
- All metals which are considered essential nutrients were eliminated from consideration.
- Due to the presence of several laboratory contaminants in virtually all environmental sampling efforts, the EPA has developed guidance for eliminating these contaminants from consideration as a COPC. A chemical is excluded from consideration if the maximum sample concentration does not exceed 10 times the highest blank concentration for all common laboratory contaminants (these include 2-butanone, acetone, methylene chloride, toluene, and phthalate) or does not exceed 5 times the highest blank concentration for other chemicals (EPA, 1989). This criterion was developed by the EPA to prevent the inclusion of chemicals that are most likely sampling or analytical artifacts. Although no COPCs were detected in the TA-36-8 blank samples, it is possible that both of the phthalate compounds detected in surface soil samples from TA-36-8 are laboratory contaminants.
- Constituents that are infrequently detected may be artifacts in the data due to sampling, analytical, or other problems (EPA, 1989). Constituents were eliminated from further consideration as COPCs if they were detected in 5 percent or less of the data from a particular source area. Class A carcinogens, however, were not eliminated on the basis of frequency of detection.

The remaining COPCs were carried through the risk assessment process.

J.2.3 Chemicals of Potential Concern

Existing analytical data for surface soil at TA-36-8 are summarized in Table J-1. These data include the limited sediment data available at TA-36-8. Included in this summary are the number of samples (N), the number of detections, the maximum and minimum values, mean, standard deviation, 95-percent UCL, 95-percent UTL, the LANL regional background value (if it exists), the determination of whether the analyte is a COPC, and the reason for exclusion if the analyte is not a COPC.

Table J-2 summarizes the air modeling results for air emissions from OD of wood and plastic waste at TA-14, TA-15, TA-36, and TA-39. The worst-case waste treatment and receptor locations were used in the modeled scenario (i.e., a 2,000 pound treatment at TA-36). TA-36-8 ODs are typically smaller in size. Therefore, under baseline conditions, air emissions due to routine operations at TA-36-8 are minimal (i.e., no risk to potential occupational receptors).

J.3 HUMAN HEALTH RISK ASSESSMENT

This human health risk assessment was performed in accordance with RAGS (EPA, 1989) and additional EPA guidance.

J.3.1 Exposure Assessment

This section identifies exposure pathways and quantifies chemical intakes. The purpose of this exposure assessment is to estimate the type and magnitude of exposure to humans.

J.3.1.1 Exposure Pathways

For exposure and potential risks to occur, complete exposure pathways must exist. A complete pathway requires the following elements (EPA, 1989):

- A source and mechanism for release of contamination,
- A transport or retention medium,
- A point of potential human contact (exposure point), and
- An exposure route at the exposure point.

If any one of these elements is missing, the pathway is not considered complete. Following is a brief discussion of the exposure pathway elements.

Contamination sources and the transport /retention medium are the same as those addressed in Section J.2.3. At TA-36-8, the primary medium of concern is surface soil.

Exposure points are locations of human contact with contaminated media. Exposure points consider human activity patterns and the location of potentially exposed individuals relative to the location of contaminated media. For this assessment, contact with potentially contaminated media takes place as a result of occupational exposure. To maintain the conservative methodology of RAGS (EPA, 1989), the contact point for surface soil contamination in all exposure scenarios is located at the contaminant source.

The following three exposure routes were examined:

- Ingestion,
- Inhalation (both dust and modeled air concentrations), and
- Dermal contact.

Because land use at LANL and TA-36-8 is restricted, the only potential current on-site user is an occupational receptor. The potentially complete exposure pathways include exposure to surface soil, surface water (under limited conditions), and air. Figure J-1 illustrates the site conceptual model for TA-36-8. Table J-3 lists the complete human exposure pathways for current land use. This table also indicates which pathways have been selected for risk characterization and presents the rationale for inclusion or exclusion of each pathway.

Because land use at TA-36-8 is expected to remain under U.S. Department of Energy control, future pathways at TA-36-8 will be similar to the current pathways listed above. Therefore, this risk assessment assumes that any restrictions currently in place will remain in place for the foreseeable future. Under these conditions, the current and future human health risks are identical (i.e., the pathways and receptors are the same). For the remainder of this attachment, these risks will be linked to an occupational receptor with no further consideration of whether the exposure is current or future.

J.3.1.2 Quantification of Exposure

This section describes the estimation of exposure (intake) for the COPCs that may come into contact with human receptors. The process involves the following:

- Identification of applicable human exposure models and input parameters,
- Determination of the concentration of each chemical in environmental media at the point of human exposure, and
- Estimation of human intakes.

For each potentially complete future exposure pathway identified in Section J.3.1.1, a reasonable maximum exposure (RME) scenario has been developed. The RME is the highest exposure that is reasonably expected to occur at a site (EPA, 1989). The intent of the RME, as defined by EPA, is to estimate a conservative exposure case (i.e., well above the average case) that is still within the

possible range of exposures. The RME is both protective and reasonable but is not the worst possible case (EPA, 1991a).

J.3.1.2.1 Exposure Models

The primary source for the exposure models used in this baseline risk assessment is RAGS (EPA, 1989). Shown below is the generalized equation for calculating chemical intakes:

$$I = C \frac{CR \times EFD}{BW \times AT}$$

where

I = Intake; the amount of chemical at the exchange boundary (milligrams per kilogram [mg/kg] body weight per day [mg/kg-day]).

C = Chemical concentration at the exposure point; the concentration contacted over the exposure period (e.g., mg per liter [mg/L] water or mg/kg soil).

CR = Contact rate; the amount of contaminated medium contacted per unit time or event (e.g., mg per day [mg/day] soil ingestion rate or cubic meters per hour air inhalation rate).

EFD = Exposure frequency and duration; describes how often and how long exposure occurs. Often calculated using two terms (EF times ED).

EF = Exposure frequency (days/year).

ED = Exposure duration (years).

BW = Body weight; the average body weight over the exposure period (kg).

AT = Averaging time; period over which exposure is averaged (days).

Each model for exposure to COPCs at TA-36-8 is summarized below.

Ingestion of Soil

For estimating chemical intake from ingestion of soil, the following equation applies:

$$Intake = \frac{C_i \times EF \times F \times IR \times ED}{AT \times BW}$$

where

Intake = Intake of chemical through ingestion of medium (mg/kg-day).

C_i = Chemical concentration in medium i (mg/kg).

IR = Ingestion rate for medium i and receptor (kg/day).

F = Fraction of ingested medium from contaminated source (unitless).

EF, ED, BW, and AT are defined above.

Inhalation of Dust

Ambient sampling for beryllium has been conducted at numerous regional, perimeter, and on-site locations at and surrounding LANL. The measured on-site beryllium concentrations (see LANL's Environmental Surveillance Reports for 1993, 1992, 1991, and 1990) (LANL, 1995, 1994, 1993, and 1992) are significantly lower than the TA-36-8 site-specific values modeled in this analysis. This risk assessment was performed based on an EPA particulate emission factor (EPA, 1996a) using TA-36-8 site-specific values.

For estimating respirable particulate emission from wind erosion, assuming an unlimited reservoir, the equation is (EPA, 1996a):

$$E_{10} = 0.036\,(1\text{-}V)\,(\frac{[u]}{u_t})^3\ f(x)$$

where

E_{10} = PM_{10} emission factor (grams per square meter [g/m^2]-hour [hr]).

V = Fraction of contaminated surface vegetative cover (unitless, assumed to be 0).

[u] = Mean annual wind speed (meters per second [m/sec], 3.2 m/sec).

u_t = The threshold value of wind speed at 7 meters (m/sec).

f(x) = Function plotted in EPA, 1996a [f(x) = 1.5] where x = 0.886 u_t/[u].

Once the PM_{10} emission factor is calculated, the emission rates for the individual COPCs were calculated according to the following:

$$R_{10} = \alpha\ x\ E_{10}\ x\ A\ x\ C$$

where

R_{10} = Emission rate of contaminant as PM_{10} (mg/hr).

α = Chemical concentration (mg/kg).

E_{10} = PM_{10} emission factor (g/m^2-hr).

A = Site area (square meters [m^2], assumed to be 1000 m^2).

C = Conversion factor for kg to grams (g).

Once the dust concentration in air has been calculated for each COPC, the chemical intake is:

$$Intake = \frac{C_i \ x \ BA \ x \ IR \ x \ ET \ x \ EF \ x \ ED}{BW \ x \ AT}$$

where

C_i = Chemical-specific air concentration (g/cubic meter [m^3]).

BA = Bioavailability factor (unitless).

IR = Inhalation rate (m^3/event, typically m^3/hr).

ET = Exposure time (hr/day).

EF, ED, BW, and AT are defined above.

Dermal Contact Soil

The following is the chemical intake equation for dermal absorption of chemicals due to contact with soil or sediment:

$$AD = \frac{C_i \ x \ AF \ x \ ABS \ x \ CF \ x \ SA \ x \ EF \ x \ ED}{AT \ x \ BW}$$

where

AD = Absorbed dose (mg/kg-day).

C_i = Chemical concentration in medium (mg/kg).

AF = Soil-to-skin adherence factor (mg/cm^2).

ABS = Skin absorption factor (unitless).

CF = Conversion factor (10^{-6} kg/mg).

SA = Skin surface area available for contact (square centimeters [cm^2]/event).

EF = Exposure frequency (events/year).

ED, BW, and AT are defined above.

J.3.1.2.2 Exposure Parameters

Three types of parameters are used in exposure models to estimate intake (EPA, 1989):

- Chemical-related parameters (e.g., exposure point concentrations),
- Parameters that describe the exposed population (e.g., contact rate, exposure frequency and duration, and body weight), and
- Toxicity-related parameters (i.e., slope factors [SF] and reference doses [RfD]).

The exposed population and exposure-related parameters are summarized in Table J-4. The exposure parameters were taken from EPA guidance and are based on best professional judgement using site-specific information, where available. Upper-bound values are generally 90th or 95th percentile values, depending on the data available for each parameter. A combination of upper-bound and average exposure parameters were used to estimate the RME for each scenario.

J.3.1.2.3 Intakes for Chemicals of Potential Concern

Noncarcinogenic and carcinogenic intakes of COPCs at TA-36-8 are discussed in Section J.3.3.3. Intakes are expressed in units of milligrams of individual constituent per kilogram of receptor per day.

J.3.2 Toxicity Assessment

Toxicity information is given in the same units provided by the source material (dose rates and concentrations are primarily used). The EPA weight-of-evidence classification (cancer class) system for carcinogenicity is presented here for reference. The classification is as follows (EPA, 1989):

- Class A - Human carcinogen,
- Class B1 - Probable human carcinogen; limited human data available,

- Class B2 - Probable human carcinogen; sufficient evidence in animals; inadequate or no evidence in humans,
- Class C - Possible human carcinogen,
- Class D - Not classifiable as to human carcinogenicity, and
- Class E - Evidence of noncarcinogenicity for humans.

Slope factors are typically calculated for potential carcinogens in Classes A, B1, and B2. Quantitative estimation of slope factors for chemicals in Class C proceeds on a case-by-case basis.

For chemicals, the primary source for toxicity values, both RfD and SF, is the Integrated Risk Information System (IRIS) (EPA, 1999). If a toxicity value for a given chemical is not available in IRIS, the secondary source is the Health Effects Assessment Summary Tables (HEAST) (EPA, 1996b). No surrogate values were developed for chemicals for which no toxicity information existed in either of the above references.

Table J-5 summarizes the chemical toxicity information including the COPC, RfD, SF, and EPA cancer classification.

J.3.3 Risk Characterization

This section provides a characterization of the potential health risks associated with the intake of chemicals at TA-36-8. Risk characterization compares estimated potential cancer risks with reasonable levels of risk for carcinogens and compares estimated daily intake (rate) with reference levels for noncarcinogens. Carcinogens may also pose a systemic (noncarcinogenic) hazard, and these potential hazards are characterized in the same manner as other noncarcinogens.

Estimation of potential risk from exposure to the site contaminants is based on RAGS (EPA, 1989). This assessment employs a health-protective bias that leads to the overestimation of risk. Individuals are exposed to an RME (see Section J.3.1.1) and exposure is evaluated (see Section J.3.1.2) to provide estimates of daily intakes. These estimated intakes (rates) are combined with the individual chemical toxicological values (see Section J.3.2) to determine the potential carcinogenic risks and the potential systemic impacts on human health.

J.3.3.1 Estimation of Carcinogenic Risk

In weighing occupational exposure to potentially carcinogenic compounds, a reasonable level of risk must be selected. The EPA used an incremental lifetime cancer risk (ILCR) (also referred to as excess cancer risk) of one in one million (1×10^{-6}) as the lower bound of an acceptable range for developing drinking water standards. The upper bound of an acceptable ILCR recommended by the EPA for drinking water is 1 in 10,000 (1×10^{-4}) (EPA, 1987). In addition, the EPA specifies a risk range of 10^{-6} to 10^{-4} associated with the consideration and selection of remedial alternatives for contaminated land in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (EPA, 1990).

Based on the regulatory precedents cited above, a reasonable and appropriate ILCR range would be from 10^{-6} to 10^{-4}. As implemented under the NCP, pathway ILCRs greater than 10^{-6} must receive risk management consideration (EPA, 1990). The quantitative risk assessment is one of many factors that is considered in the decision-making process for remediation. Therefore, there is no single risk value that defines "acceptable" and "unacceptable" risk. The purpose of this risk assessment is to present quantitative and qualitative estimates of potential risk; thus, all pathway risks greater than the lower bound of 10^{-6} will be examined.

For TA-36-8, cumulative site ILCRs were developed. These cumulative ILCRs included all media and pathways that were appropriate to combine. Cumulative ILCRs occur when there is potential for an individual to be exposed to multiple pathways at the same given instant in time. Where the cumulative site ILCR to an individual based on the RME for both current and future land use is less than 10^{-4}, action is generally not warranted unless there are adverse environmental impacts (EPA, 1991b).

Carcinogenic risk is estimated as the probability of an additional incidence of cancer above background. This risk is:

$$ILCR = SF \times Intake$$

where

ILCR = ILCR (unitless).

SF = Carcinogenic SF [$(mg/kg\text{-}day)^{-1}$].

Intake = Chronic daily intake averaged over a 70-year lifetime (mg/kg-day).

The carcinogenic SFs for the COPCs are presented in Table J-5.

For a given pathway and medium with exposure to several carcinogens, the following equation was used to sum the cancer risk:

$$Risk_{t,p} = \sum_{I=1}^{I} ILCR_p\ (chem_i)$$

where

$Risk_{t,p}$ = Total cancer risk for pathway p (unitless).

$ILCR_p(chem_i)$ = Individual cancer risk for constituent i through exposure pathway p (unitless).

Estimates of ILCRs for each exposure pathway are addressed in Section J.3.3.3.

J.3.3.2 Estimation of Noncarcinogenic Risk

Chemicals that pose a health threat other than cancer were evaluated by comparing an exposure level or intake to an acceptable level or RfD. The ratio of estimated daily intake to the RfD is termed the hazard quotient (HQ) and is defined as:

$$HQ_{i,p} = \frac{I_{i,p}}{RfD_i}$$

where

$HQ_{i,p}$ = Individual HQ for exposure to constituent i through exposure pathway p (unitless).

$I_{i,p}$ = Daily intake via a specific pathway p for constituent i (mg/kg-day).

RfD_i = RfD for exposure by the specific pathway (limited to oral and inhalation values) for constituent i (mg/kg-day).

The RfD is an estimate of the intake level to which a human population, including sensitive subpopulations, may be chronically exposed without a significant risk of adverse health effects (EPA, 1989). The RfDs for the COPCs at TA-36-8 are listed in Table J-5. Because the HQ does not define intake response relationships, its numerical value should not be construed as a direct

estimate of risk, but it does suggest that a given situation should be more closely scrutinized. The concept of the HQ implies the existence of a threshold for systemic health effects. It is a numerical indication of the fraction of acceptable limits of exposure or the degree to which acceptable exposure levels are exceeded. As the HQ increases toward unity, concern for the potential hazard of the constituent increases. A value above unity is an indication of risk, although a direct correlation to the magnitude of the risk cannot be drawn.

In the case of simultaneous exposure to several chemicals, the hazard index (HI) is calculated to evaluate the potential risk from exposure to the mixture by summing the HQs for each chemical, media, and pathway. The total HI incorporates the assumption of additive effects when dealing with a mixture of components. The HI formula is as follows (EPA, 1989):

$$HI = \sum_{i=1}^{I} HQ_i$$

where

HI = Hazard index (unitless).

HQ_i = Hazard quotient for exposure to constituent i (unitless).

Summation of the individual HQs could result in an HI that exceeds 1, even if no single chemical exceeds its acceptable level. Mechanistically, it is not appropriate to sum HQs unless the constituents that make up the mixture have similar modes of action on an identical organ. Consequently, the summing of HQs for a mixture of compounds that is not expected to include the same type of effects could overestimate the potential risk. The EPA recommends that if the total HI is greater than unity, the components of the mixture should be grouped by critical effect, and separate hazard indices should be calculated for each effect.

Estimates of noncarcinogenic risks for each occupational exposure pathway are provided in the following section.

J.3.3.3 Results of the Human Health Risk Characterization

Tables J-6 and J-7 summarize the risks for each exposure pathway at TA-36-8. Included in this summary are the carcinogenic and noncarcinogenic intakes; ILCRs and HQs for each COPC and pathway; and pathway total ILCR and HI.

This human health risk assessment suggests that the current level of contamination for surface soil does not pose a potential significant risk to human health. None of the individual COPCs for any of the pathways considered had an ILCR above 1×10^{-6} or an HQ above 1.0. The current and future cumulative site ILCR to an occupational receptor based on the RME is 3.9×10^{-8}, well below 1×10^{-4}. Therefore, under current and anticipated future conditions, exposure to COPCs at TA-36-8 as a whole poses no potential significant carcinogenic risk (EPA, 1991b).

J.3.3.4 General Uncertainties

The overriding uncertainties associated with the risk characterization are as follows:

- The extrapolation of toxic effects observed at the high doses necessary to conduct animal studies to effects that might occur at much lower, more realistic doses.
- The extrapolation from toxic effects in laboratory animals to toxic effects in humans (i.e., responses of animals may be different from responses of humans).
- Pathway analyses have been conservative and generally do not include fate and transport considerations (such as dispersion or adsorption) in the estimates.

Extrapolations from laboratory animal studies form the basis for the derivation of factors used to estimate risks. Uncertainties are taken into account when deriving RfDs and SFs. This risk assessment utilized EPA guidance in minimizing the uncertainties through the use of published standards and criteria to evaluate risks posed by chemicals measured at TA-36-8.

In addition to the general uncertainties listed above, the sources of uncertainty in characterizing risk at TA-36-8 include the following:

- Risk due to lead was not quantified. However, the maximum detected lead concentration in surface soil was 94 mg/kg. Most occupational preliminary remediation goals for lead are set at 1,000 mg/kg or higher (CEPA, 1996; EPA, 1996a). Therefore, lead is not of concern at TA-36-8.

Risk assessment is ultimately an integrated evaluation of historical, chemical, analytical, environmental, demographic, and toxicological data that are as site-specific as possible. To safeguard against the effects of uncertainty in the evaluation, each step is biased toward health protective estimations. Because each step builds on the previous one, this biased approach should more than compensate for risk assessment uncertainties. In addition, the calculations presented in

this risk assessment do not necessarily accurately represent currently existing or expected future exposure or health risks. Rather, they are estimates of potential risk only if all the conservative assumptions are realized.

J.4 ECOLOGICAL RISK ASSESSMENT

The ecological risk assessment for TA-36-8 is a screening level assessment, which is defined here as a preliminary evaluation of potential ecological risks that incorporates limited site-specific data, conservative exposure assumptions, literature-obtained uptake models and transfer factors, and literature-obtained or -derived ecotoxicological benchmark values. It is used as an evaluation tool to determine what chemicals in the environment may present risk and establishes a basis for the collection of additional site-specific data should risks be predicted. This assessment follows the generally accepted tiered approach as recommended by EPA (EPA, 1992a; 1997; and 1998). A discussion of the site characteristics, fate and transport potential, and COPCs were presented in previous sections of this attachment. This section will briefly re-address some of these components as they relate to the problem formulation phase of the ecological risk assessment. Following the problem formulation, the analysis and risk characterization phases of the risk assessment process address the potential exposures of ecologically relevant receptors to chemicals of potential ecological concern (COPEC), the potential for these COPECs to cause toxic effects in the receptors, and the overall potential of the site to adversely affect the populations and the ecological community at and around TA-36-8.

J.4.1 Problem Formulation

Problem formulation is the first step of the ecological risk assessment process. It can be defined as a systematic planning step that identifies the major factors to be considered in a particular assessment (EPA, 1992a). In short, it establishes the goals, breadth, and focus of the assessment and is linked to the regulatory and policy context of the assessment. The problem formulation process begins with the initial stages of characterization exposure and ecological effects expected and observed. It describes the relationships among assessment and measurement endpoints, data requirements, and methodology that will be used to analyze the data. This section specifically addresses the ecology of the site (Section J.4.1.1), the conceptual model (Section J.4.1.2), the assessment and measurement endpoints used in the evaluation process (Section J.4.1.3), and the COPECs (Section J.4.1.4).

J.4.1.1 Ecological Description

TA-36-8, an OD site, is located on Mesita del Potrillo in the southern part of LANL. The elevation at the TA-36-8 site is approximately 6,900 feet above mean sea level. The mesa is situated between Water Canyon and Pajarito Canyon. The canyons are defined by steep walls descending about 300 feet from the rim of the mesa. The soils in this area primarily consist of the Nyjack sandy loam. No wetlands or significant drainages occur on the site and the site is not within a 100-year floodplain. The following information is based on the report "Biological Assessment for Environmental Restoration Program; Operable Unit 1130; TAs 36, 68, and 71" (LANL, 1996).

The vegetation on Mesita del Potrillo is woodland, dominated by piñon pine (*Pinus edulis*) and one-seed juniper (*Juniperus monosperma*). The dominant shrubs in this habitat include oaks (*Quercus* spp.), mountain mahogany (*Cercocarpus montanus*), and squawbush (*Rhus trilobata*). Herbaceous understory plants include mountain muhly (*Muhlenbergia montana*), blue grama (*Bouteloua gracilis*), and bitterweed (*Hymenoxys richardsonii*). Seventy species of birds are either known or expected to occur in Operable Unit (OU) 1130, which contains the TA-36-8 OD site. Of these, 46 are known to breed. These include the American kestrel (*Falco sparverius*), great horned owl (*Bubo virginianus*), western kingbird (*Tyrannus vociferans*), common raven (*Corvus corax*), scrub jay (*Amphelocoma coerulescens*), American robin (*Turdus migritorius*), Grace's warbler (*Dendroica graciae*), rufous-sided towhee (*Pipilo eurythrophthalamus*), and chipping sparrow (*Spizella passerina*). Mammalian wildlife species of the OU include mice (*Peromyscus* and *Reithrodontomys* spp.), woodrats (*Neotoma* spp.), pocket gophers (*Thomomys* spp.), chipmunks (*Eutamias* spp.), Abert's squirrel (*Sciurus aberti*), cottontails (*Sylvilagus* spp.), gray fox (*Urocyon cinereoargenteus*), coyote (*Canis latrans*), bobcat (*Felis rufus*), black bear (*Ursus americanus*), mule deer (*Odocoileus hemionus*), and elk (*Cervus elaphus*).

Twelve threatened, endangered, or sensitive (TES) plant species were evaluated for potential occurrence in OU 1130, but all were dismissed as unlikely due to habitat requirements or absence from vegetation survey records for Los Alamos County (LANL, 1996). Therefore, no TES plant species are expected to occur at TA-36-8. Nine TES wildlife species were evaluated for potential occurrence at this OU (LANL, 1996). These were the bald eagle (*Haliaeetus leucocephalus*), American peregrine falcon (*Falco peregrinus anatum*), northern goshawk (*Accipiter gentilis*), Mexican spotted owl (*Strix occidentalis lucida*), southwestern willow flycatcher (*Empidonax traillii extimus*), gray vireo (*Vireo vicinior*), Baird's sparrow (*Ammodramus bairdii*), spotted bat (*Euderma maculatum*), and a pulmonate snail (*Oreohelix* spp.). Of these, only the northern goshawk, spotted

bat, and pulmonate snail warranted species-specific (Level 3) surveys. The following accounts describe the potential for each of these to occur at or be influenced by the TA-36-8 OD unit.

Northern goshawk. The optimal nesting habitat for northern goshawks is old-growth coniferous forests within about a quarter of a mile from water. Such habitats within the LANL boundary occur in upper canyons, higher and more moist than the habitats of OU 1130. The foraging range of the goshawk is approximately 5,400 acres (8.4 square miles), which (if circular) indicates a foraging distance of about 1.6 miles from the nest. Northern goshawks have not been recorded within the LANL boundary. Therefore, the potential for exposure to this species by chemical constituents at the TA-36-8 site is very small.

Spotted bat. Spotted bats occur in woodlands and forests, usually near standing water. They roost in rock crevices and may be associated with cliffs. Although some of these habitat features are found near OU 1130, mist-net surveys conducted in these areas have not recorded spotted bats. Therefore, its potential for occurrence at or near the TA-36-8 site is very small.

Pulmonate snail. The pulmonate snail identified as a TES species is not listed as either endangered or threatened. It is an isolated population found in TA-71. It is not known to occur in TA-36, and therefore, will not be affected by constituents at TA-36-8.

J.4.1.2 Conceptual Model

The conceptual model for the TA-36-8 ecological risk assessment is presented in Figure J-1. Exposure is essentially limited to terrestrial receptors due to the absence of significant drainage features. Surface water at the site is ephemeral and does not support aquatic or semi-aquatic wildlife. The potential for COPECs to be carried off site by these surface waters, and thereby reaching aquatic receptors, is considered to be a minor exposure pathway. The potential for brief contact between terrestrial receptors and on-site surface water is also considered to be a minor pathway.

J.4.1.3 Endpoints

Endpoints for the TA-36-8 ecological risk assessment have been selected to be protective of the specific ecosystems and receptors associated with the area. Emphasis is placed on the terrestrial

habitat associated with TA-36-8. Table J-8 presents the management goals, assessment endpoints, and measurement endpoints associated with this habitat.

J.4.1.4 Chemicals of Potential Ecological Concern

The identification of COPCs for TA-36-8 is presented in Section J.2. Because the process used in the selection of COPCs for this risk assessment is not risk-based and only involves comparison to background concentrations and frequency of detection, all COPCs identified in the human health risk assessment were also utilized as COPECs. All samples evaluated in this risk assessment were collected from within the upper 10 inches of soil and are considered to be surface soils. A few samples were associated with minor drainage features and labeled as "sediment." Because these drainage features are small and dry for most of the year (not supporting aquatic organisms), these samples were included with the soil sample data to evaluate potential risk to terrestrial receptors only. The COPECs identified in these samples are presented as COPCs in Table J-1.

J.4.2 Analysis

The analysis phase consists of the technical evaluation of data to reach conclusions about ecological exposure and the relationships between the stressors (COPECs) and ecological effects (EPA, 1998). This phase follows the problem formulation phase of the ecological risk assessment and addresses both potential exposure and potential toxic effects levels associated with the COPECs. The results of the analysis phase will feed directly into the risk characterization segment.

J.4.2.1 Exposure Assessment

The exposure assessment examines the exposure pathways and identifies potential ecological receptors. The methods used to quantify exposure are described in this section. Exposures to the selected receptors were only quantitatively estimated if a complete exposure pathway exists. Minor pathways, as shown in Figure J-1, were not evaluated.

J.4.2.2 Exposure Pathways

As presented in Figure J-1, ecological receptors can be exposed directly to soil contaminants associated with TA-36-8. Exposure can also occur through food-chain interactions. The most significant exposure pathways for terrestrial receptors are through direct contact by plants and ingestion by wildlife. Direct uptake of COPECs from soil was assumed to be the major route of exposure of plants to COPECs, with exposure of plants to wind-blown soil assumed to be minor.

Because of the shallow depths of sample collection (0 - 10 inches), all constituents were considered to be within the range of availability to plants, as supported by information on root depths in Reynolds and Fraley (1989).

Exposure modeling for the wildlife receptors was limited to the food ingestion pathway. Inhalation and dermal contact were considered insignificant pathways with respect to ingestion (Sample and Suter, 1994). Exposures for this screening-level assessment were modeled using an area use factor of 1, implying that all ingested food items and soil are from the site being investigated. Drinking water was considered an insignificant pathway because of the lack of permanent surface water at this site.

J.4.2.3 Ecological Receptors

Plants and wildlife were selected as indicators of potential risk to the terrestrial environment. A non-specific perennial plant was used as the receptor to represent plant species at the site. The wildlife receptor species used to evaluate potential ecological risk at TA-36-8 were selected to represent the range of trophic levels that comprise the food web in the woodland habitats of this site, including herbivores, insectivores, omnivores, and carnivores. Preference was generally given to species identified as occurring in or near TA-36 (based on species lists in LANL, 1996). In general, smaller species within each of these groups were used to model food-chain transfers and exposures because they are likely to have smaller home ranges, and therefore, higher exposures to soil contaminants. Also, sizes and/or diets of the receptors were sometimes taken at the extremes of the potential range (e.g., the lowest individual body weight, or diets that are composed entirely of plant material, invertebrates, or small mammals) in order to provide estimates of exposure and risk that are not only protective of the majority of individuals of the receptor species, but also can be considered protective of other species within the trophic guild. The potential for TES species to be affected by COPEC exposure at this site was also considered. As discussed in Section J.4.1.1, only three TES wildlife species were identified as potentially occurring in OU 1130, none of which are likely to occur at TA-36-8.

Three small mammals were selected as potential receptors for this site. These are the vagrant shrew (*Sorex vagrans*), western harvest mouse (*Reithrodontomys megalotis*), and montane vole (*Microtus montanus*), which represent insectivorous, omnivorous, and herbivorous diets, respectively. It is not known whether shrews and voles exist at OU 1130 (LANL, 1996), but if they do, they are probably minor components of the mammalian community. The vole, however, might

represent other (larger) herbivorous mammals, such as rabbits and squirrels. The gray fox was selected as a carnivorous mammal, although it is typically omnivorous in food habits. Its modeled diet consisted primarily of mice and voles, but included small amounts of plants and invertebrates.

Two avian receptors were selected, representing insectivorous and carnivorous diets. The American kestrel was selected as the insectivorous bird and the Mexican spotted owl as the top avian predator. Although other large raptors have been identified as occurring in OU 1130 (e.g., the red-tailed hawk [*Buteo jamaicensis*] and the great horned owl [*Bubo virginianus*]) or potentially occurring there (e.g., the northern goshawk) (LANL, 1996), the Mexican spotted owl (a TES species) was selected to represent this guild because of its smaller body size and its feeding on terrestrial rather than aerial prey (in contrast to the peregrine falcon, another TES species of concern at LANL). Smaller owls that might occur in the area, such as the flammulated owl (*Otus flammeolus*), have more insectivorous diets than the Mexican spotted owl; therefore, risks to these species are represented by those to the American kestrel. Based on vegetation characteristics, however, the Mexican spotted owl (a threatened species) is not expected to occur at TA-36 (LANL, 1996). Potential habitat for this species does occur on other parts of LANL, making it a TES species of concern at LANL (LANL, 1997).

Table J-9 presents the species-specific parameters used to model exposures in each of these receptors.

J.4.2.4 Exposure Estimation

Because site-specific biological monitoring data were not available for TA-36-8, exposure concentrations were estimated through the use of models. The 95 percent UCL COPEC concentrations (which were all less than the maximum measured concentrations) from soil data were used to conservatively estimate potential exposures and risks to plants and wildlife at this site. Exposures to COPECs in the indicator wildlife species were estimated using the methods described in the EPA's "Wildlife Exposure Factors Handbook" (EPA, 1993).

In this screening assessment, only the dietary exposure pathway is considered. The inhalation and dermal contact pathways are considered to be insignificant pathways for COPECs in the soil. Although both of these pathways may lead to additional absorption of the COPECs, both are also linked to ingestion by the ingestion of soil particles that have been entrapped in the mucus lining of the nasal cavity and throat and the ingestion of soil through grooming. The absorption of COPECs

from soil particles directly through the lungs or skin is expected to be insignificant with respect to that from the daily dietary intake of soil. The drinking water ingestion pathway is also expected to be minor. Surface water in this area is ephemeral and extremely limited, allowing little opportunity for COPECs to accumulate in the water, or for ingestion by or contact with wildlife.

The basic equation for estimating dose through the dietary pathway is:

$$D_p = \sum_{k=1}^{m} (C_k \cdot F_k \cdot I_k)/W$$

where:

D_p = the potential average daily dose (mg/kg-day).

C_k = the average COPEC concentration in the k^{th} food type (mg/kg dry weight).

F_k = the fraction of the k^{th} food type that is contaminated.

I_k = the ingestion rate of the k^{th} food type (kg dry weight/day).

W = the body weight of the receptor (kg wet weight).

Natural history data used in modeling the exposure in each of the wildlife receptor species include the average or midpoint body weight, the total ingestion rate, and the fraction of the diet composed of various food types. For screening purposes, the calculation of C_k is based on the 95 percent UCL soil concentration. The food items of a particular type are considered to be equally contaminated throughout the entire home range of the receptor; therefore, F_k is 1.

Estimates of the concentrations of COPECs in food organisms (plants, invertebrates, and small mammals) were made using the chemical-specific concentrations in soil from TA-36-8. These estimates were made either through linear models that use organism-specific transfer factors or from empirically derived nonlinear models. In the former case, the model is of the form:

$$C_o = (C_m)(TF_{m,o})$$

where:

C_o = the concentration of the COPEC in the target organism (mg/kg, dry weight).

C_m = the concentration of the COPEC in an external medium (mg/kg, dry weight).

$TF_{m,o}$ = the medium-to-organism transfer factor (unitless).

For modeling concentrations in plants and invertebrates, the external medium was soil. For small mammals, the external medium was food (plants and/or invertebrates, plus incidentally ingested soil). Table J-10 presents the transfer factors used in this model.

Transfer coefficients for organic COPEC concentrations in plants were estimated using the equation derived by Travis and Arms (1988), which is based on the linear regression of the logarithm (log) of the octanol/water partition coefficient (K_{ow}) and the log of analytically derived soil-to-plant bioconcentration factors. A similar regression on the log K_{ow} values was used to derive an equation for estimating the transfer factors for organic COPECs for small mammals based on data presented in Garten and Trabalka (1983).

For organic COPECs in invertebrates, the soil-to-organism transfer factors were based on the following equation derived by Connell and Markwell (1990) for modeling uptake by earthworms:

$$TF_{s,w} = \frac{y_L \cdot K_{ow}^{b-a}}{x \cdot f_{oc}}$$

where:

$TF_{s,w}$ = the soil-to-earthworm transfer factor (unitless).
y_L = the fractional lipid content of the organism.
K_{ow} = the octanol/water partition coefficient.
(b-a) = a nonlinearity constant.
x = a proportionality constant.
f_{oc} = the fractional organic carbon content in the soil.

Based on average values for earthworms presented by Connell and Markwell (1990), the values for the nonlinearity constant (0.05), proportionality constant (0.66), and fractional lipid content (0.84 percent) were applied in this model. The organic carbon content of the soil at TA-36-8 was estimated at 1 percent, based on an average organic matter content of 21 Southern Great Plains soils (1.55 percent) divided by an average organic-matter to organic-carbon ratio of 1.7 (Brady, 1974), and rounding the result (0.91 percent) to the nearest whole percentage. Because TA-36-8 can be quite dry during portions of the year, insects and other arthropods are probably more available invertebrate prey items at the site than earthworms. It is expected, however, that the uptake of COPECs by earthworms will generally be greater than that of insects because of their

closer contact with the soil, differences in integument, and direct ingestion of soil particles and detritus. Therefore, these transfer factors are expected to yield conservative estimates of insect uptake.

The empirically-derived nonlinear models for COPEC uptake by plants, invertebrates (earthworms), and small mammals are of the form:

$$C_o = e^{b_0} \; C_s^{b_1}$$

where:

C_o = the concentration of the COPEC in the target organism (mg/kg, dry weight).
C_s = the concentration of the COPEC in soil (mg/kg, dry weight).
b_0 and b_1 = empirically derived model parameters (unitless).
e = the base of natural logarithms (approximately 2.7183).

For plants, earthworms, and small mammals, the sources of b_0 and b_1 were Bechtel Jacobs Company (1998), Sample et al. (1998a), and Sample et al. (1998b), respectively. Of the COPECs for TA-36-8, nonlinear uptake models were only available for copper and lead. The values for b_0 and b_1 are presented in Table J-11.

J.4.2.5 Effects Characterization

The second major component of the analysis phase is to obtain information on the toxicity of the specific COPECs to the ecological receptors. Toxicity information is compiled into a form that makes it comparable to soil concentrations or to intake rates. These values are referred to as benchmark screening values.

General information on the chronic toxicity of inorganic and organic compounds to vascular plants was primarily obtained from Efroymson et al. (1997). These benchmark values are based on lowest-observed-adverse-effect-levels (LOAEL) and are presented in Table J-12.

No-observed-adverse-effect-levels (NOAEL) for chronic oral exposure were used as benchmarks for toxic effects to wildlife (Table J-12). Because the NOAELs for the indicator wildlife species are based on NOAELs from test species, the latter were converted to NOAELs specific to indicator species using a power function of the ratio of body weights, as described by Sample et al. (1996).

$$NOAEL_W = NOAEL_T \left(\frac{BW_T}{BW_W} \right)^s$$

Thus:

where:

$NOAEL_W$	=	the no-observed-adverse-effect-level for the wildlife indicator species (mg/kg-day).
$NOAEL_T$	=	the no-observed-adverse-effect-level for the test species (mg/kg-day).
BW_T	=	the body weight of the test species (kg).
BW_W	=	the body weight of the wildlife indicator species (kg).
s	=	a body weight scaling factor.

The body weight scaling factors(s) are based on an evaluation of toxicity data by Sample and Arenal (1999) in which the average values of "s" were found to be 0.06 for mammals and -0.2 for birds.

When only subchronic oral NOAEL values were available, these were converted to chronic NOAEL values by applying an uncertainty factor of 0.1 (Sample et al., 1996). Similarly, when only chronic LOAEL values were available for test species, an uncertainty factor of 0.1 was used to convert these to NOAELs. In cases where only an acute toxicity value was available for a specific COPEC (e.g., a lethal dose to 50 percent of the test population [LD_{50}]) but both a NOAEL and LD_{50} value were available for a closely related compound in the same test species, the NOAEL for the COPEC was estimated using the relationship from Sample et al. (1996):

$$NOAEL_{TX} = LD_{50TX} \left(\frac{NOAEL_{TY}}{LD_{50TY}} \right)$$

where,

$NOAEL_{TX}$	=	the no-observed-adverse-effect-level for COPEC X in test species T (mg/kg-day).
LD_{50TX}	=	the acute lethal dose to 50 percent of the test population of test species T for COPEC X (mg/kg).
$NOAEL_{TY}$	=	the no-observed-adverse-effect-level for compound Y (closely related to COPEC X) in test species T (mg/kg-day).
LD_{50TY}	=	the acute lethal dose to 50 percent of the test population of test species T for compound Y.

J.4.3 Risk Characterization

Ecological risks for the terrestrial biota associated with TA-36-8 were assessed by comparison of predicted exposure to benchmark toxicity values as HQ. The HQ is the ratio of the estimated exposure to the benchmark value for each COPEC and receptor pair. Table J-13 presents the HQs for TA-36-8. HQ values greater than 1 indicate potential risk based on the conservative assumptions used in the exposure models. HQs greater than 1 were predicted for the vagrant shrew, harvest mouse, and montane vole exposed to 2,4-dinitrotoluene; for the montane vole exposed to HMX; for the American kestrel exposed to di-n-butyl phthalate; and for the Mexican spotted owl exposed to bis-2-ethylhexyl phthalate. The maximum HQ was 12.3 (for the montane vole exposed to 2,4-dinitrotoluene).

J.4.4 Uncertainties and Conclusions

Many uncertainties are associated with the characterization of ecological risks at TA-36-8. These uncertainties result in the use of assumptions in estimating risk that may lead to an overestimation or underestimation of the true risk presented at a site. For this screening level risk assessment, assumptions are made that are more likely to overestimate risk rather than to underestimate it. These conservative assumptions are used to be more protective of the ecological resources potentially affected by the site. Conservatisms incorporated into this risk assessment include the use of the 95 percent UCL soil concentration to evaluate risk, the use of wildlife toxicity benchmarks based on NOAEL values, the use of earthworm-based transfer factors or a default factor of 1.0 for modeling COPECs into soil invertebrates, the assumption that the COPECs at this site are 100 percent bioavailable, and the use of 1.0 as the area use factor for wildlife receptors regardless of seasonal use or home range size.

Although potential ecological risks were predicted by the HQs that exceeded unity (shown in Table J-13), the conservatisms described above that were used in the calculation of the HQs indicate that the actual ecological risks presented by the COPECs at this site are probably lower than those indicated by the HQs. Based on the equation from Peters (1993), the home ranges of carnivorous birds the sizes of the American kestrel and Mexican spotted owl are 101 and 832 acres, respectively, which significantly exceed the area of TA-36-8. Thus the area use factor (i.e., F_k) of 1 is expected to exaggerate risk to these species. Furthermore, in the case of the Mexican spotted owl, the NOAEL value for bis-2-ethylhexyl phthalate (the only COPEC to produce an HQ greater than 1) is based on a single-dose study, with no adverse effect being found from the single dose

(Sample et al., 1996). Therefore, the actual threshold for avian toxicity may be much greater than this NOAEL.

Based on the combined effects of conservatisms used to calculate the HQs for this site and the fact that all but one of the HQs were less than 10 (the exception being 12.3), it is unlikely that this site poses a significant risk to receptor populations at the site or to the ecological community at and around the site. Predicted potential risk to the Mexican spotted owl was limited to exposure to bis-2-ethylhexyl phthalate, with an HQ of only 3.4. The Mexican spotted owl was the only TES species directly evaluated in this assessment, but because it and other TES species are unlikely to occur at TA-36-8, none of these HQs apply directly to TES species. The Mexican spotted owl was used here to conservatively represent large predatory birds. Overall, ecological risks at the site are expected to be low.

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Table J-1
Surface Soil Sampling Results
LANL Technical Area 36-8
(all concentrations in ppm[a])

Chemical of Potential Concern	N	Number of Detects	Minimum	Maximum	Mean	Standard Deviation	95 % UCL[b]	95% UTL[c]	Background 95% UTL	Chemical of Concern	Reason for Exclusion
Inorganics											
Aluminum	77	77	1790	67800	35108	25533	40903	85446	123000	No	d
Antimony	31	1	2.50	4.11	3.41	0.55	3.61	4.62	2.5	No	e
Arsenic	31	4	0.32	1.40	0.60	0.29	0.71	1.23	11.6	No	d
Barium	77	76	18	885	359	235	413	823	1140	No	d
Beryllium	77	56	0.19	4.40	1.41	0.95	1.63	3.28	3.31	No	d
Cadmium	31	1	0.185	0.550	0.231	0.066	0.255	0.376	2.7	No	d
Calcium	31	28	307	5770	2047	1202	2488	4700	54400	No	d
Chromium	31	28	0.85	9.90	5.24	2.39	6.11	10.5	34.2	No	d
Cobalt	31	1	0.85	6.10	2.14	1.01	2.52	4.38	51.1	No	d
Copper	77	67	1.05	272	44	57	57	157	15.7	Yes	
Iron	77	77	9.20	23000	13377	4638	14429	22520	35600	No	d
Lead	77	77	0.25	94	27	19	31	63.9	39.0	Yes	
Magnesium	31	20	194	2820	1085	689	1338	2607	16100	No	d
Manganese	31	31	184	464	301	61	323	434	1030	No	d
Nickel	31	8	1.00	9.70	3.59	2.25	4.42	8.55	26.7	No	d
Potassium	31	23	258	2740	1220	642	1455	2638	6180	No	d
Thallium	31	1	0.13	1.24	0.51	0.27	0.61	0.740	0.9	No	d
Vanadium	31	19	2.75	25.7	11.66	6.98	14.2	27.1	66	No	d
Zinc	31	31	18.0	41.7	29.0	7.27	31.7	45.0	101	No	d
Explosives											
HMX	76	24	0.082	3.90	0.41	0.66	0.56	NA	NA	Yes	
RDX	76	8	0.035	21	0.74	3.35	1.51	NA	NA	Yes	
TNT	76	4	0.040	5.60	0.274	0.728	0.440	NA	NA	Yes	
2,4-Dinitrotoluene	76	18	0.027	207	5.6	28	12	NA	NA	Yes	

Table J-1 (Continued)
Surface Soil Sampling Results
LANL Technical Area 36-8
(all concentrations in ppm[a])

Chemical of Potential Concern	N	Number of Detects	Minimum	Maximum	Mean	Standard Deviation	95 % UCL[b]	95% UTL[c]	Background 95% UTL	Chemical of Concern	Reason for Exclusion
VOCs [f]											
Acetone	31	5	0.005	0.52	0.028	0.0917	0.0616	NA	NA	Yes	
Methylene Chloride	31	9	0.0025	0.13	0.011	0.0225	0.018	NA	NA	Yes	
4-Methyl-2-Pentanone	31	1	0.01	0.05	0.012	0.0072	0.015	NA	NA	No	e
Toluene	31	3	0.0025	0.028	0.004	0.0049	0.006	NA	NA	Yes	
Trichloroethene	31	3	0.0025	0.11	0.009	0.0203	0.016	NA	NA	Yes	
1,2,4-Trimethylbenzene	31	3	0.0025	0.12	0.011	0.0252	0.020	NA	NA	Yes	
Xylene(s)	31	3	0.0025	0.143	0.011	0.0281	0.021	NA	NA	Yes	
SVOCs [g]											
Bis-2-ethylhexyl phthalate	77	16	0.165	23.9	1.29	3.69	2.13	NA	NA	Yes	
Di-n-butyl phthalate	77	12	0.165	20.0	1.26	3.28	2.23	NA	NA	Yes	
2,4-Dinitrotoluene	77	10	0.165	48.3	1.54	6.10	2.92	NA	NA	Yes	
2,6-Dinitrotoluene	77	2	0.165	2.10	0.242	0.25	0.30	NA	NA	No	e
N-Nitrosodiphenylamine	77	6	0.165	5.80	0.357	0.71	0.52	NA	NA	Yes	
Phenanthrene	77	1	0.165	1.40	0.239	0.19	0.28	NA	NA	No	e

[a] ppm = parts per million.
[b] UCL = Upper Confidence Limit.
[c] UTL = Upper Tolerance Limit.
[d] Not a chemical of potential concern; on-site concentrations are less than background.
[e] Not a chemical of potential concern; based on frequency of detection.
[f] VOCs = volatile organic compounds.
[g] SVOCs = semivolatile organic compounds.
N Number of samples.

Table J-2
Air Quality Modeling Summary
LANL Technical Area 36-8

Chemical of Potential Concern	Air Concentrations at Pajarito Road (800 m NNE)[a]	Air Concentrations at White Rock (2980 m ESE)[b]	Ambient Air Quality Standard
Carbon Monoxide (1-hour average)	0.16 mg/m^3 [c]	0.02 mg/m^3 [c]	2.0 mg/m^3 [c]
Sulfur Dioxide (24-hour average)	0.054 ug/m^3 [d]	0.02 ug/m^3 [d]	5.0 ug/m^3 [d]
Lead (3-month average)	4.3×10^{-6} ug/m^3 [d]	1.6×10^{-6} ug/m^3 [d]	1.5 ug/m^3 [d]

[a] m NNE = meters north northeast
[b] m ESE = meters east southeast
[c] mg/m^3 = milligrams per cubic meter
[d] $\mu g/m^3$ = micrograms per cubic meter

Table J-3

Potentially Complete Human Exposure Pathways at LANL Technical Area 36-8

Environmental Medium	Exposure Route	Potentially Exposed Population	Pathway Selected for Evaluation	Reason for Selection or Exclusion
Surface Soil	Inhalation Ingestion Dermal Contact	Residential Recreational	No	No current or future on-site residents or recreational users at TA-36-8.
Surface Soil	Inhalation Ingestion Dermal Contact	Occupational	Yes	Potential intermittent occupational exposure is likely under current and future operating conditions.
Surface Water	Inhalation Ingestion Dermal Contact	Residential Recreational	No	No current or future on-site residents or recreational users at TA-36-8.
Surface Water	Ingestion Dermal Contact	Occupational	No	Potential intermittent occupational contact with surface water is unlikely. At TA-36-8 there is no permanent on-site surface water (all surface water is due to runoff).
Air[a]	Inhalation	Occupational	Yes	Air modeling calculated COPC[b] air concentrations to a potential occupational receptor.
Groundwater	Inhalation Ingestion Dermal Contact	Residential Recreational Occupational	No	No current groundwater use at TA-36-8 and there is no projected groundwater use at TA-36-8.
Subsurface Soil	Inhalation Ingestion Dermal Contact	Residential Recreational Occupational	No	Limited subsurface soil analytical information was available for TA-36-8. However, due to the activities which occur at the site (waste detonations), surface soil is the only media of concern. Surface soil COPC are expected to be the risk drivers.

[a] Air refers specifically to evaluating exposure using air modeled data. Potential exposure by inhalation to constituents from other media (e.g., soil) is presented with those media.

[b] Chemicals of potential concern.

Table J-4
Exposure Parameters

Parameter	Value	Units	Reference/Rationale
OCCUPATIONAL INGESTION OF SOIL			
Ingestion Rate	50	mg/day	EPA, 1991
Fraction Ingested	1	unitless	Assumes all of soil intake from site
Exposure Frequency	24	day/year	Maximum allowable time spent on site (including detonation activities)
Exposure Duration	25	years	EPA, 1991
Body Weight	70	kg	EPA, 1991
Averaging Time: Carcinogens Noncarcinogens	 25,550 9,125	 days days	EPA, 1989
OCCUPATIONAL DERMAL CONTACT WITH SOIL			
Adherence Factor	1.0	mg/cm^2	EPA, 1992
Absorption Fraction	chemical specific	unitless	EPA, 1992
Skin Surface Area	5,000	cm^2/event	EPA, 1992
Exposure Frequency	24	day/year	Maximum allowable time spent on site (including detonation activities)
Exposure Duration	25	years	EPA, 1991
Body Weight	70	kg	EPA, 1991
Averaging Time: Carcinogens Noncarcinogens	 25,550 9,125	 days days	EPA, 1989
OCCUPATIONAL INHALATION OF DUST AND MODELED AIR CONCENTRATIONS			
Inhalation Rate	20	m^3/day	EPA, 1991
Exposure Frequency	24250	day/year	Maximum allowable time spent on site (including detonation activities)EPA, 1991a (modeled air concentrations)
Exposure Duration	25	years	EPA, 1991
Body Weight	70	kg	EPA, 1991
Averaging Time: Carcinogens Noncarcinogens	 25,550 9,125	 days days	EPA, 1989

cm^2 = square centimeter(s)
kg = kilogram(s)
L = liter(s)
m^3/day = cubic meter(s) per day
mg/cm^2 = milligram(s) per square centimeter(s)
mg/day = milligram(s) per day

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Table J-5
Human Toxicity Factors Used for Chemicals of Potential Concern at LANL Technical Area 36-8[a]

Chemical of Potential Concern	Reference Doses		Slope Factors		Cancer Class
	Oral (mg/kg-day)	Inhalation (mg/kg-day)	Oral $(mg/kg\text{-}day)^{-1}$	Inhalation $(mg/kg\text{-}day)^{-1}$	
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND
2,4-Dinitrotoluene	2.0×10^{-03}	ND	ND	ND	ND
Acetone	1.0×10^{-01}	ND	NA	NA	D
Bis-2-ethylhexyl phthalate	2.0×10^{-02}	ND	1.4×10^{-02}	ND	B2
Copper	3.7×10^{-02} H	ND	NA	NA	D
Di-n-butylphthalate	1.0×10^{-01}	ND	NA	NA	D
HMX	5.0×10^{-02}	ND	NA	NA	D
Lead	ND	ND	ND	ND	B2
Methylene Chloride	6.0×10^{-02}	8.6×10^{-01}	7.5×10^{-03}	1.6×10^{-03}	B2
N-nitrosodiphenylamine	ND	ND	4.9×10^{-03}	ND	B2
RDX	3.0×10^{-03}	ND	1.1×10^{-01}	ND	C
Toluene	2.0×10^{-01}	1.1×10^{-01}	NA	NA	D
TNT	5.0×10^{-04}	ND	3.0×10^{-02}	ND	C
Trichloroethene	6.0×10^{-03} N	ND	1.1×10^{-02} N	6.0×10^{-03} N	B2
Xylene(s)	$2.0 \times 10^{+00}$	ND	NA	NA	D

[a] All toxicity values from Integrated Risk Information System (IRIS) unless otherwise stated (EPA, 1999).
ND = No data available to establish toxicity factor.
NA = Not considered to be carcinogenic to humans (EPA, 1999).
H = Toxicity value from the Health Effects Assessment Summary Tables (HEAST) (EPA, 1997).
N = Toxicity value from National Center for Environmental Assessment.
mg/kg-day = milligrams per kilogram per day
(mg/kg-day) = recipical of milligrams per kilogram per day

Table J-6
Estimated Daily Intakes and Incremental Lifetime Cancer Risks (ILCR) for LANL Technical Area 36-8

Potentially Exposed Population	Exposure Pathway	Chemical	Estimated Intake (mg/kg-day)	ILCR
Occupational	Incidental Ingestion of Soil	Bis-2-ethylhexyl phthalate	3.6E-08	5.0E-10
		Methylene Chloride	3.0E-10	2.3E-12
		N-Nitrosodiphenylamine	8.7E-09	4.3E-11
		RDX	2.5E-08	2.8E-09
		TNT	7.4E-09	2.2E-10
		Trichloroethene	2.7E-10	3.0E-12
		Total		3.6E-09
Occupational	Dermal Contact with Soil	Bis-2-ethylhexyl phthalate	3.6E-07	5.0E-09
		Methylene Chloride	3.0E-09	2.3E-11
		N-Nitrosodiphenylamine	8.7E-08	4.3E-10
		RDX	2.5E-07	2.8E-08
		TNT	7.4E-08	2.2E-09
		Trichloroethene	2.7E-09	3.0E-11
		Total		3.6E-08
Occupational	Inhalation of Fugitive Dust	Methylene Chloride	3.5E-13	5.7E-16
		Trichloroethene	3.1E-13	1.9E-15
		Total		2.5E-15
Occupational	Inhalation of Air (modeled)	No carcinogenic chemicals of potential concern		

mg/kg-day = milligrams per kilogram per day

Table J-7
Estimated Daily Intakes and Hazard Quotients (HQ)
for LANL Technical Area 36-8

Potentially Exposed Population	Exposure Pathway	Chemical	Estimated Intake (mg/kg-day)	HQ
Occupational	Incidental Ingestion of Soil	2,4-Dinitrotoluene	5.6E-07	2.8E-04
		Acetone	2.9E-09	2.9E-08
		Bis-2-ethylhexyl phthalate	1.0E-07	5.0E-06
		Copper	2.7E-06	7.2E-05
		Di-n-butylphthalate	1.0E-07	1.0E-06
		HMX	2.6E-08	5.3E-07
		Methylene Chloride	8.5E-10	1.4E-08
		RDX	7.1E-08	2.4E-05
		TNT	2.1E-08	4.1E-05
		Toluene	2.8E-10	1.4E-09
		Trichloroethene	7.5E-10	1.3E-07
		Xylene(s)	9.9E-10	4.9E-10
		Total		6.3E-04
Occupational	Dermal Contact with Soil	2,4-Dinitrotoluene	5.6E-06	2.8E-03
		Acetone	2.9E-08	2.9E-07
		Bis-2-ethylhexyl phthalate	1.0E-06	5.0E-05
		Copper	2.7E-06	7.2E-05
		Di-n-butylphthalate	1.0E-06	1.0E-05
		HMX	2.6E-07	5.3E-06
		Methylene Chloride	8.5E-09	1.4E-07
		RDX	7.1E-07	2.4E-04
		TNT	2.1E-07	4.1E-04
		Toluene	2.8E-09	1.4E-08
		Trichloroethene	7.5E-09	1.3E-06
		Xylene(s)	9.9E-10	4.9E-10
		Total		3.8E-03
Occupational	Inhalation of Fugitive Dust	Methylene Chloride	9.9E-13	1.2E-12
		Toluene	3.3E-13	3.0E-12
		Total		4.2E-12
Occupational	Inhalation of Air (modeled)	No noncarcinogenic chemicals of potential concern		

mg/kg-day = milligrams per kilogram per day

Table J-8
Endpoints for the LANL Technical Area 36-8 Ecological Risk Assessment

Management Goal	Assessment Endpoint	Measurement Endpoint
• Protection of the natural plant and animal diversity of the woodland ecosystems of TA-36	• Toxicity of soil to plants	• Comparison of soil chemistry data with phytotoxicity benchmark values
	• Toxicity of soil to terrestrial wildlife	• Quotient Method

Table J-9
Data Used to Model Exposure in the Terrestrial Wildlife Species
LANL Technical Area 36-8

Indicator Species	Class/Order	Body Weight[a] (kg)	Dietary Intake[b] (kg[dw]/day)	Trophic Level	Dietary Composition[c] (percent)	
Vagrant shrew (*Sorex vagrans*)	Mammalia/ Insectivora	0.0060	0.00102	Insectivore	Soil: 13 Invertebrates: 100	
Western harvest mouse (*Reithrodontomys megalotis*)	Mammalia/ Rodentia	0.0104	0.00233	Omnivore	Soil: 2 Plants: 50	Invertebrates: 50
Montane vole (*Microtus montanus*)	Mammalia/ Rodentia	0.0291	0.00669	Herbivore	Soil: 2 Plants: 100	
Gray fox (*Urocyon cinereoargenteus*)	Mammalia/ Carnivora	2.5	0.146	Omnivore-Carnivore	Soil: 2.8 Plants: 13 Invertebrates: 7	Mice: 40 Voles: 40
American kestrel (*Falco sparverius*)	Aves/ Falconiformes	0.111	0.0139	Insectivore	Soil: 2 Invertebrates: 100	
Mexican spotted owl (*Strix occidentalis lucida*)	Aves/ Strigiformes	0.518	0.0379	Carnivore	Soil: 2 Shrews: 25	Mice: 50 Voles: 25

[a] From Silva and Downing (1995) for mammals, and Dunning (1993) for birds.
[b] From the allometric equations in Nagy (1987).
[c] Diets based on data in EPA (1993) and Martin et al. (1951). Soil ingestion based on Beyer et al. (1994), Talmage and Walton (1993), and a default value of 2 percent soil ingestion.
kg = kilograms.
kg[dw]/day = kilograms (dry weight) per day.

Table J-10
Transfer Factors Used in Exposure Models for
LANL Technical Area 36-8 Ecological Risk Assessment

Chemical of Potential Ecological Concern	Soil-to-Plant Transfer Factor[a]	Soil-to-Invertebrate Transfer Factor[b]	Food-to-Mammal Transfer Factor[c]
Copper	NL[d]	NL	NL
Lead	NL	NL	NL
Acetone	5.33E+01	1.24E+00	1.77E-06
Methylene chloride	7.34E+00	1.47E+00	3.50E-05
Toluene	9.97E-01	1.75E+00	7.06E-04
Trichloroethene	1.05E+00	1.74E+00	6.52E-04
1,2,4-Trimethylbenzene	Insufficient data for risk analysis		
Xylenes	5.48E-01	1.84E+00	1.74E-03
Bis-2-ethylhexyl phthalate	2.34E-03	2.95E+00	6.41E+00
Di-n-butyl phthalate	8.38E-02	2.16E+00	2.93E-02
n-Nitrosodiphenylamine	5.85E-01	1.83E+00	1.57E-03
2,4-Dinitrotoluene	2.78E+00	1.60E+00	1.51E-04
HMX	2.74E+01	1.31E+00	4.82E-06
RDX	1.22E+01	1.41E+00	1.64E-05
2,4,6-Trinitrotoluene	4.60E+00	1.53E+00	7.06E-05

[a] From equations developed in Travis and Arms (1988), based on the octanol water partition coefficient of the compound (except where noted).
[b] From equations developed in Connell and Markwell (1990), based on the octanol water partition coefficient of the compound (except where noted).
[c] Based on the regression with octanol water partition coefficient of the compound from data presented in Garten and Trabalka (1983) (except where noted).
[d] NL indicates nonlinear uptake model used (see Table J-11).

Table J-11
Parameters Used in Nonlinear Uptake Models for
LANL Technical Area 36-8 Ecological Risk Assessment

Constituent	Copper		Lead	
	b_0	b_1	b_0	b_1
Plants[a]	0.669	0.394	-1.328	0.561
Earthworms[b]	1.675	0.264	-0.218	0.807
Small Mammals:[c]				
Herbivore	-2.220	1.0[d]	-0.6114	0.5181
Omnivore	1.4592	0.2681	0.0761	0.4422
Insectivore	2.1042	0.1783	0.4819	0.4869

[a] From Bechtel Jacobs Company (1998).
[b] From Sample et al. (1998a).
[c] From Sample et al. (1998b).
[d] Linear uptake model, as recommended in Sample et al. (1998b).

Table J-12
Toxicity Data for Ecological Receptors at
LANL Technical Area 36-8

		Mammalian NOAELs[a]			Avian NOAELs[a]		
Chemical of Potential Ecological Concern	**Plant Benchmark[b]**	**Mammalian Test Species**	**Test Species Body Weight**	**Test Species NOAEL**	**Avian Test Species**	**Test Species Body Weight**	**Test Species NOAEL**
Copper	100	Mink	1	11.7	Chicken	0.534	47
Lead	50	Lab rat	0.35	8	American kestrel	0.13	3.85
Acetone	---[c]	Lab rat	0.35	10	---	---	---
Methylene chloride	---	Lab rat	0.35	5.85	---	---	---
Toluene	200	Lab mouse	0.03	26	---	---	---
Trichloroethene	---	Lab mouse	0.03	0.7	---	---	---
1,2,4-Trimethylbenzene	---	---	---	---	---	---	---
Xylenes	---	Lab mouse	0.03	2.1	---	---	---
Bis-2-ethylhexyl phthalate	---	Lab mouse	0.03	18.3	Ringed dove	0.155	1.1
Di-n-butyl phthalate	200	Lab mouse	0.03	550	Ringed dove	0.155	0.11
n-Nitrosodiphenylamine	---	Lab rat	0.35	4.23[d]	---	---	---
2,4-Dinitrotoluene	---	Lab rat	0.35	0.54[e]	---	---	---
HMX	---	Lab mouse	0.023	3[f]	---	---	---
RDX	100	Lab mouse	0.036	7[f]	---	---	---
2,4,6-Trinitrotoluene	30	Lab rat[h]	0.318	1.6[f]	---	---	---

[a] From Sample et al. (1996), except where noted. Body weights in kilograms; NOAELs in milligrams per kilograms per day.
[b] From Efroymson et al. (1997), lowest-observed-adverse-effect-levels in mg/kg soil.
[c] --- designates insufficient toxicity data.
[d] Based on ratio of LD_{50} values using n-nitrosodiethylamine data from EPA (1999) and RTECS (1999).
[e] Based on ratio of LD_{50} values using 2,4,6-trinitrotoluene data from Talmage et al. (1999) and RTECS (1999).
[f] From Talmage et al. (1999).

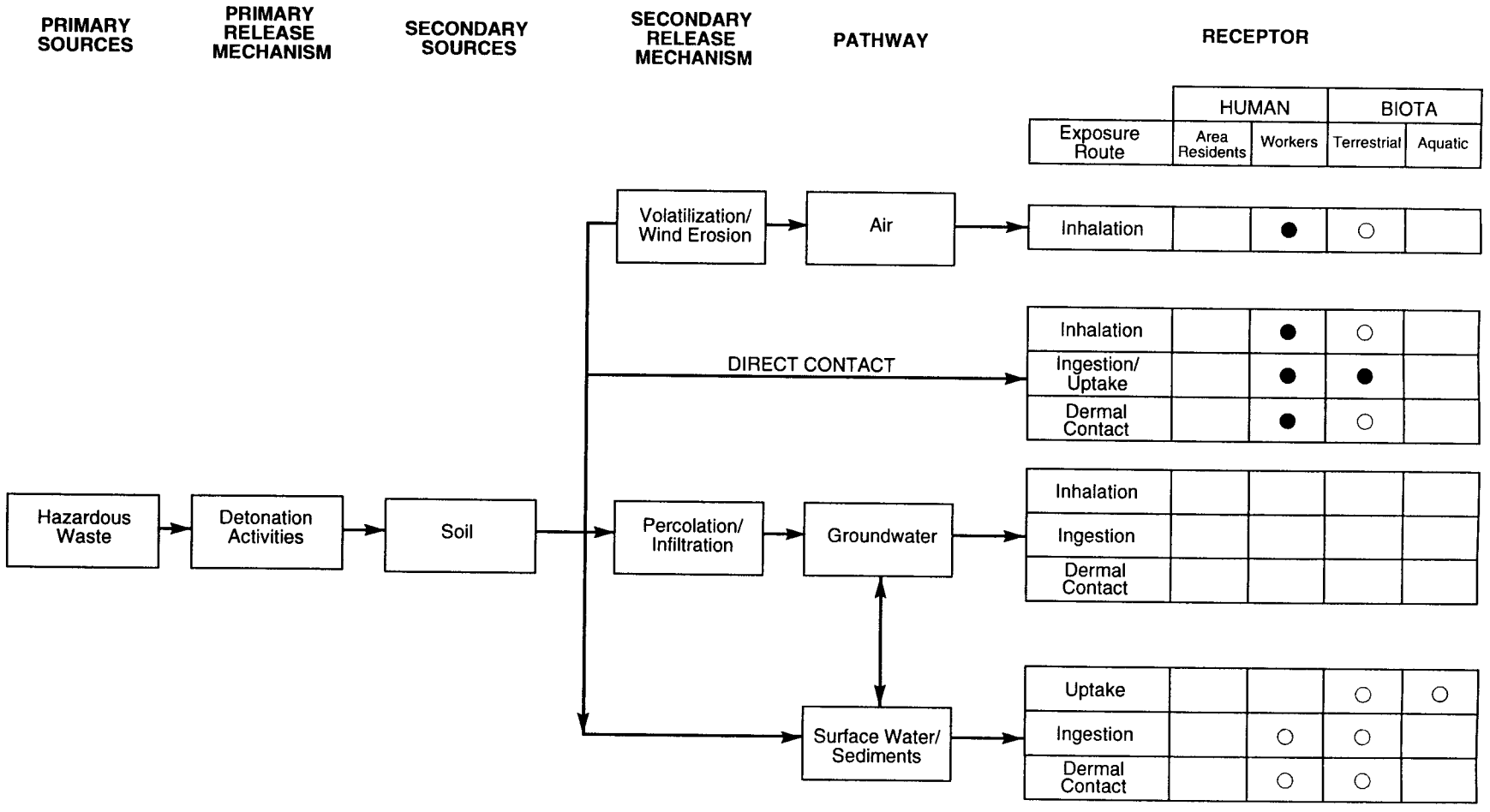

Figure J-1
Site Conceptual Model For TA-36-8
Current and Future Land Use

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Table J-13
Ecological Hazard Quotients for Terrestrial Receptors at LANL Technical Area 36-8

Chemical of Potential Ecological Concern	Receptor Species						
	Plants	Vagrant shrew	Western harvest mouse	Montane vole	American kestrel	Gray fox	Mexican spotted owl
Copper	5.70E-01	2.46E-01	1.99E-01	1.71E-01	6.08E-02	6.06E-02	2.08E-02
Lead	6.20E-01	2.82E-01	1.80E-01	6.04E-02	4.52E-01	4.32E-02	8.71E-02
Acetone	NA[a]	1.13E-03	3.05E-02	6.50E-02	NA	2.85E-03	NA
Methylene chloride	NA	6.59E-04	2.47E-03	4.48E-03	NA	2.19E-04	NA
Toluene	3.00E-05	6.72E-05	6.74E-05	5.38E-05	NA	4.95E-06	NA
Trichloroethene	NA	6.63E-03	6.79E-03	5.62E-03	NA	5.02E-04	NA
1,2,4-Trimethylbenzene	Insufficient data to evaluate risk						
Xylenes	NA	3.05E-03	2.55E-03	1.30E-03	NA	1.76E-04	NA
Bis-2-ethylhexyl phthalate	NA	5.56E-02	3.65E-02	5.97E-04	7.70E-01	1.10E-01	**3.40E+00**
Di-n-butyl phthalate	1.12E-02	1.44E-03	9.74E-04	9.66E-05	**5.93E+00**	7.29E-05	1.48E-01
n-Nitrosodiphenylamine	NA	3.22E-02	2.73E-02	1.47E-02	NA	1.90E-03	NA
2,4-Dinitrotoluene	NA	**5.14E+00**	**8.89E+00**	**1.23E+01**	NA	7.33E-01	NA
HMX	NA	4.24E-02	5.72E-01	**1.19E+00**	NA	5.32E-02	NA
RDX	1.51E-02	5.09E-02	3.05E-01	5.97E-01	NA	2.77E-02	NA
2,4,6-Trinitrotoluene	1.47E-02	6.15E-02	1.55E-01	2.53E-01	NA	1.33E-02	NA

Bold values indicate a hazard quotient greater than unity.
[a] NA designates insufficient toxicity data available for risk estimation purpos.
es.

ATTACHMENT K

PROPOSED SOIL MONITORING PROGRAM AND POST-DETONATION SOIL SAMPLING AND ANALYSIS PLAN FOR THE OPEN DETONATION UNIT AT TECHNICAL AREA 36

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LIST OF ABBREVIATIONS/ACRONYMS

^{B}C	degrees Celsius
CST-9	Chemical Science and Technology Division's Inorganic Trace Analysis Group
DX-2	Dynamic Experimentation Division's High Explosives Science and Technology Group
EPA	U. S. Environmental Protection Agency
HE	high explosives
LANL	Los Alamos National Laboratory
20 NMAC 4.1	New Mexico Administrative Code, Title 20, Chapter 4, Part 1
NMED	New Mexico Environment Department
OD	open detonation
PPE	personal protective equipment
QA	quality assurance
QC	quality control
SAP	Sampling and Analysis Plan
SW-846	EPA's "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods"
TA	technical area

ATTACHMENT K

PROPOSED SOIL MONITORING PROGRAM AND POST-DETONATION SOIL SAMPLING AND ANALYSIS PLAN FOR THE OPEN DETONATION UNIT AT TECHNICAL AREA 36

K.1 INTRODUCTION

This Sampling and Analysis Plan (SAP) describes the procedures for collecting representative post-detonation soil samples at the Los Alamos National Laboratory (LANL) Technical Area (TA) 36 open detonation (OD) unit. The post-detonation soil samples will be collected as part of the proposed TA-36 OD Soil Monitoring Program to ensure that any hazardous wastes or residues present in the soil as a result of OD treatment do not pose a significant risk to human health or the environment.

The proposed TA-36 OD Soil Monitoring Program requires one soil sampling effort the first year of the program. Analytical data collected from this sampling effort will then be used as additional input to the baseline risk assessment already conducted for the site (see Attachment J). This baseline risk assessment concludes that, after nearly 50 years of operations at TA-36, the current level of contaminants for surface soil does not pose a potential significant risk to human health. In addition, the overall ecological risks at the site are expected to be low. The soil sampling/risk assessment approach meets the monitoring and analysis requirements of the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20 NMAC 4.1), Subpart V, 264.602, revised January 1, 1997 [1-1-97], and will ensure protection of human health and the environment. After the samples have been analyzed and the additional risk assessment is conducted, LANL proposes to address, with the New Mexico Environment Department (NMED), a reasonable schedule for potential additional activities using the risk assessment approach for the Soil Monitoring Program.

For post-detonation soil sampling, 9 discrete (noncomposited) representative soil samples will be collected from the OD treatment unit areas during a single sampling effort for the first year of the proposed Soil Monitoring Program. One sample will be collected from approximately the center of both portions of the OD unit, and 3 equally spaced samples will be collected along an arc with a radius of approximately 200 feet from the center of both portions (for a total of 8 samples) (see Figure K-1). A duplicate soil sample will be collected from 1 of the 8 locations, for a total of 9 soil samples for the OD unit.

Vadose zone sampling and monitoring is not anticipated at the TA-36 OD unit. Previous hydrogeologic studies at LANL ("Hydrogeologic Assessment of Technical Area 54, Areas G and L" [LANL, 1987]) have shown that the combination of very low moisture content in the Bandelier Tuff, the empirical determination that moisture from precipitation does not infiltrate below a depth of 10 to 22 feet, and very low calculated flux rates all indicate that aqueous transport of contaminants through the tuff is not a viable mechanism for contaminant migration from mesa tops. Furthermore, the risk assessment conducted for the TA-36 OD unit (see Attachment J) concludes that after nearly 50 years of operations at TA-36, the current level of contaminants for surface soil does not pose a threat to human health. Therefore, rather than conducting vadose zone sampling for the OD unit at TA-36, LANL proposes to first address surface systems (surface water, soil, and sediments) and use resulting surface systems analytical data in conjunction with existing data in an iterative manner and to conduct additional risk assessments to evaluate additional data needs, if any, and thus optimize characterization and monitoring activities. Vadose zone sampling would then be conducted only if the results of the additional risk assessments indicate a need. If surface sampling data indicate that Resource Conservation and Recovery Act contaminants resulting from OD treatment are present and the risk assessment indicates a threat to human health or the environment, vadose zone sampling may then be conducted using the methods described in this SAP.

K.2 QUALITY ASSURANCE

The overall objective of quality assurance (QA) is to ensure precision, accuracy, representativeness, comparability, and completeness of measurements. All of these QA parameters are essential components of the proposed TA-36 OD Soil Monitoring Program. Field duplicate and quality control (QC) samples will be collected, as appropriate, to evaluate the quantitative QA parameters of precision and accuracy.

Records management is also an essential QA component of the proposed Soil Monitoring Program. All field and laboratory records generated by the sampling and analysis activities will be maintained to document that these activities were conducted in accordance with this SAP.

K.2.1 Field Duplicate and QC Samples

Field duplicate and QC samples are collected in the field to verify reproducibility of analytical data, and to determine whether extraneous contaminants may have been introduced as a result of

sampling or handling procedures. QC samples are also used as part of the analytical laboratory's QA/QC program. Field duplicate and QC samples are described below.

X *Duplicate Samples* - Duplicate samples are collected to monitor sample variability, determine total random error, and verify reproducibility of the analytical data. These collocated samples will be collected simultaneously from the same soil source under identical sampling conditions. Duplicates will be collected at a frequency of 1 per 20 samples per matrix. They will be labeled with a sequential number similar to the soil samples, and designated as duplicate samples in the field logbook.

X *Equipment Rinsate Blank* - Equipment rinsate blanks are collected only if reusable sampling equipment is used for sample collection. Equipment rinsate blanks monitor sampling device decontamination effectiveness and potential for sample cross-contamination that may result from inadequate cleaning procedures. These samples are collected by pouring deionized water over the equipment surface that contacts the sample (after it has been decontaminated) and collecting the rinsate in a sample container. Equipment rinsate blanks will be labeled with sequential numbers similar to soil samples and designated as equipment rinsate blanks in the field logbook. Sample frequency is 1 per 20 field samples.

X *Field Blank* - Field blanks are collected to monitor sampling procedures and ambient conditions at the site, and to evaluate the cleanliness of the precleaned sample bottles. Deionized water is poured into sample containers in the immediate area where the field sample is collected and then preserved, as necessary. Field blanks are collected at a frequency of 1 per 20 field samples per matrix. The field blank must be labeled with a sequential number similar to the soil samples and designated as a field blank in the field logbook.

K.2.2 Records Management

Sampling personnel will complete and maintain records to document sampling and analysis activities. These records will demonstrate proper implementation of this plan and ensure that the analytical results can be traced back to the soil that was sampled. Records pertinent to the proposed Soil Monitoring Program include all field and laboratory records generated by the activities performed in accordance with this plan and are listed below.

- X Request for Analysis Log
- X "Presampling Questionnaire and Site-Specific Safety Plan"
- X Field logbook
- X Chain-of-Custody Record
- X Shipping papers for samples
- X Analytical results reports
- X Discrepancy and corrective action reports

- Sampling equipment maintenance and calibration forms
- Written requests and approvals for any temporary modifications to sample collection procedures

Sampling personnel must make all entries on all records with indelible blue or black ink. All entries should be legible and succinct. Sampling personnel must ensure that the records are identifiable, retrievable, and protected against damage, deterioration, and loss. Access to records must be controlled. Personnel making changes to any record should do so by drawing a single line through the original information, writing the correct information adjacent to the original information, and initialing and dating the change.

K.2.2.1 Request for Analysis Log

Sampling personnel will use the Request for Analysis Log to track individual sampling efforts and will maintain completed logs. Information provided on the Request for Analysis Log includes the requestor name and group, the requested sample date, the date sampling personnel contacted the requestor to complete the "Presampling Questionnaire and Site-Specific Safety Plan," sample collection date, remarks, results receipt date, and sampler's initials.

K.2.2.2 Presampling Questionnaire and Site-Specific Safety Plan

Sampling personnel preparing for the initial sampling effort must ensure that a "Presampling Questionnaire and Site-Specific Safety Plan" is prepared and completed. Information required on the Presampling Questionnaire includes the material to be sampled, the site, and the work area; special hazards of concern; personal protective equipment (PPE) to be worn; emergency evacuation routes and safety equipment locations; and important telephone numbers. Before sampling is conducted, all personnel involved with the sampling effort must sign the form, certifying that they have reviewed the information. The "Presampling Questionnaire and Site-Specific Safety Plan" is described in detail in the "ESH-19 Sampling Plan" (LANL, 1995).

K.2.2.3 Field Logbook

The field logbook is a bound notebook containing all information pertinent to the sampling operation. The field logbook remains in the custody of sampling personnel at all times. During sampling activities, personnel document the following information in the field logbook:

- Sampling date and time,
- Cost code, program code, and cost account,
- Project name and location,

- X Collector's name(s),
- X Possible sample hazards,
- X Personnel involved,
- X Weather conditions,
- X Unique sample number(s),
- X Sample type(s) and volume(s),
- X Analysis requested, and
- X Remarks (see below)
  - Field observations and measurements,
  - Deviations from or anomalies in the sampling procedures,
  - Lot number and expiration date of preservatives (if applicable),
  - Preservation method used (if applicable),
  - Sample characteristics (category, matrix, homogenous/heterogeneous, solid/liquid),
  - Sample container(s) and sampling equipment,
  - Sample point location(s),
  - Sampling strategy,
  - Sample identification (e.g., duplicate, field blank), and
  - Other pertinent information.

Sample numbers include the year the sample was taken and the sampler's initials followed by a sequential number that distinguishes individual samples. Sampling personnel record only a single sampling effort per page in the field logbook, and draw a diagonal line through any blank space(s) at the bottom of a page.

K.2.2.4 Chain-of-Custody Records

Whenever sampling personnel relinquish custody of a sample(s) (e.g., to analytical personnel), the person relinquishing the sample must complete the required information on a Chain-of-Custody Record. This record allows the sample to be tracked throughout the analytical process, assuring control over tracking of the sample and its corresponding analytical results. This tracking is a vital aspect of QA. Sampling personnel maintain a copy of the signed Chain-of-Custody Record. The Chain-of-Custody Record includes the following information:

- X Project name,
- X Names of sampling personnel,
- X Date and time of sample shipment/transfer,
- X Sample type(s) (composite, grab),
- X Sampling site (station) location(s),
- X Unique sample number for each sample being transferred,
- X Number of containers,
- X Requested analyses,
- X Sample label number,
- X Signature of person relinquishing the sample(s),
- X Date and time the sample(s) is relinquished,
- X Signature of person receiving the sample(s), and

- Any additional remarks.

K.2.2.5 Shipping Papers

Samples to be collected as part of the proposed TA-36 OD Soil Monitoring Program and then transported to an analytical laboratory are exempt from regulation as hazardous waste (20 NMAC 4.1, Subpart V, 261.4(d) [1-1-97]). In such cases, these samples are also exempt from U.S. Department of Transportation regulations. Sampling personnel will fill out a transportation form prior to transportation or shipment of samples. The form will document the following:

- Name and address of analytical laboratory,
- Name and phone number of personnel shipping the samples,
- Name of transportation company,
- Type of media (e.g., soil, liquid),
- Number of sample containers, and
- Total volume of samples.

K.2.2.6 Analytical Results Reports

Analytical personnel will generate a report of the analytical results for each sample submitted by sampling personnel. The following information must be included in each report:

- Analytical request number,
- Unique sample number (provided by sample collector),
- Unique sample number assigned by the analytical laboratory (if applicable),
- Date the sample was received by analytical personnel,
- Date of analysis,
- Name of the analyst (or initials),
- Analytical parameters requested,
- Analytical results for each parameter,
- Analytical methods used for each parameter, and
- Data from QC samples (e.g., replicates, matrix spikes, and surrogates) introduced by the analytical laboratory into the sample analysis stream.

Sampling personnel may compare the analytical reports to the field logbook to identify cross contamination, blank contamination, or other discrepancies. Sampling personnel may then make appropriate entries on the Request for Analysis Log (see Section K.2.2.1).

K.2.2.7 Discrepancy and Corrective Action Reports

If sampling personnel note significant deficiencies or discrepancies while collecting samples or reviewing the analytical results, a report will be prepared describing the deficiencies or discrepancies and the action required for correction. The report should also describe how the deficiency or discrepancy was identified, person(s) responsible for correcting the discrepancy, and a recommended schedule for and type of corrective action necessary.

K.3 SAMPLING PROCEDURES

This section describes activities that sampling personnel should perform before, during, and after a sampling effort conducted as part of the proposed TA-36 OD Soil Monitoring Program. The instructions in this section provide general information about sample collection, preservation, packaging, and shipping. Following these instructions will ensure that the collected samples are representative, thus providing scientifically valid and legally defensible analytical data.

K.3.1 Presampling Activities

Field preparation includes organizing sample container(s), sample label(s), and documentation in an orderly, systematic manner that will promote consistency and traceability of all data. Sampling personnel should perform the following activities before each sampling effort.

- Identify the sampling team.
- Consult analytical personnel for guidance on sample containers, preservatives, and holding times.
- Complete a “Presampling Questionnaire and Site-Specific Safety Plan” for the initial sampling effort (see the “ESH-19 Sampling Plan”).
- Review and discuss specific plans, safety issues and considerations, procedures, and QA/QC concerns applicable to the sampling effort.
- Assemble sample containers, labels, integrity seals, and Chain-of-Custody Records.
- Prepare equipment and supplies.

Immediately preceding the sampling effort, sampling personnel and any site personnel involved in sampling operations must attend a safety briefing, during which they review the “Presampling Questionnaire and Site-Specific Safety Plan.” Sampling personnel must wear PPE noted on the “Presampling Questionnaire and Site-Specific Safety Plan.”

K.3.2 Sampling Activities

Sampling personnel will collect, label, preserve (as appropriate), package, store, and transport the samples to enable holding times to be met. Throughout this process, sampling personnel will

document chain-of-custody for the samples using the Chain-of-Custody Record. Sampling personnel will record all pertinent information (e.g., date, time, site, sample location) in a field logbook.

The spade and scoop method will be used by LANL personnel collecting surface soil samples. Samples will be collected from the locations shown on Figure K-1. Sample containers will be labeled with the date, time, exact sampling location, and the name of the individual collecting the sample. For each sampling effort, a duplicate soil sample will be collected from one of the sample locations and analyzed to assess QC. The duplicate soil sample will be collected and handled in the same manner as the other soil samples. In addition, a field blank will be collected for each sampling effort. Following the collection of each sample, used disposable sampling equipment will be containerized and stored appropriately, pending receipt of analytical results. Equipment rinsate blanks will be collected only if vadose zone sampling is conducted using reusable sample collection equipment.

Following each sampling effort, LANL personnel will transport the field and QC samples to LANL's High Explosives Science and Technology Group (DX-2) for high explosives (HE) analysis, and to LANL's Inorganic Trace Analysis Group (CST-9) for metals analysis or, if necessary, will arrange for transport to and analysis at a LANL-approved off-site analytical laboratory. Samples will be transported to the respective analytical laboratories in a timely manner to ensure that sample holding times specified in the U.S. Environmental Protection Agency (EPA) "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (*SW-846*) (EPA, 1986) are met. In addition, samples will be preserved, as appropriate, as specified in *SW-846*. At the time of sample collection, sampling personnel will complete Chain-of-Custody Records and will place integrity tape on all sample containers to ensure that sample custody is maintained and sample integrity is not compromised. Sample collection personnel will maintain physical custody of the samples until the samples are relinquished to analytical laboratory personnel or to the shipping representative. Upon receiving the soil samples, the laboratory technician or shipping representative will assume custody of the samples, noting the date, time, and name of the person relinquishing custody. All samples will be analyzed using *SW-846* methods or similar NMED-approved methods for the parameters described in Section K.4 of this SAP. Step-by-step sampling procedures for collecting surface and subsurface soil samples are provided in the following sections.

K.3.2.1 Sampling Surface Soil Using Spade and Scoop Method

Surface and near surface soil samples will be collected using a nonfriction-type scoop or trowel. Preservation will be achieved by cooling the samples to 4 degrees Celsius (EC). Sampling will be performed as follows:

- X Review health and safety concerns,
- X Don PPE,
- X Clear any surface debris (e.g., twigs, rocks) from the area to be sampled,
- X Using a precleaned, disposable scoop or trowel, carefully collect a sample from the 0 - 3 inch depth with the scoop or trowel,
- X Remove the sample container cap and take extreme care to avoid contaminating the containers and caps,
- X Transfer the sample into an appropriate sample container,
- X Cap the sample container,
- X Attach the integrity seal and the completed self-adhesive sample label,
- X Refrigerate the sample in an insulated cooler,
- X Record pertinent information in the field logbook,
- X Complete the sample analysis request log and Chain-of-Custody Record,
- X Collect a duplicate sample following the steps outlined above,
- X Prepare the field QA/QC samples (see Section K.2.1 of this plan),
- X Place disposable scoop or trowel in an approved waste container, and
- X Doff PPE and place in an approved waste container.

K.3.2.2 Sampling Subsurface Soil with Hand Auger and Thin-Walled Sampler

Subsurface (i.e., vadose zone) sampling will be conducted only if the results of future risk assessments indicate the need. Subsurface soil samples may be collected with a hand auger and thin-walled sampler, which can be used in a wide variety of soil conditions. This system can be used to sample to a depth of 6 feet. The presence of rock layers and collapse of any borehole precludes sampling at depths greater than 6 feet. Preservation of soil samples will be achieved by cooling the samples to 4EC. Sampling will be performed as follows:

- X Review health and safety concerns;
- X Don PPE;
- X Clear any surface debris (e.g., twigs, rocks) from the area to be sampled;
- X Begin drilling, periodically removing accumulated soils;
- X After reaching desired depth, slowly and carefully remove the auger from the boring. When sampling directly from the auger, collect the sample after the auger is removed from

the boring, transfer it into a sample container, and cap the sample container;

- Remove auger tip from drill rods and replace with a precleaned, decontaminated, thin-walled corer. Install the proper cutting tip;
- Carefully lower the corer down the borehole, being careful not to scrape soil from the sides of the borehole that will fall into the bottom of the borehole. Gradually force the corer into the soil. Avoid hammering the drill rods to facilitate coring because the vibrations may cause the boring walls to collapse;
- Remove the tube sampler and unscrew the drill rods;
- Remove the cutting tip and remove the core from the sampling device;
- Discard the top inch (approximately) of the core which contains any material collected by the tube sampler before it penetrated the layer to be sampled;
- Remove the sample container cap and take extreme care to avoid contaminating the containers and caps;
- Place the remaining core in a sample container;
- Cap the sample container;
- Attach the integrity seal and the completed self-adhesive sample label;
- Refrigerate the sample in an insulated cooler;
- Record information in the field logbook;
- Complete the sample analysis request log and Chain-of-Custody Record;
- Collect a duplicate sample following the steps outlined above;
- Prepare the field QA/QC samples (see Section K.2.1 of this plan);
- Clean and decontaminate the sampler after each use and between sampling locations;
- Place decontamination rinsate and waste in appropriate containers; and
- Doff PPE and place in an approved waste container.

K.3.3 Post-Sampling Activities

Sampling personnel will verify that all sample containers have been correctly identified and that the labels indicate the sample number, preservatives (if any), date, and time. In addition, sampling personnel will check label information against information recorded in the field logbook. Custody of filled sample containers (with integrity seal affixed) must be maintained by sampling personnel by keeping the containers (or the cooler[s]) in their possession, within view, locked or sealed to prevent tampering, or in an area under lock and key with controlled access. Sampling personnel will also prepare samples for transport to analytical facilities (see Section K.2.2.5). Finally, sampling personnel must ensure that used, containerized sampling equipment, equipment decontamination liquids, and PPE are transported to and stored in an approved waste storage area.

K.4 ANALYTICAL DESIGN, PARAMETERS, AND METHODS

This section describes the analytical parameters, the rationale for parameter selection, and the analytical methods to be used for the samples collected as part of the proposed TA-36 OD Soil Monitoring Program. Also included in this section is information on the background values of the constituents of concern, statistical comparison procedures that may be used to evaluate the data obtained, and how the risk assessment approach will be used for the Soil Monitoring Program.

K.4.1 Parameters, Test Methods, and Rationale

Analytical parameters, the rationale for parameter selection, and EPA *SW-846* test methods for soil samples collected as part of the proposed TA-36 OD Soil Monitoring Program are presented in Table K-1.

K.4.2 Determination of Background Values

Because HE is not naturally occurring, background values will likely be below instrument detection limits. The background concentrations of the metals proposed for monitoring were estimated using data collected as part of LANL's Environmental Surveillance Program (LANL, 1997); these existing data include a number of on-site (i.e., within LANL boundaries) and off-site perimeter (i.e., within approximately 5 kilometers of LANL boundaries) sample locations. The values given in Table K-2 represent the average concentrations of samples collected from the 0 - 2 inch depth at the 22 on-site and off-site perimeter locations during 1996. Background data will be used to calculate a background mean and variance, per the guidance in Appendix IV of 20 NMAC 4.1, Subpart V, Part 264 [1-1-97].

K.4.3 Statistical Comparison Procedures and Additional Risk Assessments

Statistical analysis of analytical data may be performed using Cochran's Approximation to the Behrens-Fisher Students' t-test in Appendix IV of 20 NMAC 4.1, Subpart V, Part 264 [1-1-97]. This method of statistical analysis may be performed by LANL to identify statistically significant differences between the monitoring data and background data.

Sampling and analysis data will be used to perform an additional risk assessment, which will determine if any hazardous wastes or residues present in the soil as a result of treatment by OD pose a significant risk to human health or the environment. LANL will then address with NMED a reasonable schedule for potential additional activities using the risk assessment approach for the Soil Monitoring Program.

K.5 REFERENCES

Los Alamos National Laboratory (LANL), 1997, "Environmental Surveillance and Compliance at Los Alamos During 1996," LA-13343-ENV, Los Alamos National Laboratory, Los Alamos, New Mexico.

Los Alamos National Laboratory (LANL), 1995, "ESH-19 Sampling Plan," Los Alamos National Laboratory, Los Alamos, New Mexico.

Los Alamos National Laboratory (LANL), 1987, "Hydrogeologic Assessment of Technical Area 54, Areas G and L," Los Alamos National Laboratory, Los Alamos, New Mexico.

New Mexico Environmental Improvement Board (NMEIB), 1997, "New Mexico Administrative Code," Title 20 (Environmental Protection), Chapter 4 (Hazardous Waste), Part 1 (Hazardous Waste Management), NMEIB, Santa Fe, New Mexico.

U.S. Environmental Protection Agency (EPA), 1986, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," *SW-846*, Third Edition and all subsequent updates, Office of Solid Waste, Washington, D.C.

Table K-1
Selected Parameters, Rationale, and Test Methods

General Chemical Class	Parameter	EPA Hazardous Waste No.	Rationale for Parameter Selection	*SW-846* Test Method[a]
Explosives	HMX[b]	D003	Determine the presence of high explosives (HE) waste residues	8330
	RDX[c]	D003	Determine the presence of HE waste residues	8330
	1,3,5-TNB[d]	D003	Determine the presence of HE waste residues	8330
	1.3-DNB[e]	D003	Determine the presence of HE waste residues	8330
	Tetryl[f]	D003	Determine the presence of HE waste residues	8330
	NB[g]	D003	Determine the presence of HE waste residues	8330
	2,4,6-TNT[h]	D003	Determine the presence of HE waste residues	8330
	4-Am-DNT[i]	D003	Determine the presence of HE waste residues	8330
	2-Am-DNT[j]	D003	Determine the presence of HE waste residues	8330
	2,4-DNT[k]	D003	Determine the presence of HE waste residues	8330
	2,6-DNT	D003	Determine the presence of HE waste residues	8330
	2-NT[l]	D003	Determine the presence of HE waste residues	8330
	3-NT	D003	Determine the presence of HE waste residues	8330
	4-NT	D003	Determine the presence of HE waste residues	8330
Metals	Barium	D005	Determine the presence of barium metal associated with the HE-contaminated waste treated at the OD unit	7081
	Cadmium	D006	Determine the presence of cadmium metal associated with the HE-contaminated waste treated at the OD unit	7131A
	Chromium	D007	Determine the presence of chromium metal which may originate from detonator caps used in OD waste treatment process	7191

See footnotes at end of table.

Table K-1 (Continued)
Selected Parameters, Rationale, and Test Methods

General Chemical Class	Parameter	EPA Hazardous Waste No.	Rationale for Parameter Selection	*SW-846* Test Method[a]
Metals (continued)	Lead	D008	Determine the presence of lead metal associated with the HE-contaminated waste treated at the OD unit	7421
	Mercury	D009	Determine the presence of mercury metal associated with the HE-contaminated waste treated at the OD unit	7471A
	Selenium	D010	Determine the presence of selenium metal associated with the HE-contaminated waste treated at the OD unit	7741A
	Silver	D011	Determine the presence of silver metal associated with the HE-contaminated waste treated at the OD unit	7761

[a] U.S. Environmental Protection Agency, 1986, "Test Methods for Evaluating Solid Waste, Physical/ Chemical Methods," *SW-846.*
[b] Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine
[c] Hexahydro-1,3,5-trinitro-1,3,5-triazine
[d] TNB = trinitrobenzene
[e] DNB = dinitrobenzene
[f] Methyl-2,4,6-trinitrophenylnitramine
[g] NB = nitrobenzene
[h] TNT = trinitrotoluene
[i] 4-Amino-2,6-dinitrotoluene
[j] 2-Amino-4,6-dinitrotoluene
[k] DNT = dinitrotoluene
[l] NT = nitrotoluene

Table K-2
Average Background Concentrations for Selected Metals[a]

Element	Average Background Concentration (parts per million)
Barium	95
Cadmium	0.16
Chromium	6.9
Lead	13.22
Mercury	0.03
Selenium	0.4
Silver	0.13

[a] Source: *Environmental Surveillance and Compliance at Los Alamos During 1996,* Los Alamos National Laboratory, 1997.

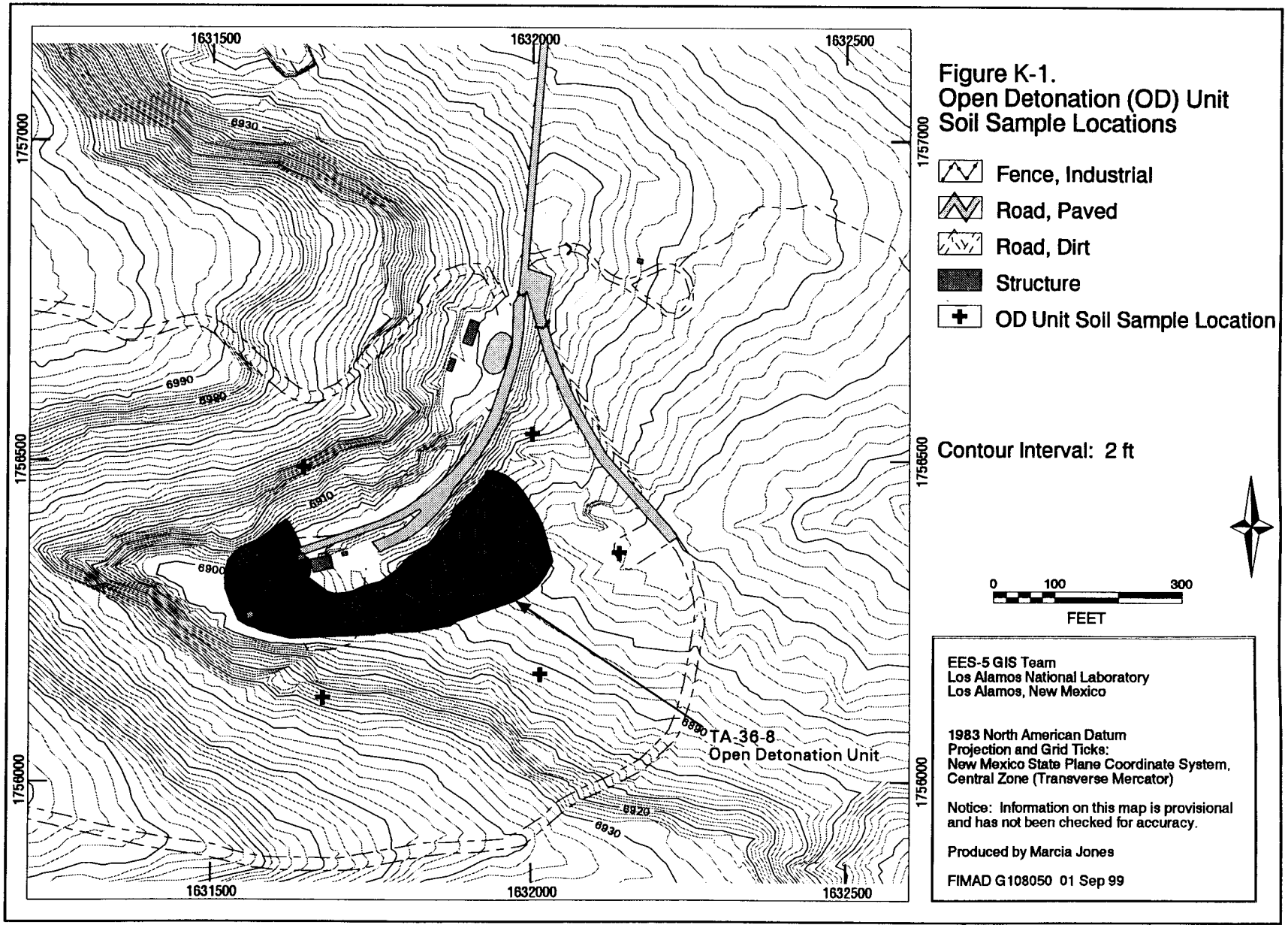

Figure K-1.
Open Detonation (OD) Unit
Soil Sample Locations

Fence, Industrial

Road, Paved

Road, Dirt

Structure

OD Unit Soil Sample Location

Contour Interval: 2 ft

0 100 300

FEET

EES-5 GIS Team
Los Alamos National Laboratory
Los Alamos, New Mexico

1983 North American Datum
Projection and Grid Ticks:
New Mexico State Plane Coordinate System,
Central Zone (Transverse Mercator)

Notice: Information on this map is provisional and has not been checked for accuracy.

Produced by Marcia Jones

FIMAD G108050 01 Sep 99

ATTACHMENT L

ANALYTICAL DATA FOR SOIL SAMPLES COLLECTED NEAR TECHNICAL AREA 36, BUILDING 8

The analytical data included in this attachment are from samples collected by the Environmental Protection Group in August and September of 1992, and by the Environmental Restoration Project in July and August of 1994 and in April of 1997.

Los Alamos
Los Alamos National Laboratory
Los Alamos, New Mexico 87545

memorandum

TO: Tony Grieggs, EM-8, MS K490 DATE: May 14, 1993

THRU: Ron Conrad, EM-8, MS K490 RC, MAIL STOP/TELEPHONE: K490/7-0815

FROM: Phil Fresquez, EM-8 PF SYMBOL: EM-8:93-1315

SUBJECT: **RESULTS OF THE SOIL SAMPLING SURVEY CONDUCTED OVER ACTIVE RCRA FIRING SITE TA-36-8**

In August and September of 1992, the Environmental Protection Group (EM-8) collected soil and water (rinsate) samples from two detonation areas located at TA-36 (Minie Site) for the Corrective Activities Program (Phil Fresquez, "Sampling Plan for the Characterization of Active RCRA Firing Site TA-36-8", Los Alamos National Laboratory memorandum EM-8:92-2315, to Tony Grieggs [August 17, 1992]). One detonation area was located above (bunker) building TA-36-8 (designated in this report as TA-36B); and, the other was located approximately 100 yards east of building TA-36-8 (designated in this report as TA-36A).

At each site, 24 soil surface samples were collected at the 0 to 3-inch-depth in four directions (N, S, E, and W) at various distances away from the center of the pad. A sediment sample was also collected down gradient of the pad(s), and a rinsate sample was collected from various scattered debris from around the site(s). With the exception of the rinsate sample, all other sample points were surveyed (by the New Mexico State Plane coordinate system) for future reference.

All soil samples were screened for gross alpha, beta and gamma radioactivity before they were submitted under chain-of-custody documentation to the Environmental Chemistry Group (EM-9) for the analysis of Toxicity Characteristic Leaching Procedure (TCLP) metals (Ag, As, Ba, Cd, Cr, Pb, Hg and Se), Hazardous Substance List (HSL) metals (Al, Ba, Be, Cu, Fe, and Pb), Semivolatile Organic Compounds (SVOC), and Total uranium. High Explosive residues (HMX [1,3,5,7-tetranitro-1,3,5,7-tetraazacyclooctane], RDX 1,3,5-trinitrohexahydro-1,3,5-triazine], TETRYL [2,4,6-trinitrophenylmethylnitramine], TNT [2,4,6-trinitrotoluene], and 2,4-DNT [2,4-dinitrotoluene) were analyzed by the Explosives Technology Group (M-1).

The distances sampled and the results from each of the detonation pads are reported below:

The Detonation Pad Located Approximately 100-yards East of Building TA-36-8 (TA-36A): Samples at this site were collected at the 0, 5, 10, 25, 50 and 100-foot-distances from the detonation area in four directions (N, S, E and W). Most soil samples contained TCLP metals below Environmental Protection Agency (EPA) action levels; one sample (E-50), however, contained TCLP Pb concentrations (7.5 mg/L) above EPA action levels (i.e., >5 mg/L). The soil/sediment and rinsate samples all had TCLP metal concentrations below action levels. Similarly, all of the hazardous substance list heavy metals were below EPA action levels.

The area contained five SVOC's: 2,4-dinitrotoluene, 2,6-dinitrotoluene, n-nitrosodiphenylamine, di-n-butylphthalate and bis-(2-ethylhexyl) phthalate. Many samples contained 2,4-dinitrotoluene and/or 2,6-dinitrotoluene in concentrations above EPA action levels (i.e., >1 ppm). These samples were located at: N-100, S-25, S-50, W-10, E-5, E-50, and E-100. The most heavily contaminated soil samples were located on the transect radiating towards the east (this was direction of blast area), and towards the drainage channel. In fact, the soil/sediment sample collected from the drainage channel contained 18.8 ppm of 2,4-dinitrotoluene. The drainage channel is located approximately 76-feet-away from the detonation area. No SVOC's were detected in the rinsate sample.

High explosive residues in many samples were detected. HMX ranged in concentration from 0.3 to 3.9 ppm, RDX ranged in concentration from 0.3 to 21 ppm, TNT ranged in concentration from 0.4 to 5.6 ppm, and 2,4 DNT (2,4-dinitrotoluene) ranged in concentration from 0.2 to 207 ppm. The highest amount of 2,4 DNT (207 ppm) was detected at sample point E-50. Similarly, 119.6 ppm of 2,4 DNT was discovered in the drainage channel sample. These data correlate well with those from EM-9. TETRYL was not detected in any of the samples collected, and no HE residues were detected in the rinsate sample.

The results for total U in these soil samples have not been received from EM-9 as of yet; however, <0.1 ppb of total U was detected in the scattered debris (rinsate sample) that was collected over the site. Personnel familiar with TA-36-8 activities indicate that uranium is not used at this particular detonation area (Mike Montoya, Los Alamos National Laboratory, personal communication, August 1992).

The Detonation Pad Located On-Top-Of (Bunker) Building TA-36-8 (36B): Samples were collected along each of four transects radiating towards the N, S, E and W at the 0, 20, 40, 60, 100 and 150-foot-distances from the detonation area.

Most soil samples contained TCLP metals below EPA action levels. One soil sample (E-20), however, contained TCLP-Ag (5.4 mg/L) and TCLP-As (7.39 mg/L) above EPA action levels (i.e., >5 mg/L). No hazardous substance list metals were detected above EPA action levels in any of the soil samples collected. Similarly, there were no TCLP or HSL metals in the sediment (drainage channel) and rinsate samples above EPA action levels.

Four soil samples, including one collected in the drainage channel, contained SVOC's (di-n-butylphthalate, phenanthrene and/or bis-2-ethylhexylphthalatewere). These compounds, however, were detected at ppb levels and were far below EPA action levels. No SVOC's were detected in the rinsate sample.

High explosive residues in some samples were detected. HMX ranged in concentration from 0.3 to 1.3 ppm, RDX ranged in concentration from 0.3 to 1.3 ppm, and TNT ranged in concentration from 0.4 to 0.9 ppm. 2,4 DNT and TETRYL were not detected in any of the samples collected at this site, and no HE residues were detected in the sediment or rinsate samples.

Total U ranged in concentration from 2.4 to 98 ppm, and the average concentration over the entire site was measured at 24.4 (±21.5) ppm. The transect radiating to the west contained the highest amounts of total U (the mean was 40.8 ppm). Upper limit background (x + 2SD) concentrations for total U in northern New Mexico is around 3.4 ppm. The drainage channel sample and the rinsate sample contained 10 ppm and 172 ppb of total U, respectively.

All of the records are enclosed for your information; (1) the gross alpha, beta and gamma measurements, (2) the chain-of-custody forms, (3) the analytical data (with the exception of total uranium at the "36A" site), and the survey coordinates. The uranium data will be reported as soon as we receive it from EM-9. Please call me at 667-0815 if there are any questions about the study.

RC:PF:smm

Cy: S. Rae, EM-8, MS K490
T. Sandoval, EM-8, MS K490
M. Saladen, EM-8, MS K490
G. Gould, MEE-4, MS G787
M. Montoya, M-8, MS J960
D. Griechen, M-DO, MS P915
Circ. File

REPORT NUMBER: 16067

********** EM-9 ANALYTICAL REPORT **********

Prepared by: JDMORGAN on 24-Nov-1992

REQUEST NUMBER: 13437 MATRIX: SE ANALYST: JANET MORGAN PROGRAM CODE: M106

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815

ANALYTICAL TECHNIQUE: ICPES ANALYTICAL PROCEDURE: 6010 NOTEBOOK: R8149 PAGE: 43

CUSTOMER SAMPLES:

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
PF-36A-O-O	92.26677	BA	2.17	0.22	MG/L	11/23/92	
PF-36A-O-O	92.26677	CD	< 0.01		MG/L	11/23/92	
PF-36A-O-O	92.26677	CR	< 0.01		MG/L	11/23/92	
PF-36A-O-O	92.26677	PB	< 0.05		MG/L	11/23/92	
PF-36A-S-100	92.26678	BA	0.84	0.08	MG/L	11/23/92	
PF-36A-S-100	92.26678	CD	< 0.01		MG/L	11/23/92	
PF-36A-S-100	92.26678	CR	< 0.01		MG/L	11/23/92	
PF-36A-S-100	92.26678	PB	< 0.05		MG/L	11/23/92	
PF-36A-S-50'	92.26679	BA	1.73	0.17	MG/L	11/23/92	
PF-36A-S-50'	92.26679	CD	< 0.01		MG/L	11/23/92	
PF-36A-S-50'	92.26679	CR	< 0.01		MG/L	11/23/92	
PF-36A-S-50'	92.26679	PB	< 0.05		MG/L	11/23/92	
PF-36A-S-25'	92.26680	BA	2.98	0.3	MG/L	11/23/92	
PF-36A-S-25'	92.26680	CD	< 0.01		MG/L	11/23/92	
PF-36A-S-25'	92.26680	CR	< 0.01		MG/L	11/23/92	
PF-36A-S-25'	92.26680	PB	< 0.05		MG/L	11/23/92	
PF-36A-S-10'	92.26681	BA	7.24	0.72	MG/L	11/23/92	
PF-36A-S-10'	92.26681	CD	< 0.01		MG/L	11/23/92	
PF-36A-S-10'	92.26681	CR	< 0.01		MG/L	11/23/92	
PF-36A-S-10'	92.26681	PB	< 0.05		MG/L	11/23/92	
PF-36A-S-5'	92.26682	BA	2.78	0.28	MG/L	11/23/92	
PF-36A-S-5'	92.26682	CD	< 0.01		MG/L	11/23/92	
PF-36A-S-5'	92.26682	CR	< 0.01		MG/L	11/23/92	
PF-36A-S-5'	92.26682	PB	< 0.05		MG/L	11/23/92	
PF-36A-W-100	92.26683	BA	0.77	0.08	MG/L	11/23/92	
PF-36A-W-100	92.26683	CD	< 0.01		MG/L	11/23/92	
PF-36A-W-100	92.26683	CR	< 0.01		MG/L	11/23/92	
PF-36A-W-100	92.26683	PB	< 0.05		MG/L	11/23/92	
PF-36A-W-50'	92.26684	BA	0.59	0.06	MG/L	11/23/92	
PF-36A-W-50'	92.26684	CD	< 0.01		MG/L	11/23/92	
PF-36A-W-50'	92.26684	CR	< 0.01		MG/L	11/23/92	
PF-36A-W-50'	92.26684	PB	< 0.05		MG/L	11/23/92	
PF-36A-W-25'	92.26685	BA	1.1	0.11	MG/L	11/23/92	
PF-36A-W-25'	92.26685	CD	< 0.01		MG/L	11/23/92	
PF-36A-W-25'	92.26685	CR	< 0.01		MG/L	11/23/92	
PF-36A-W-25'	92.26685	PB	< 0.05		MG/L	11/23/92	
PF-36A-W-10'	92.26686	BA	1.27	0.13	MG/L	11/23/92	

PF-36A-W-10'	92.26686	CD	< 0.01		MG/L	11/23/92
PF-36A-W-10'	92.26686	CR	< 0.01		MG/L	11/23/92
PF-36A-W-10'	92.26686	PB	< 0.05		MG/L	11/23/92
PF-36A-W-5'	92.26687	BA	1.	0.1	MG/L	11/23/92
PF-36A-W-5'	92.26687	CD	< 0.01		MG/L	11/23/92
PF-36A-W-5'	92.26687	CR	< 0.01		MG/L	11/23/92
PF-36A-W-5'	92.26687	PB	< 0.05		MG/L	11/23/92
PF-36A-E-100	92.26688	BA	2.28	0.23	MG/L	11/23/92
PF-36A-E-100	92.26688	CD	< 0.01		MG/L	11/23/92
PF-36A-E-100	92.26688	CR	< 0.01		MG/L	11/23/92
PF-36A-E-100	92.26688	PB	< 0.05		MG/L	11/23/92
PF-36A-E-76	92.26689	BA	8.41	0.84	MG/L	11/23/92
PF-36A-E-76	92.26689	CD	< 0.01		MG/L	11/23/92
PF-36A-E-76	92.26689	CR	< 0.01		MG/L	11/23/92
PF-36A-E-76	92.26689	PB	< 0.05		MG/L	11/23/92
PF-36A-E-50'	92.26690	BA	4.1	0.41	MG/L	11/23/92
PF-36A-E-50'	92.26690	CD	< 0.01		MG/L	11/23/92
PF-36A-E-50'	92.26690	CR	< 0.01		MG/L	11/23/92
PF-36A-E-50'	92.26690	PB	7.5	0.75	MG/L	11/23/92
PF-36A-E-25'	92.26691	BA	1.61	0.16	MG/L	11/23/92
PF-36A-E-25'	92.26691	CD	< 0.01		MG/L	11/23/92
PF-36A-E-25'	92.26691	CR	< 0.01		MG/L	11/23/92
PF-36A-E-25'	92.26691	PB	< 0.05		MG/L	11/23/92
PF-36A-E-10'	92.26692	BA	1.5	0.15	MG/L	11/23/92
PF-36A-E-10'	92.26692	CD	< 0.01		MG/L	11/23/92
PF-36A-E-10'	92.26692	CR	< 0.01		MG/L	11/23/92
PF-36A-E-10'	92.26692	PB	< 0.05		MG/L	11/23/92
PF-36A-E-5'	92.26693	BA	1.84	0.18	MG/L	11/23/92
PF-36A-E-5'	92.26693	CD	< 0.01		MG/L	11/23/92
PF-36A-E-5'	92.26693	CR	< 0.01		MG/L	11/23/92
PF-36A-E-5'	92.26693	PB	< 0.05		MG/L	11/23/92
PF-36A-N-100	92.26694	BA	2.28	0.23	MG/L	11/23/92
PF-36A-N-100	92.26694	CD	< 0.01		MG/L	11/23/92
PF-36A-N-100	92.26694	CR	< 0.01		MG/L	11/23/92
PF-36A-N-100	92.26694	PB	< 0.05		MG/L	11/23/92
PF-36A-N-50'	92.26695	BA	2.74	0.27	MG/L	11/23/92
PF-36A-N-50'	92.26695	CD	< 0.01		MG/L	11/23/92
PF-36A-N-50'	92.26695	CR	< 0.01		MG/L	11/23/92
PF-36A-N-50'	92.26695	PB	< 0.05		MG/L	11/23/92
PF-36A-N-25'	92.26696	BA	1.18	0.12	MG/L	11/23/92
PF-36A-N-25'	92.26696	CD	< 0.01		MG/L	11/23/92
PF-36A-N-25'	92.26696	CR	< 0.01		MG/L	11/23/92
PF-36A-N-25'	92.26696	PB	< 0.05		MG/L	11/23/92
PF-36A-N-10R	92.26697	BA	0.64	0.06	MG/L	11/23/92
PF-36A-N-10R	92.26697	CD	< 0.01		MG/L	11/23/92
PF-36A-N-10R	92.26697	CR	< 0.01		MG/L	11/23/92
PF-36A-N-10R	92.26697	PB	< 0.05		MG/L	11/23/92
PF-36A-N-10'	92.26698	BA	0.61	0.06	MG/L	11/23/92
PF-36A-N-10'	92.26698	CD	< 0.01		MG/L	11/23/92
PF-36A-N-10'	92.26698	CR	< 0.01		MG/L	11/23/92
PF-36A-N-10'	92.26698	PB	< 0.05		MG/L	11/23/92
PF-36A-N-5'	92.26699	BA	1.9	0.19	MG/L	11/23/92
PF-36A-N-5'	92.26699	CD	< 0.01		MG/L	11/23/92
PF-36A-N-5'	92.26699	CR	< 0.01		MG/L	11/23/92
PF-36A-N-5'	92.26699	PB	< 0.05		MG/L	11/23/92

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> 5 mg/L

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REPORT NUMBER: 16067 (continued)

********** EM-9 QUALITY ASSURANCE REPORT **********

Prepared by: JDMORGAN on 24-Nov-1992

REQUEST NUMBER: 13437 MATRIX: SE ANALYST: JANET MORGAN PROGRAM CODE: M106

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815

NOTEBOOK: R8149 PAGE: 43

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
00.20193	BA	10.8	1.1	MG/L	10.	1.	11/23/92	UNDER CONTROL
00.20193	BA	10.1	1.	MG/L	10.	1.	11/23/92	UNDER CONTROL
00.20193	CD	9.15	0.92	MG/L	10.	1.	11/23/92	UNDER CONTROL
0.20193	CD	10.	1.	MG/L	10.	1.	11/23/92	UNDER CONTROL
0.20193	CR	10.3	1.	MG/L	10.	1.	11/23/92	UNDER CONTROL
00.20193	CR	9.89	0.99	MG/L	10.	1.	11/23/92	UNDER CONTROL
00.20193	PB	10.9	1.1	MG/L	10.	1.	11/23/92	UNDER CONTROL
00.20193	PB	12.9	1.3	MG/L	10.	1.	11/23/92	UNDER CONTROL

SUMMARY OF CONTROL STATUS OF BLIND QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
92.26733	BA	2.79	0.28	MG/L	2.8	0.1	11/23/92	UNDER CONTROL
92.26733	CD	0.28	0.03	MG/L	0.28	0.01	11/23/92	UNDER CONTROL
92.26733	CR	7.32	0.73	MG/L	7.2	0.3	11/23/92	UNDER CONTROL
92.26733	PB	21.8	2.2	MG/L	20.9	0.9	11/23/92	UNDER CONTROL
92.26734	BA	2.79	0.28	MG/L	2.8	0.1	11/23/92	UNDER CONTROL
92.26734	CD	0.28	0.03	MG/L	0.28	0.01	11/23/92	UNDER CONTROL
92.26734	CR	7.36	0.74	MG/L	7.2	0.3	11/23/92	UNDER CONTROL
92.26734	PB	22.	2.2	MG/L	20.9	0.9	11/23/92	UNDER CONTROL

REPORT NUMBER: 16067

Analyst	Reviewer	Section Leader	QA Officer
11/24/92	11/24/92	11/24/92	11/25/92

Date Date Date Date

Sample Discrepancies Noted by Sample Management Section

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1986,' LA-11114-MS, pp. 3-4.

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REPORT NUMBER: 16055

********** EM-9 ANALYTICAL REPORT **********

Prepared by: BHEMBERGER on 23-Nov-1992

ANALYSIS: AG REQUEST NUMBER: 13437 MATRIX: SE ANALYST: BARBARA HEMBERGER PROGRAM CODE: M106

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815

ANALYTICAL TECHNIQUE: FAA ANALYTICAL PROCEDURE: 272.1 NOTEBOOK: R7719 PAGE:

CUSTOMER SAMPLES:

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
PF-36A-O-O	92.26677	< 10.		UG/L	11/23/92	
PF-36A-S-100	92.26678	< 10.		UG/L	11/23/92	
PF-36A-S-50'	92.26679	< 10.		UG/L	11/23/92	
PF-36A-S-25'	92.26680	< 10.		UG/L	11/23/92	
PF-36A-S-10'	92.26681	< 10.		UG/L	11/23/92	
PF-36A-S-5'	92.26682	< 10.		UG/L	11/23/92	
PF-36A-W-100	92.26683	< 10.		UG/L	11/23/92	
PF-36A-W-50'	92.26684	< 10.		UG/L	11/23/92	
PF-36A-W-25'	92.26685	< 10.		UG/L	11/23/92	
PF-36A-W-10'	92.26686	< 10.		UG/L	11/23/92	
PF-36A-W-5'	92.26687	< 10.		UG/L	11/23/92	
PF-36A-E-100	92.26688	< 10.		UG/L	11/23/92	
PF-36A-E-76	92.26689	< 10.		UG/L	11/23/92	
PF-36A-E-50'	92.26690	< 10.		UG/L	11/23/92	
PF-36A-E-25'	92.26691	< 10.		UG/L	11/23/92	
PF-36A-E-10'	92.26692	< 10.		UG/L	11/23/92	
PF-36A-E-5'	92.26693	< 10.		UG/L	11/23/92	
PF-36A-N-100	92.26694	< 10.		UG/L	11/23/92	
PF-36A-N-50'	92.26695	< 10.		UG/L	11/23/92	
PF-36A-N-25'	92.26696	< 10.		UG/L	11/23/92	
PF-36A-N-10R	92.26697	< 10.		UG/L	11/23/92	
PF-36A-N-10'	92.26698	< 10.		UG/L	11/23/92	
PF-36A-N-5'	92.26699	< 10.		UG/L	11/23/92	

CUSTOMER SAMPLE DUPLICATES:

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
PF-36A-O-O	92.26677	< 10.		UG/L	11/23/92	
PF-36A-W-5'	92.26687	< 10.		UG/L	11/23/92	

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER SAMPLE MATRIX SPIKES :

CUSTOMER NUMBER	SAMPLE NUMBER	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT
PF-36A-0-0	92.26677	50.	50.	UG/L	11/23/92	
PF-36A-W-5'	92.26687	50.	47.	UG/L	11/23/92	

********** EM-9 QUALITY ASSURANCE REPORT *********

Prepared by: BHEMBERGER on 23-Nov-1992

REQUEST NUMBER: 13437 MATRIX: SE ANALYST: BARBARA HEMBERGER PROGRAM CODE: M106

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
00.24370	466.	47.	UG/L	481.	21.	11/23/92	UNDER CONTROL
00.24370	486.	49.	UG/L	481.	21.	11/23/92	UNDER CONTROL

SUMMARY OF CONTROL STATUS OF BLIND QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
92.26731	795.	76.	UG/L	802.	34.	11/23/92	UNDER CONTROL
92.26732	401.	40.	UG/L	401.	17.	11/23/92	UNDER CONTROL

REPORT NUMBER: 16055				
	Analyst	Reviewer	Section Leader	QA Officer
	12/1/92		12/11/92	12-15-92
	Date	Date	Date	Date

No Sample Discrepancies Noted by Sample Management Section

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1986,' LA-11114-MS, pp. 3-4.

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REPORT NUMBER: 16263

TCLP-DS

********** EM-9 ANALYTICAL REPORT **********

Prepared by: BHEMBERGER on 10-Dec-1992

ANALYSIS: AS REQUEST NUMBER: 13437 MATRIX: SE ANALYST: MICHAEL BELL PROGRAM CODE: M106

OWNER: Phillip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815

ANALYTICAL TECHNIQUE: ETVAA ANALYTICAL PROCEDURE: 206.2 NOTEBOOK: Y004330 PAGE:

CUSTOMER SAMPLES:

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
PF-36A-0-0	92.26677	4.5	2.	UG/L	11/25/92	
PF-36A-S-100	92.26678	2.9	2.	UG/L	11/25/92	
PF-36A-S-50'	92.26679	2.5	2.	UG/L	11/25/92	
PF-36A-S-25'	92.26680	2.4	2.	UG/L	11/25/92	
PF-36A-S-10'	92.26681	2.7	2.	UG/L	11/25/92	
PF-36A-S-5'	92.26682	2.3	2.	UG/L	11/25/92	
PF-36A-W-100	92.26683	2.5	2.	UG/L	11/25/92	
PF-36A-W-50'	92.26684	< 2.		UG/L	11/25/92	
PF-36A-W-25'	92.26685	2.3	2.	UG/L	11/25/92	
PF-36A-W-10'	92.26686	< 2.		UG/L	11/25/92	
PF-36A-W-5'	92.26687	2.3	2.	UG/L	11/25/92	
PF-36A-E-100	92.26688	4.4	2.	UG/L	11/25/92	
PF-36A-E-76	92.26689	< 2.		UG/L	11/25/92	
PF-36A-E-50'	92.26690	19.6	2.	UG/L	11/25/92	
PF-36A-E-25'	92.26691	3.1	2.	UG/L	11/25/92	
PF-36A-E-10'	92.26692	2.1	2.	UG/L	11/25/92	
PF-36A-E-5'	92.26693	< 2.		UG/L	11/25/92	
PF-36A-N-100	92.26694	< 2.		UG/L	11/25/92	
PF-36A-N-50'	92.26695	< 2.		UG/L	11/25/92	
PF-36A-N-25'	92.26696	2.4	2.	UG/L	11/25/92	
PF-36A-N-10R	92.26697	< 2.		UG/L	11/25/92	
PF-36A-N-10'	92.26698	< 2.		UG/L	11/25/92	
PF-36A-N-5'	92.26699	2.8	2.	UG/L	11/25/92	

< 5 mg/L

CUSTOMER SAMPLE DUPLICATES:

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
PF-36A-0-0	92.26677	3.9	2.	UG/L	11/25/92	
PF-36A-W-5'	92.26687	2.6	2.	UG/L	11/25/92	

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER SAMPLE MATRIX SPIKES :

CUSTOMER NUMBER	SAMPLE NUMBER	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT
PF-36A-0-0	92.26677	100.	115.	UG/L	11/25/92	
PF-36A-W-5'	92.26687	100.	116.	UG/L	11/25/92	

********** EM-9 QUALITY ASSURANCE REPORT **********

Prepared by: BHEMBERGER on 10-Dec-1992

REQUEST NUMBER: 13437 MATRIX: SE ANALYST: MICHAEL BELL PROGRAM CODE: M106

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
00.26379	71.7	14.	UG/L	70.	3.	11/25/92	UNDER CONTROL
00.26379	65.5	14.	UG/L	70.	3.	11/25/92	UNDER CONTROL

JMMARY OF CONTROL STATUS OF BLIND QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
92.26735	54.3	5.	UG/L	60.	3.	11/25/92	UNDER CONTROL
92.26736	12.5	2.	UG/L	14.	0.6	11/25/92	UNDER CONTROL

REPORT NUMBER: 16263

Analyst	Reviewer	Section Leader	QA Officer
12/10/92	12/9/92	12/11/92	12-15-92
Date	Date	Date	Date

No Sample Discrepancies Noted by Sample Management Section

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1986,' LA-11114-MS, pp. 3-4.

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REPORT NUMBER: 15652

36HH

TCLP-Hg

********** EM-9 ANALYTICAL REPORT **********

Prepared by: J. HANMER on 26-Oct-1992

ANALYSIS: HG REQUEST NUMBER: 13437 MATRIX: SE ANALYST: JOYCE HANMER PROGRAM CODE: M106

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815

ANALYTICAL TECHNIQUE: CVAA ANALYTICAL PROCEDURE: 245.2 NOTEBOOK: Y04110 PAGE: 185

CUSTOMER SAMPLES:

ppb

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
PF-36A-0-0	92.26677	< 0.1		UG/L	10/23/92	
PF-36A-S-100	92.26678	1.	0.1	UG/L	10/23/92	
PF-36A-S-50'	92.26679	< 0.1		UG/L	10/23/92	
PF-36A-S-25'	92.26680	< 0.1		UG/L	10/23/92	
PF-36A-S-10'	92.26681	< 0.1		UG/L	10/23/92	
PF-36A-S-5'	92.26682	< 0.1		UG/L	10/23/92	
PF-36A-W-100	92.26683	< 0.1		UG/L	10/23/92	
PF-36A-W-50'	92.26684	< 0.1		UG/L	10/23/92	
PF-36A-W-25'	92.26685	< 0.1		UG/L	10/23/92	
PF-36A-W-10'	92.26686	< 0.1		UG/L	10/23/92	
PF-36A-W-5'	92.26687	< 0.1		UG/L	10/23/92	
PF-36A-E-100	92.26688	< 0.1		UG/L	10/23/92	
PF-36A-E-76	92.26689	< 0.1		UG/L	10/23/92	
PF-36A-E-50'	92.26690	< 0.1		UG/L	10/23/92	
PF-36A-E-25'	92.26691	< 0.1		UG/L	10/23/92	
PF-36A-E-10'	92.26692	< 0.1		UG/L	10/23/92	
PF-36A-E-5'	92.26693	< 0.1		UG/L	10/23/92	
PF-36A-N-100	92.26694	< 0.1		UG/L	10/23/92	
PF-36A-N-50'	92.26695	< 0.1		UG/L	10/23/92	
PF-36A-N-25'	92.26696	< 0.1		UG/L	10/23/92	
PF-36A-N-10R	92.26697	< 0.1		UG/L	10/23/92	
PF-36A-N-10'	92.26698	< 0.1		UG/L	10/23/92	
PF-36A-N-5'	92.26699	< 0.1		UG/L	10/23/92	

A.L. for Hg (0.2ppm) < 200 ppb the pgt.

CUSTOMER SAMPLE DUPLICATES:

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
PF-36A-W-50'	92.26684	< 0.1		UG/L	10/23/92	
PF-36A-E-25'	92.26691	< 0.1		UG/L	10/23/92	

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER SAMPLE MATRIX SPIKES :

CUSTOMER NUMBER	SAMPLE NUMBER	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT
PF-36A-W-50'	92.26684	2.	1.4	UG/L	10/23/92	
PF-36A-E-25'	92.26691	2.	1.8	UG/L	10/23/92	

********** EM-9 QUALITY ASSURANCE REPORT *********

Prepared by: J. HANMER on 26-Oct-1992

REQUEST NUMBER: 13437 MATRIX: SE ANALYST: JOYCE HANMER PROGRAM CODE: M106

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QC SAMPLES RUN WITH THIS BATCH

There were no open (non-blind) Quality Control materials run with the samples reported above for one of the following reasons:

___ Only qualitative data requested

✓ Only Blind QC samples run with this sample batch.

___ No QC samples run with this sample batch.

___ No QC samples for this constituent and matrix type available within EM-9

SUMMARY OF CONTROL STATUS OF BLIND QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
92.26737	2.3	0.23	UG/L	2.5	0.15	10/23/92	UNDER CONTROL
92.26738	2.1	0.21	UG/L	2.5	0.15	10/23/92	UNDER CONTROL

REPORT NUMBER: 15652

Analyst	Reviewer	Section Leader	QA Officer
10-26-92	10/27/92	10/27/92	10/27/92
Date	Date	Date	Date

No Sample Discrepancies Noted by Sample Management Section

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1986,' LA-11114-MS, pp. 3-4.

REPORT NUMBER: 16264

TCLP Pc

********** EM-9 ANALYTICAL REPORT **********

Prepared by: BHEMBERGER on 10-Dec-1992

ANALYSIS: SE REQUEST NUMBER: 13437 MATRIX: SE ANALYST: MICHAEL BELL PROGRAM CODE: M106

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815

ANALYTICAL TECHNIQUE: ETVAA ANALYTICAL PROCEDURE: 270.2 NOTEBOOK: Y004330 PAGE:

CUSTOMER SAMPLES:

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
PF-36A-O-O	92.26677	< 2.		UG/L	12/09/92	
PF-36A-S-100	92.26678	< 2.		UG/L	12/09/92	
PF-36A-S-50'	92.26679	< 2.		UG/L	12/09/92	
PF-36A-S-25'	92.26680	< 2.		UG/L	12/09/92	
PF-36A-S-10'	92.26681	< 2.		UG/L	12/09/92	
PF-36A-S-5'	92.26682	< 2.		UG/L	12/09/92	
PF-36A-W-100	92.26683	< 2.		UG/L	12/09/92	
PF-36A-W-50'	92.26684	< 2.		UG/L	12/09/92	
PF-36A-W-25'	92.26685	< 2.		UG/L	12/09/92	
PF-36A-W-10'	92.26686	< 2.		UG/L	12/09/92	
PF-36A-W-5'	92.26687	< 2.		UG/L	12/09/92	
PF-36A-E-100	92.26688	< 2.		UG/L	12/09/92	
PF-36A-E-76	92.26689	< 2.		UG/L	12/09/92	
PF-36A-E-50'	92.26690	< 2.		UG/L	12/09/92	
PF-36A-E-25'	92.26691	< 2.		UG/L	12/09/92	
PF-36A-E-10'	92.26692	< 2.		UG/L	12/09/92	
PF-36A-E-5'	92.26693	< 2.		UG/L	12/09/92	
PF-36A-N-100	92.26694	< 2.		UG/L	12/09/92	
PF-36A-N-50'	92.26695	< 2.		UG/L	12/09/92	
PF-36A-N-25'	92.26696	< 2.		UG/L	12/09/92	
PF-36A-N-10R	92.26697	< 2.		UG/L	12/09/92	
PF-36A-N-10'	92.26698	< 2.		UG/L	12/09/92	
PF-36A-N-5'	92.26699	< 2.		UG/L	12/09/92	

< 1 mg/L

CUSTOMER SAMPLE DUPLICATES:

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
PF-36A-O-O	92.26677	< 2.		UG/L	12/09/92	
PF-36A-W-5'	92.26687	< 2.		UG/L	12/09/92	

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER SAMPLE MATRIX SPIKES :

CUSTOMER NUMBER	SAMPLE NUMBER	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT
PF-36A-0-0	92.26677	100.	100.	UG/L	12/09/92	
PF-36A-W-5'	92.26687	100.	105.	UG/L	12/09/92	

********** EM-9 QUALITY ASSURANCE REPORT **********

Prepared by: BHEMBERGER on 10-Dec-1992

REQUEST NUMBER: 13437 MATRIX: SE ANALYST: MICHAEL BELL PROGRAM CODE: M106

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QC SAMPLES RUN WITH THIS BATCH

There were no open (non-blind) Quality Control materials run with the samples reported above for one of the following reasons:

___ Only qualitative data requested

✓ Only Blind QC samples run with this sample batch.

___ No QC samples run with this sample batch.

___ No QC samples for this constituent and matrix type available within EM-9

SUMMARY OF CONTROL STATUS OF BLIND QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
92.26735	< 2.		UG/L	0.0		12/09/92	UNDER CONTROL
92.26736	55.7	10.	UG/L	56.	2.	12/09/92	UNDER CONTROL

REPORT NUMBER: 16264	Analyst	Reviewer	Section Leader	QA Officer
	12/10/92	12/11/92	12/11/92	12-15-92
	Date	Date	Date	Date

No Sample Discrepancies Noted by Sample Management Section

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1986,' LA-11114-MS, pp. 3-4.

REPORT NUMBER: 15366

********** EM-9 ANALYTICAL REPORT **********

Prepared by: BHEMBERGER on 28-Sep-1992

ANALYSIS: AG REQUEST NUMBER: 13501 MATRIX: SE ANALYST: BARBARA HEMBERGER PROGRAM CODE: M106

OWNER: Philip R. Fresquez GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0815

ANALYTICAL TECHNIQUE: FAA ANALYTICAL PROCEDURE: 272.1 NOTEBOOK: R7719 PAGE:

CUSTOMER SAMPLES:

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
PF-36B-W-150	92.27448	< 1.		UG/G	9/28/92	
PF-36B-E-20	92.27449	5.4	1.	UG/G	9/28/92	
PF-36B-E-40	92.27450	< 1.		UG/G	9/28/92	
PF-36B-E-60	92.27451	< 1.		UG/G	9/28/92	
PF-36B-E-100	92.27452	< 1.		UG/G	9/28/92	
PF-36B-E-150	92.27453	< 1.		UG/G	9/28/92	
PF-36B-N-20	92.27454	< 1.		UG/G	9/28/92	
PF-36B-N-40	92.27455	< 1.		UG/G	9/28/92	
PF-36B-N-60	92.27456	< 1.		UG/G	9/28/92	
PF-36B-N-100	92.27457	< 1.		UG/G	9/28/92	
PF-36B-N-150	92.27458	< 1.		UG/G	9/28/92	
PF-36B-S-20	92.27459	< 1.		UG/G	9/28/92	
PF-36B-S-40	92.27460	< 1.		UG/G	9/28/92	
PF-36B-S-60	92.27461	< 1.		UG/G	9/28/92	
PF-36B-S-100	92.27462	< 1.		UG/G	9/28/92	
PF-36B-S-150	92.27463	< 1.		UG/G	9/28/92	
PF-36B-SED	92.27464	< 1.		UG/G	9/28/92	
PF-36B-O-O	92.27465	< 1.		UG/G	9/28/92	
PF-36B-E60R	92.27466	< 1.		UG/G	9/28/92	
PF-36A-RIN	92.27468	< 10.		UG/L	9/28/92	
PF-36B-RIN	92.27469	< 10.		UG/L	9/28/92	

CUSTOMER SAMPLE DUPLICATES:

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
PF-36B-N-20	92.27454	< 1.		UG/G	9/28/92	
PF-36B-SED	92.27464	< 1.		UG/G	9/28/92	

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER SAMPLE MATRIX SPIKES :

CUSTOMER NUMBER	SAMPLE NUMBER	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT
PF-368-N-20	92.27454	100.	106.	UG/L	9/28/92	
PF-368-SED	92.27464	100.	108.	UG/L	9/28/92	

********** EM-9 QUALITY ASSURANCE REPORT *********

Prepared by: BHEMBERGER on 28-Sep-1992

REQUEST NUMBER: 13501 MATRIX: SE ANALYST: BARBARA HEMBERGER PROGRAM CODE: M106

OWNER: Philip R. Fresquez GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0815

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QC SAMPLES RUN WITH THIS BATCH

SUMMARY OF CONTROL STATUS OF BLIND QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
92.27516	848.	85.	UG/L	842.	36.	9/28/92	UNDER CONTROL
?.27517	848.	85.	UG/L	842.	36.	9/28/92	UNDER CONTROL

REPORT NUMBER: 15366

Analyst	Reviewer	Section Leader	QA Officer
9/28/92	9/28/92	10/29/92	10/29/92
Date	Date	Date	Date

No Sample Discrepancies Noted by Sample Management Section

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1986,' LA-11114-MS, pp. 3-4.

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REPORT NUMBER: 15281

********** EM-9 ANALYTICAL REPORT **********

Prepared by: H. PATTERSON on 21-Sep-1992

ANALYSIS: AS REQUEST NUMBER: 13501 MATRIX: SE ANALYST: MICHAEL BELL PROGRAM CODE: M106

OWNER: Philip R. Fresquez GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0815

ANALYTICAL TECHNIQUE: ETVAA ANALYTICAL PROCEDURE: 206.2 NOTEBOOK: Y004330 PAGE: 47

CUSTOMER SAMPLES:

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
PF-36B-W-20	92.27444	1.42	0.28	UG/G	9/18/92	
PF-36B-W-40	92.27445	1.41	0.28	UG/G	9/18/92	
PF-36B-W-60	92.27446	1.92	0.38	UG/G	9/18/92	
PF-36B-W-100	92.27447	1.36	0.27	UG/G	9/18/92	
PF-36B-W-150	92.27448	1.48	0.29	UG/G	9/18/92	
PF-36B-E-20	92.27449	7.39	1.48	UG/G	9/18/92	
PF-36B-E-40	92.27450	1.1	0.22	UG/G	9/18/92	
PF-36B-E-60	92.27451	1.13	0.23	UG/G	9/18/92	
PF-36B-E-100	92.27452	1.23	0.25	UG/G	9/18/92	
PF-36B-E-150	92.27453	2.81	0.56	UG/G	9/18/92	
PF-36B-N-20	92.27454	1.76	0.35	UG/G	9/18/92	
PF-36B-N-40	92.27455	1.5	0.3	UG/G	9/18/92	
PF-36B-N-60	92.27456	0.98	0.2	UG/G	9/18/92	
PF-36B-N-100	92.27457	1.14	0.22	UG/G	9/18/92	
PF-36B-N-150	92.27458	1.88	0.38	UG/G	9/18/92	
PF-36B-S-20	92.27459	1.17	0.23	UG/G	9/18/92	
PF-36B-S-40	92.27460	1.09	0.22	UG/G	9/18/92	
PF-36B-S-60	92.27461	0.99	0.2	UG/G	9/18/92	
PF-36B-S-100	92.27462	1.61	0.32	UG/G	9/18/92	
PF-36B-S-150	92.27463	1.38	0.28	UG/G	9/18/92	
PF-36B-SED	92.27464	2.	0.4	UG/G	9/18/92	
PF-36B-O-O	92.27465	1.8	0.36	UG/G	9/18/92	
PF-36B-E60R	92.27466	1.23	0.24	UG/G	9/18/92	
PF-36A-RIN	92.27468	< 2.		UG/L	9/18/92	
PF-36B-RIN	92.27469	< 2.		UG/L	9/18/92	

CUSTOMER SAMPLE DUPLICATES:

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
PF-36B-W-20	92.27444	1.3	0.26	UG/G	9/18/92	
PF-36B-W-40	92.27445	1.36	0.27	UG/G	9/18/92	

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER SAMPLE DUPLICATES (continued):

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
PF-36B-W-60	92.27446	1.92	0.38	UG/G	9/18/92	
PF-36B-W-100	92.27447	1.34	0.27	UG/G	9/18/92	
PF-36B-W-150	92.27448	1.36	0.27	UG/G	9/18/92	
PF-36B-E-20	92.27449	7.33	1.47	UG/G	9/18/92	
PF-36B-E-40	92.27450	1.08	0.22	UG/G	9/18/92	
PF-36B-E-60	92.27451	1.07	0.21	UG/G	9/18/92	
PF-36B-E-100	92.27452	1.18	0.24	UG/G	9/18/92	
PF-36B-E-150	92.27453	2.68	0.54	UG/G	9/18/92	
PF-36B-N-20	92.27454	1.37	0.27	UG/G	9/18/92	
PF-36B-N-40	92.27455	1.47	0.29	UG/G	9/18/92	
PF-36B-N-60	92.27456	0.94	0.2	UG/G	9/18/92	
PF-36B-N-100	92.27457	1.	0.2	UG/G	9/18/92	
PF-36B-N-150	92.27458	1.85	0.37	UG/G	9/18/92	
PF-36B-S-20	92.27459	1.03	0.2	UG/G	9/18/92	
PF-36B-S-40	92.27460	1.02	0.2	UG/G	9/18/92	
PF-36B-S-60	92.27461	0.93	0.2	UG/G	9/18/92	
PF-36B-S-100	92.27462	1.6	0.32	UG/G	9/18/92	
PF-36B-S-150	92.27463	1.33	0.27	UG/G	9/18/92	
PF-36B-SED	92.27464	1.85	0.37	UG/G	9/18/92	
PF-36B-O-O	92.27465	1.77	0.35	UG/G	9/18/92	
PF-36B-E60R	92.27466	1.21	0.24	UG/G	9/18/92	
PF-36A-RIN	92.27468	< 2.		UG/L	9/18/92	
PF-36B-RIN	92.27469	< 2.		UG/L	9/18/92	

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER SAMPLE MATRIX SPIKES :

CUSTOMER NUMBER	SAMPLE NUMBER	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT
PF-36B-W-20	92.27444	100.	109.	UG/L	9/18/92	
PF-36B-N-20	92.27454	100.	104.4	UG/L	9/18/92	
PF-36B-SED	92.27464	100.	85.	UG/L	9/18/92	

********** EM-9 QUALITY ASSURANCE REPORT *********

Prepared by: H. PATTERSON on 21-Sep-1992

REQUEST NUMBER: 13501 MATRIX: SE ANALYST: MICHAEL BELL PROGRAM CODE: M106

OWNER: Philip R. Fresquez GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0815

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
00.24357	60.7	12.	UG/L	70.	3.	9/18/92	UNDER CONTROL

SUMMARY OF CONTROL STATUS OF BLIND QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
92.27518	21.2	4.2	UG/L	24.	1.	9/18/92	UNDER CONTROL
92.27519	47.	9.4	UG/L	50.	2.2	9/18/92	UNDER CONTROL

REPORT NUMBER: 15281				
	N.P.	SH	CMG	mag
	Analyst	Reviewer	Section Leader	QA Officer
	9/21/92	10/26/92	10/29/92	10/29/92
	Date	Date	Date	Date

No Sample Discrepancies Noted by Sample Management Section

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1986,' LA-11114-MS, pp. 3-4.

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REPORT NUMBER: 15280 368 Page: 01

********** EM-9 ANALYTICAL REPORT **********

Prepared by: H. PATTERSON on 21-Sep-1992

ANALYSIS: SE REQUEST NUMBER: 13501 MATRIX: SE ANALYST: MICHAEL BELL PROGRAM CODE: M106

OWNER: Philip R. Fresquez GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0815

ANALYTICAL TECHNIQUE: ETVAA ANALYTICAL PROCEDURE: 270.2 NOTEBOOK: Y004330 PAGE: 47

CUSTOMER SAMPLES:

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
PF-36B-W-20	92.27444	< 0.2		UG/G	9/18/92	
PF-36B-W-40	92.27445	0.2	0.2	UG/G	9/18/92	
PF-36B-W-60	92.27446	0.26	0.2	UG/G	9/18/92	
PF-36B-W-100	92.27447	< 0.2		UG/G	9/18/92	
PF-36B-W-150	92.27448	0.22	0.2	UG/G	9/18/92	
PF-36B-E-20	92.27449	0.43	0.2	UG/G	9/18/92	
PF-36B-E-40	92.27450	0.21	0.2	UG/G	9/18/92	
PF-36B-E-60	92.27451	< 0.2		UG/G	9/18/92	
PF-36B-E-100	92.27452	< 0.2		UG/G	9/18/92	
PF-36B-E-150	92.27453	0.29	0.2	UG/G	9/18/92	
PF-36B-N-20	92.27454	< 0.2		UG/G	9/18/92	
PF-36B-N-40	92.27455	< 0.2		UG/G	9/18/92	
PF-36B-N-60	92.27456	< 0.2		UG/G	9/18/92	
PF-36B-N-100	92.27457	0.2	0.2	UG/G	9/18/92	
PF-36B-N-150	92.27458	0.23	0.2	UG/G	9/18/92	
PF-36B-S-20	92.27459	< 0.2		UG/G	9/18/92	
PF-36B-S-40	92.27460	< 0.2		UG/G	9/18/92	
PF-36B-S-60	92.27461	< 0.2		UG/G	9/18/92	
PF-36B-S-100	92.27462	0.2	0.2	UG/G	9/18/92	
PF-36B-S-150	92.27463	0.2	0.2	UG/G	9/18/92	
PF-36B-SED	92.27464	< 0.2		UG/G	9/18/92	
PF-36B-O-O	92.27465	< 0.2		UG/G	9/18/92	
PF-36B-E60R	92.27466	< 0.2		UG/G	9/18/92	
PF-36A-RIN	92.27468	< 2.		UG/L	9/18/92	
PF-36B-RIN	92.27469	< 2.		UG/L	9/18/92	

CUSTOMER SAMPLE DUPLICATES:

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
PF-36B-W-20	92.27444	< 0.2		UG/G	9/18/92	
PF-36B-W-40	92.27445	< 0.2		UG/G	9/18/92	

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER SAMPLE DUPLICATES (continued):

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
PF-36B-W-60	92.27446	< 0.2		UG/G	9/18/92	
PF-36B-W-100	92.27447	< 0.2		UG/G	9/18/92	
PF-36B-W-150	92.27448	0.2	0.2	UG/G	9/18/92	
PF-36B-E-20	92.27449	0.3	0.2	UG/G	9/18/92	
PF-36B-E-40	92.27450	< 0.2		UG/G	9/18/92	
PF-36B-E-60	92.27451	< 0.2		UG/G	9/18/92	
PF-36B-E-100	92.27452	< 0.2		UG/G	9/18/92	
PF-36B-E-150	92.27453	0.25	0.2	UG/G	9/18/92	
PF-36B-N-20	92.27454	< 0.2		UG/G	9/18/92	
PF-36B-N-40	92.27455	< 0.2		UG/G	9/18/92	
PF-36B-N-60	92.27456	< 0.2		UG/G	9/18/92	
PF-36B-N-100	92.27457	< 0.2		UG/G	9/18/92	
PF-36B-N-150	92.27458	0.22	0.2	UG/G	9/18/92	
PF-36B-S-20	92.27459	< 0.2		UG/G	9/18/92	
PF-36B-S-40	92.27460	< 0.2		UG/G	9/18/92	
PF-36B-S-60	92.27461	< 0.2		UG/G	9/18/92	
PF-36B-S-100	92.27462	< 0.2		UG/G	9/18/92	
PF-36B-S-150	92.27463	< 0.2		UG/G	9/18/92	
PF-36B-SED	92.27464	< 0.2		UG/G	9/18/92	
PF-36B-O-O	92.27465	< 0.2		UG/G	9/18/92	
PF-36B-E60R	92.27466	< 0.2		UG/G	9/18/92	
PF-36A-RIN	92.27468	< 2.		UG/L	9/18/92	
PF-36B-RIN	92.27469	< 2.		UG/L	9/18/92	

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER SAMPLE MATRIX SPIKES :

CUSTOMER NUMBER	SAMPLE NUMBER	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT
PF-36B-W-20	92.27444	100.	91.8	UG/L	9/18/92	
PF-36B-N-20	92.27454	100.	85.7	UG/L	9/18/92	
PF-36B-SED	92.27464	100.	88.5	UG/L	9/18/92	

********** EM-9 QUALITY ASSURANCE REPORT **********

Prepared by: H. PATTERSON on 21-Sep-1992

REQUEST NUMBER: 13501 MATRIX: SE ANALYST: MICHAEL BELL PROGRAM CODE: M106

OWNER: Philip R. Fresquez GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0815

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
00.24357	47.5	9.5	UG/L	50.	2.	9/18/92	UNDER CONTROL

SUMMARY OF CONTROL STATUS OF BLIND QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
92.27518	40.	8.	UG/L	44.	2.	9/18/92	UNDER CONTROL
92.27519	41.9	8.4	UG/L	44.	1.9	9/18/92	UNDER CONTROL

REPORT NUMBER: 15280				
	N.O.	[illegible]	[illegible]	mag
	Analyst	Reviewer	Section Leader	QA Officer
	9/21/92	10/26/92	10/30/92	10/29/92
	Date	Date	Date	Date

No Sample Discrepancies Noted by Sample Management Section

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1986,' LA-11114-MS, pp. 3-4.

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REPORT NUMBER: 16009

********** EM-9 ANALYTICAL REPORT **********

Prepared by: EAJ on 19-Nov-1992

ANALYSIS: AG REQUEST NUMBER: 13501 MATRIX: SE ANALYST: BARBARA HEMBERGER PROGRAM CODE: M106

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815

ANALYTICAL TECHNIQUE: FAA ANALYTICAL PROCEDURE: 272.1 NOTEBOOK: R7719 PAGE:

CUSTOMER SAMPLES:

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
PF-36B-W-20	92.27444	< 1.		UG/G	9/28/92	
PF-36B-W-40	92.27445	< 1.		UG/G	9/28/92	
PF-36B-W-60	92.27446	< 1.		UG/G	9/28/92	
PF-36B-W-100	92.27447	< 1.		UG/G	9/28/92	
PF-36B-W-150	92.27448	< 1.		UG/G	9/28/92	

CUSTOMER SAMPLE DUPLICATES:

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
PF-36B-W-20	92.27444	< 1.		UG/G	9/28/92	

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER SAMPLE MATRIX SPIKES :

CUSTOMER NUMBER	SAMPLE NUMBER	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT
PF-36B-W-20	92.27444	100.	107.	UG/L	9/28/92	

********** EM-9 QUALITY ASSURANCE REPORT *********

Prepared by: EAJ on 19-Nov-1992

REQUEST NUMBER: 13501 MATRIX: SE ANALYST: BARBARA HEMBERGER PROGRAM CODE: M106

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
00.24370	483.	48.	UG/L	481.	21.	9/28/92	UNDER CONTROL
00.24370	480.	48.	UG/L	481.	21.	9/28/92	UNDER CONTROL

SUMMARY OF CONTROL STATUS OF BLIND QC SAMPLES RUN WITH THIS BATCH

There were no blind Quality Control materials run with the samples reported above for one of the following reasons:

___ Only qualitative data requested

_X_ Only Open (non-blind) QC samples run with this sample batch.

___ No QC samples run with this sample batch.

___ No QC samples for this constituent and matrix type available within EM-9

REPORT NUMBER: 16009

Analyst	Reviewer	Section Leader	QA Officer
11/23/92	11/23/92	11/23/92	11/24/92
Date	Date	Date	Date

No Sample Discrepancies Noted by Sample Management Section

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1986,' LA-11114-MS, pp. 3-4.

REPORT NUMBER: 16083

36B TCLP Ba, Cd Cr, Pb

********** EM-9 ANALYTICAL REPORT **********

Prepared by: PEC on 25-Nov-1992

REQUEST NUMBER: 13501 MATRIX: SE ANALYST: JANET MORGAN PROGRAM CODE: M106

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815

ANALYTICAL TECHNIQUE: ICPES ANALYTICAL PROCEDURE: 6010 NOTEBOOK: R8146 PAGE: 44

CUSTOMER SAMPLES:

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
PF-36B-W-20	92.27444	BA	1.96	0.2	MG/L	11/25/92	< 100
PF-36B-W-20	92.27444	CD	0.05	0.01	MG/L	11/25/92	< 1
PF-36B-W-20	92.27444	CR	< 0.01		MG/L	11/25/92	< 1
PF-36B-W-20	92.27444	PB	0.35	0.05	MG/L	11/25/92	< 5
PF-36B-W-40	92.27445	BA	3.29	0.33	MG/L	11/25/92	
PF-36B-W-40	92.27445	CD	0.09	0.01	MG/L	11/25/92	
PF-36B-W-40	92.27445	CR	< 0.01		MG/L	11/25/92	
PF-36B-W-40	92.27445	PB	0.05	0.05	MG/L	11/25/92	
PF-36B-W-60	92.27446	BA	2.06	0.21	MG/L	11/25/92	
PF-36B-W-60	92.27446	CD	< 0.01		MG/L	11/25/92	
PF-36B-W-60	92.27446	CR	< 0.01		MG/L	11/25/92	
PF-36B-W-60	92.27446	PB	< 0.05		MG/L	11/25/92	
PF-36B-W-100	92.27447	BA	5.04	0.5	MG/L	11/25/92	
PF-36B-W-100	92.27447	CD	0.17	0.02	MG/L	11/25/92	
PF-36B-W-100	92.27447	CR	< 0.01		MG/L	11/25/92	
PF-36B-W-100	92.27447	PB	0.05	0.05	MG/L	11/25/92	
PF-36B-W-150	92.27448	BA	2.49	0.25	MG/L	11/25/92	
PF-36B-W-150	92.27448	CD	< 0.01		MG/L	11/25/92	
PF-36B-W-150	92.27448	CR	< 0.01		MG/L	11/25/92	
PF-36B-W-150	92.27448	PB	< 0.05		MG/L	11/25/92	
PF-36B-E-20	92.27449	BA	2.03	0.2	MG/L	11/25/92	
PF-36B-E-20	92.27449	CD	0.04	0.01	MG/L	11/25/92	
PF-36B-E-20	92.27449	CR	< 0.01		MG/L	11/25/92	
PF-36B-E-20	92.27449	PB	0.09	0.05	MG/L	11/25/92	
PF-36B-E-40	92.27450	BA	1.71	0.17	MG/L	11/25/92	
PF-36B-E-40	92.27450	CD	0.03	0.01	MG/L	11/25/92	
PF-36B-E-40	92.27450	CR	0.02	0.01	MG/L	11/25/92	
PF-36B-E-40	92.27450	PB	0.16	0.05	MG/L	11/25/92	
PF-36B-E-60	92.27451	BA	3.57	0.36	MG/L	11/25/92	
PF-36B-E-60	92.27451	CD	0.05	0.01	MG/L	11/25/92	
PF-36B-E-60	92.27451	CR	0.03	0.01	MG/L	11/25/92	
PF-36B-E-60	92.27451	PB	0.53	0.05	MG/L	11/25/92	
PF-36B-E-100	92.27452	BA	4.17	0.42	MG/L	11/25/92	
PF-36B-E-100	92.27452	CD	0.04	0.01	MG/L	11/25/92	
PF-36B-E-100	92.27452	CR	< 0.01		MG/L	11/25/92	
PF-36B-E-100	92.27452	PB	0.44	0.05	MG/L	11/25/92	
PF-36B-E-150	92.27453	BA	1.17	0.12	MG/L	11/25/92	

PF-36B-E-150	92.27453	CD	< 0.01		MG/L	11/25/92
PF-36B-E-150	92.27453	CR	< 0.01		MG/L	11/25/92
PF-36B-E-150	92.27453	PB	< 0.05		MG/L	11/25/92
PF-36B-N-20	92.27454	BA	2.63	0.26	MG/L	11/25/92
PF-36B-N-20	92.27454	CD	0.05	0.01	MG/L	11/25/92
PF-36B-N-20	92.27454	CR	< 0.01		MG/L	11/25/92
PF-36B-N-20	92.27454	PB	0.12	0.05	MG/L	11/25/92
PF-36B-N-40	92.27455	BA	7.63	0.76	MG/L	11/25/92
PF-36B-N-40	92.27455	CD	0.03	0.01	MG/L	11/25/92
PF-36B-N-40	92.27455	CR	< 0.01		MG/L	11/25/92
PF-36B-N-40	92.27455	PB	< 0.05		MG/L	11/25/92
PF-36B-N-60	92.27456	BA	1.75	0.2	MG/L	11/25/92
PF-36B-N-60	92.27456	CD	< 0.01		MG/L	11/25/92
PF-36B-N-60	92.27456	CR	< 0.01		MG/L	11/25/92
PF-36B-N-60	92.27456	PB	< 0.05		MG/L	11/25/92
PF-36B-N-100	92.27457	BA	6.83	0.68	MG/L	11/25/92
PF-36B-N-100	92.27457	CD	0.32	0.03	MG/L	11/25/92
PF-36B-N-100	92.27457	CR	< 0.01		MG/L	11/25/92
PF-36B-N-100	92.27457	PB	< 0.05		MG/L	11/25/92
PF-36B-N-150	92.27458	BA	3.14	0.31	MG/L	11/25/92
PF-36B-N-150	92.27458	CD	0.03	0.01	MG/L	11/25/92
PF-36B-N-150	92.27458	CR	< 0.01		MG/L	11/25/92
PF-36B-N-150	92.27458	PB	< 0.05		MG/L	11/25/92
PF-36B-S-20	92.27459	BA	1.58	0.16	MG/L	11/25/92
PF-36B-S-20	92.27459	CD	0.04	0.01	MG/L	11/25/92
PF-36B-S-20	92.27459	CR	< 0.01		MG/L	11/25/92
PF-36B-S-20	92.27459	PB	0.09	0.05	MG/L	11/25/92
PF-36B-S-40	92.27460	BA	3.3	0.33	MG/L	11/25/92
PF-36B-S-40	92.27460	CD	0.02	0.01	MG/L	11/25/92
PF-36B-S-40	92.27460	CR	< 0.01		MG/L	11/25/92
PF-36B-S-40	92.27460	PB	< 0.05		MG/L	11/25/92
PF-36B-S-60	92.27461	BA	3.33	0.33	MG/L	11/25/92
PF-36B-S-60	92.27461	CD	0.03	0.01	MG/L	11/25/92
PF-36B-S-60	92.27461	CR	< 0.01		MG/L	11/25/92
PF-36B-S-60	92.27461	PB	< 0.05		MG/L	11/25/92
PF-36B-S-100	92.27462	BA	1.94	0.19	MG/L	11/25/92
PF-36B-S-100	92.27462	CD	< 0.01		MG/L	11/25/92
PF-36B-S-100	92.27462	CR	< 0.01		MG/L	11/25/92
PF-36B-S-100	92.27462	PB	< 0.05		MG/L	11/25/92
PF-36B-S-150	92.27463	BA	1.49	0.15	MG/L	11/25/92
PF-36B-S-150	92.27463	CD	< 0.01		MG/L	11/25/92
PF-36B-S-150	92.27463	CR	< 0.01		MG/L	11/25/92
PF-36B-S-150	92.27463	PB	< 0.05		MG/L	11/25/92
PF-36B-SED	92.27464	BA	3.92	0.39	MG/L	11/25/92
PF-36B-SED	92.27464	CD	< 0.01		MG/L	11/25/92
PF-36B-SED	92.27464	CR	< 0.01		MG/L	11/25/92
PF-36B-SED	92.27464	PB	< 0.05		MG/L	11/25/92
PF-36B-O-O	92.27465	BA	1.56	0.16	MG/L	11/25/92
PF-36B-O-O	92.27465	CD	0.03	0.01	MG/L	11/25/92
PF-36B-O-O	92.27465	CR	< 0.01		MG/L	11/25/92
PF-36B-O-O	92.27465	PB	0.13	0.05	MG/L	11/25/92
PF-36B-E60R	92.27466	BA	3.56	0.36	MG/L	11/25/92
PF-36B-E60R	92.27466	CD	0.06	0.01	MG/L	11/25/92
PF-36B-E60R	92.27466	CR	< 0.01		MG/L	11/25/92
PF-36B-E60R	92.27466	PB	0.33	0.01	MG/L	11/25/92
PF-36A-RIN	92.27468	BA	< 0.07		MG/L	11/25/92
PF-36A-RIN	92.27468	CD	< 0.01		MG/L	11/25/92
PF-36A-RIN	92.27468	CR	< 0.01		MG/L	11/25/92
PF-36A-RIN	92.27468	PB	< 0.05		MG/L	11/25/92
PF-36B-RIN	92.27469	BA	0.96	0.1	MG/L	11/25/92

PF-36B-RIN	92.27469 CD	0.01	0.01	MG/L	11/25/92
PF-36B-RIN	92.27469 CR	< 0.01		MG/L	11/25/92
PF-36B-RIN	92.27469 PB	0.05	0.05	MG/L	11/25/92

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REPORT NUMBER: 16083 (continued)

********** EM-9 QUALITY ASSURANCE REPORT **********

Prepared by: PEC on 25-Nov-1992

REQUEST NUMBER: 13501 MATRIX: SE ANALYST: JANET MORGAN PROGRAM CODE: M106

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815

NOTEBOOK: R8146 PAGE: 44

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
00.20193	BA	11.	1.1	MG/L	10.	1.	11/25/92	UNDER CONTROL
00.20193	BA	11.7	1.2	MG/L	10.	1.	11/25/92	UNDER CONTROL
00.20193	BA	11.1	1.1	MG/L	10.	1.	11/25/92	UNDER CONTROL
00.20193	CD	10.6	1.1	MG/L	10.	1.	11/25/92	UNDER CONTROL
00.20193	CD	10.4	1.	MG/L	10.	1.	11/25/92	UNDER CONTROL
00.20193	CD	10.	1.	MG/L	10.	1.	11/25/92	UNDER CONTROL
00.20193	CR	10.7	1.1	MG/L	10.	1.	11/25/92	UNDER CONTROL
00.20193	CR	10.9	1.1	MG/L	10.	1.	11/25/92	UNDER CONTROL
00.20193	CR	10.5	1.1	MG/L	10.	1.	11/25/92	UNDER CONTROL
00.20193	PB	10.2	1.	MG/L	10.	1.	11/25/92	UNDER CONTROL
00.20193	PB	10.9	1.1	MG/L	10.	1.	11/25/92	UNDER CONTROL
00.20193	PB	10.6	1.1	MG/L	10.	1.	11/25/92	UNDER CONTROL

SUMMARY OF CONTROL STATUS OF BLIND QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
92.27522	BA	4.9	0.49	MG/L	4.5	0.2	11/25/92	UNDER CONTROL
92.27522	CD	2.11	0.21	MG/L	2.	0.09	11/25/92	UNDER CONTROL
92.27522	CR	< 0.01		MG/L	0.0		11/25/92	UNDER CONTROL
92.27522	PB	27.4	0.27	MG/L	26.	1.1	11/25/92	UNDER CONTROL
92.27523	BA	250.	70.	UG/L	300.	13.	11/25/92	UNDER CONTROL
92.27523	CD	1.54	0.15	MG/L	1.4	0.06	11/25/92	UNDER CONTROL
92.27523	CR	890.	90.	UG/L	800.	34.	11/25/92	UNDER CONTROL
92.27523	PB	6.65	0.67	MG/L	6.	0.3	11/25/92	UNDER CONTROL

REPORT NUMBER: 16083 PEC GDM CTC mag

Analyst	Reviewer	Section Leader	QA Officer
11/24/92	11/24/92	11/25/92	11/30/92
Date	Date	Date	Date

No Sample Discrepancies Noted by Sample Management Section

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1986,' LA-11114-MS, pp. 3-4.

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REPORT NUMBER: 15762

TCLP - Hg.

********** EM-9 ANALYTICAL REPORT **********

Prepared by: J HANMER on 3-Nov-1992

ANALYSIS: HG REQUEST NUMBER: 13501 MATRIX: SE ANALYST: JOYCE HANMER PROGRAM CODE: M106

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815

ANALYTICAL TECHNIQUE: CVAA ANALYTICAL PROCEDURE: 245.2 NOTEBOOK: Y04110 PAGE: 177

CUSTOMER SAMPLES:

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
PF-36B-W-20	92.27444	< 0.1		UG/L	10/06/92	
PF-36B-W-40	92.27445	< 0.1		UG/L	10/06/92	
PF-36B-W-60	92.27446	< 0.1		UG/L	10/06/92	
PF-36B-W-100	92.27447	< 0.1		UG/L	10/06/92	
PF-36B-W-150	92.27448	< 0.1		UG/L	10/06/92	
PF-36B-E-20	92.27449	< 0.1		UG/L	10/06/92	
PF-36B-E-40	92.27450	< 0.1		UG/L	10/06/92	
PF-36B-E-60	92.27451	< 0.1		UG/L	10/06/92	
PF-36B-E-100	92.27452	< 0.1		UG/L	10/06/92	
PF-36B-E-150	92.27453	< 0.1		UG/L	10/06/92	
PF-36B-N-20	92.27454	< 0.1		UG/L	10/06/92	< 0.2
PF-36B-N-40	92.27455	< 0.1		UG/L	10/06/92	
PF-36B-N-60	92.27456	< 0.1		UG/L	10/06/92	
PF-36B-N-100	92.27457	< 0.1		UG/L	10/06/92	
PF-36B-N-150	92.27458	< 0.1		UG/L	10/06/92	
PF-36B-S-20	92.27459	< 0.1		UG/L	10/06/92	
PF-36B-S-40	92.27460	< 0.1		UG/L	10/06/92	
PF-36B-S-60	92.27461	< 0.1		UG/L	10/06/92	
PF-36B-S-100	92.27462	< 0.1		UG/L	10/06/92	
PF-36B-S-150	92.27463	< 0.1		UG/L	10/06/92	
PF-36B-SED	92.27464	< 0.1		UG/L	10/06/92	
PF-36B-O-O	92.27465	< 0.1		UG/L	10/06/92	
PF-36B-E60R	92.27466	< 0.1		UG/L	10/06/92	
PF-36A-RIN	92.27468	< 0.1		UG/L	10/06/92	
PF-36B-RIN	92.27469	< 0.1		UG/L	10/06/92	

CUSTOMER SAMPLE DUPLICATES:

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
PF-36B-N-100	92.27457	< 0.1		UG/L	11/02/92	

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER SAMPLE MATRIX SPIKES :

CUSTOMER NUMBER	SAMPLE NUMBER	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT
PF-36B-N-100	92.27457	2.	2.	UG/L	11/02/92	

********** EM-9 QUALITY ASSURANCE REPORT *********

Prepared by: J HANMER on 3-Nov-1992

REQUEST NUMBER: 13501 MATRIX: SE ANALYST: JOYCE HANMER PROGRAM CODE: M106

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QC SAMPLES RUN WITH THIS BATCH

There were no open (non-blind) Quality Control materials run with the samples reported above for one of the following reasons:

___ Only qualitative data requested

_X_ Only Blind QC samples run with this sample batch.

___ No QC samples run with this sample batch.

___ No QC samples for this constituent and matrix type available within EM-9

SUMMARY OF CONTROL STATUS OF BLIND QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
92.27520	< 0.1		UG/L	0.0		10/06/92	UNDER CONTROL
92.27521	2.4	0.24	UG/L	2.5	0.15	10/06/92	UNDER CONTROL

REPORT NUMBER: 15762

Analyst	Reviewer	Section Leader	QA Officer
11-3-92	11/3/92	11/3/92	11/3/92
Date	Date	Date	Date

No Sample Discrepancies Noted by Sample Management Section

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1986,' LA-11114-MS, pp. 3-4.

REPORT NUMBER: 16603

36P. Total Al, Ba, Be, Cu, Fe, Pb

********** EM-9 ANALYTICAL REPORT **********

Prepared by: PEC on 7-Jan-1993

REQUEST NUMBER: 13438 MATRIX: SS ANALYST: JANET MORGAN PROGRAM CODE: M106

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815

ANALYTICAL TECHNIQUE: ICPES ANALYTICAL PROCEDURE: NOTEBOOK: 8149 PAGE: 49

CUSTOMER SAMPLES:

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
PF-36A-0-0	92.26700	AL	6.7	1.	%	12/23/92	AL ppm none
PF-36A-0-0	92.26700	BA	535.	107.	UG/G	12/23/92	4000
PF-36A-0-0	92.26700	BE	2.98	0.6	UG/G	12/23/92	400 $\bar{x}$=(0.43)=2.39
PF-36A-0-0	92.26700	CU	79.6	16.	UG/G	12/23/92	none
PF-36A-0-0	92.26700	FE	2.1	0.42	%	12/23/92	none
PF-36A-0-0	92.26700	PB	40.	8.	UG/G	12/23/92	none
PF-36A-S-100	92.26701	AL	6.78	1.	%	12/23/92	
PF-36A-S-100	92.26701	BA	492.	98.	UG/G	12/23/92	
PF-36A-S-100	92.26701	BE	2.67	0.53	UG/G	12/23/92	
PF-36A-S-100	92.26701	CU	23.9	4.8	UG/G	12/23/92	
PF-36A-S-100	92.26701	FE	2.02	0.4	%	12/23/92	
PF-36A-S-100	92.26701	PB	20.	4.	UG/G	12/23/92	
PF-36A-S-50'	92.26702	AL	6.3	1.	%	12/23/92	
PF-36A-S-50'	92.26702	BA	465.	93.	UG/G	12/23/92	
PF-36A-S-50'	92.26702	BE	2.08	0.42	UG/G	12/23/92	
PF-36A-S-50'	92.26702	CU	63.8	13.	UG/G	12/23/92	
PF-36A-S-50'	92.26702	FE	1.7	0.34	%	12/23/92	
PF-36A-S-50'	92.26702	PB	29.	6.	UG/G	12/23/92	
PF-36A-S-25'	92.26703	AL	6.73	1.	%	12/23/92	
PF-36A-S-25'	92.26703	BA	563.	113.	UG/G	12/23/92	
PF-36A-S-25'	92.26703	BE	2.56	0.51	UG/G	12/23/92	
PF-36A-S-25'	92.26703	CU	201.	40.	UG/G	12/23/92	
PF-36A-S-25'	92.26703	FE	1.9	0.38	%	12/23/92	
PF-36A-S-25'	92.26703	PB	70.	14.	UG/G	12/23/92	
PF-36A-S-10'	92.26704	AL	5.4	1.	%	12/23/92	
PF-36A-S-10'	92.26704	BA	494.	99.	UG/G	12/23/92	
PF-36A-S-10'	92.26704	BE	1.95	0.39	UG/G	12/23/92	
PF-36A-S-10'	92.26704	CU	90.8	18.	UG/G	12/23/92	
PF-36A-S-10'	92.26704	FE	1.38	0.28	%	12/23/92	
PF-36A-S-10'	92.26704	PB	36.	7.	UG/G	12/23/92	
PF-36A-S-5'	92.26705	AL	5.9	1.	%	12/23/92	
PF-36A-S-5'	92.26705	BA	419.	84.	UG/G	12/23/92	
PF-36A-S-5'	92.26705	BE	2.16	0.43	UG/G	12/23/92	
PF-36A-S-5'	92.26705	CU	119.	24.	UG/G	12/23/92	
PF-36A-S-5'	92.26705	FE	1.6	0.32	%	12/23/92	
PF-36A-S-5'	92.26705	PB	0.25	0.05	%	12/23/92	
PF-36A-W-100	92.26706	AL	6.7	1.	%	12/23/92	

PF-36A-W-100	92.26706	BA	337.	67.4	UG/G	12/23/92
PF-36A-W-100	92.26706	BE	2.7	0.54	UG/G	12/23/92
PF-36A-W-100	92.26706	CU	7.8	1.6	UG/G	12/23/92
PF-36A-W-100	92.26706	FE	1.9	0.38	%	12/23/92
PF-36A-W-100	92.26706	PB	20.	4.	UG/G	12/23/92
PF-36A-W-50'	92.26707	AL	5.8	1.	%	12/23/92
PF-36A-W-50'	92.26707	BA	302.	60.	UG/G	12/23/92
PF-36A-W-50'	92.26707	BE	2.33	0.47	UG/G	12/23/92
PF-36A-W-50'	92.26707	CU	11.2	2.2	UG/G	12/23/92
PF-36A-W-50'	92.26707	FE	1.6	0.32	%	12/23/92
PF-36A-W-50'	92.26707	PB	21.	4.	UG/G	12/23/92
PF-36A-W-25'	92.26708	AL	6.4	1.	%	12/23/92
PF-36A-W-25'	92.26708	BA	364.	72.8	UG/G	12/23/92
PF-36A-W-25'	92.26708	BE	2.28	0.46	UG/G	12/23/92
PF-36A-W-25'	92.26708	CU	101.	20.	UG/G	12/23/92
PF-36A-W-25'	92.26708	FE	1.6	0.32	%	12/23/92
PF-36A-W-25'	92.26708	PB	51.	10.	UG/G	12/23/92
PF-36A-W-10'	92.26709	AL	5.4	1.	%	12/23/92
PF-36A-W-10'	92.26709	BA	298.	60.	UG/G	12/23/92
PF-36A-W-10'	92.26709	BE	2.14	0.43	UG/G	12/23/92
PF-36A-W-10'	92.26709	CU	64.4	13.	UG/G	12/23/92
PF-36A-W-10'	92.26709	FE	1.4	0.28	%	12/23/92
PF-36A-W-10'	92.26709	PB	27.	5.	UG/G	12/23/92
PF-36A-W-5'	92.26710	AL	6.1	1.	%	12/23/92
PF-36A-W-5'	92.26710	BA	336.	67.	UG/G	12/23/92
PF-36A-W-5'	92.26710	BE	2.36	0.47	UG/G	12/23/92
PF-36A-W-5'	92.26710	CU	50.	10.	UG/G	12/23/92
PF-36A-W-5'	92.26710	FE	1.5	0.3	%	12/23/92
PF-36A-W-5'	92.26710	PB	37.	7.	UG/G	12/23/92
PF-36A-E-100	92.26711	AL	6.04	1.	%	12/23/92
PF-36A-E-100	92.26711	BA	596.	119.	UG/G	12/23/92
PF-36A-E-100	92.26711	BE	2.35	0.47	UG/G	12/23/92
PF-36A-E-100	92.26711	CU	29.9	5.98	UG/G	12/23/92
PF-36A-E-100	92.26711	FE	1.7	0.34	%	12/23/92
PF-36A-E-100	92.26711	PB	30.	6.	UG/G	12/23/92
PF-36A-E-76	92.26712	AL	6.3	1.	%	12/23/92
PF-36A-E-76	92.26712	BA	833.	167.	UG/G	12/23/92
PF-36A-E-76	92.26712	BE	2.25	0.45	UG/G	12/23/92
PF-36A-E-76	92.26712	CU	86.6	17.	UG/G	12/23/92
PF-36A-E-76	92.26712	FE	1.7	0.34	%	12/23/92
PF-36A-E-76	92.26712	PB	51.	10.	UG/G	12/23/92
PF-36A-E-50'	92.26713	AL	5.8	1.	%	12/23/92
PF-36A-E-50'	92.26713	BA	512.	102.	UG/G	12/23/92
PF-36A-E-50'	92.26713	BE	1.87	0.37	UG/G	12/23/92
PF-36A-E-50'	92.26713	CU	85.	17.	UG/G	12/23/92
PF-36A-E-50'	92.26713	FE	1.4	0.28	%	12/23/92
PF-36A-E-50'	92.26713	PB	33.	7.	UG/G	12/23/92
PF-36A-E-25'	92.26714	AL	6.3	1.	%	12/23/92
PF-36A-E-25'	92.26714	BA	509.	102.	UG/G	12/23/92
PF-36A-E-25'	92.26714	BE	2.53	0.51	UG/G	12/23/92
PF-36A-E-25'	92.26714	CU	66.	13.	UG/G	12/23/92
PF-36A-E-25'	92.26714	FE	2.	0.4	%	12/23/92
PF-36A-E-25'	92.26714	PB	38.	8.	UG/G	12/23/92
PF-36A-E-10'	92.26715	AL	6.2	1.	%	12/23/92
PF-36A-E-10'	92.26715	BA	381.	76.	UG/G	12/23/92
PF-36A-E-10'	92.26715	BE	2.39	0.48	UG/G	12/23/92
PF-36A-E-10'	92.26715	CU	44.9	9.	UG/G	12/23/92
PF-36A-E-10'	92.26715	FE	2.3	0.46	%	12/23/92
PF-36A-E-10'	92.26715	PB	35.	7.	UG/G	12/23/92
PF-36A-E-5'	92.26716	AL	6.	1.	%	12/23/92

PF-36A-E-5'	92.26716	BA	411.	82.	UG/G	12/23/92
PF-36A-E-5'	92.26716	BE	2.16	0.43	UG/G	12/23/92
PF-36A-E-5'	92.26716	CU	61.7	12.	UG/G	12/23/92
PF-36A-E-5'	92.26716	FE	1.4	0.28	%	12/23/92
PF-36A-E-5'	92.26716	PB	34.	7.	UG/G	12/23/92
PF-36A-N-100	92.26717	AL	6.4	1.	%	12/23/92
PF-36A-N-100	92.26717	BA	389.	78.	UG/G	12/23/92
PF-36A-N-100	92.26717	BE	1.97	0.39	UG/G	12/23/92
PF-36A-N-100	92.26717	CU	36.1	7.	UG/G	12/23/92
PF-36A-N-100	92.26717	FE	1.5	0.3	%	12/23/92
PF-36A-N-100	92.26717	PB	60.	12.	UG/G	12/23/92
PF-36A-N-50'	92.26718	AL	5.8	1.	%	12/23/92
PF-36A-N-50'	92.26718	BA	417.	83.	UG/G	12/23/92
PF-36A-N-50'	92.26718	BE	2.41	0.48	UG/G	12/23/92
PF-36A-N-50'	92.26718	CU	56.2	11.	UG/G	12/23/92
PF-36A-N-50'	92.26718	FE	1.7	0.34	%	12/23/92
PF-36A-N-50'	92.26718	PB	52.	10.	UG/G	12/23/92
PF-36A-N-25'	92.26719	AL	6.5	1.	%	12/23/92
PF-36A-N-25'	92.26719	BA	418.	84.	UG/G	12/23/92
PF-36A-N-25'	92.26719	BE	2.33	0.47	UG/G	12/23/92
PF-36A-N-25'	92.26719	CU	51.6	10.	UG/G	12/23/92
PF-36A-N-25'	92.26719	FE	1.7	0.34	%	12/23/92
PF-36A-N-25'	92.26719	PB	81.	16.	UG/G	12/23/92
PF-36A-N-10R	92.26720	AL	6.5	1.	%	1/04/93
PF-36A-N-10R	92.26720	BA	423.	85.	UG/G	1/04/93
PF-36A-N-10R	92.26720	BE	2.47	0.49	UG/G	1/04/93
PF-36A-N-10R	92.26720	CU	6.7	1.3	UG/G	1/04/93
PF-36A-N-10R	92.26720	FE	1.9	0.38	%	1/04/93
PF-36A-N-10R	92.26720	PB	23.	4.6	UG/G	1/04/93
PF-36A-N-10'	92.26721	AL	6.3	1.	%	1/04/93
PF-36A-N-10'	92.26721	BA	406.	81.	UG/G	1/04/93
PF-36A-N-10'	92.26721	BE	2.35	0.47	UG/G	1/04/93
PF-36A-N-10'	92.26721	CU	5.6	1.1	UG/G	1/04/93
PF-36A-N-10'	92.26721	FE	1.7	0.34	%	1/04/93
PF-36A-N-10'	92.26721	PB	19.5	3.9	UG/G	1/04/93
PF-36A-N-5'	92.26722	AL	6.2	1.	%	1/04/93
PF-36A-N-5'	92.26722	BA	395.	79.	UG/G	1/04/93
PF-36A-N-5'	92.26722	BE	2.65	0.53	UG/G	1/04/93
PF-36A-N-5'	92.26722	CU	36.7	7.3	UG/G	1/04/93
PF-36A-N-5'	92.26722	FE	1.8	0.36	%	1/04/93
PF-36A-N-5'	92.26722	PB	34.	7.	UG/G	1/04/93

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REPORT NUMBER: 16603 (continued)

********** EM-9 QUALITY ASSURANCE REPORT *********

Prepared by: PEC on 7-Jan-1993

REQUEST NUMBER: 13438 MATRIX: SS ANALYST: JANET MORGAN PROGRAM CODE: M106

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815

NOTEBOOK: 8149 PAGE: 49

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
00.00594	AL	8.86	2.	%	9.38	0.17	1/05/93	UNDER CONTROL
00.00594	BA	875.	175.	UG/G	879.	47.	1/05/93	UNDER CONTROL
).00594	BE	2.01	0.4	UG/G	1.98	0.29	1/05/93	UNDER CONTROL
J.00594	CU	50.	10.	UG/G	61.	3.	1/05/93	UNDER CONTROL
00.00594	FE	5.8	1.	%	6.	0.13	1/05/93	UNDER CONTROL
00.00594	PB	< 4.		UG/G	21.	4.	1/05/93	OUT OF CONTROL
00.00598	AL	2.25	0.45	%	3.06	0.11	1/05/93	UNDER CONTROL
00.00598	BA	223.	45.	UG/G	300.	40.	1/05/93	UNDER CONTROL
00.00598	BE	1.21	0.24	UG/G	0.81	0.15	1/05/93	UNDER CONTROL
00.00598	CU	14.7	3.	UG/G	17.	1.	1/05/93	UNDER CONTROL
00.00598	FE	1.29	0.26	%	1.51	0.06	1/05/93	UNDER CONTROL
00.00598	PB	8.	4.	UG/G	14.	3.	1/05/93	UNDER CONTROL
00.26210	AL	226.	23.	MG/L	250.	11.	1/04/93	UNDER CONTROL
00.26210	AL	232.	23.	MG/L	250.	11.	12/23/92	UNDER CONTROL
00.26210	AL	237.	24.	MG/L	250.	11.	12/23/92	UNDER CONTROL
00.26210	BA	10.2	1.	MG/L	10.	0.4	12/23/92	UNDER CONTROL
00.26210	BA	9.89	1.	MG/L	10.	0.4	1/04/93	UNDER CONTROL
00.26210	BA	10.1	1.	MG/L	10.	0.4	12/23/92	UNDER CONTROL
00.26210	BE	2.54	0.25	MG/L	2.5	0.1	12/23/92	UNDER CONTROL
00.26210	BE	2.46	0.25	MG/L	2.5	0.1	1/04/93	UNDER CONTROL
00.26210	BE	2.67	0.27	MG/L	2.5	0.1	12/23/92	UNDER CONTROL
00.26210	CU	9.35	0.9	MG/L	10.	0.4	12/23/92	UNDER CONTROL
00.26210	CU	9.82	0.98	MG/L	10.	0.4	12/23/92	UNDER CONTROL
00.26210	CU	9.01	0.9	MG/L	10.	0.4	1/04/93	UNDER CONTROL
00.26210	FE	249.	25.	MG/L	253.	11.	12/23/92	UNDER CONTROL
00.26210	FE	272.	27.	MG/L	253.	11.	12/23/92	UNDER CONTROL
00.26210	FE	248.	25.	MG/L	253.	11.	1/04/93	UNDER CONTROL
00.26210	PB	9.13	0.9	MG/L	10.	0.4	12/23/92	UNDER CONTROL
.26210	PB	9.04	0.9	MG/L	10.	0.4	1/04/93	UNDER CONTROL
26210	PB	9.44	0.94	MG/L	10.	0.4	12/23/92	UNDER CONTROL

SUMMARY OF CONTROL STATUS OF BLIND QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
92.26729	AL	18.	1.8	MG/L	19.	0.8	12/23/92	UNDER CONTROL
92.26729	BA	4.8	0.5	MG/L	4.8	0.2	12/23/92	UNDER CONTROL
92.26729	BE	0.38	0.04	MG/L	0.4	0.02	12/23/92	UNDER CONTROL
92.26729	CU	2.6	0.2	MG/L	2.6	0.1	12/23/92	UNDER CONTROL
92.26729	FE	0.01		MG/L	0.0		12/23/92	UNDER CONTROL
92.26729	PB	19.	1.9	MG/L	20.	0.9	12/23/92	UNDER CONTROL
92.26730	AL	12.	1.2	MG/L	12.8	0.5	12/23/92	UNDER CONTROL
92.26730	BA	4.1	0.4	MG/L	4.	0.2	12/23/92	UNDER CONTROL
92.26730	BE	1.87	0.19	MG/L	1.8	0.08	12/23/92	UNDER CONTROL
92.26730	CU	0.47	0.05	MG/L	0.48	0.02	12/23/92	UNDER CONTROL
92.26730	FE	2.	1.	MG/L	1.62	0.07	12/23/92	UNDER CONTROL
92.26730	PB	10.	1.	MG/L	10.1	0.4	12/23/92	UNDER CONTROL

REPORT NUMBER: 16603

Analyst	Reviewer	Section Leader	QA Officer
1/7/93	1/7/93	1/7/93	1/12/93
Date	Date	Date	Date

› Sample Discrepancies Noted by Sample Management Section

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1986,' LA-11114-MS, pp. 3-4.

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REPORT NUMBER: 17148

36B, Total Al, Ba, Be, Cu, Fe, Pb

********** EM-9 ANALYTICAL REPORT **********

Prepared by: CB on 10-Feb-1993

REQUEST NUMBER: 13502 MATRIX: SS ANALYST: JANET MORGAN PROGRAM CODE: M106

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815

ANALYTICAL TECHNIQUE: ICPES ANALYTICAL PROCEDURE: 6010 NOTEBOOK: 10523 PAGE: 75

CUSTOMER SAMPLES:

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
PF-36B-W-20	92.27472	AL	36349.	7270.	UG/G	2/09/93	
PF-36B-W-20	92.27472	BA	605.	121.	UG/G	2/09/93	
PF-36B-W-20	92.27472	BE	1.	0.2	UG/G	2/09/93	
PF-36B-W-20	92.27472	CU	61.	12.	UG/G	2/09/93	
PF-36B-W-20	92.27472	FE	15128.	3026.	UG/G	2/09/93	
PF-36B-W-20	92.27472	PB	24.	5.	UG/G	2/09/93	
PF-36B-W-40	92.27473	AL	41719.	8344.	UG/G	2/09/93	
PF-36B-W-40	92.27473	BA	692.	138.	UG/G	2/09/93	
PF-36B-W-40	92.27473	BE	1.4	0.3	UG/G	2/09/93	
PF-36B-W-40	92.27473	CU	52.	10.	UG/G	2/09/93	
PF-36B-W-40	92.27473	FE	15580.	3116.	UG/G	2/09/93	
PF-36B-W-40	92.27473	PB	33.	7.	UG/G	2/09/93	
PF-36B-W-60	92.27474	AL	66033.	13207.	UG/G	2/09/93	
PF-36B-W-60	92.27474	BA	544.	109.	UG/G	2/09/93	
PF-36B-W-60	92.27474	BE	2.5	0.5	UG/G	2/09/93	
PF-36B-W-60	92.27474	CU	36.	7.	UG/G	2/09/93	
PF-36B-W-60	92.27474	FE	18245.	3649.	UG/G	2/09/93	
PF-36B-W-60	92.27474	PB	37.	7.	UG/G	2/09/93	
PF-36B-W-100	92.27475	AL	43621.	8724.	UG/G	2/09/93	
PF-36B-W-100	92.27475	BA	784.	157.	UG/G	2/09/93	
PF-36B-W-100	92.27475	BE	1.8	0.4	UG/G	2/09/93	
PF-36B-W-100	92.27475	CU	117.	23.	UG/G	2/09/93	
PF-36B-W-100	92.27475	FE	16370.	3274.	UG/G	2/09/93	
PF-36B-W-100	92.27475	PB	35.	7.	UG/G	2/09/93	
PF-36B-W-150	92.27476	AL	64237.	12847.	UG/G	2/09/93	
PF-36B-W-150	92.27476	BA	524.	105.	UG/G	2/09/93	
PF-36B-W-150	92.27476	BE	3.8	0.8	UG/G	2/09/93	
PF-36B-W-150	92.27476	CU	51.	10.	UG/G	2/09/93	
PF-36B-W-150	92.27476	FE	17001.	3400.	UG/G	2/09/93	
PF-36B-W-150	92.27476	PB	36.	7.	UG/G	2/09/93	
PF-36B-E-20	92.27477	AL	39064.	7813.	UG/G	2/09/93	
PF-36B-E-20	92.27477	BA	629.	126.	UG/G	2/09/93	
PF-36B-E-20	92.27477	BE	1.2	0.2	UG/G	2/09/93	
PF-36B-E-20	92.27477	CU	92.	18.	UG/G	2/09/93	
PF-36B-E-20	92.27477	FE	13433.	2687.	UG/G	2/09/93	
PF-36B-E-20	92.27477	PB	36.	7.	UG/G	2/09/93	
PF-36B-E-40	92.27478	AL	34902.	6980.	UG/G	2/09/93	

PF-36B-E-40	92.27478	BA	538.	108.	UG/G	2/09/93
PF-36B-E-40	92.27478	BE	1.2	0.2	UG/G	2/09/93
PF-36B-E-40	92.27478	CU	216.	43.	UG/G	2/09/93
PF-36B-E-40	92.27478	FE	16718.	3344.	UG/G	2/09/93
PF-36B-E-40	92.27478	PB	30.	6.	UG/G	2/09/93
PF-36B-E-60	92.27479	AL	37618.	7524.	UG/G	2/09/93
PF-36B-E-60	92.27479	BA	660.	132.	UG/G	2/09/93
PF-36B-E-60	92.27479	BE	1.2	0.2	UG/G	2/09/93
PF-36B-E-60	92.27479	CU	189.	38.	UG/G	2/09/93
PF-36B-E-60	92.27479	FE	16518.	3304.	UG/G	2/09/93
PF-36B-E-60	92.27479	PB	46.	9.	UG/G	2/09/93
PF-36B-E-100	92.27480	AL	41298.	8260.	UG/G	2/09/93
PF-36B-E-100	92.27480	BA	627.	125.	UG/G	2/09/93
PF-36B-E-100	92.27480	BE	1.3	0.3	UG/G	2/09/93
PF-36B-E-100	92.27480	CU	85.	17.	UG/G	2/09/93
PF-36B-E-100	92.27480	FE	15524.	3105.	UG/G	2/09/93
PF-36B-E-100	92.27480	PB	46.	9.	UG/G	2/09/93
PF-36B-E-150	92.27481	AL	61223.	12245.	UG/G	2/09/93
PF-36B-E-150	92.27481	BA	469.	94.	UG/G	2/09/93
PF-36B-E-150	92.27481	BE	2.1	0.4	UG/G	2/09/93
PF-36B-E-150	92.27481	CU	10.	2.	UG/G	2/09/93
PF-36B-E-150	92.27481	FE	18959.	3792.	UG/G	2/09/93
PF-36B-E-150	92.27481	PB	30.	6.	UG/G	2/09/93
PF-36B-N-20	92.27482	AL	47146.	7429.	UG/G	2/09/93
PF-36B-N-20	92.27482	BA	605.	121.	UG/G	2/09/93
PF-36B-N-20	92.27482	BE	1.2	0.2	UG/G	2/09/93
PF-36B-N-20	92.27482	CU	261.	52.	UG/G	2/09/93
PF-36B-N-20	92.27482	FE	13818.	2764.	UG/G	2/09/93
PF-36B-N-20	92.27482	PB	31.	6.	UG/G	2/09/93
PF-36B-N-40	92.27483	AL	43634.	8727.	UG/G	2/09/93
PF-36B-N-40	92.27483	BA	855.	171.	UG/G	2/09/93
PF-36B-N-40	92.27483	BE	1.5	0.3	UG/G	2/09/93
PF-36B-N-40	92.27483	CU	82.	16.	UG/G	2/09/93
PF-36B-N-40	92.27483	FE	15334.	3067.	UG/G	2/09/93
PF-36B-N-40	92.27483	PB	94.	19.	UG/G	2/09/93
PF-36B-N-60	92.27484	AL	34790.	6958.	UG/G	2/09/93
PF-36B-N-60	92.27484	BA	577.	115.	UG/G	2/09/93
PF-36B-N-60	92.27484	BE	1.	0.2	UG/G	2/09/93
PF-36B-N-60	92.27484	CU	25.	5.	UG/G	2/09/93
PF-36B-N-60	92.27484	FE	16782.	3356.	UG/G	2/09/93
PF-36B-N-60	92.27484	PB	15.	3.	UG/G	2/09/93
PF-36B-N-100	92.27485	AL	61184.	12237.	UG/G	2/09/93
PF-36B-N-100	92.27485	BA	885.	177.	UG/G	2/09/93
PF-36B-N-100	92.27485	BE	2.3	0.5	UG/G	2/09/93
PF-36B-N-100	92.27485	CU	56.	11.	UG/G	2/09/93
PF-36B-N-100	92.27485	FE	13389.	2678.	UG/G	2/09/93
PF-36B-N-100	92.27485	PB	49.	10.	UG/G	2/09/93
PF-36B-N-150	92.27486	AL	60069.	12014.	UG/G	2/09/93
PF-36B-N-150	92.27486	BA	592.	118.	UG/G	2/09/93
PF-36B-N-150	92.27486	BE	2.5	0.5	UG/G	2/09/93
PF-36B-N-150	92.27486	CU	35.	7.	UG/G	2/09/93
PF-36B-N-150	92.27486	FE	15184.	3037.	UG/G	2/09/93
PF-36B-N-150	92.27486	PB	53.	11.	UG/G	2/09/93
PF-36B-S-20	92.27487	AL	39201.	7840.	UG/G	2/09/93
PF-36B-S-20	92.27487	BA	600.	120.	UG/G	2/09/93
PF-36B-S-20	92.27487	BE	1.3	0.3	UG/G	2/09/93
PF-36B-S-20	92.27487	CU	91.	18.	UG/G	2/09/93
PF-36B-S-20	92.27487	FE	19282.	3856.	UG/G	2/09/93
PF-36B-S-20	92.27487	PB	35.	7.	UG/G	2/09/93
PF-36B-S-40	92.27488	AL	36811.	7362.	UG/G	2/09/93

PF-36B-S-40	92.27488	BA	648.	130.	UG/G	2/09/93	
PF-36B-S-40	92.27488	BE	1.1	0.2	UG/G	2/09/93	
PF-36B-S-40	92.27488	CU	54.	11.	UG/G	2/09/93	
PF-36B-S-40	92.27488	FE	14804.	2961.	UG/G	2/09/93	
PF-36B-S-40	92.27488	PB	30.	6.	UG/G	2/09/93	
PF-36B-S-60	92.27489	AL	51039.	10208.	UG/G	2/09/93	
PF-36B-S-60	92.27489	BA	493.	99.	UG/G	2/09/93	
PF-36B-S-60	92.27489	BE	2.	0.4	UG/G	2/09/93	
PF-36B-S-60	92.27489	CU	30.	6.	UG/G	2/09/93	
PF-36B-S-60	92.27489	FE	14317.	2863.	UG/G	2/09/93	
PF-36B-S-60	92.27489	PB	39.	8.	UG/G	2/09/93	
PF-36B-S-100	92.27490	AL	62796.	12559.	UG/G	2/09/93	
PF-36B-S-100	92.27490	BA	390.	78.	UG/G	2/09/93	
PF-36B-S-100	92.27490	BE	2.6	0.5	UG/G	2/09/93	
PF-36B-S-100	92.27490	CU	82.	16.	UG/G	2/09/93	
PF-36B-S-100	92.27490	FE	16231.	3246.	UG/G	2/09/93	
PF-36B-S-100	92.27490	PB	47.	9.	UG/G	2/09/93	
PF-36B-S-150	92.27491	AL	56471.	11294.	UG/G	2/09/93	
PF-36B-S-150	92.27491	BA	444.	89.	UG/G	2/09/93	
PF-36B-S-150	92.27491	BE	2.2	0.4	UG/G	2/09/93	
PF-36B-S-150	92.27491	CU	18.	4.	UG/G	2/09/93	
PF-36B-S-150	92.27491	FE	15824.	3165.	UG/G	2/09/93	
PF-36B-S-150	92.27491	PB	39.	8.	UG/G	2/09/93	
PF-36B-SED	92.27492	AL	55216.	11043.	UG/G	2/09/93	
PF-36B-SED	92.27492	BA	606.	121.	UG/G	2/09/93	
PF-36B-SED	92.27492	BE	1.9	0.4	UG/G	2/09/93	
PF-36B-SED	92.27492	CU	161.	32.	UG/G	2/09/93	
PF-36B-SED	92.27492	FE	16813.	3363.	UG/G	2/09/93	
PF-36B-SED	92.27492	PB	55.	11.	UG/G	2/09/93	
PF-36B-O-O	92.27493	AL	37510.	7502.	UG/G	2/09/93	
PF-36B-O-O	92.27493	BA	577.	115.	UG/G	2/09/93	
PF-36B-O-O	92.27493	BE	1.1	0.2	UG/G	2/09/93	
PF-36B-O-O	92.27493	CU	53.	11.	UG/G	2/09/93	
PF-36B-O-O	92.27493	FE	15015.	3003.	UG/G	2/09/93	
PF-36B-O-O	92.27493	PB	23.	5.	UG/G	2/09/93	
PF-36B-E60R	92.27494	AL	36732.	7346.	UG/G	2/09/93	
PF-36B-E60R	92.27494	BA	626.	125.	UG/G	2/09/93	
PF-36B-E60R	92.27494	BE	1.1	0.2	UG/G	2/09/93	
PF-36B-E60R	92.27494	CU	272.	54.	UG/G	2/09/93	
PF-36B-E60R	92.27494	FE	16986.	3397.	UG/G	2/09/93	
PF-36B-E60R	92.27494	PB	45.	9.	UG/G	2/09/93	

CUSTOMER SAMPLE DUPLICATES:

CUSTOMER NUM	SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
PF-36B-W-150	92.27476	AL	62844.	12569.	UG/G	2/09/93	
PF-36B-W-150	92.27476	BA	534.	107.	UG/G	2/09/93	
PF-36B-W-150	92.27476	BE	5.	1.	UG/G	2/09/93	
PF-36B-W-150	92.27476	CU	15.	3.	UG/G	2/09/93	
PF-36B-W-150	92.27476	FE	18482.	3696.	UG/G	2/09/93	
PF-36B-W-150	92.27476	PB	37.	7.	UG/G	2/09/93	
PF-36B-N-60	92.27484	AL	36000.	7200.	UG/G	2/09/93	
PF-36B-N-60	92.27484	BA	581.	116.	UG/G	2/09/93	
PF-36B-N-60	92.27484	BE	1.	0.2	UG/G	2/09/93	
PF-36B-N-60	92.27484	CU	9.	2.	UG/G	2/09/93	
PF-36B-N-60	92.27484	FE	15463.	3093.	UG/G	2/09/93	
PF-36B-N-60	92.27484	PB	17.	3.	UG/G	2/09/93	

PF-36B-S-150 92.27491 AL	59183.	11837.	UG/G	2/09/93
PF-36B-S-150 92.27491 BA	463.	93.	UG/G	2/09/93
PF-36B-S-150 92.27491 BE	2.3	0.5	UG/G	2/09/93
PF-36B-S-150 92.27491 CU	19.	4.	UG/G	2/09/93
PF-36B-S-150 92.27491 FE	17304.	3461.	UG/G	2/09/93
PF-36B-S-150 92.27491 PB	41.	8.	UG/G	2/09/93

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REPORT NUMBER: 17148 (continued)

********** EM-9 QUALITY ASSURANCE REPORT *********

Prepared by: CB on 10-Feb-1993

REQUEST NUMBER: 13502 MATRIX: SS ANALYST: JANET MORGAN PROGRAM CODE: M106

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815

NOTEBOOK: 10523 PAGE: 75

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
00.00594	AL	8.9	1.8	%	9.38	0.17	2/09/93	UNDER CONTROL
00.00594	BA	851.	170.	UG/G	879.	47.	2/09/93	UNDER CONTROL
00.00594	BE	2.1	0.5	UG/G	1.98	0.29	2/09/93	UNDER CONTROL
00.00594	CU	53.	11.	UG/G	61.	3.	2/09/93	UNDER CONTROL
00.00594	FE	5.4	1.1	%	6.	0.13	2/09/93	UNDER CONTROL
00.00594	PB	25.	5.	UG/G	21.	4.	2/09/93	UNDER CONTROL
00.00598	AL	2.1	0.4	%	3.06	0.11	2/09/93	WARNING 2-3 SIG
00.00598	BA	163.	33.	UG/G	300.	40.	2/09/93	WARNING 2-3 SIG
00.00598	BE	0.6	0.1	UG/G	0.81	0.15	2/09/93	UNDER CONTROL
00.00598	CU	10.	7.	UG/G	17.	1.	2/09/93	UNDER CONTROL
00.00598	FE	1.2	0.2	%	1.51	0.06	2/09/93	UNDER CONTROL
00.00598	PB	12.	2.	UG/G	14.	3.	2/09/93	UNDER CONTROL

SUMMARY OF CONTROL STATUS OF BLIND QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
92.27509	AL	10.	2.	MG/L	10.	0.4	2/09/93	UNDER CONTROL
92.27509	BA	3.	1.	MG/L	2.6	0.1	2/09/93	UNDER CONTROL
92.27509	BE	1.3	0.3	MG/L	1.4	0.06	2/09/93	UNDER CONTROL
92.27509	CU	0.2	0.1	MG/L	0.26	0.01	2/09/93	UNDER CONTROL
92.27509	FE	0.3	0.2	MG/L	0.31	0.01	2/09/93	UNDER CONTROL
92.27509	PB	4.	1.	MG/L	4.	0.2	2/09/93	UNDER CONTROL
92.27510	AL	1.	0.5	MG/L	1.2	0.05	2/09/93	UNDER CONTROL
92.27510	BA	< 0.01		MG/L	0.0		2/09/93	UNDER CONTROL
92.27510	BE	2.9	0.6	MG/L	3.2	0.1	2/09/93	UNDER CONTROL
92.27510	CU	2.2	0.4	MG/L	2.19	0.09	2/09/93	UNDER CONTROL
92.27510	FE	2.4	0.5	MG/L	2.42	0.1	2/09/93	UNDER CONTROL
92.27510	PB	< 0.1		MG/L	0.0		2/09/93	UNDER CONTROL

ORT NUMBER: 17148

Analyst	Reviewer	Section Leader	QA Officer
02/11/93	2/16/93	2/19/93	2/19/93
Date	Date	Date	Date

No Sample Discrepancies Noted by Sample Management Section

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1986,' LA-11114-MS, pp. 3-4.

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EM-9 SEMIVOLATILE ORGANIC ANALYSIS
SUMMARY OF ANALYTICAL RESULTS

TO: Philip R. Fresquez
FROM: Kevin Cantrell, EM-9 Organic section
THROUGH: Chris Leibman, EM-9 Organic section leader
Anthony Lombardo, EM-9 Organic section

REQUEST NUMBER: 13439
MATRIX: Soil
SUMMARY DATE: November 9, 1992

ppb

	SAMPLE ID	TARGET COMPOUNDS FOUND	AMOUNT (ug/Kg)	LOQ (ug/Kg)	TICs	
	92.26725	(Blank 8/31/92) NONE	<330	330	N	
	92.26726	(Blank 9/03/92) NONE	<330	330	N	
	92.26677	bis-(2-Ethylhexyl)phthalate	570	330	N	
	92.26678	NONE	<330	330	Y	
S-50	92.26679	2,4-Dinitrotoluene	4500	330	Y	1 ppb 2,3 dinit
		N-Nitrosodiphenylamine	700			
		Di-n-butylphthalate	2100			100 ppm
S-25	92.26680	2,4-Dinitrotoluene	1300	330	Y	8000 ppm
		Di-n-butylphthalate	820			
		bis-(2-Ethylhexyl)phthalate	7000			50 ppm
	92.26681	2,4,Dinitrotoluene	680	330	Y	
		Di-n-butylphthalate	540			
		bis-(2-Ethylhexyl)phthalate	2100			
	92.26682	2,4,Dinitrotoluene	360	330	N	
		Di-n-butylphthalate	420			
		bis-(2-Ethylhexyl)phthalate	14300			<50
	92.26683	NONE	<330	330	N	
	92.26684	NONE	<330	330	N	
	92.26685	NONE	<330	330	Y	
W-10	92.26686	2,4-Dinitrotoluene	11600	330	Y	
		2,6-Dinitrotoluene	400			<1 ppm
		N-Nitrosodiphenylamine	1400			
		Di-n-butylphthalate	3300			
	92.26687	bis-(2-Ethylhexyl)phthalate	480	330	N	
E-100	92.26688	2,4-Dinitrotoluene	11600	990	Y	
		N-Nitrosodiphenylamine	1300			
		Di-n-butylphthalate	7100			
		bis-(2-Ethylhexyl)phthalate	12000			
E-76 sediment sample.	92.26689	2,4-Dinitrotoluene	18800	990	Y	
		N-Nitrosodiphenylamine	2200			
		Di-n-butylphthalate	8100			
		bis-(2-Ethylhexyl)phthalate	3600			
E-50	92.26690	2,4-Dinitrotoluene	48300	1300	Y	Needs >1 ppm
		2,6-Dinitrotoluene	2100			
		N-Nitrosodiphenylamine	5800			
		Di-n-butylphthalate	20000			
		bis-(2-Ethylhexyl)phthalate	11700			

12/1/92

92.26691	bis-(2-Ethylhexyl)phthalate	23900	1300	N	
92.26692	2,4-Dinitrotoluene	690	330	N	
	Di-n-butylphthalate	970			
E-5 92.26693	2,4-Dinitrotoluene	1700	330	N	
	Di-n-butylphthalate	1100			
	bis-(2-Ethylhexyl)phthalate	530			
N-10 92.26694	2,4-Dinitrotoluene	4800	330	Y	
	N-Nitrosodiphenylamine	1300			
	Di-n-butylphthalate	4400			
	bis-(2-Ethylhexyl)phthalate	5600			
92.26695	bis-(2-Ethylhexyl)phthalate	1500	330	N	
92.26696	NONE	<330	330	N	
92.26697	bis-(2-Ethylhexyl)phthalate	550	330	N	
92.26698	NONE	<330	330	N	
92.26699	bis-(2-Ethylhexyl)phthalate	480	330	Y	

LOQ: Limit Of Quantitation
TICs: Tentatively identified compounds

Samples were extracted by mixing approximately 30 grams of sample with 60 grams of sodium sulfate and sonicating with 100 ml of methylene chloride. The methylene chloride was separated from the solids and sonication was repeated with two additional 100 ml aliquot of methylene chloride. Sample extracts were combined and concentrated to 1.0 ml final volume. Appropriate surrogate standards were added prior to extraction. Analysis was performed by capillary column GC/MS methods. Extraction and analysis methods are consistent with EPA SW-846 methods 3500 and 8270. Analytical column used was a J&W scientific DB5.625 30 M X .25 mm ID.

Many samples were found to contain HSL target compounds above the specified limit of quantitation (see above). Non-target peaks were not identified or quantitated for this request.

Samples 92.26726 (blank) and 92.26697 had low recoveries for the surrogates 2-Fluorophenol, Phenol(d6), and Nitrobenzene(d5), which was probably a result of being concentrated to a low level. Surrogate recoveries were within EPA criteria for all the remaining analyses. Internal standard responses were within criteria for all analyses.

All analytical hold times were met for this request. If you have any question regarding this data, please call either Anthony Lombardo or Laura Kelly at 667-5889.

2/11/92

LOS ALAMOS NATIONAL LABORATORY
HEALTH, SAFETY AND ENVIRONMENT DIVISION
HSE-9
SURROGATE RECOVERIES FOR SEMI-VOLATILES
IN SOIL TYPE MATRICES

REQUEST #: 13439

NUMBER OF SAMPLES: 22
MATRIX S
ANALYST: AJL
Date: 12/02/92

SURROGATE RECOVERIES

SURROGATE
RECOVERIES IN PERCENT (%)

	SAMPLE NUMBERS	TYPE	2-FLUORO-PHENOL	PHENOL (D6)	NITRO-BENZENE (D5)	2-FLUORO-BIPHENYL	2,4,6-TRIBROMO-PHENOL	TERPHENYL (D14)
1	B92.26725	BLANK	42	46	49	53	64	74
2	S92.26723	SAMPLE	29	34	32	47	71	83
3	M92.26677	MATRIX SPIK	32	38	42	57	61	103
4	D92.26677	MATRIX SP-D	43	48	50	62	59	111
5	S92.26677	SAMPLE	29	34	32	42	78	58
6	S92.26678	SAMPLE	48	54	53	59	60	69
7	S92.26679	SAMPLE	31	41	36	52	65	76
	S92.26680	SAMPLE	33	39	34	46	46	66
	S92.26681	SAMPLE	24	29	26	38	51	71
10	S92.26682	SAMPLE	22 *	27	26	39	41	48
11	S92.26683	SAMPLE	28	33	30	38	57	67
12	S92.26684	SAMPLE	45	51	46	55	59	76
13	S92.26685	SAMPLE	25	33	29	50	52	63
14	S92.26686	SAMPLE	25	31	27	39	41	64
15	S92.26687	SAMPLE	27	33	31	42	44	49
16	S92.26688	SAMPLE	52	58	56	83	70	80
17	S92.26689	SAMPLE	33	44	41	68	74	91
18	S92.26690	SAMPLE	29	43	37	72	68	82
19	S92.26691	SAMPLE	47	55	54	79	64	98
20	S92.26692	SAMPLE	58	65	65	73	83	98
21	S92.26693	SAMPLE	26	29	28	39	37	60
22	S92.26694	SAMPLE	51	66	67	75	70	89
	Average % Surrogate Recovery...		33	39	38	49	60	76
	Defined Lower QC Limits (%)....		23	24	23	30	19	18
	Defined Upper QC Limits (%)....		121	113	120	115	122	137
	Observed Lower QC Limits (%)...		22	27	26	38	41	48
	Observed Upper QC Limits (%)...		48	54	53	62	78	111

"*" If % Surrogate Recovery is Followed by a "*", it is out of QC Limits.

ewed By:

12/14/92

LOS ALAMOS NATIONAL LABORATORY
HEALTH, SAFETY AND ENVIRONMENT DIVISION
HSE-9
SURROGATE RECOVERIES FOR SEMI-VOLATILES
IN SOIL TYPE MATRICES

REQUEST #: 13439

NUMBER OF SAMPLES: 9
MATRIX S
ANALYST: AJL
Date: 11/06/92

SURROGATE RECOVERIES

SURROGATE RECOVERIES IN PERCENT (%)

	SAMPLE NUMBERS	TYPE	2-FLUORO-PHENOL	PHENOL (D6)	NITRO-BENZENE (D5)	2-FLUORO-BIPHENYL	2,4,6-TRIBROMO-PHENOL	TERPHENYL (D14)
1	B92.26726	BLANK	0 *	0 *	0 *	10 *	73	86
2	S92.26724	SAMPLE	33	44	41	60	63	76
3	M92.26406	MATRIX SPIK	52	63	65	73	93	104
4	D92.26406	MATRIX SP-D	57	63	62	72	91	100
5	S92.26695	SAMPLE	22 *	26	23	34	41	69
6	S92.26696	SAMPLE	36	45	41	59	70	82
7	S92.26697	SAMPLE	8 *	22 *	15 *	45	78	72
8	S92.26698	SAMPLE	35	37	35	45	47	49
9	S92.26699	SAMPLE	24	34	31	44	39	67
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
	Average % Surrogate Recovery...		30	37	35	49	66	79
	Defined Lower QC Limits (%)....		23	24	23	30	19	18
	Defined Upper QC Limits (%)....		121	113	120	115	122	137
	Observed Lower QC Limits (%)...		0	0	0	10	39	49
	Observed Upper QC Limits (%)...		57	63	65	73	93	104

"*" If % Surrogate Recovery is Followed by a "*", it is out of QC Limits.

Reviewed By:

LOS ALAMOS NATIONAL LABORATORY
HEALTH, SAFETY AND ENVIRONMENT DIVISION
HSE-9
MATRIX SPIKE RECOVERIES FOR SEMI-VOLATILES

		DRY WT/VOL		AMOUNT SPIKED IN UG/KG		
REQUEST #:	13439	(G or L)		ACIDS	BASES	LOQ (UG/KG)
NUMBER OF SAMPLES:	9					
SPIKE ID: (STARTS M OR E)	M92.26406	SPIKE	26.732	3741	1870	330
SPIKE DUP ID: (STARTS D OR F)	D92.26406	SPIKE-DUP	26.892	3719	1859	330
RAW DATA WITH:	13414					
ANALYST:	AJL					

	SPIKE REC.	SPIKE-DUP REC.	SPIKE % REC.	SPIKE-DUP % REC.	RPD	LOW. REC. LIM.	UPP. REC. LIM.	RPD LIM.
PHENOL	2200	2200	59%	59%	1%	26	90	35
2-CHLOROPHENOL	2300	2300	61%	62%	1%	25	102	50
1,4-DICHLOROBENZENE	1200	1300	64%	70%	9%	28	104	27
N-NITROSO-DI-N-PROPYLAMINE	1400	1400	75%	75%	1%	41	126	38
1,2,4-TRICLOROBENZENE	1300	1300	70%	70%	1%	38	107	23
4-CHLORO-3-METHYLPHENOL	2800	2700	75%	73%	3%	26	103	33
ACENAPHTHENE	1400	1300	75%	70%	7%	31	137	19
4-NITROPHENOL	2800	2700	75%	73%	3%	11	114	50
2,4-DINITROTOLUENE	1400	1400	75%	75%	1%	28	89	47
PENTACHLOROPHENOL	3500	3300	94%	89%	5%	17	109	47
PYRENE	2000	2000	107%	108%	1%	35	142	36

"*" If % Matrix Recovery is Followed by a "*", it is out of QC Limits.

Reviewed By: 1/21/92

LOS ALAMOS NATIONAL LABORATORY
HEALTH, SAFETY AND ENVIRONMENT DIVISION
HSE-9
MATRIX SPIKE RECOVERIES FOR SEMI-VOLATILES

		DRY WT/VOL		AMOUNT SPIKED IN UG/KG		
REQUEST #:	13439	(G or L)		ACIDS	BASES	LOQ (UG/KG)
NUMBER OF SAMPLES:	22					
SPIKE ID: (STARTS M OR E)	M92.26677	SPIKE	21.706	4607	2303	330
SPIKE DUP ID: (STARTS D OR F)	D92.26677	SPIKE-DUP	21.792	4589	2294	330
RAW DATA WITH:	13439					
ANALYST:	AJL					

	SPIKE REC.	SPIKE-DUP REC.	SPIKE % REC.	SPIKE-DUP % REC.	RPD	LOW. REC. LIM.	UPP. REC. LIM.	RPD LIM.
PHENOL	2000	2400	43%	52%	19%	26	90	35
2-CHLOROPHENOL	1900	2400	41%	52%	24%	25	102	50
1,4-DICHLOROBENZENE	1000	1300	43%	57%	26%	28	104	27
N-NITROSO-DI-N-PROPYLAMINE	1100	1300	48%	57%	17%	41	126	38
1,2,4-TRICLOROBENZENE	1200	1300	52%	57%	8%	38	107	23
4-CHLORO-3-METHYLPHENOL	2900	2700	63%	59%	7%	26	103	33
ACENAPHTHENE	1500	1600	65%	70%	7%	31	137	19
4-NITROPHENOL	2700	2700	59%	59%	0%	11	114	50
2,4-DINITROTOLUENE	1700	1600	74%	70%	6%	28	89	47
PENTACHLOROPHENOL	2500	2300	54%	50%	8%	17	109	47
PYRENE	2700	2800	117%	122%	4%	35	142	36

"*" If % Matrix Recovery is Followed by a "*", it is out of QC Limits.

Reviewed By:

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 9-Dec-1992

REQUEST NUMBER: 13439 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 117

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Tentatively Identified Compounds in Customer Sample # 92.26406

none

********** EM-9 ANALYTICAL REPORT **********

Matrix Spike Results for Sample # 92.26406 Date Collected: Date Received: Date Extracted: Date Analyzed:

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AAA1558	92.26406	83329	1870.4	1400.	UG/KG	12/02/92		Acenaphthene
AAA1558	92.26406	59507	3740.8	2800.	UG/KG	12/02/92		4-Chloro-3-methylphenol
AAA1558	92.26406	95578	3740.8	2300.	UG/KG	12/02/92		o-Chlorophenol
AAA1558	92.26406	106467	1870.4	1200.	UG/KG	12/02/92		p-Dichlorobenzene (1,4)
AAA1558	92.26406	121142	1870.4	1400.	UG/KG	12/02/92		2,4-Dinitrotoluene
AAA1558	92.26406	100027	3740.8	2800.	UG/KG	12/02/92		4-Nitrophenol
AAA1558	92.26406	621647	1870.4	1400.	UG/KG	12/02/92		N-Nitrosodi-n-propylamine
AAA1558	92.26406	87865	3740.8	3500.	UG/KG	12/02/92		Pentachlorophenol
AAA1558	92.26406	108952	3740.8	2200.	UG/KG	12/02/92		Phenol
AAA1558	92.26406	129000	1870.4	2000.	UG/KG	12/02/92		Pyrene
AAA1558	92.26406	120821	1870.4	1300.	UG/KG	12/02/92		1,2,4-Trichlorobenzene

Matrix Spike Duplicate Results for Sample # 92.26406 Date Collected: Date Received: Date Extracted: Date Analyzed:

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
AAA1558	92.26406	83329	1859.27	1300.	UG/KG	12/02/92		Acenaphthene
AAA1558	92.26406	59507	3718.54	2700.	UG/KG	12/02/92		4-Chloro-3-methylphenol
AAA1558	92.26406	95578	3718.54	2300.	UG/KG	12/02/92		o-Chlorophenol
AAA1558	92.26406	106467	1859.27	1300.	UG/KG	12/02/92		p-Dichlorobenzene (1,4)
AAA1558	92.26406	121142	1859.27	1400.	UG/KG	12/02/92		2,4-Dinitrotoluene
AAA1558	92.26406	100027	3718.54	2700.	UG/KG	12/02/92		4-Nitrophenol
AAA1558	92.26406	621647	1859.27	1400.	UG/KG	12/02/92		N-Nitrosodi-n-propylamine
AAA1558	92.26406	87865	3718.54	3300.	UG/KG	12/02/92		Pentachlorophenol
AAA1558	92.26406	108952	3718.54	2200.	UG/KG	12/02/92		Phenol
AAA1558	92.26406	129000	1859.27	2000.	UG/KG	12/02/92		Pyrene
AAA1558	92.26406	120821	1859.27	1300.	UG/KG	12/02/92		1,2,4-Trichlorobenzene

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 9-Dec-1992

REQUEST NUMBER: 13439 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 117

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.26677 Date Collected: 8/25/92 Date Received: 8/26/92 Date Extracted: 8/31/92 Date Analyzed: 9/24/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-0-0	92.26677	83329	< 330.		UG/KG	12/02/92		Acenaphthene
PF-36A-0-0	92.26677	208968	< 330.		UG/KG	12/02/92		Acenaphthylene
PF-36A-0-0	92.26677	62533	< 330.		UG/KG	12/02/92		Aniline
PF-36A-0-0	92.26677	120127	< 330.		UG/KG	12/02/92		Anthracene
PF-36A-0-0	92.26677	103333	< 330.		UG/KG	12/02/92		Azobenzene
PF-36A-0-0	92.26677	92875	< 330.		UG/KG	12/02/92		m-Benzidine
PF-36A-0-0	92.26677	56553	< 330.		UG/KG	12/02/92		Benzo[a]anthracene
PF-36A-0-0	92.26677	50328	< 330.		UG/KG	12/02/92		Benzo[a]pyrene
PF-36A-0-0	92.26677	205992	< 330.		UG/KG	12/02/92		Benzo[b]fluoranthene
PF-36A-0-0	92.26677	191242	< 330.		UG/KG	12/02/92		Benzo[g,h,i]perylene
PF-36A-0-0	92.26677	207089	< 330.		UG/KG	12/02/92		Benzo[k]fluoranthene
PF-36A-0-0	92.26677	65850	< 330.		UG/KG	12/02/92		Benzoic acid
PF-36A-0-0	92.26677	100516	< 330.		UG/KG	12/02/92		Benzyl alcohol
PF-36A-0-0	92.26677	111911	< 330.		UG/KG	12/02/92		Bis(2-chloroethoxy)methane
PF-36A-0-0	92.26677	111444	< 330.		UG/KG	12/02/92		Bis(2-chloroethyl)ether
PF-36A-0-0	92.26677	108601	< 330.		UG/KG	12/02/92		Bis(2-chloroisopropyl)ether
PF-36A-0-0	92.26677	117817	570.	171.	UG/KG	12/02/92		Bis(2-ethylhexyl)phthalate
PF-36A-0-0	92.26677	101553	< 330.		UG/KG	12/02/92		4-Bromophenylphenyl ether
PF-36A-0-0	92.26677	85687	< 330.		UG/KG	12/02/92		Butyl benzyl phthalate
PF-36A-0-0	92.26677	59507	< 330.		UG/KG	12/02/92		4-Chloro-3-methylphenol
PF-36A-0-0	92.26677	106478	< 330.		UG/KG	12/02/92		4-Chloroaniline
PF-36A-0-0	92.26677	91587	< 330.		UG/KG	12/02/92		2-Chloronaphthalene
PF-36A-0-0	92.26677	95578	< 330.		UG/KG	12/02/92		o-Chlorophenol
PF-36A-0-0	92.26677	7005723	< 330.		UG/KG	12/02/92		4-Chlorophenylphenyl ether
PF-36A-0-0	92.26677	218019	< 330.		UG/KG	12/02/92		Chrysene
PF-36A-0-0	92.26677	84742	< 330.		UG/KG	12/02/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-0-0	92.26677	117840	< 330.		UG/KG	12/02/92		Di-n-octyl phthalate
PF-36A-0-0	92.26677	53703	< 330.		UG/KG	12/02/92		Dibenzo[a,h]anthracene
PF-36A-0-0	92.26677	132649	< 330.		UG/KG	12/02/92		Dibenzofuran
PF-36A-0-0	92.26677	95501	< 330.		UG/KG	12/02/92		o-Dichlorobenzene (1,2)
PF-36A-0-0	92.26677	541731	< 330.		UG/KG	12/02/92		m-Dichlorobenzene (1,3)
PF-36A-0-0	92.26677	106467	< 330.		UG/KG	12/02/92		p-Dichlorobenzene (1,4)
PF-36A-0-0	92.26677	91941	< 330.		UG/KG	12/02/92		3,3'-Dichlorobenzidine
PF-36A-0-0	92.26677	120832	< 330.		UG/KG	12/02/92		2,4-Dichlorophenol
PF-36A-0-0	92.26677	84662	< 330.		UG/KG	12/02/92		Diethyl phthalate
PF-36A-0-0	92.26677	131113	< 330.		UG/KG	12/02/92		Dimethyl phthalate
PF-36A-0-0	92.26677	105679	< 330.		UG/KG	12/02/92		2,4-Dimethylphenol
PF-36A-0-0	92.26677	51285	< 330.		UG/KG	12/02/92		2,4-Dinitrophenol
PF-36A-0-0	92.26677	121142	< 330.		UG/KG	12/02/92		2,4-Dinitrotoluene
PF-36A-0-0	92.26677	606202	< 330.		UG/KG	12/02/92		2,6-Dinitrotoluene
PF-36A-0-0	92.26677	206440	< 330.		UG/KG	12/02/92		Fluoranthene
PF-36A-0-0	92.26677	86737	< 330.		UG/KG	12/02/92		Fluorene
PF-36A-0-0	92.26677	118741	< 330.		UG/KG	12/02/92		Hexachlorobenzene
PF-36A-0-0	92.26677	87683	< 330.		UG/KG	12/02/92		Hexachlorobutadiene
PF-36A-0-0	92.26677	77474	< 330.		UG/KG	12/02/92		Hexachlorocyclopentadiene
PF-36A-0-0	92.26677	67721	< 330.		UG/KG	12/02/92		Hexachloroethane
PF-36A-0-0	92.26677	193395	< 330.		UG/KG	12/02/92		Indeno[1,2,3-cd]pyrene
PF-36A-0-0	92.26677	78591	< 330.		UG/KG	12/02/92		Isophorone
PF-36A-0-0	92.26677	534521	< 330.		UG/KG	12/02/92		2-Methyl-4,6-dinitrophenol
PF-36A-0-0	92.26677	91576	< 330.		UG/KG	12/02/92		2-Methylnaphthalene
PF-36A-0-0	92.26677	95487	< 330.		UG/KG	12/02/92		2-Methylphenol
PF-36A-0-0	92.26677	106445	< 330.		UG/KG	12/02/92		4-Methylphenol
PF-36A-0-0	92.26677	91203	< 330.		UG/KG	12/02/92		Naphthalene
PF-36A-0-0	92.26677	88744	< 330.		UG/KG	12/02/92		2-Nitroaniline
PF-36A-0-0	92.26677	99092	< 330.		UG/KG	12/02/92		3-Nitroaniline
PF-36A-0-0	92.26677	100016	< 330.		UG/KG	12/02/92		4-Nitroaniline
PF-36A-0-0	92.26677	98953	< 330.		UG/KG	12/02/92		Nitrobenzene
PF-36A-0-0	92.26677	88755	< 330.		UG/KG	12/02/92		2-Nitrophenol
PF-36A-0-0	92.26677	100027	< 330.		UG/KG	12/02/92		4-Nitrophenol
PF-36A-0-0	92.26677	621647	< 330.		UG/KG	12/02/92		N-Nitrosodi-n-propylamine
PF-36A-0-0	92.26677	62759	< 330.		UG/KG	12/02/92		N-Nitrosodimethylamine
PF-36A-	92.26677	86306	< 330.		UG/KG	02/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-0-0	92.26677	87865	< 330.		UG/KG	12/02/92		Pentachlorophenol
PF-36A-0-0	92.26677	85018	< 330.		UG/KG	12/02/92		Phenanthrene
PF-36A-0-0	92.26677	108952	< 330.		UG/KG	12/02/92		Phenol
PF-36A-0-0	92.26677	129000	< 330.		UG/KG	12/02/92		Pyrene
PF-36A-0-0	92.26677	120821	< 330.		UG/KG	12/02/92		1,2,4-Trichlorobenzene
PF-36A-0-0	92.26677	95954	< 330.		UG/KG	12/02/92		2,4,5-Trichlorophenol
PF-36A-0-0	92.26677	88062	< 330.		UG/KG	12/02/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.26677

none

********** EM-9 ANALYTICAL REPORT **********

Matrix Spike Results for Sample # 92.26677 Date Collected: 8/25/92 Date Received: 8/26/92 Date Extracted: 8/31/92 Date Analyzed: 9/24/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-0-0	92.26677	83329	2303.45	1500.	UG/KG	12/09/92		Acenaphthene
PF-36A-0-0	92.26677	59507	4606.89	2900.	UG/KG	12/09/92		4-Chloro-3-methylphenol
PF-36A-0-0	92.26677	95578	4606.89	1900.	UG/KG	12/09/92		o-Chlorophenol
PF-36A-0-0	92.26677	106467	2303.45	1000.	UG/KG	12/09/92		p-Dichlorobenzene (1,4)
PF-36A-0-0	92.26677	121142	2303.45	1700.	UG/KG	12/09/92		2,4-Dinitrotoluene
PF-36A-0-0	92.26677	100027	4606.89	2700.	UG/KG	12/09/92		4-Nitrophenol
PF-36A-0-0	92.26677	621647	2303.45	1100.	UG/KG	12/09/92		N-Nitrosodi-n-propylamine
PF-36A-0-0	92.26677	87865	4606.89	2500.	UG/KG	12/09/92		Pentachlorophenol
PF-36A-0-0	92.26677	108952	4606.89	2000.	UG/KG	12/09/92		Phenol
PF-36A-0-0	92.26677	129000	2303.45	2700.	UG/KG	12/09/92		Pyrene
PF-36A-0-0	92.26677	120821	2303.45	1200.	UG/KG	12/09/92		1,2,4-Trichlorobenzene

Matrix Spike Duplicate Results for Sample # 92.26677 Date Collected: 8/25/92 Date Received: 8/26/92 Date Extracted: 8/31/92 Date Analyzed: 9/24/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-0-0	92.26677	83329	2294.33	1600.	UG/KG	12/09/92		Acenaphthene
PF-36A-0-0	92.26677	59507	4588.65	2700.	UG/KG	12/09/92		4-Chloro-3-methylphenol
PF-36A-0-0	92.26677	95578	4588.65	2400.	UG/KG	12/09/92		o-Chlorophenol
PF-36A-0-0	92.26677	106467	2294.33	1300.	UG/KG	12/09/92		p-Dichlorobenzene (1,4)
PF-36A-0-0	92.26677	121142	2294.33	1600.	UG/KG	12/09/92		2,4-Dinitrotoluene
PF-36A-0-0	92.26677	100027	4588.65	2700.	UG/KG	12/09/92		4-Nitrophenol
PF-36A-0-0	92.26677	621647	2294.33	1300.	UG/KG	12/09/92		N-Nitrosodi-n-propylamine
PF-36A-0-0	92.26677	87865	4588.65	2300.	UG/KG	12/09/92		Pentachlorophenol
PF-36A-0-0	92.26677	108952	4588.65	2400.	UG/KG	12/09/92		Phenol
PF-36A-0-0	92.26677	129000	2294.33	2800.	UG/KG	12/09/92		Pyrene
PF-36A-0-0	92.26677	120821	2294.33	1300.	UG/KG	12/09/92		1,2,4-Trichlorobenzene

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 9-Dec-1992

REQUEST NUMBER: 13439 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 117

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.26678 Date Collected: 8/25/92 Date Received: 8/26/92 Date Extracted: 8/31/92 Date Analyzed: 9/28/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-S-100	92.26678	83329	< 330.		UG/KG	12/02/92		Acenaphthene
PF-36A-S-100	92.26678	208968	< 330.		UG/KG	12/02/92		Acenaphthylene
PF-36A-S-100	92.26678	62533	< 330.		UG/KG	12/02/92		Aniline
PF-36A-S-100	92.26678	120127	< 330.		UG/KG	12/02/92		Anthracene
PF-36A-S-100	92.26678	103333	< 330.		UG/KG	12/02/92		Azobenzene
PF-36A-S-100	92.26678	92875	< 330.		UG/KG	12/02/92		m-Benzidine
PF-36A-S-100	92.26678	56553	< 330.		UG/KG	12/02/92		Benzo[a]anthracene
PF-36A-S-100	92.26678	50328	< 330.		UG/KG	12/02/92		Benzo[a]pyrene
PF-36A-S-100	92.26678	205992	< 330.		UG/KG	12/02/92		Benzo[b]fluoranthene
PF-36A-S-100	92.26678	191242	< 330.		UG/KG	12/02/92		Benzo[g,h,i]perylene
PF-36A-S-100	92.26678	207089	< 330.		UG/KG	12/02/92		Benzo[k]fluoranthene
PF-36A-S-100	92.26678	65850	< 330.		UG/KG	12/02/92		Benzoic acid
PF-36A-S-100	92.26678	100516	< 330.		UG/KG	12/02/92		Benzyl alcohol
PF-36A-S-100	92.26678	111911	< 330.		UG/KG	12/02/92		Bis(2-chloroethoxy)methane
PF-36A-S-100	92.26678	111444	< 330.		UG/KG	12/02/92		Bis(2-chloroethyl)ether
PF-36A-S-100	92.26678	108601	< 330.		UG/KG	12/02/92		Bis(2-chloroisopropyl)ether
PF-36A-S-100	92.26678	117817	< 330.		UG/KG	12/02/92		Bis(2-ethylhexyl)phthalate
PF-36A-S-100	92.26678	101553	< 330.		UG/KG	12/02/92		4-Bromophenylphenyl ether
PF-36A-S-100	92.26678	85687	< 330.		UG/KG	12/02/92		Butyl benzyl phthalate
PF-36A-S-100	92.26678	59507	< 330.		UG/KG	12/02/92		4-Chloro-3-methylphenol
PF-36A-S-100	92.26678	106478	< 330.		UG/KG	12/02/92		4-Chloroaniline
PF-36A-S-100	92.26678	91587	< 330.		UG/KG	12/02/92		2-Chloronaphthalene
PF-36A-S-100	92.26678	95578	< 330.		UG/KG	12/02/92		o-Chlorophenol
PF-36A-S-100	92.26678	7005723	< 330.		UG/KG	12/02/92		4-Chlorophenylphenyl ether
PF-36A-S-100	92.26678	218019	< 330.		UG/KG	12/02/92		Chrysene
PF-36A-S-100	92.26678	84742	< 330.		UG/KG	12/02/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-S-100	92.26678	117840	< 330.		UG/KG	12/02/92		Di-n-octyl phthalate
PF-36A-S-100	92.26678	53703	< 330.		UG/KG	12/02/92		Dibenzo[a,h]anthracene
PF-36A-S-100	92.26678	132649	< 330.		UG/KG	12/02/92		Dibenzofuran
PF-36A-S-100	92.26678	95501	< 330.		UG/KG	12/02/92		o-Dichlorobenzene (1,2)
PF-36A-S-100	92.26678	541731	< 330.		UG/KG	12/02/92		m-Dichlorobenzene (1,3)
PF-36A-S-100	92.26678	106467	< 330.		UG/KG	12/02/92		p-Dichlorobenzene (1,4)
PF-36A-S-100	92.26678	91941	< 330.		UG/KG	12/02/92		3,3'-Dichlorobenzidine
PF-36A-S-100	92.26678	120832	< 330.		UG/KG	12/02/92		2,4-Dichlorophenol
PF-36A-S-100	92.26678	84662	< 330.		UG/KG	12/02/92		Diethyl phthalate
PF-36A-S-100	92.26678	131113	< 330.		UG/KG	12/02/92		Dimethyl phthalate
PF-36A-S-100	92.26678	105679	< 330.		UG/KG	12/02/92		2,4-Dimethylphenol
PF-36A-S-100	92.26678	51285	< 330.		UG/KG	12/02/92		2,4-Dinitrophenol
PF-36A-S-100	92.26678	121142	< 330.		UG/KG	12/02/92		2,4-Dinitrotoluene
PF-36A-S-100	92.26678	606202	< 330.		UG/KG	12/02/92		2,6-Dinitrotoluene
PF-36A-S-100	92.26678	206440	< 330.		UG/KG	12/02/92		Fluoranthene
PF-36A-S-100	92.26678	86737	< 330.		UG/KG	12/02/92		Fluorene
PF-36A-S-100	92.26678	118741	< 330.		UG/KG	12/02/92		Hexachlorobenzene
PF-36A-S-100	92.26678	87683	< 330.		UG/KG	12/02/92		Hexachlorobutadiene
PF-36A-S-100	92.26678	77474	< 330.		UG/KG	12/02/92		Hexachlorocyclopentadiene
PF-36A-S-100	92.26678	67721	< 330.		UG/KG	12/02/92		Hexachloroethane
PF-36A-S-100	92.26678	193395	< 330.		UG/KG	12/02/92		Indeno[1,2,3-cd]pyrene
PF-36A-S-100	92.26678	78591	< 330.		UG/KG	12/02/92		Isophorone
PF-36A-S-100	92.26678	534521	< 330.		UG/KG	12/02/92		2-Methyl-4,6-dinitrophenol
PF-36A-S-100	92.26678	91576	< 330.		UG/KG	12/02/92		2-Methylnaphthalene
PF-36A-S-100	92.26678	95487	< 330.		UG/KG	12/02/92		2-Methylphenol
PF-36A-S-100	92.26678	106445	< 330.		UG/KG	12/02/92		4-Methylphenol
PF-36A-S-100	92.26678	91203	< 330.		UG/KG	12/02/92		Naphthalene
PF-36A-S-100	92.26678	88744	< 330.		UG/KG	12/02/92		2-Nitroaniline
PF-36A-S-100	92.26678	99092	< 330.		UG/KG	12/02/92		3-Nitroaniline
PF-36A-S-100	92.26678	100016	< 330.		UG/KG	12/02/92		4-Nitroaniline
PF-36A-S-100	92.26678	98953	< 330.		UG/KG	12/02/92		Nitrobenzene
PF-36A-S-100	92.26678	88755	< 330.		UG/KG	12/02/92		2-Nitrophenol
PF-36A-S-100	92.26678	100027	< 330.		UG/KG	12/02/92		4-Nitrophenol
PF-36A-S-100	92.26678	621647	< 330.		UG/KG	12/02/92		N-Nitrosodi-n-propylamine
PF-36A-S-100	92.26678	62759	< 330.		UG/KG	12/02/92		N-Nitrosodimethylamine
PF-36A-S-100	92.26678	86306	< 330.		UG/KG	12/02/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-S-100	92.26678	87865	< 330.		UG/KG	12/02/92		Pentachlorophenol
PF-36A-S-100	92.26678	85018	< 330.		UG/KG	12/02/92		Phenanthrene
PF-36A-S-100	92.26678	108952	< 330.		UG/KG	12/02/92		Phenol
PF-36A-S-100	92.26678	129000	< 330.		UG/KG	12/02/92		Pyrene
PF-36A-S-100	92.26678	120821	< 330.		UG/KG	12/02/92		1,2,4-Trichlorobenzene
PF-36A-S-100	92.26678	95954	< 330.		UG/KG	12/02/92		2,4,5-Trichlorophenol
PF-36A-S-100	92.26678	88062	< 330.		UG/KG	12/02/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.26678

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 9-Dec-1992

REQUEST NUMBER: 13439 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 117

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.26679 Date Collected: 8/25/92 Date Received: 8/26/92 Date Extracted: 8/31/92 Date Analyzed: 9/28/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-S-50'	92.26679	83329	< 330.		UG/KG	12/02/92		Acenaphthene
PF-36A-S-50'	92.26679	208968	< 330.		UG/KG	12/02/92		Acenaphthylene
PF-36A-S-50'	92.26679	62533	< 330.		UG/KG	12/02/92		Aniline
PF-36A-S-50'	92.26679	120127	< 330.		UG/KG	12/02/92		Anthracene
PF-36A-S-50'	92.26679	103333	< 330.		UG/KG	12/02/92		Azobenzene
PF-36A-S-50'	92.26679	92875	< 330.		UG/KG	12/02/92		m-Benzidine
PF-36A-S-50'	92.26679	56553	< 330.		UG/KG	12/02/92		Benzo[a]anthracene
PF-36A-S-50'	92.26679	50328	< 330.		UG/KG	12/02/92		Benzo[a]pyrene
PF-36A-S-50'	92.26679	205992	< 330.		UG/KG	12/02/92		Benzo[b]fluoranthene
PF-36A-S-50'	92.26679	191242	< 330.		UG/KG	12/02/92		Benzo[g,h,i]perylene
PF-36A-S-50'	92.26679	207089	< 330.		UG/KG	12/02/92		Benzo[k]fluoranthene
PF-36A-S-50'	92.26679	65850	< 330.		UG/KG	12/02/92		Benzoic acid
PF-36A-S-50'	92.26679	100516	< 330.		UG/KG	12/02/92		Benzyl alcohol
PF-36A-S-50'	92.26679	111911	< 330.		UG/KG	12/02/92		Bis(2-chloroethoxy)methane
PF-36A-S-50'	92.26679	111444	< 330.		UG/KG	12/02/92		Bis(2-chloroethyl)ether
PF-36A-S-50'	92.26679	108601	< 330.		UG/KG	12/02/92		Bis(2-chloroisopropyl)ether
PF-36A-S-50'	92.26679	117817	< 330.		UG/KG	12/02/92		Bis(2-ethylhexyl)phthalate
PF-36A-S-50'	92.26679	101553	< 330.		UG/KG	12/02/92		4-Bromophenylphenyl ether
PF-36A-S-50'	92.26679	85687	< 330.		UG/KG	12/02/92		Butyl benzyl phthalate
PF-36A-S-50'	92.26679	59507	< 330.		UG/KG	12/02/92		4-Chloro-3-methylphenol
PF-36A-S-50'	92.26679	106478	< 330.		UG/KG	12/02/92		4-Chloroaniline
PF-36A-S-50'	92.26679	91587	< 330.		UG/KG	12/02/92		2-Chloronaphthalene
PF-36A-S-50'	92.26679	95578	< 330.		UG/KG	12/02/92		o-Chlorophenol
PF-36A-S-50'	92.26679	7005723	< 330.		UG/KG	12/02/92		4-Chlorophenylphenyl ether
PF-36A-S-50'	92.26679	218019	< 330.		UG/KG	12/02/92		Chrysene
PF-36A-S-50'	92.26679	84742	2100.	630.	UG/KG	12/02/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-S-50'	92.26679	117840	< 330.		UG/KG	12/02/92		Di-n-octyl phthalate
PF-36A-S-50'	92.26679	53703	< 330.		UG/KG	12/02/92		Dibenzo[a,h]anthracene
PF-36A-S-50'	92.26679	132649	< 330.		UG/KG	12/02/92		Dibenzofuran
PF-36A-S-50'	92.26679	95501	< 330.		UG/KG	12/02/92		o-Dichlorobenzene (1,2)
PF-36A-S-50'	92.26679	541731	< 330.		UG/KG	12/02/92		m-Dichlorobenzene (1,3)
PF-36A-S-50'	92.26679	106467	< 330.		UG/KG	12/02/92		p-Dichlorobenzene (1,4)
PF-36A-S-50'	92.26679	91941	< 330.		UG/KG	12/02/92		3,3'-Dichlorobenzidine
PF-36A-S-50'	92.26679	120832	< 330.		UG/KG	12/02/92		2,4-Dichlorophenol
PF-36A-S-50'	92.26679	84662	< 330.		UG/KG	12/02/92		Diethyl phthalate
PF-36A-S-50'	92.26679	131113	< 330.		UG/KG	12/02/92		Dimethyl phthalate
PF-36A-S-50'	92.26679	105679	< 330.		UG/KG	12/02/92		2,4-Dimethylphenol
PF-36A-S-50'	92.26679	51285	< 330.		UG/KG	12/02/92		2,4-Dinitrophenol
PF-36A-S-50'	92.26679	121142	4500.	1350.	UG/KG	12/02/92		2,4-Dinitrotoluene
PF-36A-S-50'	92.26679	606202	< 330.		UG/KG	12/02/92		2,6-Dinitrotoluene
PF-36A-S-50'	92.26679	206440	< 330.		UG/KG	12/02/92		Fluoranthene
PF-36A-S-50'	92.26679	86737	< 330.		UG/KG	12/02/92		Fluorene
PF-36A-S-50'	92.26679	118741	< 330.		UG/KG	12/02/92		Hexachlorobenzene
PF-36A-S-50'	92.26679	87683	< 330.		UG/KG	12/02/92		Hexachlorobutadiene
PF-36A-S-50'	92.26679	77474	< 330.		UG/KG	12/02/92		Hexachlorocyclopentadiene
PF-36A-S-50'	92.26679	67721	< 330.		UG/KG	12/02/92		Hexachloroethane
PF-36A-S-50'	92.26679	193395	< 330.		UG/KG	12/02/92		Indeno[1,2,3-cd]pyrene
PF-36A-S-50'	92.26679	78591	< 330.		UG/KG	12/02/92		Isophorone
PF-36A-S-50'	92.26679	534521	< 330.		UG/KG	12/02/92		2-Methyl-4,6-dinitrophenol
PF-36A-S-50'	92.26679	91576	< 330.		UG/KG	12/02/92		2-Methylnaphthalene
PF-36A-S-50'	92.26679	95487	< 330.		UG/KG	12/02/92		2-Methylphenol
PF-36A-S-50'	92.26679	106445	< 330.		UG/KG	12/02/92		4-Methylphenol
PF-36A-S-50'	92.26679	91203	< 330.		UG/KG	12/02/92		Naphthalene
PF-36A-S-50'	92.26679	88744	< 330.		UG/KG	12/02/92		2-Nitroaniline
PF-36A-S-50'	92.26679	99092	< 330.		UG/KG	12/02/92		3-Nitroaniline
PF-36A-S-50'	92.26679	100016	< 330.		UG/KG	12/02/92		4-Nitroaniline
PF-36A-S-50'	92.26679	98953	< 330.		UG/KG	12/02/92		Nitrobenzene
PF-36A-S-50'	92.26679	88755	< 330.		UG/KG	12/02/92		2-Nitrophenol
PF-36A-S-50'	92.26679	100027	< 330.		UG/KG	12/02/92		4-Nitrophenol
PF-36A-S-50'	92.26679	621647	< 330.		UG/KG	12/02/92		N-Nitrosodi-n-propylamine
PF-36A-S-50'	92.26679	62759	< 330.		UG/KG	12/02/92		N-Nitrosodimethylamine
PF-36A-S-50'	92.26679	86306	700.	210.	UG/KG	12/02/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-S-50'	92.26679	87865	< 330.		UG/KG	12/02/92		Pentachlorophenol
PF-36A-S-50'	92.26679	85018	< 330.		UG/KG	12/02/92		Phenanthrene
PF-36A-S-50'	92.26679	108952	< 330.		UG/KG	12/02/92		Phenol
PF-36A-S-50'	92.26679	129000	< 330.		UG/KG	12/02/92		Pyrene
PF-36A-S-50'	92.26679	120821	< 330.		UG/KG	12/02/92		1,2,4-Trichlorobenzene
PF-36A-S-50'	92.26679	95954	< 330.		UG/KG	12/02/92		2,4,5-Trichlorophenol
PF-36A-S-50'	92.26679	88062	< 330.		UG/KG	12/02/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.26679

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 9-Dec-1992

REQUEST NUMBER: 13439 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 117

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.26680 Date Collected: 8/25/92 Date Received: 8/26/92 Date Extracted: 8/31/92 Date Analyzed: 9/28/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-S-25'	92.26680	83329	< 330.		UG/KG	12/02/92		Acenaphthene
PF-36A-S-25'	92.26680	208968	< 330.		UG/KG	12/02/92		Acenaphthylene
PF-36A-S-25'	92.26680	62533	< 330.		UG/KG	12/02/92		Aniline
PF-36A-S-25'	92.26680	120127	< 330.		UG/KG	12/02/92		Anthracene
PF-36A-S-25'	92.26680	103333	< 330.		UG/KG	12/02/92		Azobenzene
PF-36A-S-25'	92.26680	92875	< 330.		UG/KG	12/02/92		m-Benzidine
PF-36A-S-25'	92.26680	56553	< 330.		UG/KG	12/02/92		Benzo[a]anthracene
PF-36A-S-25'	92.26680	50328	< 330.		UG/KG	12/02/92		Benzo[a]pyrene
PF-36A-S-25'	92.26680	205992	< 330.		UG/KG	12/02/92		Benzo[b]fluoranthene
PF-36A-S-25'	92.26680	191242	< 330.		UG/KG	12/02/92		Benzo[g,h,i]perylene
PF-36A-S-25'	92.26680	207089	< 330.		UG/KG	12/02/92		Benzo[k]fluoranthene
PF-36A-S-25'	92.26680	65850	< 330.		UG/KG	12/02/92		Benzoic acid
PF-36A-S-25'	92.26680	100516	< 330.		UG/KG	12/02/92		Benzyl alcohol
PF-36A-S-25'	92.26680	111911	< 330.		UG/KG	12/02/92		Bis(2-chloroethoxy)methane
PF-36A-S-25'	92.26680	111444	< 330.		UG/KG	12/02/92		Bis(2-chloroethyl)ether
PF-36A-S-25'	92.26680	108601	< 330.		UG/KG	12/02/92		Bis(2-chloroisopropyl)ether
PF-36A-S-25'	92.26680	117817	7000.	2100.	UG/KG	12/02/92		Bis(2-ethylhexyl)phthalate
PF-36A-S-25'	92.26680	101553	< 330.		UG/KG	12/02/92		4-Bromophenylphenyl ether
PF-36A-S-25'	92.26680	85687	< 330.		UG/KG	12/02/92		Butyl benzyl phthalate
PF-36A-S-25'	92.26680	59507	< 330.		UG/KG	12/02/92		4-Chloro-3-methylphenol
PF-36A-S-25'	92.26680	106478	< 330.		UG/KG	12/02/92		4-Chloroaniline
PF-36A-S-25'	92.26680	91587	< 330.		UG/KG	12/02/92		2-Chloronaphthalene
PF-36A-S-25'	92.26680	95578	< 330.		UG/KG	12/02/92		o-Chlorophenol
PF-36A-S-25'	92.26680	7005723	< 330.		UG/KG	12/02/92		4-Chlorophenylphenyl ether
PF-36A-S-25'	92.26680	218019	< 330.		UG/KG	12/02/92		Chrysene
PF-36A-S-25'	92.26680	84742	820.	246.	UG/KG	12/02/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-S-25'	92.26680	117840	< 330.		UG/KG	12/02/92		Di-n-octyl phthalate
PF-36A-S-25'	92.26680	53703	< 330.		UG/KG	12/02/92		Dibenzo[a,h]anthracene
PF-36A-S-25'	92.26680	132649	< 330.		UG/KG	12/02/92		Dibenzofuran
PF-36A-S-25'	92.26680	95501	< 330.		UG/KG	12/02/92		o-Dichlorobenzene (1,2)
PF-36A-S-25'	92.26680	541731	< 330.		UG/KG	12/02/92		m-Dichlorobenzene (1,3)
PF-36A-S-25'	92.26680	106467	< 330.		UG/KG	12/02/92		p-Dichlorobenzene (1,4)
PF-36A-S-25'	92.26680	91941	< 330.		UG/KG	12/02/92		3,3'-Dichlorobenzidine
PF-36A-S-25'	92.26680	120832	< 330.		UG/KG	12/02/92		2,4-Dichlorophenol
PF-36A-S-25'	92.26680	84662	< 330.		UG/KG	12/02/92		Diethyl phthalate
PF-36A-S-25'	92.26680	131113	< 330.		UG/KG	12/02/92		Dimethyl phthalate
PF-36A-S-25'	92.26680	105679	< 330.		UG/KG	12/02/92		2,4-Dimethylphenol
PF-36A-S-25'	92.26680	51285	< 330.		UG/KG	12/02/92		2,4-Dinitrophenol
PF-36A-S-25'	92.26680	121142	1300.	390.	UG/KG	12/02/92		2,4-Dinitrotoluene
PF-36A-S-25'	92.26680	606202	< 330.		UG/KG	12/02/92		2,6-Dinitrotoluene
PF-36A-S-25'	92.26680	206440	< 330.		UG/KG	12/02/92		Fluoranthene
PF-36A-S-25'	92.26680	86737	< 330.		UG/KG	12/02/92		Fluorene
PF-36A-S-25'	92.26680	118741	< 330.		UG/KG	12/02/92		Hexachlorobenzene
PF-36A-S-25'	92.26680	87683	< 330.		UG/KG	12/02/92		Hexachlorobutadiene
PF-36A-S-25'	92.26680	77474	< 330.		UG/KG	12/02/92		Hexachlorocyclopentadiene
PF-36A-S-25'	92.26680	67721	< 330.		UG/KG	12/02/92		Hexachloroethane
PF-36A-S-25'	92.26680	193395	< 330.		UG/KG	12/02/92		Indeno[1,2,3-cd]pyrene
PF-36A-S-25'	92.26680	78591	< 330.		UG/KG	12/02/92		Isophorone
PF-36A-S-25'	92.26680	534521	< 330.		UG/KG	12/02/92		2-Methyl-4,6-dinitrophenol
PF-36A-S-25'	92.26680	91576	< 330.		UG/KG	12/02/92		2-Methylnaphthalene
PF-36A-S-25'	92.26680	95487	< 330.		UG/KG	12/02/92		2-Methylphenol
PF-36A-S-25'	92.26680	106445	< 330.		UG/KG	12/02/92		4-Methylphenol
PF-36A-S-25'	92.26680	91203	< 330.		UG/KG	12/02/92		Naphthalene
PF-36A-S-25'	92.26680	88744	< 330.		UG/KG	12/02/92		2-Nitroaniline
PF-36A-S-25'	92.26680	99092	< 330.		UG/KG	12/02/92		3-Nitroaniline
PF-36A-S-25'	92.26680	100016	< 330.		UG/KG	12/02/92		4-Nitroaniline
PF-36A-S-25'	92.26680	98953	< 330.		UG/KG	12/02/92		Nitrobenzene
PF-36A-S-25'	92.26680	88755	< 330.		UG/KG	12/02/92		2-Nitrophenol
PF-36A-S-25'	92.26680	100027	< 330.		UG/KG	12/02/92		4-Nitrophenol
PF-36A-S-25'	92.26680	621647	< 330.		UG/KG	12/02/92		N-Nitrosodi-n-propylamine
PF-36A-S-25'	92.26680	62759	< 330.		UG/KG	12/02/92		N-Nitrosodimethylamine
PF-36A-	92.26680	86306	< 330.		UG/KG	12/02/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-S-25'	92.26680	87865	< 330.		UG/KG	12/02/92		Pentachlorophenol
PF-36A-S-25'	92.26680	85018	< 330.		UG/KG	12/02/92		Phenanthrene
PF-36A-S-25'	92.26680	108952	< 330.		UG/KG	12/02/92		Phenol
PF-36A-S-25'	92.26680	129000	< 330.		UG/KG	12/02/92		Pyrene
PF-36A-S-25'	92.26680	120821	< 330.		UG/KG	12/02/92		1,2,4-Trichlorobenzene
PF-36A-S-25'	92.26680	95954	< 330.		UG/KG	12/02/92		2,4,5-Trichlorophenol
PF-36A-S-25'	92.26680	88062	< 330.		UG/KG	12/02/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.26680

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 9-Dec-1992

REQUEST NUMBER: 13439 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 117

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.26681 Date Collected: 8/25/92 Date Received: 8/26/92 Date Extracted: 8/31/92 Date Analyzed: 9/28/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-S-10'	92.26681	83329	< 330.		UG/KG	12/02/92		Acenaphthene
PF-36A-S-10'	92.26681	208968	< 330.		UG/KG	12/02/92		Acenaphthylene
PF-36A-S-10'	92.26681	62533	< 330.		UG/KG	12/02/92		Aniline
PF-36A-S-10'	92.26681	120127	< 330.		UG/KG	12/02/92		Anthracene
PF-36A-S-10'	92.26681	103333	< 330.		UG/KG	12/02/92		Azobenzene
PF-36A-S-10'	92.26681	92875	< 330.		UG/KG	12/02/92		m-Benzidine
PF-36A-S-10'	92.26681	56553	< 330.		UG/KG	12/02/92		Benzo[a]anthracene
PF-36A-S-10'	92.26681	50328	< 330.		UG/KG	12/02/92		Benzo[a]pyrene
PF-36A-S-10'	92.26681	205992	< 330.		UG/KG	12/02/92		Benzo[b]fluoranthene
PF-36A-S-10'	92.26681	191242	< 330.		UG/KG	12/02/92		Benzo[g,h,i]perylene
PF-36A-S-10'	92.26681	207089	< 330.		UG/KG	12/02/92		Benzo[k]fluoranthene
PF-36A-S-10'	92.26681	65850	< 330.		UG/KG	12/02/92		Benzoic acid
PF-36A-S-10'	92.26681	100516	< 330.		UG/KG	12/02/92		Benzyl alcohol
PF-36A-S-10'	92.26681	111911	< 330.		UG/KG	12/02/92		Bis(2-chloroethoxy)methane
PF-36A-S-10'	92.26681	111444	< 330.		UG/KG	12/02/92		Bis(2-chloroethyl)ether
PF-36A-S-10'	92.26681	108601	< 330.		UG/KG	12/02/92		Bis(2-chloroisopropyl)ether
PF-36A-S-10'	92.26681	117817	2100.	630.	UG/KG	12/02/92		Bis(2-ethylhexyl)phthalate
PF-36A-S-10'	92.26681	101553	< 330.		UG/KG	12/02/92		4-Bromophenylphenyl ether
PF-36A-S-10'	92.26681	85687	< 330.		UG/KG	12/02/92		Butyl benzyl phthalate
PF-36A-S-10'	92.26681	59507	< 330.		UG/KG	12/02/92		4-Chloro-3-methylphenol
PF-36A-S-10'	92.26681	106478	< 330.		UG/KG	12/02/92		4-Chloroaniline
PF-36A-S-10'	92.26681	91587	< 330.		UG/KG	12/02/92		2-Chloronaphthalene
PF-36A-S-10'	92.26681	95578	< 330.		UG/KG	12/02/92		o-Chlorophenol
PF-36A-S-10'	92.26681	7005723	< 330.		UG/KG	12/02/92		4-Chlorophenylphenyl ether
PF-36A-S-10'	92.26681	218019	< 330.		UG/KG	12/02/92		Chrysene
PF-36A-S-10'	92.26681	84742	540.	162.	UG/KG	12/02/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-S-10'	92.26681	117840	< 330.		UG/KG	12/02/92		Di-n-octyl phthalate
PF-36A-S-10'	92.26681	53703	< 330.		UG/KG	12/02/92		Dibenzo[a,h]anthracene
PF-36A-S-10'	92.26681	132649	< 330.		UG/KG	12/02/92		Dibenzofuran
PF-36A-S-10'	92.26681	95501	< 330.		UG/KG	12/02/92		o-Dichlorobenzene (1,2)
PF-36A-S-10'	92.26681	541731	< 330.		UG/KG	12/02/92		m-Dichlorobenzene (1,3)
PF-36A-S-10'	92.26681	106467	< 330.		UG/KG	12/02/92		p-Dichlorobenzene (1,4)
PF-36A-S-10'	92.26681	91941	< 330.		UG/KG	12/02/92		3,3'-Dichlorobenzidine
PF-36A-S-10'	92.26681	120832	< 330.		UG/KG	12/02/92		2,4-Dichlorophenol
PF-36A-S-10'	92.26681	84662	< 330.		UG/KG	12/02/92		Diethyl phthalate
PF-36A-S-10'	92.26681	131113	< 330.		UG/KG	12/02/92		Dimethyl phthalate
PF-36A-S-10'	92.26681	105679	< 330.		UG/KG	12/02/92		2,4-Dimethylphenol
PF-36A-S-10'	92.26681	51285	< 330.		UG/KG	12/02/92		2,4-Dinitrophenol
PF-36A-S-10'	92.26681	121142	680.	204.	UG/KG	12/02/92		2,4-Dinitrotoluene
PF-36A-S-10'	92.26681	606202	< 330.		UG/KG	12/02/92		2,6-Dinitrotoluene
PF-36A-S-10'	92.26681	206440	< 330.		UG/KG	12/02/92		Fluoranthene
PF-36A-S-10'	92.26681	86737	< 330.		UG/KG	12/02/92		Fluorene
PF-36A-S-10'	92.26681	118741	< 330.		UG/KG	12/02/92		Hexachlorobenzene
PF-36A-S-10'	92.26681	87683	< 330.		UG/KG	12/02/92		Hexachlorobutadiene
PF-36A-S-10'	92.26681	77474	< 330.		UG/KG	12/02/92		Hexachlorocyclopentadiene
PF-36A-S-10'	92.26681	67721	< 330.		UG/KG	12/02/92		Hexachloroethane
PF-36A-S-10'	92.26681	193395	< 330.		UG/KG	12/02/92		Indeno[1,2,3-cd]pyrene
PF-36A-S-10'	92.26681	78591	< 330.		UG/KG	12/02/92		Isophorone
PF-36A-S-10'	92.26681	534521	< 330.		UG/KG	12/02/92		2-Methyl-4,6-dinitrophenol
PF-36A-S-10'	92.26681	91576	< 330.		UG/KG	12/02/92		2-Methylnaphthalene
PF-36A-S-10'	92.26681	95487	< 330.		UG/KG	12/02/92		2-Methylphenol
PF-36A-S-10'	92.26681	106445	< 330.		UG/KG	12/02/92		4-Methylphenol
PF-36A-S-10'	92.26681	91203	< 330.		UG/KG	12/02/92		Naphthalene
PF-36A-S-10'	92.26681	88744	< 330.		UG/KG	12/02/92		2-Nitroaniline
PF-36A-S-10'	92.26681	99092	< 330.		UG/KG	12/02/92		3-Nitroaniline
PF-36A-S-10'	92.26681	100016	< 330.		UG/KG	12/02/92		4-Nitroaniline
PF-36A-S-10'	92.26681	98953	< 330.		UG/KG	12/02/92		Nitrobenzene
PF-36A-S-10'	92.26681	88755	< 330.		UG/KG	12/02/92		2-Nitrophenol
PF-36A-S-10'	92.26681	100027	< 330.		UG/KG	12/02/92		4-Nitrophenol
PF-36A-S-10'	92.26681	621647	< 330.		UG/KG	12/02/92		N-Nitrosodi-n-propylamine
PF-36A-S-10'	92.26681	62759	< 330.		UG/KG	12/02/92		N-Nitrosodimethylamine
PF-36A-S-10'	92.26681	86306	< 330.		UG/KG	12/02/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-S-10'	92.26681	87865	< 330.		UG/KG	12/02/92		Pentachlorophenol
PF-36A-S-10'	92.26681	85018	< 330.		UG/KG	12/02/92		Phenanthrene
PF-36A-S-10'	92.26681	108952	< 330.		UG/KG	12/02/92		Phenol
PF-36A-S-10'	92.26681	129000	< 330.		UG/KG	12/02/92		Pyrene
PF-36A-S-10'	92.26681	120821	< 330.		UG/KG	12/02/92		1,2,4-Trichlorobenzene
PF-36A-S-10'	92.26681	95954	< 330.		UG/KG	12/02/92		2,4,5-Trichlorophenol
PF-36A-S-10'	92.26681	88062	< 330.		UG/KG	12/02/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.26681

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 9-Dec-1992

REQUEST NUMBER: 13439 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 117

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.26682 Date Collected: 8/25/92 Date Received: 8/26/92 Date Extracted: 8/31/92 Date Analyzed: 9/28/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-S-5'	92.26682	83329	< 330.		UG/KG	12/02/92		Acenaphthene
PF-36A-S-5'	92.26682	208968	< 330.		UG/KG	12/02/92		Acenaphthylene
PF-36A-S-5'	92.26682	62533	< 330.		UG/KG	12/02/92		Aniline
PF-36A-S-5'	92.26682	120127	< 330.		UG/KG	12/02/92		Anthracene
PF-36A-S-5'	92.26682	103333	< 330.		UG/KG	12/02/92		Azobenzene
PF-36A-S-5'	92.26682	92875	< 330.		UG/KG	12/02/92		m-Benzidine
PF-36A-S-5'	92.26682	56553	< 330.		UG/KG	12/02/92		Benzo[a]anthracene
PF-36A-S-5'	92.26682	50328	< 330.		UG/KG	12/02/92		Benzo[a]pyrene
PF-36A-S-5'	92.26682	205992	< 330.		UG/KG	12/02/92		Benzo[b]fluoranthene
PF-36A-S-5'	92.26682	191242	< 330.		UG/KG	12/02/92		Benzo[g,h,i]perylene
PF-36A-S-5'	92.26682	207089	< 330.		UG/KG	12/02/92		Benzo[k]fluoranthene
PF-36A-S-5'	92.26682	65850	< 330.		UG/KG	12/02/92		Benzoic acid
PF-36A-S-5'	92.26682	100516	< 330.		UG/KG	12/02/92		Benzyl alcohol
PF-36A-S-5'	92.26682	111911	< 330.		UG/KG	12/02/92		Bis(2-chloroethoxy)methane
PF-36A-S-5'	92.26682	111444	< 330.		UG/KG	12/02/92		Bis(2-chloroethyl)ether
PF-36A-S-5'	92.26682	108601	< 330.		UG/KG	12/02/92		Bis(2-chloroisopropyl)ether
PF-36A-S-5'	92.26682	117817	14300.	4290.	UG/KG	12/02/92		Bis(2-ethylhexyl)phthalate
PF-36A-S-5'	92.26682	101553	< 330.		UG/KG	12/02/92		4-Bromophenylphenyl ether
PF-36A-S-5'	92.26682	85687	< 330.		UG/KG	12/02/92		Butyl benzyl phthalate
PF-36A-S-5'	92.26682	59507	< 330.		UG/KG	12/02/92		4-Chloro-3-methylphenol
PF-36A-S-5'	92.26682	106478	< 330.		UG/KG	12/02/92		4-Chloroaniline
PF-36A-S-5'	92.26682	91587	< 330.		UG/KG	12/02/92		2-Chloronaphthalene
PF-36A-S-5'	92.26682	95578	< 330.		UG/KG	12/02/92		o-Chlorophenol
PF-36A-S-5'	92.26682	7005723	< 330.		UG/KG	12/02/92		4-Chlorophenylphenyl ether
PF-36A-S-5'	92.26682	218019	< 330.		UG/KG	12/02/92		Chrysene
PF-36A-S-5'	92.26682	84742	420.	126.	UG/KG	12/02/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-S-5'	92.26682	117840	< 330.		UG/KG	12/02/92		Di-n-octyl phthalate
PF-36A-S-5'	92.26682	53703	< 330.		UG/KG	12/02/92		Dibenzo[a,h]anthracene
PF-36A-S-5'	92.26682	132649	< 330.		UG/KG	12/02/92		Dibenzofuran
PF-36A-S-5'	92.26682	95501	< 330.		UG/KG	12/02/92		o-Dichlorobenzene (1,2)
PF-36A-S-5'	92.26682	541731	< 330.		UG/KG	12/02/92		m-Dichlorobenzene (1,3)
PF-36A-S-5'	92.26682	106467	< 330.		UG/KG	12/02/92		p-Dichlorobenzene (1,4)
PF-36A-S-5'	92.26682	91941	< 330.		UG/KG	12/02/92		3,3'-Dichlorobenzidine
PF-36A-S-5'	92.26682	120832	< 330.		UG/KG	12/02/92		2,4-Dichlorophenol
PF-36A-S-5'	92.26682	84662	< 330.		UG/KG	12/02/92		Diethyl phthalate
PF-36A-S-5'	92.26682	131113	< 330.		UG/KG	12/02/92		Dimethyl phthalate
PF-36A-S-5'	92.26682	105679	< 330.		UG/KG	12/02/92		2,4-Dimethylphenol
PF-36A-S-5'	92.26682	51285	< 330.		UG/KG	12/02/92		2,4-Dinitrophenol
PF-36A-S-5'	92.26682	121142	360.	108.	UG/KG	12/02/92		2,4-Dinitrotoluene
PF-36A-S-5'	92.26682	606202	< 330.		UG/KG	12/02/92		2,6-Dinitrotoluene
PF-36A-S-5'	92.26682	206440	< 330.		UG/KG	12/02/92		Fluoranthene
PF-36A-S-5'	92.26682	86737	< 330.		UG/KG	12/02/92		Fluorene
PF-36A-S-5'	92.26682	118741	< 330.		UG/KG	12/02/92		Hexachlorobenzene
PF-36A-S-5'	92.26682	87683	< 330.		UG/KG	12/02/92		Hexachlorobutadiene
PF-36A-S-5'	92.26682	77474	< 330.		UG/KG	12/02/92		Hexachlorocyclopentadiene
PF-36A-S-5'	92.26682	67721	< 330.		UG/KG	12/02/92		Hexachloroethane
PF-36A-S-5'	92.26682	193395	< 330.		UG/KG	12/02/92		Indeno[1,2,3-cd]pyrene
PF-36A-S-5'	92.26682	78591	< 330.		UG/KG	12/02/92		Isophorone
PF-36A-S-5'	92.26682	534521	< 330.		UG/KG	12/02/92		2-Methyl-4,6-dinitrophenol
PF-36A-S-5'	92.26682	91576	< 330.		UG/KG	12/02/92		2-Methylnaphthalene
PF-36A-S-5'	92.26682	95487	< 330.		UG/KG	12/02/92		2-Methylphenol
PF-36A-S-5'	92.26682	106445	< 330.		UG/KG	12/02/92		4-Methylphenol
PF-36A-S-5'	92.26682	91203	< 330.		UG/KG	12/02/92		Naphthalene
PF-36A-S-5'	92.26682	88744	< 330.		UG/KG	12/02/92		2-Nitroaniline
PF-36A-S-5'	92.26682	99092	< 330.		UG/KG	12/02/92		3-Nitroaniline
PF-36A-S-5'	92.26682	100016	< 330.		UG/KG	12/02/92		4-Nitroaniline
PF-36A-S-5'	92.26682	98953	< 330.		UG/KG	12/02/92		Nitrobenzene
PF-36A-S-5'	92.26682	88755	< 330.		UG/KG	12/02/92		2-Nitrophenol
PF-36A-S-5'	92.26682	100027	< 330.		UG/KG	12/02/92		4-Nitrophenol
PF-36A-S-5'	92.26682	621647	< 330.		UG/KG	12/02/92		N-Nitrosodi-n-propylamine
PF-36A-S-5'	92.26682	62759	< 330.		UG/KG	12/02/92		N-Nitrosodimethylamine
PF-36A-	92.26682	86306	< 330.		UG/KG	02/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-S-5'	92.26682	87865	< 330.		UG/KG	12/02/92		Pentachlorophenol
PF-36A-S-5'	92.26682	85018	< 330.		UG/KG	12/02/92		Phenanthrene
PF-36A-S-5'	92.26682	108952	< 330.		UG/KG	12/02/92		Phenol
PF-36A-S-5'	92.26682	129000	< 330.		UG/KG	12/02/92		Pyrene
PF-36A-S-5'	92.26682	120821	< 330.		UG/KG	12/02/92		1,2,4-Trichlorobenzene
PF-36A-S-5'	92.26682	95954	< 330.		UG/KG	12/02/92		2,4,5-Trichlorophenol
PF-36A-S-5'	92.26682	88062	< 330.		UG/KG	12/02/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.26682

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 9-Dec-1992

REQUEST NUMBER: 13439 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 117

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.26683 Date Collected: 8/25/92 Date Received: 8/26/92 Date Extracted: 8/31/92 Date Analyzed: 9/28/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-W-100	92.26683	83329	< 330.		UG/KG	12/02/92		Acenaphthene
PF-36A-W-100	92.26683	208968	< 330.		UG/KG	12/02/92		Acenaphthylene
PF-36A-W-100	92.26683	62533	< 330.		UG/KG	12/02/92		Aniline
PF-36A-W-100	92.26683	120127	< 330.		UG/KG	12/02/92		Anthracene
PF-36A-W-100	92.26683	103333	< 330.		UG/KG	12/02/92		Azobenzene
PF-36A-W-100	92.26683	92875	< 330.		UG/KG	12/02/92		m-Benzidine
PF-36A-W-100	92.26683	56553	< 330.		UG/KG	12/02/92		Benzo[a]anthracene
PF-36A-W-100	92.26683	50328	< 330.		UG/KG	12/02/92		Benzo[a]pyrene
PF-36A-W-100	92.26683	205992	< 330.		UG/KG	12/02/92		Benzo[b]fluoranthene
PF-36A-W-100	92.26683	191242	< 330.		UG/KG	12/02/92		Benzo[g,h,i]perylene
PF-36A-W-100	92.26683	207089	< 330.		UG/KG	12/02/92		Benzo[k]fluoranthene
PF-36A-W-100	92.26683	65850	< 330.		UG/KG	12/02/92		Benzoic acid
PF-36A-W-100	92.26683	100516	< 330.		UG/KG	12/02/92		Benzyl alcohol
PF-36A-W-100	92.26683	111911	< 330.		UG/KG	12/02/92		Bis(2-chloroethoxy)methane
PF-36A-W-100	92.26683	111444	< 330.		UG/KG	12/02/92		Bis(2-chloroethyl)ether
PF-36A-W-100	92.26683	108601	< 330.		UG/KG	12/02/92		Bis(2-chloroisopropyl)ether
PF-36A-W-100	92.26683	117817	< 330.		UG/KG	12/02/92		Bis(2-ethylhexyl)phthalate
PF-36A-W-100	92.26683	101553	< 330.		UG/KG	12/02/92		4-Bromophenylphenyl ether
PF-36A-W-100	92.26683	85687	< 330.		UG/KG	12/02/92		Butyl benzyl phthalate
PF-36A-W-100	92.26683	59507	< 330.		UG/KG	12/02/92		4-Chloro-3-methylphenol
PF-36A-W-100	92.26683	106478	< 330.		UG/KG	12/02/92		4-Chloroaniline
PF-36A-W-100	92.26683	91587	< 330.		UG/KG	12/02/92		2-Chloronaphthalene
PF-36A-W-100	92.26683	95578	< 330.		UG/KG	12/02/92		o-Chlorophenol
PF-36A-W-100	92.26683	7005723	< 330.		UG/KG	12/02/92		4-Chlorophenylphenyl ether
PF-36A-W-100	92.26683	218019	< 330.		UG/KG	12/02/92		Chrysene
PF-36A-W-100	92.26683	84742	< 330.		UG/KG	12/02/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-W-100	92.26683	117840	< 330.		UG/KG	12/02/92		Di-n-octyl phthalate
PF-36A-W-100	92.26683	53703	< 330.		UG/KG	12/02/92		Dibenzo[a,h]anthracene
PF-36A-W-100	92.26683	132649	< 330.		UG/KG	12/02/92		Dibenzofuran
PF-36A-W-100	92.26683	95501	< 330.		UG/KG	12/02/92		o-Dichlorobenzene (1,2)
PF-36A-W-100	92.26683	541731	< 330.		UG/KG	12/02/92		m-Dichlorobenzene (1,3)
PF-36A-W-100	92.26683	106467	< 330.		UG/KG	12/02/92		p-Dichlorobenzene (1,4)
PF-36A-W-100	92.26683	91941	< 330.		UG/KG	12/02/92		3,3'-Dichlorobenzidine
PF-36A-W-100	92.26683	120832	< 330.		UG/KG	12/02/92		2,4-Dichlorophenol
PF-36A-W-100	92.26683	84662	< 330.		UG/KG	12/02/92		Diethyl phthalate
PF-36A-W-100	92.26683	131113	< 330.		UG/KG	12/02/92		Dimethyl phthalate
PF-36A-W-100	92.26683	105679	< 330.		UG/KG	12/02/92		2,4-Dimethylphenol
PF-36A-W-100	92.26683	51285	< 330.		UG/KG	12/02/92		2,4-Dinitrophenol
PF-36A-W-100	92.26683	121142	< 330.		UG/KG	12/02/92		2,4-Dinitrotoluene
PF-36A-W-100	92.26683	606202	< 330.		UG/KG	12/02/92		2,6-Dinitrotoluene
PF-36A-W-100	92.26683	206440	< 330.		UG/KG	12/02/92		Fluoranthene
PF-36A-W-100	92.26683	86737	< 330.		UG/KG	12/02/92		Fluorene
PF-36A-W-100	92.26683	118741	< 330.		UG/KG	12/02/92		Hexachlorobenzene
PF-36A-W-100	92.26683	87683	< 330.		UG/KG	12/02/92		Hexachlorobutadiene
PF-36A-W-100	92.26683	77474	< 330.		UG/KG	12/02/92		Hexachlorocyclopentadiene
PF-36A-W-100	92.26683	67721	< 330.		UG/KG	12/02/92		Hexachloroethane
PF-36A-W-100	92.26683	193395	< 330.		UG/KG	12/02/92		Indeno[1,2,3-cd]pyrene
PF-36A-W-100	92.26683	78591	< 330.		UG/KG	12/02/92		Isophorone
PF-36A-W-100	92.26683	534521	< 330.		UG/KG	12/02/92		2-Methyl-4,6-dinitrophenol
PF-36A-W-100	92.26683	91576	< 330.		UG/KG	12/02/92		2-Methylnaphthalene
PF-36A-W-100	92.26683	95487	< 330.		UG/KG	12/02/92		2-Methylphenol
PF-36A-W-100	92.26683	106445	< 330.		UG/KG	12/02/92		4-Methylphenol
PF-36A-W-100	92.26683	91203	< 330.		UG/KG	12/02/92		Naphthalene
PF-36A-W-100	92.26683	88744	< 330.		UG/KG	12/02/92		2-Nitroaniline
PF-36A-W-100	92.26683	99092	< 330.		UG/KG	12/02/92		3-Nitroaniline
PF-36A-W-100	92.26683	100016	< 330.		UG/KG	12/02/92		4-Nitroaniline
PF-36A-W-100	92.26683	98953	< 330.		UG/KG	12/02/92		Nitrobenzene
PF-36A-W-100	92.26683	88755	< 330.		UG/KG	12/02/92		2-Nitrophenol
PF-36A-W-100	92.26683	100027	< 330.		UG/KG	12/02/92		4-Nitrophenol
PF-36A-W-100	92.26683	621647	< 330.		UG/KG	12/02/92		N-Nitrosodi-n-propylamine
PF-36A-W-100	92.26683	62759	< 330.		UG/KG	12/02/92		N-Nitrosodimethylamine
PF-36A-W-100	92.26683	86306	< 330.		UG/KG	12/02/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-W-100	92.26683	87865	< 330.		UG/KG	12/02/92		Pentachlorophenol
PF-36A-W-100	92.26683	85018	< 330.		UG/KG	12/02/92		Phenanthrene
PF-36A-W-100	92.26683	108952	< 330.		UG/KG	12/02/92		Phenol
PF-36A-W-100	92.26683	129000	< 330.		UG/KG	12/02/92		Pyrene
PF-36A-W-100	92.26683	120821	< 330.		UG/KG	12/02/92		1,2,4-Trichlorobenzene
PF-36A-W-100	92.26683	95954	< 330.		UG/KG	12/02/92		2,4,5-Trichlorophenol
PF-36A-W-100	92.26683	88062	< 330.		UG/KG	12/02/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.26683

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 9-Dec-1992

REQUEST NUMBER: 13439 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 117

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.26684 Date Collected: 8/25/92 Date Received: 8/26/92 Date Extracted: 8/31/92 Date Analyzed: 9/28/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-W-50'	92.26684	83329	< 330.		UG/KG	12/02/92		Acenaphthene
PF-36A-W-50'	92.26684	208968	< 330.		UG/KG	12/02/92		Acenaphthylene
PF-36A-W-50'	92.26684	62533	< 330.		UG/KG	12/02/92		Aniline
PF-36A-W-50'	92.26684	120127	< 330.		UG/KG	12/02/92		Anthracene
PF-36A-W-50'	92.26684	103333	< 330.		UG/KG	12/02/92		Azobenzene
PF-36A-W-50'	92.26684	92875	< 330.		UG/KG	12/02/92		m-Benzidine
PF-36A-W-50'	92.26684	56553	< 330.		UG/KG	12/02/92		Benzo[a]anthracene
PF-36A-W-50'	92.26684	50328	< 330.		UG/KG	12/02/92		Benzo[a]pyrene
PF-36A-W-50'	92.26684	205992	< 330.		UG/KG	12/02/92		Benzo[b]fluoranthene
PF-36A-W-50'	92.26684	191242	< 330.		UG/KG	12/02/92		Benzo[g,h,i]perylene
PF-36A-W-50'	92.26684	207089	< 330.		UG/KG	12/02/92		Benzo[k]fluoranthene
PF-36A-W-50'	92.26684	65850	< 330.		UG/KG	12/02/92		Benzoic acid
PF-36A-W-50'	92.26684	100516	< 330.		UG/KG	12/02/92		Benzyl alcohol
PF-36A-W-50'	92.26684	111911	< 330.		UG/KG	12/02/92		Bis(2-chloroethoxy)methane
PF-36A-W-50'	92.26684	111444	< 330.		UG/KG	12/02/92		Bis(2-chloroethyl)ether
PF-36A-W-50'	92.26684	108601	< 330.		UG/KG	12/02/92		Bis(2-chloroisopropyl)ether
PF-36A-W-50'	92.26684	117817	< 330.		UG/KG	12/02/92		Bis(2-ethylhexyl)phthalate
PF-36A-W-50'	92.26684	101553	< 330.		UG/KG	12/02/92		4-Bromophenylphenyl ether
PF-36A-W-50'	92.26684	85687	< 330.		UG/KG	12/02/92		Butyl benzyl phthalate
PF-36A-W-50'	92.26684	59507	< 330.		UG/KG	12/02/92		4-Chloro-3-methylphenol
PF-36A-W-50'	92.26684	106478	< 330.		UG/KG	12/02/92		4-Chloroaniline
PF-36A-W-50'	92.26684	91587	< 330.		UG/KG	12/02/92		2-Chloronaphthalene
PF-36A-W-50'	92.26684	95578	< 330.		UG/KG	12/02/92		o-Chlorophenol
PF-36A-W-50'	92.26684	7005723	< 330.		UG/KG	12/02/92		4-Chlorophenylphenyl ether
PF-36A-W-50'	92.26684	218019	< 330.		UG/KG	12/02/92		Chrysene
PF-36A-W-50'	92.26684	84742	< 330.		UG/KG	12/02/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-W-50'	92.26684	117840	< 330.		UG/KG	12/02/92		Di-n-octyl phthalate
PF-36A-W-50'	92.26684	53703	< 330.		UG/KG	12/02/92		Dibenzo[a,h]anthracene
PF-36A-W-50'	92.26684	132649	< 330.		UG/KG	12/02/92		Dibenzofuran
PF-36A-W-50'	92.26684	95501	< 330.		UG/KG	12/02/92		o-Dichlorobenzene (1,2)
PF-36A-W-50'	92.26684	541731	< 330.		UG/KG	12/02/92		m-Dichlorobenzene (1,3)
PF-36A-W-50'	92.26684	106467	< 330.		UG/KG	12/02/92		p-Dichlorobenzene (1,4)
PF-36A-W-50'	92.26684	91941	< 330.		UG/KG	12/02/92		3,3'-Dichlorobenzidine
PF-36A-W-50'	92.26684	120832	< 330.		UG/KG	12/02/92		2,4-Dichlorophenol
PF-36A-W-50'	92.26684	84662	< 330.		UG/KG	12/02/92		Diethyl phthalate
PF-36A-W-50'	92.26684	131113	< 330.		UG/KG	12/02/92		Dimethyl phthalate
PF-36A-W-50'	92.26684	105679	< 330.		UG/KG	12/02/92		2,4-Dimethylphenol
PF-36A-W-50'	92.26684	51285	< 330.		UG/KG	12/02/92		2,4-Dinitrophenol
PF-36A-W-50'	92.26684	121142	< 330.		UG/KG	12/02/92		2,4-Dinitrotoluene
PF-36A-W-50'	92.26684	606202	< 330.		UG/KG	12/02/92		2,6-Dinitrotoluene
PF-36A-W-50'	92.26684	206440	< 330.		UG/KG	12/02/92		Fluoranthene
PF-36A-W-50'	92.26684	86737	< 330.		UG/KG	12/02/92		Fluorene
PF-36A-W-50'	92.26684	118741	< 330.		UG/KG	12/02/92		Hexachlorobenzene
PF-36A-W-50'	92.26684	87683	< 330.		UG/KG	12/02/92		Hexachlorobutadiene
PF-36A-W-50'	92.26684	77474	< 330.		UG/KG	12/02/92		Hexachlorocyclopentadiene
PF-36A-W-50'	92.26684	67721	< 330.		UG/KG	12/02/92		Hexachloroethane
PF-36A-W-50'	92.26684	193395	< 330.		UG/KG	12/02/92		Indeno[1,2,3-cd]pyrene
PF-36A-W-50'	92.26684	78591	< 330.		UG/KG	12/02/92		Isophorone
PF-36A-W-50'	92.26684	534521	< 330.		UG/KG	12/02/92		2-Methyl-4,6-dinitrophenol
PF-36A-W-50'	92.26684	91576	< 330.		UG/KG	12/02/92		2-Methylnaphthalene
PF-36A-W-50'	92.26684	95487	< 330.		UG/KG	12/02/92		2-Methylphenol
PF-36A-W-50'	92.26684	106445	< 330.		UG/KG	12/02/92		4-Methylphenol
PF-36A-W-50'	92.26684	91203	< 330.		UG/KG	12/02/92		Naphthalene
PF-36A-W-50'	92.26684	88744	< 330.		UG/KG	12/02/92		2-Nitroaniline
PF-36A-W-50'	92.26684	99092	< 330.		UG/KG	12/02/92		3-Nitroaniline
PF-36A-W-50'	92.26684	100016	< 330.		UG/KG	12/02/92		4-Nitroaniline
PF-36A-W-50'	92.26684	98953	< 330.		UG/KG	12/02/92		Nitrobenzene
PF-36A-W-50'	92.26684	88755	< 330.		UG/KG	12/02/92		2-Nitrophenol
PF-36A-W-50'	92.26684	100027	< 330.		UG/KG	12/02/92		4-Nitrophenol
PF-36A-W-50'	92.26684	621647	< 330.		UG/KG	12/02/92		N-Nitrosodi-n-propylamine
PF-36A-W-50'	92.26684	62759	< 330.		UG/KG	12/02/92		N-Nitrosodimethylamine
PF-36A-W-50'	92.26684	86306	< 330.		UG/KG	12/02/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-W-50'	92.26684	87865	< 330.		UG/KG	12/02/92		Pentachlorophenol
PF-36A-W-50'	92.26684	85018	< 330.		UG/KG	12/02/92		Phenanthrene
PF-36A-W-50'	92.26684	108952	< 330.		UG/KG	12/02/92		Phenol
PF-36A-W-50'	92.26684	129000	< 330.		UG/KG	12/02/92		Pyrene
PF-36A-W-50'	92.26684	120821	< 330.		UG/KG	12/02/92		1,2,4-Trichlorobenzene
PF-36A-W-50'	92.26684	95954	< 330.		UG/KG	12/02/92		2,4,5-Trichlorophenol
PF-36A-W-50'	92.26684	88062	< 330.		UG/KG	12/02/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.26684

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 9-Dec-1992

REQUEST NUMBER: 13439 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 117

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.26685 Date Collected: 8/25/92 Date Received: 8/26/92 Date Extracted: 8/31/92 Date Analyzed: 9/28/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-W-25'	92.26685	83329	< 330.		UG/KG	12/02/92		Acenaphthene
PF-36A-W-25'	92.26685	208968	< 330.		UG/KG	12/02/92		Acenaphthylene
PF-36A-W-25'	92.26685	62533	< 330.		UG/KG	12/02/92		Aniline
PF-36A-W-25'	92.26685	120127	< 330.		UG/KG	12/02/92		Anthracene
PF-36A-W-25'	92.26685	103333	< 330.		UG/KG	12/02/92		Azobenzene
PF-36A-W-25'	92.26685	92875	< 330.		UG/KG	12/02/92		m-Benzidine
PF-36A-W-25'	92.26685	56553	< 330.		UG/KG	12/02/92		Benzo[a]anthracene
PF-36A-W-25'	92.26685	50328	< 330.		UG/KG	12/02/92		Benzo[a]pyrene
PF-36A-W-25'	92.26685	205992	< 330.		UG/KG	12/02/92		Benzo[b]fluoranthene
PF-36A-W-25'	92.26685	191242	< 330.		UG/KG	12/02/92		Benzo[g,h,i]perylene
PF-36A-W-25'	92.26685	207089	< 330.		UG/KG	12/02/92		Benzo[k]fluoranthene
PF-36A-W-25'	92.26685	65850	< 330.		UG/KG	12/02/92		Benzoic acid
PF-36A-W-25'	92.26685	100516	< 330.		UG/KG	12/02/92		Benzyl alcohol
PF-36A-W-25'	92.26685	111911	< 330.		UG/KG	12/02/92		Bis(2-chloroethoxy)methane
PF-36A-W-25'	92.26685	111444	< 330.		UG/KG	12/02/92		Bis(2-chloroethyl)ether
PF-36A-W-25'	92.26685	108601	< 330.		UG/KG	12/02/92		Bis(2-chloroisopropyl)ether
PF-36A-W-25'	92.26685	117817	< 330.		UG/KG	12/02/92		Bis(2-ethylhexyl)phthalate
PF-36A-W-25'	92.26685	101553	< 330.		UG/KG	12/02/92		4-Bromophenylphenyl ether
PF-36A-W-25'	92.26685	85687	< 330.		UG/KG	12/02/92		Butyl benzyl phthalate
PF-36A-W-25'	92.26685	59507	< 330.		UG/KG	12/02/92		4-Chloro-3-methylphenol
PF-36A-W-25'	92.26685	106478	< 330.		UG/KG	12/02/92		4-Chloroaniline
PF-36A-W-25'	92.26685	91587	< 330.		UG/KG	12/02/92		2-Chloronaphthalene
PF-36A-W-25'	92.26685	95578	< 330.		UG/KG	12/02/92		o-Chlorophenol
PF-36A-W-25'	92.26685	7005723	< 330.		UG/KG	12/02/92		4-Chlorophenylphenyl ether
PF-36A-W-25'	92.26685	218019	< 330.		UG/KG	12/02/92		Chrysene
PF-36A	' 92.26685	84742	< 330.		UG/KG	02/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-W-25'	92.26685	117840	< 330.		UG/KG	12/02/92		Di-n-octyl phthalate
PF-36A-W-25'	92.26685	53703	< 330.		UG/KG	12/02/92		Dibenzo[a,h]anthracene
PF-36A-W-25'	92.26685	132649	< 330.		UG/KG	12/02/92		Dibenzofuran
PF-36A-W-25'	92.26685	95501	< 330.		UG/KG	12/02/92		o-Dichlorobenzene (1,2)
PF-36A-W-25'	92.26685	541731	< 330.		UG/KG	12/02/92		m-Dichlorobenzene (1,3)
PF-36A-W-25'	92.26685	106467	< 330.		UG/KG	12/02/92		p-Dichlorobenzene (1,4)
PF-36A-W-25'	92.26685	91941	< 330.		UG/KG	12/02/92		3,3'-Dichlorobenzidine
PF-36A-W-25'	92.26685	120832	< 330.		UG/KG	12/02/92		2,4-Dichlorophenol
PF-36A-W-25'	92.26685	84662	< 330.		UG/KG	12/02/92		Diethyl phthalate
PF-36A-W-25'	92.26685	131113	< 330.		UG/KG	12/02/92		Dimethyl phthalate
PF-36A-W-25'	92.26685	105679	< 330.		UG/KG	12/02/92		2,4-Dimethylphenol
PF-36A-W-25'	92.26685	51285	< 330.		UG/KG	12/02/92		2,4-Dinitrophenol
PF-36A-W-25'	92.26685	121142	< 330.		UG/KG	12/02/92		2,4-Dinitrotoluene
PF-36A-W-25'	92.26685	606202	< 330.		UG/KG	12/02/92		2,6-Dinitrotoluene
PF-36A-W-25'	92.26685	206440	< 330.		UG/KG	12/02/92		Fluoranthene
PF-36A-W-25'	92.26685	86737	< 330.		UG/KG	12/02/92		Fluorene
PF-36A-W-25'	92.26685	118741	< 330.		UG/KG	12/02/92		Hexachlorobenzene
PF-36A-W-25'	92.26685	87683	< 330.		UG/KG	12/02/92		Hexachlorobutadiene
PF-36A-W-25'	92.26685	77474	< 330.		UG/KG	12/02/92		Hexachlorocyclopentadiene
PF-36A-W-25'	92.26685	67721	< 330.		UG/KG	12/02/92		Hexachloroethane
PF-36A-W-25'	92.26685	193395	< 330.		UG/KG	12/02/92		Indeno[1,2,3-cd]pyrene
PF-36A-W-25'	92.26685	78591	< 330.		UG/KG	12/02/92		Isophorone
PF-36A-W-25'	92.26685	534521	< 330.		UG/KG	12/02/92		2-Methyl-4,6-dinitrophenol
PF-36A-W-25'	92.26685	91576	< 330.		UG/KG	12/02/92		2-Methylnaphthalene
PF-36A-W-25'	92.26685	95487	< 330.		UG/KG	12/02/92		2-Methylphenol
PF-36A-W-25'	92.26685	106445	< 330.		UG/KG	12/02/92		4-Methylphenol
PF-36A-W-25'	92.26685	91203	< 330.		UG/KG	12/02/92		Naphthalene
PF-36A-W-25'	92.26685	88744	< 330.		UG/KG	12/02/92		2-Nitroaniline
PF-36A-W-25'	92.26685	99092	< 330.		UG/KG	12/02/92		3-Nitroaniline
PF-36A-W-25'	92.26685	100016	< 330.		UG/KG	12/02/92		4-Nitroaniline
PF-36A-W-25'	92.26685	98953	< 330.		UG/KG	12/02/92		Nitrobenzene
PF-36A-W-25'	92.26685	88755	< 330.		UG/KG	12/02/92		2-Nitrophenol
PF-36A-W-25'	92.26685	100027	< 330.		UG/KG	12/02/92		4-Nitrophenol
PF-36A-W-25'	92.26685	621647	< 330.		UG/KG	12/02/92		N-Nitrosodi-n-propylamine
PF-36A-W-25'	92.26685	62759	< 330.		UG/KG	12/02/92		N-Nitrosodimethylamine
PF-36A-W-25'	92.26685	86306	< 330.		UG/KG	12/02/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-W-25'	92.26685	87865	< 330.		UG/KG	12/02/92		Pentachlorophenol
PF-36A-W-25'	92.26685	85018	< 330.		UG/KG	12/02/92		Phenanthrene
PF-36A-W-25'	92.26685	108952	< 330.		UG/KG	12/02/92		Phenol
PF-36A-W-25'	92.26685	129000	< 330.		UG/KG	12/02/92		Pyrene
PF-36A-W-25'	92.26685	120821	< 330.		UG/KG	12/02/92		1,2,4-Trichlorobenzene
PF-36A-W-25'	92.26685	95954	< 330.		UG/KG	12/02/92		2,4,5-Trichlorophenol
PF-36A-W-25'	92.26685	88062	< 330.		UG/KG	12/02/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.26685

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 9-Dec-1992

REQUEST NUMBER: 13439 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 117

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.26686 Date Collected: 8/25/92 Date Received: 8/26/92 Date Extracted: 8/31/92 Date Analyzed: 9/29/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-W-10'	92.26686	83329	< 330.		UG/KG	12/02/92		Acenaphthene
PF-36A-W-10'	92.26686	208968	< 330.		UG/KG	12/02/92		Acenaphthylene
PF-36A-W-10'	92.26686	62533	< 330.		UG/KG	12/02/92		Aniline
PF-36A-W-10'	92.26686	120127	< 330.		UG/KG	12/02/92		Anthracene
PF-36A-W-10'	92.26686	103333	< 330.		UG/KG	12/02/92		Azobenzene
PF-36A-W-10'	92.26686	92875	< 330.		UG/KG	12/02/92		m-Benzidine
PF-36A-W-10'	92.26686	56553	< 330.		UG/KG	12/02/92		Benzo[a]anthracene
PF-36A-W-10'	92.26686	50328	< 330.		UG/KG	12/02/92		Benzo[a]pyrene
PF-36A-W-10'	92.26686	205992	< 330.		UG/KG	12/02/92		Benzo[b]fluoranthene
PF-36A-W-10'	92.26686	191242	< 330.		UG/KG	12/02/92		Benzo[g,h,i]perylene
PF-36A-W-10'	92.26686	207089	< 330.		UG/KG	12/02/92		Benzo[k]fluoranthene
PF-36A-W-10'	92.26686	65850	< 330.		UG/KG	12/02/92		Benzoic acid
PF-36A-W-10'	92.26686	100516	< 330.		UG/KG	12/02/92		Benzyl alcohol
PF-36A-W-10'	92.26686	111911	< 330.		UG/KG	12/02/92		Bis(2-chloroethoxy)methane
PF-36A-W-10'	92.26686	111444	< 330.		UG/KG	12/02/92		Bis(2-chloroethyl)ether
PF-36A-W-10'	92.26686	108601	< 330.		UG/KG	12/02/92		Bis(2-chloroisopropyl)ether
PF-36A-W-10'	92.26686	117817	< 330.		UG/KG	12/02/92		Bis(2-ethylhexyl)phthalate
PF-36A-W-10'	92.26686	101553	< 330.		UG/KG	12/02/92		4-Bromophenylphenyl ether
PF-36A-W-10'	92.26686	85687	< 330.		UG/KG	12/02/92		Butyl benzyl phthalate
PF-36A-W-10'	92.26686	59507	< 330.		UG/KG	12/02/92		4-Chloro-3-methylphenol
PF-36A-W-10'	92.26686	106478	< 330.		UG/KG	12/02/92		4-Chloroaniline
PF-36A-W-10'	92.26686	91587	< 330.		UG/KG	12/02/92		2-Chloronaphthalene
PF-36A-W-10'	92.26686	95578	< 330.		UG/KG	12/02/92		o-Chlorophenol
PF-36A-W-10'	92.26686	7005723	< 330.		UG/KG	12/02/92		4-Chlorophenylphenyl ether
PF-36A-W-10'	92.26686	218019	< 330.		UG/KG	12/02/92		Chrysene
PF-36A-W-10'	92.26686	84742	3300.	990.	UG/KG	12/02/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-W-10'	92.26686	117840	< 330.		UG/KG	12/02/92		Di-n-octyl phthalate
PF-36A-W-10'	92.26686	53703	< 330.		UG/KG	12/02/92		Dibenzo[a,h]anthracene
PF-36A-W-10'	92.26686	132649	< 330.		UG/KG	12/02/92		Dibenzofuran
PF-36A-W-10'	92.26686	95501	< 330.		UG/KG	12/02/92		o-Dichlorobenzene (1,2)
PF-36A-W-10'	92.26686	541731	< 330.		UG/KG	12/02/92		m-Dichlorobenzene (1,3)
PF-36A-W-10'	92.26686	106467	< 330.		UG/KG	12/02/92		p-Dichlorobenzene (1,4)
PF-36A-W-10'	92.26686	91941	< 330.		UG/KG	12/02/92		3,3'-Dichlorobenzidine
PF-36A-W-10'	92.26686	120832	< 330.		UG/KG	12/02/92		2,4-Dichlorophenol
PF-36A-W-10'	92.26686	84662	< 330.		UG/KG	12/02/92		Diethyl phthalate
PF-36A-W-10'	92.26686	131113	< 330.		UG/KG	12/02/92		Dimethyl phthalate
PF-36A-W-10'	92.26686	105679	< 330.		UG/KG	12/02/92		2,4-Dimethylphenol
PF-36A-W-10'	92.26686	51285	< 330.		UG/KG	12/02/92		2,4-Dinitrophenol
PF-36A-W-10'	92.26686	121142	11600.	3480.	UG/KG	12/02/92		2,4-Dinitrotoluene
PF-36A-W-10'	92.26686	606202	400.	120.	UG/KG	12/02/92		2,6-Dinitrotoluene
PF-36A-W-10'	92.26686	206440	< 330.		UG/KG	12/02/92		Fluoranthene
PF-36A-W-10'	92.26686	86737	< 330.		UG/KG	12/02/92		Fluorene
PF-36A-W-10'	92.26686	118741	< 330.		UG/KG	12/02/92		Hexachlorobenzene
PF-36A-W-10'	92.26686	87683	< 330.		UG/KG	12/02/92		Hexachlorobutadiene
PF-36A-W-10'	92.26686	77474	< 330.		UG/KG	12/02/92		Hexachlorocyclopentadiene
PF-36A-W-10'	92.26686	67721	< 330.		UG/KG	12/02/92		Hexachloroethane
PF-36A-W-10'	92.26686	193395	< 330.		UG/KG	12/02/92		Indeno[1,2,3-cd]pyrene
PF-36A-W-10'	92.26686	78591	< 330.		UG/KG	12/02/92		Isophorone
PF-36A-W-10'	92.26686	534521	< 330.		UG/KG	12/02/92		2-Methyl-4,6-dinitrophenol
PF-36A-W-10'	92.26686	91576	< 330.		UG/KG	12/02/92		2-Methylnaphthalene
PF-36A-W-10'	92.26686	95487	< 330.		UG/KG	12/02/92		2-Methylphenol
PF-36A-W-10'	92.26686	106445	< 330.		UG/KG	12/02/92		4-Methylphenol
PF-36A-W-10'	92.26686	91203	< 330.		UG/KG	12/02/92		Naphthalene
PF-36A-W-10'	92.26686	88744	< 330.		UG/KG	12/02/92		2-Nitroaniline
PF-36A-W-10'	92.26686	99092	< 330.		UG/KG	12/02/92		3-Nitroaniline
PF-36A-W-10'	92.26686	100016	< 330.		UG/KG	12/02/92		4-Nitroaniline
PF-36A-W-10'	92.26686	98953	< 330.		UG/KG	12/02/92		Nitrobenzene
PF-36A-W-10'	92.26686	88755	< 330.		UG/KG	12/02/92		2-Nitrophenol
PF-36A-W-10'	92.26686	100027	< 330.		UG/KG	12/02/92		4-Nitrophenol
PF-36A-W-10'	92.26686	621647	< 330.		UG/KG	12/02/92		N-Nitrosodi-n-propylamine
PF-36A-W-10'	92.26686	62759	< 330.		UG/KG	12/02/92		N-Nitrosodimethylamine
PF-36A-W-10'	92.26686	86306	1400.	420.	UG/KG	12/02/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-W-10'	92.26686	87865	< 330.		UG/KG	12/02/92		Pentachlorophenol
PF-36A-W-10'	92.26686	85018	< 330.		UG/KG	12/02/92		Phenanthrene
PF-36A-W-10'	92.26686	108952	< 330.		UG/KG	12/02/92		Phenol
PF-36A-W-10'	92.26686	129000	< 330.		UG/KG	12/02/92		Pyrene
PF-36A-W-10'	92.26686	120821	< 330.		UG/KG	12/02/92		1,2,4-Trichlorobenzene
PF-36A-W-10'	92.26686	95954	< 330.		UG/KG	12/02/92		2,4,5-Trichlorophenol
PF-36A-W-10'	92.26686	88062	< 330.		UG/KG	12/02/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.26686

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 9-Dec-1992

REQUEST NUMBER: 13439 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 117

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.26687 Date Collected: 8/25/92 Date Received: 8/26/92 Date Extracted: 8/31/92 Date Analyzed: 10/07/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-W-5'	92.26687	83329	< 330.		UG/KG	12/02/92		Acenaphthene
PF-36A-W-5'	92.26687	208968	< 330.		UG/KG	12/02/92		Acenaphthylene
PF-36A-W-5'	92.26687	62533	< 330.		UG/KG	12/02/92		Aniline
PF-36A-W-5'	92.26687	120127	< 330.		UG/KG	12/02/92		Anthracene
PF-36A-W-5'	92.26687	103333	< 330.		UG/KG	12/02/92		Azobenzene
PF-36A-W-5'	92.26687	92875	< 330.		UG/KG	12/02/92		m-Benzidine
PF-36A-W-5'	92.26687	56553	< 330.		UG/KG	12/02/92		Benzo[a]anthracene
PF-36A-W-5'	92.26687	50328	< 330.		UG/KG	12/02/92		Benzo[a]pyrene
PF-36A-W-5'	92.26687	205992	< 330.		UG/KG	12/02/92		Benzo[b]fluoranthene
PF-36A-W-5'	92.26687	191242	< 330.		UG/KG	12/02/92		Benzo[g,h,i]perylene
PF-36A-W-5'	92.26687	207089	< 330.		UG/KG	12/02/92		Benzo[k]fluoranthene
PF-36A-W-5'	92.26687	65850	< 330.		UG/KG	12/02/92		Benzoic acid
PF-36A-W-5'	92.26687	100516	< 330.		UG/KG	12/02/92		Benzyl alcohol
PF-36A-W-5'	92.26687	111911	< 330.		UG/KG	12/02/92		Bis(2-chloroethoxy)methane
PF-36A-W-5'	92.26687	111444	< 330.		UG/KG	12/02/92		Bis(2-chloroethyl)ether
PF-36A-W-5'	92.26687	108601	< 330.		UG/KG	12/02/92		Bis(2-chloroisopropyl)ether
PF-36A-W-5'	92.26687	117817	480.	144.	UG/KG	12/02/92		Bis(2-ethylhexyl)phthalate
PF-36A-W-5'	92.26687	101553	< 330.		UG/KG	12/02/92		4-Bromophenylphenyl ether
PF-36A-W-5'	92.26687	85687	< 330.		UG/KG	12/02/92		Butyl benzyl phthalate
PF-36A-W-5'	92.26687	59507	< 330.		UG/KG	12/02/92		4-Chloro-3-methylphenol
PF-36A-W-5'	92.26687	106478	< 330.		UG/KG	12/02/92		4-Chloroaniline
PF-36A-W-5'	92.26687	91587	< 330.		UG/KG	12/02/92		2-Chloronaphthalene
PF-36A-W-5'	92.26687	95578	< 330.		UG/KG	12/02/92		o-Chlorophenol
PF-36A-W-5'	92.26687	7005723	< 330.		UG/KG	12/02/92		4-Chlorophenylphenyl ether
PF-36A-W-5'	92.26687	218019	< 330.		UG/KG	12/02/92		Chrysene
PF-36A-	92.26687	84742	< 330.		UG/KG	02/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-W-5'	92.26687	117840	< 330.		UG/KG	12/02/92		Di-n-octyl phthalate
PF-36A-W-5'	92.26687	53703	< 330.		UG/KG	12/02/92		Dibenzo[a,h]anthracene
PF-36A-W-5'	92.26687	132649	< 330.		UG/KG	12/02/92		Dibenzofuran
PF-36A-W-5'	92.26687	95501	< 330.		UG/KG	12/02/92		o-Dichlorobenzene (1,2)
PF-36A-W-5'	92.26687	541731	< 330.		UG/KG	12/02/92		m-Dichlorobenzene (1,3)
PF-36A-W-5'	92.26687	106467	< 330.		UG/KG	12/02/92		p-Dichlorobenzene (1,4)
PF-36A-W-5'	92.26687	91941	< 330.		UG/KG	12/02/92		3,3'-Dichlorobenzidine
PF-36A-W-5'	92.26687	120832	< 330.		UG/KG	12/02/92		2,4-Dichlorophenol
PF-36A-W-5'	92.26687	84662	< 330.		UG/KG	12/02/92		Diethyl phthalate
PF-36A-W-5'	92.26687	131113	< 330.		UG/KG	12/02/92		Dimethyl phthalate
PF-36A-W-5'	92.26687	105679	< 330.		UG/KG	12/02/92		2,4-Dimethylphenol
PF-36A-W-5'	92.26687	51285	< 330.		UG/KG	12/02/92		2,4-Dinitrophenol
PF-36A-W-5'	92.26687	121142	< 330.		UG/KG	12/02/92		2,4-Dinitrotoluene
PF-36A-W-5'	92.26687	606202	< 330.		UG/KG	12/02/92		2,6-Dinitrotoluene
PF-36A-W-5'	92.26687	206440	< 330.		UG/KG	12/02/92		Fluoranthene
PF-36A-W-5'	92.26687	86737	< 330.		UG/KG	12/02/92		Fluorene
PF-36A-W-5'	92.26687	118741	< 330.		UG/KG	12/02/92		Hexachlorobenzene
PF-36A-W-5'	92.26687	87683	< 330.		UG/KG	12/02/92		Hexachlorobutadiene
PF-36A-W-5'	92.26687	77474	< 330.		UG/KG	12/02/92		Hexachlorocyclopentadiene
PF-36A-W-5'	92.26687	67721	< 330.		UG/KG	12/02/92		Hexachloroethane
PF-36A-W-5'	92.26687	193395	< 330.		UG/KG	12/02/92		Indeno[1,2,3-cd]pyrene
PF-36A-W-5'	92.26687	78591	< 330.		UG/KG	12/02/92		Isophorone
PF-36A-W-5'	92.26687	534521	< 330.		UG/KG	12/02/92		2-Methyl-4,6-dinitrophenol
PF-36A-W-5'	92.26687	91576	< 330.		UG/KG	12/02/92		2-Methylnaphthalene
PF-36A-W-5'	92.26687	95487	< 330.		UG/KG	12/02/92		2-Methylphenol
PF-36A-W-5'	92.26687	106445	< 330.		UG/KG	12/02/92		4-Methylphenol
PF-36A-W-5'	92.26687	91203	< 330.		UG/KG	12/02/92		Naphthalene
PF-36A-W-5'	92.26687	88744	< 330.		UG/KG	12/02/92		2-Nitroaniline
PF-36A-W-5'	92.26687	99092	< 330.		UG/KG	12/02/92		3-Nitroaniline
PF-36A-W-5'	92.26687	100016	< 330.		UG/KG	12/02/92		4-Nitroaniline
PF-36A-W-5'	92.26687	98953	< 330.		UG/KG	12/02/92		Nitrobenzene
PF-36A-W-5'	92.26687	88755	< 330.		UG/KG	12/02/92		2-Nitrophenol
PF-36A-W-5'	92.26687	100027	< 330.		UG/KG	12/02/92		4-Nitrophenol
PF-36A-W-5'	92.26687	621647	< 330.		UG/KG	12/02/92		N-Nitrosodi-n-propylamine
PF-36A-W-5'	92.26687	62759	< 330.		UG/KG	12/02/92		N-Nitrosodimethylamine
PF-36A-W-5'	92.26687	86306	< 330.		UG/KG	12/02/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-W-5'	92.26687	87865	< 330.		UG/KG	12/02/92		Pentachlorophenol
PF-36A-W-5'	92.26687	85018	< 330.		UG/KG	12/02/92		Phenanthrene
PF-36A-W-5'	92.26687	108952	< 330.		UG/KG	12/02/92		Phenol
PF-36A-W-5'	92.26687	129000	< 330.		UG/KG	12/02/92		Pyrene
PF-36A-W-5'	92.26687	120821	< 330.		UG/KG	12/02/92		1,2,4-Trichlorobenzene
PF-36A-W-5'	92.26687	95954	< 330.		UG/KG	12/02/92		2,4,5-Trichlorophenol
PF-36A-W-5'	92.26687	88062	< 330.		UG/KG	12/02/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.26687

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 9-Dec-1992

REQUEST NUMBER: 13439 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 117

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.26688 Date Collected: 8/25/92 Date Received: 8/26/92 Date Extracted: 8/31/92 Date Analyzed: 10/07/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-E-100	92.26688	83329	< 990.		UG/KG	12/02/92		Acenaphthene
PF-36A-E-100	92.26688	208968	< 990.		UG/KG	12/02/92		Acenaphthylene
PF-36A-E-100	92.26688	62533	< 990.		UG/KG	12/02/92		Aniline
PF-36A-E-100	92.26688	120127	< 990.		UG/KG	12/02/92		Anthracene
PF-36A-E-100	92.26688	103333	< 990.		UG/KG	12/02/92		Azobenzene
PF-36A-E-100	92.26688	92875	< 990.		UG/KG	12/02/92		m-Benzidine
PF-36A-E-100	92.26688	56553	< 990.		UG/KG	12/02/92		Benzo[a]anthracene
PF-36A-E-100	92.26688	50328	< 990.		UG/KG	12/02/92		Benzo[a]pyrene
PF-36A-E-100	92.26688	205992	< 990.		UG/KG	12/02/92		Benzo[b]fluoranthene
PF-36A-E-100	92.26688	191242	< 990.		UG/KG	12/02/92		Benzo[g,h,i]perylene
PF-36A-E-100	92.26688	207089	< 990.		UG/KG	12/02/92		Benzo[k]fluoranthene
PF-36A-E-100	92.26688	65850	< 990.		UG/KG	12/02/92		Benzoic acid
PF-36A-E-100	92.26688	100516	< 990.		UG/KG	12/02/92		Benzyl alcohol
PF-36A-E-100	92.26688	111911	< 990.		UG/KG	12/02/92		Bis(2-chloroethoxy)methane
PF-36A-E-100	92.26688	111444	< 990.		UG/KG	12/02/92		Bis(2-chloroethyl)ether
PF-36A-E-100	92.26688	108601	< 990.		UG/KG	12/02/92		Bis(2-chloroisopropyl)ether
PF-36A-E-100	92.26688	117817	12000.	3600.	UG/KG	12/02/92		Bis(2-ethylhexyl)phthalate
PF-36A-E-100	92.26688	101553	< 990.		UG/KG	12/02/92		4-Bromophenylphenyl ether
PF-36A-E-100	92.26688	85687	< 990.		UG/KG	12/02/92		Butyl benzyl phthalate
PF-36A-E-100	92.26688	59507	< 990.		UG/KG	12/02/92		4-Chloro-3-methylphenol
PF-36A-E-100	92.26688	106478	< 990.		UG/KG	12/02/92		4-Chloroaniline
PF-36A-E-100	92.26688	91587	< 990.		UG/KG	12/02/92		2-Chloronaphthalene
PF-36A-E-100	92.26688	95578	< 990.		UG/KG	12/02/92		o-Chlorophenol
PF-36A-E-100	92.26688	7005723	< 990.		UG/KG	12/02/92		4-Chlorophenylphenyl ether
PF-36A-E-100	92.26688	218019	< 990.		UG/KG	12/02/92		Chrysene
PF-36A-E-100	92.26688	84742	7100.	2130.	UG/KG	12/02/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-E-100	92.26688	117840	< 990.		UG/KG	12/02/92		Di-n-octyl phthalate
PF-36A-E-100	92.26688	53703	< 990.		UG/KG	12/02/92		Dibenzo[a,h]anthracene
PF-36A-E-100	92.26688	132649	< 990.		UG/KG	12/02/92		Dibenzofuran
PF-36A-E-100	92.26688	95501	< 990.		UG/KG	12/02/92		o-Dichlorobenzene (1,2)
PF-36A-E-100	92.26688	541731	< 990.		UG/KG	12/02/92		m-Dichlorobenzene (1,3)
PF-36A-E-100	92.26688	106467	< 990.		UG/KG	12/02/92		p-Dichlorobenzene (1,4)
PF-36A-E-100	92.26688	91941	< 990.		UG/KG	12/02/92		3,3'-Dichlorobenzidine
PF-36A-E-100	92.26688	120832	< 990.		UG/KG	12/02/92		2,4-Dichlorophenol
PF-36A-E-100	92.26688	84662	< 990.		UG/KG	12/02/92		Diethyl phthalate
PF-36A-E-100	92.26688	131113	< 990.		UG/KG	12/02/92		Dimethyl phthalate
PF-36A-E-100	92.26688	105679	< 990.		UG/KG	12/02/92		2,4-Dimethylphenol
PF-36A-E-100	92.26688	51285	< 990.		UG/KG	12/02/92		2,4-Dinitrophenol
PF-36A-E-100	92.26688	121142	11600.	3480.	UG/KG	12/02/92		2,4-Dinitrotoluene
PF-36A-E-100	92.26688	606202	< 990.		UG/KG	12/02/92		2,6-Dinitrotoluene
PF-36A-E-100	92.26688	206440	< 990.		UG/KG	12/02/92		Fluoranthene
PF-36A-E-100	92.26688	86737	< 990.		UG/KG	12/02/92		Fluorene
PF-36A-E-100	92.26688	118741	< 990.		UG/KG	12/02/92		Hexachlorobenzene
PF-36A-E-100	92.26688	87683	< 990.		UG/KG	12/02/92		Hexachlorobutadiene
PF-36A-E-100	92.26688	77474	< 990.		UG/KG	12/02/92		Hexachlorocyclopentadiene
PF-36A-E-100	92.26688	67721	< 990.		UG/KG	12/02/92		Hexachloroethane
PF-36A-E-100	92.26688	193395	< 990.		UG/KG	12/02/92		Indeno[1,2,3-cd]pyrene
PF-36A-E-100	92.26688	78591	< 990.		UG/KG	12/02/92		Isophorone
PF-36A-E-100	92.26688	534521	< 990.		UG/KG	12/02/92		2-Methyl-4,6-dinitrophenol
PF-36A-E-100	92.26688	91576	< 990.		UG/KG	12/02/92		2-Methylnaphthalene
PF-36A-E-100	92.26688	95487	< 990.		UG/KG	12/02/92		2-Methylphenol
PF-36A-E-100	92.26688	106445	< 990.		UG/KG	12/02/92		4-Methylphenol
PF-36A-E-100	92.26688	91203	< 990.		UG/KG	12/02/92		Naphthalene
PF-36A-E-100	92.26688	88744	< 990.		UG/KG	12/02/92		2-Nitroaniline
PF-36A-E-100	92.26688	99092	< 990.		UG/KG	12/02/92		3-Nitroaniline
PF-36A-E-100	92.26688	100016	< 990.		UG/KG	12/02/92		4-Nitroaniline
PF-36A-E-100	92.26688	98953	< 990.		UG/KG	12/02/92		Nitrobenzene
PF-36A-E-100	92.26688	88755	< 990.		UG/KG	12/02/92		2-Nitrophenol
PF-36A-E-100	92.26688	100027	< 990.		UG/KG	12/02/92		4-Nitrophenol
PF-36A-E-100	92.26688	621647	< 990.		UG/KG	12/02/92		N-Nitrosodi-n-propylamine
PF-36A-E-100	92.26688	62759	< 990.		UG/KG	12/02/92		N-Nitrosodimethylamine
PF-36A-	92.26688	86306	1300.	390.	UG/KG	02/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-E-100	92.26688	87865	< 990.		UG/KG	12/02/92		Pentachlorophenol
PF-36A-E-100	92.26688	85018	< 990.		UG/KG	12/02/92		Phenanthrene
PF-36A-E-100	92.26688	108952	< 990.		UG/KG	12/02/92		Phenol
PF-36A-E-100	92.26688	129000	< 990.		UG/KG	12/02/92		Pyrene
PF-36A-E-100	92.26688	120821	< 990.		UG/KG	12/02/92		1,2,4-Trichlorobenzene
PF-36A-E-100	92.26688	95954	< 990.		UG/KG	12/02/92		2,4,5-Trichlorophenol
PF-36A-E-100	92.26688	88062	< 990.		UG/KG	12/02/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.26688

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 9-Dec-1992

REQUEST NUMBER: 13439 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 117

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.26689 Date Collected: 8/25/92 Date Received: 8/26/92 Date Extracted: 8/31/92 Date Analyzed: 10/07/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-E-76	92.26689	83329	< 990.		UG/KG	12/02/92		Acenaphthene
PF-36A-E-76	92.26689	208968	< 990.		UG/KG	12/02/92		Acenaphthylene
PF-36A-E-76	92.26689	62533	< 990.		UG/KG	12/02/92		Aniline
PF-36A-E-76	92.26689	120127	< 990.		UG/KG	12/02/92		Anthracene
PF-36A-E-76	92.26689	103333	< 990.		UG/KG	12/02/92		Azobenzene
PF-36A-E-76	92.26689	92875	< 990.		UG/KG	12/02/92		m-Benzidine
PF-36A-E-76	92.26689	56553	< 990.		UG/KG	12/02/92		Benzo[a]anthracene
PF-36A-E-76	92.26689	50328	< 990.		UG/KG	12/02/92		Benzo[a]pyrene
PF-36A-E-76	92.26689	205992	< 990.		UG/KG	12/02/92		Benzo[b]fluoranthene
PF-36A-E-76	92.26689	191242	< 990.		UG/KG	12/02/92		Benzo[g,h,i]perylene
PF-36A-E-76	92.26689	207089	< 990.		UG/KG	12/02/92		Benzo[k]fluoranthene
PF-36A-E-76	92.26689	65850	< 990.		UG/KG	12/02/92		Benzoic acid
PF-36A-E-76	92.26689	100516	< 990.		UG/KG	12/02/92		Benzyl alcohol
PF-36A-E-76	92.26689	111911	< 990.		UG/KG	12/02/92		Bis(2-chloroethoxy)methane
PF-36A-E-76	92.26689	111444	< 990.		UG/KG	12/02/92		Bis(2-chloroethyl)ether
PF-36A-E-76	92.26689	108601	< 990.		UG/KG	12/02/92		Bis(2-chloroisopropyl)ether
PF-36A-E-76	92.26689	117817	3600.	1080.	UG/KG	12/02/92		Bis(2-ethylhexyl)phthalate
PF-36A-E-76	92.26689	101553	< 990.		UG/KG	12/02/92		4-Bromophenylphenyl ether
PF-36A-E-76	92.26689	85687	< 990.		UG/KG	12/02/92		Butyl benzyl phthalate
PF-36A-E-76	92.26689	59507	< 990.		UG/KG	12/02/92		4-Chloro-3-methylphenol
PF-36A-E-76	92.26689	106478	< 990.		UG/KG	12/02/92		4-Chloroaniline
PF-36A-E-76	92.26689	91587	< 990.		UG/KG	12/02/92		2-Chloronaphthalene
PF-36A-E-76	92.26689	95578	< 990.		UG/KG	12/02/92		o-Chlorophenol
PF-36A-E-76	92.26689	7005723	< 990.		UG/KG	12/02/92		4-Chlorophenylphenyl ether
PF-36A-E-76	92.26689	218019	< 990.		UG/KG	12/02/92		Chrysene
PF-36A-	92.26689	84742	8100.	2430.	UG/KG	12/02/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-E-76	92.26689	117840	< 990.		UG/KG	12/02/92		Di-n-octyl phthalate
PF-36A-E-76	92.26689	53703	< 990.		UG/KG	12/02/92		Dibenzo[a,h]anthracene
PF-36A-E-76	92.26689	132649	< 990.		UG/KG	12/02/92		Dibenzofuran
PF-36A-E-76	92.26689	95501	< 990.		UG/KG	12/02/92		o-Dichlorobenzene (1,2)
PF-36A-E-76	92.26689	541731	< 990.		UG/KG	12/02/92		m-Dichlorobenzene (1,3)
PF-36A-E-76	92.26689	106467	< 990.		UG/KG	12/02/92		p-Dichlorobenzene (1,4)
PF-36A-E-76	92.26689	91941	< 990.		UG/KG	12/02/92		3,3'-Dichlorobenzidine
PF-36A-E-76	92.26689	120832	< 990.		UG/KG	12/02/92		2,4-Dichlorophenol
PF-36A-E-76	92.26689	84662	< 990.		UG/KG	12/02/92		Diethyl phthalate
PF-36A-E-76	92.26689	131113	< 990.		UG/KG	12/02/92		Dimethyl phthalate
PF-36A-E-76	92.26689	105679	< 990.		UG/KG	12/02/92		2,4-Dimethylphenol
PF-36A-E-76	92.26689	51285	< 990.		UG/KG	12/02/92		2,4-Dinitrophenol
PF-36A-E-76	92.26689	121142	18800.	5640.	UG/KG	12/02/92		2,4-Dinitrotoluene
PF-36A-E-76	92.26689	606202	< 990.		UG/KG	12/02/92		2,6-Dinitrotoluene
PF-36A-E-76	92.26689	206440	< 990.		UG/KG	12/02/92		Fluoranthene
PF-36A-E-76	92.26689	86737	< 990.		UG/KG	12/02/92		Fluorene
PF-36A-E-76	92.26689	118741	< 990.		UG/KG	12/02/92		Hexachlorobenzene
PF-36A-E-76	92.26689	87683	< 990.		UG/KG	12/02/92		Hexachlorobutadiene
PF-36A-E-76	92.26689	77474	< 990.		UG/KG	12/02/92		Hexachlorocyclopentadiene
PF-36A-E-76	92.26689	67721	< 990.		UG/KG	12/02/92		Hexachloroethane
PF-36A-E-76	92.26689	193395	< 990.		UG/KG	12/02/92		Indeno[1,2,3-cd]pyrene
PF-36A-E-76	92.26689	78591	< 990.		UG/KG	12/02/92		Isophorone
PF-36A-E-76	92.26689	534521	< 990.		UG/KG	12/02/92		2-Methyl-4,6-dinitrophenol
PF-36A-E-76	92.26689	91576	< 990.		UG/KG	12/02/92		2-Methylnaphthalene
PF-36A-E-76	92.26689	95487	< 990.		UG/KG	12/02/92		2-Methylphenol
PF-36A-E-76	92.26689	106445	< 990.		UG/KG	12/02/92		4-Methylphenol
PF-36A-E-76	92.26689	91203	< 990.		UG/KG	12/02/92		Naphthalene
PF-36A-E-76	92.26689	88744	< 990.		UG/KG	12/02/92		2-Nitroaniline
PF-36A-E-76	92.26689	99092	< 990.		UG/KG	12/02/92		3-Nitroaniline
PF-36A-E-76	92.26689	100016	< 990.		UG/KG	12/02/92		4-Nitroaniline
PF-36A-E-76	92.26689	98953	< 990.		UG/KG	12/02/92		Nitrobenzene
PF-36A-E-76	92.26689	88755	< 990.		UG/KG	12/02/92		2-Nitrophenol
PF-36A-E-76	92.26689	100027	< 990.		UG/KG	12/02/92		4-Nitrophenol
PF-36A-E-76	92.26689	621647	< 990.		UG/KG	12/02/92		N-Nitrosodi-n-propylamine
PF-36A-E-76	92.26689	62759	< 990.		UG/KG	12/02/92		N-Nitrosodimethylamine
PF-36A-E-76	92.26689	86306	2200.	660.	UG/KG	12/02/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-E-76	92.26689	87865	< 990.		UG/KG	12/02/92		Pentachlorophenol
PF-36A-E-76	92.26689	85018	< 990.		UG/KG	12/02/92		Phenanthrene
PF-36A-E-76	92.26689	108952	< 990.		UG/KG	12/02/92		Phenol
PF-36A-E-76	92.26689	129000	< 990.		UG/KG	12/02/92		Pyrene
PF-36A-E-76	92.26689	120821	< 990.		UG/KG	12/02/92		1,2,4-Trichlorobenzene
PF-36A-E-76	92.26689	95954	< 990.		UG/KG	12/02/92		2,4,5-Trichlorophenol
PF-36A-E-76	92.26689	88062	< 990.		UG/KG	12/02/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.26689

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 9-Dec-1992

REQUEST NUMBER: 13439 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 117

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.26690 Date Collected: 8/25/92 Date Received: 8/26/92 Date Extracted: 8/31/92 Date Analyzed: 10/07/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-E-50'	92.26690	83329	< 1300.		UG/KG	12/02/92		Acenaphthene
PF-36A-E-50'	92.26690	208968	< 1300.		UG/KG	12/02/92		Acenaphthylene
PF-36A-E-50'	92.26690	62533	< 1300.		UG/KG	12/02/92		Aniline
PF-36A-E-50'	92.26690	120127	< 1300.		UG/KG	12/02/92		Anthracene
PF-36A-E-50'	92.26690	103333	< 1300.		UG/KG	12/02/92		Azobenzene
PF-36A-E-50'	92.26690	92875	< 1300.		UG/KG	12/02/92		m-Benzidine
PF-36A-E-50'	92.26690	56553	< 1300.		UG/KG	12/02/92		Benzo[a]anthracene
PF-36A-E-50'	92.26690	50328	< 1300.		UG/KG	12/02/92		Benzo[a]pyrene
PF-36A-E-50'	92.26690	205992	< 1300.		UG/KG	12/02/92		Benzo[b]fluoranthene
PF-36A-E-50'	92.26690	191242	< 1300.		UG/KG	12/02/92		Benzo[g,h,i]perylene
PF-36A-E-50'	92.26690	207089	< 1300.		UG/KG	12/02/92		Benzo[k]fluoranthene
PF-36A-E-50'	92.26690	65850	< 1300.		UG/KG	12/02/92		Benzoic acid
PF-36A-E-50'	92.26690	100516	< 1300.		UG/KG	12/02/92		Benzyl alcohol
PF-36A-E-50'	92.26690	111911	< 1300.		UG/KG	12/02/92		Bis(2-chloroethoxy)methane
PF-36A-E-50'	92.26690	111444	< 1300.		UG/KG	12/02/92		Bis(2-chloroethyl)ether
PF-36A-E-50'	92.26690	108601	< 1300.		UG/KG	12/02/92		Bis(2-chloroisopropyl)ether
PF-36A-E-50'	92.26690	117817	11700.	3510.	UG/KG	12/02/92		Bis(2-ethylhexyl)phthalate
PF-36A-E-50'	92.26690	101553	< 1300.		UG/KG	12/02/92		4-Bromophenylphenyl ether
PF-36A-E-50'	92.26690	85687	< 1300.		UG/KG	12/02/92		Butyl benzyl phthalate
PF-36A-E-50'	92.26690	59507	< 1300.		UG/KG	12/02/92		4-Chloro-3-methylphenol
PF-36A-E-50'	92.26690	106478	< 1300.		UG/KG	12/02/92		4-Chloroaniline
PF-36A-E-50'	92.26690	91587	< 1300.		UG/KG	12/02/92		2-Chloronaphthalene
PF-36A-E-50'	92.26690	95578	< 1300.		UG/KG	12/02/92		o-Chlorophenol
PF-36A-E-50'	92.26690	7005723	< 1300.		UG/KG	12/02/92		4-Chlorophenylphenyl ether
PF-36A-E-50'	92.26690	218019	< 1300.		UG/KG	12/02/92		Chrysene
PF-36A-E-50'	92.26690	84742	20000.	6000.	UG/KG	12/02/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-E-50'	92.26690	117840	< 1300.		UG/KG	12/02/92		Di-n-octyl phthalate
PF-36A-E-50'	92.26690	53703	< 1300.		UG/KG	12/02/92		Dibenzo[a,h]anthracene
PF-36A-E-50'	92.26690	132649	< 1300.		UG/KG	12/02/92		Dibenzofuran
PF-36A-E-50'	92.26690	95501	< 1300.		UG/KG	12/02/92		o-Dichlorobenzene (1,2)
PF-36A-E-50'	92.26690	541731	< 1300.		UG/KG	12/02/92		m-Dichlorobenzene (1,3)
PF-36A-E-50'	92.26690	106467	< 1300.		UG/KG	12/02/92		p-Dichlorobenzene (1,4)
PF-36A-E-50'	92.26690	91941	< 1300.		UG/KG	12/02/92		3,3'-Dichlorobenzidine
PF-36A-E-50'	92.26690	120832	< 1300.		UG/KG	12/02/92		2,4-Dichlorophenol
PF-36A-E-50'	92.26690	84662	< 1300.		UG/KG	12/02/92		Diethyl phthalate
PF-36A-E-50'	92.26690	131113	< 1300.		UG/KG	12/02/92		Dimethyl phthalate
PF-36A-E-50'	92.26690	105679	< 1300.		UG/KG	12/02/92		2,4-Dimethylphenol
PF-36A-E-50'	92.26690	51285	< 1300.		UG/KG	12/02/92		2,4-Dinitrophenol
PF-36A-E-50'	92.26690	121142	48300.	14490.	UG/KG	12/02/92		2,4-Dinitrotoluene
PF-36A-E-50'	92.26690	606202	2100.	630.	UG/KG	12/02/92		2,6-Dinitrotoluene
PF-36A-E-50'	92.26690	206440	< 1300.		UG/KG	12/02/92		Fluoranthene
PF-36A-E-50'	92.26690	86737	< 1300.		UG/KG	12/02/92		Fluorene
PF-36A-E-50'	92.26690	118741	< 1300.		UG/KG	12/02/92		Hexachlorobenzene
PF-36A-E-50'	92.26690	87683	< 1300.		UG/KG	12/02/92		Hexachlorobutadiene
PF-36A-E-50'	92.26690	77474	< 1300.		UG/KG	12/02/92		Hexachlorocyclopentadiene
PF-36A-E-50'	92.26690	67721	< 1300.		UG/KG	12/02/92		Hexachloroethane
PF-36A-E-50'	92.26690	193395	< 1300.		UG/KG	12/02/92		Indeno[1,2,3-cd]pyrene
PF-36A-E-50'	92.26690	78591	< 1300.		UG/KG	12/02/92		Isophorone
PF-36A-E-50'	92.26690	534521	< 1300.		UG/KG	12/02/92		2-Methyl-4,6-dinitrophenol
PF-36A-E-50'	92.26690	91576	< 1300.		UG/KG	12/02/92		2-Methylnaphthalene
PF-36A-E-50'	92.26690	95487	< 1300.		UG/KG	12/02/92		2-Methylphenol
PF-36A-E-50'	92.26690	106445	< 1300.		UG/KG	12/02/92		4-Methylphenol
PF-36A-E-50'	92.26690	91203	< 1300.		UG/KG	12/02/92		Naphthalene
PF-36A-E-50'	92.26690	88744	< 1300.		UG/KG	12/02/92		2-Nitroaniline
PF-36A-E-50'	92.26690	99092	< 1300.		UG/KG	12/02/92		3-Nitroaniline
PF-36A-E-50'	92.26690	100016	< 1300.		UG/KG	12/02/92		4-Nitroaniline
PF-36A-E-50'	92.26690	98953	< 1300.		UG/KG	12/02/92		Nitrobenzene
PF-36A-E-50'	92.26690	88755	< 1300.		UG/KG	12/02/92		2-Nitrophenol
PF-36A-E-50'	92.26690	100027	< 1300.		UG/KG	12/02/92		4-Nitrophenol
PF-36A-E-50'	92.26690	621647	< 1300.		UG/KG	12/02/92		N-Nitrosodi-n-propylamine
PF-36A-E-50'	92.26690	62759	< 1300.		UG/KG	12/02/92		N-Nitrosodimethylamine
PF-36A-E-50'	92.26690	86306	5800.	1740.	UG/KG	12/02/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-E-50'	92.26690	87865	< 1300.		UG/KG	12/02/92		Pentachlorophenol
PF-36A-E-50'	92.26690	85018	< 1300.		UG/KG	12/02/92		Phenanthrene
PF-36A-E-50'	92.26690	108952	< 1300.		UG/KG	12/02/92		Phenol
PF-36A-E-50'	92.26690	129000	< 1300.		UG/KG	12/02/92		Pyrene
PF-36A-E-50'	92.26690	120821	< 1300.		UG/KG	12/02/92		1,2,4-Trichlorobenzene
PF-36A-E-50'	92.26690	95954	< 1300.		UG/KG	12/02/92		2,4,5-Trichlorophenol
PF-36A-E-50'	92.26690	88062	< 1300.		UG/KG	12/02/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.26690

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 9-Dec-1992

REQUEST NUMBER: 13439 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 117

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.26691 Date Collected: 8/25/92 Date Received: 8/26/92 Date Extracted: 8/31/92 Date Analyzed: 10/07/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-E-25'	92.26691	83329	< 1300.		UG/KG	12/02/92		Acenaphthene
PF-36A-E-25'	92.26691	208968	< 1300.		UG/KG	12/02/92		Acenaphthylene
PF-36A-E-25'	92.26691	62533	< 1300.		UG/KG	12/02/92		Aniline
PF-36A-E-25'	92.26691	120127	< 1300.		UG/KG	12/02/92		Anthracene
PF-36A-E-25'	92.26691	103333	< 1300.		UG/KG	12/02/92		Azobenzene
PF-36A-E-25'	92.26691	92875	< 1300.		UG/KG	12/02/92		m-Benzidine
PF-36A-E-25'	92.26691	56553	< 1300.		UG/KG	12/02/92		Benzo[a]anthracene
PF-36A-E-25'	92.26691	50328	< 1300.		UG/KG	12/02/92		Benzo[a]pyrene
PF-36A-E-25'	92.26691	205992	< 1300.		UG/KG	12/02/92		Benzo[b]fluoranthene
PF-36A-E-25'	92.26691	191242	< 1300.		UG/KG	12/02/92		Benzo[g,h,i]perylene
PF-36A-E-25'	92.26691	207089	< 1300.		UG/KG	12/02/92		Benzo[k]fluoranthene
PF-36A-E-25'	92.26691	65850	< 1300.		UG/KG	12/02/92		Benzoic acid
PF-36A-E-25'	92.26691	100516	< 1300.		UG/KG	12/02/92		Benzyl alcohol
PF-36A-E-25'	92.26691	111911	< 1300.		UG/KG	12/02/92		Bis(2-chloroethoxy)methane
PF-36A-E-25'	92.26691	111444	< 1300.		UG/KG	12/02/92		Bis(2-chloroethyl)ether
PF-36A-E-25'	92.26691	108601	< 1300.		UG/KG	12/02/92		Bis(2-chloroisopropyl)ether
PF-36A-E-25'	92.26691	117817	23900.	7170.	UG/KG	12/02/92		Bis(2-ethylhexyl)phthalate
PF-36A-E-25'	92.26691	101553	< 1300.		UG/KG	12/02/92		4-Bromophenylphenyl ether
PF-36A-E-25'	92.26691	85687	< 1300.		UG/KG	12/02/92		Butyl benzyl phthalate
PF-36A-E-25'	92.26691	59507	< 1300.		UG/KG	12/02/92		4-Chloro-3-methylphenol
PF-36A-E-25'	92.26691	106478	< 1300.		UG/KG	12/02/92		4-Chloroaniline
PF-36A-E-25'	92.26691	91587	< 1300.		UG/KG	12/02/92		2-Chloronaphthalene
PF-36A-E-25'	92.26691	95578	< 1300.		UG/KG	12/02/92		o-Chlorophenol
PF-36A-E-25'	92.26691	7005723	< 1300.		UG/KG	12/02/92		4-Chlorophenylphenyl ether
PF-36A-E-25'	92.26691	218019	< 1300.		UG/KG	12/02/92		Chrysene
PF-36A-	92.26691	84742	< 1300.		UG/KG	12/02/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-E-25'	92.26691	117840	< 1300.		UG/KG	12/02/92		Di-n-octyl phthalate
PF-36A-E-25'	92.26691	53703	< 1300.		UG/KG	12/02/92		Dibenzo[a,h]anthracene
PF-36A-E-25'	92.26691	132649	< 1300.		UG/KG	12/02/92		Dibenzofuran
PF-36A-E-25'	92.26691	95501	< 1300.		UG/KG	12/02/92		o-Dichlorobenzene (1,2)
PF-36A-E-25'	92.26691	541731	< 1300.		UG/KG	12/02/92		m-Dichlorobenzene (1,3)
PF-36A-E-25'	92.26691	106467	< 1300.		UG/KG	12/02/92		p-Dichlorobenzene (1,4)
PF-36A-E-25'	92.26691	91941	< 1300.		UG/KG	12/02/92		3,3'-Dichlorobenzidine
PF-36A-E-25'	92.26691	120832	< 1300.		UG/KG	12/02/92		2,4-Dichlorophenol
PF-36A-E-25'	92.26691	84662	< 1300.		UG/KG	12/02/92		Diethyl phthalate
PF-36A-E-25'	92.26691	131113	< 1300.		UG/KG	12/02/92		Dimethyl phthalate
PF-36A-E-25'	92.26691	105679	< 1300.		UG/KG	12/02/92		2,4-Dimethylphenol
PF-36A-E-25'	92.26691	51285	< 1300.		UG/KG	12/02/92		2,4-Dinitrophenol
PF-36A-E-25'	92.26691	121142	< 1300.		UG/KG	12/02/92		2,4-Dinitrotoluene
PF-36A-E-25'	92.26691	606202	< 1300.		UG/KG	12/02/92		2,6-Dinitrotoluene
PF-36A-E-25'	92.26691	206440	< 1300.		UG/KG	12/02/92		Fluoranthene
PF-36A-E-25'	92.26691	86737	< 1300.		UG/KG	12/02/92		Fluorene
PF-36A-E-25'	92.26691	118741	< 1300.		UG/KG	12/02/92		Hexachlorobenzene
PF-36A-E-25'	92.26691	87683	< 1300.		UG/KG	12/02/92		Hexachlorobutadiene
PF-36A-E-25'	92.26691	77474	< 1300.		UG/KG	12/02/92		Hexachlorocyclopentadiene
PF-36A-E-25'	92.26691	67721	< 1300.		UG/KG	12/02/92		Hexachloroethane
PF-36A-E-25'	92.26691	193395	< 1300.		UG/KG	12/02/92		Indeno[1,2,3-cd]pyrene
PF-36A-E-25'	92.26691	78591	< 1300.		UG/KG	12/02/92		Isophorone
PF-36A-E-25'	92.26691	534521	< 1300.		UG/KG	12/02/92		2-Methyl-4,6-dinitrophenol
PF-36A-E-25'	92.26691	91576	< 1300.		UG/KG	12/02/92		2-Methylnaphthalene
PF-36A-E-25'	92.26691	95487	< 1300.		UG/KG	12/02/92		2-Methylphenol
PF-36A-E-25'	92.26691	106445	< 1300.		UG/KG	12/02/92		4-Methylphenol
PF-36A-E-25'	92.26691	91203	< 1300.		UG/KG	12/02/92		Naphthalene
PF-36A-E-25'	92.26691	88744	< 1300.		UG/KG	12/02/92		2-Nitroaniline
PF-36A-E-25'	92.26691	99092	< 1300.		UG/KG	12/02/92		3-Nitroaniline
PF-36A-E-25'	92.26691	100016	< 1300.		UG/KG	12/02/92		4-Nitroaniline
PF-36A-E-25'	92.26691	98953	< 1300.		UG/KG	12/02/92		Nitrobenzene
PF-36A-E-25'	92.26691	88755	< 1300.		UG/KG	12/02/92		2-Nitrophenol
PF-36A-E-25'	92.26691	100027	< 1300.		UG/KG	12/02/92		4-Nitrophenol
PF-36A-E-25'	92.26691	621647	< 1300.		UG/KG	12/02/92		N-Nitrosodi-n-propylamine
PF-36A-E-25'	92.26691	62759	< 1300.		UG/KG	12/02/92		N-Nitrosodimethylamine
PF-36A-E-25'	92.26691	86306	< 1300.		UG/KG	12/02/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-E-25'	92.26691	87865	< 1300.		UG/KG	12/02/92		Pentachlorophenol
PF-36A-E-25'	92.26691	85018	< 1300.		UG/KG	12/02/92		Phenanthrene
PF-36A-E-25'	92.26691	108952	< 1300.		UG/KG	12/02/92		Phenol
PF-36A-E-25'	92.26691	129000	< 1300.		UG/KG	12/02/92		Pyrene
PF-36A-E-25'	92.26691	120821	< 1300.		UG/KG	12/02/92		1,2,4-Trichlorobenzene
PF-36A-E-25'	92.26691	95954	< 1300.		UG/KG	12/02/92		2,4,5-Trichlorophenol
PF-36A-E-25'	92.26691	88062	< 1300.		UG/KG	12/02/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.26691

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 9-Dec-1992

REQUEST NUMBER: 13439 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 117

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.26692 Date Collected: 8/25/92 Date Received: 8/26/92 Date Extracted: 8/31/92 Date Analyzed: 10/08/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-E-10'	92.26692	83329	< 330.		UG/KG	12/02/92		Acenaphthene
PF-36A-E-10'	92.26692	208968	< 330.		UG/KG	12/02/92		Acenaphthylene
PF-36A-E-10'	92.26692	62533	< 330.		UG/KG	12/02/92		Aniline
PF-36A-E-10'	92.26692	120127	< 330.		UG/KG	12/02/92		Anthracene
PF-36A-E-10'	92.26692	103333	< 330.		UG/KG	12/02/92		Azobenzene
PF-36A-E-10'	92.26692	92875	< 330.		UG/KG	12/02/92		m-Benzidine
PF-36A-E-10'	92.26692	56553	< 330.		UG/KG	12/02/92		Benzo[a]anthracene
PF-36A-E-10'	92.26692	50328	< 330.		UG/KG	12/02/92		Benzo[a]pyrene
PF-36A-E-10'	92.26692	205992	< 330.		UG/KG	12/02/92		Benzo[b]fluoranthene
PF-36A-E-10'	92.26692	191242	< 330.		UG/KG	12/02/92		Benzo[g,h,i]perylene
PF-36A-E-10'	92.26692	207089	< 330.		UG/KG	12/02/92		Benzo[k]fluoranthene
PF-36A-E-10'	92.26692	65850	< 330.		UG/KG	12/02/92		Benzoic acid
PF-36A-E-10'	92.26692	100516	< 330.		UG/KG	12/02/92		Benzyl alcohol
PF-36A-E-10'	92.26692	111911	< 330.		UG/KG	12/02/92		Bis(2-chloroethoxy)methane
PF-36A-E-10'	92.26692	111444	< 330.		UG/KG	12/02/92		Bis(2-chloroethyl)ether
PF-36A-E-10'	92.26692	108601	< 330.		UG/KG	12/02/92		Bis(2-chloroisopropyl)ether
PF-36A-E-10'	92.26692	117817	< 330.		UG/KG	12/02/92		Bis(2-ethylhexyl)phthalate
PF-36A-E-10'	92.26692	101553	< 330.		UG/KG	12/02/92		4-Bromophenylphenyl ether
PF-36A-E-10'	92.26692	85687	< 330.		UG/KG	12/02/92		Butyl benzyl phthalate
PF-36A-E-10'	92.26692	59507	< 330.		UG/KG	12/02/92		4-Chloro-3-methylphenol
PF-36A-E-10'	92.26692	106478	< 330.		UG/KG	12/02/92		4-Chloroaniline
PF-36A-E-10'	92.26692	91587	< 330.		UG/KG	12/02/92		2-Chloronaphthalene
PF-36A-E-10'	92.26692	95578	< 330.		UG/KG	12/02/92		o-Chlorophenol
PF-36A-E-10'	92.26692	7005723	< 330.		UG/KG	12/02/92		4-Chlorophenylphenyl ether
PF-36A-E-10'	92.26692	218019	< 330.		UG/KG	12/02/92		Chrysene
PF-36A-E-10'	92.26692	84742	970.	291.	UG/KG	12/02/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-E-10'	92.26692	117840	< 330.		UG/KG	12/02/92		Di-n-octyl phthalate
PF-36A-E-10'	92.26692	53703	< 330.		UG/KG	12/02/92		Dibenzo[a,h]anthracene
PF-36A-E-10'	92.26692	132649	< 330.		UG/KG	12/02/92		Dibenzofuran
PF-36A-E-10'	92.26692	95501	< 330.		UG/KG	12/02/92		o-Dichlorobenzene (1,2)
PF-36A-E-10'	92.26692	541731	< 330.		UG/KG	12/02/92		m-Dichlorobenzene (1,3)
PF-36A-E-10'	92.26692	106467	< 330.		UG/KG	12/02/92		p-Dichlorobenzene (1,4)
PF-36A-E-10'	92.26692	91941	< 330.		UG/KG	12/02/92		3,3'-Dichlorobenzidine
PF-36A-E-10'	92.26692	120832	< 330.		UG/KG	12/02/92		2,4-Dichlorophenol
PF-36A-E-10'	92.26692	84662	< 330.		UG/KG	12/02/92		Diethyl phthalate
PF-36A-E-10'	92.26692	131113	< 330.		UG/KG	12/02/92		Dimethyl phthalate
PF-36A-E-10'	92.26692	105679	< 330.		UG/KG	12/02/92		2,4-Dimethylphenol
PF-36A-E-10'	92.26692	51285	< 330.		UG/KG	12/02/92		2,4-Dinitrophenol
PF-36A-E-10'	92.26692	121142	690.	207.	UG/KG	12/02/92		2,4-Dinitrotoluene
PF-36A-E-10'	92.26692	606202	< 330.		UG/KG	12/02/92		2,6-Dinitrotoluene
PF-36A-E-10'	92.26692	206440	< 330.		UG/KG	12/02/92		Fluoranthene
PF-36A-E-10'	92.26692	86737	< 330.		UG/KG	12/02/92		Fluorene
PF-36A-E-10'	92.26692	118741	< 330.		UG/KG	12/02/92		Hexachlorobenzene
PF-36A-E-10'	92.26692	87683	< 330.		UG/KG	12/02/92		Hexachlorobutadiene
PF-36A-E-10'	92.26692	77474	< 330.		UG/KG	12/02/92		Hexachlorocyclopentadiene
PF-36A-E-10'	92.26692	67721	< 330.		UG/KG	12/02/92		Hexachloroethane
PF-36A-E-10'	92.26692	193395	< 330.		UG/KG	12/02/92		Indeno[1,2,3-cd]pyrene
PF-36A-E-10'	92.26692	78591	< 330.		UG/KG	12/02/92		Isophorone
PF-36A-E-10'	92.26692	534521	< 330.		UG/KG	12/02/92		2-Methyl-4,6-dinitrophenol
PF-36A-E-10'	92.26692	91576	< 330.		UG/KG	12/02/92		2-Methylnaphthalene
PF-36A-E-10'	92.26692	95487	< 330.		UG/KG	12/02/92		2-Methylphenol
PF-36A-E-10'	92.26692	106445	< 330.		UG/KG	12/02/92		4-Methylphenol
PF-36A-E-10'	92.26692	91203	< 330.		UG/KG	12/02/92		Naphthalene
PF-36A-E-10'	92.26692	88744	< 330.		UG/KG	12/02/92		2-Nitroaniline
PF-36A-E-10'	92.26692	99092	< 330.		UG/KG	12/02/92		3-Nitroaniline
PF-36A-E-10'	92.26692	100016	< 330.		UG/KG	12/02/92		4-Nitroaniline
PF-36A-E-10'	92.26692	98953	< 330.		UG/KG	12/02/92		Nitrobenzene
PF-36A-E-10'	92.26692	88755	< 330.		UG/KG	12/02/92		2-Nitrophenol
PF-36A-E-10'	92.26692	100027	< 330.		UG/KG	12/02/92		4-Nitrophenol
PF-36A-E-10'	92.26692	621647	< 330.		UG/KG	12/02/92		N-Nitrosodi-n-propylamine
PF-36A-E-10'	92.26692	62759	< 330.		UG/KG	12/02/92		N-Nitrosodimethylamine
PF-36A-[illegible]	92.26692	86306	< 330.		UG/KG	[illegible]02/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-E-10'	92.26692	87865	< 330.		UG/KG	12/02/92		Pentachlorophenol
PF-36A-E-10'	92.26692	85018	< 330.		UG/KG	12/02/92		Phenanthrene
PF-36A-E-10'	92.26692	108952	< 330.		UG/KG	12/02/92		Phenol
PF-36A-E-10'	92.26692	129000	< 330.		UG/KG	12/02/92		Pyrene
PF-36A-E-10'	92.26692	120821	< 330.		UG/KG	12/02/92		1,2,4-Trichlorobenzene
PF-36A-E-10'	92.26692	95954	< 330.		UG/KG	12/02/92		2,4,5-Trichlorophenol
PF-36A-E-10'	92.26692	88062	< 330.		UG/KG	12/02/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.26692

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 9-Dec-1992

REQUEST NUMBER: 13439 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 117

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.26693 Date Collected: 8/25/92 Date Received: 8/26/92 Date Extracted: 8/31/92 Date Analyzed: 9/29/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-E-5'	92.26693	83329	< 330.		UG/KG	12/02/92		Acenaphthene
PF-36A-E-5'	92.26693	208968	< 330.		UG/KG	12/02/92		Acenaphthylene
PF-36A-E-5'	92.26693	62533	< 330.		UG/KG	12/02/92		Aniline
PF-36A-E-5'	92.26693	120127	< 330.		UG/KG	12/02/92		Anthracene
PF-36A-E-5'	92.26693	103333	< 330.		UG/KG	12/02/92		Azobenzene
PF-36A-E-5'	92.26693	92875	< 330.		UG/KG	12/02/92		m-Benzidine
PF-36A-E-5'	92.26693	56553	< 330.		UG/KG	12/02/92		Benzo[a]anthracene
PF-36A-E-5'	92.26693	50328	< 330.		UG/KG	12/02/92		Benzo[a]pyrene
PF-36A-E-5'	92.26693	205992	< 330.		UG/KG	12/02/92		Benzo[b]fluoranthene
PF-36A-E-5'	92.26693	191242	< 330.		UG/KG	12/02/92		Benzo[g,h,i]perylene
PF-36A-E-5'	92.26693	207089	< 330.		UG/KG	12/02/92		Benzo[k]fluoranthene
PF-36A-E-5'	92.26693	65850	< 330.		UG/KG	12/02/92		Benzoic acid
PF-36A-E-5'	92.26693	100516	< 330.		UG/KG	12/02/92		Benzyl alcohol
PF-36A-E-5'	92.26693	111911	< 330.		UG/KG	12/02/92		Bis(2-chloroethoxy)methane
PF-36A-E-5'	92.26693	111444	< 330.		UG/KG	12/02/92		Bis(2-chloroethyl)ether
PF-36A-E-5'	92.26693	108601	< 330.		UG/KG	12/02/92		Bis(2-chloroisopropyl)ether
PF-36A-E-5'	92.26693	117817	530.	159.	UG/KG	12/02/92		Bis(2-ethylhexyl)phthalate
PF-36A-E-5'	92.26693	101553	< 330.		UG/KG	12/02/92		4-Bromophenylphenyl ether
PF-36A-E-5'	92.26693	85687	< 330.		UG/KG	12/02/92		Butyl benzyl phthalate
PF-36A-E-5'	92.26693	59507	< 330.		UG/KG	12/02/92		4-Chloro-3-methylphenol
PF-36A-E-5'	92.26693	106478	< 330.		UG/KG	12/02/92		4-Chloroaniline
PF-36A-E-5'	92.26693	91587	< 330.		UG/KG	12/02/92		2-Chloronaphthalene
PF-36A-E-5'	92.26693	95578	< 330.		UG/KG	12/02/92		o-Chlorophenol
PF-36A-E-5'	92.26693	7005723	< 330.		UG/KG	12/02/92		4-Chlorophenylphenyl ether
PF-36A-E-5'	92.26693	218019	< 330.		UG/KG	12/02/92		Chrysene
PF-36A-	92.26693	84742	1100.	330.	UG/KG	02/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-E-5'	92.26693	117840	< 330.		UG/KG	12/02/92		Di-n-octyl phthalate
PF-36A-E-5'	92.26693	53703	< 330.		UG/KG	12/02/92		Dibenzo[a,h]anthracene
PF-36A-E-5'	92.26693	132649	< 330.		UG/KG	12/02/92		Dibenzofuran
PF-36A-E-5'	92.26693	95501	< 330.		UG/KG	12/02/92		o-Dichlorobenzene (1,2)
PF-36A-E-5'	92.26693	541731	< 330.		UG/KG	12/02/92		m-Dichlorobenzene (1,3)
PF-36A-E-5'	92.26693	106467	< 330.		UG/KG	12/02/92		p-Dichlorobenzene (1,4)
PF-36A-E-5'	92.26693	91941	< 330.		UG/KG	12/02/92		3,3'-Dichlorobenzidine
PF-36A-E-5'	92.26693	120832	< 330.		UG/KG	12/02/92		2,4-Dichlorophenol
PF-36A-E-5'	92.26693	84662	< 330.		UG/KG	12/02/92		Diethyl phthalate
PF-36A-E-5'	92.26693	131113	< 330.		UG/KG	12/02/92		Dimethyl phthalate
PF-36A-E-5'	92.26693	105679	< 330.		UG/KG	12/02/92		2,4-Dimethylphenol
PF-36A-E-5'	92.26693	51285	< 330.		UG/KG	12/02/92		2,4-Dinitrophenol
PF-36A-E-5'	92.26693	121142	1700.	510.	UG/KG	12/02/92		2,4-Dinitrotoluene
PF-36A-E-5'	92.26693	606202	< 330.		UG/KG	12/02/92		2,6-Dinitrotoluene
PF-36A-E-5'	92.26693	206440	< 330.		UG/KG	12/02/92		Fluoranthene
PF-36A-E-5'	92.26693	86737	< 330.		UG/KG	12/02/92		Fluorene
PF-36A-E-5'	92.26693	118741	< 330.		UG/KG	12/02/92		Hexachlorobenzene
PF-36A-E-5'	92.26693	87683	< 330.		UG/KG	12/02/92		Hexachlorobutadiene
PF-36A-E-5'	92.26693	77474	< 330.		UG/KG	12/02/92		Hexachlorocyclopentadiene
PF-36A-E-5'	92.26693	67721	< 330.		UG/KG	12/02/92		Hexachloroethane
PF-36A-E-5'	92.26693	193395	< 330.		UG/KG	12/02/92		Indeno[1,2,3-cd]pyrene
PF-36A-E-5'	92.26693	78591	< 330.		UG/KG	12/02/92		Isophorone
PF-36A-E-5'	92.26693	534521	< 330.		UG/KG	12/02/92		2-Methyl-4,6-dinitrophenol
PF-36A-E-5'	92.26693	91576	< 330.		UG/KG	12/02/92		2-Methylnaphthalene
PF-36A-E-5'	92.26693	95487	< 330.		UG/KG	12/02/92		2-Methylphenol
PF-36A-E-5'	92.26693	106445	< 330.		UG/KG	12/02/92		4-Methylphenol
PF-36A-E-5'	92.26693	91203	< 330.		UG/KG	12/02/92		Naphthalene
PF-36A-E-5'	92.26693	88744	< 330.		UG/KG	12/02/92		2-Nitroaniline
PF-36A-E-5'	92.26693	99092	< 330.		UG/KG	12/02/92		3-Nitroaniline
PF-36A-E-5'	92.26693	100016	< 330.		UG/KG	12/02/92		4-Nitroaniline
PF-36A-E-5'	92.26693	98953	< 330.		UG/KG	12/02/92		Nitrobenzene
PF-36A-E-5'	92.26693	88755	< 330.		UG/KG	12/02/92		2-Nitrophenol
PF-36A-E-5'	92.26693	100027	< 330.		UG/KG	12/02/92		4-Nitrophenol
PF-36A-E-5'	92.26693	621647	< 330.		UG/KG	12/02/92		N-Nitrosodi-n-propylamine
PF-36A-E-5'	92.26693	62759	< 330.		UG/KG	12/02/92		N-Nitrosodimethylamine
PF-36A-E-5'	92.26693	86306	< 330.		UG/KG	12/02/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-E-5'	92.26693	87865	< 330.		UG/KG	12/02/92		Pentachlorophenol
PF-36A-E-5'	92.26693	85018	< 330.		UG/KG	12/02/92		Phenanthrene
PF-36A-E-5'	92.26693	108952	< 330.		UG/KG	12/02/92		Phenol
PF-36A-E-5'	92.26693	129000	< 330.		UG/KG	12/02/92		Pyrene
PF-36A-E-5'	92.26693	120821	< 330.		UG/KG	12/02/92		1,2,4-Trichlorobenzene
PF-36A-E-5'	92.26693	95954	< 330.		UG/KG	12/02/92		2,4,5-Trichlorophenol
PF-36A-E-5'	92.26693	88062	< 330.		UG/KG	12/02/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.26693

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 9-Dec-1992

REQUEST NUMBER: 13439 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 117

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.26694 Date Collected: 8/25/92 Date Received: 8/26/92 Date Extracted: 8/31/92 Date Analyzed: 10/08/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-N-100	92.26694	83329	< 330.		UG/KG	12/02/92		Acenaphthene
PF-36A-N-100	92.26694	208968	< 330.		UG/KG	12/02/92		Acenaphthylene
PF-36A-N-100	92.26694	62533	< 330.		UG/KG	12/02/92		Aniline
PF-36A-N-100	92.26694	120127	< 330.		UG/KG	12/02/92		Anthracene
PF-36A-N-100	92.26694	103333	< 330.		UG/KG	12/02/92		Azobenzene
PF-36A-N-100	92.26694	92875	< 330.		UG/KG	12/02/92		m-Benzidine
PF-36A-N-100	92.26694	56553	< 330.		UG/KG	12/02/92		Benzo[a]anthracene
PF-36A-N-100	92.26694	50328	< 330.		UG/KG	12/02/92		Benzo[a]pyrene
PF-36A-N-100	92.26694	205992	< 330.		UG/KG	12/02/92		Benzo[b]fluoranthene
PF-36A-N-100	92.26694	191242	< 330.		UG/KG	12/02/92		Benzo[g,h,i]perylene
PF-36A-N-100	92.26694	207089	< 330.		UG/KG	12/02/92		Benzo[k]fluoranthene
PF-36A-N-100	92.26694	65850	< 330.		UG/KG	12/02/92		Benzoic acid
PF-36A-N-100	92.26694	100516	< 330.		UG/KG	12/02/92		Benzyl alcohol
PF-36A-N-100	92.26694	111911	< 330.		UG/KG	12/02/92		Bis(2-chloroethoxy)methane
PF-36A-N-100	92.26694	111444	< 330.		UG/KG	12/02/92		Bis(2-chloroethyl)ether
PF-36A-N-100	92.26694	108601	< 330.		UG/KG	12/02/92		Bis(2-chloroisopropyl)ether
PF-36A-N-100	92.26694	117817	5600.	1680.	UG/KG	12/02/92		Bis(2-ethylhexyl)phthalate
PF-36A-N-100	92.26694	101553	< 330.		UG/KG	12/02/92		4-Bromophenylphenyl ether
PF-36A-N-100	92.26694	85687	< 330.		UG/KG	12/02/92		Butyl benzyl phthalate
PF-36A-N-100	92.26694	59507	< 330.		UG/KG	12/02/92		4-Chloro-3-methylphenol
PF-36A-N-100	92.26694	106478	< 330.		UG/KG	12/02/92		4-Chloroaniline
PF-36A-N-100	92.26694	91587	< 330.		UG/KG	12/02/92		2-Chloronaphthalene
PF-36A-N-100	92.26694	95578	< 330.		UG/KG	12/02/92		o-Chlorophenol
PF-36A-N-100	92.26694	7005723	< 330.		UG/KG	12/02/92		4-Chlorophenylphenyl ether
PF-36A-N-100	92.26694	218019	< 330.		UG/KG	12/02/92		Chrysene
PF-36A-N-100	92.26694	84742	4400.	1320.	UG/KG	12/02/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-N-100	92.26694	117840	< 330.		UG/KG	12/02/92		Di-n-octyl phthalate
PF-36A-N-100	92.26694	53703	< 330.		UG/KG	12/02/92		Dibenzo[a,h]anthracene
PF-36A-N-100	92.26694	132649	< 330.		UG/KG	12/02/92		Dibenzofuran
PF-36A-N-100	92.26694	95501	< 330.		UG/KG	12/02/92		o-Dichlorobenzene (1,2)
PF-36A-N-100	92.26694	541731	< 330.		UG/KG	12/02/92		m-Dichlorobenzene (1,3)
PF-36A-N-100	92.26694	106467	< 330.		UG/KG	12/02/92		p-Dichlorobenzene (1,4)
PF-36A-N-100	92.26694	91941	< 330.		UG/KG	12/02/92		3,3'-Dichlorobenzidine
PF-36A-N-100	92.26694	120832	< 330.		UG/KG	12/02/92		2,4-Dichlorophenol
PF-36A-N-100	92.26694	84662	< 330.		UG/KG	12/02/92		Diethyl phthalate
PF-36A-N-100	92.26694	131113	< 330.		UG/KG	12/02/92		Dimethyl phthalate
PF-36A-N-100	92.26694	105679	< 330.		UG/KG	12/02/92		2,4-Dimethylphenol
PF-36A-N-100	92.26694	51285	< 330.		UG/KG	12/02/92		2,4-Dinitrophenol
PF-36A-N-100	92.26694	121142	4800.	1440.	UG/KG	12/02/92		2,4-Dinitrotoluene
PF-36A-N-100	92.26694	606202	< 330.		UG/KG	12/02/92		2,6-Dinitrotoluene
PF-36A-N-100	92.26694	206440	< 330.		UG/KG	12/02/92		Fluoranthene
PF-36A-N-100	92.26694	86737	< 330.		UG/KG	12/02/92		Fluorene
PF-36A-N-100	92.26694	118741	< 330.		UG/KG	12/02/92		Hexachlorobenzene
PF-36A-N-100	92.26694	87683	< 330.		UG/KG	12/02/92		Hexachlorobutadiene
PF-36A-N-100	92.26694	77474	< 330.		UG/KG	12/02/92		Hexachlorocyclopentadiene
PF-36A-N-100	92.26694	67721	< 330.		UG/KG	12/02/92		Hexachloroethane
PF-36A-N-100	92.26694	193395	< 330.		UG/KG	12/02/92		Indeno[1,2,3-cd]pyrene
PF-36A-N-100	92.26694	78591	< 330.		UG/KG	12/02/92		Isophorone
PF-36A-N-100	92.26694	534521	< 330.		UG/KG	12/02/92		2-Methyl-4,6-dinitrophenol
PF-36A-N-100	92.26694	91576	< 330.		UG/KG	12/02/92		2-Methylnaphthalene
PF-36A-N-100	92.26694	95487	< 330.		UG/KG	12/02/92		2-Methylphenol
PF-36A-N-100	92.26694	106445	< 330.		UG/KG	12/02/92		4-Methylphenol
PF-36A-N-100	92.26694	91203	< 330.		UG/KG	12/02/92		Naphthalene
PF-36A-N-100	92.26694	88744	< 330.		UG/KG	12/02/92		2-Nitroaniline
PF-36A-N-100	92.26694	99092	< 330.		UG/KG	12/02/92		3-Nitroaniline
PF-36A-N-100	92.26694	100016	< 330.		UG/KG	12/02/92		4-Nitroaniline
PF-36A-N-100	92.26694	98953	< 330.		UG/KG	12/02/92		Nitrobenzene
PF-36A-N-100	92.26694	88755	< 330.		UG/KG	12/02/92		2-Nitrophenol
PF-36A-N-100	92.26694	100027	< 330.		UG/KG	12/02/92		4-Nitrophenol
PF-36A-N-100	92.26694	621647	< 330.		UG/KG	12/02/92		N-Nitrosodi-n-propylamine
PF-36A-N-100	92.26694	62759	< 330.		UG/KG	12/02/92		N-Nitrosodimethylamine
PF-36A-N-100	92.26694	86306	1300.	390.	UG/KG	12/02/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-N-100	92.26694	87865	< 330.		UG/KG	12/02/92		Pentachlorophenol
PF-36A-N-100	92.26694	85018	< 330.		UG/KG	12/02/92		Phenanthrene
PF-36A-N-100	92.26694	108952	< 330.		UG/KG	12/02/92		Phenol
PF-36A-N-100	92.26694	129000	< 330.		UG/KG	12/02/92		Pyrene
PF-36A-N-100	92.26694	120821	< 330.		UG/KG	12/02/92		1,2,4-Trichlorobenzene
PF-36A-N-100	92.26694	95954	< 330.		UG/KG	12/02/92		2,4,5-Trichlorophenol
PF-36A-N-100	92.26694	88062	< 330.		UG/KG	12/02/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.26694

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 9-Dec-1992

REQUEST NUMBER: 13439 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 117

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.26695 Date Collected: 8/25/92 Date Received: 8/26/92 Date Extracted: 8/31/92 Date Analyzed: 9/29/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-N-50'	92.26695	83329	< 330.		UG/KG	12/02/92		Acenaphthene
PF-36A-N-50'	92.26695	208968	< 330.		UG/KG	12/02/92		Acenaphthylene
PF-36A-N-50'	92.26695	62533	< 330.		UG/KG	12/02/92		Aniline
PF-36A-N-50'	92.26695	120127	< 330.		UG/KG	12/02/92		Anthracene
PF-36A-N-50'	92.26695	103333	< 330.		UG/KG	12/02/92		Azobenzene
PF-36A-N-50'	92.26695	92875	< 330.		UG/KG	12/02/92		m-Benzidine
PF-36A-N-50'	92.26695	56553	< 330.		UG/KG	12/02/92		Benzo[a]anthracene
PF-36A-N-50'	92.26695	50328	< 330.		UG/KG	12/02/92		Benzo[a]pyrene
PF-36A-N-50'	92.26695	205992	< 330.		UG/KG	12/02/92		Benzo[b]fluoranthene
PF-36A-N-50'	92.26695	191242	< 330.		UG/KG	12/02/92		Benzo[g,h,i]perylene
PF-36A-N-50'	92.26695	207089	< 330.		UG/KG	12/02/92		Benzo[k]fluoranthene
PF-36A-N-50'	92.26695	65850	< 330.		UG/KG	12/02/92		Benzoic acid
PF-36A-N-50'	92.26695	100516	< 330.		UG/KG	12/02/92		Benzyl alcohol
PF-36A-N-50'	92.26695	111911	< 330.		UG/KG	12/02/92		Bis(2-chloroethoxy)methane
PF-36A-N-50'	92.26695	111444	< 330.		UG/KG	12/02/92		Bis(2-chloroethyl)ether
PF-36A-N-50'	92.26695	108601	< 330.		UG/KG	12/02/92		Bis(2-chloroisopropyl)ether
PF-36A-N-50'	92.26695	117817	1500.	450.	UG/KG	12/02/92		Bis(2-ethylhexyl)phthalate
PF-36A-N-50'	92.26695	101553	< 330.		UG/KG	12/02/92		4-Bromophenylphenyl ether
PF-36A-N-50'	92.26695	85687	< 330.		UG/KG	12/02/92		Butyl benzyl phthalate
PF-36A-N-50'	92.26695	59507	< 330.		UG/KG	12/02/92		4-Chloro-3-methylphenol
PF-36A-N-50'	92.26695	106478	< 330.		UG/KG	12/02/92		4-Chloroaniline
PF-36A-N-50'	92.26695	91587	< 330.		UG/KG	12/02/92		2-Chloronaphthalene
PF-36A-N-50'	92.26695	95578	< 330.		UG/KG	12/02/92		o-Chlorophenol
PF-36A-N-50'	92.26695	7005723	< 330.		UG/KG	12/02/92		4-Chlorophenylphenyl ether
PF-36A-N-50'	92.26695	218019	< 330.		UG/KG	12/02/92		Chrysene
PF-36A-[illegible]	92.26695	84742	< 330.		UG/KG	[illegible]02/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-N-50'	92.26695	117840	< 330.		UG/KG	12/02/92		Di-n-octyl phthalate
PF-36A-N-50'	92.26695	53703	< 330.		UG/KG	12/02/92		Dibenzo[a,h]anthracene
PF-36A-N-50'	92.26695	132649	< 330.		UG/KG	12/02/92		Dibenzofuran
PF-36A-N-50'	92.26695	95501	< 330.		UG/KG	12/02/92		o-Dichlorobenzene (1,2)
PF-36A-N-50'	92.26695	541731	< 330.		UG/KG	12/02/92		m-Dichlorobenzene (1,3)
PF-36A-N-50'	92.26695	106467	< 330.		UG/KG	12/02/92		p-Dichlorobenzene (1,4)
PF-36A-N-50'	92.26695	91941	< 330.		UG/KG	12/02/92		3,3'-Dichlorobenzidine
PF-36A-N-50'	92.26695	120832	< 330.		UG/KG	12/02/92		2,4-Dichlorophenol
PF-36A-N-50'	92.26695	84662	< 330.		UG/KG	12/02/92		Diethyl phthalate
PF-36A-N-50'	92.26695	131113	< 330.		UG/KG	12/02/92		Dimethyl phthalate
PF-36A-N-50'	92.26695	105679	< 330.		UG/KG	12/02/92		2,4-Dimethylphenol
PF-36A-N-50'	92.26695	51285	< 330.		UG/KG	12/02/92		2,4-Dinitrophenol
PF-36A-N-50'	92.26695	121142	< 330.		UG/KG	12/02/92		2,4-Dinitrotoluene
PF-36A-N-50'	92.26695	606202	< 330.		UG/KG	12/02/92		2,6-Dinitrotoluene
PF-36A-N-50'	92.26695	206440	< 330.		UG/KG	12/02/92		Fluoranthene
PF-36A-N-50'	92.26695	86737	< 330.		UG/KG	12/02/92		Fluorene
PF-36A-N-50'	92.26695	118741	< 330.		UG/KG	12/02/92		Hexachlorobenzene
PF-36A-N-50'	92.26695	87683	< 330.		UG/KG	12/02/92		Hexachlorobutadiene
PF-36A-N-50'	92.26695	77474	< 330.		UG/KG	12/02/92		Hexachlorocyclopentadiene
PF-36A-N-50'	92.26695	67721	< 330.		UG/KG	12/02/92		Hexachloroethane
PF-36A-N-50'	92.26695	193395	< 330.		UG/KG	12/02/92		Indeno[1,2,3-cd]pyrene
PF-36A-N-50'	92.26695	78591	< 330.		UG/KG	12/02/92		Isophorone
PF-36A-N-50'	92.26695	534521	< 330.		UG/KG	12/02/92		2-Methyl-4,6-dinitrophenol
PF-36A-N-50'	92.26695	91576	< 330.		UG/KG	12/02/92		2-Methylnaphthalene
PF-36A-N-50'	92.26695	95487	< 330.		UG/KG	12/02/92		2-Methylphenol
PF-36A-N-50'	92.26695	106445	< 330.		UG/KG	12/02/92		4-Methylphenol
PF-36A-N-50'	92.26695	91203	< 330.		UG/KG	12/02/92		Naphthalene
PF-36A-N-50'	92.26695	88744	< 330.		UG/KG	12/02/92		2-Nitroaniline
PF-36A-N-50'	92.26695	99092	< 330.		UG/KG	12/02/92		3-Nitroaniline
PF-36A-N-50'	92.26695	100016	< 330.		UG/KG	12/02/92		4-Nitroaniline
PF-36A-N-50'	92.26695	98953	< 330.		UG/KG	12/02/92		Nitrobenzene
PF-36A-N-50'	92.26695	88755	< 330.		UG/KG	12/02/92		2-Nitrophenol
PF-36A-N-50'	92.26695	100027	< 330.		UG/KG	12/02/92		4-Nitrophenol
PF-36A-N-50'	92.26695	621647	< 330.		UG/KG	12/02/92		N-Nitrosodi-n-propylamine
PF-36A-N-50'	92.26695	62759	< 330.		UG/KG	12/02/92		N-Nitrosodimethylamine
PF-36A-N-50'	92.26695	86306	< 330.		UG/KG	12/02/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-N-50'	92.26695	87865	< 330.		UG/KG	12/02/92		Pentachlorophenol
PF-36A-N-50'	92.26695	85018	< 330.		UG/KG	12/02/92		Phenanthrene
PF-36A-N-50'	92.26695	108952	< 330.		UG/KG	12/02/92		Phenol
PF-36A-N-50'	92.26695	129000	< 330.		UG/KG	12/02/92		Pyrene
PF-36A-N-50'	92.26695	120821	< 330.		UG/KG	12/02/92		1,2,4-Trichlorobenzene
PF-36A-N-50'	92.26695	95954	< 330.		UG/KG	12/02/92		2,4,5-Trichlorophenol
PF-36A-N-50'	92.26695	88062	< 330.		UG/KG	12/02/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.26695

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 9-Dec-1992

REQUEST NUMBER: 13439 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 117

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.26696 Date Collected: 8/25/92 Date Received: 8/26/92 Date Extracted: 8/31/92 Date Analyzed: 10/08/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-N-25'	92.26696	83329	< 330.		UG/KG	12/02/92		Acenaphthene
PF-36A-N-25'	92.26696	208968	< 330.		UG/KG	12/02/92		Acenaphthylene
PF-36A-N-25'	92.26696	62533	< 330.		UG/KG	12/02/92		Aniline
PF-36A-N-25'	92.26696	120127	< 330.		UG/KG	12/02/92		Anthracene
PF-36A-N-25'	92.26696	103333	< 330.		UG/KG	12/02/92		Azobenzene
PF-36A-N-25'	92.26696	92875	< 330.		UG/KG	12/02/92		m-Benzidine
PF-36A-N-25'	92.26696	56553	< 330.		UG/KG	12/02/92		Benzo[a]anthracene
PF-36A-N-25'	92.26696	50328	< 330.		UG/KG	12/02/92		Benzo[a]pyrene
PF-36A-N-25'	92.26696	205992	< 330.		UG/KG	12/02/92		Benzo[b]fluoranthene
PF-36A-N-25'	92.26696	191242	< 330.		UG/KG	12/02/92		Benzo[g,h,i]perylene
PF-36A-N-25'	92.26696	207089	< 330.		UG/KG	12/02/92		Benzo[k]fluoranthene
PF-36A-N-25'	92.26696	65850	< 330.		UG/KG	12/02/92		Benzoic acid
PF-36A-N-25'	92.26696	100516	< 330.		UG/KG	12/02/92		Benzyl alcohol
PF-36A-N-25'	92.26696	111911	< 330.		UG/KG	12/02/92		Bis(2-chloroethoxy)methane
PF-36A-N-25'	92.26696	111444	< 330.		UG/KG	12/02/92		Bis(2-chloroethyl)ether
PF-36A-N-25'	92.26696	108601	< 330.		UG/KG	12/02/92		Bis(2-chloroisopropyl)ether
PF-36A-N-25'	92.26696	117817	< 330.		UG/KG	12/02/92		Bis(2-ethylhexyl)phthalate
PF-36A-N-25'	92.26696	101553	< 330.		UG/KG	12/02/92		4-Bromophenylphenyl ether
PF-36A-N-25'	92.26696	85687	< 330.		UG/KG	12/02/92		Butyl benzyl phthalate
PF-36A-N-25'	92.26696	59507	< 330.		UG/KG	12/02/92		4-Chloro-3-methylphenol
PF-36A-N-25'	92.26696	106478	< 330.		UG/KG	12/02/92		4-Chloroaniline
PF-36A-N-25'	92.26696	91587	< 330.		UG/KG	12/02/92		2-Chloronaphthalene
PF-36A-N-25'	92.26696	95578	< 330.		UG/KG	12/02/92		o-Chlorophenol
PF-36A-N-25'	92.26696	7005723	< 330.		UG/KG	12/02/92		4-Chlorophenylphenyl ether
PF-36A-N-25'	92.26696	218019	< 330.		UG/KG	12/02/92		Chrysene
PF-36A-N-25'	92.26696	84742	< 330.		UG/KG	12/02/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-N-25'	92.26696	117840	< 330.		UG/KG	12/02/92		Di-n-octyl phthalate
PF-36A-N-25'	92.26696	53703	< 330.		UG/KG	12/02/92		Dibenzo[a,h]anthracene
PF-36A-N-25'	92.26696	132649	< 330.		UG/KG	12/02/92		Dibenzofuran
PF-36A-N-25'	92.26696	95501	< 330.		UG/KG	12/02/92		o-Dichlorobenzene (1,2)
PF-36A-N-25'	92.26696	541731	< 330.		UG/KG	12/02/92		m-Dichlorobenzene (1,3)
PF-36A-N-25'	92.26696	106467	< 330.		UG/KG	12/02/92		p-Dichlorobenzene (1,4)
PF-36A-N-25'	92.26696	91941	< 330.		UG/KG	12/02/92		3,3'-Dichlorobenzidine
PF-36A-N-25'	92.26696	120832	< 330.		UG/KG	12/02/92		2,4-Dichlorophenol
PF-36A-N-25'	92.26696	84662	< 330.		UG/KG	12/02/92		Diethyl phthalate
PF-36A-N-25'	92.26696	131113	< 330.		UG/KG	12/02/92		Dimethyl phthalate
PF-36A-N-25'	92.26696	105679	< 330.		UG/KG	12/02/92		2,4-Dimethylphenol
PF-36A-N-25'	92.26696	51285	< 330.		UG/KG	12/02/92		2,4-Dinitrophenol
PF-36A-N-25'	92.26696	121142	< 330.		UG/KG	12/02/92		2,4-Dinitrotoluene
PF-36A-N-25'	92.26696	606202	< 330.		UG/KG	12/02/92		2,6-Dinitrotoluene
PF-36A-N-25'	92.26696	206440	< 330.		UG/KG	12/02/92		Fluoranthene
PF-36A-N-25'	92.26696	86737	< 330.		UG/KG	12/02/92		Fluorene
PF-36A-N-25'	92.26696	118741	< 330.		UG/KG	12/02/92		Hexachlorobenzene
PF-36A-N-25'	92.26696	87683	< 330.		UG/KG	12/02/92		Hexachlorobutadiene
PF-36A-N-25'	92.26696	77474	< 330.		UG/KG	12/02/92		Hexachlorocyclopentadiene
PF-36A-N-25'	92.26696	67721	< 330.		UG/KG	12/02/92		Hexachloroethane
PF-36A-N-25'	92.26696	193395	< 330.		UG/KG	12/02/92		Indeno[1,2,3-cd]pyrene
PF-36A-N-25'	92.26696	78591	< 330.		UG/KG	12/02/92		Isophorone
PF-36A-N-25'	92.26696	534521	< 330.		UG/KG	12/02/92		2-Methyl-4,6-dinitrophenol
PF-36A-N-25'	92.26696	91576	< 330.		UG/KG	12/02/92		2-Methylnaphthalene
PF-36A-N-25'	92.26696	95487	< 330.		UG/KG	12/02/92		2-Methylphenol
PF-36A-N-25'	92.26696	106445	< 330.		UG/KG	12/02/92		4-Methylphenol
PF-36A-N-25'	92.26696	91203	< 330.		UG/KG	12/02/92		Naphthalene
PF-36A-N-25'	92.26696	88744	< 330.		UG/KG	12/02/92		2-Nitroaniline
PF-36A-N-25'	92.26696	99092	< 330.		UG/KG	12/02/92		3-Nitroaniline
PF-36A-N-25'	92.26696	100016	< 330.		UG/KG	12/02/92		4-Nitroaniline
PF-36A-N-25'	92.26696	98953	< 330.		UG/KG	12/02/92		Nitrobenzene
PF-36A-N-25'	92.26696	88755	< 330.		UG/KG	12/02/92		2-Nitrophenol
PF-36A-N-25'	92.26696	100027	< 330.		UG/KG	12/02/92		4-Nitrophenol
PF-36A-N-25'	92.26696	621647	< 330.		UG/KG	12/02/92		N-Nitrosodi-n-propylamine
PF-36A-N-25'	92.26696	62759	< 330.		UG/KG	12/02/92		N-Nitrosodimethylamine
PF-36A-N	92.26696	86306	< 330.		UG/KG	12/02/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-N-25'	92.26696	87865	< 330.		UG/KG	12/02/92		Pentachlorophenol
PF-36A-N-25'	92.26696	85018	< 330.		UG/KG	12/02/92		Phenanthrene
PF-36A-N-25'	92.26696	108952	< 330.		UG/KG	12/02/92		Phenol
PF-36A-N-25'	92.26696	129000	< 330.		UG/KG	12/02/92		Pyrene
PF-36A-N-25'	92.26696	120821	< 330.		UG/KG	12/02/92		1,2,4-Trichlorobenzene
PF-36A-N-25'	92.26696	95954	< 330.		UG/KG	12/02/92		2,4,5-Trichlorophenol
PF-36A-N-25'	92.26696	88062	< 330.		UG/KG	12/02/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.26696

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 9-Dec-1992

REQUEST NUMBER: 13439 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 117

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.26697 Date Collected: 8/25/92 Date Received: 8/26/92 Date Extracted: 9/03/92 Date Analyzed: 9/24/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-N-10R	92.26697	83329	< 330.		UG/KG	12/02/92		Acenaphthene
PF-36A-N-10R	92.26697	208968	< 330.		UG/KG	12/02/92		Acenaphthylene
PF-36A-N-10R	92.26697	62533	< 330.		UG/KG	12/02/92		Aniline
PF-36A-N-10R	92.26697	120127	< 330.		UG/KG	12/02/92		Anthracene
PF-36A-N-10R	92.26697	103333	< 330.		UG/KG	12/02/92		Azobenzene
PF-36A-N-10R	92.26697	92875	< 330.		UG/KG	12/02/92		m-Benzidine
PF-36A-N-10R	92.26697	56553	< 330.		UG/KG	12/02/92		Benzo[a]anthracene
PF-36A-N-10R	92.26697	50328	< 330.		UG/KG	12/02/92		Benzo[a]pyrene
PF-36A-N-10R	92.26697	205992	< 330.		UG/KG	12/02/92		Benzo[b]fluoranthene
PF-36A-N-10R	92.26697	191242	< 330.		UG/KG	12/02/92		Benzo[g,h,i]perylene
PF-36A-N-10R	92.26697	207089	< 330.		UG/KG	12/02/92		Benzo[k]fluoranthene
PF-36A-N-10R	92.26697	65850	< 330.		UG/KG	12/02/92		Benzoic acid
PF-36A-N-10R	92.26697	100516	< 330.		UG/KG	12/02/92		Benzyl alcohol
PF-36A-N-10R	92.26697	111911	< 330.		UG/KG	12/02/92		Bis(2-chloroethoxy)methane
PF-36A-N-10R	92.26697	111444	< 330.		UG/KG	12/02/92		Bis(2-chloroethyl)ether
PF-36A-N-10R	92.26697	108601	< 330.		UG/KG	12/02/92		Bis(2-chloroisopropyl)ether
PF-36A-N-10R	92.26697	117817	550.	165.	UG/KG	12/02/92		Bis(2-ethylhexyl)phthalate
PF-36A-N-10R	92.26697	101553	< 330.		UG/KG	12/02/92		4-Bromophenylphenyl ether
PF-36A-N-10R	92.26697	85687	< 330.		UG/KG	12/02/92		Butyl benzyl phthalate
PF-36A-N-10R	92.26697	59507	< 330.		UG/KG	12/02/92		4-Chloro-3-methylphenol
PF-36A-N-10R	92.26697	106478	< 330.		UG/KG	12/02/92		4-Chloroaniline
PF-36A-N-10R	92.26697	91587	< 330.		UG/KG	12/02/92		2-Chloronaphthalene
PF-36A-N-10R	92.26697	95578	< 330.		UG/KG	12/02/92		o-Chlorophenol
PF-36A-N-10R	92.26697	7005723	< 330.		UG/KG	12/02/92		4-Chlorophenylphenyl ether
PF-36A-N-10R	92.26697	218019	< 330.		UG/KG	12/02/92		Chrysene
PF-36A-	92.26697	84742	< 330.		UG/KG	12/02/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-N-10R	92.26697	117840	< 330.		UG/KG	12/02/92		Di-n-octyl phthalate
PF-36A-N-10R	92.26697	53703	< 330.		UG/KG	12/02/92		Dibenzo[a,h]anthracene
PF-36A-N-10R	92.26697	132649	< 330.		UG/KG	12/02/92		Dibenzofuran
PF-36A-N-10R	92.26697	95501	< 330.		UG/KG	12/02/92		o-Dichlorobenzene (1,2)
PF-36A-N-10R	92.26697	541731	< 330.		UG/KG	12/02/92		m-Dichlorobenzene (1,3)
PF-36A-N-10R	92.26697	106467	< 330.		UG/KG	12/02/92		p-Dichlorobenzene (1,4)
PF-36A-N-10R	92.26697	91941	< 330.		UG/KG	12/02/92		3,3'-Dichlorobenzidine
PF-36A-N-10R	92.26697	120832	< 330.		UG/KG	12/02/92		2,4-Dichlorophenol
PF-36A-N-10R	92.26697	84662	< 330.		UG/KG	12/02/92		Diethyl phthalate
PF-36A-N-10R	92.26697	131113	< 330.		UG/KG	12/02/92		Dimethyl phthalate
PF-36A-N-10R	92.26697	105679	< 330.		UG/KG	12/02/92		2,4-Dimethylphenol
PF-36A-N-10R	92.26697	51285	< 330.		UG/KG	12/02/92		2,4-Dinitrophenol
PF-36A-N-10R	92.26697	121142	< 330.		UG/KG	12/02/92		2,4-Dinitrotoluene
PF-36A-N-10R	92.26697	606202	< 330.		UG/KG	12/02/92		2,6-Dinitrotoluene
PF-36A-N-10R	92.26697	206440	< 330.		UG/KG	12/02/92		Fluoranthene
PF-36A-N-10R	92.26697	86737	< 330.		UG/KG	12/02/92		Fluorene
PF-36A-N-10R	92.26697	118741	< 330.		UG/KG	12/02/92		Hexachlorobenzene
PF-36A-N-10R	92.26697	87683	< 330.		UG/KG	12/02/92		Hexachlorobutadiene
PF-36A-N-10R	92.26697	77474	< 330.		UG/KG	12/02/92		Hexachlorocyclopentadiene
PF-36A-N-10R	92.26697	67721	< 330.		UG/KG	12/02/92		Hexachloroethane
PF-36A-N-10R	92.26697	193395	< 330.		UG/KG	12/02/92		Indeno[1,2,3-cd]pyrene
PF-36A-N-10R	92.26697	78591	< 330.		UG/KG	12/02/92		Isophorone
PF-36A-N-10R	92.26697	534521	< 330.		UG/KG	12/02/92		2-Methyl-4,6-dinitrophenol
PF-36A-N-10R	92.26697	91576	< 330.		UG/KG	12/02/92		2-Methylnaphthalene
PF-36A-N-10R	92.26697	95487	< 330.		UG/KG	12/02/92		2-Methylphenol
PF-36A-N-10R	92.26697	106445	< 330.		UG/KG	12/02/92		4-Methylphenol
PF-36A-N-10R	92.26697	91203	< 330.		UG/KG	12/02/92		Naphthalene
PF-36A-N-10R	92.26697	88744	< 330.		UG/KG	12/02/92		2-Nitroaniline
PF-36A-N-10R	92.26697	99092	< 330.		UG/KG	12/02/92		3-Nitroaniline
PF-36A-N-10R	92.26697	100016	< 330.		UG/KG	12/02/92		4-Nitroaniline
PF-36A-N-10R	92.26697	98953	< 330.		UG/KG	12/02/92		Nitrobenzene
PF-36A-N-10R	92.26697	88755	< 330.		UG/KG	12/02/92		2-Nitrophenol
PF-36A-N-10R	92.26697	100027	< 330.		UG/KG	12/02/92		4-Nitrophenol
PF-36A-N-10R	92.26697	621647	< 330.		UG/KG	12/02/92		N-Nitrosodi-n-propylamine
PF-36A-N-10R	92.26697	62759	< 330.		UG/KG	12/02/92		N-Nitrosodimethylamine
PF-36A-N-10R	92.26697	86306	< 330.		UG/KG	12/02/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-N-10R	92.26697	87865	< 330.		UG/KG	12/02/92		Pentachlorophenol
PF-36A-N-10R	92.26697	85018	< 330.		UG/KG	12/02/92		Phenanthrene
PF-36A-N-10R	92.26697	108952	< 330.		UG/KG	12/02/92		Phenol
PF-36A-N-10R	92.26697	129000	< 330.		UG/KG	12/02/92		Pyrene
PF-36A-N-10R	92.26697	120821	< 330.		UG/KG	12/02/92		1,2,4-Trichlorobenzene
PF-36A-N-10R	92.26697	95954	< 330.		UG/KG	12/02/92		2,4,5-Trichlorophenol
PF-36A-N-10R	92.26697	88062	< 330.		UG/KG	12/02/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.26697

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 9-Dec-1992

REQUEST NUMBER: 13439 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 117

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.26698 Date Collected: 8/25/92 Date Received: 8/26/92 Date Extracted: 9/03/92 Date Analyzed: 10/07/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-N-10'	92.26698	83329	< 330.		UG/KG	12/02/92		Acenaphthene
PF-36A-N-10'	92.26698	208968	< 330.		UG/KG	12/02/92		Acenaphthylene
PF-36A-N-10'	92.26698	62533	< 330.		UG/KG	12/02/92		Aniline
PF-36A-N-10'	92.26698	120127	< 330.		UG/KG	12/02/92		Anthracene
PF-36A-N-10'	92.26698	103333	< 330.		UG/KG	12/02/92		Azobenzene
PF-36A-N-10'	92.26698	92875	< 330.		UG/KG	12/02/92		m-Benzidine
PF-36A-N-10'	92.26698	56553	< 330.		UG/KG	12/02/92		Benzo[a]anthracene
PF-36A-N-10'	92.26698	50328	< 330.		UG/KG	12/02/92		Benzo[a]pyrene
PF-36A-N-10'	92.26698	205992	< 330.		UG/KG	12/02/92		Benzo[b]fluoranthene
PF-36A-N-10'	92.26698	191242	< 330.		UG/KG	12/02/92		Benzo[g,h,i]perylene
PF-36A-N-10'	92.26698	207089	< 330.		UG/KG	12/02/92		Benzo[k]fluoranthene
PF-36A-N-10'	92.26698	65850	< 330.		UG/KG	12/02/92		Benzoic acid
PF-36A-N-10'	92.26698	100516	< 330.		UG/KG	12/02/92		Benzyl alcohol
PF-36A-N-10'	92.26698	111911	< 330.		UG/KG	12/02/92		Bis(2-chloroethoxy)methane
PF-36A-N-10'	92.26698	111444	< 330.		UG/KG	12/02/92		Bis(2-chloroethyl)ether
PF-36A-N-10'	92.26698	108601	< 330.		UG/KG	12/02/92		Bis(2-chloroisopropyl)ether
PF-36A-N-10'	92.26698	117817	< 330.		UG/KG	12/02/92		Bis(2-ethylhexyl)phthalate
PF-36A-N-10'	92.26698	101553	< 330.		UG/KG	12/02/92		4-Bromophenylphenyl ether
PF-36A-N-10'	92.26698	85687	< 330.		UG/KG	12/02/92		Butyl benzyl phthalate
PF-36A-N-10'	92.26698	59507	< 330.		UG/KG	12/02/92		4-Chloro-3-methylphenol
PF-36A-N-10'	92.26698	106478	< 330.		UG/KG	12/02/92		4-Chloroaniline
PF-36A-N-10'	92.26698	91587	< 330.		UG/KG	12/02/92		2-Chloronaphthalene
PF-36A-N-10'	92.26698	95578	< 330.		UG/KG	12/02/92		o-Chlorophenol
PF-36A-N-10'	92.26698	7005723	< 330.		UG/KG	12/02/92		4-Chlorophenylphenyl ether
PF-36A-N-10'	92.26698	218019	< 330.		UG/KG	12/02/92		Chrysene
PF-36A-N-10'	92.26698	84742	< 330.		UG/KG	12/02/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-N-10'	92.26698	117840	< 330.		UG/KG	12/02/92		Di-n-octyl phthalate
PF-36A-N-10'	92.26698	53703	< 330.		UG/KG	12/02/92		Dibenzo[a,h]anthracene
PF-36A-N-10'	92.26698	132649	< 330.		UG/KG	12/02/92		Dibenzofuran
PF-36A-N-10'	92.26698	95501	< 330.		UG/KG	12/02/92		o-Dichlorobenzene (1,2)
PF-36A-N-10'	92.26698	541731	< 330.		UG/KG	12/02/92		m-Dichlorobenzene (1,3)
PF-36A-N-10'	92.26698	106467	< 330.		UG/KG	12/02/92		p-Dichlorobenzene (1,4)
PF-36A-N-10'	92.26698	91941	< 330.		UG/KG	12/02/92		3,3'-Dichlorobenzidine
PF-36A-N-10'	92.26698	120832	< 330.		UG/KG	12/02/92		2,4-Dichlorophenol
PF-36A-N-10'	92.26698	84662	< 330.		UG/KG	12/02/92		Diethyl phthalate
PF-36A-N-10'	92.26698	131113	< 330.		UG/KG	12/02/92		Dimethyl phthalate
PF-36A-N-10'	92.26698	105679	< 330.		UG/KG	12/02/92		2,4-Dimethylphenol
PF-36A-N-10'	92.26698	51285	< 330.		UG/KG	12/02/92		2,4-Dinitrophenol
PF-36A-N-10'	92.26698	121142	< 330.		UG/KG	12/02/92		2,4-Dinitrotoluene
PF-36A-N-10'	92.26698	606202	< 330.		UG/KG	12/02/92		2,6-Dinitrotoluene
PF-36A-N-10'	92.26698	206440	< 330.		UG/KG	12/02/92		Fluoranthene
PF-36A-N-10'	92.26698	86737	< 330.		UG/KG	12/02/92		Fluorene
PF-36A-N-10'	92.26698	118741	< 330.		UG/KG	12/02/92		Hexachlorobenzene
PF-36A-N-10'	92.26698	87683	< 330.		UG/KG	12/02/92		Hexachlorobutadiene
PF-36A-N-10'	92.26698	77474	< 330.		UG/KG	12/02/92		Hexachlorocyclopentadiene
PF-36A-N-10'	92.26698	67721	< 330.		UG/KG	12/02/92		Hexachloroethane
PF-36A-N-10'	92.26698	193395	< 330.		UG/KG	12/02/92		Indeno[1,2,3-cd]pyrene
PF-36A-N-10'	92.26698	78591	< 330.		UG/KG	12/02/92		Isophorone
PF-36A-N-10'	92.26698	534521	< 330.		UG/KG	12/02/92		2-Methyl-4,6-dinitrophenol
PF-36A-N-10'	92.26698	91576	< 330.		UG/KG	12/02/92		2-Methylnaphthalene
PF-36A-N-10'	92.26698	95487	< 330.		UG/KG	12/02/92		2-Methylphenol
PF-36A-N-10'	92.26698	106445	< 330.		UG/KG	12/02/92		4-Methylphenol
PF-36A-N-10'	92.26698	91203	< 330.		UG/KG	12/02/92		Naphthalene
PF-36A-N-10'	92.26698	88744	< 330.		UG/KG	12/02/92		2-Nitroaniline
PF-36A-N-10'	92.26698	99092	< 330.		UG/KG	12/02/92		3-Nitroaniline
PF-36A-N-10'	92.26698	100016	< 330.		UG/KG	12/02/92		4-Nitroaniline
PF-36A-N-10'	92.26698	98953	< 330.		UG/KG	12/02/92		Nitrobenzene
PF-36A-N-10'	92.26698	88755	< 330.		UG/KG	12/02/92		2-Nitrophenol
PF-36A-N-10'	92.26698	100027	< 330.		UG/KG	12/02/92		4-Nitrophenol
PF-36A-N-10'	92.26698	621647	< 330.		UG/KG	12/02/92		N-Nitrosodi-n-propylamine
PF-36A-N-10'	92.26698	62759	< 330.		UG/KG	12/02/92		N-Nitrosodimethylamine
PF-36A-N-10'	92.26698	86306	< 330.		UG/KG	12/02/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-N-10'	92.26698	87865	< 330.		UG/KG	12/02/92		Pentachlorophenol
PF-36A-N-10'	92.26698	85018	< 330.		UG/KG	12/02/92		Phenanthrene
PF-36A-N-10'	92.26698	108952	< 330.		UG/KG	12/02/92		Phenol
PF-36A-N-10'	92.26698	129000	< 330.		UG/KG	12/02/92		Pyrene
PF-36A-N-10'	92.26698	120821	< 330.		UG/KG	12/02/92		1,2,4-Trichlorobenzene
PF-36A-N-10'	92.26698	95954	< 330.		UG/KG	12/02/92		2,4,5-Trichlorophenol
PF-36A-N-10'	92.26698	88062	< 330.		UG/KG	12/02/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.26698

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 9-Dec-1992

REQUEST NUMBER: 13439 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 117

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.26699 Date Collected: 8/25/92 Date Received: 8/26/92 Date Extracted: 9/03/92 Date Analyzed: 9/29/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-N-5'	92.26699	83329	< 330.		UG/KG	12/02/92		Acenaphthene
PF-36A-N-5'	92.26699	208968	< 330.		UG/KG	12/02/92		Acenaphthylene
PF-36A-N-5'	92.26699	62533	< 330.		UG/KG	12/02/92		Aniline
PF-36A-N-5'	92.26699	120127	< 330.		UG/KG	12/02/92		Anthracene
PF-36A-N-5'	92.26699	103333	< 330.		UG/KG	12/02/92		Azobenzene
PF-36A-N-5'	92.26699	92875	< 330.		UG/KG	12/02/92		m-Benzidine
PF-36A-N-5'	92.26699	56553	< 330.		UG/KG	12/02/92		Benzo[a]anthracene
PF-36A-N-5'	92.26699	50328	< 330.		UG/KG	12/02/92		Benzo[a]pyrene
PF-36A-N-5'	92.26699	205992	< 330.		UG/KG	12/02/92		Benzo[b]fluoranthene
PF-36A-N-5'	92.26699	191242	< 330.		UG/KG	12/02/92		Benzo[g,h,i]perylene
PF-36A-N-5'	92.26699	207089	< 330.		UG/KG	12/02/92		Benzo[k]fluoranthene
PF-36A-N-5'	92.26699	65850	< 330.		UG/KG	12/02/92		Benzoic acid
PF-36A-N-5'	92.26699	100516	< 330.		UG/KG	12/02/92		Benzyl alcohol
PF-36A-N-5'	92.26699	111911	< 330.		UG/KG	12/02/92		Bis(2-chloroethoxy)methane
PF-36A-N-5'	92.26699	111444	< 330.		UG/KG	12/02/92		Bis(2-chloroethyl)ether
PF-36A-N-5'	92.26699	108601	< 330.		UG/KG	12/02/92		Bis(2-chloroisopropyl)ether
PF-36A-N-5'	92.26699	117817	480.	144.	UG/KG	12/02/92		Bis(2-ethylhexyl)phthalate
PF-36A-N-5'	92.26699	101553	< 330.		UG/KG	12/02/92		4-Bromophenylphenyl ether
PF-36A-N-5'	92.26699	85687	< 330.		UG/KG	12/02/92		Butyl benzyl phthalate
PF-36A-N-5'	92.26699	59507	< 330.		UG/KG	12/02/92		4-Chloro-3-methylphenol
PF-36A-N-5'	92.26699	106478	< 330.		UG/KG	12/02/92		4-Chloroaniline
PF-36A-N-5'	92.26699	91587	< 330.		UG/KG	12/02/92		2-Chloronaphthalene
PF-36A-N-5'	92.26699	95578	< 330.		UG/KG	12/02/92		o-Chlorophenol
PF-36A-N-5'	92.26699	7005723	< 330.		UG/KG	12/02/92		4-Chlorophenylphenyl ether
PF-36A-N-5'	92.26699	218019	< 330.		UG/KG	12/02/92		Chrysene
PF-36A-N-5'	92.26699	84742	< 330.		UG/KG	12/02/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-N-5'	92.26699	117840	< 330.		UG/KG	12/02/92		Di-n-octyl phthalate
PF-36A-N-5'	92.26699	53703	< 330.		UG/KG	12/02/92		Dibenzo[a,h]anthracene
PF-36A-N-5'	92.26699	132649	< 330.		UG/KG	12/02/92		Dibenzofuran
PF-36A-N-5'	92.26699	95501	< 330.		UG/KG	12/02/92		o-Dichlorobenzene (1,2)
PF-36A-N-5'	92.26699	541731	< 330.		UG/KG	12/02/92		m-Dichlorobenzene (1,3)
PF-36A-N-5'	92.26699	106467	< 330.		UG/KG	12/02/92		p-Dichlorobenzene (1,4)
PF-36A-N-5'	92.26699	91941	< 330.		UG/KG	12/02/92		3,3'-Dichlorobenzidine
PF-36A-N-5'	92.26699	120832	< 330.		UG/KG	12/02/92		2,4-Dichlorophenol
PF-36A-N-5'	92.26699	84662	< 330.		UG/KG	12/02/92		Diethyl phthalate
PF-36A-N-5'	92.26699	131113	< 330.		UG/KG	12/02/92		Dimethyl phthalate
PF-36A-N-5'	92.26699	105679	< 330.		UG/KG	12/02/92		2,4-Dimethylphenol
PF-36A-N-5'	92.26699	51285	< 330.		UG/KG	12/02/92		2,4-Dinitrophenol
PF-36A-N-5'	92.26699	121142	< 330.		UG/KG	12/02/92		2,4-Dinitrotoluene
PF-36A-N-5'	92.26699	606202	< 330.		UG/KG	12/02/92		2,6-Dinitrotoluene
PF-36A-N-5'	92.26699	206440	< 330.		UG/KG	12/02/92		Fluoranthene
PF-36A-N-5'	92.26699	86737	< 330.		UG/KG	12/02/92		Fluorene
PF-36A-N-5'	92.26699	118741	< 330.		UG/KG	12/02/92		Hexachlorobenzene
PF-36A-N-5'	92.26699	87683	< 330.		UG/KG	12/02/92		Hexachlorobutadiene
PF-36A-N-5'	92.26699	77474	< 330.		UG/KG	12/02/92		Hexachlorocyclopentadiene
PF-36A-N-5'	92.26699	67721	< 330.		UG/KG	12/02/92		Hexachloroethane
PF-36A-N-5'	92.26699	193395	< 330.		UG/KG	12/02/92		Indeno[1,2,3-cd]pyrene
PF-36A-N-5'	92.26699	78591	< 330.		UG/KG	12/02/92		Isophorone
PF-36A-N-5'	92.26699	534521	< 330.		UG/KG	12/02/92		2-Methyl-4,6-dinitrophenol
PF-36A-N-5'	92.26699	91576	< 330.		UG/KG	12/02/92		2-Methylnaphthalene
PF-36A-N-5'	92.26699	95487	< 330.		UG/KG	12/02/92		2-Methylphenol
PF-36A-N-5'	92.26699	106445	< 330.		UG/KG	12/02/92		4-Methylphenol
PF-36A-N-5'	92.26699	91203	< 330.		UG/KG	12/02/92		Naphthalene
PF-36A-N-5'	92.26699	88744	< 330.		UG/KG	12/02/92		2-Nitroaniline
PF-36A-N-5'	92.26699	99092	< 330.		UG/KG	12/02/92		3-Nitroaniline
PF-36A-N-5'	92.26699	100016	< 330.		UG/KG	12/02/92		4-Nitroaniline
PF-36A-N-5'	92.26699	98953	< 330.		UG/KG	12/02/92		Nitrobenzene
PF-36A-N-5'	92.26699	88755	< 330.		UG/KG	12/02/92		2-Nitrophenol
PF-36A-N-5'	92.26699	100027	< 330.		UG/KG	12/02/92		4-Nitrophenol
PF-36A-N-5'	92.26699	621647	< 330.		UG/KG	12/02/92		N-Nitrosodi-n-propylamine
PF-36A-N-5'	92.26699	62759	< 330.		UG/KG	12/02/92		N-Nitrosodimethylamine
PF-36A-N-5'	92.26699	86306	< 330.		UG/KG	12/02/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-N-5'	92.26699	87865	< 330.		UG/KG	12/02/92		Pentachlorophenol
PF-36A-N-5'	92.26699	85018	< 330.		UG/KG	12/02/92		Phenanthrene
PF-36A-N-5'	92.26699	108952	< 330.		UG/KG	12/02/92		Phenol
PF-36A-N-5'	92.26699	129000	< 330.		UG/KG	12/02/92		Pyrene
PF-36A-N-5'	92.26699	120821	< 330.		UG/KG	12/02/92		1,2,4-Trichlorobenzene
PF-36A-N-5'	92.26699	95954	< 330.		UG/KG	12/02/92		2,4,5-Trichlorophenol
PF-36A-N-5'	92.26699	88062	< 330.		UG/KG	12/02/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.26699

none

********** EM-9 QUALITY ASSURANCE REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 9-Dec-1992

REQUEST NUMBER: 13439 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 117

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QA SAMPLES RUN WITH THIS BATCH

There were no open (non-blind) Quality Control materials run with the samples reported above for one of the following reasons:

____ Only qualitative data requested

____ Only Blind QC samples run with this batch.

____ No QC samples run with this sample batch.

____ No QC samples for this constituent and matrix type available within EM-9

********** EM-9 QUALITY ASSURANCE REPORT **********

SUMMARY OF CONTROL STATUS OF BLANK QC SAMPLES RUN WITH THIS BATCH

Blank Results, Sample # 92.26725 Date Collected: 8/26/92 Date Received: 8/26/92 Date Extracted: 8/31/92 Date Analyzed: 9/24/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND NAME
00.20227	92.26725	83329	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Acenaphthene
00.20227	92.26725	208968	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Acenaphthylene
00.20227	92.26725	62533	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Aniline
00.20227	92.26725	120127	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Anthracene
00.20227	92.26725	103333	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Azobenzene
00.20227	92.26725	92875	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	m-Benzidine
00.20227	92.26725	56553	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Benzo[a]anthracene
00.20227	92.26725	50328	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Benzo[a]pyrene
00.20227	92.26725	205992	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Benzo[b]fluoranthene
00.20227	92.26725	191242	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Benzo[g,h,i]perylene
00.20227	92.26725	207089	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Benzo[k]fluoranthene
00.20227	92.26725	65850	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Benzoic acid
00.20227	92.26725	100516	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Benzyl alcohol
00.20227	92.26725	111911	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Bis(2-chloroethoxy)methane
00.20227	92.26725	111444	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Bis(2-chloroethyl)ether
00.20227	92.26725	108601	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Bis(2-chloroisopropyl)ether
00.20227	92.26725	117817	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Bis(2-ethylhexyl)phthalate
00.20227	92.26725	101553	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	4-Bromophenylphenyl ether
00.20227	92.26725	85687	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Butyl benzyl phthalate
00.20227	92.26725	59507	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	4-Chloro-3-methylphenol
00.20227	92.26725	106478	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	4-Chloroaniline

********** EM-9 QUALITY ASSURANCE REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND NAME
00.20227	92.26725	91587	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	2-Chloronaphthalene
00.20227	92.26725	95578	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	o-Chlorophenol
00.20227	92.26725	7005723	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	4-Chlorophenylphenyl ether
00.20227	92.26725	218019	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Chrysene
00.20227	92.26725	84742	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Di-n-butyl phthalate
00.20227	92.26725	117840	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Di-n-octyl phthalate
00.20227	92.26725	53703	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Dibenzo[a,h]anthracene
00.20227	92.26725	132649	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Dibenzofuran
00.20227	92.26725	95501	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	o-Dichlorobenzene (1,2)
00.20227	92.26725	541731	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	m-Dichlorobenzene (1,3)
00.20227	92.26725	106467	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	p-Dichlorobenzene (1,4)
00.20227	92.26725	91941	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	3,3'-Dichlorobenzidine
00.20227	92.26725	120832	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	2,4-Dichlorophenol
00.20227	92.26725	84662	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Diethyl phthalate
00.20227	92.26725	131113	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Dimethyl phthalate
00.20227	92.26725	105679	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	2,4-Dimethylphenol
00.20227	92.26725	51285	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	2,4-Dinitrophenol
00.20227	92.26725	121142	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	2,4-Dinitrotoluene
00.20227	92.26725	606202	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	2,6-Dinitrotoluene
00.20227	92.26725	206440	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Fluoranthene
00.20227	92.26725	86737	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Fluorene
00.20227	92.26725	118741	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Hexachlorobenzene
00.20227	92.26725	87683	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Hexachlorobutadiene
00.20227	92.26725	77474	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Hexachlorocyclopentadiene
00.20227	92.26725	67721	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Hexachloroethane
00.20227	92.26725	193395	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Indeno[1,2,3-cd]pyrene
00.20227	92.26725	78591	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Isophorone
00.20227	92.26725	534521	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	2-Methyl-4,6-dinitrophenol
00.20227	92.26725	91576	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	2-Methylnaphthalene
00.20227	92.26725	95487	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	2-Methylphenol
00.20227	92.26725	106445	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	4-Methylphenol
00.20227	92.26725	91203	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Naphthalene
00.20227	92.26725	88744	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	2-Nitroaniline
00.20227	92.26725	99092	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	3-Nitroaniline
00.20227	92.26725	100016	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	4-Nitroaniline
00.20227	92.26725	98953	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Nitrobenzene

********** EM-9 QUALITY ASSURANCE REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND NAME
00.20227	92.26725	88755	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	2-Nitrophenol
00.20227	92.26725	100027	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	4-Nitrophenol
00.20227	92.26725	621647	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	N-Nitrosodi-n-propylamine
00.20227	92.26725	62759	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	N-Nitrosodimethylamine
00.20227	92.26725	86306	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	N-Nitrosodiphenylamine
00.20227	92.26725	87865	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Pentachlorophenol
00.20227	92.26725	85018	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Phenanthrene
00.20227	92.26725	108952	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Phenol
00.20227	92.26725	129000	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Pyrene
00.20227	92.26725	120821	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	1,2,4-Trichlorobenzene
00.20227	92.26725	95954	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	2,4,5-Trichlorophenol
00.20227	92.26725	88062	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	2,4,6-Trichlorophenol

Blank Results, Sample # 92.26726 Date Collected: 8/26/92 Date Received: 8/26/92 Date Extracted: 9/03/92 Date Analyzed: 9/24/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND NAME
00.20227	92.26726	83329	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Acenaphthene
00.20227	92.26726	208968	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Acenaphthylene
00.20227	92.26726	62533	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Aniline
00.20227	92.26726	120127	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Anthracene
00.20227	92.26726	103333	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Azobenzene
00.20227	92.26726	92875	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	m-Benzidine
00.20227	92.26726	56553	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Benzo[a]anthracene
00.20227	92.26726	50328	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Benzo[a]pyrene
00.20227	92.26726	205992	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Benzo[b]fluoranthene

********** EM-9 QUALITY ASSURANCE REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND NAME
00.20227	92.26726	191242	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Benzo[g,h,i]perylene
00.20227	92.26726	207089	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Benzo[k]fluoranthene
00.20227	92.26726	65850	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Benzoic acid
00.20227	92.26726	100516	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Benzyl alcohol
00.20227	92.26726	111911	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Bis(2-chloroethoxy)methane
00.20227	92.26726	111444	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Bis(2-chloroethyl)ether
00.20227	92.26726	108601	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Bis(2-chloroisopropyl)ether
00.20227	92.26726	117817	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Bis(2-ethylhexyl)phthalate
00.20227	92.26726	101553	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	4-Bromophenylphenyl ether
00.20227	92.26726	85687	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Butyl benzyl phthalate
00.20227	92.26726	59507	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	4-Chloro-3-methylphenol
00.20227	92.26726	106478	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	4-Chloroaniline
00.20227	92.26726	91587	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	2-Chloronaphthalene
00.20227	92.26726	95578	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	o-Chlorophenol
00.20227	92.26726	7005723	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	4-Chlorophenylphenyl ether
00.20227	92.26726	218019	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Chrysene
00.20227	92.26726	84742	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Di-n-butyl phthalate
00.20227	92.26726	117840	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Di-n-octyl phthalate
00.20227	92.26726	53703	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Dibenzo[a,h]anthracene
00.20227	92.26726	132649	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Dibenzofuran
00.20227	92.26726	95501	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	o-Dichlorobenzene (1,2)
00.20227	92.26726	541731	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	m-Dichlorobenzene (1,3)
00.20227	92.26726	106467	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	p-Dichlorobenzene (1,4)
00.20227	92.26726	91941	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	3,3'-Dichlorobenzidine
00.20227	92.26726	120832	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	2,4-Dichlorophenol
00.20227	92.26726	84662	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Diethyl phthalate
00.20227	92.26726	131113	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Dimethyl phthalate
00.20227	92.26726	105679	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	2,4-Dimethylphenol
00.20227	92.26726	51285	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	2,4-Dinitrophenol
00.20227	92.26726	121142	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	2,4-Dinitrotoluene
00.20227	92.26726	606202	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	2,6-Dinitrotoluene
00.20227	92.26726	206440	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Fluoranthene
00.20227	92.26726	86737	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Fluorene
00.20227	92.26726	118741	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Hexachlorobenzene
00.20227	92.26726	87683	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Hexachlorobutadiene
00.20227	92.26726	77474	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Hexachlorocyclopentadiene

********** EM-9 QUALITY ASSURANCE REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND NAME
00.20227	92.26726	67721	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Hexachloroethane
00.20227	92.26726	193395	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Indeno[1,2,3-cd]pyrene
00.20227	92.26726	78591	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Isophorone
00.20227	92.26726	534521	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	2-Methyl-4,6-dinitrophenol
00.20227	92.26726	91576	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	2-Methylnaphthalene
00.20227	92.26726	95487	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	2-Methylphenol
00.20227	92.26726	106445	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	4-Methylphenol
00.20227	92.26726	91203	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Naphthalene
00.20227	92.26726	88744	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	2-Nitroaniline
00.20227	92.26726	99092	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	3-Nitroaniline
00.20227	92.26726	100016	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	4-Nitroaniline
00.20227	92.26726	98953	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Nitrobenzene
00.20227	92.26726	88755	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	2-Nitrophenol
00.20227	92.26726	100027	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	4-Nitrophenol
00.20227	92.26726	621647	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	N-Nitrosodi-n-propylamine
00.20227	92.26726	62759	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	N-Nitrosodimethylamine
00.20227	92.26726	86306	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	N-Nitrosodiphenylamine
00.20227	92.26726	87865	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Pentachlorophenol
00.20227	92.26726	85018	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Phenanthrene
00.20227	92.26726	108952	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Phenol
00.20227	92.26726	129000	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	Pyrene
00.20227	92.26726	120821	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	1,2,4-Trichlorobenzene
00.20227	92.26726	95954	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	2,4,5-Trichlorophenol
00.20227	92.26726	88062	< 330.		UG/KG	0.0		12/02/92	UNDER CONTROL	2,4,6-Trichlorophenol

Blank Spike Results: none

Blank Spike Duplicate Results: none

********** EM-9 QUALITY ASSURANCE REPORT **********

SUMMARY OF CONTROL STATUS OF BLIND QA SAMPLES RUN WITH THIS BATCH

Blind QC Results, Sample # 92.26723 Date Collected: 8/26/92 Date Received: 8/26/92 Date Extracted: 8/31/92 Date Analyzed: 9/24/92

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND-NAME
92.26723	83329	2.4	0.72	MG/KG	5.	0.5	12/02/92	WARNING 2-3 SIG	Acenaphthene
92.26723	208968	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Acenaphthylene
92.26723	62533	0.36	0.108	MG/KG	5.8	0.6	12/02/92	OUT OF CONTROL	Aniline
92.26723	120127	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Anthracene
92.26723	103333	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Azobenzene
92.26723	92875	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	m-Benzidine
92.26723	56553	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Benzo[a]anthracene
92.26723	50328	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Benzo[a]pyrene
92.26723	205992	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Benzo[b]fluoranthene
92.26723	191242	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Benzo[g,h,i]perylene
92.26723	207089	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Benzo[k]fluoranthene
92.26723	65850	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Benzoic acid
92.26723	100516	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Benzyl alcohol
92.26723	111911	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Bis(2-chloroethoxy)methane
92.26723	111444	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Bis(2-chloroethyl)ether
92.26723	108601	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Bis(2-chloroisopropyl)ether
92.26723	117817	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Bis(2-ethylhexyl)phthalate
92.26723	101553	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	4-Bromophenylphenyl ether
92.26723	85687	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Butyl benzyl phthalate
92.26723	59507	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	4-Chloro-3-methylphenol
92.26723	106478	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	4-Chloroaniline
92.26723	91587	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	2-Chloronaphthalene
92.26723	95578	1.7	0.51	MG/KG	5.4	0.5	12/02/92	OUT OF CONTROL	o-Chlorophenol
92.26723	7005723	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	4-Chlorophenylphenyl ether
92.26723	218019	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Chrysene
92.26723	84742	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Di-n-butyl phthalate

92.26723	117840	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Di-n-octyl phthalate
92.26723	53703	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Dibenzo[a,h]anthracene
92.26723	132649	2.3	0.69	MG/KG	4.7	0.5	12/02/92	WARNING 2-3 SIG	Dibenzofuran
92.26723	95501	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	o-Dichlorobenzene (1,2)
92.26723	541731	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	m-Dichlorobenzene (1,3)
92.26723	106467	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	p-Dichlorobenzene (1,4)
92.26723	91941	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	3,3'-Dichlorobenzidine
92.26723	120832	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	2,4-Dichlorophenol
92.26723	84662	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Diethyl phthalate
92.26723	131113	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Dimethyl phthalate
92.26723	105679	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	2,4-Dimethylphenol
92.26723	51285	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	2,4-Dinitrophenol
92.26723	121142	3.8	1.14	MG/KG	7.	0.7	12/02/92	WARNING 2-3 SIG	2,4-Dinitrotoluene
92.26723	606202	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	2,6-Dinitrotoluene
92.26723	206440	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Fluoranthene
92.26723	86737	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Fluorene
92.26723	118741	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Hexachlorobenzene
92.26723	87683	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Hexachlorobutadiene
92.26723	77474	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Hexachlorocyclopentadiene
92.26723	67721	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Hexachloroethane
92.26723	193395	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Indeno[1,2,3-cd]pyrene
92.26723	78591	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Isophorone
92.26723	534521	2.4	0.72	MG/KG	5.1	0.5	12/02/92	OUT OF CONTROL	2-Methyl-4,6-dinitrophenol
92.26723	91576	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	2-Methylnaphthalene
92.26723	95487	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	2-Methylphenol
92.26723	106445	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	4-Methylphenol
92.26723	91203	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Naphthalene
92.26723	88744	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	2-Nitroaniline
92.26723	99092	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	3-Nitroaniline
92.26723	100016	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	4-Nitroaniline
92.26723	98953	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Nitrobenzene
92.26723	88755	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	2-Nitrophenol
92.26723	100027	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	4-Nitrophenol
92.26723	621647	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	N-Nitrosodi-n-propylamine
92.26723	62759	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	N-Nitrosodimethylamine
92.26723	86306	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	N-Nitrosodiphenylamine
92.26723	87865	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Pentachlorophenol
92.26723	85018	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Phenanthrene
92.26723	108952	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Phenol
92.26723	129000	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Pyrene
92.26723	120821	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	1,2,4-Trichlorobenzene
92.26723	95954	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	2,4,5-Trichlorophenol
92.26723	88062	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	2,4,6-Trichlorophenol

Blind QC Results, Sample # 92.26724 Date Collected: 8/26/92 Date Received: 8/26/92 Date Extracted: 9/03/92 Date Analyzed: 9/24/92

92.26724	83329	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Acenaphthene
92.26724	208968	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Acenaphthylene
92.26724	62533	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Aniline
92.26724	120127	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Anthracene
92.26724	103333	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Azobenzene
92.26724	92875	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	m-Benzidine
92.26724	56553	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Benzo[a]anthracene
92.26724	50328	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Benzo[a]pyrene
92.26724	205992	2.7	0.81	MG/KG	4.4	0.4	12/02/92	UNDER CONTROL	Benzo[b]fluoranthene
92.26724	191242	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Benzo[g,h,i]perylene
92.26724	207089	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Benzo[k]fluoranthene
92.26724	65850	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Benzoic acid
92.26724	100516	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Benzyl alcohol
92.26724	111911	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Bis(2-chloroethoxy)methane
92.26724	111444	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Bis(2-chloroethyl)ether
92.26724	108601	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Bis(2-chloroisopropyl)ether
92.26724	117817	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Bis(2-ethylhexyl)phthalate
92.26724	101553	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	4-Bromophenylphenyl ether
92.26724	85687	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Butyl benzyl phthalate
92.26724	59507	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	4-Chloro-3-methylphenol
92.26724	106478	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	4-Chloroaniline
92.26724	91587	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	2-Chloronaphthalene
92.26724	95578	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	o-Chlorophenol
92.26724	7005723	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	4-Chlorophenylphenyl ether
92.26724	218019	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Chrysene
92.26724	84742	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Di-n-butyl phthalate
92.26724	117840	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Di-n-octyl phthalate
92.26724	53703	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Dibenzo[a,h]anthracene
92.26724	132649	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Dibenzofuran
92.26724	95501	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	o-Dichlorobenzene (1,2)
92.26724	541731	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	m-Dichlorobenzene (1,3)
92.26724	106467	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	p-Dichlorobenzene (1,4)
92.26724	91941	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	3,3'-Dichlorobenzidine
92.26724	120832	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	2,4-Dichlorophenol
92.26724	84662	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Diethyl phthalate
92.26724	131113	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Dimethyl phthalate
92.26724	105679	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	2,4-Dimethylphenol
92.26724	51285	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	2,4-Dinitrophenol
92.26724	121142	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	2,4-Dinitrotoluene
92.26724	606202	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	2,6-Dinitrotoluene
92.26724	206440	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Fluoranthene
92.26724	86737	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Fluorene
92.26724	118741	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Hexachlorobenzene

92.26724	87683	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Hexachlorobutadiene
92.26724	77474	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Hexachlorocyclopentadiene
92.26724	67721	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Hexachloroethane
92.26724	193395	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Indeno[1,2,3-cd]pyrene
92.26724	78591	2.5	0.75	MG/KG	4.1	0.4	12/02/92	UNDER CONTROL	Isophorone
92.26724	534521	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	2-Methyl-4,6-dinitrophenol
92.26724	91576	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	2-Methylnaphthalene
92.26724	95487	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	2-Methylphenol
92.26724	106445	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	4-Methylphenol
92.26724	91203	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Naphthalene
92.26724	88744	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	2-Nitroaniline
92.26724	99092	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	3-Nitroaniline
92.26724	100016	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	4-Nitroaniline
92.26724	98953	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Nitrobenzene
92.26724	88755	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	2-Nitrophenol
92.26724	100027	2.	0.6	MG/KG	4.1	0.4	12/02/92	WARNING 2-3 SIG	4-Nitrophenol
92.26724	621647	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	N-Nitrosodi-n-propylamine
92.26724	62759	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	N-Nitrosodimethylamine
92.26724	86306	2.6	0.78	MG/KG	4.9	0.5	12/02/92	WARNING 2-3 SIG	N-Nitrosodiphenylamine
92.26724	87865	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Pentachlorophenol
92.26724	85018	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	Phenanthrene
92.26724	108952	1.8	0.54	MG/KG	4.6	0.5	12/02/92	OUT OF CONTROL	Phenol
92.26724	129000	2.6	0.78	MG/KG	4.3	0.4	12/02/92	UNDER CONTROL	Pyrene
92.26724	120821	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	1,2,4-Trichlorobenzene
92.26724	95954	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	2,4,5-Trichlorophenol
92.26724	88062	< 0.33		MG/KG	0.0		12/02/92	UNDER CONTROL	2,4,6-Trichlorophenol

********** EM-9 QUALITY ASSURANCE REPORT **********

SURROGATE RESULTS FOR EPA SEMIVOLATILES

Surrogate 1 = 2-Fluorophenol (CAS # = 367124)
Surrogate 2 = Phenol-d5 (CAS # = 4165622)
Surrogate 3 = Nitrobenzene-d5 (CAS # = 4165600)
Surrogate 4 = 2-Fluorobiphenyl (CAS # = 321608)
Surrogate 5 = 2,4,6-Tribromophenol (CAS # = 118796)
Surrogate 6 = p-Terphenyl-d14 (CAS # =)

SAMPLE NUMBER	UNITS	Surrogate 1	Surrogate 2	Surrogate 3	Surrogate 4	Surrogate 5	Surrogate 6	COMPLETION DATE
92.26406	%	52.49	62.72	64.72	72.96	93.32	104.04	2-Dec-1992
92.26406	%	57.35	63.24	62.46	71.9	90.99	100.28	2-Dec-1992
92.26677	%	29.31	33.96	32.16	41.74	77.52	58.38	2-Dec-1992
92.26677	%	32.05	38.16	42.12	56.64	61.47	102.82	9-Dec-1992
92.26677	%	43.19	48.29	49.96	61.92	58.5	111.	9-Dec-1992
92.26678	%	48.1	53.65	53.48	59.02	60.18	68.58	2-Dec-1992
92.26679	%	30.54	41.02	35.92	51.92	64.68	75.86	2-Dec-1992
92.26680	%	40.33	47.05	46.82	56.86	71.1	77.22	2-Dec-1992
92.26681	%	23.82	28.52	26.44	37.84	51.49	70.96	2-Dec-1992
92.26682	%	21.89	26.75	25.92	38.9	41.32	47.74	2-Dec-1992
92.26683	%	27.5	32.76	29.96	38.34	57.31	66.76	2-Dec-1992
92.26684	%	45.	50.87	45.64	55.06	58.58	75.9	2-Dec-1992
92.26685	%	25.32	33.08	29.14	49.7	51.62	63.16	2-Dec-1992
92.26686	%	25.36	30.79	27.42	39.38	41.41	63.74	2-Dec-1992
92.26687	%	26.81	33.19	31.42	41.6	43.75	49.4	2-Dec-1992
92.26688	%	52.26	57.57	56.34	83.46	70.17	80.16	2-Dec-1992
92.26689	%	33.48	43.71	41.4	68.28	74.16	90.96	2-Dec-1992
92.26690	%	29.2	42.84	37.44	71.68	67.84	81.52	2-Dec-1992
92.26691	%	47.48	54.52	54.48	78.8	64.36	98.48	2-Dec-1992
92.26692	%	58.15	65.01	65.	73.44	83.47	97.68	2-Dec-1992
92.26693	%	25.64	29.26	27.74	39.04	36.71	59.52	2-Dec-1992
92.26694	%	50.51	65.95	66.82	74.92	70.49	88.96	2-Dec-1992
92.26695	%	21.63	26.25	23.18	33.76	40.94	69.46	2-Dec-1992
92.26696	%	36.39	45.46	41.32	58.72	69.91	82.24	2-Dec-1992

********** EM-9 QUALITY ASSURANCE REPORT **********

SAMPLE NUMBER	UNITS	Surrogate 1	Surrogate 2	Surrogate 3	Surrogate 4	Surrogate 5	Surrogate 6	COMPLETION DATE
92.26697	%	7.75	21.94	15.3	45.2	78.17	72.36	2-Dec-1992
92.26698	%	34.6	36.76	35.38	45.3	46.75	49.28	2-Dec-1992
92.26699	%	24.	33.9	30.62	43.98	38.76	66.68	2-Dec-1992
92.26723	%	28.8	33.58	32.16	46.86	71.45	82.74	2-Dec-1992
92.26724	%	33.47	43.69	40.68	60.2	63.34	76.24	2-Dec-1992
92.26725	%	42.18	46.4	48.66	52.76	63.53	74.38	2-Dec-1992
92.26726	%	0.0		0.0	10.44	72.64	86.3	2-Dec-1992
EPA Limits:								
Water	%	21 - 100	10 - 94	35 - 114	43 - 116	10 - 123	33 - 141	
Soil	%	25 - 121	24 - 113	23 - 120	30 - 115	19 - 122	18 - 137	

REPORT NUMBER: 16239

Analyst	Reviewer	Section Leader	QA Officer
12/11/92	12/10/92	12/09/92	12/21/92
Date	Date	Date	Date

No Sample Discrepancies Noted by Sample Management Section

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in
'Quality Assurance for Health and Environmental Chemistry: 1986,' LA-11114-MS, pp. 3-4.

36B

EM-9 SEMIVOLATILE ORGANIC ANALYSIS
SUMMARY OF ANALYTICAL RESULTS

TO: Philip R. Fresquez
FROM: Kevin M. Cantrell, EM-9 Organic section
THROUGH: Chris Leibman, EM-9 Organic section leader
Anthony Lombardo, EM-9 Organic section

POM for C.L. 11/18/92

REQUEST NUMBER: 13503
MATRIX: Soil
SUMMARY DATE: November 2, 1992

ppb

SAMPLE ID	TARGET COMPOUNDS FOUND	AMOUNT (ug/Kg)	LOQ (ug/Kg)	TICs	
92.27504 (Blank)	NONE	<330	330	N	
92.27505 (Blank)	NONE	<330	330	Y	
92.27444	NONE	<330	330	Y	
92.27445	NONE	<660	660	Y	
92.27446	NONE	<660	660	N	
92.27447	Di-n-butylphthalate	960	660	Y	< 5000 ppm
92.27448	NONE	<330	330	Y	
92.27449	NONE	<330	330	Y	
92.27450	NONE	<1700	1700	Y	
92.27451	NONE	<330	330	Y	
92.27452	NONE	<1600	1600	Y	
92.27453	NONE	<660	660	Y	
92.27454	NONE	<330	330	Y	
92.27455	NONE	<330	330	Y	
92.27456	NONE	<330	330	Y	
92.27457	NONE	<330	330	Y	
92.27458	NONE	<330	330	Y	
92.27459	NONE	<330	330	Y	
92.27460	Bis-2-ethylhexylphthalate	390	330	Y	< 50 ppm
92.27461	NONE	<660	660	N	
92.27462	NONE	<330	330	Y	
92.27463	NONE	<330	330	Y	
92.27464	Phenanthrene	380	330	Y	
92.27465	Bis-2-ethylhexylphthalate	2000	330	Y	< 50 ppm
92.27466	NONE	<330	330	Y	

gel
0-0

LOQ: Limit Of Quantitation
TICs: Tentatively identified compounds

Samples were extracted by mixing approximately 30 grams of sample with 60 grams of sodium sulfate and sonicating with 100 ml of methylene chloride. The methylene chloride was separated from the solids and sonication was repeated with two additional 100 ml aliquot of methylene chloride. Sample extracts were combined and concentrated to 1.0 ml final volume, except samples 92.27450 and 27452 which were concentrated to a final volume of 5 ml. Appropriate surrogate standards were added prior to extraction. Analysis was performed by capillary column GC/MS methods. Extraction and analysis methods

11/16/92

are consistent with EPA SW-846 methods 3500 and 8270. Analytical column used was a J&W scientific DB5.625 30 M X .25 mm ID.

Samples 92.27447, 92.27460, 92.27464, and 92.27465 were found to contain HSL target compounds above the specified limit of quantitation(see above). Non-target peaks were not identified or quantitated for this request.

Surrogate recoveries were within EPA criteria for all analyses. Internal standard responses were low in several samples. These samples include 92.27450, 92.27455, 92.27457, 92.27460, 92.27463, 92.27464, and 92.27465. All of these samples were run twice in order to confirm matrix interference. All other internal standard responses were within EPA criteria.

All analytical hold times were met for this request. If you have any question regarding this data, please call either Anthony Lombardo or Laura Kelly at 667-5889.

11/10/92

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 16-Nov-1992

REQUEST NUMBER: 13503 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 145

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.27444 Date Collected: 9/01/92 Date Received: 9/02/92 Date Extracted: 9/14/92 Date Analyzed: 9/28/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-W-20	92.27444	83329	< 330.		UG/KG	11/16/92		Acenaphthene
PF-36B-W-20	92.27444	208968	< 330.		UG/KG	11/16/92		Acenaphthylene
PF-36B-W-20	92.27444	62533	< 330.		UG/KG	11/16/92		Aniline
PF-36B-W-20	92.27444	120127	< 330.		UG/KG	11/16/92		Anthracene
PF-36B-W-20	92.27444	103333	< 330.		UG/KG	11/16/92		Azobenzene
PF-36B-W-20	92.27444	92875	< 330.		UG/KG	11/16/92		m-Benzidine
PF-36B-W-20	92.27444	56553	< 330.		UG/KG	11/16/92		Benzo[a]anthracene
PF-36B-W-20	92.27444	50328	< 330.		UG/KG	11/16/92		Benzo[a]pyrene
PF-36B-W-20	92.27444	205992	< 330.		UG/KG	11/16/92		Benzo[b]fluoranthene
PF-36B-W-20	92.27444	191242	< 330.		UG/KG	11/16/92		Benzo[g,h,i]perylene
PF-36B-W-20	92.27444	207089	< 330.		UG/KG	11/16/92		Benzo[k]fluoranthene
PF-36B-W-20	92.27444	65850	< 330.		UG/KG	11/16/92		Benzoic acid
PF-36B-W-20	92.27444	100516	< 330.		UG/KG	11/16/92		Benzyl alcohol
PF-36B-W-20	92.27444	111911	< 330.		UG/KG	11/16/92		Bis(2-chloroethoxy)methane
PF-36B-W-20	92.27444	111444	< 330.		UG/KG	11/16/92		Bis(2-chloroethyl)ether
PF-36B-W-20	92.27444	108601	< 330.		UG/KG	11/16/92		Bis(2-chloroisopropyl)ether
PF-36B-W-20	92.27444	117817	< 330.		UG/KG	11/16/92		Bis(2-ethylhexyl)phthalate
PF-36B-W-20	92.27444	101553	< 330.		UG/KG	11/16/92		4-Bromophenylphenyl ether
PF-36B-W-20	92.27444	85687	< 330.		UG/KG	11/16/92		Butyl benzyl phthalate
PF-36B-W-20	92.27444	59507	< 330.		UG/KG	11/16/92		4-Chloro-3-methylphenol
PF-36B-W-20	92.27444	106478	< 330.		UG/KG	11/16/92		4-Chloroaniline
PF-36B-W-20	92.27444	91587	< 330.		UG/KG	11/16/92		2-Chloronaphthalene
PF-36B-W-20	92.27444	95578	< 330.		UG/KG	11/16/92		o-Chlorophenol
PF-36B-W-20	92.27444	7005723	< 330.		UG/KG	11/16/92		4-Chlorophenylphenyl ether
PF-36B-W-20	92.27444	218019	< 330.		UG/KG	11/16/92		Chrysene
PF-36B-W-20	92.27444	84742	< 330.		UG/KG	11/16/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-W-20	92.27444	117840	< 330.		UG/KG	11/16/92		Di-n-octyl phthalate
PF-36B-W-20	92.27444	53703	< 330.		UG/KG	11/16/92		Dibenzo[a,h]anthracene
PF-36B-W-20	92.27444	132649	< 330.		UG/KG	11/16/92		Dibenzofuran
PF-36B-W-20	92.27444	95501	< 330.		UG/KG	11/16/92		o-Dichlorobenzene (1,2)
PF-36B-W-20	92.27444	541731	< 330.		UG/KG	11/16/92		m-Dichlorobenzene (1,3)
PF-36B-W-20	92.27444	106467	< 330.		UG/KG	11/16/92		p-Dichlorobenzene (1,4)
PF-36B-W-20	92.27444	91941	< 330.		UG/KG	11/16/92		3,3'-Dichlorobenzidine
PF-36B-W-20	92.27444	120832	< 330.		UG/KG	11/16/92		2,4-Dichlorophenol
PF-36B-W-20	92.27444	84662	< 330.		UG/KG	11/16/92		Diethyl phthalate
PF-36B-W-20	92.27444	131113	< 330.		UG/KG	11/16/92		Dimethyl phthalate
PF-36B-W-20	92.27444	105679	< 330.		UG/KG	11/16/92		2,4-Dimethylphenol
PF-36B-W-20	92.27444	51285	< 330.		UG/KG	11/16/92		2,4-Dinitrophenol
PF-36B-W-20	92.27444	121142	< 330.		UG/KG	11/16/92		2,4-Dinitrotoluene
PF-36B-W-20	92.27444	606202	< 330.		UG/KG	11/16/92		2,6-Dinitrotoluene
PF-36B-W-20	92.27444	206440	< 330.		UG/KG	11/16/92		Fluoranthene
PF-36B-W-20	92.27444	86737	< 330.		UG/KG	11/16/92		Fluorene
PF-36B-W-20	92.27444	118741	< 330.		UG/KG	11/16/92		Hexachlorobenzene
PF-36B-W-20	92.27444	87683	< 330.		UG/KG	11/16/92		Hexachlorobutadiene
PF-36B-W-20	92.27444	77474	< 330.		UG/KG	11/16/92		Hexachlorocyclopentadiene
PF-36B-W-20	92.27444	67721	< 330.		UG/KG	11/16/92		Hexachloroethane
PF-36B-W-20	92.27444	193395	< 330.		UG/KG	11/16/92		Indeno[1,2,3-cd]pyrene
PF-36B-W-20	92.27444	78591	< 330.		UG/KG	11/16/92		Isophorone
PF-36B-W-20	92.27444	534521	< 330.		UG/KG	11/16/92		2-Methyl-4,6-dinitrophenol
PF-36B-W-20	92.27444	91576	< 330.		UG/KG	11/16/92		2-Methylnaphthalene
PF-36B-W-20	92.27444	95487	< 330.		UG/KG	11/16/92		2-Methylphenol
PF-36B-W-20	92.27444	106445	< 330.		UG/KG	11/16/92		4-Methylphenol
PF-36B-W-20	92.27444	91203	< 330.		UG/KG	11/16/92		Naphthalene
PF-36B-W-20	92.27444	88744	< 330.		UG/KG	11/16/92		2-Nitroaniline
PF-36B-W-20	92.27444	99092	< 330.		UG/KG	11/16/92		3-Nitroaniline
PF-36B-W-20	92.27444	100016	< 330.		UG/KG	11/16/92		4-Nitroaniline
PF-36B-W-20	92.27444	98953	< 330.		UG/KG	11/16/92		Nitrobenzene
PF-36B-W-20	92.27444	88755	< 330.		UG/KG	11/16/92		2-Nitrophenol
PF-36B-W-20	92.27444	100027	< 330.		UG/KG	11/16/92		4-Nitrophenol
PF-36B-W-20	92.27444	621647	< 330.		UG/KG	11/16/92		N-Nitrosodi-n-propylamine
PF-36B-W-20	92.27444	62759	< 330.		UG/KG	11/16/92		N-Nitrosodimethylamine
PF-36B-	92.27444	86306	< 330.		UG/KG	16/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-W-20	92.27444	87865	< 330.		UG/KG	11/16/92		Pentachlorophenol
PF-36B-W-20	92.27444	85018	< 330.		UG/KG	11/16/92		Phenanthrene
PF-36B-W-20	92.27444	108952	< 330.		UG/KG	11/16/92		Phenol
PF-36B-W-20	92.27444	129000	< 330.		UG/KG	11/16/92		Pyrene
PF-36B-W-20	92.27444	120821	< 330.		UG/KG	11/16/92		1,2,4-Trichlorobenzene
PF-36B-W-20	92.27444	95954	< 330.		UG/KG	11/16/92		2,4,5-Trichlorophenol
PF-36B-W-20	92.27444	88062	< 330.		UG/KG	11/16/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.27444

none

********** EM-9 ANALYTICAL REPORT **********

Matrix Spike Results for Sample # 92.27444 Date Collected: 9/01/92 Date Received: 9/02/92 Date Extracted: 9/14/92 Date Analyzed: 9/28/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-W-20	92.27444	83329	1740.34	890.	UG/KG	11/16/92		Acenaphthene
PF-36B-W-20	92.27444	59507	3480.68	1700.	UG/KG	11/16/92		4-Chloro-3-methylphenol
PF-36B-W-20	92.27444	95578	3480.68	1300.	UG/KG	11/16/92		o-Chlorophenol
PF-36B-W-20	92.27444	106467	1740.34	620.	UG/KG	11/16/92		p-Dichlorobenzene (1,4)
PF-36B-W-20	92.27444	121142	1740.34	1100.	UG/KG	11/16/92		2,4-Dinitrotoluene
PF-36B-W-20	92.27444	100027	3480.68	1600.	UG/KG	11/16/92		4-Nitrophenol
PF-36B-W-20	92.27444	621647	1740.34	680.	UG/KG	11/16/92		N-Nitrosodi-n-propylamine
PF-36B-W-20	92.27444	87865	3480.68	2000.	UG/KG	11/16/92		Pentachlorophenol
PF-36B-W-20	92.27444	108952	3480.68	1300.	UG/KG	11/16/92		Phenol
PF-36B-W-20	92.27444	129000	1740.34	1200.	UG/KG	11/16/92		Pyrene
PF-36B-W-20	92.27444	120821	1740.34	750.	UG/KG	11/16/92		1,2,4-Trichlorobenzene

Matrix Spike Duplicate Results for Sample # 92.27444 Date Collected: 9/01/92 Date Received: 9/02/92 Date Extracted: 9/14/92 Date Analyzed: 9/28/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-W-20	92.27444	83329	1748.98	1100.	UG/KG	11/16/92		Acenaphthene
PF-36B-W-20	92.27444	59507	3497.96	2100.	UG/KG	11/16/92		4-Chloro-3-methylphenol
PF-36B-W-20	92.27444	95578	3497.96	1500.	UG/KG	11/16/92		o-Chlorophenol
PF-36B-W-20	92.27444	106467	1748.98	810.	UG/KG	11/16/92		p-Dichlorobenzene (1,4)
PF-36B-W-20	92.27444	121142	1748.98	1300.	UG/KG	11/16/92		2,4-Dinitrotoluene
PF-36B-W-20	92.27444	100027	3497.96	2300.	UG/KG	11/16/92		4-Nitrophenol
PF-36B-W-20	92.27444	621647	1748.98	940.	UG/KG	11/16/92		N-Nitrosodi-n-propylamine
PF-36B-W-20	92.27444	87865	3497.96	2800.	UG/KG	11/16/92		Pentachlorophenol
PF-36B-W-20	92.27444	108952	3497.96	1500.	UG/KG	11/16/92		Phenol
PF-36B-W-20	92.27444	129000	1748.98	1600.	UG/KG	11/16/92		Pyrene
PF-36B-W-20	92.27444	120821	1748.98	900.	UG/KG	11/16/92		1,2,4-Trichlorobenzene

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 16-Nov-1992

REQUEST NUMBER: 13503 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 145

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.27445 Date Collected: 9/01/92 Date Received: 9/02/92 Date Extracted: 9/14/92 Date Analyzed: 10/05/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-W-40	92.27445	83329	< 660.		UG/KG	11/16/92		Acenaphthene
PF-36B-W-40	92.27445	208968	< 660.		UG/KG	11/16/92		Acenaphthylene
PF-36B-W-40	92.27445	62533	< 660.		UG/KG	11/16/92		Aniline
PF-36B-W-40	92.27445	120127	< 660.		UG/KG	11/16/92		Anthracene
PF-36B-W-40	92.27445	103333	< 660.		UG/KG	11/16/92		Azobenzene
PF-36B-W-40	92.27445	92875	< 660.		UG/KG	11/16/92		m-Benzidine
PF-36B-W-40	92.27445	56553	< 660.		UG/KG	11/16/92		Benzo[a]anthracene
PF-36B-W-40	92.27445	50328	< 660.		UG/KG	11/16/92		Benzo[a]pyrene
PF-36B-W-40	92.27445	205992	< 660.		UG/KG	11/16/92		Benzo[b]fluoranthene
PF-36B-W-40	92.27445	191242	< 660.		UG/KG	11/16/92		Benzo[g,h,i]perylene
PF-36B-W-40	92.27445	207089	< 660.		UG/KG	11/16/92		Benzo[k]fluoranthene
PF-36B-W-40	92.27445	65850	< 660.		UG/KG	11/16/92		Benzoic acid
PF-36B-W-40	92.27445	100516	< 660.		UG/KG	11/16/92		Benzyl alcohol
PF-36B-W-40	92.27445	111911	< 660.		UG/KG	11/16/92		Bis(2-chloroethoxy)methane
PF-36B-W-40	92.27445	111444	< 660.		UG/KG	11/16/92		Bis(2-chloroethyl)ether
PF-36B-W-40	92.27445	108601	< 660.		UG/KG	11/16/92		Bis(2-chloroisopropyl)ether
PF-36B-W-40	92.27445	117817	< 660.		UG/KG	11/16/92		Bis(2-ethylhexyl)phthalate
PF-36B-W-40	92.27445	101553	< 660.		UG/KG	11/16/92		4-Bromophenylphenyl ether
PF-36B-W-40	92.27445	85687	< 660.		UG/KG	11/16/92		Butyl benzyl phthalate
PF-36B-W-40	92.27445	59507	< 660.		UG/KG	11/16/92		4-Chloro-3-methylphenol
PF-36B-W-40	92.27445	106478	< 660.		UG/KG	11/16/92		4-Chloroaniline
PF-36B-W-40	92.27445	91587	< 660.		UG/KG	11/16/92		2-Chloronaphthalene
PF-36B-W-40	92.27445	95578	< 660.		UG/KG	11/16/92		o-Chlorophenol
PF-36B-W-40	92.27445	7005723	< 660.		UG/KG	11/16/92		4-Chlorophenylphenyl ether
PF-36B-W-40	92.27445	218019	< 660.		UG/KG	11/16/92		Chrysene
PF-36B-W-40	92.27445	84742	< 660.		UG/KG	11/16/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-W-40	92.27445	117840	< 660.		UG/KG	11/16/92		Di-n-octyl phthalate
PF-36B-W-40	92.27445	53703	< 660.		UG/KG	11/16/92		Dibenzo[a,h]anthracene
PF-36B-W-40	92.27445	132649	< 660.		UG/KG	11/16/92		Dibenzofuran
PF-36B-W-40	92.27445	95501	< 660.		UG/KG	11/16/92		o-Dichlorobenzene (1,2)
PF-36B-W-40	92.27445	541731	< 660.		UG/KG	11/16/92		m-Dichlorobenzene (1,3)
PF-36B-W-40	92.27445	106467	< 660.		UG/KG	11/16/92		p-Dichlorobenzene (1,4)
PF-36B-W-40	92.27445	91941	< 660.		UG/KG	11/16/92		3,3'-Dichlorobenzidine
PF-36B-W-40	92.27445	120832	< 660.		UG/KG	11/16/92		2,4-Dichlorophenol
PF-36B-W-40	92.27445	84662	< 660.		UG/KG	11/16/92		Diethyl phthalate
PF-36B-W-40	92.27445	131113	< 660.		UG/KG	11/16/92		Dimethyl phthalate
PF-36B-W-40	92.27445	105679	< 660.		UG/KG	11/16/92		2,4-Dimethylphenol
PF-36B-W-40	92.27445	51285	< 660.		UG/KG	11/16/92		2,4-Dinitrophenol
PF-36B-W-40	92.27445	121142	< 660.		UG/KG	11/16/92		2,4-Dinitrotoluene
PF-36B-W-40	92.27445	606202	< 660.		UG/KG	11/16/92		2,6-Dinitrotoluene
PF-36B-W-40	92.27445	206440	< 660.		UG/KG	11/16/92		Fluoranthene
PF-36B-W-40	92.27445	86737	< 660.		UG/KG	11/16/92		Fluorene
PF-36B-W-40	92.27445	118741	< 660.		UG/KG	11/16/92		Hexachlorobenzene
PF-36B-W-40	92.27445	87683	< 660.		UG/KG	11/16/92		Hexachlorobutadiene
PF-36B-W-40	92.27445	77474	< 660.		UG/KG	11/16/92		Hexachlorocyclopentadiene
PF-36B-W-40	92.27445	67721	< 660.		UG/KG	11/16/92		Hexachloroethane
PF-36B-W-40	92.27445	193395	< 660.		UG/KG	11/16/92		Indeno[1,2,3-cd]pyrene
PF-36B-W-40	92.27445	78591	< 660.		UG/KG	11/16/92		Isophorone
PF-36B-W-40	92.27445	534521	< 660.		UG/KG	11/16/92		2-Methyl-4,6-dinitrophenol
PF-36B-W-40	92.27445	91576	< 660.		UG/KG	11/16/92		2-Methylnaphthalene
PF-36B-W-40	92.27445	95487	< 660.		UG/KG	11/16/92		2-Methylphenol
PF-36B-W-40	92.27445	106445	< 660.		UG/KG	11/16/92		4-Methylphenol
PF-36B-W-40	92.27445	91203	< 660.		UG/KG	11/16/92		Naphthalene
PF-36B-W-40	92.27445	88744	< 660.		UG/KG	11/16/92		2-Nitroaniline
PF-36B-W-40	92.27445	99092	< 660.		UG/KG	11/16/92		3-Nitroaniline
PF-36B-W-40	92.27445	100016	< 660.		UG/KG	11/16/92		4-Nitroaniline
PF-36B-W-40	92.27445	98953	< 660.		UG/KG	11/16/92		Nitrobenzene
PF-36B-W-40	92.27445	88755	< 660.		UG/KG	11/16/92		2-Nitrophenol
PF-36B-W-40	92.27445	100027	< 660.		UG/KG	11/16/92		4-Nitrophenol
PF-36B-W-40	92.27445	621647	< 660.		UG/KG	11/16/92		N-Nitrosodi-n-propylamine
PF-36B-W-40	92.27445	62759	< 660.		UG/KG	11/16/92		N-Nitrosodimethylamine
PF-36B-W	92.27445	86306	< 660.		UG/KG	11/16/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-W-40	92.27445	87865	< 660.		UG/KG	11/16/92		Pentachlorophenol
PF-36B-W-40	92.27445	85018	< 660.		UG/KG	11/16/92		Phenanthrene
PF-36B-W-40	92.27445	108952	< 660.		UG/KG	11/16/92		Phenol
PF-36B-W-40	92.27445	129000	< 660.		UG/KG	11/16/92		Pyrene
PF-36B-W-40	92.27445	120821	< 660.		UG/KG	11/16/92		1,2,4-Trichlorobenzene
PF-36B-W-40	92.27445	95954	< 660.		UG/KG	11/16/92		2,4,5-Trichlorophenol
PF-36B-W-40	92.27445	88062	< 660.		UG/KG	11/16/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.27445

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 16-Nov-1992

REQUEST NUMBER: 13503 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 145

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.27446 Date Collected: 9/01/92 Date Received: 9/02/92 Date Extracted: 9/14/92 Date Analyzed: 10/05/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-W-60	92.27446	83329	< 660.		UG/KG	11/16/92		Acenaphthene
PF-36B-W-60	92.27446	208968	< 660.		UG/KG	11/16/92		Acenaphthylene
PF-36B-W-60	92.27446	62533	< 660.		UG/KG	11/16/92		Aniline
PF-36B-W-60	92.27446	120127	< 660.		UG/KG	11/16/92		Anthracene
PF-36B-W-60	92.27446	103333	< 660.		UG/KG	11/16/92		Azobenzene
PF-36B-W-60	92.27446	92875	< 660.		UG/KG	11/16/92		m-Benzidine
PF-36B-W-60	92.27446	56553	< 660.		UG/KG	11/16/92		Benzo[a]anthracene
PF-36B-W-60	92.27446	50328	< 660.		UG/KG	11/16/92		Benzo[a]pyrene
PF-36B-W-60	92.27446	205992	< 660.		UG/KG	11/16/92		Benzo[b]fluoranthene
PF-36B-W-60	92.27446	191242	< 660.		UG/KG	11/16/92		Benzo[g,h,i]perylene
PF-36B-W-60	92.27446	207089	< 660.		UG/KG	11/16/92		Benzo[k]fluoranthene
PF-36B-W-60	92.27446	65850	< 660.		UG/KG	11/16/92		Benzoic acid
PF-36B-W-60	92.27446	100516	< 660.		UG/KG	11/16/92		Benzyl alcohol
PF-36B-W-60	92.27446	111911	< 660.		UG/KG	11/16/92		Bis(2-chloroethoxy)methane
PF-36B-W-60	92.27446	111444	< 660.		UG/KG	11/16/92		Bis(2-chloroethyl)ether
PF-36B-W-60	92.27446	108601	< 660.		UG/KG	11/16/92		Bis(2-chloroisopropyl)ether
PF-36B-W-60	92.27446	117817	< 660.		UG/KG	11/16/92		Bis(2-ethylhexyl)phthalate
PF-36B-W-60	92.27446	101553	< 660.		UG/KG	11/16/92		4-Bromophenylphenyl ether
PF-36B-W-60	92.27446	85687	< 660.		UG/KG	11/16/92		Butyl benzyl phthalate
PF-36B-W-60	92.27446	59507	< 660.		UG/KG	11/16/92		4-Chloro-3-methylphenol
PF-36B-W-60	92.27446	106478	< 660.		UG/KG	11/16/92		4-Chloroaniline
PF-36B-W-60	92.27446	91587	< 660.		UG/KG	11/16/92		2-Chloronaphthalene
PF-36B-W-60	92.27446	95578	< 660.		UG/KG	11/16/92		o-Chlorophenol
PF-36B-W-60	92.27446	7005723	< 660.		UG/KG	11/16/92		4-Chlorophenylphenyl ether
PF-36B-W-60	92.27446	218019	< 660.		UG/KG	11/16/92		Chrysene
PF-36B-	92.27446	84742	< 660.		UG/KG	16/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-W-60	92.27446	117840	< 660.		UG/KG	11/16/92		Di-n-octyl phthalate
PF-36B-W-60	92.27446	53703	< 660.		UG/KG	11/16/92		Dibenzo[a,h]anthracene
PF-36B-W-60	92.27446	132649	< 660.		UG/KG	11/16/92		Dibenzofuran
PF-36B-W-60	92.27446	95501	< 660.		UG/KG	11/16/92		o-Dichlorobenzene (1,2)
PF-36B-W-60	92.27446	541731	< 660.		UG/KG	11/16/92		m-Dichlorobenzene (1,3)
PF-36B-W-60	92.27446	106467	< 660.		UG/KG	11/16/92		p-Dichlorobenzene (1,4)
PF-36B-W-60	92.27446	91941	< 660.		UG/KG	11/16/92		3,3'-Dichlorobenzidine
PF-36B-W-60	92.27446	120832	< 660.		UG/KG	11/16/92		2,4-Dichlorophenol
PF-36B-W-60	92.27446	84662	< 660.		UG/KG	11/16/92		Diethyl phthalate
PF-36B-W-60	92.27446	131113	< 660.		UG/KG	11/16/92		Dimethyl phthalate
PF-36B-W-60	92.27446	105679	< 660.		UG/KG	11/16/92		2,4-Dimethylphenol
PF-36B-W-60	92.27446	51285	< 660.		UG/KG	11/16/92		2,4-Dinitrophenol
PF-36B-W-60	92.27446	121142	< 660.		UG/KG	11/16/92		2,4-Dinitrotoluene
PF-36B-W-60	92.27446	606202	< 660.		UG/KG	11/16/92		2,6-Dinitrotoluene
PF-36B-W-60	92.27446	206440	< 660.		UG/KG	11/16/92		Fluoranthene
PF-36B-W-60	92.27446	86737	< 660.		UG/KG	11/16/92		Fluorene
PF-36B-W-60	92.27446	118741	< 660.		UG/KG	11/16/92		Hexachlorobenzene
PF-36B-W-60	92.27446	87683	< 660.		UG/KG	11/16/92		Hexachlorobutadiene
PF-36B-W-60	92.27446	77474	< 660.		UG/KG	11/16/92		Hexachlorocyclopentadiene
PF-36B-W-60	92.27446	67721	< 660.		UG/KG	11/16/92		Hexachloroethane
PF-36B-W-60	92.27446	193395	< 660.		UG/KG	11/16/92		Indeno[1,2,3-cd]pyrene
PF-36B-W-60	92.27446	78591	< 660.		UG/KG	11/16/92		Isophorone
PF-36B-W-60	92.27446	534521	< 660.		UG/KG	11/16/92		2-Methyl-4,6-dinitrophenol
PF-36B-W-60	92.27446	91576	< 660.		UG/KG	11/16/92		2-Methylnaphthalene
PF-36B-W-60	92.27446	95487	< 660.		UG/KG	11/16/92		2-Methylphenol
PF-36B-W-60	92.27446	106445	< 660.		UG/KG	11/16/92		4-Methylphenol
PF-36B-W-60	92.27446	91203	< 660.		UG/KG	11/16/92		Naphthalene
PF-36B-W-60	92.27446	88744	< 660.		UG/KG	11/16/92		2-Nitroaniline
PF-36B-W-60	92.27446	99092	< 660.		UG/KG	11/16/92		3-Nitroaniline
PF-36B-W-60	92.27446	100016	< 660.		UG/KG	11/16/92		4-Nitroaniline
PF-36B-W-60	92.27446	98953	< 660.		UG/KG	11/16/92		Nitrobenzene
PF-36B-W-60	92.27446	88755	< 660.		UG/KG	11/16/92		2-Nitrophenol
PF-36B-W-60	92.27446	100027	< 660.		UG/KG	11/16/92		4-Nitrophenol
PF-36B-W-60	92.27446	621647	< 660.		UG/KG	11/16/92		N-Nitrosodi-n-propylamine
PF-36B-W-60	92.27446	62759	< 660.		UG/KG	11/16/92		N-Nitrosodimethylamine
PF-36B-W-60	92.27446	86306	< 660.		UG/KG	11/16/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-W-60	92.27446	87865	< 660.		UG/KG	11/16/92		Pentachlorophenol
PF-36B-W-60	92.27446	85018	< 660.		UG/KG	11/16/92		Phenanthrene
PF-36B-W-60	92.27446	108952	< 660.		UG/KG	11/16/92		Phenol
PF-36B-W-60	92.27446	129000	< 660.		UG/KG	11/16/92		Pyrene
PF-36B-W-60	92.27446	120821	< 660.		UG/KG	11/16/92		1,2,4-Trichlorobenzene
PF-36B-W-60	92.27446	95954	< 660.		UG/KG	11/16/92		2,4,5-Trichlorophenol
PF-36B-W-60	92.27446	88062	< 660.		UG/KG	11/16/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.27446

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 16-Nov-1992

REQUEST NUMBER: 13503 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 145

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.27447 Date Collected: 9/01/92 Date Received: 9/02/92 Date Extracted: 9/14/92 Date Analyzed: 10/05/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-W-100	92.27447	83329	< 660.		UG/KG	11/16/92		Acenaphthene
PF-36B-W-100	92.27447	208968	< 660.		UG/KG	11/16/92		Acenaphthylene
PF-36B-W-100	92.27447	62533	< 660.		UG/KG	11/16/92		Aniline
PF-36B-W-100	92.27447	120127	< 660.		UG/KG	11/16/92		Anthracene
PF-36B-W-100	92.27447	103333	< 660.		UG/KG	11/16/92		Azobenzene
PF-36B-W-100	92.27447	92875	< 660.		UG/KG	11/16/92		m-Benzidine
PF-36B-W-100	92.27447	56553	< 660.		UG/KG	11/16/92		Benzo[a]anthracene
PF-36B-W-100	92.27447	50328	< 660.		UG/KG	11/16/92		Benzo[a]pyrene
PF-36B-W-100	92.27447	205992	< 660.		UG/KG	11/16/92		Benzo[b]fluoranthene
PF-36B-W-100	92.27447	191242	< 660.		UG/KG	11/16/92		Benzo[g,h,i]perylene
PF-36B-W-100	92.27447	207089	< 660.		UG/KG	11/16/92		Benzo[k]fluoranthene
PF-36B-W-100	92.27447	65850	< 660.		UG/KG	11/16/92		Benzoic acid
PF-36B-W-100	92.27447	100516	< 660.		UG/KG	11/16/92		Benzyl alcohol
PF-36B-W-100	92.27447	111911	< 660.		UG/KG	11/16/92		Bis(2-chloroethoxy)methane
PF-36B-W-100	92.27447	111444	< 660.		UG/KG	11/16/92		Bis(2-chloroethyl)ether
PF-36B-W-100	92.27447	108601	< 660.		UG/KG	11/16/92		Bis(2-chloroisopropyl)ether
PF-36B-W-100	92.27447	117817	< 660.		UG/KG	11/16/92		Bis(2-ethylhexyl)phthalate
PF-36B-W-100	92.27447	101553	< 660.		UG/KG	11/16/92		4-Bromophenylphenyl ether
PF-36B-W-100	92.27447	85687	< 660.		UG/KG	11/16/92		Butyl benzyl phthalate
PF-36B-W-100	92.27447	59507	< 660.		UG/KG	11/16/92		4-Chloro-3-methylphenol
PF-36B-W-100	92.27447	106478	< 660.		UG/KG	11/16/92		4-Chloroaniline
PF-36B-W-100	92.27447	91587	< 660.		UG/KG	11/16/92		2-Chloronaphthalene
PF-36B-W-100	92.27447	95578	< 660.		UG/KG	11/16/92		o-Chlorophenol
PF-36B-W-100	92.27447	7005723	< 660.		UG/KG	11/16/92		4-Chlorophenylphenyl ether
PF-36B-W-100	92.27447	218019	< 660.		UG/KG	11/16/92		Chrysene
PF-36B-W-100	92.27447	84742	960.	288.	UG/KG	11/16/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-W-100	92.27447	117840	< 660.		UG/KG	11/16/92		Di-n-octyl phthalate
PF-36B-W-100	92.27447	53703	< 660.		UG/KG	11/16/92		Dibenzo[a,h]anthracene
PF-36B-W-100	92.27447	132649	< 660.		UG/KG	11/16/92		Dibenzofuran
PF-36B-W-100	92.27447	95501	< 660.		UG/KG	11/16/92		o-Dichlorobenzene (1,2)
PF-36B-W-100	92.27447	541731	< 660.		UG/KG	11/16/92		m-Dichlorobenzene (1,3)
PF-36B-W-100	92.27447	106467	< 660.		UG/KG	11/16/92		p-Dichlorobenzene (1,4)
PF-36B-W-100	92.27447	91941	< 660.		UG/KG	11/16/92		3,3'-Dichlorobenzidine
PF-36B-W-100	92.27447	120832	< 660.		UG/KG	11/16/92		2,4-Dichlorophenol
PF-36B-W-100	92.27447	84662	< 660.		UG/KG	11/16/92		Diethyl phthalate
PF-36B-W-100	92.27447	131113	< 660.		UG/KG	11/16/92		Dimethyl phthalate
PF-36B-W-100	92.27447	105679	< 660.		UG/KG	11/16/92		2,4-Dimethylphenol
PF-36B-W-100	92.27447	51285	< 660.		UG/KG	11/16/92		2,4-Dinitrophenol
PF-36B-W-100	92.27447	121142	< 660.		UG/KG	11/16/92		2,4-Dinitrotoluene
PF-36B-W-100	92.27447	606202	< 660.		UG/KG	11/16/92		2,6-Dinitrotoluene
PF-36B-W-100	92.27447	206440	< 660.		UG/KG	11/16/92		Fluoranthene
PF-36B-W-100	92.27447	86737	< 660.		UG/KG	11/16/92		Fluorene
PF-36B-W-100	92.27447	118741	< 660.		UG/KG	11/16/92		Hexachlorobenzene
PF-36B-W-100	92.27447	87683	< 660.		UG/KG	11/16/92		Hexachlorobutadiene
PF-36B-W-100	92.27447	77474	< 660.		UG/KG	11/16/92		Hexachlorocyclopentadiene
PF-36B-W-100	92.27447	67721	< 660.		UG/KG	11/16/92		Hexachloroethane
PF-36B-W-100	92.27447	193395	< 660.		UG/KG	11/16/92		Indeno[1,2,3-cd]pyrene
PF-36B-W-100	92.27447	78591	< 660.		UG/KG	11/16/92		Isophorone
PF-36B-W-100	92.27447	534521	< 660.		UG/KG	11/16/92		2-Methyl-4,6-dinitrophenol
PF-36B-W-100	92.27447	91576	< 660.		UG/KG	11/16/92		2-Methylnaphthalene
PF-36B-W-100	92.27447	95487	< 660.		UG/KG	11/16/92		2-Methylphenol
PF-36B-W-100	92.27447	106445	< 660.		UG/KG	11/16/92		4-Methylphenol
PF-36B-W-100	92.27447	91203	< 660.		UG/KG	11/16/92		Naphthalene
PF-36B-W-100	92.27447	88744	< 660.		UG/KG	11/16/92		2-Nitroaniline
PF-36B-W-100	92.27447	99092	< 660.		UG/KG	11/16/92		3-Nitroaniline
PF-36B-W-100	92.27447	100016	< 660.		UG/KG	11/16/92		4-Nitroaniline
PF-36B-W-100	92.27447	98953	< 660.		UG/KG	11/16/92		Nitrobenzene
PF-36B-W-100	92.27447	88755	< 660.		UG/KG	11/16/92		2-Nitrophenol
PF-36B-W-100	92.27447	100027	< 660.		UG/KG	11/16/92		4-Nitrophenol
PF-36B-W-100	92.27447	621647	< 660.		UG/KG	11/16/92		N-Nitrosodi-n-propylamine
PF-36B-W-100	92.27447	62759	< 660.		UG/KG	11/16/92		N-Nitrosodimethylamine
PF-36B-[illegible]	92.27447	86306	< 660.		UG/KG	[illegible]16/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-W-100	92.27447	87865	< 660.		UG/KG	11/16/92		Pentachlorophenol
PF-36B-W-100	92.27447	85018	< 660.		UG/KG	11/16/92		Phenanthrene
PF-36B-W-100	92.27447	108952	< 660.		UG/KG	11/16/92		Phenol
PF-36B-W-100	92.27447	129000	< 660.		UG/KG	11/16/92		Pyrene
PF-36B-W-100	92.27447	120821	< 660.		UG/KG	11/16/92		1,2,4-Trichlorobenzene
PF-36B-W-100	92.27447	95954	< 660.		UG/KG	11/16/92		2,4,5-Trichlorophenol
PF-36B-W-100	92.27447	88062	< 660.		UG/KG	11/16/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.27447

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 16-Nov-1992

REQUEST NUMBER: 13503 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 145

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.27448 Date Collected: 9/01/92 Date Received: 9/02/92 Date Extracted: 9/14/92 Date Analyzed: 9/24/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-W-150	92.27448	83329	< 330.		UG/KG	11/16/92		Acenaphthene
PF-36B-W-150	92.27448	208968	< 330.		UG/KG	11/16/92		Acenaphthylene
PF-36B-W-150	92.27448	62533	< 330.		UG/KG	11/16/92		Aniline
PF-36B-W-150	92.27448	120127	< 330.		UG/KG	11/16/92		Anthracene
PF-36B-W-150	92.27448	103333	< 330.		UG/KG	11/16/92		Azobenzene
PF-36B-W-150	92.27448	92875	< 330.		UG/KG	11/16/92		m-Benzidine
PF-36B-W-150	92.27448	56553	< 330.		UG/KG	11/16/92		Benzo[a]anthracene
PF-36B-W-150	92.27448	50328	< 330.		UG/KG	11/16/92		Benzo[a]pyrene
PF-36B-W-150	92.27448	205992	< 330.		UG/KG	11/16/92		Benzo[b]fluoranthene
PF-36B-W-150	92.27448	191242	< 330.		UG/KG	11/16/92		Benzo[g,h,i]perylene
PF-36B-W-150	92.27448	207089	< 330.		UG/KG	11/16/92		Benzo[k]fluoranthene
PF-36B-W-150	92.27448	65850	< 330.		UG/KG	11/16/92		Benzoic acid
PF-36B-W-150	92.27448	100516	< 330.		UG/KG	11/16/92		Benzyl alcohol
PF-36B-W-150	92.27448	111911	< 330.		UG/KG	11/16/92		Bis(2-chloroethoxy)methane
PF-36B-W-150	92.27448	111444	< 330.		UG/KG	11/16/92		Bis(2-chloroethyl)ether
PF-36B-W-150	92.27448	108601	< 330.		UG/KG	11/16/92		Bis(2-chloroisopropyl)ether
PF-36B-W-150	92.27448	117817	< 330.		UG/KG	11/16/92		Bis(2-ethylhexyl)phthalate
PF-36B-W-150	92.27448	101553	< 330.		UG/KG	11/16/92		4-Bromophenylphenyl ether
PF-36B-W-150	92.27448	85687	< 330.		UG/KG	11/16/92		Butyl benzyl phthalate
PF-36B-W-150	92.27448	59507	< 330.		UG/KG	11/16/92		4-Chloro-3-methylphenol
PF-36B-W-150	92.27448	106478	< 330.		UG/KG	11/16/92		4-Chloroaniline
PF-36B-W-150	92.27448	91587	< 330.		UG/KG	11/16/92		2-Chloronaphthalene
PF-36B-W-150	92.27448	95578	< 330.		UG/KG	11/16/92		o-Chlorophenol
PF-36B-W-150	92.27448	7005723	< 330.		UG/KG	11/16/92		4-Chlorophenylphenyl ether
PF-36B-W-150	92.27448	218019	< 330.		UG/KG	11/16/92		Chrysene
PF-36B-W-150	92.27448	84742	< 330.		UG/KG	11/16/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-W-150	92.27448	117840	< 330.		UG/KG	11/16/92		Di-n-octyl phthalate
PF-36B-W-150	92.27448	53703	< 330.		UG/KG	11/16/92		Dibenzo[a,h]anthracene
PF-36B-W-150	92.27448	132649	< 330.		UG/KG	11/16/92		Dibenzofuran
PF-36B-W-150	92.27448	95501	< 330.		UG/KG	11/16/92		o-Dichlorobenzene (1,2)
PF-36B-W-150	92.27448	541731	< 330.		UG/KG	11/16/92		m-Dichlorobenzene (1,3)
PF-36B-W-150	92.27448	106467	< 330.		UG/KG	11/16/92		p-Dichlorobenzene (1,4)
PF-36B-W-150	92.27448	91941	< 330.		UG/KG	11/16/92		3,3'-Dichlorobenzidine
PF-36B-W-150	92.27448	120832	< 330.		UG/KG	11/16/92		2,4-Dichlorophenol
PF-36B-W-150	92.27448	84662	< 330.		UG/KG	11/16/92		Diethyl phthalate
PF-36B-W-150	92.27448	131113	< 330.		UG/KG	11/16/92		Dimethyl phthalate
PF-36B-W-150	92.27448	105679	< 330.		UG/KG	11/16/92		2,4-Dimethylphenol
PF-36B-W-150	92.27448	51285	< 330.		UG/KG	11/16/92		2,4-Dinitrophenol
PF-36B-W-150	92.27448	121142	< 330.		UG/KG	11/16/92		2,4-Dinitrotoluene
PF-36B-W-150	92.27448	606202	< 330.		UG/KG	11/16/92		2,6-Dinitrotoluene
PF-36B-W-150	92.27448	206440	< 330.		UG/KG	11/16/92		Fluoranthene
PF-36B-W-150	92.27448	86737	< 330.		UG/KG	11/16/92		Fluorene
PF-36B-W-150	92.27448	118741	< 330.		UG/KG	11/16/92		Hexachlorobenzene
PF-36B-W-150	92.27448	87683	< 330.		UG/KG	11/16/92		Hexachlorobutadiene
PF-36B-W-150	92.27448	77474	< 330.		UG/KG	11/16/92		Hexachlorocyclopentadiene
PF-36B-W-150	92.27448	67721	< 330.		UG/KG	11/16/92		Hexachloroethane
PF-36B-W-150	92.27448	193395	< 330.		UG/KG	11/16/92		Indeno[1,2,3-cd]pyrene
PF-36B-W-150	92.27448	78591	< 330.		UG/KG	11/16/92		Isophorone
PF-36B-W-150	92.27448	534521	< 330.		UG/KG	11/16/92		2-Methyl-4,6-dinitrophenol
PF-36B-W-150	92.27448	91576	< 330.		UG/KG	11/16/92		2-Methylnaphthalene
PF-36B-W-150	92.27448	95487	< 330.		UG/KG	11/16/92		2-Methylphenol
PF-36B-W-150	92.27448	106445	< 330.		UG/KG	11/16/92		4-Methylphenol
PF-36B-W-150	92.27448	91203	< 330.		UG/KG	11/16/92		Naphthalene
PF-36B-W-150	92.27448	88744	< 330.		UG/KG	11/16/92		2-Nitroaniline
PF-36B-W-150	92.27448	99092	< 330.		UG/KG	11/16/92		3-Nitroaniline
PF-36B-W-150	92.27448	100016	< 330.		UG/KG	11/16/92		4-Nitroaniline
PF-36B-W-150	92.27448	98953	< 330.		UG/KG	11/16/92		Nitrobenzene
PF-36B-W-150	92.27448	88755	< 330.		UG/KG	11/16/92		2-Nitrophenol
PF-36B-W-150	92.27448	100027	< 330.		UG/KG	11/16/92		4-Nitrophenol
PF-36B-W-150	92.27448	621647	< 330.		UG/KG	11/16/92		N-Nitrosodi-n-propylamine
PF-36B-W-150	92.27448	62759	< 330.		UG/KG	11/16/92		N-Nitrosodimethylamine
PF-36B-W-150	92.27448	86306	< 330.		UG/KG	11/16/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-W-150	92.27448	87865	< 330.		UG/KG	11/16/92		Pentachlorophenol
PF-36B-W-150	92.27448	85018	< 330.		UG/KG	11/16/92		Phenanthrene
PF-36B-W-150	92.27448	108952	< 330.		UG/KG	11/16/92		Phenol
PF-36B-W-150	92.27448	129000	< 330.		UG/KG	11/16/92		Pyrene
PF-36B-W-150	92.27448	120821	< 330.		UG/KG	11/16/92		1,2,4-Trichlorobenzene
PF-36B-W-150	92.27448	95954	< 330.		UG/KG	11/16/92		2,4,5-Trichlorophenol
PF-36B-W-150	92.27448	88062	< 330.		UG/KG	11/16/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.27448

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 16-Nov-1992

REQUEST NUMBER: 13503 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 145

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.27449 Date Collected: 9/01/92 Date Received: 9/02/92 Date Extracted: 9/14/92 Date Analyzed: 10/02/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-E-20	92.27449	83329	< 330.		UG/KG	11/16/92		Acenaphthene
PF-36B-E-20	92.27449	208968	< 330.		UG/KG	11/16/92		Acenaphthylene
PF-36B-E-20	92.27449	62533	< 330.		UG/KG	11/16/92		Aniline
PF-36B-E-20	92.27449	120127	< 330.		UG/KG	11/16/92		Anthracene
PF-36B-E-20	92.27449	103333	< 330.		UG/KG	11/16/92		Azobenzene
PF-36B-E-20	92.27449	92875	< 330.		UG/KG	11/16/92		m-Benzidine
PF-36B-E-20	92.27449	56553	< 330.		UG/KG	11/16/92		Benzo[a]anthracene
PF-36B-E-20	92.27449	50328	< 330.		UG/KG	11/16/92		Benzo[a]pyrene
PF-36B-E-20	92.27449	205992	< 330.		UG/KG	11/16/92		Benzo[b]fluoranthene
PF-36B-E-20	92.27449	191242	< 330.		UG/KG	11/16/92		Benzo[g,h,i]perylene
PF-36B-E-20	92.27449	207089	< 330.		UG/KG	11/16/92		Benzo[k]fluoranthene
PF-36B-E-20	92.27449	65850	< 330.		UG/KG	11/16/92		Benzoic acid
PF-36B-E-20	92.27449	100516	< 330.		UG/KG	11/16/92		Benzyl alcohol
PF-36B-E-20	92.27449	111911	< 330.		UG/KG	11/16/92		Bis(2-chloroethoxy)methane
PF-36B-E-20	92.27449	111444	< 330.		UG/KG	11/16/92		Bis(2-chloroethyl)ether
PF-36B-E-20	92.27449	108601	< 330.		UG/KG	11/16/92		Bis(2-chloroisopropyl)ether
PF-36B-E-20	92.27449	117817	< 330.		UG/KG	11/16/92		Bis(2-ethylhexyl)phthalate
PF-36B-E-20	92.27449	101553	< 330.		UG/KG	11/16/92		4-Bromophenylphenyl ether
PF-36B-E-20	92.27449	85687	< 330.		UG/KG	11/16/92		Butyl benzyl phthalate
PF-36B-E-20	92.27449	59507	< 330.		UG/KG	11/16/92		4-Chloro-3-methylphenol
PF-36B-E-20	92.27449	106478	< 330.		UG/KG	11/16/92		4-Chloroaniline
PF-36B-E-20	92.27449	91587	< 330.		UG/KG	11/16/92		2-Chloronaphthalene
PF-36B-E-20	92.27449	95578	< 330.		UG/KG	11/16/92		o-Chlorophenol
PF-36B-E-20	92.27449	7005723	< 330.		UG/KG	11/16/92		4-Chlorophenylphenyl ether
PF-36B-E-20	92.27449	218019	< 330.		UG/KG	11/16/92		Chrysene
PF-36B-E-20	92.27449	84742	< 330.		UG/KG	11/16/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-E-20	92.27449	117840	< 330.		UG/KG	11/16/92		Di-n-octyl phthalate
PF-36B-E-20	92.27449	53703	< 330.		UG/KG	11/16/92		Dibenzo[a,h]anthracene
PF-36B-E-20	92.27449	132649	< 330.		UG/KG	11/16/92		Dibenzofuran
PF-36B-E-20	92.27449	95501	< 330.		UG/KG	11/16/92		o-Dichlorobenzene (1,2)
PF-36B-E-20	92.27449	541731	< 330.		UG/KG	11/16/92		m-Dichlorobenzene (1,3)
PF-36B-E-20	92.27449	106467	< 330.		UG/KG	11/16/92		p-Dichlorobenzene (1,4)
PF-36B-E-20	92.27449	91941	< 330.		UG/KG	11/16/92		3,3'-Dichlorobenzidine
PF-36B-E-20	92.27449	120832	< 330.		UG/KG	11/16/92		2,4-Dichlorophenol
PF-36B-E-20	92.27449	84662	< 330.		UG/KG	11/16/92		Diethyl phthalate
PF-36B-E-20	92.27449	131113	< 330.		UG/KG	11/16/92		Dimethyl phthalate
PF-36B-E-20	92.27449	105679	< 330.		UG/KG	11/16/92		2,4-Dimethylphenol
PF-36B-E-20	92.27449	51285	< 330.		UG/KG	11/16/92		2,4-Dinitrophenol
PF-36B-E-20	92.27449	121142	< 330.		UG/KG	11/16/92		2,4-Dinitrotoluene
PF-36B-E-20	92.27449	606202	< 330.		UG/KG	11/16/92		2,6-Dinitrotoluene
PF-36B-E-20	92.27449	206440	< 330.		UG/KG	11/16/92		Fluoranthene
PF-36B-E-20	92.27449	86737	< 330.		UG/KG	11/16/92		Fluorene
PF-36B-E-20	92.27449	118741	< 330.		UG/KG	11/16/92		Hexachlorobenzene
PF-36B-E-20	92.27449	87683	< 330.		UG/KG	11/16/92		Hexachlorobutadiene
PF-36B-E-20	92.27449	77474	< 330.		UG/KG	11/16/92		Hexachlorocyclopentadiene
PF-36B-E-20	92.27449	67721	< 330.		UG/KG	11/16/92		Hexachloroethane
PF-36B-E-20	92.27449	193395	< 330.		UG/KG	11/16/92		Indeno[1,2,3-cd]pyrene
PF-36B-E-20	92.27449	78591	< 330.		UG/KG	11/16/92		Isophorone
PF-36B-E-20	92.27449	534521	< 330.		UG/KG	11/16/92		2-Methyl-4,6-dinitrophenol
PF-36B-E-20	92.27449	91576	< 330.		UG/KG	11/16/92		2-Methylnaphthalene
PF-36B-E-20	92.27449	95487	< 330.		UG/KG	11/16/92		2-Methylphenol
PF-36B-E-20	92.27449	106445	< 330.		UG/KG	11/16/92		4-Methylphenol
PF-36B-E-20	92.27449	91203	< 330.		UG/KG	11/16/92		Naphthalene
PF-36B-E-20	92.27449	88744	< 330.		UG/KG	11/16/92		2-Nitroaniline
PF-36B-E-20	92.27449	99092	< 330.		UG/KG	11/16/92		3-Nitroaniline
PF-36B-E-20	92.27449	100016	< 330.		UG/KG	11/16/92		4-Nitroaniline
PF-36B-E-20	92.27449	98953	< 330.		UG/KG	11/16/92		Nitrobenzene
PF-36B-E-20	92.27449	88755	< 330.		UG/KG	11/16/92		2-Nitrophenol
PF-36B-E-20	92.27449	100027	< 330.		UG/KG	11/16/92		4-Nitrophenol
PF-36B-E-20	92.27449	621647	< 330.		UG/KG	11/16/92		N-Nitrosodi-n-propylamine
PF-36B-E-20	92.27449	62759	< 330.		UG/KG	11/16/92		N-Nitrosodimethylamine
PF-36B-E	92.27449	86306	< 330.		UG/KG	16/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-E-20	92.27449	87865	< 330.		UG/KG	11/16/92		Pentachlorophenol
PF-36B-E-20	92.27449	85018	< 330.		UG/KG	11/16/92		Phenanthrene
PF-36B-E-20	92.27449	108952	< 330.		UG/KG	11/16/92		Phenol
PF-36B-E-20	92.27449	129000	< 330.		UG/KG	11/16/92		Pyrene
PF-36B-E-20	92.27449	120821	< 330.		UG/KG	11/16/92		1,2,4-Trichlorobenzene
PF-36B-E-20	92.27449	95954	< 330.		UG/KG	11/16/92		2,4,5-Trichlorophenol
PF-36B-E-20	92.27449	88062	< 330.		UG/KG	11/16/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.27449

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 16-Nov-1992

REQUEST NUMBER: 13503 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 145

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.27450 Date Collected: 9/01/92 Date Received: 9/02/92 Date Extracted: 9/14/92 Date Analyzed: 10/02/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-E-40	92.27450	83329	< 1700.		UG/KG	11/16/92		Acenaphthene
PF-36B-E-40	92.27450	208968	< 1700.		UG/KG	11/16/92		Acenaphthylene
PF-36B-E-40	92.27450	62533	< 1700.		UG/KG	11/16/92		Aniline
PF-36B-E-40	92.27450	120127	< 1700.		UG/KG	11/16/92		Anthracene
PF-36B-E-40	92.27450	103333	< 1700.		UG/KG	11/16/92		Azobenzene
PF-36B-E-40	92.27450	92875	< 1700.		UG/KG	11/16/92		m-Benzidine
PF-36B-E-40	92.27450	56553	< 1700.		UG/KG	11/16/92		Benzo[a]anthracene
PF-36B-E-40	92.27450	50328	< 1700.		UG/KG	11/16/92		Benzo[a]pyrene
PF-36B-E-40	92.27450	205992	< 1700.		UG/KG	11/16/92		Benzo[b]fluoranthene
PF-36B-E-40	92.27450	191242	< 1700.		UG/KG	11/16/92		Benzo[g,h,i]perylene
PF-36B-E-40	92.27450	207089	< 1700.		UG/KG	11/16/92		Benzo[k]fluoranthene
PF-36B-E-40	92.27450	65850	< 1700.		UG/KG	11/16/92		Benzoic acid
PF-36B-E-40	92.27450	100516	< 1700.		UG/KG	11/16/92		Benzyl alcohol
PF-36B-E-40	92.27450	111911	< 1700.		UG/KG	11/16/92		Bis(2-chloroethoxy)methane
PF-36B-E-40	92.27450	111444	< 1700.		UG/KG	11/16/92		Bis(2-chloroethyl)ether
PF-36B-E-40	92.27450	108601	< 1700.		UG/KG	11/16/92		Bis(2-chloroisopropyl)ether
PF-36B-E-40	92.27450	117817	< 1700.		UG/KG	11/16/92		Bis(2-ethylhexyl)phthalate
PF-36B-E-40	92.27450	101553	< 1700.		UG/KG	11/16/92		4-Bromophenylphenyl ether
PF-36B-E-40	92.27450	85687	< 1700.		UG/KG	11/16/92		Butyl benzyl phthalate
PF-36B-E-40	92.27450	59507	< 1700.		UG/KG	11/16/92		4-Chloro-3-methylphenol
PF-36B-E-40	92.27450	106478	< 1700.		UG/KG	11/16/92		4-Chloroaniline
PF-36B-E-40	92.27450	91587	< 1700.		UG/KG	11/16/92		2-Chloronaphthalene
PF-36B-E-40	92.27450	95578	< 1700.		UG/KG	11/16/92		o-Chlorophenol
PF-36B-E-40	92.27450	7005723	< 1700.		UG/KG	11/16/92		4-Chlorophenylphenyl ether
PF-36B-E-40	92.27450	218019	< 1700.		UG/KG	11/16/92		Chrysene
PF-36B-E-40	92.27450	84742	< 1700.		UG/KG	11/16/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-E-40	92.27450	117840	< 1700.		UG/KG	11/16/92		Di-n-octyl phthalate
PF-36B-E-40	92.27450	53703	< 1700.		UG/KG	11/16/92		Dibenzo[a,h]anthracene
PF-36B-E-40	92.27450	132649	< 1700.		UG/KG	11/16/92		Dibenzofuran
PF-36B-E-40	92.27450	95501	< 1700.		UG/KG	11/16/92		o-Dichlorobenzene (1,2)
PF-36B-E-40	92.27450	541731	< 1700.		UG/KG	11/16/92		m-Dichlorobenzene (1,3)
PF-36B-E-40	92.27450	106467	< 1700.		UG/KG	11/16/92		p-Dichlorobenzene (1,4)
PF-36B-E-40	92.27450	91941	< 1700.		UG/KG	11/16/92		3,3'-Dichlorobenzidine
PF-36B-E-40	92.27450	120832	< 1700.		UG/KG	11/16/92		2,4-Dichlorophenol
PF-36B-E-40	92.27450	84662	< 1700.		UG/KG	11/16/92		Diethyl phthalate
PF-36B-E-40	92.27450	131113	< 1700.		UG/KG	11/16/92		Dimethyl phthalate
PF-36B-E-40	92.27450	105679	< 1700.		UG/KG	11/16/92		2,4-Dimethylphenol
PF-36B-E-40	92.27450	51285	< 1700.		UG/KG	11/16/92		2,4-Dinitrophenol
PF-36B-E-40	92.27450	121142	< 1700.		UG/KG	11/16/92		2,4-Dinitrotoluene
PF-36B-E-40	92.27450	606202	< 1700.		UG/KG	11/16/92		2,6-Dinitrotoluene
PF-36B-E-40	92.27450	206440	< 1700.		UG/KG	11/16/92		Fluoranthene
PF-36B-E-40	92.27450	86737	< 1700.		UG/KG	11/16/92		Fluorene
PF-36B-E-40	92.27450	118741	< 1700.		UG/KG	11/16/92		Hexachlorobenzene
PF-36B-E-40	92.27450	87683	< 1700.		UG/KG	11/16/92		Hexachlorobutadiene
PF-36B-E-40	92.27450	77474	< 1700.		UG/KG	11/16/92		Hexachlorocyclopentadiene
PF-36B-E-40	92.27450	67721	< 1700.		UG/KG	11/16/92		Hexachloroethane
PF-36B-E-40	92.27450	193395	< 1700.		UG/KG	11/16/92		Indeno[1,2,3-cd]pyrene
PF-36B-E-40	92.27450	78591	< 1700.		UG/KG	11/16/92		Isophorone
PF-36B-E-40	92.27450	534521	< 1700.		UG/KG	11/16/92		2-Methyl-4,6-dinitrophenol
PF-36B-E-40	92.27450	91576	< 1700.		UG/KG	11/16/92		2-Methylnaphthalene
PF-36B-E-40	92.27450	95487	< 1700.		UG/KG	11/16/92		2-Methylphenol
PF-36B-E-40	92.27450	106445	< 1700.		UG/KG	11/16/92		4-Methylphenol
PF-36B-E-40	92.27450	91203	< 1700.		UG/KG	11/16/92		Naphthalene
PF-36B-E-40	92.27450	88744	< 1700.		UG/KG	11/16/92		2-Nitroaniline
PF-36B-E-40	92.27450	99092	< 1700.		UG/KG	11/16/92		3-Nitroaniline
PF-36B-E-40	92.27450	100016	< 1700.		UG/KG	11/16/92		4-Nitroaniline
PF-36B-E-40	92.27450	98953	< 1700.		UG/KG	11/16/92		Nitrobenzene
PF-36B-E-40	92.27450	88755	< 1700.		UG/KG	11/16/92		2-Nitrophenol
PF-36B-E-40	92.27450	100027	< 1700.		UG/KG	11/16/92		4-Nitrophenol
PF-36B-E-40	92.27450	621647	< 1700.		UG/KG	11/16/92		N-Nitrosodi-n-propylamine
PF-36B-E-40	92.27450	62759	< 1700.		UG/KG	11/16/92		N-Nitrosodimethylamine
PF-36B-E-40	92.27450	86306	< 1700.		UG/KG	11/16/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-E-40	92.27450	87865	< 1700.		UG/KG	11/16/92		Pentachlorophenol
PF-36B-E-40	92.27450	85018	< 1700.		UG/KG	11/16/92		Phenanthrene
PF-36B-E-40	92.27450	108952	< 1700.		UG/KG	11/16/92		Phenol
PF-36B-E-40	92.27450	129000	< 1700.		UG/KG	11/16/92		Pyrene
PF-36B-E-40	92.27450	120821	< 1700.		UG/KG	11/16/92		1,2,4-Trichlorobenzene
PF-36B-E-40	92.27450	95954	< 1700.		UG/KG	11/16/92		2,4,5-Trichlorophenol
PF-36B-E-40	92.27450	88062	< 1700.		UG/KG	11/16/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.27450

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 16-Nov-1992

REQUEST NUMBER: 13503 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 145

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.27451 Date Collected: 9/01/92 Date Received: 9/02/92 Date Extracted: 9/14/92 Date Analyzed: 9/28/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-E-60	92.27451	83329	< 330.		UG/KG	11/16/92		Acenaphthene
PF-36B-E-60	92.27451	208968	< 330.		UG/KG	11/16/92		Acenaphthylene
PF-36B-E-60	92.27451	62533	< 330.		UG/KG	11/16/92		Aniline
PF-36B-E-60	92.27451	120127	< 330.		UG/KG	11/16/92		Anthracene
PF-36B-E-60	92.27451	103333	< 330.		UG/KG	11/16/92		Azobenzene
PF-36B-E-60	92.27451	92875	< 330.		UG/KG	11/16/92		m-Benzidine
PF-36B-E-60	92.27451	56553	< 330.		UG/KG	11/16/92		Benzo[a]anthracene
PF-36B-E-60	92.27451	50328	< 330.		UG/KG	11/16/92		Benzo[a]pyrene
PF-36B-E-60	92.27451	205992	< 330.		UG/KG	11/16/92		Benzo[b]fluoranthene
PF-36B-E-60	92.27451	191242	< 330.		UG/KG	11/16/92		Benzo[g,h,i]perylene
PF-36B-E-60	92.27451	207089	< 330.		UG/KG	11/16/92		Benzo[k]fluoranthene
PF-36B-E-60	92.27451	65850	< 330.		UG/KG	11/16/92		Benzoic acid
PF-36B-E-60	92.27451	100516	< 330.		UG/KG	11/16/92		Benzyl alcohol
PF-36B-E-60	92.27451	111911	< 330.		UG/KG	11/16/92		Bis(2-chloroethoxy)methane
PF-36B-E-60	92.27451	111444	< 330.		UG/KG	11/16/92		Bis(2-chloroethyl)ether
PF-36B-E-60	92.27451	108601	< 330.		UG/KG	11/16/92		Bis(2-chloroisopropyl)ether
PF-36B-E-60	92.27451	117817	< 330.		UG/KG	11/16/92		Bis(2-ethylhexyl)phthalate
PF-36B-E-60	92.27451	101553	< 330.		UG/KG	11/16/92		4-Bromophenylphenyl ether
PF-36B-E-60	92.27451	85687	< 330.		UG/KG	11/16/92		Butyl benzyl phthalate
PF-36B-E-60	92.27451	59507	< 330.		UG/KG	11/16/92		4-Chloro-3-methylphenol
PF-36B-E-60	92.27451	106478	< 330.		UG/KG	11/16/92		4-Chloroaniline
PF-36B-E-60	92.27451	91587	< 330.		UG/KG	11/16/92		2-Chloronaphthalene
PF-36B-E-60	92.27451	95578	< 330.		UG/KG	11/16/92		o-Chlorophenol
PF-36B-E-60	92.27451	7005723	< 330.		UG/KG	11/16/92		4-Chlorophenylphenyl ether
PF-36B-E-60	92.27451	218019	< 330.		UG/KG	11/16/92		Chrysene
PF-36B-E-60	92.27451	84742	< 330.		UG/KG	11/16/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-E-60	92.27451	117840	< 330.		UG/KG	11/16/92		Di-n-octyl phthalate
PF-36B-E-60	92.27451	53703	< 330.		UG/KG	11/16/92		Dibenzo[a,h]anthracene
PF-36B-E-60	92.27451	132649	< 330.		UG/KG	11/16/92		Dibenzofuran
PF-36B-E-60	92.27451	95501	< 330.		UG/KG	11/16/92		o-Dichlorobenzene (1,2)
PF-36B-E-60	92.27451	541731	< 330.		UG/KG	11/16/92		m-Dichlorobenzene (1,3)
PF-36B-E-60	92.27451	106467	< 330.		UG/KG	11/16/92		p-Dichlorobenzene (1,4)
PF-36B-E-60	92.27451	91941	< 330.		UG/KG	11/16/92		3,3'-Dichlorobenzidine
PF-36B-E-60	92.27451	120832	< 330.		UG/KG	11/16/92		2,4-Dichlorophenol
PF-36B-E-60	92.27451	84662	< 330.		UG/KG	11/16/92		Diethyl phthalate
PF-36B-E-60	92.27451	131113	< 330.		UG/KG	11/16/92		Dimethyl phthalate
PF-36B-E-60	92.27451	105679	< 330.		UG/KG	11/16/92		2,4-Dimethylphenol
PF-36B-E-60	92.27451	51285	< 330.		UG/KG	11/16/92		2,4-Dinitrophenol
PF-36B-E-60	92.27451	121142	< 330.		UG/KG	11/16/92		2,4-Dinitrotoluene
PF-36B-E-60	92.27451	606202	< 330.		UG/KG	11/16/92		2,6-Dinitrotoluene
PF-36B-E-60	92.27451	206440	< 330.		UG/KG	11/16/92		Fluoranthene
PF-36B-E-60	92.27451	86737	< 330.		UG/KG	11/16/92		Fluorene
PF-36B-E-60	92.27451	118741	< 330.		UG/KG	11/16/92		Hexachlorobenzene
PF-36B-E-60	92.27451	87683	< 330.		UG/KG	11/16/92		Hexachlorobutadiene
PF-36B-E-60	92.27451	77474	< 330.		UG/KG	11/16/92		Hexachlorocyclopentadiene
PF-36B-E-60	92.27451	67721	< 330.		UG/KG	11/16/92		Hexachloroethane
PF-36B-E-60	92.27451	193395	< 330.		UG/KG	11/16/92		Indeno[1,2,3-cd]pyrene
PF-36B-E-60	92.27451	78591	< 330.		UG/KG	11/16/92		Isophorone
PF-36B-E-60	92.27451	534521	< 330.		UG/KG	11/16/92		2-Methyl-4,6-dinitrophenol
PF-36B-E-60	92.27451	91576	< 330.		UG/KG	11/16/92		2-Methylnaphthalene
PF-36B-E-60	92.27451	95487	< 330.		UG/KG	11/16/92		2-Methylphenol
PF-36B-E-60	92.27451	106445	< 330.		UG/KG	11/16/92		4-Methylphenol
PF-36B-E-60	92.27451	91203	< 330.		UG/KG	11/16/92		Naphthalene
PF-36B-E-60	92.27451	88744	< 330.		UG/KG	11/16/92		2-Nitroaniline
PF-36B-E-60	92.27451	99092	< 330.		UG/KG	11/16/92		3-Nitroaniline
PF-36B-E-60	92.27451	100016	< 330.		UG/KG	11/16/92		4-Nitroaniline
PF-36B-E-60	92.27451	98953	< 330.		UG/KG	11/16/92		Nitrobenzene
PF-36B-E-60	92.27451	88755	< 330.		UG/KG	11/16/92		2-Nitrophenol
PF-36B-E-60	92.27451	100027	< 330.		UG/KG	11/16/92		4-Nitrophenol
PF-36B-E-60	92.27451	621647	< 330.		UG/KG	11/16/92		N-Nitrosodi-n-propylamine
PF-36B-E-60	92.27451	62759	< 330.		UG/KG	11/16/92		N-Nitrosodimethylamine
PF-36B-E-60	92.27451	86306	< 330.		UG/KG	11/16/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-E-60	92.27451	87865	< 330.		UG/KG	11/16/92		Pentachlorophenol
PF-36B-E-60	92.27451	85018	< 330.		UG/KG	11/16/92		Phenanthrene
PF-36B-E-60	92.27451	108952	< 330.		UG/KG	11/16/92		Phenol
PF-36B-E-60	92.27451	129000	< 330.		UG/KG	11/16/92		Pyrene
PF-36B-E-60	92.27451	120821	< 330.		UG/KG	11/16/92		1,2,4-Trichlorobenzene
PF-36B-E-60	92.27451	95954	< 330.		UG/KG	11/16/92		2,4,5-Trichlorophenol
PF-36B-E-60	92.27451	88062	< 330.		UG/KG	11/16/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.27451

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 16-Nov-1992

REQUEST NUMBER: 13503 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 145

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.27452 Date Collected: 9/01/92 Date Received: 9/02/92 Date Extracted: 9/14/92 Date Analyzed: 10/05/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-E-100	92.27452	83329	< 1600.		UG/KG	11/16/92		Acenaphthene
PF-36B-E-100	92.27452	208968	< 1600.		UG/KG	11/16/92		Acenaphthylene
PF-36B-E-100	92.27452	62533	< 1600.		UG/KG	11/16/92		Aniline
PF-36B-E-100	92.27452	120127	< 1600.		UG/KG	11/16/92		Anthracene
PF-36B-E-100	92.27452	103333	< 1600.		UG/KG	11/16/92		Azobenzene
PF-36B-E-100	92.27452	92875	< 1600.		UG/KG	11/16/92		m-Benzidine
PF-36B-E-100	92.27452	56553	< 1600.		UG/KG	11/16/92		Benzo[a]anthracene
PF-36B-E-100	92.27452	50328	< 1600.		UG/KG	11/16/92		Benzo[a]pyrene
PF-36B-E-100	92.27452	205992	< 1600.		UG/KG	11/16/92		Benzo[b]fluoranthene
PF-36B-E-100	92.27452	191242	< 1600.		UG/KG	11/16/92		Benzo[g,h,i]perylene
PF-36B-E-100	92.27452	207089	< 1600.		UG/KG	11/16/92		Benzo[k]fluoranthene
PF-36B-E-100	92.27452	65850	< 1600.		UG/KG	11/16/92		Benzoic acid
PF-36B-E-100	92.27452	100516	< 1600.		UG/KG	11/16/92		Benzyl alcohol
PF-36B-E-100	92.27452	111911	< 1600.		UG/KG	11/16/92		Bis(2-chloroethoxy)methane
PF-36B-E-100	92.27452	111444	< 1600.		UG/KG	11/16/92		Bis(2-chloroethyl)ether
PF-36B-E-100	92.27452	108601	< 1600.		UG/KG	11/16/92		Bis(2-chloroisopropyl)ether
PF-36B-E-100	92.27452	117817	< 1600.		UG/KG	11/16/92		Bis(2-ethylhexyl)phthalate
PF-36B-E-100	92.27452	101553	< 1600.		UG/KG	11/16/92		4-Bromophenylphenyl ether
PF-36B-E-100	92.27452	85687	< 1600.		UG/KG	11/16/92		Butyl benzyl phthalate
PF-36B-E-100	92.27452	59507	< 1600.		UG/KG	11/16/92		4-Chloro-3-methylphenol
PF-36B-E-100	92.27452	106478	< 1600.		UG/KG	11/16/92		4-Chloroaniline
PF-36B-E-100	92.27452	91587	< 1600.		UG/KG	11/16/92		2-Chloronaphthalene
PF-36B-E-100	92.27452	95578	< 1600.		UG/KG	11/16/92		o-Chlorophenol
PF-36B-E-100	92.27452	7005723	< 1600.		UG/KG	11/16/92		4-Chlorophenylphenyl ether
PF-36B-E-100	92.27452	218019	< 1600.		UG/KG	11/16/92		Chrysene
PF-36B-E-100	92.27452	84742	< 1600.		UG/KG	11/16/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-E-100	92.27452	117840	< 1600.		UG/KG	11/16/92		Di-n-octyl phthalate
PF-36B-E-100	92.27452	53703	< 1600.		UG/KG	11/16/92		Dibenzo[a,h]anthracene
PF-36B-E-100	92.27452	132649	< 1600.		UG/KG	11/16/92		Dibenzofuran
PF-36B-E-100	92.27452	95501	< 1600.		UG/KG	11/16/92		o-Dichlorobenzene (1,2)
PF-36B-E-100	92.27452	541731	< 1600.		UG/KG	11/16/92		m-Dichlorobenzene (1,3)
PF-36B-E-100	92.27452	106467	< 1600.		UG/KG	11/16/92		p-Dichlorobenzene (1,4)
PF-36B-E-100	92.27452	91941	< 1600.		UG/KG	11/16/92		3,3'-Dichlorobenzidine
PF-36B-E-100	92.27452	120832	< 1600.		UG/KG	11/16/92		2,4-Dichlorophenol
PF-36B-E-100	92.27452	84662	< 1600.		UG/KG	11/16/92		Diethyl phthalate
PF-36B-E-100	92.27452	131113	< 1600.		UG/KG	11/16/92		Dimethyl phthalate
PF-36B-E-100	92.27452	105679	< 1600.		UG/KG	11/16/92		2,4-Dimethylphenol
PF-36B-E-100	92.27452	51285	< 1600.		UG/KG	11/16/92		2,4-Dinitrophenol
PF-36B-E-100	92.27452	121142	< 1600.		UG/KG	11/16/92		2,4-Dinitrotoluene
PF-36B-E-100	92.27452	606202	< 1600.		UG/KG	11/16/92		2,6-Dinitrotoluene
PF-36B-E-100	92.27452	206440	< 1600.		UG/KG	11/16/92		Fluoranthene
PF-36B-E-100	92.27452	86737	< 1600.		UG/KG	11/16/92		Fluorene
PF-36B-E-100	92.27452	118741	< 1600.		UG/KG	11/16/92		Hexachlorobenzene
PF-36B-E-100	92.27452	87683	< 1600.		UG/KG	11/16/92		Hexachlorobutadiene
PF-36B-E-100	92.27452	77474	< 1600.		UG/KG	11/16/92		Hexachlorocyclopentadiene
PF-36B-E-100	92.27452	67721	< 1600.		UG/KG	11/16/92		Hexachloroethane
PF-36B-E-100	92.27452	193395	< 1600.		UG/KG	11/16/92		Indeno[1,2,3-cd]pyrene
PF-36B-E-100	92.27452	78591	< 1600.		UG/KG	11/16/92		Isophorone
PF-36B-E-100	92.27452	534521	< 1600.		UG/KG	11/16/92		2-Methyl-4,6-dinitrophenol
PF-36B-E-100	92.27452	91576	< 1600.		UG/KG	11/16/92		2-Methylnaphthalene
PF-36B-E-100	92.27452	95487	< 1600.		UG/KG	11/16/92		2-Methylphenol
PF-36B-E-100	92.27452	106445	< 1600.		UG/KG	11/16/92		4-Methylphenol
PF-36B-E-100	92.27452	91203	< 1600.		UG/KG	11/16/92		Naphthalene
PF-36B-E-100	92.27452	88744	< 1600.		UG/KG	11/16/92		2-Nitroaniline
PF-36B-E-100	92.27452	99092	< 1600.		UG/KG	11/16/92		3-Nitroaniline
PF-36B-E-100	92.27452	100016	< 1600.		UG/KG	11/16/92		4-Nitroaniline
PF-36B-E-100	92.27452	98953	< 1600.		UG/KG	11/16/92		Nitrobenzene
PF-36B-E-100	92.27452	88755	< 1600.		UG/KG	11/16/92		2-Nitrophenol
PF-36B-E-100	92.27452	100027	< 1600.		UG/KG	11/16/92		4-Nitrophenol
PF-36B-E-100	92.27452	621647	< 1600.		UG/KG	11/16/92		N-Nitrosodi-n-propylamine
PF-36B-E-100	92.27452	62759	< 1600.		UG/KG	11/16/92		N-Nitrosodimethylamine
PF-36B-E-100	92.27452	86306	< 1600.		UG/KG	11/16/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-E-100	92.27452	87865	< 1600.		UG/KG	11/16/92		Pentachlorophenol
PF-36B-E-100	92.27452	85018	< 1600.		UG/KG	11/16/92		Phenanthrene
PF-36B-E-100	92.27452	108952	< 1600.		UG/KG	11/16/92		Phenol
PF-36B-E-100	92.27452	129000	< 1600.		UG/KG	11/16/92		Pyrene
PF-36B-E-100	92.27452	120821	< 1600.		UG/KG	11/16/92		1,2,4-Trichlorobenzene
PF-36B-E-100	92.27452	95954	< 1600.		UG/KG	11/16/92		2,4,5-Trichlorophenol
PF-36B-E-100	92.27452	88062	< 1600.		UG/KG	11/16/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.27452

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 16-Nov-1992

REQUEST NUMBER: 13503 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 145

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.27453 Date Collected: 9/01/92 Date Received: 9/02/92 Date Extracted: 9/14/92 Date Analyzed: 9/29/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-E-150	92.27453	83329	< 660.		UG/KG	11/16/92		Acenaphthene
PF-36B-E-150	92.27453	208968	< 660.		UG/KG	11/16/92		Acenaphthylene
PF-36B-E-150	92.27453	62533	< 660.		UG/KG	11/16/92		Aniline
PF-36B-E-150	92.27453	120127	< 660.		UG/KG	11/16/92		Anthracene
PF-36B-E-150	92.27453	103333	< 660.		UG/KG	11/16/92		Azobenzene
PF-36B-E-150	92.27453	92875	< 660.		UG/KG	11/16/92		m-Benzidine
PF-36B-E-150	92.27453	56553	< 660.		UG/KG	11/16/92		Benzo[a]anthracene
PF-36B-E-150	92.27453	50328	< 660.		UG/KG	11/16/92		Benzo[a]pyrene
PF-36B-E-150	92.27453	205992	< 660.		UG/KG	11/16/92		Benzo[b]fluoranthene
PF-36B-E-150	92.27453	191242	< 660.		UG/KG	11/16/92		Benzo[g,h,i]perylene
PF-36B-E-150	92.27453	207089	< 660.		UG/KG	11/16/92		Benzo[k]fluoranthene
PF-36B-E-150	92.27453	65850	< 660.		UG/KG	11/16/92		Benzoic acid
PF-36B-E-150	92.27453	100516	< 660.		UG/KG	11/16/92		Benzyl alcohol
PF-36B-E-150	92.27453	111911	< 660.		UG/KG	11/16/92		Bis(2-chloroethoxy)methane
PF-36B-E-150	92.27453	111444	< 660.		UG/KG	11/16/92		Bis(2-chloroethyl)ether
PF-36B-E-150	92.27453	108601	< 660.		UG/KG	11/16/92		Bis(2-chloroisopropyl)ether
PF-36B-E-150	92.27453	117817	< 660.		UG/KG	11/16/92		Bis(2-ethylhexyl)phthalate
PF-36B-E-150	92.27453	101553	< 660.		UG/KG	11/16/92		4-Bromophenylphenyl ether
PF-36B-E-150	92.27453	85687	< 660.		UG/KG	11/16/92		Butyl benzyl phthalate
PF-36B-E-150	92.27453	59507	< 660.		UG/KG	11/16/92		4-Chloro-3-methylphenol
PF-36B-E-150	92.27453	106478	< 660.		UG/KG	11/16/92		4-Chloroaniline
PF-36B-E-150	92.27453	91587	< 660.		UG/KG	11/16/92		2-Chloronaphthalene
PF-36B-E-150	92.27453	95578	< 660.		UG/KG	11/16/92		o-Chlorophenol
PF-36B-E-150	92.27453	7005723	< 660.		UG/KG	11/16/92		4-Chlorophenylphenyl ether
PF-36B-E-150	92.27453	218019	< 660.		UG/KG	11/16/92		Chrysene
PF-36B-E-150	92.27453	84742	< 660.		UG/KG	11/16/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-E-150	92.27453	117840	< 660.		UG/KG	11/16/92		Di-n-octyl phthalate
PF-36B-E-150	92.27453	53703	< 660.		UG/KG	11/16/92		Dibenzo[a,h]anthracene
PF-36B-E-150	92.27453	132649	< 660.		UG/KG	11/16/92		Dibenzofuran
PF-36B-E-150	92.27453	95501	< 660.		UG/KG	11/16/92		o-Dichlorobenzene (1,2)
PF-36B-E-150	92.27453	541731	< 660.		UG/KG	11/16/92		m-Dichlorobenzene (1,3)
PF-36B-E-150	92.27453	106467	< 660.		UG/KG	11/16/92		p-Dichlorobenzene (1,4)
PF-36B-E-150	92.27453	91941	< 660.		UG/KG	11/16/92		3,3'-Dichlorobenzidine
PF-36B-E-150	92.27453	120832	< 660.		UG/KG	11/16/92		2,4-Dichlorophenol
PF-36B-E-150	92.27453	84662	< 660.		UG/KG	11/16/92		Diethyl phthalate
PF-36B-E-150	92.27453	131113	< 660.		UG/KG	11/16/92		Dimethyl phthalate
PF-36B-E-150	92.27453	105679	< 660.		UG/KG	11/16/92		2,4-Dimethylphenol
PF-36B-E-150	92.27453	51285	< 660.		UG/KG	11/16/92		2,4-Dinitrophenol
PF-36B-E-150	92.27453	121142	< 660.		UG/KG	11/16/92		2,4-Dinitrotoluene
PF-36B-E-150	92.27453	606202	< 660.		UG/KG	11/16/92		2,6-Dinitrotoluene
PF-36B-E-150	92.27453	206440	< 660.		UG/KG	11/16/92		Fluoranthene
PF-36B-E-150	92.27453	86737	< 660.		UG/KG	11/16/92		Fluorene
PF-36B-E-150	92.27453	118741	< 660.		UG/KG	11/16/92		Hexachlorobenzene
PF-36B-E-150	92.27453	87683	< 660.		UG/KG	11/16/92		Hexachlorobutadiene
PF-36B-E-150	92.27453	77474	< 660.		UG/KG	11/16/92		Hexachlorocyclopentadiene
PF-36B-E-150	92.27453	67721	< 660.		UG/KG	11/16/92		Hexachloroethane
PF-36B-E-150	92.27453	193395	< 660.		UG/KG	11/16/92		Indeno[1,2,3-cd]pyrene
PF-36B-E-150	92.27453	78591	< 660.		UG/KG	11/16/92		Isophorone
PF-36B-E-150	92.27453	534521	< 660.		UG/KG	11/16/92		2-Methyl-4,6-dinitrophenol
PF-36B-E-150	92.27453	91576	< 660.		UG/KG	11/16/92		2-Methylnaphthalene
PF-36B-E-150	92.27453	95487	< 660.		UG/KG	11/16/92		2-Methylphenol
PF-36B-E-150	92.27453	106445	< 660.		UG/KG	11/16/92		4-Methylphenol
PF-36B-E-150	92.27453	91203	< 660.		UG/KG	11/16/92		Naphthalene
PF-36B-E-150	92.27453	88744	< 660.		UG/KG	11/16/92		2-Nitroaniline
PF-36B-E-150	92.27453	99092	< 660.		UG/KG	11/16/92		3-Nitroaniline
PF-36B-E-150	92.27453	100016	< 660.		UG/KG	11/16/92		4-Nitroaniline
PF-36B-E-150	92.27453	98953	< 660.		UG/KG	11/16/92		Nitrobenzene
PF-36B-E-150	92.27453	88755	< 660.		UG/KG	11/16/92		2-Nitrophenol
PF-36B-E-150	92.27453	100027	< 660.		UG/KG	11/16/92		4-Nitrophenol
PF-36B-E-150	92.27453	621647	< 660.		UG/KG	11/16/92		N-Nitrosodi-n-propylamine
PF-36B-E-150	92.27453	62759	< 660.		UG/KG	11/16/92		N-Nitrosodimethylamine
PF-36B-[illegible]0	92.27453	86306	< 660.		UG/KG	[illegible]16/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-E-150	92.27453	87865	< 660.		UG/KG	11/16/92		Pentachlorophenol
PF-36B-E-150	92.27453	85018	< 660.		UG/KG	11/16/92		Phenanthrene
PF-36B-E-150	92.27453	108952	< 660.		UG/KG	11/16/92		Phenol
PF-36B-E-150	92.27453	129000	< 660.		UG/KG	11/16/92		Pyrene
PF-36B-E-150	92.27453	120821	< 660.		UG/KG	11/16/92		1,2,4-Trichlorobenzene
PF-36B-E-150	92.27453	95954	< 660.		UG/KG	11/16/92		2,4,5-Trichlorophenol
PF-36B-E-150	92.27453	88062	< 660.		UG/KG	11/16/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.27453

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 16-Nov-1992

REQUEST NUMBER: 13503 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 145

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.27454 Date Collected: 9/01/92 Date Received: 9/02/92 Date Extracted: 9/14/92 Date Analyzed: 10/02/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-N-20	92.27454	83329	< 330.		UG/KG	11/16/92		Acenaphthene
PF-36B-N-20	92.27454	208968	< 330.		UG/KG	11/16/92		Acenaphthylene
PF-36B-N-20	92.27454	62533	< 330.		UG/KG	11/16/92		Aniline
PF-36B-N-20	92.27454	120127	< 330.		UG/KG	11/16/92		Anthracene
PF-36B-N-20	92.27454	103333	< 330.		UG/KG	11/16/92		Azobenzene
PF-36B-N-20	92.27454	92875	< 330.		UG/KG	11/16/92		m-Benzidine
PF-36B-N-20	92.27454	56553	< 330.		UG/KG	11/16/92		Benzo[a]anthracene
PF-36B-N-20	92.27454	50328	< 330.		UG/KG	11/16/92		Benzo[a]pyrene
PF-36B-N-20	92.27454	205992	< 330.		UG/KG	11/16/92		Benzo[b]fluoranthene
PF-36B-N-20	92.27454	191242	< 330.		UG/KG	11/16/92		Benzo[g,h,i]perylene
PF-36B-N-20	92.27454	207089	< 330.		UG/KG	11/16/92		Benzo[k]fluoranthene
PF-36B-N-20	92.27454	65850	< 330.		UG/KG	11/16/92		Benzoic acid
PF-36B-N-20	92.27454	100516	< 330.		UG/KG	11/16/92		Benzyl alcohol
PF-36B-N-20	92.27454	111911	< 330.		UG/KG	11/16/92		Bis(2-chloroethoxy)methane
PF-36B-N-20	92.27454	111444	< 330.		UG/KG	11/16/92		Bis(2-chloroethyl)ether
PF-36B-N-20	92.27454	108601	< 330.		UG/KG	11/16/92		Bis(2-chloroisopropyl)ether
PF-36B-N-20	92.27454	117817	< 330.		UG/KG	11/16/92		Bis(2-ethylhexyl)phthalate
PF-36B-N-20	92.27454	101553	< 330.		UG/KG	11/16/92		4-Bromophenylphenyl ether
PF-36B-N-20	92.27454	85687	< 330.		UG/KG	11/16/92		Butyl benzyl phthalate
PF-36B-N-20	92.27454	59507	< 330.		UG/KG	11/16/92		4-Chloro-3-methylphenol
PF-36B-N-20	92.27454	106478	< 330.		UG/KG	11/16/92		4-Chloroaniline
PF-36B-N-20	92.27454	91587	< 330.		UG/KG	11/16/92		2-Chloronaphthalene
PF-36B-N-20	92.27454	95578	< 330.		UG/KG	11/16/92		o-Chlorophenol
PF-36B-N-20	92.27454	7005723	< 330.		UG/KG	11/16/92		4-Chlorophenylphenyl ether
PF-36B-N-20	92.27454	218019	< 330.		UG/KG	11/16/92		Chrysene
PF-36B-	92.27454	84742	< 330.		UG/KG	16/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-N-20	92.27454	117840	< 330.		UG/KG	11/16/92		Di-n-octyl phthalate
PF-36B-N-20	92.27454	53703	< 330.		UG/KG	11/16/92		Dibenzo[a,h]anthracene
PF-36B-N-20	92.27454	132649	< 330.		UG/KG	11/16/92		Dibenzofuran
PF-36B-N-20	92.27454	95501	< 330.		UG/KG	11/16/92		o-Dichlorobenzene (1,2)
PF-36B-N-20	92.27454	541731	< 330.		UG/KG	11/16/92		m-Dichlorobenzene (1,3)
PF-36B-N-20	92.27454	106467	< 330.		UG/KG	11/16/92		p-Dichlorobenzene (1,4)
PF-36B-N-20	92.27454	91941	< 330.		UG/KG	11/16/92		3,3'-Dichlorobenzidine
PF-36B-N-20	92.27454	120832	< 330.		UG/KG	11/16/92		2,4-Dichlorophenol
PF-36B-N-20	92.27454	84662	< 330.		UG/KG	11/16/92		Diethyl phthalate
PF-36B-N-20	92.27454	131113	< 330.		UG/KG	11/16/92		Dimethyl phthalate
PF-36B-N-20	92.27454	105679	< 330.		UG/KG	11/16/92		2,4-Dimethylphenol
PF-36B-N-20	92.27454	51285	< 330.		UG/KG	11/16/92		2,4-Dinitrophenol
PF-36B-N-20	92.27454	121142	< 330.		UG/KG	11/16/92		2,4-Dinitrotoluene
PF-36B-N-20	92.27454	606202	< 330.		UG/KG	11/16/92		2,6-Dinitrotoluene
PF-36B-N-20	92.27454	206440	< 330.		UG/KG	11/16/92		Fluoranthene
PF-36B-N-20	92.27454	86737	< 330.		UG/KG	11/16/92		Fluorene
PF-36B-N-20	92.27454	118741	< 330.		UG/KG	11/16/92		Hexachlorobenzene
PF-36B-N-20	92.27454	87683	< 330.		UG/KG	11/16/92		Hexachlorobutadiene
PF-36B-N-20	92.27454	77474	< 330.		UG/KG	11/16/92		Hexachlorocyclopentadiene
PF-36B-N-20	92.27454	67721	< 330.		UG/KG	11/16/92		Hexachloroethane
PF-36B-N-20	92.27454	193395	< 330.		UG/KG	11/16/92		Indeno[1,2,3-cd]pyrene
PF-36B-N-20	92.27454	78591	< 330.		UG/KG	11/16/92		Isophorone
PF-36B-N-20	92.27454	534521	< 330.		UG/KG	11/16/92		2-Methyl-4,6-dinitrophenol
PF-36B-N-20	92.27454	91576	< 330.		UG/KG	11/16/92		2-Methylnaphthalene
PF-36B-N-20	92.27454	95487	< 330.		UG/KG	11/16/92		2-Methylphenol
PF-36B-N-20	92.27454	106445	< 330.		UG/KG	11/16/92		4-Methylphenol
PF-36B-N-20	92.27454	91203	< 330.		UG/KG	11/16/92		Naphthalene
PF-36B-N-20	92.27454	88744	< 330.		UG/KG	11/16/92		2-Nitroaniline
PF-36B-N-20	92.27454	99092	< 330.		UG/KG	11/16/92		3-Nitroaniline
PF-36B-N-20	92.27454	100016	< 330.		UG/KG	11/16/92		4-Nitroaniline
PF-36B-N-20	92.27454	98953	< 330.		UG/KG	11/16/92		Nitrobenzene
PF-36B-N-20	92.27454	88755	< 330.		UG/KG	11/16/92		2-Nitrophenol
PF-36B-N-20	92.27454	100027	< 330.		UG/KG	11/16/92		4-Nitrophenol
PF-36B-N-20	92.27454	621647	< 330.		UG/KG	11/16/92		N-Nitrosodi-n-propylamine
PF-36B-N-20	92.27454	62759	< 330.		UG/KG	11/16/92		N-Nitrosodimethylamine
PF-36B-N-20	92.27454	86306	< 330.		UG/KG	11/16/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-N-20	92.27454	87865	< 330.		UG/KG	11/16/92		Pentachlorophenol
PF-36B-N-20	92.27454	85018	< 330.		UG/KG	11/16/92		Phenanthrene
PF-36B-N-20	92.27454	108952	< 330.		UG/KG	11/16/92		Phenol
PF-36B-N-20	92.27454	129000	< 330.		UG/KG	11/16/92		Pyrene
PF-36B-N-20	92.27454	120821	< 330.		UG/KG	11/16/92		1,2,4-Trichlorobenzene
PF-36B-N-20	92.27454	95954	< 330.		UG/KG	11/16/92		2,4,5-Trichlorophenol
PF-36B-N-20	92.27454	88062	< 330.		UG/KG	11/16/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.27454

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 16-Nov-1992

REQUEST NUMBER: 13503 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 145

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.27455 Date Collected: 9/01/92 Date Received: 9/02/92 Date Extracted: 9/14/92 Date Analyzed: 10/02/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-N-40	92.27455	83329	< 330.		UG/KG	11/16/92		Acenaphthene
PF-36B-N-40	92.27455	208968	< 330.		UG/KG	11/16/92		Acenaphthylene
PF-36B-N-40	92.27455	62533	< 330.		UG/KG	11/16/92		Aniline
PF-36B-N-40	92.27455	120127	< 330.		UG/KG	11/16/92		Anthracene
PF-36B-N-40	92.27455	103333	< 330.		UG/KG	11/16/92		Azobenzene
PF-36B-N-40	92.27455	92875	< 330.		UG/KG	11/16/92		m-Benzidine
PF-36B-N-40	92.27455	56553	< 330.		UG/KG	11/16/92		Benzo[a]anthracene
PF-36B-N-40	92.27455	50328	< 330.		UG/KG	11/16/92		Benzo[a]pyrene
PF-36B-N-40	92.27455	205992	< 330.		UG/KG	11/16/92		Benzo[b]fluoranthene
PF-36B-N-40	92.27455	191242	< 330.		UG/KG	11/16/92		Benzo[g,h,i]perylene
PF-36B-N-40	92.27455	207089	< 330.		UG/KG	11/16/92		Benzo[k]fluoranthene
PF-36B-N-40	92.27455	65850	< 330.		UG/KG	11/16/92		Benzoic acid
PF-36B-N-40	92.27455	100516	< 330.		UG/KG	11/16/92		Benzyl alcohol
PF-36B-N-40	92.27455	111911	< 330.		UG/KG	11/16/92		Bis(2-chloroethoxy)methane
PF-36B-N-40	92.27455	111444	< 330.		UG/KG	11/16/92		Bis(2-chloroethyl)ether
PF-36B-N-40	92.27455	108601	< 330.		UG/KG	11/16/92		Bis(2-chloroisopropyl)ether
PF-36B-N-40	92.27455	117817	< 330.		UG/KG	11/16/92		Bis(2-ethylhexyl)phthalate
PF-36B-N-40	92.27455	101553	< 330.		UG/KG	11/16/92		4-Bromophenylphenyl ether
PF-36B-N-40	92.27455	85687	< 330.		UG/KG	11/16/92		Butyl benzyl phthalate
PF-36B-N-40	92.27455	59507	< 330.		UG/KG	11/16/92		4-Chloro-3-methylphenol
PF-36B-N-40	92.27455	106478	< 330.		UG/KG	11/16/92		4-Chloroaniline
PF-36B-N-40	92.27455	91587	< 330.		UG/KG	11/16/92		2-Chloronaphthalene
PF-36B-N-40	92.27455	95578	< 330.		UG/KG	11/16/92		o-Chlorophenol
PF-36B-N-40	92.27455	7005723	< 330.		UG/KG	11/16/92		4-Chlorophenylphenyl ether
PF-36B-N-40	92.27455	218019	< 330.		UG/KG	11/16/92		Chrysene
PF-36B-N-40	92.27455	84742	< 330.		UG/KG	11/16/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-N-40	92.27455	117840	< 330.		UG/KG	11/16/92		Di-n-octyl phthalate
PF-36B-N-40	92.27455	53703	< 330.		UG/KG	11/16/92		Dibenzo[a,h]anthracene
PF-36B-N-40	92.27455	132649	< 330.		UG/KG	11/16/92		Dibenzofuran
PF-36B-N-40	92.27455	95501	< 330.		UG/KG	11/16/92		o-Dichlorobenzene (1,2)
PF-36B-N-40	92.27455	541731	< 330.		UG/KG	11/16/92		m-Dichlorobenzene (1,3)
PF-36B-N-40	92.27455	106467	< 330.		UG/KG	11/16/92		p-Dichlorobenzene (1,4)
PF-36B-N-40	92.27455	91941	< 330.		UG/KG	11/16/92		3,3'-Dichlorobenzidine
PF-36B-N-40	92.27455	120832	< 330.		UG/KG	11/16/92		2,4-Dichlorophenol
PF-36B-N-40	92.27455	84662	< 330.		UG/KG	11/16/92		Diethyl phthalate
PF-36B-N-40	92.27455	131113	< 330.		UG/KG	11/16/92		Dimethyl phthalate
PF-36B-N-40	92.27455	105679	< 330.		UG/KG	11/16/92		2,4-Dimethylphenol
PF-36B-N-40	92.27455	51285	< 330.		UG/KG	11/16/92		2,4-Dinitrophenol
PF-36B-N-40	92.27455	121142	< 330.		UG/KG	11/16/92		2,4-Dinitrotoluene
PF-36B-N-40	92.27455	606202	< 330.		UG/KG	11/16/92		2,6-Dinitrotoluene
PF-36B-N-40	92.27455	206440	< 330.		UG/KG	11/16/92		Fluoranthene
PF-36B-N-40	92.27455	86737	< 330.		UG/KG	11/16/92		Fluorene
PF-36B-N-40	92.27455	118741	< 330.		UG/KG	11/16/92		Hexachlorobenzene
PF-36B-N-40	92.27455	87683	< 330.		UG/KG	11/16/92		Hexachlorobutadiene
PF-36B-N-40	92.27455	77474	< 330.		UG/KG	11/16/92		Hexachlorocyclopentadiene
PF-36B-N-40	92.27455	67721	< 330.		UG/KG	11/16/92		Hexachloroethane
PF-36B-N-40	92.27455	193395	< 330.		UG/KG	11/16/92		Indeno[1,2,3-cd]pyrene
PF-36B-N-40	92.27455	78591	< 330.		UG/KG	11/16/92		Isophorone
PF-36B-N-40	92.27455	534521	< 330.		UG/KG	11/16/92		2-Methyl-4,6-dinitrophenol
PF-36B-N-40	92.27455	91576	< 330.		UG/KG	11/16/92		2-Methylnaphthalene
PF-36B-N-40	92.27455	95487	< 330.		UG/KG	11/16/92		2-Methylphenol
PF-36B-N-40	92.27455	106445	< 330.		UG/KG	11/16/92		4-Methylphenol
PF-36B-N-40	92.27455	91203	< 330.		UG/KG	11/16/92		Naphthalene
PF-36B-N-40	92.27455	88744	< 330.		UG/KG	11/16/92		2-Nitroaniline
PF-36B-N-40	92.27455	99092	< 330.		UG/KG	11/16/92		3-Nitroaniline
PF-36B-N-40	92.27455	100016	< 330.		UG/KG	11/16/92		4-Nitroaniline
PF-36B-N-40	92.27455	98953	< 330.		UG/KG	11/16/92		Nitrobenzene
PF-36B-N-40	92.27455	88755	< 330.		UG/KG	11/16/92		2-Nitrophenol
PF-36B-N-40	92.27455	100027	< 330.		UG/KG	11/16/92		4-Nitrophenol
PF-36B-N-40	92.27455	621647	< 330.		UG/KG	11/16/92		N-Nitrosodi-n-propylamine
PF-36B-N-40	92.27455	62759	< 330.		UG/KG	11/16/92		N-Nitrosodimethylamine
PF-36B-	92.27455	86306	< 330.		UG/KG	16/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-N-40	92.27455	87865	< 330.		UG/KG	11/16/92		Pentachlorophenol
PF-36B-N-40	92.27455	85018	< 330.		UG/KG	11/16/92		Phenanthrene
PF-36B-N-40	92.27455	108952	< 330.		UG/KG	11/16/92		Phenol
PF-36B-N-40	92.27455	129000	< 330.		UG/KG	11/16/92		Pyrene
PF-36B-N-40	92.27455	120821	< 330.		UG/KG	11/16/92		1,2,4-Trichlorobenzene
PF-36B-N-40	92.27455	95954	< 330.		UG/KG	11/16/92		2,4,5-Trichlorophenol
PF-36B-N-40	92.27455	88062	< 330.		UG/KG	11/16/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.27455

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 16-Nov-1992

REQUEST NUMBER: 13503 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 145

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.27456 Date Collected: 9/01/92 Date Received: 9/02/92 Date Extracted: 9/14/92 Date Analyzed: 9/24/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-N-60	92.27456	83329	< 330.		UG/KG	11/16/92		Acenaphthene
PF-36B-N-60	92.27456	208968	< 330.		UG/KG	11/16/92		Acenaphthylene
PF-36B-N-60	92.27456	62533	< 330.		UG/KG	11/16/92		Aniline
PF-36B-N-60	92.27456	120127	< 330.		UG/KG	11/16/92		Anthracene
PF-36B-N-60	92.27456	103333	< 330.		UG/KG	11/16/92		Azobenzene
PF-36B-N-60	92.27456	92875	< 330.		UG/KG	11/16/92		m-Benzidine
PF-36B-N-60	92.27456	56553	< 330.		UG/KG	11/16/92		Benzo[a]anthracene
PF-36B-N-60	92.27456	50328	< 330.		UG/KG	11/16/92		Benzo[a]pyrene
PF-36B-N-60	92.27456	205992	< 330.		UG/KG	11/16/92		Benzo[b]fluoranthene
PF-36B-N-60	92.27456	191242	< 330.		UG/KG	11/16/92		Benzo[g,h,i]perylene
PF-36B-N-60	92.27456	207089	< 330.		UG/KG	11/16/92		Benzo[k]fluoranthene
PF-36B-N-60	92.27456	65850	< 330.		UG/KG	11/16/92		Benzoic acid
PF-36B-N-60	92.27456	100516	< 330.		UG/KG	11/16/92		Benzyl alcohol
PF-36B-N-60	92.27456	111911	< 330.		UG/KG	11/16/92		Bis(2-chloroethoxy)methane
PF-36B-N-60	92.27456	111444	< 330.		UG/KG	11/16/92		Bis(2-chloroethyl)ether
PF-36B-N-60	92.27456	108601	< 330.		UG/KG	11/16/92		Bis(2-chloroisopropyl)ether
PF-36B-N-60	92.27456	117817	< 330.		UG/KG	11/16/92		Bis(2-ethylhexyl)phthalate
PF-36B-N-60	92.27456	101553	< 330.		UG/KG	11/16/92		4-Bromophenylphenyl ether
PF-36B-N-60	92.27456	85687	< 330.		UG/KG	11/16/92		Butyl benzyl phthalate
PF-36B-N-60	92.27456	59507	< 330.		UG/KG	11/16/92		4-Chloro-3-methylphenol
PF-36B-N-60	92.27456	106478	< 330.		UG/KG	11/16/92		4-Chloroaniline
PF-36B-N-60	92.27456	91587	< 330.		UG/KG	11/16/92		2-Chloronaphthalene
PF-36B-N-60	92.27456	95578	< 330.		UG/KG	11/16/92		o-Chlorophenol
PF-36B-N-60	92.27456	7005723	< 330.		UG/KG	11/16/92		4-Chlorophenylphenyl ether
PF-36B-N-60	92.27456	218019	< 330.		UG/KG	11/16/92		Chrysene
PF-36B-'	92.27456	84742	< 330.		UG/KG	16/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-N-60	92.27456	117840	< 330.		UG/KG	11/16/92		Di-n-octyl phthalate
PF-36B-N-60	92.27456	53703	< 330.		UG/KG	11/16/92		Dibenzo[a,h]anthracene
PF-36B-N-60	92.27456	132649	< 330.		UG/KG	11/16/92		Dibenzofuran
PF-36B-N-60	92.27456	95501	< 330.		UG/KG	11/16/92		o-Dichlorobenzene (1,2)
PF-36B-N-60	92.27456	541731	< 330.		UG/KG	11/16/92		m-Dichlorobenzene (1,3)
PF-36B-N-60	92.27456	106467	< 330.		UG/KG	11/16/92		p-Dichlorobenzene (1,4)
PF-36B-N-60	92.27456	91941	< 330.		UG/KG	11/16/92		3,3'-Dichlorobenzidine
PF-36B-N-60	92.27456	120832	< 330.		UG/KG	11/16/92		2,4-Dichlorophenol
PF-36B-N-60	92.27456	84662	< 330.		UG/KG	11/16/92		Diethyl phthalate
PF-36B-N-60	92.27456	131113	< 330.		UG/KG	11/16/92		Dimethyl phthalate
PF-36B-N-60	92.27456	105679	< 330.		UG/KG	11/16/92		2,4-Dimethylphenol
PF-36B-N-60	92.27456	51285	< 330.		UG/KG	11/16/92		2,4-Dinitrophenol
PF-36B-N-60	92.27456	121142	< 330.		UG/KG	11/16/92		2,4-Dinitrotoluene
PF-36B-N-60	92.27456	606202	< 330.		UG/KG	11/16/92		2,6-Dinitrotoluene
PF-36B-N-60	92.27456	206440	< 330.		UG/KG	11/16/92		Fluoranthene
PF-36B-N-60	92.27456	86737	< 330.		UG/KG	11/16/92		Fluorene
PF-36B-N-60	92.27456	118741	< 330.		UG/KG	11/16/92		Hexachlorobenzene
PF-36B-N-60	92.27456	87683	< 330.		UG/KG	11/16/92		Hexachlorobutadiene
PF-36B-N-60	92.27456	77474	< 330.		UG/KG	11/16/92		Hexachlorocyclopentadiene
PF-36B-N-60	92.27456	67721	< 330.		UG/KG	11/16/92		Hexachloroethane
PF-36B-N-60	92.27456	193395	< 330.		UG/KG	11/16/92		Indeno[1,2,3-cd]pyrene
PF-36B-N-60	92.27456	78591	< 330.		UG/KG	11/16/92		Isophorone
PF-36B-N-60	92.27456	534521	< 330.		UG/KG	11/16/92		2-Methyl-4,6-dinitrophenol
PF-36B-N-60	92.27456	91576	< 330.		UG/KG	11/16/92		2-Methylnaphthalene
PF-36B-N-60	92.27456	95487	< 330.		UG/KG	11/16/92		2-Methylphenol
PF-36B-N-60	92.27456	106445	< 330.		UG/KG	11/16/92		4-Methylphenol
PF-36B-N-60	92.27456	91203	< 330.		UG/KG	11/16/92		Naphthalene
PF-36B-N-60	92.27456	88744	< 330.		UG/KG	11/16/92		2-Nitroaniline
PF-36B-N-60	92.27456	99092	< 330.		UG/KG	11/16/92		3-Nitroaniline
PF-36B-N-60	92.27456	100016	< 330.		UG/KG	11/16/92		4-Nitroaniline
PF-36B-N-60	92.27456	98953	< 330.		UG/KG	11/16/92		Nitrobenzene
PF-36B-N-60	92.27456	88755	< 330.		UG/KG	11/16/92		2-Nitrophenol
PF-36B-N-60	92.27456	100027	< 330.		UG/KG	11/16/92		4-Nitrophenol
PF-36B-N-60	92.27456	621647	< 330.		UG/KG	11/16/92		N-Nitrosodi-n-propylamine
PF-36B-N-60	92.27456	62759	< 330.		UG/KG	11/16/92		N-Nitrosodimethylamine
PF-36B-N-60	92.27456	86306	< 330.		UG/KG	11/16/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-N-60	92.27456	87865	< 330.		UG/KG	11/16/92		Pentachlorophenol
PF-36B-N-60	92.27456	85018	< 330.		UG/KG	11/16/92		Phenanthrene
PF-36B-N-60	92.27456	108952	< 330.		UG/KG	11/16/92		Phenol
PF-36B-N-60	92.27456	129000	< 330.		UG/KG	11/16/92		Pyrene
PF-36B-N-60	92.27456	120821	< 330.		UG/KG	11/16/92		1,2,4-Trichlorobenzene
PF-36B-N-60	92.27456	95954	< 330.		UG/KG	11/16/92		2,4,5-Trichlorophenol
PF-36B-N-60	92.27456	88062	< 330.		UG/KG	11/16/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.27456

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 16-Nov-1992

REQUEST NUMBER: 13503 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 145

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.27457 Date Collected: 9/01/92 Date Received: 9/02/92 Date Extracted: 9/14/92 Date Analyzed: 10/02/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-N-100	92.27457	83329	< 330.		UG/KG	11/16/92		Acenaphthene
PF-36B-N-100	92.27457	208968	< 330.		UG/KG	11/16/92		Acenaphthylene
PF-36B-N-100	92.27457	62533	< 330.		UG/KG	11/16/92		Aniline
PF-36B-N-100	92.27457	120127	< 330.		UG/KG	11/16/92		Anthracene
PF-36B-N-100	92.27457	103333	< 330.		UG/KG	11/16/92		Azobenzene
PF-36B-N-100	92.27457	92875	< 330.		UG/KG	11/16/92		m-Benzidine
PF-36B-N-100	92.27457	56553	< 330.		UG/KG	11/16/92		Benzo[a]anthracene
PF-36B-N-100	92.27457	50328	< 330.		UG/KG	11/16/92		Benzo[a]pyrene
PF-36B-N-100	92.27457	205992	< 330.		UG/KG	11/16/92		Benzo[b]fluoranthene
PF-36B-N-100	92.27457	191242	< 330.		UG/KG	11/16/92		Benzo[g,h,i]perylene
PF-36B-N-100	92.27457	207089	< 330.		UG/KG	11/16/92		Benzo[k]fluoranthene
PF-36B-N-100	92.27457	65850	< 330.		UG/KG	11/16/92		Benzoic acid
PF-36B-N-100	92.27457	100516	< 330.		UG/KG	11/16/92		Benzyl alcohol
PF-36B-N-100	92.27457	111911	< 330.		UG/KG	11/16/92		Bis(2-chloroethoxy)methane
PF-36B-N-100	92.27457	111444	< 330.		UG/KG	11/16/92		Bis(2-chloroethyl)ether
PF-36B-N-100	92.27457	108601	< 330.		UG/KG	11/16/92		Bis(2-chloroisopropyl)ether
PF-36B-N-100	92.27457	117817	< 330.		UG/KG	11/16/92		Bis(2-ethylhexyl)phthalate
PF-36B-N-100	92.27457	101553	< 330.		UG/KG	11/16/92		4-Bromophenylphenyl ether
PF-36B-N-100	92.27457	85687	< 330.		UG/KG	11/16/92		Butyl benzyl phthalate
PF-36B-N-100	92.27457	59507	< 330.		UG/KG	11/16/92		4-Chloro-3-methylphenol
PF-36B-N-100	92.27457	106478	< 330.		UG/KG	11/16/92		4-Chloroaniline
PF-36B-N-100	92.27457	91587	< 330.		UG/KG	11/16/92		2-Chloronaphthalene
PF-36B-N-100	92.27457	95578	< 330.		UG/KG	11/16/92		o-Chlorophenol
PF-36B-N-100	92.27457	7005723	< 330.		UG/KG	11/16/92		4-Chlorophenylphenyl ether
PF-36B-N-100	92.27457	218019	< 330.		UG/KG	11/16/92		Chrysene
PF-36B-N-100	92.27457	84742	< 330.		UG/KG	11/16/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-N-100	92.27457	117840	< 330.		UG/KG	11/16/92		Di-n-octyl phthalate
PF-36B-N-100	92.27457	53703	< 330.		UG/KG	11/16/92		Dibenzo[a,h]anthracene
PF-36B-N-100	92.27457	132649	< 330.		UG/KG	11/16/92		Dibenzofuran
PF-36B-N-100	92.27457	95501	< 330.		UG/KG	11/16/92		o-Dichlorobenzene (1,2)
PF-36B-N-100	92.27457	541731	< 330.		UG/KG	11/16/92		m-Dichlorobenzene (1,3)
PF-36B-N-100	92.27457	106467	< 330.		UG/KG	11/16/92		p-Dichlorobenzene (1,4)
PF-36B-N-100	92.27457	91941	< 330.		UG/KG	11/16/92		3,3'-Dichlorobenzidine
PF-36B-N-100	92.27457	120832	< 330.		UG/KG	11/16/92		2,4-Dichlorophenol
PF-36B-N-100	92.27457	84662	< 330.		UG/KG	11/16/92		Diethyl phthalate
PF-36B-N-100	92.27457	131113	< 330.		UG/KG	11/16/92		Dimethyl phthalate
PF-36B-N-100	92.27457	105679	< 330.		UG/KG	11/16/92		2,4-Dimethylphenol
PF-36B-N-100	92.27457	51285	< 330.		UG/KG	11/16/92		2,4-Dinitrophenol
PF-36B-N-100	92.27457	121142	< 330.		UG/KG	11/16/92		2,4-Dinitrotoluene
PF-36B-N-100	92.27457	606202	< 330.		UG/KG	11/16/92		2,6-Dinitrotoluene
PF-36B-N-100	92.27457	206440	< 330.		UG/KG	11/16/92		Fluoranthene
PF-36B-N-100	92.27457	86737	< 330.		UG/KG	11/16/92		Fluorene
PF-36B-N-100	92.27457	118741	< 330.		UG/KG	11/16/92		Hexachlorobenzene
PF-36B-N-100	92.27457	87683	< 330.		UG/KG	11/16/92		Hexachlorobutadiene
PF-36B-N-100	92.27457	77474	< 330.		UG/KG	11/16/92		Hexachlorocyclopentadiene
PF-36B-N-100	92.27457	67721	< 330.		UG/KG	11/16/92		Hexachloroethane
PF-36B-N-100	92.27457	193395	< 330.		UG/KG	11/16/92		Indeno[1,2,3-cd]pyrene
PF-36B-N-100	92.27457	78591	< 330.		UG/KG	11/16/92		Isophorone
PF-36B-N-100	92.27457	534521	< 330.		UG/KG	11/16/92		2-Methyl-4,6-dinitrophenol
PF-36B-N-100	92.27457	91576	< 330.		UG/KG	11/16/92		2-Methylnaphthalene
PF-36B-N-100	92.27457	95487	< 330.		UG/KG	11/16/92		2-Methylphenol
PF-36B-N-100	92.27457	106445	< 330.		UG/KG	11/16/92		4-Methylphenol
PF-36B-N-100	92.27457	91203	< 330.		UG/KG	11/16/92		Naphthalene
PF-36B-N-100	92.27457	88744	< 330.		UG/KG	11/16/92		2-Nitroaniline
PF-36B-N-100	92.27457	99092	< 330.		UG/KG	11/16/92		3-Nitroaniline
PF-36B-N-100	92.27457	100016	< 330.		UG/KG	11/16/92		4-Nitroaniline
PF-36B-N-100	92.27457	98953	< 330.		UG/KG	11/16/92		Nitrobenzene
PF-36B-N-100	92.27457	88755	< 330.		UG/KG	11/16/92		2-Nitrophenol
PF-36B-N-100	92.27457	100027	< 330.		UG/KG	11/16/92		4-Nitrophenol
PF-36B-N-100	92.27457	621647	< 330.		UG/KG	11/16/92		N-Nitrosodi-n-propylamine
PF-36B-N-100	92.27457	62759	< 330.		UG/KG	11/16/92		N-Nitrosodimethylamine
PF-36B-N-100	92.27457	86306	< 330.		UG/KG	11/16/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-N-100	92.27457	87865	< 330.		UG/KG	11/16/92		Pentachlorophenol
PF-36B-N-100	92.27457	85018	< 330.		UG/KG	11/16/92		Phenanthrene
PF-36B-N-100	92.27457	108952	< 330.		UG/KG	11/16/92		Phenol
PF-36B-N-100	92.27457	129000	< 330.		UG/KG	11/16/92		Pyrene
PF-36B-N-100	92.27457	120821	< 330.		UG/KG	11/16/92		1,2,4-Trichlorobenzene
PF-36B-N-100	92.27457	95954	< 330.		UG/KG	11/16/92		2,4,5-Trichlorophenol
PF-36B-N-100	92.27457	88062	< 330.		UG/KG	11/16/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.27457

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 16-Nov-1992

REQUEST NUMBER: 13503 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 145

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.27458 Date Collected: 9/01/92 Date Received: 9/02/92 Date Extracted: 9/14/92 Date Analyzed: 10/02/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-N-150	92.27458	83329	< 330.		UG/KG	11/16/92		Acenaphthene
PF-36B-N-150	92.27458	208968	< 330.		UG/KG	11/16/92		Acenaphthylene
PF-36B-N-150	92.27458	62533	< 330.		UG/KG	11/16/92		Aniline
PF-36B-N-150	92.27458	120127	< 330.		UG/KG	11/16/92		Anthracene
PF-36B-N-150	92.27458	103333	< 330.		UG/KG	11/16/92		Azobenzene
PF-36B-N-150	92.27458	92875	< 330.		UG/KG	11/16/92		m-Benzidine
PF-36B-N-150	92.27458	56553	< 330.		UG/KG	11/16/92		Benzo[a]anthracene
PF-36B-N-150	92.27458	50328	< 330.		UG/KG	11/16/92		Benzo[a]pyrene
PF-36B-N-150	92.27458	205992	< 330.		UG/KG	11/16/92		Benzo[b]fluoranthene
PF-36B-N-150	92.27458	191242	< 330.		UG/KG	11/16/92		Benzo[g,h,i]perylene
PF-36B-N-150	92.27458	207089	< 330.		UG/KG	11/16/92		Benzo[k]fluoranthene
PF-36B-N-150	92.27458	65850	< 330.		UG/KG	11/16/92		Benzoic acid
PF-36B-N-150	92.27458	100516	< 330.		UG/KG	11/16/92		Benzyl alcohol
PF-36B-N-150	92.27458	111911	< 330.		UG/KG	11/16/92		Bis(2-chloroethoxy)methane
PF-36B-N-150	92.27458	111444	< 330.		UG/KG	11/16/92		Bis(2-chloroethyl)ether
PF-36B-N-150	92.27458	108601	< 330.		UG/KG	11/16/92		Bis(2-chloroisopropyl)ether
PF-36B-N-150	92.27458	117817	< 330.		UG/KG	11/16/92		Bis(2-ethylhexyl)phthalate
PF-36B-N-150	92.27458	101553	< 330.		UG/KG	11/16/92		4-Bromophenylphenyl ether
PF-36B-N-150	92.27458	85687	< 330.		UG/KG	11/16/92		Butyl benzyl phthalate
PF-36B-N-150	92.27458	59507	< 330.		UG/KG	11/16/92		4-Chloro-3-methylphenol
PF-36B-N-150	92.27458	106478	< 330.		UG/KG	11/16/92		4-Chloroaniline
PF-36B-N-150	92.27458	91587	< 330.		UG/KG	11/16/92		2-Chloronaphthalene
PF-36B-N-150	92.27458	95578	< 330.		UG/KG	11/16/92		o-Chlorophenol
PF-36B-N-150	92.27458	7005723	< 330.		UG/KG	11/16/92		4-Chlorophenylphenyl ether
PF-36B-N-150	92.27458	218019	< 330.		UG/KG	11/16/92		Chrysene
PF-36B-	92.27458	84742	< 330.		UG/KG	6/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-N-150	92.27458	117840	< 330.		UG/KG	11/16/92		Di-n-octyl phthalate
PF-36B-N-150	92.27458	53703	< 330.		UG/KG	11/16/92		Dibenzo[a,h]anthracene
PF-36B-N-150	92.27458	132649	< 330.		UG/KG	11/16/92		Dibenzofuran
PF-36B-N-150	92.27458	95501	< 330.		UG/KG	11/16/92		o-Dichlorobenzene (1,2)
PF-36B-N-150	92.27458	541731	< 330.		UG/KG	11/16/92		m-Dichlorobenzene (1,3)
PF-36B-N-150	92.27458	106467	< 330.		UG/KG	11/16/92		p-Dichlorobenzene (1,4)
PF-36B-N-150	92.27458	91941	< 330.		UG/KG	11/16/92		3,3'-Dichlorobenzidine
PF-36B-N-150	92.27458	120832	< 330.		UG/KG	11/16/92		2,4-Dichlorophenol
PF-36B-N-150	92.27458	84662	< 330.		UG/KG	11/16/92		Diethyl phthalate
PF-36B-N-150	92.27458	131113	< 330.		UG/KG	11/16/92		Dimethyl phthalate
PF-36B-N-150	92.27458	105679	< 330.		UG/KG	11/16/92		2,4-Dimethylphenol
PF-36B-N-150	92.27458	51285	< 330.		UG/KG	11/16/92		2,4-Dinitrophenol
PF-36B-N-150	92.27458	121142	< 330.		UG/KG	11/16/92		2,4-Dinitrotoluene
PF-36B-N-150	92.27458	606202	< 330.		UG/KG	11/16/92		2,6-Dinitrotoluene
PF-36B-N-150	92.27458	206440	< 330.		UG/KG	11/16/92		Fluoranthene
PF-36B-N-150	92.27458	86737	< 330.		UG/KG	11/16/92		Fluorene
PF-36B-N-150	92.27458	118741	< 330.		UG/KG	11/16/92		Hexachlorobenzene
PF-36B-N-150	92.27458	87683	< 330.		UG/KG	11/16/92		Hexachlorobutadiene
PF-36B-N-150	92.27458	77474	< 330.		UG/KG	11/16/92		Hexachlorocyclopentadiene
PF-36B-N-150	92.27458	67721	< 330.		UG/KG	11/16/92		Hexachloroethane
PF-36B-N-150	92.27458	193395	< 330.		UG/KG	11/16/92		Indeno[1,2,3-cd]pyrene
PF-36B-N-150	92.27458	78591	< 330.		UG/KG	11/16/92		Isophorone
PF-36B-N-150	92.27458	534521	< 330.		UG/KG	11/16/92		2-Methyl-4,6-dinitrophenol
PF-36B-N-150	92.27458	91576	< 330.		UG/KG	11/16/92		2-Methylnaphthalene
PF-36B-N-150	92.27458	95487	< 330.		UG/KG	11/16/92		2-Methylphenol
PF-36B-N-150	92.27458	106445	< 330.		UG/KG	11/16/92		4-Methylphenol
PF-36B-N-150	92.27458	91203	< 330.		UG/KG	11/16/92		Naphthalene
PF-36B-N-150	92.27458	88744	< 330.		UG/KG	11/16/92		2-Nitroaniline
PF-36B-N-150	92.27458	99092	< 330.		UG/KG	11/16/92		3-Nitroaniline
PF-36B-N-150	92.27458	100016	< 330.		UG/KG	11/16/92		4-Nitroaniline
PF-36B-N-150	92.27458	98953	< 330.		UG/KG	11/16/92		Nitrobenzene
PF-36B-N-150	92.27458	88755	< 330.		UG/KG	11/16/92		2-Nitrophenol
PF-36B-N-150	92.27458	100027	< 330.		UG/KG	11/16/92		4-Nitrophenol
PF-36B-N-150	92.27458	621647	< 330.		UG/KG	11/16/92		N-Nitrosodi-n-propylamine
PF-36B-N-150	92.27458	62759	< 330.		UG/KG	11/16/92		N-Nitrosodimethylamine
PF-36B-N-150	92.27458	86306	< 330.		UG/KG	11/16/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-N-150	92.27458	87865	< 330.		UG/KG	11/16/92		Pentachlorophenol
PF-36B-N-150	92.27458	85018	< 330.		UG/KG	11/16/92		Phenanthrene
PF-36B-N-150	92.27458	108952	< 330.		UG/KG	11/16/92		Phenol
PF-36B-N-150	92.27458	129000	< 330.		UG/KG	11/16/92		Pyrene
PF-36B-N-150	92.27458	120821	< 330.		UG/KG	11/16/92		1,2,4-Trichlorobenzene
PF-36B-N-150	92.27458	95954	< 330.		UG/KG	11/16/92		2,4,5-Trichlorophenol
PF-36B-N-150	92.27458	88062	< 330.		UG/KG	11/16/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.27458

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 16-Nov-1992

REQUEST NUMBER: 13503 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 145

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.27459 Date Collected: 9/01/92 Date Received: 9/02/92 Date Extracted: 9/14/92 Date Analyzed: 9/24/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-S-20	92.27459	83329	< 330.		UG/KG	11/16/92		Acenaphthene
PF-36B-S-20	92.27459	208968	< 330.		UG/KG	11/16/92		Acenaphthylene
PF-36B-S-20	92.27459	62533	< 330.		UG/KG	11/16/92		Aniline
PF-36B-S-20	92.27459	120127	< 330.		UG/KG	11/16/92		Anthracene
PF-36B-S-20	92.27459	103333	< 330.		UG/KG	11/16/92		Azobenzene
PF-36B-S-20	92.27459	92875	< 330.		UG/KG	11/16/92		m-Benzidine
PF-36B-S-20	92.27459	56553	< 330.		UG/KG	11/16/92		Benzo[a]anthracene
PF-36B-S-20	92.27459	50328	< 330.		UG/KG	11/16/92		Benzo[a]pyrene
PF-36B-S-20	92.27459	205992	< 330.		UG/KG	11/16/92		Benzo[b]fluoranthene
PF-36B-S-20	92.27459	191242	< 330.		UG/KG	11/16/92		Benzo[g,h,i]perylene
PF-36B-S-20	92.27459	207089	< 330.		UG/KG	11/16/92		Benzo[k]fluoranthene
PF-36B-S-20	92.27459	65850	< 330.		UG/KG	11/16/92		Benzoic acid
PF-36B-S-20	92.27459	100516	< 330.		UG/KG	11/16/92		Benzyl alcohol
PF-36B-S-20	92.27459	111911	< 330.		UG/KG	11/16/92		Bis(2-chloroethoxy)methane
PF-36B-S-20	92.27459	111444	< 330.		UG/KG	11/16/92		Bis(2-chloroethyl)ether
PF-36B-S-20	92.27459	108601	< 330.		UG/KG	11/16/92		Bis(2-chloroisopropyl)ether
PF-36B-S-20	92.27459	117817	< 330.		UG/KG	11/16/92		Bis(2-ethylhexyl)phthalate
PF-36B-S-20	92.27459	101553	< 330.		UG/KG	11/16/92		4-Bromophenylphenyl ether
PF-36B-S-20	92.27459	85687	< 330.		UG/KG	11/16/92		Butyl benzyl phthalate
PF-36B-S-20	92.27459	59507	< 330.		UG/KG	11/16/92		4-Chloro-3-methylphenol
PF-36B-S-20	92.27459	106478	< 330.		UG/KG	11/16/92		4-Chloroaniline
PF-36B-S-20	92.27459	91587	< 330.		UG/KG	11/16/92		2-Chloronaphthalene
PF-36B-S-20	92.27459	95578	< 330.		UG/KG	11/16/92		o-Chlorophenol
PF-36B-S-20	92.27459	7005723	< 330.		UG/KG	11/16/92		4-Chlorophenylphenyl ether
PF-36B-S-20	92.27459	218019	< 330.		UG/KG	11/16/92		Chrysene
PF-36B-S-20	92.27459	84742	< 330.		UG/KG	11/16/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-S-20	92.27459	117840	< 330.		UG/KG	11/16/92		Di-n-octyl phthalate
PF-36B-S-20	92.27459	53703	< 330.		UG/KG	11/16/92		Dibenzo[a,h]anthracene
PF-36B-S-20	92.27459	132649	< 330.		UG/KG	11/16/92		Dibenzofuran
PF-36B-S-20	92.27459	95501	< 330.		UG/KG	11/16/92		o-Dichlorobenzene (1,2)
PF-36B-S-20	92.27459	541731	< 330.		UG/KG	11/16/92		m-Dichlorobenzene (1,3)
PF-36B-S-20	92.27459	106467	< 330.		UG/KG	11/16/92		p-Dichlorobenzene (1,4)
PF-36B-S-20	92.27459	91941	< 330.		UG/KG	11/16/92		3,3'-Dichlorobenzidine
PF-36B-S-20	92.27459	120832	< 330.		UG/KG	11/16/92		2,4-Dichlorophenol
PF-36B-S-20	92.27459	84662	< 330.		UG/KG	11/16/92		Diethyl phthalate
PF-36B-S-20	92.27459	131113	< 330.		UG/KG	11/16/92		Dimethyl phthalate
PF-36B-S-20	92.27459	105679	< 330.		UG/KG	11/16/92		2,4-Dimethylphenol
PF-36B-S-20	92.27459	51285	< 330.		UG/KG	11/16/92		2,4-Dinitrophenol
PF-36B-S-20	92.27459	121142	< 330.		UG/KG	11/16/92		2,4-Dinitrotoluene
PF-36B-S-20	92.27459	606202	< 330.		UG/KG	11/16/92		2,6-Dinitrotoluene
PF-36B-S-20	92.27459	206440	< 330.		UG/KG	11/16/92		Fluoranthene
PF-36B-S-20	92.27459	86737	< 330.		UG/KG	11/16/92		Fluorene
PF-36B-S-20	92.27459	118741	< 330.		UG/KG	11/16/92		Hexachlorobenzene
PF-36B-S-20	92.27459	87683	< 330.		UG/KG	11/16/92		Hexachlorobutadiene
PF-36B-S-20	92.27459	77474	< 330.		UG/KG	11/16/92		Hexachlorocyclopentadiene
PF-36B-S-20	92.27459	67721	< 330.		UG/KG	11/16/92		Hexachloroethane
PF-36B-S-20	92.27459	193395	< 330.		UG/KG	11/16/92		Indeno[1,2,3-cd]pyrene
PF-36B-S-20	92.27459	78591	< 330.		UG/KG	11/16/92		Isophorone
PF-36B-S-20	92.27459	534521	< 330.		UG/KG	11/16/92		2-Methyl-4,6-dinitrophenol
PF-36B-S-20	92.27459	91576	< 330.		UG/KG	11/16/92		2-Methylnaphthalene
PF-36B-S-20	92.27459	95487	< 330.		UG/KG	11/16/92		2-Methylphenol
PF-36B-S-20	92.27459	106445	< 330.		UG/KG	11/16/92		4-Methylphenol
PF-36B-S-20	92.27459	91203	< 330.		UG/KG	11/16/92		Naphthalene
PF-36B-S-20	92.27459	88744	< 330.		UG/KG	11/16/92		2-Nitroaniline
PF-36B-S-20	92.27459	99092	< 330.		UG/KG	11/16/92		3-Nitroaniline
PF-36B-S-20	92.27459	100016	< 330.		UG/KG	11/16/92		4-Nitroaniline
PF-36B-S-20	92.27459	98953	< 330.		UG/KG	11/16/92		Nitrobenzene
PF-36B-S-20	92.27459	88755	< 330.		UG/KG	11/16/92		2-Nitrophenol
PF-36B-S-20	92.27459	100027	< 330.		UG/KG	11/16/92		4-Nitrophenol
PF-36B-S-20	92.27459	621647	< 330.		UG/KG	11/16/92		N-Nitrosodi-n-propylamine
PF-36B-S-20	92.27459	62759	< 330.		UG/KG	11/16/92		N-Nitrosodimethylamine
PF-36B-S-20	92.27459	86306	< 330.		UG/KG	11/16/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-S-20	92.27459	87865	< 330.		UG/KG	11/16/92		Pentachlorophenol
PF-36B-S-20	92.27459	85018	< 330.		UG/KG	11/16/92		Phenanthrene
PF-36B-S-20	92.27459	108952	< 330.		UG/KG	11/16/92		Phenol
PF-36B-S-20	92.27459	129000	< 330.		UG/KG	11/16/92		Pyrene
PF-36B-S-20	92.27459	120821	< 330.		UG/KG	11/16/92		1,2,4-Trichlorobenzene
PF-36B-S-20	92.27459	95954	< 330.		UG/KG	11/16/92		2,4,5-Trichlorophenol
PF-36B-S-20	92.27459	88062	< 330.		UG/KG	11/16/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.27459

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 16-Nov-1992

REQUEST NUMBER: 13503 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 145

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.27460 Date Collected: 9/01/92 Date Received: 9/02/92 Date Extracted: 9/14/92 Date Analyzed: 10/02/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-S-40	92.27460	83329	< 330.		UG/KG	11/16/92		Acenaphthene
PF-36B-S-40	92.27460	208968	< 330.		UG/KG	11/16/92		Acenaphthylene
PF-36B-S-40	92.27460	62533	< 330.		UG/KG	11/16/92		Aniline
PF-36B-S-40	92.27460	120127	< 330.		UG/KG	11/16/92		Anthracene
PF-36B-S-40	92.27460	103333	< 330.		UG/KG	11/16/92		Azobenzene
PF-36B-S-40	92.27460	92875	< 330.		UG/KG	11/16/92		m-Benzidine
PF-36B-S-40	92.27460	56553	< 330.		UG/KG	11/16/92		Benzo[a]anthracene
PF-36B-S-40	92.27460	50328	< 330.		UG/KG	11/16/92		Benzo[a]pyrene
PF-36B-S-40	92.27460	205992	< 330.		UG/KG	11/16/92		Benzo[b]fluoranthene
PF-36B-S-40	92.27460	191242	< 330.		UG/KG	11/16/92		Benzo[g,h,i]perylene
PF-36B-S-40	92.27460	207089	< 330.		UG/KG	11/16/92		Benzo[k]fluoranthene
PF-36B-S-40	92.27460	65850	< 330.		UG/KG	11/16/92		Benzoic acid
PF-36B-S-40	92.27460	100516	< 330.		UG/KG	11/16/92		Benzyl alcohol
PF-36B-S-40	92.27460	111911	< 330.		UG/KG	11/16/92		Bis(2-chloroethoxy)methane
PF-36B-S-40	92.27460	111444	< 330.		UG/KG	11/16/92		Bis(2-chloroethyl)ether
PF-36B-S-40	92.27460	108601	< 330.		UG/KG	11/16/92		Bis(2-chloroisopropyl)ether
PF-36B-S-40	92.27460	117817	390.	117.	UG/KG	11/16/92		Bis(2-ethylhexyl)phthalate
PF-36B-S-40	92.27460	101553	< 330.		UG/KG	11/16/92		4-Bromophenylphenyl ether
PF-36B-S-40	92.27460	85687	< 330.		UG/KG	11/16/92		Butyl benzyl phthalate
PF-36B-S-40	92.27460	59507	< 330.		UG/KG	11/16/92		4-Chloro-3-methylphenol
PF-36B-S-40	92.27460	106478	< 330.		UG/KG	11/16/92		4-Chloroaniline
PF-36B-S-40	92.27460	91587	< 330.		UG/KG	11/16/92		2-Chloronaphthalene
PF-36B-S-40	92.27460	95578	< 330.		UG/KG	11/16/92		o-Chlorophenol
PF-36B-S-40	92.27460	7005723	< 330.		UG/KG	11/16/92		4-Chlorophenylphenyl ether
PF-36B-S-40	92.27460	218019	< 330.		UG/KG	11/16/92		Chrysene
PF-36B	92.27460	84742	< 330.		UG/KG	16/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-S-40	92.27460	117840	< 330.		UG/KG	11/16/92		Di-n-octyl phthalate
PF-36B-S-40	92.27460	53703	< 330.		UG/KG	11/16/92		Dibenzo[a,h]anthracene
PF-36B-S-40	92.27460	132649	< 330.		UG/KG	11/16/92		Dibenzofuran
PF-36B-S-40	92.27460	95501	< 330.		UG/KG	11/16/92		o-Dichlorobenzene (1,2)
PF-36B-S-40	92.27460	541731	< 330.		UG/KG	11/16/92		m-Dichlorobenzene (1,3)
PF-36B-S-40	92.27460	106467	< 330.		UG/KG	11/16/92		p-Dichlorobenzene (1,4)
PF-36B-S-40	92.27460	91941	< 330.		UG/KG	11/16/92		3,3'-Dichlorobenzidine
PF-36B-S-40	92.27460	120832	< 330.		UG/KG	11/16/92		2,4-Dichlorophenol
PF-36B-S-40	92.27460	84662	< 330.		UG/KG	11/16/92		Diethyl phthalate
PF-36B-S-40	92.27460	131113	< 330.		UG/KG	11/16/92		Dimethyl phthalate
PF-36B-S-40	92.27460	105679	< 330.		UG/KG	11/16/92		2,4-Dimethylphenol
PF-36B-S-40	92.27460	51285	< 330.		UG/KG	11/16/92		2,4-Dinitrophenol
PF-36B-S-40	92.27460	121142	< 330.		UG/KG	11/16/92		2,4-Dinitrotoluene
PF-36B-S-40	92.27460	606202	< 330.		UG/KG	11/16/92		2,6-Dinitrotoluene
PF-36B-S-40	92.27460	206440	< 330.		UG/KG	11/16/92		Fluoranthene
PF-36B-S-40	92.27460	86737	< 330.		UG/KG	11/16/92		Fluorene
PF-36B-S-40	92.27460	118741	< 330.		UG/KG	11/16/92		Hexachlorobenzene
PF-36B-S-40	92.27460	87683	< 330.		UG/KG	11/16/92		Hexachlorobutadiene
PF-36B-S-40	92.27460	77474	< 330.		UG/KG	11/16/92		Hexachlorocyclopentadiene
PF-36B-S-40	92.27460	67721	< 330.		UG/KG	11/16/92		Hexachloroethane
PF-36B-S-40	92.27460	193395	< 330.		UG/KG	11/16/92		Indeno[1,2,3-cd]pyrene
PF-36B-S-40	92.27460	78591	< 330.		UG/KG	11/16/92		Isophorone
PF-36B-S-40	92.27460	534521	< 330.		UG/KG	11/16/92		2-Methyl-4,6-dinitrophenol
PF-36B-S-40	92.27460	91576	< 330.		UG/KG	11/16/92		2-Methylnaphthalene
PF-36B-S-40	92.27460	95487	< 330.		UG/KG	11/16/92		2-Methylphenol
PF-36B-S-40	92.27460	106445	< 330.		UG/KG	11/16/92		4-Methylphenol
PF-36B-S-40	92.27460	91203	< 330.		UG/KG	11/16/92		Naphthalene
PF-36B-S-40	92.27460	88744	< 330.		UG/KG	11/16/92		2-Nitroaniline
PF-36B-S-40	92.27460	99092	< 330.		UG/KG	11/16/92		3-Nitroaniline
PF-36B-S-40	92.27460	100016	< 330.		UG/KG	11/16/92		4-Nitroaniline
PF-36B-S-40	92.27460	98953	< 330.		UG/KG	11/16/92		Nitrobenzene
PF-36B-S-40	92.27460	88755	< 330.		UG/KG	11/16/92		2-Nitrophenol
PF-36B-S-40	92.27460	100027	< 330.		UG/KG	11/16/92		4-Nitrophenol
PF-36B-S-40	92.27460	621647	< 330.		UG/KG	11/16/92		N-Nitrosodi-n-propylamine
PF-36B-S-40	92.27460	62759	< 330.		UG/KG	11/16/92		N-Nitrosodimethylamine
PF-36B-S-40	92.27460	86306	< 330.		UG/KG	11/16/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-S-40	92.27460	87865	< 330.		UG/KG	11/16/92		Pentachlorophenol
PF-36B-S-40	92.27460	85018	< 330.		UG/KG	11/16/92		Phenanthrene
PF-36B-S-40	92.27460	108952	< 330.		UG/KG	11/16/92		Phenol
PF-36B-S-40	92.27460	129000	< 330.		UG/KG	11/16/92		Pyrene
PF-36B-S-40	92.27460	120821	< 330.		UG/KG	11/16/92		1,2,4-Trichlorobenzene
PF-36B-S-40	92.27460	95954	< 330.		UG/KG	11/16/92		2,4,5-Trichlorophenol
PF-36B-S-40	92.27460	88062	< 330.		UG/KG	11/16/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.27460

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 16-Nov-1992

REQUEST NUMBER: 13503 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 145

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.27461 Date Collected: 9/01/92 Date Received: 9/02/92 Date Extracted: 9/14/92 Date Analyzed: 10/05/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-S-60	92.27461	83329	< 660.		UG/KG	11/16/92		Acenaphthene
PF-36B-S-60	92.27461	208968	< 660.		UG/KG	11/16/92		Acenaphthylene
PF-36B-S-60	92.27461	62533	< 660.		UG/KG	11/16/92		Aniline
PF-36B-S-60	92.27461	120127	< 660.		UG/KG	11/16/92		Anthracene
PF-36B-S-60	92.27461	103333	< 660.		UG/KG	11/16/92		Azobenzene
PF-36B-S-60	92.27461	92875	< 660.		UG/KG	11/16/92		m-Benzidine
PF-36B-S-60	92.27461	56553	< 660.		UG/KG	11/16/92		Benzo[a]anthracene
PF-36B-S-60	92.27461	50328	< 660.		UG/KG	11/16/92		Benzo[a]pyrene
PF-36B-S-60	92.27461	205992	< 660.		UG/KG	11/16/92		Benzo[b]fluoranthene
PF-36B-S-60	92.27461	191242	< 660.		UG/KG	11/16/92		Benzo[g,h,i]perylene
PF-36B-S-60	92.27461	207089	< 660.		UG/KG	11/16/92		Benzo[k]fluoranthene
PF-36B-S-60	92.27461	65850	< 660.		UG/KG	11/16/92		Benzoic acid
PF-36B-S-60	92.27461	100516	< 660.		UG/KG	11/16/92		Benzyl alcohol
PF-36B-S-60	92.27461	111911	< 660.		UG/KG	11/16/92		Bis(2-chloroethoxy)methane
PF-36B-S-60	92.27461	111444	< 660.		UG/KG	11/16/92		Bis(2-chloroethyl)ether
PF-36B-S-60	92.27461	108601	< 660.		UG/KG	11/16/92		Bis(2-chloroisopropyl)ether
PF-36B-S-60	92.27461	117817	< 660.		UG/KG	11/16/92		Bis(2-ethylhexyl)phthalate
PF-36B-S-60	92.27461	101553	< 660.		UG/KG	11/16/92		4-Bromophenylphenyl ether
PF-36B-S-60	92.27461	85687	< 660.		UG/KG	11/16/92		Butyl benzyl phthalate
PF-36B-S-60	92.27461	59507	< 660.		UG/KG	11/16/92		4-Chloro-3-methylphenol
PF-36B-S-60	92.27461	106478	< 660.		UG/KG	11/16/92		4-Chloroaniline
PF-36B-S-60	92.27461	91587	< 660.		UG/KG	11/16/92		2-Chloronaphthalene
PF-36B-S-60	92.27461	95578	< 660.		UG/KG	11/16/92		o-Chlorophenol
PF-36B-S-60	92.27461	7005723	< 660.		UG/KG	11/16/92		4-Chlorophenylphenyl ether
PF-36B-S-60	92.27461	218019	< 660.		UG/KG	11/16/92		Chrysene
PF-36B-S-60	92.27461	84742	< 660.		UG/KG	11/16/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-S-60	92.27461	117840	< 660.		UG/KG	11/16/92		Di-n-octyl phthalate
PF-36B-S-60	92.27461	53703	< 660.		UG/KG	11/16/92		Dibenzo[a,h]anthracene
PF-36B-S-60	92.27461	132649	< 660.		UG/KG	11/16/92		Dibenzofuran
PF-36B-S-60	92.27461	95501	< 660.		UG/KG	11/16/92		o-Dichlorobenzene (1,2)
PF-36B-S-60	92.27461	541731	< 660.		UG/KG	11/16/92		m-Dichlorobenzene (1,3)
PF-36B-S-60	92.27461	106467	< 660.		UG/KG	11/16/92		p-Dichlorobenzene (1,4)
PF-36B-S-60	92.27461	91941	< 660.		UG/KG	11/16/92		3,3'-Dichlorobenzidine
PF-36B-S-60	92.27461	120832	< 660.		UG/KG	11/16/92		2,4-Dichlorophenol
PF-36B-S-60	92.27461	84662	< 660.		UG/KG	11/16/92		Diethyl phthalate
PF-36B-S-60	92.27461	131113	< 660.		UG/KG	11/16/92		Dimethyl phthalate
PF-36B-S-60	92.27461	105679	< 660.		UG/KG	11/16/92		2,4-Dimethylphenol
PF-36B-S-60	92.27461	51285	< 660.		UG/KG	11/16/92		2,4-Dinitrophenol
PF-36B-S-60	92.27461	121142	< 660.		UG/KG	11/16/92		2,4-Dinitrotoluene
PF-36B-S-60	92.27461	606202	< 660.		UG/KG	11/16/92		2,6-Dinitrotoluene
PF-36B-S-60	92.27461	206440	< 660.		UG/KG	11/16/92		Fluoranthene
PF-36B-S-60	92.27461	86737	< 660.		UG/KG	11/16/92		Fluorene
PF-36B-S-60	92.27461	118741	< 660.		UG/KG	11/16/92		Hexachlorobenzene
PF-36B-S-60	92.27461	87683	< 660.		UG/KG	11/16/92		Hexachlorobutadiene
PF-36B-S-60	92.27461	77474	< 660.		UG/KG	11/16/92		Hexachlorocyclopentadiene
PF-36B-S-60	92.27461	67721	< 660.		UG/KG	11/16/92		Hexachloroethane
PF-36B-S-60	92.27461	193395	< 660.		UG/KG	11/16/92		Indeno[1,2,3-cd]pyrene
PF-36B-S-60	92.27461	78591	< 660.		UG/KG	11/16/92		Isophorone
PF-36B-S-60	92.27461	534521	< 660.		UG/KG	11/16/92		2-Methyl-4,6-dinitrophenol
PF-36B-S-60	92.27461	91576	< 660.		UG/KG	11/16/92		2-Methylnaphthalene
PF-36B-S-60	92.27461	95487	< 660.		UG/KG	11/16/92		2-Methylphenol
PF-36B-S-60	92.27461	106445	< 660.		UG/KG	11/16/92		4-Methylphenol
PF-36B-S-60	92.27461	91203	< 660.		UG/KG	11/16/92		Naphthalene
PF-36B-S-60	92.27461	88744	< 660.		UG/KG	11/16/92		2-Nitroaniline
PF-36B-S-60	92.27461	99092	< 660.		UG/KG	11/16/92		3-Nitroaniline
PF-36B-S-60	92.27461	100016	< 660.		UG/KG	11/16/92		4-Nitroaniline
PF-36B-S-60	92.27461	98953	< 660.		UG/KG	11/16/92		Nitrobenzene
PF-36B-S-60	92.27461	88755	< 660.		UG/KG	11/16/92		2-Nitrophenol
PF-36B-S-60	92.27461	100027	< 660.		UG/KG	11/16/92		4-Nitrophenol
PF-36B-S-60	92.27461	621647	< 660.		UG/KG	11/16/92		N-Nitrosodi-n-propylamine
PF-36B-S-60	92.27461	62759	< 660.		UG/KG	11/16/92		N-Nitrosodimethylamine
PF-36B	92.27461	86306	< 660.		UG/KG	16/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-S-60	92.27461	87865	< 660.		UG/KG	11/16/92		Pentachlorophenol
PF-36B-S-60	92.27461	85018	< 660.		UG/KG	11/16/92		Phenanthrene
PF-36B-S-60	92.27461	108952	< 660.		UG/KG	11/16/92		Phenol
PF-36B-S-60	92.27461	129000	< 660.		UG/KG	11/16/92		Pyrene
PF-36B-S-60	92.27461	120821	< 660.		UG/KG	11/16/92		1,2,4-Trichlorobenzene
PF-36B-S-60	92.27461	95954	< 660.		UG/KG	11/16/92		2,4,5-Trichlorophenol
PF-36B-S-60	92.27461	88062	< 660.		UG/KG	11/16/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.27461

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 16-Nov-1992

REQUEST NUMBER: 13503 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 145

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.27462 Date Collected: 9/01/92 Date Received: 9/02/92 Date Extracted: 9/14/92 Date Analyzed: 9/24/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-S-100	92.27462	83329	< 330.		UG/KG	11/16/92		Acenaphthene
PF-36B-S-100	92.27462	208968	< 330.		UG/KG	11/16/92		Acenaphthylene
PF-36B-S-100	92.27462	62533	< 330.		UG/KG	11/16/92		Aniline
PF-36B-S-100	92.27462	120127	< 330.		UG/KG	11/16/92		Anthracene
PF-36B-S-100	92.27462	103333	< 330.		UG/KG	11/16/92		Azobenzene
PF-36B-S-100	92.27462	92875	< 330.		UG/KG	11/16/92		m-Benzidine
PF-36B-S-100	92.27462	56553	< 330.		UG/KG	11/16/92		Benzo[a]anthracene
PF-36B-S-100	92.27462	50328	< 330.		UG/KG	11/16/92		Benzo[a]pyrene
PF-36B-S-100	92.27462	205992	< 330.		UG/KG	11/16/92		Benzo[b]fluoranthene
PF-36B-S-100	92.27462	191242	< 330.		UG/KG	11/16/92		Benzo[g,h,i]perylene
PF-36B-S-100	92.27462	207089	< 330.		UG/KG	11/16/92		Benzo[k]fluoranthene
PF-36B-S-100	92.27462	65850	< 330.		UG/KG	11/16/92		Benzoic acid
PF-36B-S-100	92.27462	100516	< 330.		UG/KG	11/16/92		Benzyl alcohol
PF-36B-S-100	92.27462	111911	< 330.		UG/KG	11/16/92		Bis(2-chloroethoxy)methane
PF-36B-S-100	92.27462	111444	< 330.		UG/KG	11/16/92		Bis(2-chloroethyl)ether
PF-36B-S-100	92.27462	108601	< 330.		UG/KG	11/16/92		Bis(2-chloroisopropyl)ether
PF-36B-S-100	92.27462	117817	< 330.		UG/KG	11/16/92		Bis(2-ethylhexyl)phthalate
PF-36B-S-100	92.27462	101553	< 330.		UG/KG	11/16/92		4-Bromophenylphenyl ether
PF-36B-S-100	92.27462	85687	< 330.		UG/KG	11/16/92		Butyl benzyl phthalate
PF-36B-S-100	92.27462	59507	< 330.		UG/KG	11/16/92		4-Chloro-3-methylphenol
PF-36B-S-100	92.27462	106478	< 330.		UG/KG	11/16/92		4-Chloroaniline
PF-36B-S-100	92.27462	91587	< 330.		UG/KG	11/16/92		2-Chloronaphthalene
PF-36B-S-100	92.27462	95578	< 330.		UG/KG	11/16/92		o-Chlorophenol
PF-36B-S-100	92.27462	7005723	< 330.		UG/KG	11/16/92		4-Chlorophenylphenyl ether
PF-36B-S-100	92.27462	218019	< 330.		UG/KG	11/16/92		Chrysene
PF-36B-S-100	92.27462	84742	< 330.		UG/KG	11/16/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-S-100	92.27462	117840	< 330.		UG/KG	11/16/92		Di-n-octyl phthalate
PF-36B-S-100	92.27462	53703	< 330.		UG/KG	11/16/92		Dibenzo[a,h]anthracene
PF-36B-S-100	92.27462	132649	< 330.		UG/KG	11/16/92		Dibenzofuran
PF-36B-S-100	92.27462	95501	< 330.		UG/KG	11/16/92		o-Dichlorobenzene (1,2)
PF-36B-S-100	92.27462	541731	< 330.		UG/KG	11/16/92		m-Dichlorobenzene (1,3)
PF-36B-S-100	92.27462	106467	< 330.		UG/KG	11/16/92		p-Dichlorobenzene (1,4)
PF-36B-S-100	92.27462	91941	< 330.		UG/KG	11/16/92		3,3'-Dichlorobenzidine
PF-36B-S-100	92.27462	120832	< 330.		UG/KG	11/16/92		2,4-Dichlorophenol
PF-36B-S-100	92.27462	84662	< 330.		UG/KG	11/16/92		Diethyl phthalate
PF-36B-S-100	92.27462	131113	< 330.		UG/KG	11/16/92		Dimethyl phthalate
PF-36B-S-100	92.27462	105679	< 330.		UG/KG	11/16/92		2,4-Dimethylphenol
PF-36B-S-100	92.27462	51285	< 330.		UG/KG	11/16/92		2,4-Dinitrophenol
PF-36B-S-100	92.27462	121142	< 330.		UG/KG	11/16/92		2,4-Dinitrotoluene
PF-36B-S-100	92.27462	606202	< 330.		UG/KG	11/16/92		2,6-Dinitrotoluene
PF-36B-S-100	92.27462	206440	< 330.		UG/KG	11/16/92		Fluoranthene
PF-36B-S-100	92.27462	86737	< 330.		UG/KG	11/16/92		Fluorene
PF-36B-S-100	92.27462	118741	< 330.		UG/KG	11/16/92		Hexachlorobenzene
PF-36B-S-100	92.27462	87683	< 330.		UG/KG	11/16/92		Hexachlorobutadiene
PF-36B-S-100	92.27462	77474	< 330.		UG/KG	11/16/92		Hexachlorocyclopentadiene
PF-36B-S-100	92.27462	67721	< 330.		UG/KG	11/16/92		Hexachloroethane
PF-36B-S-100	92.27462	193395	< 330.		UG/KG	11/16/92		Indeno[1,2,3-cd]pyrene
PF-36B-S-100	92.27462	78591	< 330.		UG/KG	11/16/92		Isophorone
PF-36B-S-100	92.27462	534521	< 330.		UG/KG	11/16/92		2-Methyl-4,6-dinitrophenol
PF-36B-S-100	92.27462	91576	< 330.		UG/KG	11/16/92		2-Methylnaphthalene
PF-36B-S-100	92.27462	95487	< 330.		UG/KG	11/16/92		2-Methylphenol
PF-36B-S-100	92.27462	106445	< 330.		UG/KG	11/16/92		4-Methylphenol
PF-36B-S-100	92.27462	91203	< 330.		UG/KG	11/16/92		Naphthalene
PF-36B-S-100	92.27462	88744	< 330.		UG/KG	11/16/92		2-Nitroaniline
PF-36B-S-100	92.27462	99092	< 330.		UG/KG	11/16/92		3-Nitroaniline
PF-36B-S-100	92.27462	100016	< 330.		UG/KG	11/16/92		4-Nitroaniline
PF-36B-S-100	92.27462	98953	< 330.		UG/KG	11/16/92		Nitrobenzene
PF-36B-S-100	92.27462	88755	< 330.		UG/KG	11/16/92		2-Nitrophenol
PF-36B-S-100	92.27462	100027	< 330.		UG/KG	11/16/92		4-Nitrophenol
PF-36B-S-100	92.27462	621647	< 330.		UG/KG	11/16/92		N-Nitrosodi-n-propylamine
PF-36B-S-100	92.27462	62759	< 330.		UG/KG	11/16/92		N-Nitrosodimethylamine
PF-36B-S-100	92.27462	86306	< 330.		UG/KG	11/16/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-S-100	92.27462	87865	< 330.		UG/KG	11/16/92		Pentachlorophenol
PF-36B-S-100	92.27462	85018	< 330.		UG/KG	11/16/92		Phenanthrene
PF-36B-S-100	92.27462	108952	< 330.		UG/KG	11/16/92		Phenol
PF-36B-S-100	92.27462	129000	< 330.		UG/KG	11/16/92		Pyrene
PF-36B-S-100	92.27462	120821	< 330.		UG/KG	11/16/92		1,2,4-Trichlorobenzene
PF-36B-S-100	92.27462	95954	< 330.		UG/KG	11/16/92		2,4,5-Trichlorophenol
PF-36B-S-100	92.27462	88062	< 330.		UG/KG	11/16/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.27462

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 16-Nov-1992

REQUEST NUMBER: 13503 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 145

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.27463 Date Collected: 9/01/92 Date Received: 9/02/92 Date Extracted: 9/14/92 Date Analyzed: 10/02/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-S-150	92.27463	83329	< 330.		UG/KG	11/16/92		Acenaphthene
PF-36B-S-150	92.27463	208968	< 330.		UG/KG	11/16/92		Acenaphthylene
PF-36B-S-150	92.27463	62533	< 330.		UG/KG	11/16/92		Aniline
PF-36B-S-150	92.27463	120127	< 330.		UG/KG	11/16/92		Anthracene
PF-36B-S-150	92.27463	103333	< 330.		UG/KG	11/16/92		Azobenzene
PF-36B-S-150	92.27463	92875	< 330.		UG/KG	11/16/92		m-Benzidine
PF-36B-S-150	92.27463	56553	< 330.		UG/KG	11/16/92		Benzo[a]anthracene
PF-36B-S-150	92.27463	50328	< 330.		UG/KG	11/16/92		Benzo[a]pyrene
PF-36B-S-150	92.27463	205992	< 330.		UG/KG	11/16/92		Benzo[b]fluoranthene
PF-36B-S-150	92.27463	191242	< 330.		UG/KG	11/16/92		Benzo[g,h,i]perylene
PF-36B-S-150	92.27463	207089	< 330.		UG/KG	11/16/92		Benzo[k]fluoranthene
PF-36B-S-150	92.27463	65850	< 330.		UG/KG	11/16/92		Benzoic acid
PF-36B-S-150	92.27463	100516	< 330.		UG/KG	11/16/92		Benzyl alcohol
PF-36B-S-150	92.27463	111911	< 330.		UG/KG	11/16/92		Bis(2-chloroethoxy)methane
PF-36B-S-150	92.27463	111444	< 330.		UG/KG	11/16/92		Bis(2-chloroethyl)ether
PF-36B-S-150	92.27463	108601	< 330.		UG/KG	11/16/92		Bis(2-chloroisopropyl)ether
PF-36B-S-150	92.27463	117817	< 330.		UG/KG	11/16/92		Bis(2-ethylhexyl)phthalate
PF-36B-S-150	92.27463	101553	< 330.		UG/KG	11/16/92		4-Bromophenylphenyl ether
PF-36B-S-150	92.27463	85687	< 330.		UG/KG	11/16/92		Butyl benzyl phthalate
PF-36B-S-150	92.27463	59507	< 330.		UG/KG	11/16/92		4-Chloro-3-methylphenol
PF-36B-S-150	92.27463	106478	< 330.		UG/KG	11/16/92		4-Chloroaniline
PF-36B-S-150	92.27463	91587	< 330.		UG/KG	11/16/92		2-Chloronaphthalene
PF-36B-S-150	92.27463	95578	< 330.		UG/KG	11/16/92		o-Chlorophenol
PF-36B-S-150	92.27463	7005723	< 330.		UG/KG	11/16/92		4-Chlorophenylphenyl ether
PF-36B-S-150	92.27463	218019	< 330.		UG/KG	11/16/92		Chrysene
PF-36B-S-150	92.27463	84742	< 330.		UG/KG	11/16/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-S-150	92.27463	117840	< 330.		UG/KG	11/16/92		Di-n-octyl phthalate
PF-36B-S-150	92.27463	53703	< 330.		UG/KG	11/16/92		Dibenzo[a,h]anthracene
PF-36B-S-150	92.27463	132649	< 330.		UG/KG	11/16/92		Dibenzofuran
PF-36B-S-150	92.27463	95501	< 330.		UG/KG	11/16/92		o-Dichlorobenzene (1,2)
PF-36B-S-150	92.27463	541731	< 330.		UG/KG	11/16/92		m-Dichlorobenzene (1,3)
PF-36B-S-150	92.27463	106467	< 330.		UG/KG	11/16/92		p-Dichlorobenzene (1,4)
PF-36B-S-150	92.27463	91941	< 330.		UG/KG	11/16/92		3,3'-Dichlorobenzidine
PF-36B-S-150	92.27463	120832	< 330.		UG/KG	11/16/92		2,4-Dichlorophenol
PF-36B-S-150	92.27463	84662	< 330.		UG/KG	11/16/92		Diethyl phthalate
PF-36B-S-150	92.27463	131113	< 330.		UG/KG	11/16/92		Dimethyl phthalate
PF-36B-S-150	92.27463	105679	< 330.		UG/KG	11/16/92		2,4-Dimethylphenol
PF-36B-S-150	92.27463	51285	< 330.		UG/KG	11/16/92		2,4-Dinitrophenol
PF-36B-S-150	92.27463	121142	< 330.		UG/KG	11/16/92		2,4-Dinitrotoluene
PF-36B-S-150	92.27463	606202	< 330.		UG/KG	11/16/92		2,6-Dinitrotoluene
PF-36B-S-150	92.27463	206440	< 330.		UG/KG	11/16/92		Fluoranthene
PF-36B-S-150	92.27463	86737	< 330.		UG/KG	11/16/92		Fluorene
PF-36B-S-150	92.27463	118741	< 330.		UG/KG	11/16/92		Hexachlorobenzene
PF-36B-S-150	92.27463	87683	< 330.		UG/KG	11/16/92		Hexachlorobutadiene
PF-36B-S-150	92.27463	77474	< 330.		UG/KG	11/16/92		Hexachlorocyclopentadiene
PF-36B-S-150	92.27463	67721	< 330.		UG/KG	11/16/92		Hexachloroethane
PF-36B-S-150	92.27463	193395	< 330.		UG/KG	11/16/92		Indeno[1,2,3-cd]pyrene
PF-36B-S-150	92.27463	78591	< 330.		UG/KG	11/16/92		Isophorone
PF-36B-S-150	92.27463	534521	< 330.		UG/KG	11/16/92		2-Methyl-4,6-dinitrophenol
PF-36B-S-150	92.27463	91576	< 330.		UG/KG	11/16/92		2-Methylnaphthalene
PF-36B-S-150	92.27463	95487	< 330.		UG/KG	11/16/92		2-Methylphenol
PF-36B-S-150	92.27463	106445	< 330.		UG/KG	11/16/92		4-Methylphenol
PF-36B-S-150	92.27463	91203	< 330.		UG/KG	11/16/92		Naphthalene
PF-36B-S-150	92.27463	88744	< 330.		UG/KG	11/16/92		2-Nitroaniline
PF-36B-S-150	92.27463	99092	< 330.		UG/KG	11/16/92		3-Nitroaniline
PF-36B-S-150	92.27463	100016	< 330.		UG/KG	11/16/92		4-Nitroaniline
PF-36B-S-150	92.27463	98953	< 330.		UG/KG	11/16/92		Nitrobenzene
PF-36B-S-150	92.27463	88755	< 330.		UG/KG	11/16/92		2-Nitrophenol
PF-36B-S-150	92.27463	100027	< 330.		UG/KG	11/16/92		4-Nitrophenol
PF-36B-S-150	92.27463	621647	< 330.		UG/KG	11/16/92		N-Nitrosodi-n-propylamine
PF-36B-S-150	92.27463	62759	< 330.		UG/KG	11/16/92		N-Nitrosodimethylamine
PF-36B-)	92.27463	86306	< 330.		UG/KG	'6/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-S-150	92.27463	87865	< 330.		UG/KG	11/16/92		Pentachlorophenol
PF-36B-S-150	92.27463	85018	< 330.		UG/KG	11/16/92		Phenanthrene
PF-36B-S-150	92.27463	108952	< 330.		UG/KG	11/16/92		Phenol
PF-36B-S-150	92.27463	129000	< 330.		UG/KG	11/16/92		Pyrene
PF-36B-S-150	92.27463	120821	< 330.		UG/KG	11/16/92		1,2,4-Trichlorobenzene
PF-36B-S-150	92.27463	95954	< 330.		UG/KG	11/16/92		2,4,5-Trichlorophenol
PF-36B-S-150	92.27463	88062	< 330.		UG/KG	11/16/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.27463

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 16-Nov-1992

REQUEST NUMBER: 13503 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 145

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.27464 Date Collected: 9/01/92 Date Received: 9/02/92 Date Extracted: 9/14/92 Date Analyzed: 10/07/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-SED	92.27464	83329	< 330.		UG/KG	11/16/92		Acenaphthene
PF-36B-SED	92.27464	208968	< 330.		UG/KG	11/16/92		Acenaphthylene
PF-36B-SED	92.27464	62533	< 330.		UG/KG	11/16/92		Aniline
PF-36B-SED	92.27464	120127	< 330.		UG/KG	11/16/92		Anthracene
PF-36B-SED	92.27464	103333	< 330.		UG/KG	11/16/92		Azobenzene
PF-36B-SED	92.27464	92875	< 330.		UG/KG	11/16/92		m-Benzidine
PF-36B-SED	92.27464	56553	< 330.		UG/KG	11/16/92		Benzo[a]anthracene
PF-36B-SED	92.27464	50328	< 330.		UG/KG	11/16/92		Benzo[a]pyrene
PF-36B-SED	92.27464	205992	< 330.		UG/KG	11/16/92		Benzo[b]fluoranthene
PF-36B-SED	92.27464	191242	< 330.		UG/KG	11/16/92		Benzo[g,h,i]perylene
PF-36B-SED	92.27464	207089	< 330.		UG/KG	11/16/92		Benzo[k]fluoranthene
PF-36B-SED	92.27464	65850	< 330.		UG/KG	11/16/92		Benzoic acid
PF-36B-SED	92.27464	100516	< 330.		UG/KG	11/16/92		Benzyl alcohol
PF-36B-SED	92.27464	111911	< 330.		UG/KG	11/16/92		Bis(2-chloroethoxy)methane
PF-36B-SED	92.27464	111444	< 330.		UG/KG	11/16/92		Bis(2-chloroethyl)ether
PF-36B-SED	92.27464	108601	< 330.		UG/KG	11/16/92		Bis(2-chloroisopropyl)ether
PF-36B-SED	92.27464	117817	< 330.		UG/KG	11/16/92		Bis(2-ethylhexyl)phthalate
PF-36B-SED	92.27464	101553	< 330.		UG/KG	11/16/92		4-Bromophenylphenyl ether
PF-36B-SED	92.27464	85687	< 330.		UG/KG	11/16/92		Butyl benzyl phthalate
PF-36B-SED	92.27464	59507	< 330.		UG/KG	11/16/92		4-Chloro-3-methylphenol
PF-36B-SED	92.27464	106478	< 330.		UG/KG	11/16/92		4-Chloroaniline
PF-36B-SED	92.27464	91587	< 330.		UG/KG	11/16/92		2-Chloronaphthalene
PF-36B-SED	92.27464	95578	< 330.		UG/KG	11/16/92		o-Chlorophenol
PF-36B-SED	92.27464	7005723	< 330.		UG/KG	11/16/92		4-Chlorophenylphenyl ether
PF-36B-SED	92.27464	218019	< 330.		UG/KG	11/16/92		Chrysene
PF-36B-	92.27464	84742	< 330.		UG/KG	6/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-SED	92.27464	117840	< 330.		UG/KG	11/16/92		Di-n-octyl phthalate
PF-36B-SED	92.27464	53703	< 330.		UG/KG	11/16/92		Dibenzo[a,h]anthracene
PF-36B-SED	92.27464	132649	< 330.		UG/KG	11/16/92		Dibenzofuran
PF-36B-SED	92.27464	95501	< 330.		UG/KG	11/16/92		o-Dichlorobenzene (1,2)
PF-36B-SED	92.27464	541731	< 330.		UG/KG	11/16/92		m-Dichlorobenzene (1,3)
PF-36B-SED	92.27464	106467	< 330.		UG/KG	11/16/92		p-Dichlorobenzene (1,4)
PF-36B-SED	92.27464	91941	< 330.		UG/KG	11/16/92		3,3'-Dichlorobenzidine
PF-36B-SED	92.27464	120832	< 330.		UG/KG	11/16/92		2,4-Dichlorophenol
PF-36B-SED	92.27464	84662	< 330.		UG/KG	11/16/92		Diethyl phthalate
PF-36B-SED	92.27464	131113	< 330.		UG/KG	11/16/92		Dimethyl phthalate
PF-36B-SED	92.27464	105679	< 330.		UG/KG	11/16/92		2,4-Dimethylphenol
PF-36B-SED	92.27464	51285	< 330.		UG/KG	11/16/92		2,4-Dinitrophenol
PF-36B-SED	92.27464	121142	< 330.		UG/KG	11/16/92		2,4-Dinitrotoluene
PF-36B-SED	92.27464	606202	< 330.		UG/KG	11/16/92		2,6-Dinitrotoluene
PF-36B-SED	92.27464	206440	< 330.		UG/KG	11/16/92		Fluoranthene
PF-36B-SED	92.27464	86737	< 330.		UG/KG	11/16/92		Fluorene
PF-36B-SED	92.27464	118741	< 330.		UG/KG	11/16/92		Hexachlorobenzene
PF-36B-SED	92.27464	87683	< 330.		UG/KG	11/16/92		Hexachlorobutadiene
PF-36B-SED	92.27464	77474	< 330.		UG/KG	11/16/92		Hexachlorocyclopentadiene
PF-36B-SED	92.27464	67721	< 330.		UG/KG	11/16/92		Hexachloroethane
PF-36B-SED	92.27464	193395	< 330.		UG/KG	11/16/92		Indeno[1,2,3-cd]pyrene
PF-36B-SED	92.27464	78591	< 330.		UG/KG	11/16/92		Isophorone
PF-36B-SED	92.27464	534521	< 330.		UG/KG	11/16/92		2-Methyl-4,6-dinitrophenol
PF-36B-SED	92.27464	91576	< 330.		UG/KG	11/16/92		2-Methylnaphthalene
PF-36B-SED	92.27464	95487	< 330.		UG/KG	11/16/92		2-Methylphenol
PF-36B-SED	92.27464	106445	< 330.		UG/KG	11/16/92		4-Methylphenol
PF-36B-SED	92.27464	91203	< 330.		UG/KG	11/16/92		Naphthalene
PF-36B-SED	92.27464	88744	< 330.		UG/KG	11/16/92		2-Nitroaniline
PF-36B-SED	92.27464	99092	< 330.		UG/KG	11/16/92		3-Nitroaniline
PF-36B-SED	92.27464	100016	< 330.		UG/KG	11/16/92		4-Nitroaniline
PF-36B-SED	92.27464	98953	< 330.		UG/KG	11/16/92		Nitrobenzene
PF-36B-SED	92.27464	88755	< 330.		UG/KG	11/16/92		2-Nitrophenol
PF-36B-SED	92.27464	100027	< 330.		UG/KG	11/16/92		4-Nitrophenol
PF-36B-SED	92.27464	621647	< 330.		UG/KG	11/16/92		N-Nitrosodi-n-propylamine
PF-36B-SED	92.27464	62759	< 330.		UG/KG	11/16/92		N-Nitrosodimethylamine
PF-36B-SED	92.27464	86306	< 330.		UG/KG	11/16/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-SED	92.27464	87865	< 330.		UG/KG	11/16/92		Pentachlorophenol
PF-36B-SED	92.27464	85018	380.	114.	UG/KG	11/16/92		Phenanthrene
PF-36B-SED	92.27464	108952	< 330.		UG/KG	11/16/92		Phenol
PF-36B-SED	92.27464	129000	< 330.		UG/KG	11/16/92		Pyrene
PF-36B-SED	92.27464	120821	< 330.		UG/KG	11/16/92		1,2,4-Trichlorobenzene
PF-36B-SED	92.27464	95954	< 330.		UG/KG	11/16/92		2,4,5-Trichlorophenol
PF-36B-SED	92.27464	88062	< 330.		UG/KG	11/16/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.27464

none

********** EM-9 ANALYTICAL REPORT **********

Matrix Spike Results for Sample # 92.27464 Date Collected: 9/01/92 Date Received: 9/02/92 Date Extracted: 9/14/92 Date Analyzed: 10/07/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-SED	92.27464	83329	1842.02	1400.	UG/KG	11/16/92		Acenaphthene
PF-36B-SED	92.27464	59507	3684.03	2800.	UG/KG	11/16/92		4-Chloro-3-methylphenol
PF-36B-SED	92.27464	95578	3684.03	1800.	UG/KG	11/16/92		o-Chlorophenol
PF-36B-SED	92.27464	106467	1842.02	830.	UG/KG	11/16/92		p-Dichlorobenzene (1,4)
PF-36B-SED	92.27464	121142	1842.02	1200.	UG/KG	11/16/92		2,4-Dinitrotoluene
PF-36B-SED	92.27464	100027	3684.03	2100.	UG/KG	11/16/92		4-Nitrophenol
PF-36B-SED	92.27464	621647	1842.02	920.	UG/KG	11/16/92		N-Nitrosodi-n-propylamine
PF-36B-SED	92.27464	87865	3684.03	2700.	UG/KG	11/16/92		Pentachlorophenol
PF-36B-SED	92.27464	108952	3684.03	1900.	UG/KG	11/16/92		Phenol
PF-36B-SED	92.27464	129000	1842.02	2000.	UG/KG	11/16/92		Pyrene
PF-36B-SED	92.27464	120821	1842.02	1000.	UG/KG	11/16/92		1,2,4-Trichlorobenzene

Matrix Spike Duplicate Results for Sample # 92.27464 Date Collected: 9/01/92 Date Received: 9/02/92 Date Extracted: 9/14/92 Date Analyzed: 10/07/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-SED	92.27464	83329	1834.69	1500.	UG/KG	11/16/92		Acenaphthene
PF-36B-SED	92.27464	59507	3669.38	3000.	UG/KG	11/16/92		4-Chloro-3-methylphenol
PF-36B-SED	92.27464	95578	3669.38	2400.	UG/KG	11/16/92		o-Chlorophenol
PF-36B-SED	92.27464	106467	1834.69	1100.	UG/KG	11/16/92		p-Dichlorobenzene (1,4)
PF-36B-SED	92.27464	121142	1834.69	1300.	UG/KG	11/16/92		2,4-Dinitrotoluene
PF-36B-SED	92.27464	100027	3669.38	2600.	UG/KG	11/16/92		4-Nitrophenol
PF-36B-SED	92.27464	621647	1834.69	1200.	UG/KG	11/16/92		N-Nitrosodi-n-propylamine
PF-36B-SED	92.27464	87865	3669.38	2900.	UG/KG	11/16/92		Pentachlorophenol
PF-36B-SED	92.27464	108952	3669.38	2300.	UG/KG	11/16/92		Phenol
PF-36B-SED	92.27464	129000	1834.69	2000.	UG/KG	11/16/92		Pyrene
PF-36B-SED	92.27464	120821	1834.69	1300.	UG/KG	11/16/92		1,2,4-Trichlorobenzene

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 16-Nov-1992

REQUEST NUMBER: 13503 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 145

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.27465 Date Collected: 9/01/92 Date Received: 9/02/92 Date Extracted: 9/14/92 Date Analyzed: 10/02/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-0-0	92.27465	83329	< 330.		UG/KG	11/16/92		Acenaphthene
PF-36B-0-0	92.27465	208968	< 330.		UG/KG	11/16/92		Acenaphthylene
PF-36B-0-0	92.27465	62533	< 330.		UG/KG	11/16/92		Aniline
PF-36B-0-0	92.27465	120127	< 330.		UG/KG	11/16/92		Anthracene
PF-36B-0-0	92.27465	103333	< 330.		UG/KG	11/16/92		Azobenzene
PF-36B-0-0	92.27465	92875	< 330.		UG/KG	11/16/92		m-Benzidine
PF-36B-0-0	92.27465	56553	< 330.		UG/KG	11/16/92		Benzo[a]anthracene
PF-36B-0-0	92.27465	50328	< 330.		UG/KG	11/16/92		Benzo[a]pyrene
PF-36B-0-0	92.27465	205992	< 330.		UG/KG	11/16/92		Benzo[b]fluoranthene
PF-36B-0-0	92.27465	191242	< 330.		UG/KG	11/16/92		Benzo[g,h,i]perylene
PF-36B-0-0	92.27465	207089	< 330.		UG/KG	11/16/92		Benzo[k]fluoranthene
PF-36B-0-0	92.27465	65850	< 330.		UG/KG	11/16/92		Benzoic acid
PF-36B-0-0	92.27465	100516	< 330.		UG/KG	11/16/92		Benzyl alcohol
PF-36B-0-0	92.27465	111911	< 330.		UG/KG	11/16/92		Bis(2-chloroethoxy)methane
PF-36B-0-0	92.27465	111444	< 330.		UG/KG	11/16/92		Bis(2-chloroethyl)ether
PF-36B-0-0	92.27465	108601	< 330.		UG/KG	11/16/92		Bis(2-chloroisopropyl)ether
PF-36B-0-0	92.27465	117817	2000.	600.	UG/KG	11/16/92		Bis(2-ethylhexyl)phthalate
PF-36B-0-0	92.27465	101553	< 330.		UG/KG	11/16/92		4-Bromophenylphenyl ether
PF-36B-0-0	92.27465	85687	< 330.		UG/KG	11/16/92		Butyl benzyl phthalate
PF-36B-0-0	92.27465	59507	< 330.		UG/KG	11/16/92		4-Chloro-3-methylphenol
PF-36B-0-0	92.27465	106478	< 330.		UG/KG	11/16/92		4-Chloroaniline
PF-36B-0-0	92.27465	91587	< 330.		UG/KG	11/16/92		2-Chloronaphthalene
PF-36B-0-0	92.27465	95578	< 330.		UG/KG	11/16/92		o-Chlorophenol
PF-36B-0-0	92.27465	7005723	< 330.		UG/KG	11/16/92		4-Chlorophenylphenyl ether
PF-36B-0-0	92.27465	218019	< 330.		UG/KG	11/16/92		Chrysene
PF-36B	92.27465	84742	< 330.		UG/KG	/16/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-0-0	92.27465	117840	< 330.		UG/KG	11/16/92		Di-n-octyl phthalate
PF-36B-0-0	92.27465	53703	< 330.		UG/KG	11/16/92		Dibenzo[a,h]anthracene
PF-36B-0-0	92.27465	132649	< 330.		UG/KG	11/16/92		Dibenzofuran
PF-36B-0-0	92.27465	95501	< 330.		UG/KG	11/16/92		o-Dichlorobenzene (1,2)
PF-36B-0-0	92.27465	541731	< 330.		UG/KG	11/16/92		m-Dichlorobenzene (1,3)
PF-36B-0-0	92.27465	106467	< 330.		UG/KG	11/16/92		p-Dichlorobenzene (1,4)
PF-36B-0-0	92.27465	91941	< 330.		UG/KG	11/16/92		3,3'-Dichlorobenzidine
PF-36B-0-0	92.27465	120832	< 330.		UG/KG	11/16/92		2,4-Dichlorophenol
PF-36B-0-0	92.27465	84662	< 330.		UG/KG	11/16/92		Diethyl phthalate
PF-36B-0-0	92.27465	131113	< 330.		UG/KG	11/16/92		Dimethyl phthalate
PF-36B-0-0	92.27465	105679	< 330.		UG/KG	11/16/92		2,4-Dimethylphenol
PF-36B-0-0	92.27465	51285	< 330.		UG/KG	11/16/92		2,4-Dinitrophenol
PF-36B-0-0	92.27465	121142	< 330.		UG/KG	11/16/92		2,4-Dinitrotoluene
PF-36B-0-0	92.27465	606202	< 330.		UG/KG	11/16/92		2,6-Dinitrotoluene
PF-36B-0-0	92.27465	206440	< 330.		UG/KG	11/16/92		Fluoranthene
PF-36B-0-0	92.27465	86737	< 330.		UG/KG	11/16/92		Fluorene
PF-36B-0-0	92.27465	118741	< 330.		UG/KG	11/16/92		Hexachlorobenzene
PF-36B-0-0	92.27465	87683	< 330.		UG/KG	11/16/92		Hexachlorobutadiene
PF-36B-0-0	92.27465	77474	< 330.		UG/KG	11/16/92		Hexachlorocyclopentadiene
PF-36B-0-0	92.27465	67721	< 330.		UG/KG	11/16/92		Hexachloroethane
PF-36B-0-0	92.27465	193395	< 330.		UG/KG	11/16/92		Indeno[1,2,3-cd]pyrene
PF-36B-0-0	92.27465	78591	< 330.		UG/KG	11/16/92		Isophorone
PF-36B-0-0	92.27465	534521	< 330.		UG/KG	11/16/92		2-Methyl-4,6-dinitrophenol
PF-36B-0-0	92.27465	91576	< 330.		UG/KG	11/16/92		2-Methylnaphthalene
PF-36B-0-0	92.27465	95487	< 330.		UG/KG	11/16/92		2-Methylphenol
PF-36B-0-0	92.27465	106445	< 330.		UG/KG	11/16/92		4-Methylphenol
PF-36B-0-0	92.27465	91203	< 330.		UG/KG	11/16/92		Naphthalene
PF-36B-0-0	92.27465	88744	< 330.		UG/KG	11/16/92		2-Nitroaniline
PF-36B-0-0	92.27465	99092	< 330.		UG/KG	11/16/92		3-Nitroaniline
PF-36B-0-0	92.27465	100016	< 330.		UG/KG	11/16/92		4-Nitroaniline
PF-36B-0-0	92.27465	98953	< 330.		UG/KG	11/16/92		Nitrobenzene
PF-36B-0-0	92.27465	88755	< 330.		UG/KG	11/16/92		2-Nitrophenol
PF-36B-0-0	92.27465	100027	< 330.		UG/KG	11/16/92		4-Nitrophenol
PF-36B-0-0	92.27465	621647	< 330.		UG/KG	11/16/92		N-Nitrosodi-n-propylamine
PF-36B-0-0	92.27465	62759	< 330.		UG/KG	11/16/92		N-Nitrosodimethylamine
PF-36B-0-0	92.27465	86306	< 330.		UG/KG	11/16/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-0-0	92.27465	87865	< 330.		UG/KG	11/16/92		Pentachlorophenol
PF-36B-0-0	92.27465	85018	< 330.		UG/KG	11/16/92		Phenanthrene
PF-36B-0-0	92.27465	108952	< 330.		UG/KG	11/16/92		Phenol
PF-36B-0-0	92.27465	129000	< 330.		UG/KG	11/16/92		Pyrene
PF-36B-0-0	92.27465	120821	< 330.		UG/KG	11/16/92		1,2,4-Trichlorobenzene
PF-36B-0-0	92.27465	95954	< 330.		UG/KG	11/16/92		2,4,5-Trichlorophenol
PF-36B-0-0	92.27465	88062	< 330.		UG/KG	11/16/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.27465

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 16-Nov-1992

REQUEST NUMBER: 13503 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 145

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.27466 Date Collected: 9/01/92 Date Received: 9/02/92 Date Extracted: 9/14/92 Date Analyzed: 10/02/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-E60R	92.27466	83329	< 330.		UG/KG	11/16/92		Acenaphthene
PF-36B-E60R	92.27466	208968	< 330.		UG/KG	11/16/92		Acenaphthylene
PF-36B-E60R	92.27466	62533	< 330.		UG/KG	11/16/92		Aniline
PF-36B-E60R	92.27466	120127	< 330.		UG/KG	11/16/92		Anthracene
PF-36B-E60R	92.27466	103333	< 330.		UG/KG	11/16/92		Azobenzene
PF-36B-E60R	92.27466	92875	< 330.		UG/KG	11/16/92		m-Benzidine
PF-36B-E60R	92.27466	56553	< 330.		UG/KG	11/16/92		Benzo[a]anthracene
PF-36B-E60R	92.27466	50328	< 330.		UG/KG	11/16/92		Benzo[a]pyrene
PF-36B-E60R	92.27466	205992	< 330.		UG/KG	11/16/92		Benzo[b]fluoranthene
PF-36B-E60R	92.27466	191242	< 330.		UG/KG	11/16/92		Benzo[g,h,i]perylene
PF-36B-E60R	92.27466	207089	< 330.		UG/KG	11/16/92		Benzo[k]fluoranthene
PF-36B-E60R	92.27466	65850	< 330.		UG/KG	11/16/92		Benzoic acid
PF-36B-E60R	92.27466	100516	< 330.		UG/KG	11/16/92		Benzyl alcohol
PF-36B-E60R	92.27466	111911	< 330.		UG/KG	11/16/92		Bis(2-chloroethoxy)methane
PF-36B-E60R	92.27466	111444	< 330.		UG/KG	11/16/92		Bis(2-chloroethyl)ether
PF-36B-E60R	92.27466	108601	< 330.		UG/KG	11/16/92		Bis(2-chloroisopropyl)ether
PF-36B-E60R	92.27466	117817	< 330.		UG/KG	11/16/92		Bis(2-ethylhexyl)phthalate
PF-36B-E60R	92.27466	101553	< 330.		UG/KG	11/16/92		4-Bromophenylphenyl ether
PF-36B-E60R	92.27466	85687	< 330.		UG/KG	11/16/92		Butyl benzyl phthalate
PF-36B-E60R	92.27466	59507	< 330.		UG/KG	11/16/92		4-Chloro-3-methylphenol
PF-36B-E60R	92.27466	106478	< 330.		UG/KG	11/16/92		4-Chloroaniline
PF-36B-E60R	92.27466	91587	< 330.		UG/KG	11/16/92		2-Chloronaphthalene
PF-36B-E60R	92.27466	95578	< 330.		UG/KG	11/16/92		o-Chlorophenol
PF-36B-E60R	92.27466	7005723	< 330.		UG/KG	11/16/92		4-Chlorophenylphenyl ether
PF-36B-E60R	92.27466	218019	< 330.		UG/KG	11/16/92		Chrysene
PF-36B-E60R	92.27466	84742	< 330.		UG/KG	11/16/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-E60R	92.27466	117840	< 330.		UG/KG	11/16/92		Di-n-octyl phthalate
PF-36B-E60R	92.27466	53703	< 330.		UG/KG	11/16/92		Dibenzo[a,h]anthracene
PF-36B-E60R	92.27466	132649	< 330.		UG/KG	11/16/92		Dibenzofuran
PF-36B-E60R	92.27466	95501	< 330.		UG/KG	11/16/92		o-Dichlorobenzene (1,2)
PF-36B-E60R	92.27466	541731	< 330.		UG/KG	11/16/92		m-Dichlorobenzene (1,3)
PF-36B-E60R	92.27466	106467	< 330.		UG/KG	11/16/92		p-Dichlorobenzene (1,4)
PF-36B-E60R	92.27466	91941	< 330.		UG/KG	11/16/92		3,3'-Dichlorobenzidine
PF-36B-E60R	92.27466	120832	< 330.		UG/KG	11/16/92		2,4-Dichlorophenol
PF-36B-E60R	92.27466	84662	< 330.		UG/KG	11/16/92		Diethyl phthalate
PF-36B-E60R	92.27466	131113	< 330.		UG/KG	11/16/92		Dimethyl phthalate
PF-36B-E60R	92.27466	105679	< 330.		UG/KG	11/16/92		2,4-Dimethylphenol
PF-36B-E60R	92.27466	51285	< 330.		UG/KG	11/16/92		2,4-Dinitrophenol
PF-36B-E60R	92.27466	121142	< 330.		UG/KG	11/16/92		2,4-Dinitrotoluene
PF-36B-E60R	92.27466	606202	< 330.		UG/KG	11/16/92		2,6-Dinitrotoluene
PF-36B-E60R	92.27466	206440	< 330.		UG/KG	11/16/92		Fluoranthene
PF-36B-E60R	92.27466	86737	< 330.		UG/KG	11/16/92		Fluorene
PF-36B-E60R	92.27466	118741	< 330.		UG/KG	11/16/92		Hexachlorobenzene
PF-36B-E60R	92.27466	87683	< 330.		UG/KG	11/16/92		Hexachlorobutadiene
PF-36B-E60R	92.27466	77474	< 330.		UG/KG	11/16/92		Hexachlorocyclopentadiene
PF-36B-E60R	92.27466	67721	< 330.		UG/KG	11/16/92		Hexachloroethane
PF-36B-E60R	92.27466	193395	< 330.		UG/KG	11/16/92		Indeno[1,2,3-cd]pyrene
PF-36B-E60R	92.27466	78591	< 330.		UG/KG	11/16/92		Isophorone
PF-36B-E60R	92.27466	534521	< 330.		UG/KG	11/16/92		2-Methyl-4,6-dinitrophenol
PF-36B-E60R	92.27466	91576	< 330.		UG/KG	11/16/92		2-Methylnaphthalene
PF-36B-E60R	92.27466	95487	< 330.		UG/KG	11/16/92		2-Methylphenol
PF-36B-E60R	92.27466	106445	< 330.		UG/KG	11/16/92		4-Methylphenol
PF-36B-E60R	92.27466	91203	< 330.		UG/KG	11/16/92		Naphthalene
PF-36B-E60R	92.27466	88744	< 330.		UG/KG	11/16/92		2-Nitroaniline
PF-36B-E60R	92.27466	99092	< 330.		UG/KG	11/16/92		3-Nitroaniline
PF-36B-E60R	92.27466	100016	< 330.		UG/KG	11/16/92		4-Nitroaniline
PF-36B-E60R	92.27466	98953	< 330.		UG/KG	11/16/92		Nitrobenzene
PF-36B-E60R	92.27466	88755	< 330.		UG/KG	11/16/92		2-Nitrophenol
PF-36B-E60R	92.27466	100027	< 330.		UG/KG	11/16/92		4-Nitrophenol
PF-36B-E60R	92.27466	621647	< 330.		UG/KG	11/16/92		N-Nitrosodi-n-propylamine
PF-36B-E60R	92.27466	62759	< 330.		UG/KG	11/16/92		N-Nitrosodimethylamine
PF-36B-	92.27466	86306	< 330.		UG/KG	16/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-E60R	92.27466	87865	< 330.		UG/KG	11/16/92		Pentachlorophenol
PF-36B-E60R	92.27466	85018	< 330.		UG/KG	11/16/92		Phenanthrene
PF-36B-E60R	92.27466	108952	< 330.		UG/KG	11/16/92		Phenol
PF-36B-E60R	92.27466	129000	< 330.		UG/KG	11/16/92		Pyrene
PF-36B-E60R	92.27466	120821	< 330.		UG/KG	11/16/92		1,2,4-Trichlorobenzene
PF-36B-E60R	92.27466	95954	< 330.		UG/KG	11/16/92		2,4,5-Trichlorophenol
PF-36B-E60R	92.27466	88062	< 330.		UG/KG	11/16/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.27466

none

********** EM-9 QUALITY ASSURANCE REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 16-Nov-1992

REQUEST NUMBER: 13503 MATRIX: SS ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 145

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QA SAMPLES RUN WITH THIS BATCH

There were no open (non-blind) Quality Control materials run with the samples reported above for one of the following reasons:

____ Only qualitative data requested

____ Only Blind QC samples run with this batch.

____ No QC samples run with this sample batch.

____ No QC samples for this constituent and matrix type available within EM-9

********** EM-9 QUALITY ASSURANCE REPORT **********

SUMMARY OF CONTROL STATUS OF BLANK QC SAMPLES RUN WITH THIS BATCH

Blank Results, Sample # 92.27504 Date Collected: 9/02/92 Date Received: 9/02/92 Date Extracted: 9/14/92 Date Analyzed: 9/24/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND NAME
00.20227	92.27504	83329	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Acenaphthene
00.20227	92.27504	208968	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Acenaphthylene
00.20227	92.27504	62533	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Aniline
00.20227	92.27504	120127	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Anthracene
00.20227	92.27504	103333	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Azobenzene
00.20227	92.27504	92875	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	m-Benzidine
00.20227	92.27504	56553	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Benzo[a]anthracene
00.20227	92.27504	50328	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Benzo[a]pyrene
00.20227	92.27504	205992	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Benzo[b]fluoranthene
00.20227	92.27504	191242	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Benzo[g,h,i]perylene
00.20227	92.27504	207089	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Benzo[k]fluoranthene
00.20227	92.27504	65850	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Benzoic acid
00.20227	92.27504	100516	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Benzyl alcohol
00.20227	92.27504	111911	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Bis(2-chloroethoxy)methane
00.20227	92.27504	111444	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Bis(2-chloroethyl)ether
00.20227	92.27504	108601	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Bis(2-chloroisopropyl)ether
00.20227	92.27504	117817	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Bis(2-ethylhexyl)phthalate
00.20227	92.27504	101553	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	4-Bromophenylphenyl ether
00.20227	92.27504	85687	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Butyl benzyl phthalate
00.20227	92.27504	59507	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	4-Chloro-3-methylphenol
00.20227	92.27504	106478	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	4-Chloroaniline

********** EM-9 QUALITY ASSURANCE REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND NAME
00.20227	92.27504	91587	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	2-Chloronaphthalene
00.20227	92.27504	95578	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	o-Chlorophenol
00.20227	92.27504	7005723	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	4-Chlorophenylphenyl ether
00.20227	92.27504	218019	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Chrysene
00.20227	92.27504	84742	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Di-n-butyl phthalate
00.20227	92.27504	117840	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Di-n-octyl phthalate
00.20227	92.27504	53703	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Dibenzo[a,h]anthracene
00.20227	92.27504	132649	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Dibenzofuran
00.20227	92.27504	95501	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	o-Dichlorobenzene (1,2)
00.20227	92.27504	541731	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	m-Dichlorobenzene (1,3)
00.20227	92.27504	106467	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	p-Dichlorobenzene (1,4)
00.20227	92.27504	91941	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	3,3'-Dichlorobenzidine
00.20227	92.27504	120832	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	2,4-Dichlorophenol
00.20227	92.27504	84662	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Diethyl phthalate
00.20227	92.27504	131113	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Dimethyl phthalate
00.20227	92.27504	105679	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	2,4-Dimethylphenol
00.20227	92.27504	51285	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	2,4-Dinitrophenol
00.20227	92.27504	121142	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	2,4-Dinitrotoluene
00.20227	92.27504	606202	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	2,6-Dinitrotoluene
00.20227	92.27504	206440	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Fluoranthene
00.20227	92.27504	86737	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Fluorene
00.20227	92.27504	118741	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Hexachlorobenzene
00.20227	92.27504	87683	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Hexachlorobutadiene
00.20227	92.27504	77474	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Hexachlorocyclopentadiene
00.20227	92.27504	67721	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Hexachloroethane
00.20227	92.27504	193395	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Indeno[1,2,3-cd]pyrene
00.20227	92.27504	78591	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Isophorone
00.20227	92.27504	534521	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	2-Methyl-4,6-dinitrophenol
00.20227	92.27504	91576	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	2-Methylnaphthalene
00.20227	92.27504	95487	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	2-Methylphenol
00.20227	92.27504	106445	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	4-Methylphenol
00.20227	92.27504	91203	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Naphthalene
00.20227	92.27504	88744	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	2-Nitroaniline
00.20227	92.27504	99092	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	3-Nitroaniline
00.20227	92.27504	100016	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	4-Nitroaniline
00.20227	92.27504	98953	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Nitrobenzene

********** EM-9 QUALITY ASSURANCE REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND NAME
00.20227	92.27504	88755	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	2-Nitrophenol
00.20227	92.27504	100027	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	4-Nitrophenol
00.20227	92.27504	621647	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	N-Nitrosodi-n-propylamine
00.20227	92.27504	62759	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	N-Nitrosodimethylamine
00.20227	92.27504	86306	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	N-Nitrosodiphenylamine
00.20227	92.27504	87865	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Pentachlorophenol
00.20227	92.27504	85018	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Phenanthrene
00.20227	92.27504	108952	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Phenol
00.20227	92.27504	129000	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Pyrene
00.20227	92.27504	120821	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	1,2,4-Trichlorobenzene
00.20227	92.27504	95954	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	2,4,5-Trichlorophenol
00.20227	92.27504	88062	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	2,4,6-Trichlorophenol

Blank Results, Sample # 92.27505 Date Collected: 9/02/92 Date Received: 9/02/92 Date Extracted: 9/14/92 Date Analyzed: 9/24/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND NAME
00.20227	92.27505	83329	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Acenaphthene
00.20227	92.27505	208968	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Acenaphthylene
00.20227	92.27505	62533	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Aniline
00.20227	92.27505	120127	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Anthracene
00.20227	92.27505	103333	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Azobenzene
00.20227	92.27505	92875	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	m-Benzidine
00.20227	92.27505	56553	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Benzo[a]anthracene
00.20227	92.27505	50328	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Benzo[a]pyrene
00.20227	92.27505	205992	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Benzo[b]fluoranthene

********** EM-9 QUALITY ASSURANCE REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND NAME
00.20227	92.27505	191242	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Benzo[g,h,i]perylene
00.20227	92.27505	207089	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Benzo[k]fluoranthene
00.20227	92.27505	65850	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Benzoic acid
00.20227	92.27505	100516	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Benzyl alcohol
00.20227	92.27505	111911	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Bis(2-chloroethoxy)methane
00.20227	92.27505	111444	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Bis(2-chloroethyl)ether
00.20227	92.27505	108601	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Bis(2-chloroisopropyl)ether
00.20227	92.27505	117817	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Bis(2-ethylhexyl)phthalate
00.20227	92.27505	101553	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	4-Bromophenylphenyl ether
00.20227	92.27505	85687	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Butyl benzyl phthalate
00.20227	92.27505	59507	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	4-Chloro-3-methylphenol
00.20227	92.27505	106478	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	4-Chloroaniline
00.20227	92.27505	91587	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	2-Chloronaphthalene
00.20227	92.27505	95578	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	o-Chlorophenol
00.20227	92.27505	7005723	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	4-Chlorophenylphenyl ether
00.20227	92.27505	218019	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Chrysene
00.20227	92.27505	84742	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Di-n-butyl phthalate
00.20227	92.27505	117840	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Di-n-octyl phthalate
00.20227	92.27505	53703	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Dibenzo[a,h]anthracene
00.20227	92.27505	132649	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Dibenzofuran
00.20227	92.27505	95501	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	o-Dichlorobenzene (1,2)
00.20227	92.27505	541731	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	m-Dichlorobenzene (1,3)
00.20227	92.27505	106467	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	p-Dichlorobenzene (1,4)
00.20227	92.27505	91941	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	3,3'-Dichlorobenzidine
00.20227	92.27505	120832	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	2,4-Dichlorophenol
00.20227	92.27505	84662	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Diethyl phthalate
00.20227	92.27505	131113	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Dimethyl phthalate
00.20227	92.27505	105679	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	2,4-Dimethylphenol
00.20227	92.27505	51285	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	2,4-Dinitrophenol
00.20227	92.27505	121142	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	2,4-Dinitrotoluene
00.20227	92.27505	606202	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	2,6-Dinitrotoluene
00.20227	92.27505	206440	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Fluoranthene
00.20227	92.27505	86737	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Fluorene
00.20227	92.27505	118741	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Hexachlorobenzene
00.20227	92.27505	87683	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Hexachlorobutadiene
00.20227	92.27505	77474	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Hexachlorocyclopentadiene

********** EM-9 QUALITY ASSURANCE REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND NAME
00.20227	92.27505	67721	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Hexachloroethane
00.20227	92.27505	193395	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Indeno[1,2,3-cd]pyrene
00.20227	92.27505	78591	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Isophorone
00.20227	92.27505	534521	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	2-Methyl-4,6-dinitrophenol
00.20227	92.27505	91576	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	2-Methylnaphthalene
00.20227	92.27505	95487	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	2-Methylphenol
00.20227	92.27505	106445	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	4-Methylphenol
00.20227	92.27505	91203	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Naphthalene
00.20227	92.27505	88744	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	2-Nitroaniline
00.20227	92.27505	99092	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	3-Nitroaniline
00.20227	92.27505	100016	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	4-Nitroaniline
00.20227	92.27505	98953	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Nitrobenzene
00.20227	92.27505	88755	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	2-Nitrophenol
00.20227	92.27505	100027	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	4-Nitrophenol
00.20227	92.27505	621647	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	N-Nitrosodi-n-propylamine
00.20227	92.27505	62759	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	N-Nitrosodimethylamine
00.20227	92.27505	86306	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	N-Nitrosodiphenylamine
00.20227	92.27505	87865	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Pentachlorophenol
00.20227	92.27505	85018	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Phenanthrene
00.20227	92.27505	108952	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Phenol
00.20227	92.27505	129000	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	Pyrene
00.20227	92.27505	120821	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	1,2,4-Trichlorobenzene
00.20227	92.27505	95954	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	2,4,5-Trichlorophenol
00.20227	92.27505	88062	< 330.		UG/KG	0.0		11/16/92	UNDER CONTROL	2,4,6-Trichlorophenol

Blank Spike Results: none

Blank Spike Duplicate Results: none

********** EM-9 QUALITY ASSURANCE REPORT **********

SUMMARY OF CONTROL STATUS OF BLIND QA SAMPLES RUN WITH THIS BATCH

Blind QC Results, Sample # 92.27502 Date Collected: 9/02/92 Date Received: 9/02/92 Date Extracted: 9/14/92 Date Analyzed: 9/24/92

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND-NAME
92.27502	83329	2.4	0.72	MG/KG	4.	0.4	11/16/92	UNDER CONTROL	Acenaphthene
92.27502	208968	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Acenaphthylene
92.27502	62533	< 0.33		MG/KG	4.7	0.5	11/16/92	OUT OF CONTROL	Aniline
92.27502	120127	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Anthracene
92.27502	103333	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Azobenzene
92.27502	92875	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	m-Benzidine
92.27502	56553	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Benzo[a]anthracene
92.27502	50328	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Benzo[a]pyrene
92.27502	205992	3.	0.9	MG/KG	4.4	0.4	11/16/92	UNDER CONTROL	Benzo[b]fluoranthene
92.27502	191242	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Benzo[g,h,i]perylene
92.27502	207089	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Benzo[k]fluoranthene
92.27502	65850	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Benzoic acid
92.27502	100516	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Benzyl alcohol
92.27502	111911	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Bis(2-chloroethoxy)methane
92.27502	111444	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Bis(2-chloroethyl)ether
92.27502	108601	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Bis(2-chloroisopropyl)ether
92.27502	117817	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Bis(2-ethylhexyl)phthalate
92.27502	101553	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	4-Bromophenylphenyl ether
92.27502	85687	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Butyl benzyl phthalate
92.27502	59507	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	4-Chloro-3-methylphenol
92.27502	106478	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	4-Chloroaniline
92.27502	91587	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	2-Chloronaphthalene
92.27502	95578	2.4	0.72	MG/KG	4.4	0.4	11/16/92	WARNING 2-3 SIG	o-Chlorophenol
92.27502	7005723	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	4-Chlorophenylphenyl ether
92.27502	218019	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Chrysene
92.2750[illegible]	84742	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Di-n-butyl phthalate

********** EM-9 QUALITY ASSURANCE REPORT **********

SURROGATE RESULTS FOR EPA SEMIVOLATILES

Surrogate 1 = 2-Fluorophenol (CAS # = 367124)
Surrogate 2 = Phenol-d5 (CAS # = 4165622)
Surrogate 3 = Nitrobenzene-d5 (CAS # = 4165600)
Surrogate 4 = 2-Fluorobiphenyl (CAS # = 321608)
Surrogate 5 = 2,4,6-Tribromophenol (CAS # = 118796)
Surrogate 6 = p-Terphenyl-d14 (CAS # =)

SAMPLE NUMBER	UNITS	Surrogate 1	Surrogate 2	Surrogate 3	Surrogate 4	Surrogate 5	Surrogate 6	COMPLETION DATE
92.27444	%	29.96	39.16	36.82	46.52	67.18	66.34	16-Nov-1992
92.27444	%	39.23	46.47	44.44	56.36	81.4	83.88	16-Nov-1992
92.27444	%	38.97	48.34	45.96	60.54	87.21	86.22	16-Nov-1992
92.27445	%	29.46	34.24	34.48	43.6	34.18	44.52	16-Nov-1992
92.27446	%	29.28	35.18	33.48	41.68	41.	47.68	16-Nov-1992
92.27447	%	31.32	37.32	33.64	43.16	44.9	50.4	16-Nov-1992
92.27448	%	58.82	61.03	61.14	68.66	85.55	80.24	16-Nov-1992
92.27449	%	29.31	41.18	45.92	58.02	110.9	78.54	16-Nov-1992
92.27450	%	54.55	75.45	81.	94.6	102.2	140.2	16-Nov-1992
92.27451	%	24.52	38.7	37.1	53.32	80.76	95.2	16-Nov-1992
92.27452	%	28.45	34.25	33.	44.9	40.85	50.4	16-Nov-1992
92.27453	%	46.2	54.54	48.84	61.64	63.32	75.4	16-Nov-1992
92.27454	%	48.79	57.48	58.6	63.76	78.12	94.64	16-Nov-1992
92.27455	%	63.3	72.77	72.26	81.92	105.59	157.96	16-Nov-1992
92.27456	%	56.77	61.07	62.96	68.54	82.45	82.26	16-Nov-1992
92.27457	%	25.17	40.92	38.44	58.42	92.49	118.5	16-Nov-1992
92.27458	%	56.41	61.88	65.1	67.66	85.01	80.6	16-Nov-1992
92.27459	%	49.29	56.94	54.36	65.38	83.08	82.48	16-Nov-1992
92.27460	%	51.93	58.11	60.8	66.64	79.62	103.2	16-Nov-1992
92.27461	%	31.12	36.8	36.04	45.92	48.08	52.4	16-Nov-1992
92.27462	%	58.92	67.26	63.84	71.52	88.3	83.9	16-Nov-1992
92.27463	%	59.82	64.33	67.36	69.62	96.12	92.22	16-Nov-1992
92.27464	%	37.71	54.29	49.32	81.74	108.97	101.2	16-Nov-1992
92.27464	%	50.41	68.72	64.08	91.42	117.4	109.56	16-Nov-1992
92.27464	%	38.5	55.73	53.96	86.84	102.29	95.42	16-Nov-1992
92.27465	%	35.97	43.81	44.68	52.72	79.98	70.98	16-Nov-1992

********** EM-9 QUALITY ASSURANCE REPORT **********

SAMPLE NUMBER	UNITS	Surrogate 1	Surrogate 2	Surrogate 3	Surrogate 4	Surrogate 5	Surrogate 6	COMPLETION DATE
92.27466	%	53.33	60.35	63.12	65.48	84.03	82.74	16-Nov-1992
92.27502	%	50.59	54.97	56.56	63.16	65.05	65.82	16-Nov-1992
92.27503	%	59.94	63.65	64.26	67.5	69.2	67.66	16-Nov-1992
92.27504	%	42.38	44.91	46.94	49.54	53.34	58.18	16-Nov-1992
92.27505	%	48.73	53.07	54.38	61.64	77.16	81.44	16-Nov-1992
EPA Limits:								
Water	%	21 - 100	10 - 94	35 - 114	43 - 116	10 - 123	33 - 141	
Soil	%	25 - 121	24 - 113	23 - 120	30 - 115	19 - 122	18 - 137	

REPORT NUMBER: 15911

Analyst	Reviewer	Section Leader	QA Officer
		FOR C.L.	mag
11/18/92	11/17/92	11/19/92	11/19/92
Date	Date	Date	Date

No Sample Discrepancies Noted by Sample Management Section

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in
'Quality Assurance for Health and Environmental Chemistry: 1986,' LA-11114-MS, pp. 3-4.

****

92.27502	117840	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Di-n-octyl phthalate
92.27502	53703	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Dibenzo[a,h]anthracene
92.27502	132649	2.4	0.72	MG/KG	3.9	0.4	11/16/92	UNDER CONTROL	Dibenzofuran
92.27502	95501	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	o-Dichlorobenzene (1,2)
92.27502	541731	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	m-Dichlorobenzene (1,3)
92.27502	106467	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	p-Dichlorobenzene (1,4)
92.27502	91941	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	3,3'-Dichlorobenzidine
92.27502	120832	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	2,4-Dichlorophenol
92.27502	84662	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Diethyl phthalate
92.27502	131113	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Dimethyl phthalate
92.27502	105679	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	2,4-Dimethylphenol
92.27502	51285	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	2,4-Dinitrophenol
92.27502	121142	3.7	1.11	MG/KG	5.7	0.6	11/16/92	UNDER CONTROL	2,4-Dinitrotoluene
92.27502	606202	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	2,6-Dinitrotoluene
92.27502	206440	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Fluoranthene
92.27502	86737	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Fluorene
92.27502	118741	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Hexachlorobenzene
92.27502	87683	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Hexachlorobutadiene
92.27502	77474	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Hexachlorocyclopentadiene
92.27502	67721	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Hexachloroethane
92.27502	193395	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Indeno[1,2,3-cd]pyrene
92.27502	78591	3.2	0.96	MG/KG	4.1	0.4	11/16/92	UNDER CONTROL	Isophorone
92.27502	534521	3.1	0.93	MG/KG	4.2	0.4	11/16/92	UNDER CONTROL	2-Methyl-4,6-dinitrophenol
92.27502	91576	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	2-Methylnaphthalene
92.27502	95487	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	2-Methylphenol
92.27502	106445	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	4-Methylphenol
92.27502	91203	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Naphthalene
92.27502	88744	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	2-Nitroaniline
92.27502	99092	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	3-Nitroaniline
92.27502	100016	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	4-Nitroaniline
92.27502	98953	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Nitrobenzene
92.27502	88755	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	2-Nitrophenol
92.27502	100027	2.4	0.72	MG/KG	4.1	0.4	11/16/92	WARNING 2-3 SIG	4-Nitrophenol
92.27502	621647	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	N-Nitrosodi-n-propylamine
92.27502	62759	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	N-Nitrosodimethylamine
92.27502	86306	3.2	0.96	MG/KG	4.9	0.5	11/16/92	UNDER CONTROL	N-Nitrosodiphenylamine
92.27502	87865	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Pentachlorophenol
92.27502	85018	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Phenanthrene
92.27502	108952	2.4	0.72	MG/KG	4.6	0.5	11/16/92	WARNING 2-3 SIG	Phenol
92.27502	129000	2.8	0.84	MG/KG	4.3	0.4	11/16/92	UNDER CONTROL	Pyrene
92.27502	120821	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	1,2,4-Trichlorobenzene
92.27502	95954	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	2,4,5-Trichlorophenol
92.27502	88062	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	2,4,6-Trichlorophenol

Blind QC Results, Sample # 92.27503 Date Collected: 9/02/92 Date Received: 9/02/92 Date Extracted: 9/14/92 Date Analyzed: 9/24/92

92.27503	83329	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Acenaphthene
92.27503	208968	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Acenaphthylene
92.27503	62533	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Aniline
92.27503	120127	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Anthracene
92.27503	103333	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Azobenzene
92.27503	92875	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	m-Benzidine
92.27503	56553	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Benzo[a]anthracene
92.27503	50328	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Benzo[a]pyrene
92.27503	205992	3.4	1.02	MG/KG	4.7	0.5	11/16/92	UNDER CONTROL	Benzo[b]fluoranthene
92.27503	191242	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Benzo[g,h,i]perylene
92.27503	207089	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Benzo[k]fluoranthene
92.27503	65850	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Benzoic acid
92.27503	100516	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Benzyl alcohol
92.27503	111911	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Bis(2-chloroethoxy)methane
92.27503	111444	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Bis(2-chloroethyl)ether
92.27503	108601	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Bis(2-chloroisopropyl)ether
92.27503	117817	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Bis(2-ethylhexyl)phthalate
92.27503	101553	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	4-Bromophenylphenyl ether
92.27503	85687	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Butyl benzyl phthalate
92.27503	59507	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	4-Chloro-3-methylphenol
92.27503	106478	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	4-Chloroaniline
92.27503	91587	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	2-Chloronaphthalene
92.27503	95578	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	o-Chlorophenol
92.27503	7005723	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	4-Chlorophenylphenyl ether
92.27503	218019	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Chrysene
92.27503	84742	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Di-n-butyl phthalate
92.27503	117840	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Di-n-octyl phthalate
92.27503	53703	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Dibenzo[a,h]anthracene
92.27503	132649	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Dibenzofuran
92.27503	95501	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	o-Dichlorobenzene (1,2)
92.27503	541731	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	m-Dichlorobenzene (1,3)
92.27503	106467	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	p-Dichlorobenzene (1,4)
92.27503	91941	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	3,3'-Dichlorobenzidine
92.27503	120832	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	2,4-Dichlorophenol
92.27503	84662	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Diethyl phthalate
92.27503	131113	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Dimethyl phthalate
92.27503	105679	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	2,4-Dimethylphenol
92.27503	51285	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	2,4-Dinitrophenol
92.27503	121142	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	2,4-Dinitrotoluene
92.27503	606202	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	2,6-Dinitrotoluene
92.27503	206440	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Fluoranthene
92.27503	86737	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Fluorene
92.2750	118741	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Hexachlorobenzene

92.27503	87683	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Hexachlorobutadiene
92.27503	77474	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Hexachlorocyclopentadiene
92.27503	67721	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Hexachloroethane
92.27503	193395	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Indeno[1,2,3-cd]pyrene
92.27503	78591	3.7	1.11	MG/KG	4.4	0.4	11/16/92	UNDER CONTROL	Isophorone
92.27503	534521	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	2-Methyl-4,6-dinitrophenol
92.27503	91576	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	2-Methylnaphthalene
92.27503	95487	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	2-Methylphenol
92.27503	106445	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	4-Methylphenol
92.27503	91203	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Naphthalene
92.27503	88744	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	2-Nitroaniline
92.27503	99092	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	3-Nitroaniline
92.27503	100016	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	4-Nitroaniline
92.27503	98953	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Nitrobenzene
92.27503	88755	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	2-Nitrophenol
92.27503	100027	2.7	0.81	MG/KG	4.4	0.4	11/16/92	UNDER CONTROL	4-Nitrophenol
92.27503	621647	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	N-Nitrosodi-n-propylamine
92.27503	62759	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	N-Nitrosodimethylamine
92.27503	86306	3.5	1.05	MG/KG	5.2	0.5	11/16/92	UNDER CONTROL	N-Nitrosodiphenylamine
92.27503	87865	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Pentachlorophenol
92.27503	85018	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	Phenanthrene
92.27503	108952	2.9	0.87	MG/KG	4.9	0.5	11/16/92	UNDER CONTROL	Phenol
92.27503	129000	3.1	0.93	MG/KG	4.6	0.5	11/16/92	UNDER CONTROL	Pyrene
92.27503	120821	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	1,2,4-Trichlorobenzene
92.27503	95954	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	2,4,5-Trichlorophenol
92.27503	88062	< 0.33		MG/KG	0.0		11/16/92	UNDER CONTROL	2,4,6-Trichlorophenol

PF-36A-RIN
36B-RIN

EM-9 SEMIVOLATILE ORGANIC ANALYSIS
SUMMARY OF ANALYTICAL RESULTS

TO: Philip R. Fresquez
FROM: Bridgid Brug, EM-9 Organic section
THROUGH: Chris Leibman, EM-9 Organic section leader
Anthony Lombardo, EM-9 Organic section leader

REQUEST NUMBER: 13497
MATRIX: Water
SUMMARY DATE: November 3, 1992

ppb

SAMPLE ID	TARGET COMPOUNDS FOUND	AMOUNT (ug/L)	LOQ (ug/L)	TICs (Y/N)
92.27324 (Blank)	NONE	<10	10	N
92.27468	Phenol	53	10	Y
92.27469	Phenol	19	10	Y

LOQ: Limit Of Quantitation
TIC: Tentatively Identified Compound

Samples were extracted by liquid-liquid extraction method. Methylene chloride was used as the extraction solvent. Sample extracts were then concentrated to 1.0 ml final volume. Appropriate surrogate standards we added prior to extraction. Analysis was performed by capillary column GC/... methods. Extraction and analysis methods are consistent with EPA SW-846 methods 3520 and 8270. Analytical column used was a J&W Scientific DB.625 30M by 0.25 mm ID, 0.5 micron film.

Both of the samples were found to contain HSL target compounds (see above). Non-target compounds were not identified or quantitated for this analysis.

Surrogate recoveries were within EPA criteria for all samples. Internal standard responses were within criteria for all analyses.

All analytical hold times were met for this request. If you have any questions regarding this data, please call either Anthony Lombardo or Laura Kelly at 667-5889.

11/7/92

LOS ALAMOS NATIONAL LABORATORY
HEALTH, SAFETY AND ENVIRONMENT DIVISION
HSE-9
SURROGATE RECOVERIES FOR SEMI-VOLATILES
IN SOIL TYPE MATRICES

REQUEST #: 13503

NUMBER OF SAMPLES: 22
MATRIX S
ANALYST: AJL
Date: 11/09/92

SURROGATE RECOVERIES

SURROGATE
RECOVERIES IN PERCENT (%)

	SAMPLE NUMBERS	TYPE	2-FLUORO-PHENOL	PHENOL (D6)	NITRO-BENZENE (D5)	2-FLUORO-BIPHENYL	2,4,6-TRIBROMO-PHENOL	TERPHENYL (D14)
1	B92.27504	BLANK	42	45	47	50	53	58
2	M92.27444	MATRIX SPIK	30	39	37	47	67	66
3	D92.27444	MATRIX SP-D	39	46	44	56	81	84
4	S92.27502	SAMPLE	51	55	57	63	65	66
5	S92.27444	SAMPLE	39	48	46	61	87	86
6	S92.27445	SAMPLE	29	34	34	44	34	45
7	S92.27446	SAMPLE	29	35	33	42	41	48
	S92.27447	SAMPLE	31	37	34	43	45	50
	S92.27448	SAMPLE	59	61	61	69	86	80
10	S92.27449	SAMPLE	29	41	46	58	111	79
11	S92.27450	SAMPLE	55	75	81	95	102	140 *
12	S92.27451	SAMPLE	25	39	37	53	81	95
13	S92.27452	SAMPLE	28	34	33	45	41	50
14	S92.27453	SAMPLE	46	55	49	62	63	75
15	S92.27454	SAMPLE	49	57	59	64	78	95
16	S92.27455	SAMPLE	63	73	72	82	106	158 *
17	S92.27456	SAMPLE	57	61	63	69	82	82
18	S92.27457	SAMPLE	25	41	38	58	92	119
19	S92.27458	SAMPLE	56	62	65	68	85	81
20	S92.27459	SAMPLE	49	57	54	65	83	82
21	S92.27460	SAMPLE	52	58	61	67	80	103
22	S92.27461	SAMPLE	31	37	36	46	48	52
	Average % Surrogate Recovery...		38	44	44	53	67	66
	Defined Lower QC Limits (%)....		23	24	23	30	19	18
	Defined Upper QC Limits (%)....		121	113	120	115	122	137
	Observed Lower QC Limits (%)...		29	34	33	42	34	45
	Observed Upper QC Limits (%)...		59	61	61	69	111	86

"*" If % Surrogate Recovery is Followed by a "*", it is out of QC Limits.

ewed By:

11/16/92

LOS ALAMOS NATIONAL LABORATORY
HEALTH, SAFETY AND ENVIRONMENT DIVISION
HSE-9
MATRIX SPIKE RECOVERIES FOR SEMI-VOLATILES

		DRY WT/VOL		AMOUNT SPIKED IN UG/KG		
REQUEST #:	13503	(G or L)		ACIDS	BASES	LOQ (UG/KG)
NUMBER OF SAMPLES:	22			3481	1740	330
SPIKE ID: (STARTS M OR E)	M92.27444	SPIKE	28.730	3498	1749	330
SPIKE DUP ID: (STARTS D OR F)	D92.27444	SPIKE-DUP	28.588			
RAW DATA WITH:	13503					
ANALYST:	AJL					

	SPIKE REC.	SPIKE-DUP REC.	SPIKE % REC.	SPIKE-DUP % REC.	RPD	LOW. REC. LIM.	UPP. REC. LIM.	RPD LIM.
PHENOL	1300	1500	37%	43%	14%	26	90	35
2-CHLOROPHENOL	1300	1500	37%	43%	14%	25	102	50
1,4-DICHLOROBENZENE	620	810	36%	46%	26%	28	104	27
N-NITROSO-DI-N-PROPYLAMINE	680	940	39%*	54%	32%	41	126	38
1,2,4-TRICLOROBENZENE	750	900	43%	51%	18%	38	107	23
4-CHLORO-3-METHYLPHENOL	1700	2100	49%	60%	21%	26	103	33
ACENAPHTHENE	890	1100	51%	63%	21%*	31	137	19
4-NITROPHENOL	1600	2300	46%	66%	35%	11	114	50
2,4-DINITROTOLUENE	1100	1300	63%	74%	16%	28	89	47
PENTACHLOROPHENOL	2000	2800	57%	80%	33%	17	109	47
PYRENE	1200	1600	69%	91%	28%	35	142	36

"*" If % Matrix Recovery is Followed by a "*", it is out of QC Limits.

Reviewed By: 11/10/92

LOS ALAMOS NATIONAL LABORATORY
HEALTH, SAFETY AND ENVIRONMENT DIVISION
HSE-9
SURROGATE RECOVERIES FOR SEMI-VOLATILES
IN SOIL TYPE MATRICES

REQUEST #: 13503

NUMBER OF SAMPLES: 9
MATRIX S
ANALYST: AJL
Date: 10/30/92

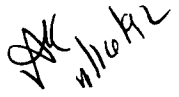
SURROGATE RECOVERIES

SURROGATE
RECOVERIES IN PERCENT (%)

	SAMPLE NUMBERS	TYPE	2-FLUORO-PHENOL	PHENOL (D6)	NITRO-BENZENE (D5)	2-FLUORO-BIPHENYL	2,4,6-TRIBROMO-PHENOL	TERPHENYL (D14)
1	B92.27505	BLANK	49	53	54	62	77	81
2	M92.27464	MATRIX SPIK	38	54	49	82	109	101
3	D92.27464	MATRIX SP-D	50	69	64	91	117	110
4	S92.27462	SAMPLE	59	67	64	72	88	84
5	S92.27463	SAMPLE	60	64	67	70	96	92
6	S92.27464	SAMPLE	39	56	54	87	102	95
7	S92.27465	SAMPLE	36	44	45	53	80	71
	S92.27466	SAMPLE	53	60	63	65	84	83
	S92.27503	SAMPLE	60	64	64	68	69	68
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
	Average % Surrogate Recovery...		49	59	58	72	91	87
	Defined Lower QC Limits (%)....		23	24	23	30	19	18
	Defined Upper QC Limits (%)....		121	113	120	115	122	137
	Observed Lower QC Limits (%)...		36	44	45	53	69	68
	Observed Upper QC Limits (%)...		60	69	67	91	117	110

"*" If % Surrogate Recovery is Followed by a "*", it is out of QC Limits.

ewed By:



LOS ALAMOS NATIONAL LABORATORY
HEALTH, SAFETY AND ENVIRONMENT DIVISION
HSE-9
MATRIX SPIKE RECOVERIES FOR SEMI-VOLATILES

		DRY WT/VOL		AMOUNT SPIKED IN UG/KG		
REQUEST #:	13503	(G or L)		ACIDS	BASES	LOQ (UG/KG)
NUMBER OF SAMPLES:	9					
SPIKE ID: (STARTS M OR E)	M92.27464	SPIKE	27.144	3684	1842	330
SPIKE DUP ID: (STARTS D OR F)	D92.27464	SPIKE-DUP	27.252	3669	1835	330
RAW DATA WITH:	---					
ANALYST:	AJL					

	SPIKE REC.	SPIKE-DUP REC.	SPIKE % REC.	SPIKE-DUP % REC.	RPD	LOW. REC. LIM.	UPP. REC. LIM.	RPD LIM.
PHENOL	1900	2300	52%	63%	19%	26	90	35
2-CHLOROPHENOL	1800	2400	49%	65%	29%	25	102	50
1,4-DICHLOROBENZENE	830	1100	45%	60%	28%*	28	104	27
N-NITROSO-DI-N-PROPYLAMINE	920	1200	50%	65%	27%	41	126	38
1,2,4-TRICLOROBENZENE	1000	1300	54%	71%	26%*	38	107	23
4-CHLORO-3-METHYLPHENOL	2800	3000	76%	82%	7%	26	103	33
ACENAPHTHENE	1400	1500	76%	82%	7%	31	137	19
4-NITROPHENOL	2100	2600	57%	71%	22%	11	114	50
2,4-DINITROTOLUENE	1200	1300	65%	71%	8%	28	89	47
PENTACHLOROPHENOL	2700	2900	73%	79%	8%	17	109	47
PYRENE	2000	2000	109%	109%	0%	35	142	36

"*" If % Matrix Recovery is Followed by a "*", it is out of QC Limits.

Reviewed By: 11/16/92

LOS ALAMOS NATIONAL LABORATORY
HEALTH, SAFETY AND ENVIRONMENT DIVISION
HSE-9
SURROGATE RECOVERIES FOR SEMI-VOLATILES
IN WATER

REQUEST #: 13497

NUMBER OF SAMPLES: 6
MATRIX W
ANALYST: AJL
Date: 11/03/92

SURROGATE RECOVERIES

SURROGATE
RECOVERIES IN PERCENT (%)

	SAMPLE NUMBERS	TYPE	2-FLUORO-PHENOL	PHENOL (D6)	NITRO-BENZENE (D5)	2-FLUORO-BIPHENYL	2,4,6-TRIBROMO-PHENOL	TERPHENYL (D14)
1	B92.27324	BLANK	40	43	51	52	60	70
2	S92.27323	SAMPLE	44	52	50	55	94	72
3	M92.26589	MATRIX SPIK	0 *	3 *	3 *	20 *	52	54
4	D92.26589	MATRIX SP-D	21 *	25	34 *	37 *	35	54
5	S92.27468	SAMPLE	42	43	62	64	62	54
6	S92.27469	SAMPLE	48	52	59	63	71	29 *
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
	Average % Surrogate Recovery...		32	36	43	48	62	55
	Defined Lower QC Limits (%)....		21	10	35	43	10	33
	Defined Upper QC Limits (%)....		100	94	114	116	123	141
	Observed Lower QC Limits (%)...		0	3	3	20	35	29
	Observed Upper QC Limits (%)...		48	52	62	64	94	72

"*" If % Surrogate Recovery is Followed by a "*", it is out of QC Limits.

Reviewed By: 12/2/92

LOS ALAMOS NATIONAL LABORATORY
HEALTH, SAFETY AND ENVIRONMENT DIVISION
HSE-9
MATRIX SPIKE RECOVERIES FOR SEMI-VOLATILES

		DRY WT/VOL		AMOUNT SPIKED (50 OR 100 ug/ml) IN UG/KG or UG/L		
REQUEST #:	13497	(G or L)		ACIDS	BASES	LOQ (UG/KG)
NUMBER OF SAMPLES:	6					
SPIKE ID: (STARTS M OR E)	M92.26589	SPIKE	1	100	50	10
SPIKE DUP ID: (STARTS D OR F)	D92.26589	SPIKE-DUP	1	100	50	10
RAW DATA WITH:	13435					
ANALYST:	AJL					

	SPIKE REC.	SPIKE-DUP REC.	SPIKE % REC.	SPIKE-DUP % REC.	RPD	LOW. REC. LIM.	UPP. REC. LIM.	RPD LIM.
PHENOL	<LOQ	27	0%*	27%	200%*	12	89	42
2-CHLOROPHENOL	<LOQ	29	0%*	29%	200%*	27	123	40
1,4-DICHLOROBENZENE	<LOQ	16	0%*	32%*	200%*	36	97	28
N-NITROSO-DI-N-PROPYLAMINE	15	23	30%*	46%	42%*	41	116	38
1,2,4-TRICLOROBENZENE	<LOQ	18	0%*	36%*	200%*	39	98	28
4-CHLORO-3-METHYLPHENOL	42	36	42%	36%	15%	23	97	42
ACENAPHTHENE	20	23	40%*	46%	14%	46	118	31
4-NITROPHENOL	56	35	56%	35%	46%	10	80	50
2,4-DINITROTOLUENE	26	25	52%	50%	4%	24	96	38
PENTACHLOROPHENOL	65	43	65%	43%	41%	9	103	50
PYRENE	31	34	62%	68%	9%	26	127	31

"*" If % Matrix Recovery is Followed by a "*", it is out of QC Limits.

Reviewed By: 12/2/92

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 2-Dec-1992

REQUEST NUMBER: 13497 MATRIX: W ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 121

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.27468 Date Collected: 8/31/92 Date Received: 9/02/92 Date Extracted: 9/02/92 Date Analyzed: 9/23/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-RIN	92.27468	83329	< 10.		UG/L	12/02/92		Acenaphthene
PF-36A-RIN	92.27468	208968	< 10.		UG/L	12/02/92		Acenaphthylene
PF-36A-RIN	92.27468	62533	< 10.		UG/L	12/02/92		Aniline
PF-36A-RIN	92.27468	120127	< 10.		UG/L	12/02/92		Anthracene
PF-36A-RIN	92.27468	103333	< 10.		UG/L	12/02/92		Azobenzene
PF-36A-RIN	92.27468	92875	< 10.		UG/L	12/02/92		m-Benzidine
PF-36A-RIN	92.27468	56553	< 10.		UG/L	12/02/92		Benzo[a]anthracene
PF-36A-RIN	92.27468	50328	< 10.		UG/L	12/02/92		Benzo[a]pyrene
PF-36A-RIN	92.27468	205992	< 10.		UG/L	12/02/92		Benzo[b]fluoranthene
PF-36A-RIN	92.27468	191242	< 10.		UG/L	12/02/92		Benzo[g,h,i]perylene
PF-36A-RIN	92.27468	207089	< 10.		UG/L	12/02/92		Benzo[k]fluoranthene
PF-36A-RIN	92.27468	65850	< 10.		UG/L	12/02/92		Benzoic acid
PF-36A-RIN	92.27468	100516	< 10.		UG/L	12/02/92		Benzyl alcohol
PF-36A-RIN	92.27468	111911	< 10.		UG/L	12/02/92		Bis(2-chloroethoxy)methane
PF-36A-RIN	92.27468	111444	< 10.		UG/L	12/02/92		Bis(2-chloroethyl)ether
PF-36A-RIN	92.27468	108601	< 10.		UG/L	12/02/92		Bis(2-chloroisopropyl)ether
PF-36A-RIN	92.27468	117817	< 10.		UG/L	12/02/92		Bis(2-ethylhexyl)phthalate
PF-36A-RIN	92.27468	101553	< 10.		UG/L	12/02/92		4-Bromophenylphenyl ether
PF-36A-RIN	92.27468	85687	< 10.		UG/L	12/02/92		Butyl benzyl phthalate
PF-36A-RIN	92.27468	59507	< 10.		UG/L	12/02/92		4-Chloro-3-methylphenol
PF-36A-RIN	92.27468	106478	< 10.		UG/L	12/02/92		4-Chloroaniline
PF-36A-RIN	92.27468	91587	< 10.		UG/L	12/02/92		2-Chloronaphthalene
PF-36A-RIN	92.27468	95578	< 10.		UG/L	12/02/92		o-Chlorophenol
PF-36A-RIN	92.27468	7005723	< 10.		UG/L	12/02/92		4-Chlorophenylphenyl ether
PF-36A-RIN	92.27468	218019	< 10.		UG/L	12/02/92		Chrysene
PF-36A-RIN	92.27468	84742	< 10.		UG/L	12/02/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-RIN	92.27468	117840	< 10.		UG/L	12/02/92		Di-n-octyl phthalate
PF-36A-RIN	92.27468	53703	< 10.		UG/L	12/02/92		Dibenzo[a,h]anthracene
PF-36A-RIN	92.27468	132649	< 10.		UG/L	12/02/92		Dibenzofuran
PF-36A-RIN	92.27468	95501	< 10.		UG/L	12/02/92		o-Dichlorobenzene (1,2)
PF-36A-RIN	92.27468	541731	< 10.		UG/L	12/02/92		m-Dichlorobenzene (1,3)
PF-36A-RIN	92.27468	106467	< 10.		UG/L	12/02/92		p-Dichlorobenzene (1,4)
PF-36A-RIN	92.27468	91941	< 10.		UG/L	12/02/92		3,3'-Dichlorobenzidine
PF-36A-RIN	92.27468	120832	< 10.		UG/L	12/02/92		2,4-Dichlorophenol
PF-36A-RIN	92.27468	84662	< 10.		UG/L	12/02/92		Diethyl phthalate
PF-36A-RIN	92.27468	131113	< 10.		UG/L	12/02/92		Dimethyl phthalate
PF-36A-RIN	92.27468	105679	< 10.		UG/L	12/02/92		2,4-Dimethylphenol
PF-36A-RIN	92.27468	51285	< 10.		UG/L	12/02/92		2,4-Dinitrophenol
PF-36A-RIN	92.27468	121142	< 10.		UG/L	12/02/92		2,4-Dinitrotoluene
PF-36A-RIN	92.27468	606202	< 10.		UG/L	12/02/92		2,6-Dinitrotoluene
PF-36A-RIN	92.27468	206440	< 10.		UG/L	12/02/92		Fluoranthene
PF-36A-RIN	92.27468	86737	< 10.		UG/L	12/02/92		Fluorene
PF-36A-RIN	92.27468	118741	< 10.		UG/L	12/02/92		Hexachlorobenzene
PF-36A-RIN	92.27468	87683	< 10.		UG/L	12/02/92		Hexachlorobutadiene
PF-36A-RIN	92.27468	77474	< 10.		UG/L	12/02/92		Hexachlorocyclopentadiene
PF-36A-RIN	92.27468	67721	< 10.		UG/L	12/02/92		Hexachloroethane
PF-36A-RIN	92.27468	193395	< 10.		UG/L	12/02/92		Indeno[1,2,3-cd]pyrene
PF-36A-RIN	92.27468	78591	< 10.		UG/L	12/02/92		Isophorone
PF-36A-RIN	92.27468	534521	< 10.		UG/L	12/02/92		2-Methyl-4,6-dinitrophenol
PF-36A-RIN	92.27468	91576	< 10.		UG/L	12/02/92		2-Methylnaphthalene
PF-36A-RIN	92.27468	95487	< 10.		UG/L	12/02/92		2-Methylphenol
PF-36A-RIN	92.27468	106445	< 10.		UG/L	12/02/92		4-Methylphenol
PF-36A-RIN	92.27468	91203	< 10.		UG/L	12/02/92		Naphthalene
PF-36A-RIN	92.27468	88744	< 10.		UG/L	12/02/92		2-Nitroaniline
PF-36A-RIN	92.27468	99092	< 10.		UG/L	12/02/92		3-Nitroaniline
PF-36A-RIN	92.27468	100016	< 10.		UG/L	12/02/92		4-Nitroaniline
PF-36A-RIN	92.27468	98953	< 10.		UG/L	12/02/92		Nitrobenzene
PF-36A-RIN	92.27468	88755	< 10.		UG/L	12/02/92		2-Nitrophenol
PF-36A-RIN	92.27468	100027	< 10.		UG/L	12/02/92		4-Nitrophenol
PF-36A-RIN	92.27468	621647	< 10.		UG/L	12/02/92		N-Nitrosodi-n-propylamine
PF-36A-RIN	92.27468	62759	< 10.		UG/L	12/02/92		N-Nitrosodimethylamine
PF-36A-	92.27468	86306	< 10.		UG/L	/02/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36A-RIN	92.27468	87865	< 10.		UG/L	12/02/92		Pentachlorophenol
PF-36A-RIN	92.27468	85018	< 10.		UG/L	12/02/92		Phenanthrene
PF-36A-RIN	92.27468	108952	53.	15.9	UG/L	12/02/92		Phenol
PF-36A-RIN	92.27468	129000	< 10.		UG/L	12/02/92		Pyrene
PF-36A-RIN	92.27468	120821	< 10.		UG/L	12/02/92		1,2,4-Trichlorobenzene
PF-36A-RIN	92.27468	95954	< 10.		UG/L	12/02/92		2,4,5-Trichlorophenol
PF-36A-RIN	92.27468	88062	< 10.		UG/L	12/02/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.27468

none

********** EM-9 ANALYTICAL REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 2-Dec-1992

REQUEST NUMBER: 13497 MATRIX: W ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 121

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

Customer Sample Results, Sample # 92.27469 Date Collected: 8/31/92 Date Received: 9/02/92 Date Extracted: 9/02/92 Date Analyzed: 9/23/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-RIN	92.27469	83329	< 10.		UG/L	12/02/92		Acenaphthene
PF-36B-RIN	92.27469	208968	< 10.		UG/L	12/02/92		Acenaphthylene
PF-36B-RIN	92.27469	62533	< 10.		UG/L	12/02/92		Aniline
PF-36B-RIN	92.27469	120127	< 10.		UG/L	12/02/92		Anthracene
PF-36B-RIN	92.27469	103333	< 10.		UG/L	12/02/92		Azobenzene
PF-36B-RIN	92.27469	92875	< 10.		UG/L	12/02/92		m-Benzidine
PF-36B-RIN	92.27469	56553	< 10.		UG/L	12/02/92		Benzo[a]anthracene
PF-36B-RIN	92.27469	50328	< 10.		UG/L	12/02/92		Benzo[a]pyrene
PF-36B-RIN	92.27469	205992	< 10.		UG/L	12/02/92		Benzo[b]fluoranthene
PF-36B-RIN	92.27469	191242	< 10.		UG/L	12/02/92		Benzo[g,h,i]perylene
PF-36B-RIN	92.27469	207089	< 10.		UG/L	12/02/92		Benzo[k]fluoranthene
PF-36B-RIN	92.27469	65850	< 10.		UG/L	12/02/92		Benzoic acid
PF-36B-RIN	92.27469	100516	< 10.		UG/L	12/02/92		Benzyl alcohol
PF-36B-RIN	92.27469	111911	< 10.		UG/L	12/02/92		Bis(2-chloroethoxy)methane
PF-36B-RIN	92.27469	111444	< 10.		UG/L	12/02/92		Bis(2-chloroethyl)ether
PF-36B-RIN	92.27469	108601	< 10.		UG/L	12/02/92		Bis(2-chloroisopropyl)ether
PF-36B-RIN	92.27469	117817	< 10.		UG/L	12/02/92		Bis(2-ethylhexyl)phthalate
PF-36B-RIN	92.27469	101553	< 10.		UG/L	12/02/92		4-Bromophenylphenyl ether
PF-36B-RIN	92.27469	85687	< 10.		UG/L	12/02/92		Butyl benzyl phthalate
PF-36B-RIN	92.27469	59507	< 10.		UG/L	12/02/92		4-Chloro-3-methylphenol
PF-36B-RIN	92.27469	106478	< 10.		UG/L	12/02/92		4-Chloroaniline
PF-36B-RIN	92.27469	91587	< 10.		UG/L	12/02/92		2-Chloronaphthalene
PF-36B-RIN	92.27469	95578	< 10.		UG/L	12/02/92		o-Chlorophenol
PF-36B-RIN	92.27469	7005723	< 10.		UG/L	12/02/92		4-Chlorophenylphenyl ether
PF-36B-RIN	92.27469	218019	< 10.		UG/L	12/02/92		Chrysene
PF-36B-'	92.27469	84742	< 10.		UG/L	/02/92		Di-n-butyl phthalate

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-RIN	92.27469	117840	< 10.		UG/L	12/02/92		Di-n-octyl phthalate
PF-36B-RIN	92.27469	53703	< 10.		UG/L	12/02/92		Dibenzo[a,h]anthracene
PF-36B-RIN	92.27469	132649	< 10.		UG/L	12/02/92		Dibenzofuran
PF-36B-RIN	92.27469	95501	< 10.		UG/L	12/02/92		o-Dichlorobenzene (1,2)
PF-36B-RIN	92.27469	541731	< 10.		UG/L	12/02/92		m-Dichlorobenzene (1,3)
PF-36B-RIN	92.27469	106467	< 10.		UG/L	12/02/92		p-Dichlorobenzene (1,4)
PF-36B-RIN	92.27469	91941	< 10.		UG/L	12/02/92		3,3'-Dichlorobenzidine
PF-36B-RIN	92.27469	120832	< 10.		UG/L	12/02/92		2,4-Dichlorophenol
PF-36B-RIN	92.27469	84662	< 10.		UG/L	12/02/92		Diethyl phthalate
PF-36B-RIN	92.27469	131113	< 10.		UG/L	12/02/92		Dimethyl phthalate
PF-36B-RIN	92.27469	105679	< 10.		UG/L	12/02/92		2,4-Dimethylphenol
PF-36B-RIN	92.27469	51285	< 10.		UG/L	12/02/92		2,4-Dinitrophenol
PF-36B-RIN	92.27469	121142	< 10.		UG/L	12/02/92		2,4-Dinitrotoluene
PF-36B-RIN	92.27469	606202	< 10.		UG/L	12/02/92		2,6-Dinitrotoluene
PF-36B-RIN	92.27469	206440	< 10.		UG/L	12/02/92		Fluoranthene
PF-36B-RIN	92.27469	86737	< 10.		UG/L	12/02/92		Fluorene
PF-36B-RIN	92.27469	118741	< 10.		UG/L	12/02/92		Hexachlorobenzene
PF-36B-RIN	92.27469	87683	< 10.		UG/L	12/02/92		Hexachlorobutadiene
PF-36B-RIN	92.27469	77474	< 10.		UG/L	12/02/92		Hexachlorocyclopentadiene
PF-36B-RIN	92.27469	67721	< 10.		UG/L	12/02/92		Hexachloroethane
PF-36B-RIN	92.27469	193395	< 10.		UG/L	12/02/92		Indeno[1,2,3-cd]pyrene
PF-36B-RIN	92.27469	78591	< 10.		UG/L	12/02/92		Isophorone
PF-36B-RIN	92.27469	534521	< 10.		UG/L	12/02/92		2-Methyl-4,6-dinitrophenol
PF-36B-RIN	92.27469	91576	< 10.		UG/L	12/02/92		2-Methylnaphthalene
PF-36B-RIN	92.27469	95487	< 10.		UG/L	12/02/92		2-Methylphenol
PF-36B-RIN	92.27469	106445	< 10.		UG/L	12/02/92		4-Methylphenol
PF-36B-RIN	92.27469	91203	< 10.		UG/L	12/02/92		Naphthalene
PF-36B-RIN	92.27469	88744	< 10.		UG/L	12/02/92		2-Nitroaniline
PF-36B-RIN	92.27469	99092	< 10.		UG/L	12/02/92		3-Nitroaniline
PF-36B-RIN	92.27469	100016	< 10.		UG/L	12/02/92		4-Nitroaniline
PF-36B-RIN	92.27469	98953	< 10.		UG/L	12/02/92		Nitrobenzene
PF-36B-RIN	92.27469	88755	< 10.		UG/L	12/02/92		2-Nitrophenol
PF-36B-RIN	92.27469	100027	< 10.		UG/L	12/02/92		4-Nitrophenol
PF-36B-RIN	92.27469	621647	< 10.		UG/L	12/02/92		N-Nitrosodi-n-propylamine
PF-36B-RIN	92.27469	62759	< 10.		UG/L	12/02/92		N-Nitrosodimethylamine
PF-36B-RIN	92.27469	86306	< 10.		UG/L	12/02/92		N-Nitrosodiphenylamine

********** EM-9 ANALYTICAL REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT	COMPOUND NAME
PF-36B-RIN	92.27469	87865	< 10.		UG/L	12/02/92		Pentachlorophenol
PF-36B-RIN	92.27469	85018	< 10.		UG/L	12/02/92		Phenanthrene
PF-36B-RIN	92.27469	108952	19.	5.7	UG/L	12/02/92		Phenol
PF-36B-RIN	92.27469	129000	< 10.		UG/L	12/02/92		Pyrene
PF-36B-RIN	92.27469	120821	< 10.		UG/L	12/02/92		1,2,4-Trichlorobenzene
PF-36B-RIN	92.27469	95954	< 10.		UG/L	12/02/92		2,4,5-Trichlorophenol
PF-36B-RIN	92.27469	88062	< 10.		UG/L	12/02/92		2,4,6-Trichlorophenol

Tentatively Identified Compounds in Customer Sample # 92.27469

none

********** EM-9 QUALITY ASSURANCE REPORT **********

EPA SEMIVOLATILES Prepared by: LAK on 2-Dec-1992

REQUEST NUMBER: 13497 MATRIX: W ANALYST: ANTHONY LOMBARDO PROGRAM CODE: M106 NOTEBOOK: R7336 PAGE: 121

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815 TECHNIQUE: GCEC ANALYTICAL PROCEDURE: EPA SW-846 3RD

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QA SAMPLES RUN WITH THIS BATCH

There were no open (non-blind) Quality Control materials run with the samples reported above for one of the following reasons:

____ Only qualitative data requested

____ Only Blind QC samples run with this batch.

____ No QC samples run with this sample batch.

____ No QC samples for this constituent and matrix type available within EM-9

********** EM-9 QUALITY ASSURANCE REPORT **********

SUMMARY OF CONTROL STATUS OF BLANK QC SAMPLES RUN WITH THIS BATCH

Blank Results, Sample # 92.27324 Date Collected: 8/31/92 Date Received: 9/02/92 Date Extracted: 9/02/92 Date Analyzed: 9/23/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND NAME
00.20226	92.27324	83329	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	Acenaphthene
00.20226	92.27324	208968	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	Acenaphthylene
00.20226	92.27324	62533	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	Aniline
00.20226	92.27324	120127	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	Anthracene
00.20226	92.27324	103333	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	Azobenzene
00.20226	92.27324	92875	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	m-Benzidine
00.20226	92.27324	56553	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	Benzo[a]anthracene
00.20226	92.27324	50328	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	Benzo[a]pyrene
00.20226	92.27324	205992	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	Benzo[b]fluoranthene
00.20226	92.27324	191242	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	Benzo[g,h,i]perylene
00.20226	92.27324	207089	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	Benzo[k]fluoranthene
00.20226	92.27324	65850	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	Benzoic acid
00.20226	92.27324	100516	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	Benzyl alcohol
00.20226	92.27324	111911	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	Bis(2-chloroethoxy)methane
00.20226	92.27324	111444	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	Bis(2-chloroethyl)ether
00.20226	92.27324	108601	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	Bis(2-chloroisopropyl)ether
00.20226	92.27324	117817	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	Bis(2-ethylhexyl)phthalate
00.20226	92.27324	101553	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	4-Bromophenylphenyl ether
00.20226	92.27324	85687	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	Butyl benzyl phthalate
00.20226	92.27324	59507	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	4-Chloro-3-methylphenol
00.20226	92.27324	106478	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	4-Chloroaniline

********** EM-9 QUALITY ASSURANCE REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND NAME
00.20226	92.27324	91587	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	2-Chloronaphthalene
00.20226	92.27324	95578	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	o-Chlorophenol
00.20226	92.27324	7005723	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	4-Chlorophenylphenyl ether
00.20226	92.27324	218019	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	Chrysene
00.20226	92.27324	84742	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	Di-n-butyl phthalate
00.20226	92.27324	117840	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	Di-n-octyl phthalate
00.20226	92.27324	53703	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	Dibenzo[a,h]anthracene
00.20226	92.27324	132649	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	Dibenzofuran
00.20226	92.27324	95501	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	o-Dichlorobenzene (1,2)
00.20226	92.27324	541731	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	m-Dichlorobenzene (1,3)
00.20226	92.27324	106467	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	p-Dichlorobenzene (1,4)
00.20226	92.27324	91941	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	3,3'-Dichlorobenzidine
00.20226	92.27324	120832	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	2,4-Dichlorophenol
00.20226	92.27324	84662	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	Diethyl phthalate
00.20226	92.27324	131113	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	Dimethyl phthalate
00.20226	92.27324	105679	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	2,4-Dimethylphenol
00.20226	92.27324	51285	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	2,4-Dinitrophenol
00.20226	92.27324	121142	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	2,4-Dinitrotoluene
00.20226	92.27324	606202	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	2,6-Dinitrotoluene
00.20226	92.27324	206440	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	Fluoranthene
00.20226	92.27324	86737	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	Fluorene
00.20226	92.27324	118741	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	Hexachlorobenzene
00.20226	92.27324	87683	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	Hexachlorobutadiene
00.20226	92.27324	77474	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	Hexachlorocyclopentadiene
00.20226	92.27324	67721	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	Hexachloroethane
00.20226	92.27324	193395	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	Indeno[1,2,3-cd]pyrene
00.20226	92.27324	78591	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	Isophorone
00.20226	92.27324	534521	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	2-Methyl-4,6-dinitrophenol
00.20226	92.27324	91576	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	2-Methylnaphthalene
00.20226	92.27324	95487	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	2-Methylphenol
00.20226	92.27324	106445	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	4-Methylphenol
00.20226	92.27324	91203	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	Naphthalene
00.20226	92.27324	88744	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	2-Nitroaniline
00.20226	92.27324	99092	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	3-Nitroaniline
00.20226	92.27324	100016	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	4-Nitroaniline
00.20226	92.27324	98953	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	Nitrobenzene

********** EM-9 QUALITY ASSURANCE REPORT **********

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND NAME
00.20226	92.27324	88755	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	2-Nitrophenol
00.20226	92.27324	100027	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	4-Nitrophenol
00.20226	92.27324	621647	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	N-Nitrosodi-n-propylamine
00.20226	92.27324	62759	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	N-Nitrosodimethylamine
00.20226	92.27324	86306	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	N-Nitrosodiphenylamine
00.20226	92.27324	87865	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	Pentachlorophenol
00.20226	92.27324	85018	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	Phenanthrene
00.20226	92.27324	108952	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	Phenol
00.20226	92.27324	129000	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	Pyrene
00.20226	92.27324	120821	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	1,2,4-Trichlorobenzene
00.20226	92.27324	95954	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	2,4,5-Trichlorophenol
00.20226	92.27324	88062	< 10.		UG/L	0.0		12/02/92	UNDER CONTROL	2,4,6-Trichlorophenol

********** EM-9 QUALITY ASSURANCE REPORT **********

Blank Spike Results, Sample # 92.26589 Date Collected: 8/31/92 Date Received: 9/02/92 Date Extracted: 9/02/92 Date Analyzed: 9/23/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND NAME
00.20226	92.26589	83329	50.	20.	UG/L	0.0		12/02/92		Acenaphthene
00.20226	92.26589	59507	100.	42.	UG/L	0.0		12/02/92		4-Chloro-3-methylphenol
00.20226	92.26589	95578	< 100.	10.	UG/L	0.0		12/02/92		o-Chlorophenol
00.20226	92.26589	106467	< 50.	10.	UG/L	0.0		12/02/92		p-Dichlorobenzene (1,4)
00.20226	92.26589	121142	50.	26.	UG/L	0.0		12/02/92		2,4-Dinitrotoluene
00.20226	92.26589	100027	100.	56.	UG/L	0.0		12/02/92		4-Nitrophenol
00.20226	92.26589	621647	50.	15.	UG/L	0.0		12/02/92		N-Nitrosodi-n-propylamine
00.20226	92.26589	87865	100.	65.	UG/L	0.0		12/02/92		Pentachlorophenol
00.20226	92.26589	108952	< 100.	10.	UG/L	0.0		12/02/92		Phenol
00.20226	92.26589	129000	50.	31.	UG/L	0.0		12/02/92		Pyrene
00.20226	92.26589	120821	< 50.	10.	UG/L	0.0		12/02/92		1,2,4-Trichlorobenzene

********** EM-9 QUALITY ASSURANCE REPORT **********

Blank Spike Duplicate Results, Sample # 92.26589 Date Collected: 8/31/92 Date Received: 9/02/92 Date Extracted: 9/02/92 Date Analyzed: 9/23/92

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYSIS	AMOUNT SPIKED	AMOUNT RECOVERED	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND NAME
00.20226	92.26589	83329	50.	23.	UG/L	0.0		12/02/92		Acenaphthene
00.20226	92.26589	59507	100.	36.	UG/L	0.0		12/02/92		4-Chloro-3-methylphenol
00.20226	92.26589	95578	< 100.	29.	UG/L	0.0		12/02/92		o-Chlorophenol
00.20226	92.26589	106467	< 50.	16.	UG/L	0.0		12/02/92		p-Dichlorobenzene (1,4)
00.20226	92.26589	121142	50.	25.	UG/L	0.0		12/02/92		2,4-Dinitrotoluene
00.20226	92.26589	100027	100.	35.	UG/L	0.0		12/02/92		4-Nitrophenol
00.20226	92.26589	621647	50.	23.	UG/L	0.0		12/02/92		N-Nitrosodi-n-propylamine
00.20226	92.26589	87865	100.	43.	UG/L	0.0		12/02/92		Pentachlorophenol
00.20226	92.26589	108952	< 100.	27.	UG/L	0.0		12/02/92		Phenol
00.20226	92.26589	129000	50.	34.	UG/L	0.0		12/02/92		Pyrene
00.20226	92.26589	120821	< 50.	18.	UG/L	0.0		12/02/92		1,2,4-Trichlorobenzene

********** EM-9 QUALITY ASSURANCE REPORT **********

SUMMARY OF CONTROL STATUS OF BLIND QA SAMPLES RUN WITH THIS BATCH

Blind QC Results, Sample # 92.26588 Date Collected: 8/31/92 Date Received: 9/02/92 Date Extracted: 9/02/92 Date Analyzed: 9/23/92

SAMPLE NUM	ANALYSIS	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT	COMPOUND-NAME
92.26588	83329	50.	15.	UG/L	121.	12.	12/01/92	OUT OF CONTROL	Acenaphthene
92.26588	208968	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Acenaphthylene
92.26588	62533	81.	24.3	UG/L	142.	14.	12/01/92	WARNING 2-3 SIG	Aniline
92.26588	120127	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Anthracene
92.26588	103333	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Azobenzene
92.26588	92875	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	m-Benzidine
92.26588	56553	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Benzo[a]anthracene
92.26588	50328	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Benzo[a]pyrene
92.26588	205992	86.	25.8	UG/L	169.	17.	12/01/92	WARNING 2-3 SIG	Benzo[b]fluoranthene
92.26588	191242	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Benzo[g,h,i]perylene
92.26588	207089	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Benzo[k]fluoranthene
92.26588	65850	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Benzoic acid
92.26588	100516	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Benzyl alcohol
92.26588	111911	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Bis(2-chloroethoxy)methane
92.26588	111444	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Bis(2-chloroethyl)ether
92.26588	108601	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Bis(2-chloroisopropyl)ether
92.26588	117817	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Bis(2-ethylhexyl)phthalate
92.26588	101553	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	4-Bromophenylphenyl ether
92.26588	85687	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Butyl benzyl phthalate
92.26588	59507	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	4-Chloro-3-methylphenol
92.26588	106478	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	4-Chloroaniline
92.26588	91587	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	2-Chloronaphthalene
92.26588	95578	85.	25.5	UG/L	133.	13.	12/01/92	UNDER CONTROL	o-Chlorophenol
92.26588	7005723	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	4-Chlorophenylphenyl ether
92.26588	218019	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Chrysene
92.26588	84742	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Di-n-butyl phthalate

92.26588	117840	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Di-n-octyl phthalate
92.26588	53703	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Dibenzo[a,h]anthracene
92.26588	132649	51.	15.3	UG/L	116.	12.	12/01/92	OUT OF CONTROL	Dibenzofuran
92.26588	95501	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	o-Dichlorobenzene (1,2)
92.26588	541731	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	m-Dichlorobenzene (1,3)
92.26588	106467	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	p-Dichlorobenzene (1,4)
92.26588	91941	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	3,3'-Dichlorobenzidine
92.26588	120832	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	2,4-Dichlorophenol
92.26588	84662	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Diethyl phthalate
92.26588	131113	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Dimethyl phthalate
92.26588	105679	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	2,4-Dimethylphenol
92.26588	51285	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	2,4-Dinitrophenol
92.26588	121142	110.	33.	UG/L	170.	17.	12/01/92	UNDER CONTROL	2,4-Dinitrotoluene
92.26588	606202	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	2,6-Dinitrotoluene
92.26588	206440	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Fluoranthene
92.26588	86737	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Fluorene
92.26588	118741	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Hexachlorobenzene
92.26588	87683	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Hexachlorobutadiene
92.26588	77474	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Hexachlorocyclopentadiene
92.26588	67721	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Hexachloroethane
92.26588	193395	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Indeno[1,2,3-cd]pyrene
92.26588	78591	170.	51.	UG/L	158.	16.	12/01/92	UNDER CONTROL	Isophorone
92.26588	534521	130.	39.	UG/L	125.	12.	12/01/92	UNDER CONTROL	2-Methyl-4,6-dinitrophenol
92.26588	91576	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	2-Methylnaphthalene
92.26588	95487	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	2-Methylphenol
92.26588	106445	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	4-Methylphenol
92.26588	91203	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Naphthalene
92.26588	88744	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	2-Nitroaniline
92.26588	99092	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	3-Nitroaniline
92.26588	100016	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	4-Nitroaniline
92.26588	98953	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Nitrobenzene
92.26588	88755	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	2-Nitrophenol
92.26588	100027	99.	29.7	UG/L	158.	16.	12/01/92	UNDER CONTROL	4-Nitrophenol
92.26588	621647	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	N-Nitrosodi-n-propylamine
92.26588	62759	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	N-Nitrosodimethylamine
92.26588	86306	160.	48.	UG/L	187.	19.	12/01/92	UNDER CONTROL	N-Nitrosodiphenylamine
92.26588	87865	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Pentachlorophenol
92.26588	85018	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Phenanthrene
92.26588	108952	230.	69.	UG/L	176.	18.	12/01/92	UNDER CONTROL	Phenol
92.26588	129000	90.	27.	UG/L	166.	17.	12/01/92	WARNING 2-3 SIG	Pyrene
92.26588	120821	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	1,2,4-Trichlorobenzene
92.26588	95954	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	2,4,5-Trichlorophenol
92.26588	88062	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	2,4,6-Trichlorophenol

Blind QC Results, Sample # 92.27323 Date Collected: 8/31/92 Date Received: 9/02/92 Date Extracted: 9/02/92 Date Analyzed: 9/23/92

92.27323	83329	34.	10.2	UG/L	65.	7.	12/01/92	WARNING 2-3 SIG	Acenaphthene
92.27323	208968	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Acenaphthylene
92.27323	62533	31.	9.3	UG/L	76.	8.	12/01/92	OUT OF CONTROL	Aniline
92.27323	120127	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Anthracene
92.27323	103333	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Azobenzene
92.27323	92875	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	m-Benzidine
92.27323	56553	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Benzo[a]anthracene
92.27323	50328	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Benzo[a]pyrene
92.27323	205992	46.	13.8	UG/L	85.	8.	12/01/92	WARNING 2-3 SIG	Benzo[b]fluoranthene
92.27323	191242	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Benzo[g,h,i]perylene
92.27323	207089	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Benzo[k]fluoranthene
92.27323	65850	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Benzoic acid
92.27323	100516	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Benzyl alcohol
92.27323	111911	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Bis(2-chloroethoxy)methane
92.27323	111444	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Bis(2-chloroethyl)ether
92.27323	108601	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Bis(2-chloroisopropyl)ether
92.27323	117817	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Bis(2-ethylhexyl)phthalate
92.27323	101553	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	4-Bromophenylphenyl ether
92.27323	85687	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Butyl benzyl phthalate
92.27323	59507	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	4-Chloro-3-methylphenol
92.27323	106478	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	4-Chloroaniline
92.27323	91587	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	2-Chloronaphthalene
92.27323	95578	35.	10.5	UG/L	71.	7.	12/01/92	WARNING 2-3 SIG	o-Chlorophenol
92.27323	7005723	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	4-Chlorophenylphenyl ether
92.27323	218019	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Chrysene
92.27323	84742	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Di-n-butyl phthalate
92.27323	117840	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Di-n-octyl phthalate
92.27323	53703	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Dibenzo[a,h]anthracene
92.27323	132649	35.	10.5	UG/L	62.	6.	12/01/92	WARNING 2-3 SIG	Dibenzofuran
92.27323	95501	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	o-Dichlorobenzene (1,2)
92.27323	541731	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	m-Dichlorobenzene (1,3)
92.27323	106467	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	p-Dichlorobenzene (1,4)
92.27323	91941	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	3,3'-Dichlorobenzidine
92.27323	120832	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	2,4-Dichlorophenol
92.27323	84662	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Diethyl phthalate
92.27323	131113	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Dimethyl phthalate
92.27323	105679	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	2,4-Dimethylphenol
92.27323	51285	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	2,4-Dinitrophenol
92.27323	121142	59.	17.7	UG/L	92.	9.	12/01/92	UNDER CONTROL	2,4-Dinitrotoluene
92.27323	606202	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	2,6-Dinitrotoluene
92.27323	206440	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Fluoranthene
92.27323	86737	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Fluorene
92.27323	118741	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Hexachlorobenzene

92.27323	87683	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Hexachlorobutadiene
92.27323	77474	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Hexachlorocyclopentadiene
92.27323	67721	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Hexachloroethane
92.27323	193395	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Indeno[1,2,3-cd]pyrene
92.27323	78591	73.	21.9	UG/L	79.	8.	12/01/92	UNDER CONTROL	Isophorone
92.27323	534521	65.	19.5	UG/L	67.	7.	12/01/92	UNDER CONTROL	2-Methyl-4,6-dinitrophenol
92.27323	91576	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	2-Methylnaphthalene
92.27323	95487	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	2-Methylphenol
92.27323	106445	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	4-Methylphenol
92.27323	91203	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Naphthalene
92.27323	88744	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	2-Nitroaniline
92.27323	99092	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	3-Nitroaniline
92.27323	100016	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	4-Nitroaniline
92.27323	98953	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Nitrobenzene
92.27323	88755	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	2-Nitrophenol
92.27323	100027	54.	16.2	UG/L	79.	8.	12/01/92	UNDER CONTROL	4-Nitrophenol
92.27323	621647	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	N-Nitrosodi-n-propylamine
92.27323	62759	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	N-Nitrosodimethylamine
92.27323	86306	98.	29.4	UG/L	94.	9.	12/01/92	UNDER CONTROL	N-Nitrosodiphenylamine
92.27323	87865	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Pentachlorophenol
92.27323	85018	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	Phenanthrene
92.27323	108952	140.	42.	UG/L	88.	9.	12/01/92	UNDER CONTROL	Phenol
92.27323	129000	45.	13.5	UG/L	83.	8.	12/01/92	WARNING 2-3 SIG	Pyrene
92.27323	120821	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	1,2,4-Trichlorobenzene
92.27323	95954	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	2,4,5-Trichlorophenol
92.27323	88062	< 10.		UG/L	0.0		12/01/92	UNDER CONTROL	2,4,6-Trichlorophenol

********** EM-9 QUALITY ASSURANCE REPORT **********

SURROGATE RESULTS FOR EPA SEMIVOLATILES

Surrogate 1 = 2-Fluorophenol (CAS # = 367124)
Surrogate 2 = Phenol-d5 (CAS # = 4165622)
Surrogate 3 = Nitrobenzene-d5 (CAS # = 4165600)
Surrogate 4 = 2-Fluorobiphenyl (CAS # = 321608)
Surrogate 5 = 2,4,6-Tribromophenol (CAS # = 118796)
Surrogate 6 = p-Terphenyl-d14 (CAS # =)

SAMPLE NUMBER	UNITS	Surrogate 1	Surrogate 2	Surrogate 3	Surrogate 4	Surrogate 5	Surrogate 6	COMPLETION DATE
92.26588	%	60.09	65.7	69.86	59.14	75.35	68.92	1-Dec-1992
92.26589	%	0.0	2.66	3.18	19.6	51.75	53.88	2-Dec-1992
92.26589	%	20.61	25.27	34.04	36.66	35.	53.52	2-Dec-1992
92.27323	%	43.66	51.59	50.26	54.88	94.33	71.58	1-Dec-1992
92.27324	%	39.53	43.08	50.6	51.56	59.91	69.64	2-Dec-1992
92.27468	%	41.61	43.28	61.66	64.4	61.94	53.78	2-Dec-1992
92.27469	%	47.84	52.19	58.66	62.5	71.05	28.5	2-Dec-1992
EPA Limits:								
Water	%	21 - 100	10 - 94	35 - 114	43 - 116	10 - 123	33 - 141	
Soil	%	25 - 121	24 - 113	23 - 120	30 - 115	19 - 122	18 - 137	

REPORT NUMBER: 16146

Analyst	Reviewer	Section Leader	QA Officer
12/3/92	12/3/92	12/7/92	12/8/92
Date	Date	Date	Date

No Sample Discrepancies Noted by Sample Management Section

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in
'Quality Assurance for Health and Environmental Chemistry: 1986,' LA-11114-MS, pp. 3-4.
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REPORT NUMBER: 15148

Total U

********** EM-9 ANALYTICAL REPORT **********

Prepared by: MAB on 8-Sep-1992

ANALYSIS: U REQUEST NUMBER: 13504 MATRIX: W ANALYST: RICHARD ROBINSON PROGRAM CODE: M106

OWNER: Philip R. Fresquez GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0815

ANALYTICAL TECHNIQUE: ICPMS ANALYTICAL PROCEDURE: NOTEBOOK: R8137 PAGE: 158

CUSTOMER SAMPLES:

	CUSTOMER NUMBER	SAMPLE NUMBER	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS (ppb)	COMPLETION DATE	COMMENT
Bottom pit	PF-36A-RIN	92.27468	< 0.1		UG/L	9/08/92	
Top area	PF-36B-RIN	92.27469	172.	8.5	UG/L	9/08/92	

********** EM-9 QUALITY ASSURANCE REPORT **********

Prepared by: MAB on 8-Sep-1992

REQUEST NUMBER: 13504 MATRIX: W ANALYST: RICHARD ROBINSON PROGRAM CODE: M106

OWNER: Philip R. Fresquez GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0815

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
00.25697	43.7	2.2	UG/L	45.	2.	9/08/92	UNDER CONTROL

SUMMARY OF CONTROL STATUS OF BLIND QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
92.27508	58.5	2.9	UG/L	55.	2.4	9/08/92	UNDER CONTROL

REPORT NUMBER: 15148

Analyst	Reviewer	Section Leader	QA Officer
9/14/92	9/14/92	9/14/92	9/14/92
Date	Date	Date	Date

No Sample Discrepancies Noted by Sample Management Section

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1986,' LA-11114-MS, pp. 3-4.

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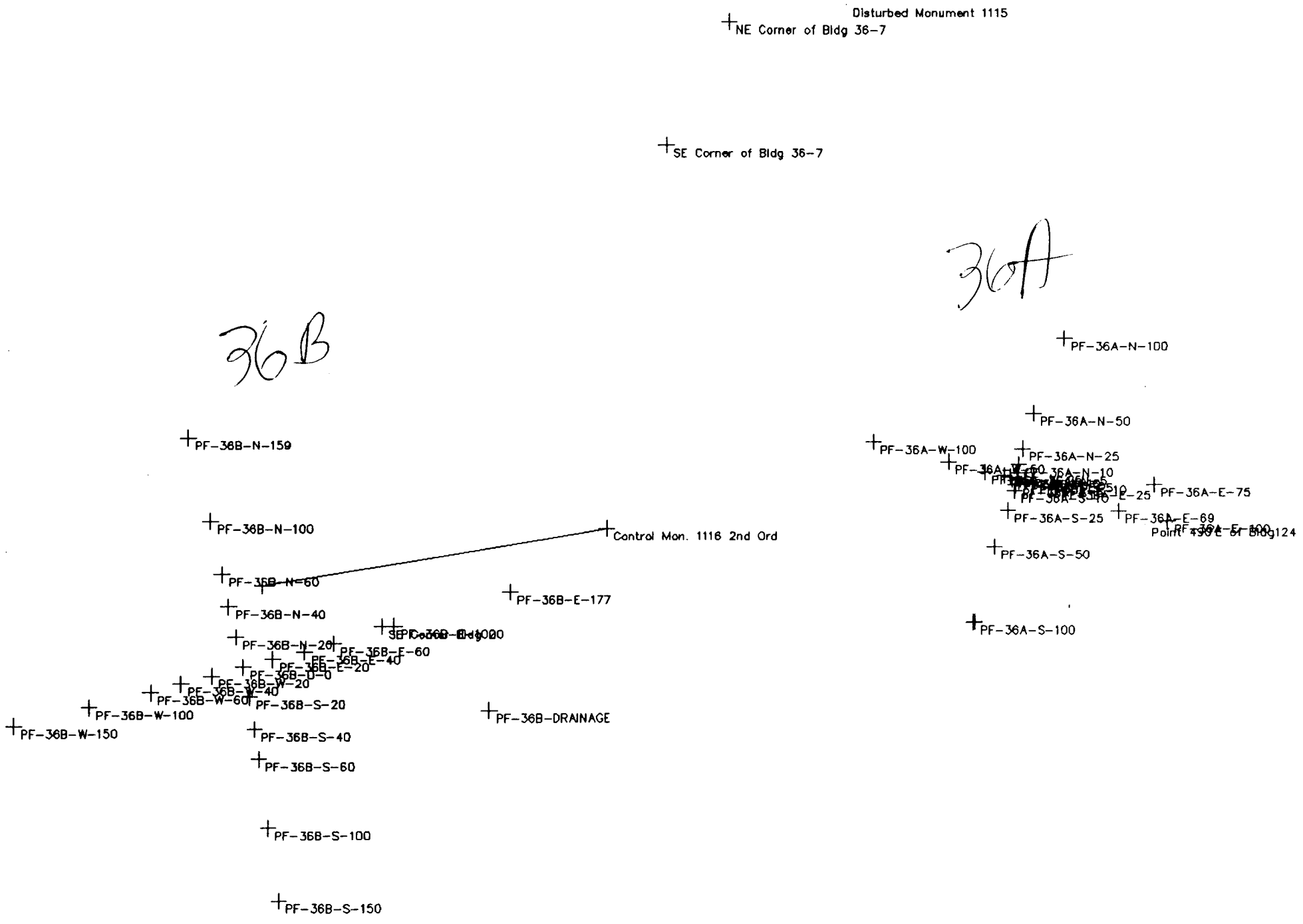
Disturbed Monument 1115
NE Corner of Bldg 36-7
SE Corner of Bldg 36-7
36A
36B
PF-36A-N-100
PF-36A-N-50
PF-36A-W-100
PF-36A-N-25
PF-36A-N-10
PF-36A-E-75
PF-36A-S-25
PF-36A-E-69
PF-36A-S-50
PF-36A-S-100
PF-36B-N-159
PF-36B-N-100
Control Mon. 1116 2nd Ord
PF-36B-N-60
PF-36B-E-177
PF-36B-N-40
PF-36B-N-20
PF-36B-E-60
PF-36B-E-40
PF-36B-E-20
PF-36B-D-0
PF-36B-W-20
PF-36B-W-40
PF-36B-W-60
PF-36B-S-20
PF-36B-W-100
PF-36B-DRAINAGE
PF-36B-W-150
PF-36B-S-40
PF-36B-S-60
PF-36B-S-100
PF-36B-S-150

REPORT NUMBER: 15374

368 Total U

********** EM-9 ANALYTICAL REPORT **********

Prepared by: YIG on 29-Sep-1992

ANALYSIS: U REQUEST NUMBER: 13504 MATRIX: SS ANALYST: GEORGE BROOKS PROGRAM CODE: M106

OWNER: Philip R. Fresquez GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0815

ANALYTICAL TECHNIQUE: DNA ANALYTICAL PROCEDURE: NOTEBOOK: DNA LOG PAGE: 273

CUSTOMER SAMPLES:

	CUSTOMER NUMBER	SAMPLE NUMBER	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
W	PF-368-W-20	92.27444	98.	10.	UG/G	9/28/92	
	PF-368-W-40	92.27445	13.6	1.	UG/G	9/28/92	
	PF-368-W-60	92.27446	24.	2.	UG/G	9/28/92	
	PF-368-W-100	92.27447	26.7	3.	UG/G	9/28/92	
	PF-368-W-150	92.27448	41.6	4.	UG/G	9/28/92	
E	PF-368-E-20	92.27449	22.7	2.	UG/G	9/28/92	
	PF-368-E-40	92.27450	36.	4.	UG/G	9/28/92	
	PF-368-E-60	92.27451	50.	5.	UG/G	9/28/92	
	PF-368-E-100	92.27452	30.	3.	UG/G	9/28/92	
	PF-368-E-150	92.27453	6.7	0.7	UG/G	9/28/92	
N	PF-368-N-20	92.27454	30.	3.	UG/G	9/28/92	
	PF-368-N-40	92.27455	10.	1.	UG/G	9/28/92	
	PF-368-N-60	92.27456	2.4	0.2	UG/G	9/28/92	
	PF-368-N-100	92.27457	10.	1.	UG/G	9/28/92	
	PF-368-N-150	92.27458	13.	0.1	UG/G	9/28/92	
S	PF-368-S-20	92.27459	19.8	2.	UG/G	9/28/92	
	PF-368-S-40	92.27460	7.8	0.8	UG/G	9/28/92	
	PF-368-S-60	92.27461	13.	1.	UG/G	9/28/92	
	PF-368-S-100	92.27462	5.9	0.6	UG/G	9/28/92	
	PF-368-S-150	92.27463	4.2	0.4	UG/G	9/28/92	
O	PF-368-SED	92.27464	10.	1.	UG/G	9/28/92	
	PF-368-0-0	92.27465	46.	5.	UG/G	9/28/92	
	PF-368-E60R	92.27466	39.9	4.	UG/G	9/28/92	

$\bar{x}$ 40.78 ug g^{-1}

$\bar{x}$ = 29.08 ug g^{-1}

> U, L, B

3.4 ppm.

1303

1011

stream channel
ground zero
replicate of E60

many 2.4 to 98 ppm

$\bar{x}$ = 24.35 (±21.99)

********** EM-9 QUALITY ASSURANCE REPORT *********

Prepared by: YIG on 29-Sep-1992

REQUEST NUMBER: 13504 MATRIX: SS ANALYST: GEORGE BROOKS PROGRAM CODE: M106

OWNER: Philip R. Fresquez GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0815

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
00.00551	4.4	0.4	UG/G	4.58	0.04	9/28/92	UNDER CONTROL
00.00551	4.4	0.4	UG/G	4.58	0.04	9/28/92	UNDER CONTROL
00.00608	1.1	0.1	UG/G	1.11	0.05	9/28/92	UNDER CONTROL
00.00608	1.1	0.1	UG/G	1.11	0.05	9/28/92	UNDER CONTROL
00.00608	1.1	0.1	UG/G	1.11	0.05	9/28/92	UNDER CONTROL

SUMMARY OF CONTROL STATUS OF BLIND QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
92.27506	214.	21.	UG/G	231.	7.6	9/28/92	UNDER CONTROL
92.27507	44.9	5.	UG/G	48.4	1.6	9/28/92	UNDER CONTROL

REPORT NUMBER: 15374

Yig	BD	DKrueh	mag
Analyst	Reviewer	Section Leader	QA Officer
9/29/92	9/29/92	9-29-92	9/30/92
Date	Date	Date	Date

No Sample Discrepancies Noted by Sample Management Section

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1986,' LA-11114-MS, pp. 3-4.

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REPORT NUMBER: 15148

Page: 01

********** EM-9 ANALYTICAL REPORT **********

Prepared by: MAB on 8-Sep-1992

ANALYSIS: U REQUEST NUMBER: 13504 MATRIX: W ANALYST: RICHARD ROBINSON PROGRAM CODE: M106

OWNER: Philip R. Fresquez GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0815

ANALYTICAL TECHNIQUE: ICPMS ANALYTICAL PROCEDURE: NOTEBOOK: R8137 PAGE: 158

CUSTOMER SAMPLES:

	CUSTOMER NUMBER	SAMPLE NUMBER	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
Bottom pit	PF-36A-RIN	92.27468	< 0.1		UG/L	9/08/92	
Top area	PF-36B-RIN	92.27469	172.	8.5	UG/L	9/08/92	

********** EM-9 QUALITY ASSURANCE REPORT *********

Prepared by: MAB on 8-Sep-1992

REQUEST NUMBER: 13504 MATRIX: W ANALYST: RICHARD ROBINSON PROGRAM CODE: M106

OWNER: Philip R. Fresquez GROUP: HSE-8 MAIL-STOP: K490 PHONE: 7-0815

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
00.25697	43.7	2.2	UG/L	45.	2.	9/08/92	UNDER CONTROL

SUMMARY OF CONTROL STATUS OF BLIND QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
92.27508	58.5	2.9	UG/L	55.	2.4	9/08/92	UNDER CONTROL

REPORT NUMBER: 15148	Analyst	Reviewer	Section Leader	QA Officer
	9/14/92 Date	9/14/92 Date	9/14/92 Date	9/14/92 Date

No Sample Discrepancies Noted by Sample Management Section

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1986,' LA-11114-MS, pp. 3-4.

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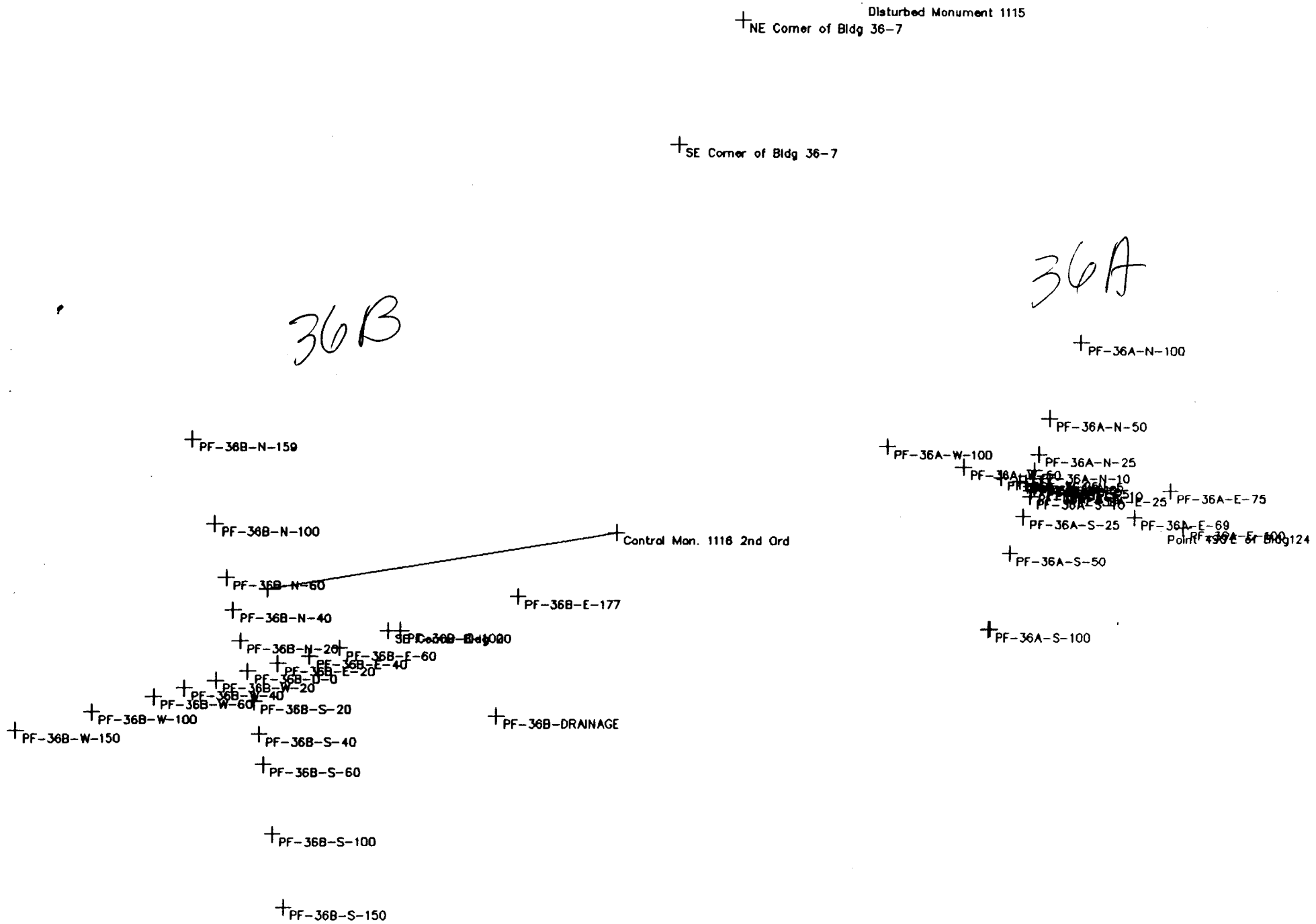
Disturbed Monument 1115
NE Corner of Bldg 36-7
SE Corner of Bldg 36-7
36B
36A
PF-36A-N-100
PF-36A-N-50
PF-36A-W-100
PF-36A-N-25
PF-36A-N-10
PF-36A-E-75
PF-36A-S-25
PF-36A-E-69
PF-36A-S-50
PF-36A-S-100
PF-36B-N-150
PF-36B-N-100
Control Mon. 1116 2nd Ord
PF-36B-N-60
PF-36B-E-177
PF-36B-N-40
PF-36B-N-20
PF-36B-E-60
PF-36B-E-40
PF-36B-E-20
PF-36B-0
PF-36B-W-20
PF-36B-W-40
PF-36B-W-60
PF-36B-S-20
PF-36B-W-100
PF-36B-DRAINAGE
PF-36B-W-150
PF-36B-S-40
PF-36B-S-60
PF-36B-S-100
PF-36B-S-150

Los Alamos
Los Alamos National Laboratory
Los Alamos, New Mexico 87545

memorandum

TO: Tony Grieggs, ESH-8, MS K490

DATE: March 28, 1994

FROM: Phil Fresquez, EM-8

MAIL STOP/TELEPHONE: K490/7-0815

SYMBOL: ESH-8/EFM-94-0065

SUBJECT: **RESULTS OF THE SOIL SAMPLING SURVEY CONDUCTED OVER RCRA FIRING SITE TA-36-8: TOTAL URANIUM OVER TA-36A**

On May 14, 1993, I sent you a report describing the results of the soil survey conducted over two areas at firing site TA-36-8: (1) the detonation pad located approximately 100-yards east of building TA-36-8 (TA-36A), and (2) the detonation pad located on top of (bunker) building TA-36-8 (TA-36B) (Phil Fresquez, "Results of the Soil Sampling Survey Conducted Over Active RCRA Firing Site TA-36-8", Los Alamos National Laboratory memorandum EM-8:93-1315, to Tony Grieggs [May 14, 1993]).

In that memo, I indicated to you that the results for total uranium over TA-36A had not been received from EM-9 as of yet. Enclosed you will find the data.

In general, most of the soil samples collected over site TA-36A contained total uranium concentrations within or near background levels (i.e., <3.4 μg/g). Only one sample (36A-S-100) contained relatively high levels of total uranium--48 μg/g. This particular sample was collected close to TA-36B; and, may have been contaminated from that site. As you recall, total uranium at TA-36B ranged in concentration from 2.4 to 98 μg/g.

PF:ja

Cy: S. Rae, ESH-8, MS K490
M. Saladen, ESH-8, MS K490
G. Gould, MEE-4, MS G787
M. Montoya, M-8, MS J960
D. Griechen, M-DO, MS P915
ESH-8 Reading File

********** EM-9 ANALYTICAL REPORT **********

Prepared by: AS on 22-Jun-1993

ANALYSIS: U REQUEST NUMBER: 13440 MATRIX: SS ANALYST: GEORGE BROOKS PROGRAM CODE: M106

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815

ANALYTICAL TECHNIQUE: KPA ANALYTICAL PROCEDURE: NOTEBOOK: PAGE:

CUSTOMER SAMPLES:

CUSTOMER NUMBER	SAMPLE NUMBER	ANALYTICAL RESULT		ANALYTICAL UNCERTAINTY	UNITS	COMPLETION DATE	COMMENT
PF-36A-0-0	92.26677	0.78		0.05	UG/G	6/22/93	
PF-36A-S-100	92.26678	48.12	✓	3.37	UG/G	6/22/93	
PF-36A-S-50'	92.26679	3.98		0.28	UG/G	6/22/93	
PF-36A-S-25'	92.26680	1.49		0.1	UG/G	6/22/93	
PF-36A-S-10'	92.26681	0.97		0.07	UG/G	6/22/93	
PF-36A-S-5'	92.26682	0.96		0.07	UG/G	6/22/93	
PF-36A-W-100	92.26683	0.53		0.04	UG/G	6/22/93	
PF-36A-W-50'	92.26684	1.65		0.12	UG/G	6/22/93	
PF-36A-W-25'	92.26685	0.52		0.04	UG/G	6/22/93	
PF-36A-W-10'	92.26686	0.63		0.04	UG/G	6/22/93	
PF-36A-W-5'	92.26687	0.55		0.04	UG/G	6/22/93	
PF-36A-E-100	92.26688	4.16	✓	0.29	UG/G	6/22/93	
PF-36A-E-76	92.26689	2.62		0.18	UG/G	6/22/93	
PF-36A-E-50'	92.26690	2.98		0.21	UG/G	6/22/93	
PF-36A-E-25'	92.26691	2.87		0.2	UG/G	6/22/93	
PF-36A-E-10'	92.26692	5.16	✓	0.36	UG/G	6/22/93	
PF-36A-E-5'	92.26693	2.88		0.2	UG/G	6/22/93	
PF-36A-N-100	92.26694	2.08		0.15	UG/G	6/22/93	
PF-36A-N-50'	92.26695	3.2		0.22	UG/G	6/22/93	
PF-36A-N-25'	92.26696	2.54		0.18	UG/G	6/22/93	
PF-36A-N-10R	92.26697	1.76		0.12	UG/G	6/22/93	
PF-36A-N-10'	92.26698	1.78		0.12	UG/G	6/22/93	
PF-36A-N-5'	92.26699	4.46	✓	0.31	UG/G	6/22/93	

********** EM-9 QUALITY ASSURANCE REPORT *********

Prepared by: AS on 22-Jun-1993

REQUEST NUMBER: 13440 MATRIX: SS ANALYST: GEORGE BROOKS PROGRAM CODE: M106

OWNER: Philip R. Fresquez GROUP: EM-8 MAIL-STOP: K490 PHONE: 7-0815

SUMMARY OF CONTROL STATUS OF OPEN (NON-BLIND) QC SAMPLES RUN WITH THIS BATCH

There were no open (non-blind) Quality Control materials run with the samples reported above for one of the following reasons:

___ Only qualitative data requested

___ Only Blind QC samples run with this sample batch.

___ No QC samples run with this sample batch.

___ No QC samples for this constituent and matrix type available within EM-9

SUMMARY OF CONTROL STATUS OF BLIND QC SAMPLES RUN WITH THIS BATCH

SAMPLE NUM	ANALYTICAL RESULT	ANALYTICAL UNCERTAINTY	UNITS	QC VALUE	QC UNCERTAINTY	COMPLETION DATE	COMMENT
92.26727	0.81	0.06	UG/G	1.11	0.02	6/22/93	OUT OF CONTROL
92.26728	0.58	0.04	UG/G	0.98	0.05	6/22/93	OUT OF CONTROL

REPORT NUMBER: 19008	AS	DK	DK	NK for MAG
	Analyst	Reviewer	Section Leader	QA Officer
	6/24/93	6-24-93	6-24-93	6/24/93
	Date	Date	Date	Date

No Sample Discrepancies Noted by Sample Management Section

The control status of the preceeding data was evaluated using the standard statistical criteria set forth in 'Quality Assurance for Health and Environmental Chemistry: 1986,' LA-11114-MS, pp. 3-4.

Los Alamos
NATIONAL LABORATORY
memorandum
EXPLOSIVES TECHNOLOGY
M-1

To/MS: Phil Fresquez, EM-8, K490
From/MS: Terry Spontarelli
Phone/FAX: (505)667-0034(505)667-0500
Symbol: M-1:93-72
Date: March 8, 1993

SUBJECT: SOIL SAMPLES (U)

Forty-five soil samples, and two water samples were received from EM -8 for explosive residue analysis. The predominant explosives of interest were: HMX, RDX, Tetryl, TNT, and 2,4-DNT.

Two quality control samples were analyzed along with the 47 environmental samples to verify the method. The average per cent recovery data is given in Table 1.

The detection limits (as shown in Table 2) were established by preparing a series of calibration standards with the concentration of analytes in solution that can be detected with a 95% certainty.

TS:mmm

Cy: T. Spontarelli
M-1 File

HMX
RDX
TNT
2,4DNT

M-1 ANALYTICAL REPORT

REQUESTER: Phil Fresquez

DATE: March 3, 1993

ANALYSIS: High Explosive Detection in Soil

PROGRAM CODE: CH-40

SAMPLE IDENTIFICATION	COMPOUND	UG/GR
PF-36A-E-5'	HMX	0.6
PF-36A-E-5'	RDX	<0.3
PF-36A-E-5'	TETRYL	<0.4
PF-36A-E-5'	TNT	<0.4
PF-36A-E-5'	2,4 DNT	6.6
PF-36A-E-10'	HMX	0.4
PF-36A-E-10'	RDX	<0.3
PF-36A-E-10'	TETRYL	<0.4
PF-36A-E-10'	TNT	<0.4
PF-36A-E-10'	2,4 DNT	0.8
PF-36A-E-25'	HMX	0.9
PF-36A-E-25'	RDX	<0.3
PF-36A-E-25	TETRYL	<0.4
PF-36A-E-25'	TNT	<0.4
PF-36A-E-25'	2,4 DNT	0.4
PF-36A-E-50'	HMX	3.9
PF-36A-E-50'	RDX	<0.3
PF-36A-E-50'	TETRYL	<0.4
PF-36A-E-50'	TNT	<0.4
PF-36A-E-50'	2,4 DNT	207.3
PF-36A-E-100'	HMX	1.4
PF-36A-E-100'	RDX	<0.3
PF-36A-E-100'	TETRYL	<0.4
PF-36A-E-100'	TNT	<0.4
PF-36A-E-100'	2,4 DNT	0.8
PF-36A-E-76'	HMX	0.8
PF-36A-E-76'	RDX	<0.3
PF-36A-E-76'	TETRYL	<0.4
PF-36A-E-76'	TNT	<0.4
PF-36A-E-76'	2,4 DNT	119.6
PF-36A-W-5'	HMX	0.7
PF-36A-W-5'	RDX	0.6

SAMPLE IDENTIFICATION	COMPOUND	UG/GR
PF-36A-W-5'	TETRYL	<0.4
PF-36A-W-5'	TNT	<0.4
PF-36A-W-5'	2,4 DNT	49
PF-36A-W-10'	HMX	1.1
PF-36A-W-10'	RDX	<0.3
PF-36A-W-10'	TETRYL	<0.4
PF-36A-W-10'	TNT	<0.4
PF-36A-W-10'	2,4 DNT	0.9
PF-36A-W-25'	HMX	2.6
PF-36A-W-25'	RDX	20.9
PF-36A-W-25'	TETRYL	<0.4
PF-36A-W-25'	TNT	5.6
PF-36A-W-25	2,4 DNT	1.1
PF-36A-W-50'	HMX	0.3
PF-36A-W-50'	RDX	<0.3
PF-36A-W-50'	TETRYL	<0.4
PF-36A-W-50'	TNT	<0.4
PF-36A-W-50'	2,4 DNT	4.2
PF-36A-W-100'	HMX	<0.3
PF-36A-W-100'	RDX	<0.3
PF-36A-W-100'	TETRYL	<0.4
PF-36A-W-100'	TNT	<0.4
PF-36A-W-100'	2,4 DNT	<0.2
PF-36A-0-0'	HMX	0.5
PF-36A-0-0'	RDX	<0.3
PF-36A-0-0'	TETRYL	<0.4
PF-36A-0-0'	TNT	<0.4
PF-36A-0-0'	2,4 DNT	<0.2
PF-36A-N-10R	HMX	0.5
PF-36A-N-10R	RDX	<0.3
PF-36A-N-10R	TETRYL	<0.4
PF-36A-N-10R	TNT	<0.4
PF-36A-N-10R	2,4 DNT	<0.2
PF-36A-N-5'	HMX	1.9
PF-36A-N-5'	RDX	<0.3
PF-36A-N-5'	TETRYL	<0.4
PF-36A-N-5'	TNT	<0.4
PF-36A-N-5'	2,4 DNT	13.1
PF-36A-N-10'	HMX	<0.3
PF-36A-N-10'	RDX	0.3
PF-36A-N-10'	TETRYL	<0.4

SAMPLE IDENTIFICATION	COMPOUND	UG/GR
PF-36A-N-10'	TNT	<0.4
PF-36A-N-10'	2,4 DNT	<0.2
PF-36A-N-25'	HMX	0.5
PF-36A-N-25'	RDX	0.9
PF-36A-N-25'	TETRYL	<0.4
PF-36A-N-25'	TNT	<0.4
PF-36A-N-25'	2,4 DNT	<0.2
PF-36A-N-50'	HMX	<0.3
PF-36A-N-50'	RDX	<0.3
PF-36A-N-50'	TETRYL	<0.4
PF-36A-N-50'	TNT	<0.4
PF-36A-N-50'	2,4 DNT	11.6
PF-36A-N-100'	HMX	<0.3
PF-36A-N-100'	RDX	<0.3
PF-36A-N-100'	TETRYL	<0.4
PF-36A-N-100'	TNT	<0.4
PF-36A-N-100'	2,4 DNT	0.2
PF-36A-S-5'	HMX	2.6
PF-36A-S-5'	RDX	21
PF-36A-S-5'	TETRYL	<0.4
PF-36A-S-5'	TNT	<0.4
PF-36A-S-5'	2,4 DNT	1.1
PF-36A-S-10'	HMX	<0.3
PF-36A-S-10'	RDX	<0.3
PF-36A-S-10'	TETRYL	<0.4
PF-36A-S-10'	TNT	<0.4
PF-36A-S-10'	2,4 DNT	2.7
PF-36A-S-25'	HMX	0.8
PF-36A-S-25'	RDX	<0.3
PF-36A-S-25'	TETRYL	<0.4
PF-36A-S-25'	TNT	<0.4
PF-36A-S-25'	2,4 DNT	0.4
PF-36A-S-50'	HMX	0.3
PF-36A-S-50'	RDX	<0.3
PF-36A-S-50'	TETRYL	<0.4
PF-36A-S-50'	TNT	2.6
PF-36A-S-50'	2,4 DNT	2
PF-36A-S-100'	HMX	<0.3
PF-36A-S-100'	RDX	<0.3
PF-36A-S-100'	TETRYL	<0.4
PF-36A-S-100'	TNT	2.2

TNT.

(36B)

SAMPLE IDENTIFICATION	COMPOUND	UG/GR
PF-36A-S-100'	2,4 DNT	2
PF-36B-W-20'	HMX	0.7
PF-36B-W-20'	RDX	<0.3
PF-36B-W-20'	TETRYL	<0.4
PF-36B-W-20'	TNT	<0.4
PF-36B-W-20'	2,4 DNT	<0.2
PF-36B-W-40'	HMX	<0.3
PF-36B-W-40'	RDX	<0.3
PF-36B-W-40'	TETRYL	<0.4
PF-36B-W-40'	TNT	<0.4
PF-36B-W-40'	2,4 DNT	<0.2
PF-36B-W-60'	HMX	1.3
PF-36B-W-60	RDX	<0.3
PF-36B-W-60'	TETRYL	<0.4
PF-36B-W-60'	TNT	<0.4
PF-36B-W-60'	2,4 DNT	<0.2
PF-36B-W-100'	HMX	<0.3
PF-36B-W-100'	RDX	1.3
PF-36B-W-100'	TETRYL	<0.4
PF-36B-W-100'	TNT	<0.4
PF-36B-W-100'	2,4 DNT	<0.2
PF-36B-W-150'	HMX	<0.3
PF-36B-W-150'	RDX	0.4
PF-36B-W-150'	TETRYL	<0.4
PF-36B-W-150'	TNT	<0.4
PF-36B-W-150'	2,4 DNT	<0.2
PF-36B-E-20'	HMX	<0.3
PF-36B-E-20'	RDX	<0.3
PF-36B-E-20'	TETRYL	<0.4
PF-36B-E-20'	TNT	<0.4
PF-36B-E-20'	2,4 DNT	<0.2
PF-36B-E-40'	HMX	<0.3
PF-36B-E-40'	RDX	<0.3
PF-36B-E-40'	TETRYL	<0.4
PF-36B-E-40'	TNT	<0.4
PF-36B-E-40'	2,4 DNT	<0.2
PF-36B-E-60'	HMX	<0.3
PF-36B-E-60'	RDX	<0.3
PF-36B-E-60'	TETRYL	<0.4
PF-36B-E-60'	TNT	<0.4
PF-36B-E-60'	2,4 DNT	<0.2

SAMPLE IDENTIFICATION	COMPOUND	UG/GR
PF-36B-E-100'	HMX	<0.3
PF-36B-E-100'	RDX	<0.3
PF-36B-E-100'	TETRYL	<0.4
PF-36B-E-100'	TNT	<0.4
PF-36B-E-100'	2,4 DNT	<0.2
PF-36B-E-150'	HMX	<0.3
PF-36B-E-150'	RDX	<0.3
PF-36B-E-150'	TETRYL	<0.4
PF-36B-E-150'	TNT	<0.4
PF-36B-E-150'	2,4 DNT	<0.2
PF-36B-N-20'	HMX	<0.3
PF-36B-N-20'	RDX	<0.3
PF-36B-N-20'	TETRYL	<0.4
PF-36B-N-20'	TNT	<0.4
PF-36B-N-20'	2,4 DNT	<0.2
PF-36B-N-40'	HMX	0.9
PF-36B-N-40'	RDX	<0.3
PF-36B-N-40'	TETRYL	<0.4
PF-36B-N-40'	TNT	<0.4
PF-36B-N-40'	2,4 DNT	<0.2
PF-36B-N-60'	HMX	<0.3
PF-36B-N-60'	RDX	<0.3
PF-36B-N-60'	TETRYL	<0.4
PF-36B-N-60'	TNT	<0.4
PF-36B-N-60'	2,4 DNT	<0.2
PF-36B-N-100'	HMX	0.5
PF-36B-N-100'	RDX	<0.3
PF-36B-N-100'	TETRYL	<0.4
PF-36B-N-100'	TNT	0.9
PF-36B-N-100'	2,4 DNT	<0.2
PF-36B-N-150'	HMX	0.3
PF-36B-N-150'	RDX	<0.3
PF-36B-N-150'	TETRYL	<0.4
PF-36B-N-150'	TNT	<0.4
PF-36B-N-150'	2,4 DNT	<0.2
PF-36B-S-20'	HMX	<0.3
PF-36B-S-20'	RDX	<0.3
PF-36B-S-20'	TETRYL	<0.4
PF-36B-S-20'	TNT	<0.4
PF-36B-S-20'	2,4 DNT	<0.2
PF-36B-S-40'	HMX	<0.3

SAMPLE IDENTIFICATION	COMPOUND	UG/GR
PF-36B-S-40'	RDX	0.7
PF-36B-S-40'	TETRYL	<0.4
PF-36B-S-40'	TNT	<0.4
PF-36B-S-40'	2,4 DNT	<0.2
PF-36B-S-60'	HMX	0.4
PF-36B-S-60'	RDX	0.9
PF-36B-S-60'	TETRYL	<0.4
PF-36B-S-60'	TNT	<0.4
PF-36B-S-60'	2,4 DNT	<0.2
PF-36B-S-100'	HMX	1.3
PF-36B-S-100'	RDX	<0.3
PF-36B-S-100'	TETRYL	<0.4
PF-36B-S-100	TNT	<0.4
PF-36B-S-100	2,4 DNT	<0.2
PF-36B-S-150'	HMX	<0.3
PF-36B-S-150'	RDX	<0.3
PF-36B-S-150'	TETRYL	<0.4
PF-36B-S-150'	TNT	<0.4
PF-36B-S-150	2,4 DNT	<0.2
PF-36B SEDIMENT	HMX	<0.3
PF-36B SEDIMENT	RDX	<0.3
PF-36B SEDIMENT	TETRYL	<0.4
PF-36B SEDIMENT	TNT	<0.4
PF-36B SEDIMENT	2,4 DNT	<0.2
PF-36B-0-0	HMX	<0.3
PF-36B-0-0	RDX	<0.3
PF-36B-0-0	TETRYL	<0.4
PF-36B-0-0	TNT	<0.4
PF-36B-0-0	2,4 DNT	<0.2
SAMPLE IDENTIFICATION	**COMPOUND**	**UG/ML**
PF-36B-RINSEATE	HMX	<0.3
PF-36B-RINSEATE	RDX	<0.3
PF-36B-RINSEATE	TETRYL	<0.4
PF-36B-RINSEATE	TNT	<0.3
PF-36B-RINSEATE	2,4 DNT	<0.2
PF-36A-RINSEATE	HMX	<0.3
PF-36A-RINSEATE	RDX	<0.3
PF-36A-RINSEATE	TETRYL	<0.4
PF-36A-RINSEATE	TNT	<0.4
PF-36A-RINSEATE	2,4 DNT	<0.2

TABLE 1

Recovery data from quality control samples

EXPLOSIVE	RESULT	UNITS	QC VALUE	% RECOVERY
HMX	11.2	µg/g	10.9	103
RDX	9.3	µg/g	10.0	93
TETRYL	11.6	µg/g	11.4	102
TNT	11.4	µg/g	10.5	101
2,4 DNT	12.9	µg/g	11.7	110
HMX	9.8	µg/ml	9.8	100
RDX	11.2	µg/ml	11.2	100
TETRYL	12.6	µg/ml	12.3	102
TNT	9.3	µg/ml	8.7	107
2,4 DNT	15.4	µg/ml	13.4	115

TABLE 2

Dection Limits

COMPOUND	µg/g
HMX	<0.3
RDX	<0.3
TETRYL	<0.4
TNT	<0.4
2,4 DNT	<0.2

PRS ID	LOCATION ID	BEGIN DEPTH	END DEPTH	DEPTH UNITS	ANALYTE NAME	DILUTION FACTOR	QC	SAMPLE RESULTS	REPORTING UNITS	LAB QUAL	LANL QUAL
36-005	36-3051	0	6	IN	Acenaphthene			350	UG/KG	U	
36-005	36-3050	0	6	IN	Acenaphthene			360	UG/KG	U	
36-005	36-3050	0	6	IN	Acenaphthene			350	UG/KG	U	
36-005	36-3049	0	6	IN	Acenaphthene			340	UG/KG	U	
36-005	36-3048	0	6	IN	Acenaphthene			360	UG/KG	U	
36-005	36-3047	0	6	IN	Acenaphthene			390	UG/KG	U	
36-005	36-3046	0	6	IN	Acenaphthene			360	UG/KG	U	
36-005	36-3045	0	6	IN	Acenaphthene			380	UG/KG	U	
36-005	36-3044	0	6	IN	Acenaphthene			380	UG/KG	U	
36-005	36-3043	0	6	IN	Acenaphthene			360	UG/KG	U	
36-005	36-3042	0	6	IN	Acenaphthene			350	UG/KG	U	
36-005	36-3042	0	6	IN	Acenaphthene			340	UG/KG	U	
36-005	36-3041	0	6	IN	Acenaphthene			350	UG/KG	U	
36-005	36-3040	0	6	IN	Acenaphthene			350	UG/KG	U	
36-005	36-3039	0	6	IN	Acenaphthene			340	UG/KG	U	
36-005	36-3038	0	6	IN	Acenaphthene			360	UG/KG	U	
36-005	36-3037	0	6	IN	Acenaphthene			350	UG/KG	U	
36-005	36-3036	0	6	IN	Acenaphthene			340	UG/KG	U	
36-005	36-3035	0	6	IN	Acenaphthene			350	UG/KG	U	
36-005	36-3034	0	6	IN	Acenaphthene			350	UG/KG	U	
36-005	36-3034	0	6	IN	Acenaphthene			350	UG/KG	U	
36-005	36-3026	0	6	IN	Acenaphthene			140000	UG/KG	U	
36-005	36-3025	0	6	IN	Acenaphthene			360	UG/KG	U	
36-005	36-3024	0	6	IN	Acenaphthene			400	UG/KG	U	
36-005	36-3023	0	6	IN	Acenaphthene			370	UG/KG	U	
36-005	36-3022	0	6	IN	Acenaphthene			360	UG/KG	U	
36-005	36-3021	0	6	IN	Acenaphthene			400	UG/KG	U	
36-005	36-3020	0	6	IN	Acenaphthene			370	UG/KG	U	
36-005	36-3019	0	6	IN	Acenaphthene			370	UG/KG	U	
36-005	36-3018	0	6	IN	Acenaphthene			350	UG/KG	U	
36-005	36-3018	0	6	IN	Acenaphthene			370	UG/KG	U	
36-005	36-3051	0	6	IN	Acenaphthylene			350	UG/KG	U	
36-005	36-3050	0	6	IN	Acenaphthylene			360	UG/KG	U	
36-005	36-3050	0	6	IN	Acenaphthylene			350	UG/KG	U	
36-005	36-3049	0	6	IN	Acenaphthylene			340	UG/KG	U	
36-005	36-3048	0	6	IN	Acenaphthylene			360	UG/KG	U	
36-005	36-3047	0	6	IN	Acenaphthylene			390	UG/KG	U	
36-005	36-3046	0	6	IN	Acenaphthylene			360	UG/KG	U	
36-005	36-3045	0	6	IN	Acenaphthylene			380	UG/KG	U	
36-005	36-3044	0	6	IN	Acenaphthylene			380	UG/KG	U	
36-005	36-3043	0	6	IN	Acenaphthylene			360	UG/KG	U	
36-005	36-3042	0	6	IN	Acenaphthylene			350	UG/KG	U	
36-005	36-3042	0	6	IN	Acenaphthylene			340	UG/KG	U	
36-005	36-3041	0	6	IN	Acenaphthylene			350	UG/KG	U	
36-005	36-3040	0	6	IN	Acenaphthylene			350	UG/KG	U	
36-005	36-3039	0	6	IN	Acenaphthylene			340	UG/KG	U	
36-005	36-3038	0	6	IN	Acenaphthylene			360	UG/KG	U	
36-005	36-3037	0	6	IN	Acenaphthylene			350	UG/KG	U	
36-005	36-3036	0	6	IN	Acenaphthylene			340	UG/KG	U	
36-005	36-3035	0	6	IN	Acenaphthylene			350	UG/KG	U	
36-005	36-3034	0	6	IN	Acenaphthylene			350	UG/KG	U	
36-005	36-3034	0	6	IN	Acenaphthylene			350	UG/KG	U	
36-005	36-3026	0	6	IN	Acenaphthylene			140000	UG/KG	U	
36-005	36-3025	0	6	IN	Acenaphthylene			360	UG/KG	U	
36-005	36-3024	0	6	IN	Acenaphthylene			400	UG/KG	U	
36-005	36-3023	0	6	IN	Acenaphthylene			370	UG/KG	U	
36-005	36-3022	0	6	IN	Acenaphthylene			360	UG/KG	U	
36-005	36-3021	0	6	IN	Acenaphthylene			400	UG/KG	U	
36-005	36-3020	0	6	IN	Acenaphthylene			370	UG/KG	U	
36-005	36-3019	0	6	IN	Acenaphthylene			370	UG/KG	U	
36-005	36-3018	0	6	IN	Acenaphthylene			350	UG/KG	U	
36-005	36-3018	0	6	IN	Acenaphthylene			370	UG/KG	U	
36-005	36-3051	0	6	IN	Acetone			22	UG/KG	U	
36-005	36-3050	0	6	IN	Acetone			22	UG/KG	U	
36-005	36-3050	0	6	IN	Acetone			33	UG/KG	U	
36-005	36-3049	0	6	IN	Acetone			22	UG/KG	U	
36-005	36-3048	0	6	IN	Acetone			22	UG/KG	U	
36-005	36-3047	0	6	IN	Acetone			24	UG/KG	U	
36-005	36-3046	0	6	IN	Acetone			22	UG/KG	U	
36-005	36-3045	0	6	IN	Acetone			22	UG/KG	U	

36-005	36-3044	0	6	IN	Acetone	22	UG/KG	U
36-005	36-3043	0	6	IN	Acetone	20	UG/KG	U
36-005	36-3042	0	6	IN	Acetone	26	UG/KG	U
36-005	36-3042	0	6	IN	Acetone	20	UG/KG	U
36-005	36-3041	0	6	IN	Acetone	10	UG/KG	U
36-005	36-3040	0	6	IN	Acetone	10	UG/KG	U
36-005	36-3039	0	6	IN	Acetone	10	UG/KG	U
36-005	36-3038	0	6	IN	Acetone	11	UG/KG	U
36-005	36-3037	0	6	IN	Acetone	10	UG/KG	U
36-005	36-3036	0	6	IN	Acetone	11	UG/KG	U
36-005	36-3035	0	6	IN	Acetone	11	UG/KG	U
36-005	36-3034	0	6	IN	Acetone	11	UG/KG	U
36-005	36-3034	0	6	IN	Acetone	10	UG/KG	U
36-005	36-3026	0	6	IN	Acetone	520	UG/KG	
36-005	36-3025	0	6	IN	Acetone	20	UG/KG	U
36-005	36-3024	0	6	IN	Acetone	58	UG/KG	U
36-005	36-3023	0	6	IN	Acetone	22	UG/KG	U
36-005	36-3022	0	6	IN	Acetone	36	UG/KG	U
36-005	36-3021	0	6	IN	Acetone	24	UG/KG	U
36-005	36-3020	0	6	IN	Acetone	22	UG/KG	U
36-005	36-3019	0	6	IN	Acetone	22	UG/KG	U
36-005	36-3018	0	6	IN	Acetone	22	UG/KG	U
36-005	36-3018	0	6	IN	Acetone	94	UG/KG	U
36-005	NA				Aluminum	1560	MG/KG	J
36-005	36-3051	0	6	IN	Aluminum	1790	MG/KG	J
36-005	36-3050	0	6	IN	Aluminum	6310	MG/KG	J
36-005	36-3050	0	6	IN	Aluminum	6530	MG/KG	J
36-005	36-3049	0	6	IN	Aluminum	1930	MG/KG	J
36-005	36-3048	0	6	IN	Aluminum	10500	MG/KG	J
36-005	36-3047	0	6	IN	Aluminum	5220	MG/KG	J
36-005	36-3046	0	6	IN	Aluminum	2850	MG/KG	J
36-005	36-3045	0	6	IN	Aluminum	12000	MG/KG	J
36-005	36-3044	0	6	IN	Aluminum	5230	MG/KG	J
36-005	36-3043	0	6	IN	Aluminum	2240	MG/KG	J
36-005	36-3042	0	6	IN	Aluminum	3850	MG/KG	J
36-005	36-3042	0	6	IN	Aluminum	4600	MG/KG	J
36-005	36-3041	0	6	IN	Aluminum	7630	MG/KG	
36-005	36-3040	0	6	IN	Aluminum	7900	MG/KG	
36-005	36-3039	0	6	IN	Aluminum	5280	MG/KG	
36-005	36-3038	0	6	IN	Aluminum	10600	MG/KG	
36-005	36-3037	0	6	IN	Aluminum	8270	MG/KG	
36-005	36-3036	0	6	IN	Aluminum	11100	MG/KG	
36-005	36-3035	0	6	IN	Aluminum	15400	MG/KG	
36-005	36-3034	0	6	IN	Aluminum	7590	MG/KG	
36-005	36-3034	0	6	IN	Aluminum	10400	MG/KG	
36-005	36-3026	0	6	IN	Aluminum	5050	MG/KG	J
36-005	36-3025	0	6	IN	Aluminum	2690	MG/KG	J
36-005	36-3024	0	6	IN	Aluminum	4690	MG/KG	J
36-005	36-3023	0	6	IN	Aluminum	5300	MG/KG	J
36-005	36-3022	0	6	IN	Aluminum	3870	MG/KG	J
36-005	36-3021	0	6	IN	Aluminum	4080	MG/KG	J
36-005	36-3020	0	6	IN	Aluminum	3860	MG/KG	J
36-005	36-3019	0	6	IN	Aluminum	3930	MG/KG	J
36-005	36-3018	0	6	IN	Aluminum	4210	MG/KG	J
36-005	36-3018	0	6	IN	Aluminum	2990	MG/KG	J
36-005	36-3051	0	6	IN	Amino-2,6-dinitrotoluene[4-]	0.09	UG/G	U
36-005	36-3050	0	6	IN	Amino-2,6-dinitrotoluene[4-]	0.092	UG/G	U
36-005	36-3050	0	6	IN	Amino-2,6-dinitrotoluene[4-]	0.092	UG/G	U
36-005	36-3049	0	6	IN	Amino-2,6-dinitrotoluene[4-]	0.09	UG/G	U
36-005	36-3048	0	6	IN	Amino-2,6-dinitrotoluene[4-]	0.093	UG/G	U
36-005	36-3047	0	6	IN	Amino-2,6-dinitrotoluene[4-]	0.092	UG/G	U
36-005	36-3046	0	6	IN	Amino-2,6-dinitrotoluene[4-]	0.091	UG/G	U
36-005	36-3045	0	6	IN	Amino-2,6-dinitrotoluene[4-]	0.094	UG/G	U
36-005	36-3044	0	6	IN	Amino-2,6-dinitrotoluene[4-]	0.092	UG/G	U
36-005	36-3043	0	6	IN	Amino-2,6-dinitrotoluene[4-]	0.091	UG/G	U
36-005	36-3042	0	6	IN	Amino-2,6-dinitrotoluene[4-]	0.092	UG/G	U
36-005	36-3042	0	6	IN	Amino-2,6-dinitrotoluene[4-]	0.092	UG/G	U
36-005	36-3041	0	6	IN	Amino-2,6-dinitrotoluene[4-]	0.091	UG/G	U
36-005	36-3040	0	6	IN	Amino-2,6-dinitrotoluene[4-]	0.092	UG/G	U
36-005	36-3039	0	6	IN	Amino-2,6-dinitrotoluene[4-]	0.091	UG/G	U
36-005	36-3038	0	6	IN	Amino-2,6-dinitrotoluene[4-]	0.091	UG/G	U
36-005	36-3037	0	6	IN	Amino-2,6-dinitrotoluene[4-]	0.091	UG/G	U
36-005	36-3036	0	6	IN	Amino-2,6-dinitrotoluene[4-]	0.091	UG/G	U
36-005	36-3035	0	6	IN	Amino-2,6-dinitrotoluene[4-]	0.093	UG/G	U

36-005	36-3034	0	6	IN	Amino-2,6-dinitrotoluene[4-]	0.091	UG/G	U
36-005	36-3034	0	6	IN	Amino-2,6-dinitrotoluene[4-]	0.091	UG/G	U
36-005	36-3026	0	6	IN	Amino-2,6-dinitrotoluene[4-]	0.092	UG/G	U
36-005	36-3025	0	6	IN	Amino-2,6-dinitrotoluene[4-]	0.09	UG/G	U
36-005	36-3024	0	6	IN	Amino-2,6-dinitrotoluene[4-]	0.091	UG/G	U
36-005	36-3023	0	6	IN	Amino-2,6-dinitrotoluene[4-]	0.091	UG/G	U
36-005	36-3022	0	6	IN	Amino-2,6-dinitrotoluene[4-]	0.091	UG/G	U
36-005	36-3021	0	6	IN	Amino-2,6-dinitrotoluene[4-]	0.091	UG/G	U
36-005	36-3020	0	6	IN	Amino-2,6-dinitrotoluene[4-]	0.091	UG/G	U
36-005	36-3019	0	6	IN	Amino-2,6-dinitrotoluene[4-]	0.091	UG/G	U
36-005	36-3018	0	6	IN	Amino-2,6-dinitrotoluene[4-]	0.091	UG/G	U
36-005	36-3018	0	6	IN	Amino-2,6-dinitrotoluene[4-]	0.091	UG/G	U
36-005	36-3051	0	6	IN	Amino-4,6-dinitrotoluene[2-]	0.073	UG/G	U
36-005	36-3050	0	6	IN	Amino-4,6-dinitrotoluene[2-]	0.075	UG/G	U
36-005	36-3050	0	6	IN	Amino-4,6-dinitrotoluene[2-]	0.075	UG/G	U
36-005	36-3049	0	6	IN	Amino-4,6-dinitrotoluene[2-]	0.073	UG/G	U
36-005	36-3048	0	6	IN	Amino-4,6-dinitrotoluene[2-]	0.076	UG/G	U
36-005	36-3047	0	6	IN	Amino-4,6-dinitrotoluene[2-]	0.075	UG/G	U
36-005	36-3046	0	6	IN	Amino-4,6-dinitrotoluene[2-]	0.074	UG/G	U
36-005	36-3045	0	6	IN	Amino-4,6-dinitrotoluene[2-]	0.077	UG/G	U
36-005	36-3044	0	6	IN	Amino-4,6-dinitrotoluene[2-]	0.075	UG/G	U
36-005	36-3043	0	6	IN	Amino-4,6-dinitrotoluene[2-]	0.074	UG/G	U
36-005	36-3042	0	6	IN	Amino-4,6-dinitrotoluene[2-]	0.075	UG/G	U
36-005	36-3042	0	6	IN	Amino-4,6-dinitrotoluene[2-]	0.075	UG/G	U
36-005	36-3041	0	6	IN	Amino-4,6-dinitrotoluene[2-]	0.074	UG/G	U
36-005	36-3040	0	6	IN	Amino-4,6-dinitrotoluene[2-]	0.075	UG/G	U
36-005	36-3039	0	6	IN	Amino-4,6-dinitrotoluene[2-]	0.074	UG/G	U
36-005	36-3038	0	6	IN	Amino-4,6-dinitrotoluene[2-]	0.074	UG/G	U
36-005	36-3037	0	6	IN	Amino-4,6-dinitrotoluene[2-]	0.074	UG/G	U
36-005	36-3036	0	6	IN	Amino-4,6-dinitrotoluene[2-]	0.074	UG/G	U
36-005	36-3035	0	6	IN	Amino-4,6-dinitrotoluene[2-]	0.076	UG/G	U
36-005	36-3034	0	6	IN	Amino-4,6-dinitrotoluene[2-]	0.074	UG/G	U
36-005	36-3034	0	6	IN	Amino-4,6-dinitrotoluene[2-]	0.074	UG/G	U
36-005	36-3026	0	6	IN	Amino-4,6-dinitrotoluene[2-]	0.074	UG/G	U
36-005	36-3025	0	6	IN	Amino-4,6-dinitrotoluene[2-]	0.075	UG/G	U
36-005	36-3024	0	6	IN	Amino-4,6-dinitrotoluene[2-]	0.076	UG/G	U
36-005	36-3023	0	6	IN	Amino-4,6-dinitrotoluene[2-]	0.076	UG/G	U
36-005	36-3022	0	6	IN	Amino-4,6-dinitrotoluene[2-]	0.076	UG/G	U
36-005	36-3021	0	6	IN	Amino-4,6-dinitrotoluene[2-]	0.076	UG/G	U
36-005	36-3020	0	6	IN	Amino-4,6-dinitrotoluene[2-]	0.075	UG/G	U
36-005	36-3019	0	6	IN	Amino-4,6-dinitrotoluene[2-]	0.076	UG/G	U
36-005	36-3018	0	6	IN	Amino-4,6-dinitrotoluene[2-]	0.075	UG/G	U
36-005	36-3018	0	6	IN	Amino-4,6-dinitrotoluene[2-]	0.075	UG/G	U
36-005	36-3051	0	6	IN	Aniline	350	UG/KG	U
36-005	36-3050	0	6	IN	Aniline	360	UG/KG	U
36-005	36-3050	0	6	IN	Aniline	350	UG/KG	U
36-005	36-3049	0	6	IN	Aniline	340	UG/KG	U
36-005	36-3048	0	6	IN	Aniline	360	UG/KG	U
36-005	36-3047	0	6	IN	Aniline	390	UG/KG	U
36-005	36-3046	0	6	IN	Aniline	360	UG/KG	U
36-005	36-3045	0	6	IN	Aniline	380	UG/KG	U
36-005	36-3044	0	6	IN	Aniline	380	UG/KG	U
36-005	36-3043	0	6	IN	Aniline	360	UG/KG	U
36-005	36-3042	0	6	IN	Aniline	350	UG/KG	U
36-005	36-3042	0	6	IN	Aniline	340	UG/KG	U
36-005	36-3041	0	6	IN	Aniline	350	UG/KG	U
36-005	36-3040	0	6	IN	Aniline	350	UG/KG	U
36-005	36-3039	0	6	IN	Aniline	340	UG/KG	U
36-005	36-3038	0	6	IN	Aniline	360	UG/KG	U
36-005	36-3037	0	6	IN	Aniline	350	UG/KG	U
36-005	36-3036	0	6	IN	Aniline	340	UG/KG	U
36-005	36-3035	0	6	IN	Aniline	350	UG/KG	U
36-005	36-3034	0	6	IN	Aniline	350	UG/KG	U
36-005	36-3034	0	6	IN	Aniline	350	UG/KG	U
36-005	36-3026	0	6	IN	Aniline	140000	UG/KG	U
36-005	36-3025	0	6	IN	Aniline	360	UG/KG	U
36-005	36-3024	0	6	IN	Aniline	400	UG/KG	U
36-005	36-3023	0	6	IN	Aniline	370	UG/KG	U
36-005	36-3022	0	6	IN	Aniline	360	UG/KG	U
36-005	36-3021	0	6	IN	Aniline	400	UG/KG	U
36-005	36-3020	0	6	IN	Aniline	370	UG/KG	U
36-005	36-3019	0	6	IN	Aniline	370	UG/KG	U
36-005	36-3018	0	6	IN	Aniline	350	UG/KG	U
36-005	36-3018	0	6	IN	Aniline	370	UG/KG	U

36-005	36-3051	0	6	IN	Anthracene	350	UG/KG	U
36-005	36-3050	0	6	IN	Anthracene	360	UG/KG	U
36-005	36-3050	0	6	IN	Anthracene	350	UG/KG	U
36-005	36-3049	0	6	IN	Anthracene	340	UG/KG	U
36-005	36-3048	0	6	IN	Anthracene	360	UG/KG	U
36-005	36-3047	0	6	IN	Anthracene	390	UG/KG	U
36-005	36-3046	0	6	IN	Anthracene	360	UG/KG	U
36-005	36-3045	0	6	IN	Anthracene	380	UG/KG	U
36-005	36-3044	0	6	IN	Anthracene	380	UG/KG	U
36-005	36-3043	0	6	IN	Anthracene	360	UG/KG	U
36-005	36-3042	0	6	IN	Anthracene	350	UG/KG	U
36-005	36-3042	0	6	IN	Anthracene	340	UG/KG	U
36-005	36-3041	0	6	IN	Anthracene	350	UG/KG	UJ
36-005	36-3040	0	6	IN	Anthracene	350	UG/KG	UJ
36-005	36-3039	0	6	IN	Anthracene	340	UG/KG	UJ
36-005	36-3038	0	6	IN	Anthracene	360	UG/KG	UJ
36-005	36-3037	0	6	IN	Anthracene	350	UG/KG	UJ
36-005	36-3036	0	6	IN	Anthracene	340	UG/KG	UJ
36-005	36-3035	0	6	IN	Anthracene	350	UG/KG	UJ
36-005	36-3034	0	6	IN	Anthracene	350	UG/KG	UJ
36-005	36-3034	0	6	IN	Anthracene	350	UG/KG	UJ
36-005	36-3026	0	6	IN	Anthracene	140000	UG/KG	U
36-005	36-3025	0	6	IN	Anthracene	360	UG/KG	U
36-005	36-3024	0	6	IN	Anthracene	400	UG/KG	U
36-005	36-3023	0	6	IN	Anthracene	370	UG/KG	U
36-005	36-3022	0	6	IN	Anthracene	360	UG/KG	U
36-005	36-3021	0	6	IN	Anthracene	400	UG/KG	U
36-005	36-3020	0	6	IN	Anthracene	370	UG/KG	U
36-005	36-3019	0	6	IN	Anthracene	370	UG/KG	U
36-005	36-3018	0	6	IN	Anthracene	350	UG/KG	U
36-005	36-3018	0	6	IN	Anthracene	370	UG/KG	U
36-005	NA				Antimony	9.4	MG/KG	
36-005	36-3051	0	6	IN	Antimony	7.31	MG/KG	U
36-005	36-3050	0	6	IN	Antimony	7.48	MG/KG	U
36-005	36-3050	0	6	IN	Antimony	7.06	MG/KG	U
36-005	36-3049	0	6	IN	Antimony	7.36	MG/KG	U
36-005	36-3048	0	6	IN	Antimony	7.7	MG/KG	U
36-005	36-3047	0	6	IN	Antimony	7.78	MG/KG	U
36-005	36-3046	0	6	IN	Antimony	7.11	MG/KG	U
36-005	36-3045	0	6	IN	Antimony	7.75	MG/KG	U
36-005	36-3044	0	6	IN	Antimony	7.61	MG/KG	U
36-005	36-3043	0	6	IN	Antimony	7.22	MG/KG	U
36-005	36-3042	0	6	IN	Antimony	6.9	MG/KG	U
36-005	36-3042	0	6	IN	Antimony	6.77	MG/KG	U
36-005	36-3041	0	6	IN	Antimony	5.2	MG/KG	U
36-005	36-3040	0	6	IN	Antimony	5.2	MG/KG	U
36-005	36-3039	0	6	IN	Antimony	5	MG/KG	U
36-005	36-3038	0	6	IN	Antimony	5.4	MG/KG	U
36-005	36-3037	0	6	IN	Antimony	5.2	MG/KG	U
36-005	36-3036	0	6	IN	Antimony	5.2	MG/KG	U
36-005	36-3035	0	6	IN	Antimony	5.3	MG/KG	U
36-005	36-3034	0	6	IN	Antimony	5.2	MG/KG	U
36-005	36-3034	0	6	IN	Antimony	5.3	MG/KG	U
36-005	36-3026	0	6	IN	Antimony	7.01	MG/KG	U
36-005	36-3025	0	6	IN	Antimony	7.24	MG/KG	U
36-005	36-3024	0	6	IN	Antimony	7.59	MG/KG	U
36-005	36-3023	0	6	IN	Antimony	7.88	MG/KG	U
36-005	36-3022	0	6	IN	Antimony	8.21	MG/KG	U
36-005	36-3021	0	6	IN	Antimony	8.1	MG/KG	U
36-005	36-3020	0	6	IN	Antimony	7.65	MG/KG	U
36-005	36-3019	0	6	IN	Antimony	7.49	MG/KG	U
36-005	36-3018	0	6	IN	Antimony	7.56	MG/KG	U
36-005	36-3018	0	6	IN	Antimony	7.86	MG/KG	U
36-005	NA				Arsenic	423	MG/KG	
36-005	36-3051	0	6	IN	Arsenic	0.72	MG/KG	U
36-005	36-3050	0	6	IN	Arsenic	1.3	MG/KG	U
36-005	36-3050	0	6	IN	Arsenic	1.9	MG/KG	U
36-005	36-3049	0	6	IN	Arsenic	0.72	MG/KG	U
36-005	36-3048	0	6	IN	Arsenic	1.3	MG/KG	U
36-005	36-3047	0	6	IN	Arsenic	0.81	MG/KG	U
36-005	36-3046	0	6	IN	Arsenic	0.72	MG/KG	U
36-005	36-3045	0	6	IN	Arsenic	1.7	MG/KG	U
36-005	36-3044	0	6	IN	Arsenic	0.92	MG/KG	U
36-005	36-3043	0	6	IN	Arsenic	0.73	MG/KG	U

36-005	36-3042	0	6	IN	Arsenic	0.68	MG/KG	U
36-005	36-3042	0	6	IN	Arsenic	0.73	MG/KG	U
36-005	36-3041	0	6	IN	Arsenic	0.92	MG/KG	U
36-005	36-3040	0	6	IN	Arsenic	0.64	MG/KG	U
36-005	36-3039	0	6	IN	Arsenic	0.85	MG/KG	U
36-005	36-3038	0	6	IN	Arsenic	0.89	MG/KG	U
36-005	36-3037	0	6	IN	Arsenic	1.2	MG/KG	
36-005	36-3036	0	6	IN	Arsenic	0.74	MG/KG	U
36-005	36-3035	0	6	IN	Arsenic	1.4	MG/KG	
36-005	36-3034	0	6	IN	Arsenic	1.1	MG/KG	
36-005	36-3034	0	6	IN	Arsenic	1.1	MG/KG	
36-005	36-3026	0	6	IN	Arsenic	0.89	MG/KG	U
36-005	36-3025	0	6	IN	Arsenic	0.8	MG/KG	U
36-005	36-3024	0	6	IN	Arsenic	0.77	MG/KG	U
36-005	36-3023	0	6	IN	Arsenic	1.4	MG/KG	U
36-005	36-3022	0	6	IN	Arsenic	1.2	MG/KG	U
36-005	36-3021	0	6	IN	Arsenic	1.4	MG/KG	U
36-005	36-3020	0	6	IN	Arsenic	1.3	MG/KG	U
36-005	36-3019	0	6	IN	Arsenic	1.3	MG/KG	U
36-005	36-3018	0	6	IN	Arsenic	1.2	MG/KG	U
36-005	36-3018	0	6	IN	Arsenic	1.1	MG/KG	U
36-005	36-3051	0	6	IN	Azobenzene	350	UG/KG	U
36-005	36-3050	0	6	IN	Azobenzene	360	UG/KG	U
36-005	36-3050	0	6	IN	Azobenzene	350	UG/KG	U
36-005	36-3049	0	6	IN	Azobenzene	340	UG/KG	U
36-005	36-3048	0	6	IN	Azobenzene	360	UG/KG	U
36-005	36-3047	0	6	IN	Azobenzene	390	UG/KG	U
36-005	36-3046	0	6	IN	Azobenzene	360	UG/KG	U
36-005	36-3045	0	6	IN	Azobenzene	380	UG/KG	U
36-005	36-3044	0	6	IN	Azobenzene	380	UG/KG	U
36-005	36-3043	0	6	IN	Azobenzene	360	UG/KG	U
36-005	36-3042	0	6	IN	Azobenzene	350	UG/KG	U
36-005	36-3042	0	6	IN	Azobenzene	340	UG/KG	U
36-005	36-3041	0	6	IN	Azobenzene	350	UG/KG	U
36-005	36-3040	0	6	IN	Azobenzene	350	UG/KG	U
36-005	36-3039	0	6	IN	Azobenzene	340	UG/KG	U
36-005	36-3038	0	6	IN	Azobenzene	360	UG/KG	U
36-005	36-3037	0	6	IN	Azobenzene	350	UG/KG	U
36-005	36-3036	0	6	IN	Azobenzene	340	UG/KG	U
36-005	36-3035	0	6	IN	Azobenzene	350	UG/KG	U
36-005	36-3034	0	6	IN	Azobenzene	350	UG/KG	U
36-005	36-3034	0	6	IN	Azobenzene	350	UG/KG	U
36-005	36-3026	0	6	IN	Azobenzene	140000	UG/KG	U
36-005	36-3025	0	6	IN	Azobenzene	360	UG/KG	U
36-005	36-3024	0	6	IN	Azobenzene	400	UG/KG	U
36-005	36-3023	0	6	IN	Azobenzene	370	UG/KG	U
36-005	36-3022	0	6	IN	Azobenzene	360	UG/KG	U
36-005	36-3021	0	6	IN	Azobenzene	400	UG/KG	U
36-005	36-3020	0	6	IN	Azobenzene	370	UG/KG	U
36-005	36-3019	0	6	IN	Azobenzene	370	UG/KG	U
36-005	36-3018	0	6	IN	Azobenzene	350	UG/KG	U
36-005	36-3018	0	6	IN	Azobenzene	370	UG/KG	U
36-005	NA				Barium	26.5	MG/KG	
36-005	36-3051	0	6	IN	Barium	44.8	MG/KG	
36-005	36-3050	0	6	IN	Barium	147	MG/KG	
36-005	36-3050	0	6	IN	Barium	150	MG/KG	
36-005	36-3049	0	6	IN	Barium	35.6	MG/KG	U
36-005	36-3048	0	6	IN	Barium	196	MG/KG	
36-005	36-3047	0	6	IN	Barium	109	MG/KG	
36-005	36-3046	0	6	IN	Barium	63.4	MG/KG	
36-005	36-3045	0	6	IN	Barium	244	MG/KG	
36-005	36-3044	0	6	IN	Barium	123	MG/KG	
36-005	36-3043	0	6	IN	Barium	63.7	MG/KG	
36-005	36-3042	0	6	IN	Barium	120	MG/KG	
36-005	36-3042	0	6	IN	Barium	110	MG/KG	
36-005	36-3041	0	6	IN	Barium	64	MG/KG	
36-005	36-3040	0	6	IN	Barium	98	MG/KG	
36-005	36-3039	0	6	IN	Barium	70.4	MG/KG	
36-005	36-3038	0	6	IN	Barium	116	MG/KG	
36-005	36-3037	0	6	IN	Barium	123	MG/KG	
36-005	36-3036	0	6	IN	Barium	128	MG/KG	
36-005	36-3035	0	6	IN	Barium	192	MG/KG	
36-005	36-3034	0	6	IN	Barium	132	MG/KG	
36-005	36-3034	0	6	IN	Barium	140	MG/KG	

36-005	36-3026	0	6	IN	Barium	107	MG/KG	
36-005	36-3025	0	6	IN	Barium	75.9	MG/KG	J
36-005	36-3024	0	6	IN	Barium	106	MG/KG	J
36-005	36-3023	0	6	IN	Barium	113	MG/KG	J
36-005	36-3022	0	6	IN	Barium	82.4	MG/KG	J
36-005	36-3021	0	6	IN	Barium	107	MG/KG	J
36-005	36-3020	0	6	IN	Barium	91.1	MG/KG	J
36-005	36-3019	0	6	IN	Barium	97.5	MG/KG	J
36-005	36-3018	0	6	IN	Barium	86.8	MG/KG	J
36-005	36-3018	0	6	IN	Barium	69.8	MG/KG	J
36-005	36-3051	0	6	IN	Benzene	5	UG/KG	U
36-005	36-3050	0	6	IN	Benzene	6	UG/KG	U
36-005	36-3050	0	6	IN	Benzene	6	UG/KG	U
36-005	36-3049	0	6	IN	Benzene	6	UG/KG	U
36-005	36-3048	0	6	IN	Benzene	6	UG/KG	U
36-005	36-3047	0	6	IN	Benzene	6	UG/KG	U
36-005	36-3046	0	6	IN	Benzene	6	UG/KG	U
36-005	36-3045	0	6	IN	Benzene	6	UG/KG	U
36-005	36-3044	0	6	IN	Benzene	6	UG/KG	U
36-005	36-3043	0	6	IN	Benzene	5	UG/KG	U
36-005	36-3042	0	6	IN	Benzene	6	UG/KG	U
36-005	36-3042	0	6	IN	Benzene	5	UG/KG	U
36-005	36-3041	0	6	IN	Benzene	5	UG/KG	U
36-005	36-3040	0	6	IN	Benzene	5	UG/KG	U
36-005	36-3039	0	6	IN	Benzene	5	UG/KG	U
36-005	36-3038	0	6	IN	Benzene	6	UG/KG	U
36-005	36-3037	0	6	IN	Benzene	5	UG/KG	U
36-005	36-3036	0	6	IN	Benzene	6	UG/KG	U
36-005	36-3035	0	6	IN	Benzene	6	UG/KG	U
36-005	36-3034	0	6	IN	Benzene	6	UG/KG	U
36-005	36-3034	0	6	IN	Benzene	5	UG/KG	U
36-005	36-3026	0	6	IN	Benzene	25	UG/KG	U
36-005	36-3025	0	6	IN	Benzene	5	UG/KG	U
36-005	36-3024	0	6	IN	Benzene	6	UG/KG	U
36-005	36-3023	0	6	IN	Benzene	6	UG/KG	U
36-005	36-3022	0	6	IN	Benzene	6	UG/KG	U
36-005	36-3021	0	6	IN	Benzene	6	UG/KG	U
36-005	36-3020	0	6	IN	Benzene	6	UG/KG	U
36-005	36-3019	0	6	IN	Benzene	6	UG/KG	U
36-005	36-3018	0	6	IN	Benzene	6	UG/KG	U
36-005	36-3018	0	6	IN	Benzene	6	UG/KG	U
36-005	36-3051	0	6	IN	Benzo(a)anthracene	350	UG/KG	U
36-005	36-3050	0	6	IN	Benzo(a)anthracene	360	UG/KG	U
36-005	36-3050	0	6	IN	Benzo(a)anthracene	350	UG/KG	U
36-005	36-3049	0	6	IN	Benzo(a)anthracene	340	UG/KG	U
36-005	36-3048	0	6	IN	Benzo(a)anthracene	360	UG/KG	U
36-005	36-3047	0	6	IN	Benzo(a)anthracene	390	UG/KG	U
36-005	36-3046	0	6	IN	Benzo(a)anthracene	360	UG/KG	U
36-005	36-3045	0	6	IN	Benzo(a)anthracene	380	UG/KG	U
36-005	36-3044	0	6	IN	Benzo(a)anthracene	380	UG/KG	U
36-005	36-3043	0	6	IN	Benzo(a)anthracene	360	UG/KG	U
36-005	36-3042	0	6	IN	Benzo(a)anthracene	350	UG/KG	U
36-005	36-3042	0	6	IN	Benzo(a)anthracene	340	UG/KG	U
36-005	36-3041	0	6	IN	Benzo(a)anthracene	350	UG/KG	U
36-005	36-3040	0	6	IN	Benzo(a)anthracene	350	UG/KG	U
36-005	36-3039	0	6	IN	Benzo(a)anthracene	340	UG/KG	U
36-005	36-3038	0	6	IN	Benzo(a)anthracene	360	UG/KG	U
36-005	36-3037	0	6	IN	Benzo(a)anthracene	350	UG/KG	U
36-005	36-3036	0	6	IN	Benzo(a)anthracene	340	UG/KG	U
36-005	36-3035	0	6	IN	Benzo(a)anthracene	350	UG/KG	U
36-005	36-3034	0	6	IN	Benzo(a)anthracene	350	UG/KG	U
36-005	36-3034	0	6	IN	Benzo(a)anthracene	350	UG/KG	U
36-005	36-3026	0	6	IN	Benzo(a)anthracene	140000	UG/KG	U
36-005	36-3025	0	6	IN	Benzo(a)anthracene	360	UG/KG	U
36-005	36-3024	0	6	IN	Benzo(a)anthracene	400	UG/KG	U
36-005	36-3023	0	6	IN	Benzo(a)anthracene	370	UG/KG	U
36-005	36-3022	0	6	IN	Benzo(a)anthracene	360	UG/KG	U
36-005	36-3021	0	6	IN	Benzo(a)anthracene	400	UG/KG	U
36-005	36-3020	0	6	IN	Benzo(a)anthracene	370	UG/KG	U
36-005	36-3019	0	6	IN	Benzo(a)anthracene	370	UG/KG	U
36-005	36-3018	0	6	IN	Benzo(a)anthracene	350	UG/KG	U
36-005	36-3018	0	6	IN	Benzo(a)anthracene	370	UG/KG	U
36-005	36-3051	0	6	IN	Benzo(a)pyrene	350	UG/KG	U
36-005	36-3050	0	6	IN	Benzo(a)pyrene	360	UG/KG	U

36-005	36-3050	0	6	IN	Benzo(a)pyrene	350	UG/KG	U
36-005	36-3049	0	6	IN	Benzo(a)pyrene	340	UG/KG	U
36-005	36-3048	0	6	IN	Benzo(a)pyrene	360	UG/KG	U
36-005	36-3047	0	6	IN	Benzo(a)pyrene	390	UG/KG	U
36-005	36-3046	0	6	IN	Benzo(a)pyrene	360	UG/KG	U
36-005	36-3045	0	6	IN	Benzo(a)pyrene	380	UG/KG	U
36-005	36-3044	0	6	IN	Benzo(a)pyrene	380	UG/KG	U
36-005	36-3043	0	6	IN	Benzo(a)pyrene	360	UG/KG	U
36-005	36-3042	0	6	IN	Benzo(a)pyrene	350	UG/KG	U
36-005	36-3042	0	6	IN	Benzo(a)pyrene	340	UG/KG	U
36-005	36-3041	0	6	IN	Benzo(a)pyrene	350	UG/KG	UJ
36-005	36-3040	0	6	IN	Benzo(a)pyrene	350	UG/KG	UJ
36-005	36-3039	0	6	IN	Benzo(a)pyrene	340	UG/KG	UJ
36-005	36-3038	0	6	IN	Benzo(a)pyrene	360	UG/KG	UJ
36-005	36-3037	0	6	IN	Benzo(a)pyrene	350	UG/KG	UJ
36-005	36-3036	0	6	IN	Benzo(a)pyrene	340	UG/KG	UJ
36-005	36-3035	0	6	IN	Benzo(a)pyrene	350	UG/KG	UJ
36-005	36-3034	0	6	IN	Benzo(a)pyrene	350	UG/KG	UJ
36-005	36-3034	0	6	IN	Benzo(a)pyrene	350	UG/KG	UJ
36-005	36-3026	0	6	IN	Benzo(a)pyrene	140000	UG/KG	U
36-005	36-3025	0	6	IN	Benzo(a)pyrene	360	UG/KG	U
36-005	36-3024	0	6	IN	Benzo(a)pyrene	400	UG/KG	U
36-005	36-3023	0	6	IN	Benzo(a)pyrene	370	UG/KG	U
36-005	36-3022	0	6	IN	Benzo(a)pyrene	360	UG/KG	U
36-005	36-3021	0	6	IN	Benzo(a)pyrene	400	UG/KG	U
36-005	36-3020	0	6	IN	Benzo(a)pyrene	370	UG/KG	U
36-005	36-3019	0	6	IN	Benzo(a)pyrene	370	UG/KG	U
36-005	36-3018	0	6	IN	Benzo(a)pyrene	350	UG/KG	U
36-005	36-3018	0	6	IN	Benzo(a)pyrene	370	UG/KG	U
36-005	36-3051	0	6	IN	Benzo(b)fluoranthene	350	UG/KG	U
36-005	36-3050	0	6	IN	Benzo(b)fluoranthene	360	UG/KG	U
36-005	36-3050	0	6	IN	Benzo(b)fluoranthene	350	UG/KG	U
36-005	36-3049	0	6	IN	Benzo(b)fluoranthene	340	UG/KG	U
36-005	36-3048	0	6	IN	Benzo(b)fluoranthene	360	UG/KG	U
36-005	36-3047	0	6	IN	Benzo(b)fluoranthene	390	UG/KG	U
36-005	36-3046	0	6	IN	Benzo(b)fluoranthene	360	UG/KG	U
36-005	36-3045	0	6	IN	Benzo(b)fluoranthene	380	UG/KG	U
36-005	36-3044	0	6	IN	Benzo(b)fluoranthene	380	UG/KG	U
36-005	36-3043	0	6	IN	Benzo(b)fluoranthene	360	UG/KG	U
36-005	36-3042	0	6	IN	Benzo(b)fluoranthene	350	UG/KG	U
36-005	36-3042	0	6	IN	Benzo(b)fluoranthene	340	UG/KG	U
36-005	36-3041	0	6	IN	Benzo(b)fluoranthene	350	UG/KG	U
36-005	36-3040	0	6	IN	Benzo(b)fluoranthene	350	UG/KG	U
36-005	36-3039	0	6	IN	Benzo(b)fluoranthene	340	UG/KG	U
36-005	36-3038	0	6	IN	Benzo(b)fluoranthene	360	UG/KG	U
36-005	36-3037	0	6	IN	Benzo(b)fluoranthene	350	UG/KG	U
36-005	36-3036	0	6	IN	Benzo(b)fluoranthene	340	UG/KG	U
36-005	36-3035	0	6	IN	Benzo(b)fluoranthene	350	UG/KG	U
36-005	36-3034	0	6	IN	Benzo(b)fluoranthene	350	UG/KG	U
36-005	36-3034	0	6	IN	Benzo(b)fluoranthene	350	UG/KG	U
36-005	36-3026	0	6	IN	Benzo(b)fluoranthene	140000	UG/KG	U
36-005	36-3025	0	6	IN	Benzo(b)fluoranthene	360	UG/KG	U
36-005	36-3024	0	6	IN	Benzo(b)fluoranthene	400	UG/KG	U
36-005	36-3023	0	6	IN	Benzo(b)fluoranthene	370	UG/KG	U
36-005	36-3022	0	6	IN	Benzo(b)fluoranthene	360	UG/KG	U
36-005	36-3021	0	6	IN	Benzo(b)fluoranthene	400	UG/KG	U
36-005	36-3020	0	6	IN	Benzo(b)fluoranthene	370	UG/KG	U
36-005	36-3019	0	6	IN	Benzo(b)fluoranthene	370	UG/KG	U
36-005	36-3018	0	6	IN	Benzo(b)fluoranthene	350	UG/KG	U
36-005	36-3018	0	6	IN	Benzo(b)fluoranthene	370	UG/KG	U
36-005	36-3051	0	6	IN	Benzo(g,h,i)perylene	350	UG/KG	U
36-005	36-3050	0	6	IN	Benzo(g,h,i)perylene	360	UG/KG	U
36-005	36-3050	0	6	IN	Benzo(g,h,i)perylene	350	UG/KG	U
36-005	36-3049	0	6	IN	Benzo(g,h,i)perylene	340	UG/KG	U
36-005	36-3048	0	6	IN	Benzo(g,h,i)perylene	360	UG/KG	U
36-005	36-3047	0	6	IN	Benzo(g,h,i)perylene	390	UG/KG	U
36-005	36-3046	0	6	IN	Benzo(g,h,i)perylene	360	UG/KG	U
36-005	36-3045	0	6	IN	Benzo(g,h,i)perylene	380	UG/KG	U
36-005	36-3044	0	6	IN	Benzo(g,h,i)perylene	380	UG/KG	U
36-005	36-3043	0	6	IN	Benzo(g,h,i)perylene	360	UG/KG	U
36-005	36-3042	0	6	IN	Benzo(g,h,i)perylene	350	UG/KG	U
36-005	36-3042	0	6	IN	Benzo(g,h,i)perylene	340	UG/KG	U
36-005	36-3041	0	6	IN	Benzo(g,h,i)perylene	350	UG/KG	U
36-005	36-3040	0	6	IN	Benzo(g,h,i)perylene	350	UG/KG	U

36-005	36-3039	0	6	IN	Benzo(g,h,i)perylene	340	UG/KG	U
36-005	36-3038	0	6	IN	Benzo(g,h,i)perylene	360	UG/KG	U
36-005	36-3037	0	6	IN	Benzo(g,h,i)perylene	350	UG/KG	U
36-005	36-3036	0	6	IN	Benzo(g,h,i)perylene	340	UG/KG	U
36-005	36-3035	0	6	IN	Benzo(g,h,i)perylene	350	UG/KG	U
36-005	36-3034	0	6	IN	Benzo(g,h,i)perylene	350	UG/KG	U
36-005	36-3034	0	6	IN	Benzo(g,h,i)perylene	350	UG/KG	U
36-005	36-3026	0	6	IN	Benzo(g,h,i)perylene	140000	UG/KG	U
36-005	36-3025	0	6	IN	Benzo(g,h,i)perylene	360	UG/KG	U
36-005	36-3024	0	6	IN	Benzo(g,h,i)perylene	400	UG/KG	U
36-005	36-3023	0	6	IN	Benzo(g,h,i)perylene	370	UG/KG	U
36-005	36-3022	0	6	IN	Benzo(g,h,i)perylene	360	UG/KG	U
36-005	36-3021	0	6	IN	Benzo(g,h,i)perylene	400	UG/KG	U
36-005	36-3020	0	6	IN	Benzo(g,h,i)perylene	370	UG/KG	U
36-005	36-3019	0	6	IN	Benzo(g,h,i)perylene	370	UG/KG	U
36-005	36-3018	0	6	IN	Benzo(g,h,i)perylene	350	UG/KG	U
36-005	36-3018	0	6	IN	Benzo(g,h,i)perylene	370	UG/KG	U
36-005	36-3051	0	6	IN	Benzo(k)fluoranthene	350	UG/KG	U
36-005	36-3050	0	6	IN	Benzo(k)fluoranthene	360	UG/KG	U
36-005	36-3050	0	6	IN	Benzo(k)fluoranthene	350	UG/KG	U
36-005	36-3049	0	6	IN	Benzo(k)fluoranthene	340	UG/KG	U
36-005	36-3048	0	6	IN	Benzo(k)fluoranthene	360	UG/KG	U
36-005	36-3047	0	6	IN	Benzo(k)fluoranthene	390	UG/KG	U
36-005	36-3046	0	6	IN	Benzo(k)fluoranthene	360	UG/KG	U
36-005	36-3045	0	6	IN	Benzo(k)fluoranthene	380	UG/KG	U
36-005	36-3044	0	6	IN	Benzo(k)fluoranthene	380	UG/KG	U
36-005	36-3043	0	6	IN	Benzo(k)fluoranthene	360	UG/KG	U
36-005	36-3042	0	6	IN	Benzo(k)fluoranthene	350	UG/KG	U
36-005	36-3042	0	6	IN	Benzo(k)fluoranthene	340	UG/KG	U
36-005	36-3041	0	6	IN	Benzo(k)fluoranthene	350	UG/KG	U
36-005	36-3040	0	6	IN	Benzo(k)fluoranthene	350	UG/KG	U
36-005	36-3039	0	6	IN	Benzo(k)fluoranthene	340	UG/KG	U
36-005	36-3038	0	6	IN	Benzo(k)fluoranthene	360	UG/KG	U
36-005	36-3037	0	6	IN	Benzo(k)fluoranthene	350	UG/KG	U
36-005	36-3036	0	6	IN	Benzo(k)fluoranthene	340	UG/KG	U
36-005	36-3035	0	6	IN	Benzo(k)fluoranthene	350	UG/KG	U
36-005	36-3034	0	6	IN	Benzo(k)fluoranthene	350	UG/KG	U
36-005	36-3034	0	6	IN	Benzo(k)fluoranthene	350	UG/KG	U
36-005	36-3026	0	6	IN	Benzo(k)fluoranthene	140000	UG/KG	U
36-005	36-3025	0	6	IN	Benzo(k)fluoranthene	360	UG/KG	U
36-005	36-3024	0	6	IN	Benzo(k)fluoranthene	400	UG/KG	U
36-005	36-3023	0	6	IN	Benzo(k)fluoranthene	370	UG/KG	U
36-005	36-3022	0	6	IN	Benzo(k)fluoranthene	360	UG/KG	U
36-005	36-3021	0	6	IN	Benzo(k)fluoranthene	400	UG/KG	U
36-005	36-3020	0	6	IN	Benzo(k)fluoranthene	370	UG/KG	U
36-005	36-3019	0	6	IN	Benzo(k)fluoranthene	370	UG/KG	U
36-005	36-3018	0	6	IN	Benzo(k)fluoranthene	350	UG/KG	U
36-005	36-3018	0	6	IN	Benzo(k)fluoranthene	370	UG/KG	U
36-005	36-3051	0	6	IN	Benzoic Acid	1800	UG/KG	U
36-005	36-3050	0	6	IN	Benzoic Acid	1800	UG/KG	U
36-005	36-3050	0	6	IN	Benzoic Acid	1700	UG/KG	U
36-005	36-3049	0	6	IN	Benzoic Acid	1700	UG/KG	U
36-005	36-3048	0	6	IN	Benzoic Acid	1800	UG/KG	U
36-005	36-3047	0	6	IN	Benzoic Acid	2000	UG/KG	U
36-005	36-3046	0	6	IN	Benzoic Acid	1800	UG/KG	U
36-005	36-3045	0	6	IN	Benzoic Acid	1900	UG/KG	U
36-005	36-3044	0	6	IN	Benzoic Acid	1900	UG/KG	U
36-005	36-3043	0	6	IN	Benzoic Acid	1800	UG/KG	U
36-005	36-3042	0	6	IN	Benzoic Acid	1700	UG/KG	U
36-005	36-3042	0	6	IN	Benzoic Acid	1700	UG/KG	U
36-005	36-3041	0	6	IN	Benzoic Acid	1700	UG/KG	U
36-005	36-3040	0	6	IN	Benzoic Acid	1700	UG/KG	U
36-005	36-3039	0	6	IN	Benzoic Acid	1700	UG/KG	U
36-005	36-3038	0	6	IN	Benzoic Acid	1800	UG/KG	U
36-005	36-3037	0	6	IN	Benzoic Acid	1700	UG/KG	U
36-005	36-3036	0	6	IN	Benzoic Acid	1700	UG/KG	U
36-005	36-3035	0	6	IN	Benzoic Acid	1800	UG/KG	U
36-005	36-3034	0	6	IN	Benzoic Acid	1700	UG/KG	U
36-005	36-3034	0	6	IN	Benzoic Acid	1800	UG/KG	U
36-005	36-3026	0	6	IN	Benzoic Acid	680000	UG/KG	U
36-005	36-3025	0	6	IN	Benzoic Acid	1800	UG/KG	U
36-005	36-3024	0	6	IN	Benzoic Acid	2000	UG/KG	U
36-005	36-3023	0	6	IN	Benzoic Acid	1900	UG/KG	U
36-005	36-3022	0	6	IN	Benzoic Acid	1800	UG/KG	U

36-005	36-3021	0	6	IN	Benzoic Acid	2000	UG/KG	U
36-005	36-3020	0	6	IN	Benzoic Acid	1900	UG/KG	U
36-005	36-3019	0	6	IN	Benzoic Acid	1900	UG/KG	U
36-005	36-3018	0	6	IN	Benzoic Acid	1700	UG/KG	U
36-005	36-3018	0	6	IN	Benzoic Acid	1800	UG/KG	U
36-005	36-3051	0	6	IN	Benzyl Alcohol	710	UG/KG	U
36-005	36-3050	0	6	IN	Benzyl Alcohol	710	UG/KG	U
36-005	36-3050	0	6	IN	Benzyl Alcohol	700	UG/KG	U
36-005	36-3049	0	6	IN	Benzyl Alcohol	680	UG/KG	U
36-005	36-3048	0	6	IN	Benzyl Alcohol	730	UG/KG	U
36-005	36-3047	0	6	IN	Benzyl Alcohol	780	UG/KG	U
36-005	36-3046	0	6	IN	Benzyl Alcohol	720	UG/KG	U
36-005	36-3045	0	6	IN	Benzyl Alcohol	760	UG/KG	U
36-005	36-3044	0	6	IN	Benzyl Alcohol	760	UG/KG	U
36-005	36-3043	0	6	IN	Benzyl Alcohol	730	UG/KG	U
36-005	36-3042	0	6	IN	Benzyl Alcohol	700	UG/KG	U
36-005	36-3042	0	6	IN	Benzyl Alcohol	690	UG/KG	U
36-005	36-3041	0	6	IN	Benzyl Alcohol	690	UG/KG	U
36-005	36-3040	0	6	IN	Benzyl Alcohol	690	UG/KG	U
36-005	36-3039	0	6	IN	Benzyl Alcohol	670	UG/KG	U
36-005	36-3038	0	6	IN	Benzyl Alcohol	710	UG/KG	U
36-005	36-3037	0	6	IN	Benzyl Alcohol	690	UG/KG	U
36-005	36-3036	0	6	IN	Benzyl Alcohol	680	UG/KG	U
36-005	36-3035	0	6	IN	Benzyl Alcohol	710	UG/KG	U
36-005	36-3034	0	6	IN	Benzyl Alcohol	700	UG/KG	U
36-005	36-3034	0	6	IN	Benzyl Alcohol	710	UG/KG	U
36-005	36-3026	0	6	IN	Benzyl Alcohol	270000	UG/KG	U
36-005	36-3025	0	6	IN	Benzyl Alcohol	730	UG/KG	U
36-005	36-3024	0	6	IN	Benzyl Alcohol	800	UG/KG	U
36-005	36-3023	0	6	IN	Benzyl Alcohol	740	UG/KG	U
36-005	36-3022	0	6	IN	Benzyl Alcohol	710	UG/KG	U
36-005	36-3021	0	6	IN	Benzyl Alcohol	810	UG/KG	U
36-005	36-3020	0	6	IN	Benzyl Alcohol	740	UG/KG	U
36-005	36-3019	0	6	IN	Benzyl Alcohol	740	UG/KG	U
36-005	36-3018	0	6	IN	Benzyl Alcohol	690	UG/KG	U
36-005	36-3018	0	6	IN	Benzyl Alcohol	730	UG/KG	U
36-005	NA				Beryllium	0.52	MG/KG	U
36-005	36-3051	0	6	IN	Beryllium	0.45	MG/KG	U
36-005	36-3050	0	6	IN	Beryllium	0.91	MG/KG	U
36-005	36-3050	0	6	IN	Beryllium	0.86	MG/KG	U
36-005	36-3049	0	6	IN	Beryllium	0.38	MG/KG	U
36-005	36-3048	0	6	IN	Beryllium	1.4	MG/KG	J
36-005	36-3047	0	6	IN	Beryllium	0.55	MG/KG	U
36-005	36-3046	0	6	IN	Beryllium	0.44	MG/KG	U
36-005	36-3045	0	6	IN	Beryllium	1.3	MG/KG	J
36-005	36-3044	0	6	IN	Beryllium	0.54	MG/KG	U
36-005	36-3043	0	6	IN	Beryllium	0.45	MG/KG	U
36-005	36-3042	0	6	IN	Beryllium	0.49	MG/KG	U
36-005	36-3042	0	6	IN	Beryllium	0.56	MG/KG	U
36-005	36-3041	0	6	IN	Beryllium	0.65	MG/KG	
36-005	36-3040	0	6	IN	Beryllium	0.55	MG/KG	
36-005	36-3039	0	6	IN	Beryllium	0.5	MG/KG	U
36-005	36-3038	0	6	IN	Beryllium	0.71	MG/KG	
36-005	36-3037	0	6	IN	Beryllium	0.59	MG/KG	
36-005	36-3036	0	6	IN	Beryllium	0.7	MG/KG	
36-005	36-3035	0	6	IN	Beryllium	1.2	MG/KG	
36-005	36-3034	0	6	IN	Beryllium	0.69	MG/KG	
36-005	36-3034	0	6	IN	Beryllium	0.75	MG/KG	
36-005	36-3026	0	6	IN	Beryllium	0.5	MG/KG	U
36-005	36-3025	0	6	IN	Beryllium	0.55	MG/KG	U
36-005	36-3024	0	6	IN	Beryllium	0.75	MG/KG	U
36-005	36-3023	0	6	IN	Beryllium	0.69	MG/KG	U
36-005	36-3022	0	6	IN	Beryllium	0.63	MG/KG	U
36-005	36-3021	0	6	IN	Beryllium	0.62	MG/KG	U
36-005	36-3020	0	6	IN	Beryllium	0.58	MG/KG	U
36-005	36-3019	0	6	IN	Beryllium	0.57	MG/KG	U
36-005	36-3018	0	6	IN	Beryllium	0.99	MG/KG	U
36-005	36-3018	0	6	IN	Beryllium	0.6	MG/KG	U
36-005	36-3051	0	6	IN	Bis(2-chloroethoxy)methane	350	UG/KG	U
36-005	36-3050	0	6	IN	Bis(2-chloroethoxy)methane	360	UG/KG	U
36-005	36-3050	0	6	IN	Bis(2-chloroethoxy)methane	350	UG/KG	U
36-005	36-3049	0	6	IN	Bis(2-chloroethoxy)methane	340	UG/KG	U
36-005	36-3048	0	6	IN	Bis(2-chloroethoxy)methane	360	UG/KG	U
36-005	36-3047	0	6	IN	Bis(2-chloroethoxy)methane	390	UG/KG	U

36-005	36-3046	0	6	IN	Bis(2-chloroethoxy)methane	360	UG/KG	U
36-005	36-3045	0	6	IN	Bis(2-chloroethoxy)methane	380	UG/KG	U
36-005	36-3044	0	6	IN	Bis(2-chloroethoxy)methane	380	UG/KG	U
36-005	36-3043	0	6	IN	Bis(2-chloroethoxy)methane	360	UG/KG	U
36-005	36-3042	0	6	IN	Bis(2-chloroethoxy)methane	350	UG/KG	U
36-005	36-3042	0	6	IN	Bis(2-chloroethoxy)methane	340	UG/KG	U
36-005	36-3041	0	6	IN	Bis(2-chloroethoxy)methane	350	UG/KG	U
36-005	36-3040	0	6	IN	Bis(2-chloroethoxy)methane	350	UG/KG	U
36-005	36-3039	0	6	IN	Bis(2-chloroethoxy)methane	340	UG/KG	U
36-005	36-3038	0	6	IN	Bis(2-chloroethoxy)methane	360	UG/KG	U
36-005	36-3037	0	6	IN	Bis(2-chloroethoxy)methane	350	UG/KG	U
36-005	36-3036	0	6	IN	Bis(2-chloroethoxy)methane	340	UG/KG	U
36-005	36-3035	0	6	IN	Bis(2-chloroethoxy)methane	350	UG/KG	U
36-005	36-3034	0	6	IN	Bis(2-chloroethoxy)methane	350	UG/KG	U
36-005	36-3034	0	6	IN	Bis(2-chloroethoxy)methane	350	UG/KG	U
36-005	36-3026	0	6	IN	Bis(2-chloroethoxy)methane	140000	UG/KG	U
36-005	36-3025	0	6	IN	Bis(2-chloroethoxy)methane	360	UG/KG	U
36-005	36-3024	0	6	IN	Bis(2-chloroethoxy)methane	400	UG/KG	U
36-005	36-3023	0	6	IN	Bis(2-chloroethoxy)methane	370	UG/KG	U
36-005	36-3022	0	6	IN	Bis(2-chloroethoxy)methane	360	UG/KG	U
36-005	36-3021	0	6	IN	Bis(2-chloroethoxy)methane	400	UG/KG	U
36-005	36-3020	0	6	IN	Bis(2-chloroethoxy)methane	370	UG/KG	U
36-005	36-3019	0	6	IN	Bis(2-chloroethoxy)methane	370	UG/KG	U
36-005	36-3018	0	6	IN	Bis(2-chloroethoxy)methane	350	UG/KG	U
36-005	36-3018	0	6	IN	Bis(2-chloroethoxy)methane	370	UG/KG	U
36-005	36-3051	0	6	IN	Bis(2-chloroethyl)ether	350	UG/KG	U
36-005	36-3050	0	6	IN	Bis(2-chloroethyl)ether	360	UG/KG	U
36-005	36-3050	0	6	IN	Bis(2-chloroethyl)ether	350	UG/KG	U
36-005	36-3049	0	6	IN	Bis(2-chloroethyl)ether	340	UG/KG	U
36-005	36-3048	0	6	IN	Bis(2-chloroethyl)ether	360	UG/KG	U
36-005	36-3047	0	6	IN	Bis(2-chloroethyl)ether	390	UG/KG	U
36-005	36-3046	0	6	IN	Bis(2-chloroethyl)ether	360	UG/KG	U
36-005	36-3045	0	6	IN	Bis(2-chloroethyl)ether	380	UG/KG	U
36-005	36-3044	0	6	IN	Bis(2-chloroethyl)ether	380	UG/KG	U
36-005	36-3043	0	6	IN	Bis(2-chloroethyl)ether	360	UG/KG	U
36-005	36-3042	0	6	IN	Bis(2-chloroethyl)ether	350	UG/KG	U
36-005	36-3042	0	6	IN	Bis(2-chloroethyl)ether	340	UG/KG	U
36-005	36-3041	0	6	IN	Bis(2-chloroethyl)ether	350	UG/KG	UJ
36-005	36-3040	0	6	IN	Bis(2-chloroethyl)ether	350	UG/KG	UJ
36-005	36-3039	0	6	IN	Bis(2-chloroethyl)ether	340	UG/KG	UJ
36-005	36-3038	0	6	IN	Bis(2-chloroethyl)ether	360	UG/KG	UJ
36-005	36-3037	0	6	IN	Bis(2-chloroethyl)ether	350	UG/KG	UJ
36-005	36-3036	0	6	IN	Bis(2-chloroethyl)ether	340	UG/KG	UJ
36-005	36-3035	0	6	IN	Bis(2-chloroethyl)ether	350	UG/KG	UJ
36-005	36-3034	0	6	IN	Bis(2-chloroethyl)ether	350	UG/KG	UJ
36-005	36-3034	0	6	IN	Bis(2-chloroethyl)ether	350	UG/KG	UJ
36-005	36-3026	0	6	IN	Bis(2-chloroethyl)ether	140000	UG/KG	U
36-005	36-3025	0	6	IN	Bis(2-chloroethyl)ether	360	UG/KG	U
36-005	36-3024	0	6	IN	Bis(2-chloroethyl)ether	400	UG/KG	U
36-005	36-3023	0	6	IN	Bis(2-chloroethyl)ether	370	UG/KG	U
36-005	36-3022	0	6	IN	Bis(2-chloroethyl)ether	360	UG/KG	U
36-005	36-3021	0	6	IN	Bis(2-chloroethyl)ether	400	UG/KG	U
36-005	36-3020	0	6	IN	Bis(2-chloroethyl)ether	370	UG/KG	U
36-005	36-3019	0	6	IN	Bis(2-chloroethyl)ether	370	UG/KG	U
36-005	36-3018	0	6	IN	Bis(2-chloroethyl)ether	350	UG/KG	U
36-005	36-3018	0	6	IN	Bis(2-chloroethyl)ether	370	UG/KG	U
36-005	36-3051	0	6	IN	Bis(2-ethylhexyl)phthalate	350	UG/KG	U
36-005	36-3050	0	6	IN	Bis(2-ethylhexyl)phthalate	360	UG/KG	U
36-005	36-3050	0	6	IN	Bis(2-ethylhexyl)phthalate	350	UG/KG	U
36-005	36-3049	0	6	IN	Bis(2-ethylhexyl)phthalate	340	UG/KG	U
36-005	36-3048	0	6	IN	Bis(2-ethylhexyl)phthalate	360	UG/KG	U
36-005	36-3047	0	6	IN	Bis(2-ethylhexyl)phthalate	390	UG/KG	U
36-005	36-3046	0	6	IN	Bis(2-ethylhexyl)phthalate	360	UG/KG	U
36-005	36-3045	0	6	IN	Bis(2-ethylhexyl)phthalate	380	UG/KG	U
36-005	36-3044	0	6	IN	Bis(2-ethylhexyl)phthalate	380	UG/KG	U
36-005	36-3043	0	6	IN	Bis(2-ethylhexyl)phthalate	360	UG/KG	U
36-005	36-3042	0	6	IN	Bis(2-ethylhexyl)phthalate	350	UG/KG	U
36-005	36-3042	0	6	IN	Bis(2-ethylhexyl)phthalate	340	UG/KG	U
36-005	36-3041	0	6	IN	Bis(2-ethylhexyl)phthalate	350	UG/KG	U
36-005	36-3040	0	6	IN	Bis(2-ethylhexyl)phthalate	350	UG/KG	U
36-005	36-3039	0	6	IN	Bis(2-ethylhexyl)phthalate	340	UG/KG	U
36-005	36-3038	0	6	IN	Bis(2-ethylhexyl)phthalate	360	UG/KG	U
36-005	36-3037	0	6	IN	Bis(2-ethylhexyl)phthalate	350	UG/KG	U
36-005	36-3036	0	6	IN	Bis(2-ethylhexyl)phthalate	340	UG/KG	U

36-005	36-3035	0	6	IN	Bis(2-ethylhexyl)phthalate	350	UG/KG	U
36-005	36-3034	0	6	IN	Bis(2-ethylhexyl)phthalate	350	UG/KG	U
36-005	36-3034	0	6	IN	Bis(2-ethylhexyl)phthalate	350	UG/KG	U
36-005	36-3026	0	6	IN	Bis(2-ethylhexyl)phthalate	140000	UG/KG	U
36-005	36-3025	0	6	IN	Bis(2-ethylhexyl)phthalate	360	UG/KG	U
36-005	36-3024	0	6	IN	Bis(2-ethylhexyl)phthalate	400	UG/KG	U
36-005	36-3023	0	6	IN	Bis(2-ethylhexyl)phthalate	370	UG/KG	U
36-005	36-3022	0	6	IN	Bis(2-ethylhexyl)phthalate	360	UG/KG	U
36-005	36-3021	0	6	IN	Bis(2-ethylhexyl)phthalate	400	UG/KG	U
36-005	36-3020	0	6	IN	Bis(2-ethylhexyl)phthalate	370	UG/KG	U
36-005	36-3019	0	6	IN	Bis(2-ethylhexyl)phthalate	370	UG/KG	U
36-005	36-3018	0	6	IN	Bis(2-ethylhexyl)phthalate	350	UG/KG	U
36-005	36-3018	0	6	IN	Bis(2-ethylhexyl)phthalate	370	UG/KG	U
36-005	36-3051	0	6	IN	Bromobenzene	5	UG/KG	U
36-005	36-3050	0	6	IN	Bromobenzene	6	UG/KG	U
36-005	36-3050	0	6	IN	Bromobenzene	6	UG/KG	U
36-005	36-3049	0	6	IN	Bromobenzene	6	UG/KG	U
36-005	36-3048	0	6	IN	Bromobenzene	6	UG/KG	UJ
36-005	36-3047	0	6	IN	Bromobenzene	6	UG/KG	U
36-005	36-3046	0	6	IN	Bromobenzene	6	UG/KG	U
36-005	36-3045	0	6	IN	Bromobenzene	6	UG/KG	UJ
36-005	36-3044	0	6	IN	Bromobenzene	6	UG/KG	UJ
36-005	36-3043	0	6	IN	Bromobenzene	5	UG/KG	U
36-005	36-3042	0	6	IN	Bromobenzene	6	UG/KG	UJ
36-005	36-3042	0	6	IN	Bromobenzene	5	UG/KG	UJ
36-005	36-3041	0	6	IN	Bromobenzene	5	UG/KG	U
36-005	36-3040	0	6	IN	Bromobenzene	5	UG/KG	U
36-005	36-3039	0	6	IN	Bromobenzene	5	UG/KG	U
36-005	36-3038	0	6	IN	Bromobenzene	6	UG/KG	U
36-005	36-3037	0	6	IN	Bromobenzene	5	UG/KG	U
36-005	36-3036	0	6	IN	Bromobenzene	6	UG/KG	U
36-005	36-3035	0	6	IN	Bromobenzene	6	UG/KG	U
36-005	36-3034	0	6	IN	Bromobenzene	6	UG/KG	U
36-005	36-3034	0	6	IN	Bromobenzene	5	UG/KG	U
36-005	36-3026	0	6	IN	Bromobenzene	25	UG/KG	U
36-005	36-3025	0	6	IN	Bromobenzene	5	UG/KG	U
36-005	36-3024	0	6	IN	Bromobenzene	6	UG/KG	U
36-005	36-3023	0	6	IN	Bromobenzene	6	UG/KG	UJ
36-005	36-3022	0	6	IN	Bromobenzene	6	UG/KG	U
36-005	36-3021	0	6	IN	Bromobenzene	6	UG/KG	UJ
36-005	36-3020	0	6	IN	Bromobenzene	6	UG/KG	UJ
36-005	36-3019	0	6	IN	Bromobenzene	6	UG/KG	U
36-005	36-3018	0	6	IN	Bromobenzene	6	UG/KG	U
36-005	36-3018	0	6	IN	Bromobenzene	6	UG/KG	U
36-005	36-3051	0	6	IN	Bromochloromethane	5	UG/KG	U
36-005	36-3050	0	6	IN	Bromochloromethane	6	UG/KG	U
36-005	36-3050	0	6	IN	Bromochloromethane	6	UG/KG	U
36-005	36-3049	0	6	IN	Bromochloromethane	6	UG/KG	U
36-005	36-3048	0	6	IN	Bromochloromethane	6	UG/KG	U
36-005	36-3047	0	6	IN	Bromochloromethane	6	UG/KG	U
36-005	36-3046	0	6	IN	Bromochloromethane	6	UG/KG	U
36-005	36-3045	0	6	IN	Bromochloromethane	6	UG/KG	U
36-005	36-3044	0	6	IN	Bromochloromethane	6	UG/KG	U
36-005	36-3043	0	6	IN	Bromochloromethane	5	UG/KG	U
36-005	36-3042	0	6	IN	Bromochloromethane	6	UG/KG	U
36-005	36-3042	0	6	IN	Bromochloromethane	5	UG/KG	U
36-005	36-3041	0	6	IN	Bromochloromethane	5	UG/KG	U
36-005	36-3040	0	6	IN	Bromochloromethane	5	UG/KG	U
36-005	36-3039	0	6	IN	Bromochloromethane	5	UG/KG	U
36-005	36-3038	0	6	IN	Bromochloromethane	6	UG/KG	U
36-005	36-3037	0	6	IN	Bromochloromethane	5	UG/KG	U
36-005	36-3036	0	6	IN	Bromochloromethane	6	UG/KG	U
36-005	36-3035	0	6	IN	Bromochloromethane	6	UG/KG	U
36-005	36-3034	0	6	IN	Bromochloromethane	6	UG/KG	U
36-005	36-3034	0	6	IN	Bromochloromethane	5	UG/KG	U
36-005	36-3026	0	6	IN	Bromochloromethane	25	UG/KG	U
36-005	36-3025	0	6	IN	Bromochloromethane	5	UG/KG	U
36-005	36-3024	0	6	IN	Bromochloromethane	6	UG/KG	U
36-005	36-3023	0	6	IN	Bromochloromethane	6	UG/KG	U
36-005	36-3022	0	6	IN	Bromochloromethane	6	UG/KG	U
36-005	36-3021	0	6	IN	Bromochloromethane	6	UG/KG	U
36-005	36-3020	0	6	IN	Bromochloromethane	6	UG/KG	U
36-005	36-3019	0	6	IN	Bromochloromethane	6	UG/KG	U
36-005	36-3018	0	6	IN	Bromochloromethane	6	UG/KG	U

36-005	36-3018	0	6	IN	Bromochloromethane	6	UG/KG	U
36-005	36-3051	0	6	IN	Bromodichloromethane	5	UG/KG	U
36-005	36-3050	0	6	IN	Bromodichloromethane	6	UG/KG	U
36-005	36-3050	0	6	IN	Bromodichloromethane	6	UG/KG	U
36-005	36-3049	0	6	IN	Bromodichloromethane	6	UG/KG	U
36-005	36-3048	0	6	IN	Bromodichloromethane	6	UG/KG	U
36-005	36-3047	0	6	IN	Bromodichloromethane	6	UG/KG	U
36-005	36-3046	0	6	IN	Bromodichloromethane	6	UG/KG	U
36-005	36-3045	0	6	IN	Bromodichloromethane	6	UG/KG	U
36-005	36-3044	0	6	IN	Bromodichloromethane	6	UG/KG	U
36-005	36-3043	0	6	IN	Bromodichloromethane	5	UG/KG	U
36-005	36-3042	0	6	IN	Bromodichloromethane	6	UG/KG	U
36-005	36-3042	0	6	IN	Bromodichloromethane	5	UG/KG	U
36-005	36-3041	0	6	IN	Bromodichloromethane	5	UG/KG	U
36-005	36-3040	0	6	IN	Bromodichloromethane	5	UG/KG	U
36-005	36-3039	0	6	IN	Bromodichloromethane	5	UG/KG	U
36-005	36-3038	0	6	IN	Bromodichloromethane	6	UG/KG	U
36-005	36-3037	0	6	IN	Bromodichloromethane	5	UG/KG	U
36-005	36-3036	0	6	IN	Bromodichloromethane	6	UG/KG	U
36-005	36-3035	0	6	IN	Bromodichloromethane	6	UG/KG	U
36-005	36-3034	0	6	IN	Bromodichloromethane	6	UG/KG	U
36-005	36-3034	0	6	IN	Bromodichloromethane	5	UG/KG	U
36-005	36-3026	0	6	IN	Bromodichloromethane	25	UG/KG	U
36-005	36-3025	0	6	IN	Bromodichloromethane	5	UG/KG	U
36-005	36-3024	0	6	IN	Bromodichloromethane	6	UG/KG	U
36-005	36-3023	0	6	IN	Bromodichloromethane	6	UG/KG	U
36-005	36-3022	0	6	IN	Bromodichloromethane	6	UG/KG	U
36-005	36-3021	0	6	IN	Bromodichloromethane	6	UG/KG	U
36-005	36-3020	0	6	IN	Bromodichloromethane	6	UG/KG	U
36-005	36-3019	0	6	IN	Bromodichloromethane	6	UG/KG	U
36-005	36-3018	0	6	IN	Bromodichloromethane	6	UG/KG	U
36-005	36-3018	0	6	IN	Bromodichloromethane	6	UG/KG	U
36-005	36-3051	0	6	IN	Bromoform	5	UG/KG	U
36-005	36-3050	0	6	IN	Bromoform	6	UG/KG	U
36-005	36-3050	0	6	IN	Bromoform	6	UG/KG	U
36-005	36-3049	0	6	IN	Bromoform	6	UG/KG	U
36-005	36-3048	0	6	IN	Bromoform	6	UG/KG	U
36-005	36-3047	0	6	IN	Bromoform	6	UG/KG	U
36-005	36-3046	0	6	IN	Bromoform	6	UG/KG	U
36-005	36-3045	0	6	IN	Bromoform	6	UG/KG	U
36-005	36-3044	0	6	IN	Bromoform	6	UG/KG	U
36-005	36-3043	0	6	IN	Bromoform	5	UG/KG	U
36-005	36-3042	0	6	IN	Bromoform	6	UG/KG	UJ
36-005	36-3042	0	6	IN	Bromoform	5	UG/KG	U
36-005	36-3041	0	6	IN	Bromoform	5	UG/KG	U
36-005	36-3040	0	6	IN	Bromoform	5	UG/KG	U
36-005	36-3039	0	6	IN	Bromoform	5	UG/KG	U
36-005	36-3038	0	6	IN	Bromoform	6	UG/KG	U
36-005	36-3037	0	6	IN	Bromoform	5	UG/KG	U
36-005	36-3036	0	6	IN	Bromoform	6	UG/KG	U
36-005	36-3035	0	6	IN	Bromoform	6	UG/KG	U
36-005	36-3034	0	6	IN	Bromoform	6	UG/KG	U
36-005	36-3034	0	6	IN	Bromoform	5	UG/KG	U
36-005	36-3026	0	6	IN	Bromoform	25	UG/KG	U
36-005	36-3025	0	6	IN	Bromoform	5	UG/KG	U
36-005	36-3024	0	6	IN	Bromoform	6	UG/KG	U
36-005	36-3023	0	6	IN	Bromoform	6	UG/KG	U
36-005	36-3022	0	6	IN	Bromoform	6	UG/KG	U
36-005	36-3021	0	6	IN	Bromoform	6	UG/KG	U
36-005	36-3020	0	6	IN	Bromoform	6	UG/KG	U
36-005	36-3019	0	6	IN	Bromoform	6	UG/KG	U
36-005	36-3018	0	6	IN	Bromoform	6	UG/KG	U
36-005	36-3018	0	6	IN	Bromoform	6	UG/KG	U
36-005	36-3051	0	6	IN	Bromomethane	10	UG/KG	U
36-005	36-3050	0	6	IN	Bromomethane	11	UG/KG	U
36-005	36-3050	0	6	IN	Bromomethane	11	UG/KG	U
36-005	36-3049	0	6	IN	Bromomethane	11	UG/KG	U
36-005	36-3048	0	6	IN	Bromomethane	11	UG/KG	U
36-005	36-3047	0	6	IN	Bromomethane	12	UG/KG	U
36-005	36-3046	0	6	IN	Bromomethane	11	UG/KG	U
36-005	36-3045	0	6	IN	Bromomethane	11	UG/KG	U
36-005	36-3044	0	6	IN	Bromomethane	11	UG/KG	U
36-005	36-3043	0	6	IN	Bromomethane	10	UG/KG	U
36-005	36-3042	0	6	IN	Bromomethane	11	UG/KG	U

36-005	36-3042	0	6	IN	Bromomethane	10	UG/KG	U
36-005	36-3041	0	6	IN	Bromomethane	10	UG/KG	U
36-005	36-3040	0	6	IN	Bromomethane	10	UG/KG	U
36-005	36-3039	0	6	IN	Bromomethane	10	UG/KG	U
36-005	36-3038	0	6	IN	Bromomethane	11	UG/KG	U
36-005	36-3037	0	6	IN	Bromomethane	10	UG/KG	U
36-005	36-3036	0	6	IN	Bromomethane	11	UG/KG	U
36-005	36-3035	0	6	IN	Bromomethane	11	UG/KG	U
36-005	36-3034	0	6	IN	Bromomethane	11	UG/KG	U
36-005	36-3034	0	6	IN	Bromomethane	10	UG/KG	U
36-005	36-3026	0	6	IN	Bromomethane	50	UG/KG	U
36-005	36-3025	0	6	IN	Bromomethane	10	UG/KG	U
36-005	36-3024	0	6	IN	Bromomethane	12	UG/KG	U
36-005	36-3023	0	6	IN	Bromomethane	11	UG/KG	U
36-005	36-3022	0	6	IN	Bromomethane	12	UG/KG	U
36-005	36-3021	0	6	IN	Bromomethane	12	UG/KG	U
36-005	36-3020	0	6	IN	Bromomethane	11	UG/KG	U
36-005	36-3019	0	6	IN	Bromomethane	11	UG/KG	U
36-005	36-3018	0	6	IN	Bromomethane	11	UG/KG	U
36-005	36-3018	0	6	IN	Bromomethane	11	UG/KG	U
36-005	36-3051	0	6	IN	Bromophenyl-phenylether[4-]	350	UG/KG	U
36-005	36-3050	0	6	IN	Bromophenyl-phenylether[4-]	360	UG/KG	U
36-005	36-3050	0	6	IN	Bromophenyl-phenylether[4-]	350	UG/KG	U
36-005	36-3049	0	6	IN	Bromophenyl-phenylether[4-]	340	UG/KG	U
36-005	36-3048	0	6	IN	Bromophenyl-phenylether[4-]	360	UG/KG	U
36-005	36-3047	0	6	IN	Bromophenyl-phenylether[4-]	390	UG/KG	U
36-005	36-3046	0	6	IN	Bromophenyl-phenylether[4-]	360	UG/KG	U
36-005	36-3045	0	6	IN	Bromophenyl-phenylether[4-]	380	UG/KG	U
36-005	36-3044	0	6	IN	Bromophenyl-phenylether[4-]	380	UG/KG	U
36-005	36-3043	0	6	IN	Bromophenyl-phenylether[4-]	360	UG/KG	U
36-005	36-3042	0	6	IN	Bromophenyl-phenylether[4-]	350	UG/KG	U
36-005	36-3042	0	6	IN	Bromophenyl-phenylether[4-]	340	UG/KG	U
36-005	36-3041	0	6	IN	Bromophenyl-phenylether[4-]	350	UG/KG	U
36-005	36-3040	0	6	IN	Bromophenyl-phenylether[4-]	350	UG/KG	U
36-005	36-3039	0	6	IN	Bromophenyl-phenylether[4-]	340	UG/KG	U
36-005	36-3038	0	6	IN	Bromophenyl-phenylether[4-]	360	UG/KG	U
36-005	36-3037	0	6	IN	Bromophenyl-phenylether[4-]	350	UG/KG	U
36-005	36-3036	0	6	IN	Bromophenyl-phenylether[4-]	340	UG/KG	U
36-005	36-3035	0	6	IN	Bromophenyl-phenylether[4-]	350	UG/KG	U
36-005	36-3034	0	6	IN	Bromophenyl-phenylether[4-]	350	UG/KG	U
36-005	36-3034	0	6	IN	Bromophenyl-phenylether[4-]	350	UG/KG	U
36-005	36-3026	0	6	IN	Bromophenyl-phenylether[4-]	140000	UG/KG	U
36-005	36-3025	0	6	IN	Bromophenyl-phenylether[4-]	360	UG/KG	U
36-005	36-3024	0	6	IN	Bromophenyl-phenylether[4-]	400	UG/KG	U
36-005	36-3023	0	6	IN	Bromophenyl-phenylether[4-]	370	UG/KG	U
36-005	36-3022	0	6	IN	Bromophenyl-phenylether[4-]	360	UG/KG	U
36-005	36-3021	0	6	IN	Bromophenyl-phenylether[4-]	400	UG/KG	U
36-005	36-3020	0	6	IN	Bromophenyl-phenylether[4-]	370	UG/KG	U
36-005	36-3019	0	6	IN	Bromophenyl-phenylether[4-]	370	UG/KG	U
36-005	36-3018	0	6	IN	Bromophenyl-phenylether[4-]	350	UG/KG	U
36-005	36-3018	0	6	IN	Bromophenyl-phenylether[4-]	370	UG/KG	U
36-005	36-3051	0	6	IN	Butanone[2-]	20	UG/KG	U
36-005	36-3050	0	6	IN	Butanone[2-]	22	UG/KG	U
36-005	36-3050	0	6	IN	Butanone[2-]	22	UG/KG	U
36-005	36-3049	0	6	IN	Butanone[2-]	22	UG/KG	U
36-005	36-3048	0	6	IN	Butanone[2-]	22	UG/KG	U
36-005	36-3047	0	6	IN	Butanone[2-]	24	UG/KG	U
36-005	36-3046	0	6	IN	Butanone[2-]	22	UG/KG	U
36-005	36-3045	0	6	IN	Butanone[2-]	22	UG/KG	U
36-005	36-3044	0	6	IN	Butanone[2-]	22	UG/KG	U
36-005	36-3043	0	6	IN	Butanone[2-]	20	UG/KG	U
36-005	36-3042	0	6	IN	Butanone[2-]	22	UG/KG	U
36-005	36-3042	0	6	IN	Butanone[2-]	20	UG/KG	U
36-005	36-3041	0	6	IN	Butanone[2-]	20	UG/KG	U
36-005	36-3040	0	6	IN	Butanone[2-]	20	UG/KG	U
36-005	36-3039	0	6	IN	Butanone[2-]	20	UG/KG	U
36-005	36-3038	0	6	IN	Butanone[2-]	22	UG/KG	U
36-005	36-3037	0	6	IN	Butanone[2-]	20	UG/KG	U
36-005	36-3036	0	6	IN	Butanone[2-]	22	UG/KG	U
36-005	36-3035	0	6	IN	Butanone[2-]	22	UG/KG	U
36-005	36-3034	0	6	IN	Butanone[2-]	22	UG/KG	U
36-005	36-3034	0	6	IN	Butanone[2-]	20	UG/KG	U
36-005	36-3026	0	6	IN	Butanone[2-]	100	UG/KG	U
36-005	36-3025	0	6	IN	Butanone[2-]	20	UG/KG	U

36-005	36-3024	0	6	IN	Butanone[2-]	24	UG/KG	U
36-005	36-3023	0	6	IN	Butanone[2-]	22	UG/KG	U
36-005	36-3022	0	6	IN	Butanone[2-]	24	UG/KG	U
36-005	36-3021	0	6	IN	Butanone[2-]	24	UG/KG	U
36-005	36-3020	0	6	IN	Butanone[2-]	22	UG/KG	U
36-005	36-3019	0	6	IN	Butanone[2-]	22	UG/KG	U
36-005	36-3018	0	6	IN	Butanone[2-]	22	UG/KG	U
36-005	36-3018	0	6	IN	Butanone[2-]	22	UG/KG	U
36-005	36-3051	0	6	IN	Butylbenzene[n-]	5	UG/KG	U
36-005	36-3050	0	6	IN	Butylbenzene[n-]	6	UG/KG	U
36-005	36-3050	0	6	IN	Butylbenzene[n-]	6	UG/KG	U
36-005	36-3049	0	6	IN	Butylbenzene[n-]	6	UG/KG	U
36-005	36-3048	0	6	IN	Butylbenzene[n-]	6	UG/KG	UJ
36-005	36-3047	0	6	IN	Butylbenzene[n-]	6	UG/KG	U
36-005	36-3046	0	6	IN	Butylbenzene[n-]	6	UG/KG	U
36-005	36-3045	0	6	IN	Butylbenzene[n-]	6	UG/KG	UJ
36-005	36-3044	0	6	IN	Butylbenzene[n-]	6	UG/KG	UJ
36-005	36-3043	0	6	IN	Butylbenzene[n-]	5	UG/KG	U
36-005	36-3042	0	6	IN	Butylbenzene[n-]	6	UG/KG	UJ
36-005	36-3042	0	6	IN	Butylbenzene[n-]	5	UG/KG	UJ
36-005	36-3041	0	6	IN	Butylbenzene[n-]	5	UG/KG	U
36-005	36-3040	0	6	IN	Butylbenzene[n-]	5	UG/KG	U
36-005	36-3039	0	6	IN	Butylbenzene[n-]	5	UG/KG	U
36-005	36-3038	0	6	IN	Butylbenzene[n-]	6	UG/KG	U
36-005	36-3037	0	6	IN	Butylbenzene[n-]	5	UG/KG	U
36-005	36-3036	0	6	IN	Butylbenzene[n-]	6	UG/KG	U
36-005	36-3035	0	6	IN	Butylbenzene[n-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Butylbenzene[n-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Butylbenzene[n-]	5	UG/KG	U
36-005	36-3026	0	6	IN	Butylbenzene[n-]	25	UG/KG	U
36-005	36-3025	0	6	IN	Butylbenzene[n-]	5	UG/KG	U
36-005	36-3024	0	6	IN	Butylbenzene[n-]	6	UG/KG	U
36-005	36-3023	0	6	IN	Butylbenzene[n-]	6	UG/KG	UJ
36-005	36-3022	0	6	IN	Butylbenzene[n-]	6	UG/KG	U
36-005	36-3021	0	6	IN	Butylbenzene[n-]	6	UG/KG	UJ
36-005	36-3020	0	6	IN	Butylbenzene[n-]	6	UG/KG	UJ
36-005	36-3019	0	6	IN	Butylbenzene[n-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Butylbenzene[n-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Butylbenzene[n-]	6	UG/KG	U
36-005	36-3051	0	6	IN	Butylbenzene[sec-]	5	UG/KG	U
36-005	36-3050	0	6	IN	Butylbenzene[sec-]	6	UG/KG	U
36-005	36-3050	0	6	IN	Butylbenzene[sec-]	6	UG/KG	U
36-005	36-3049	0	6	IN	Butylbenzene[sec-]	6	UG/KG	U
36-005	36-3048	0	6	IN	Butylbenzene[sec-]	6	UG/KG	UJ
36-005	36-3047	0	6	IN	Butylbenzene[sec-]	6	UG/KG	U
36-005	36-3046	0	6	IN	Butylbenzene[sec-]	6	UG/KG	U
36-005	36-3045	0	6	IN	Butylbenzene[sec-]	6	UG/KG	UJ
36-005	36-3044	0	6	IN	Butylbenzene[sec-]	6	UG/KG	UJ
36-005	36-3043	0	6	IN	Butylbenzene[sec-]	5	UG/KG	U
36-005	36-3042	0	6	IN	Butylbenzene[sec-]	6	UG/KG	UJ
36-005	36-3042	0	6	IN	Butylbenzene[sec-]	5	UG/KG	UJ
36-005	36-3041	0	6	IN	Butylbenzene[sec-]	5	UG/KG	U
36-005	36-3040	0	6	IN	Butylbenzene[sec-]	5	UG/KG	U
36-005	36-3039	0	6	IN	Butylbenzene[sec-]	5	UG/KG	U
36-005	36-3038	0	6	IN	Butylbenzene[sec-]	6	UG/KG	U
36-005	36-3037	0	6	IN	Butylbenzene[sec-]	5	UG/KG	U
36-005	36-3036	0	6	IN	Butylbenzene[sec-]	6	UG/KG	U
36-005	36-3035	0	6	IN	Butylbenzene[sec-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Butylbenzene[sec-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Butylbenzene[sec-]	5	UG/KG	U
36-005	36-3026	0	6	IN	Butylbenzene[sec-]	25	UG/KG	U
36-005	36-3025	0	6	IN	Butylbenzene[sec-]	5	UG/KG	U
36-005	36-3024	0	6	IN	Butylbenzene[sec-]	6	UG/KG	U
36-005	36-3023	0	6	IN	Butylbenzene[sec-]	6	UG/KG	UJ
36-005	36-3022	0	6	IN	Butylbenzene[sec-]	6	UG/KG	U
36-005	36-3021	0	6	IN	Butylbenzene[sec-]	6	UG/KG	UJ
36-005	36-3020	0	6	IN	Butylbenzene[sec-]	6	UG/KG	UJ
36-005	36-3019	0	6	IN	Butylbenzene[sec-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Butylbenzene[sec-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Butylbenzene[sec-]	6	UG/KG	U
36-005	36-3051	0	6	IN	Butylbenzene[tert-]	5	UG/KG	U
36-005	36-3050	0	6	IN	Butylbenzene[tert-]	6	UG/KG	U
36-005	36-3050	0	6	IN	Butylbenzene[tert-]	6	UG/KG	U
36-005	36-3049	0	6	IN	Butylbenzene[tert-]	6	UG/KG	U

36-005	36-3048	0	6	IN	Butylbenzene[tert-]	6	UG/KG	UJ
36-005	36-3047	0	6	IN	Butylbenzene[tert-]	6	UG/KG	U
36-005	36-3046	0	6	IN	Butylbenzene[tert-]	6	UG/KG	U
36-005	36-3045	0	6	IN	Butylbenzene[tert-]	6	UG/KG	UJ
36-005	36-3044	0	6	IN	Butylbenzene[tert-]	6	UG/KG	UJ
36-005	36-3043	0	6	IN	Butylbenzene[tert-]	5	UG/KG	U
36-005	36-3042	0	6	IN	Butylbenzene[tert-]	6	UG/KG	UJ
36-005	36-3042	0	6	IN	Butylbenzene[tert-]	5	UG/KG	UJ
36-005	36-3041	0	6	IN	Butylbenzene[tert-]	5	UG/KG	U
36-005	36-3040	0	6	IN	Butylbenzene[tert-]	5	UG/KG	U
36-005	36-3039	0	6	IN	Butylbenzene[tert-]	5	UG/KG	U
36-005	36-3038	0	6	IN	Butylbenzene[tert-]	6	UG/KG	U
36-005	36-3037	0	6	IN	Butylbenzene[tert-]	5	UG/KG	U
36-005	36-3036	0	6	IN	Butylbenzene[tert-]	6	UG/KG	U
36-005	36-3035	0	6	IN	Butylbenzene[tert-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Butylbenzene[tert-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Butylbenzene[tert-]	5	UG/KG	U
36-005	36-3026	0	6	IN	Butylbenzene[tert-]	25	UG/KG	U
36-005	36-3025	0	6	IN	Butylbenzene[tert-]	5	UG/KG	U
36-005	36-3024	0	6	IN	Butylbenzene[tert-]	6	UG/KG	U
36-005	36-3023	0	6	IN	Butylbenzene[tert-]	6	UG/KG	UJ
36-005	36-3022	0	6	IN	Butylbenzene[tert-]	6	UG/KG	U
36-005	36-3021	0	6	IN	Butylbenzene[tert-]	6	UG/KG	UJ
36-005	36-3020	0	6	IN	Butylbenzene[tert-]	6	UG/KG	UJ
36-005	36-3019	0	6	IN	Butylbenzene[tert-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Butylbenzene[tert-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Butylbenzene[tert-]	6	UG/KG	U
36-005	36-3051	0	6	IN	Butylbenzylphthalate	350	UG/KG	U
36-005	36-3050	0	6	IN	Butylbenzylphthalate	360	UG/KG	U
36-005	36-3050	0	6	IN	Butylbenzylphthalate	350	UG/KG	U
36-005	36-3049	0	6	IN	Butylbenzylphthalate	340	UG/KG	U
36-005	36-3048	0	6	IN	Butylbenzylphthalate	360	UG/KG	U
36-005	36-3047	0	6	IN	Butylbenzylphthalate	390	UG/KG	U
36-005	36-3046	0	6	IN	Butylbenzylphthalate	360	UG/KG	U
36-005	36-3045	0	6	IN	Butylbenzylphthalate	380	UG/KG	U
36-005	36-3044	0	6	IN	Butylbenzylphthalate	380	UG/KG	U
36-005	36-3043	0	6	IN	Butylbenzylphthalate	360	UG/KG	U
36-005	36-3042	0	6	IN	Butylbenzylphthalate	350	UG/KG	U
36-005	36-3042	0	6	IN	Butylbenzylphthalate	340	UG/KG	U
36-005	36-3041	0	6	IN	Butylbenzylphthalate	350	UG/KG	U
36-005	36-3040	0	6	IN	Butylbenzylphthalate	350	UG/KG	U
36-005	36-3039	0	6	IN	Butylbenzylphthalate	340	UG/KG	U
36-005	36-3038	0	6	IN	Butylbenzylphthalate	360	UG/KG	U
36-005	36-3037	0	6	IN	Butylbenzylphthalate	350	UG/KG	U
36-005	36-3036	0	6	IN	Butylbenzylphthalate	340	UG/KG	U
36-005	36-3035	0	6	IN	Butylbenzylphthalate	350	UG/KG	U
36-005	36-3034	0	6	IN	Butylbenzylphthalate	350	UG/KG	U
36-005	36-3034	0	6	IN	Butylbenzylphthalate	350	UG/KG	U
36-005	36-3026	0	6	IN	Butylbenzylphthalate	140000	UG/KG	U
36-005	36-3025	0	6	IN	Butylbenzylphthalate	360	UG/KG	U
36-005	36-3024	0	6	IN	Butylbenzylphthalate	400	UG/KG	U
36-005	36-3023	0	6	IN	Butylbenzylphthalate	370	UG/KG	U
36-005	36-3022	0	6	IN	Butylbenzylphthalate	360	UG/KG	U
36-005	36-3021	0	6	IN	Butylbenzylphthalate	400	UG/KG	U
36-005	36-3020	0	6	IN	Butylbenzylphthalate	370	UG/KG	U
36-005	36-3019	0	6	IN	Butylbenzylphthalate	370	UG/KG	U
36-005	36-3018	0	6	IN	Butylbenzylphthalate	350	UG/KG	U
36-005	36-3018	0	6	IN	Butylbenzylphthalate	370	UG/KG	U
36-005	NA				Cadmium	13	MG/KG	
36-005	36-3051	0	6	IN	Cadmium	0.39	MG/KG	U
36-005	36-3050	0	6	IN	Cadmium	0.51	MG/KG	U
36-005	36-3050	0	6	IN	Cadmium	0.38	MG/KG	U
36-005	36-3049	0	6	IN	Cadmium	0.4	MG/KG	U
36-005	36-3048	0	6	IN	Cadmium	0.48	MG/KG	U
36-005	36-3047	0	6	IN	Cadmium	0.42	MG/KG	U
36-005	36-3046	0	6	IN	Cadmium	0.38	MG/KG	U
36-005	36-3045	0	6	IN	Cadmium	0.42	MG/KG	U
36-005	36-3044	0	6	IN	Cadmium	0.41	MG/KG	U
36-005	36-3043	0	6	IN	Cadmium	0.39	MG/KG	U
36-005	36-3042	0	6	IN	Cadmium	0.37	MG/KG	U
36-005	36-3042	0	6	IN	Cadmium	0.37	MG/KG	U
36-005	36-3041	0	6	IN	Cadmium	0.52	MG/KG	U
36-005	36-3040	0	6	IN	Cadmium	0.55	MG/KG	
36-005	36-3039	0	6	IN	Cadmium	0.5	MG/KG	U

36-005	36-3038	0	6	IN	Cadmium	0.54	MG/KG	U
36-005	36-3037	0	6	IN	Cadmium	0.52	MG/KG	U
36-005	36-3036	0	6	IN	Cadmium	0.52	MG/KG	U
36-005	36-3035	0	6	IN	Cadmium	0.53	MG/KG	U
36-005	36-3034	0	6	IN	Cadmium	0.52	MG/KG	U
36-005	36-3034	0	6	IN	Cadmium	0.53	MG/KG	U
36-005	36-3026	0	6	IN	Cadmium	0.38	MG/KG	U
36-005	36-3025	0	6	IN	Cadmium	0.39	MG/KG	U
36-005	36-3024	0	6	IN	Cadmium	0.41	MG/KG	U
36-005	36-3023	0	6	IN	Cadmium	0.42	MG/KG	U
36-005	36-3022	0	6	IN	Cadmium	0.44	MG/KG	U
36-005	36-3021	0	6	IN	Cadmium	0.44	MG/KG	U
36-005	36-3020	0	6	IN	Cadmium	0.41	MG/KG	U
36-005	36-3019	0	6	IN	Cadmium	0.4	MG/KG	U
36-005	36-3018	0	6	IN	Cadmium	0.41	MG/KG	U
36-005	36-3018	0	6	IN	Cadmium	0.42	MG/KG	U
36-005	NA				Calcium	22100	MG/KG	
36-005	36-3051	0	6	IN	Calcium	916	MG/KG	U
36-005	36-3050	0	6	IN	Calcium	2040	MG/KG	
36-005	36-3050	0	6	IN	Calcium	2080	MG/KG	
36-005	36-3049	0	6	IN	Calcium	614	MG/KG	U
36-005	36-3048	0	6	IN	Calcium	2900	MG/KG	
36-005	36-3047	0	6	IN	Calcium	1530	MG/KG	
36-005	36-3046	0	6	IN	Calcium	1120	MG/KG	
36-005	36-3045	0	6	IN	Calcium	5770	MG/KG	
36-005	36-3044	0	6	IN	Calcium	1870	MG/KG	
36-005	36-3043	0	6	IN	Calcium	1150	MG/KG	
36-005	36-3042	0	6	IN	Calcium	4780	MG/KG	
36-005	36-3042	0	6	IN	Calcium	4060	MG/KG	
36-005	36-3041	0	6	IN	Calcium	1200	MG/KG	
36-005	36-3040	0	6	IN	Calcium	3330	MG/KG	
36-005	36-3039	0	6	IN	Calcium	1590	MG/KG	
36-005	36-3038	0	6	IN	Calcium	1450	MG/KG	
36-005	36-3037	0	6	IN	Calcium	1870	MG/KG	
36-005	36-3036	0	6	IN	Calcium	1760	MG/KG	
36-005	36-3035	0	6	IN	Calcium	3570	MG/KG	
36-005	36-3034	0	6	IN	Calcium	1640	MG/KG	
36-005	36-3034	0	6	IN	Calcium	1720	MG/KG	
36-005	36-3026	0	6	IN	Calcium	1340	MG/KG	
36-005	36-3025	0	6	IN	Calcium	811	MG/KG	UJ
36-005	36-3024	0	6	IN	Calcium	1590	MG/KG	J
36-005	36-3023	0	6	IN	Calcium	2500	MG/KG	J
36-005	36-3022	0	6	IN	Calcium	1830	MG/KG	J
36-005	36-3021	0	6	IN	Calcium	2130	MG/KG	J
36-005	36-3020	0	6	IN	Calcium	2030	MG/KG	J
36-005	36-3019	0	6	IN	Calcium	2170	MG/KG	J
36-005	36-3018	0	6	IN	Calcium	1760	MG/KG	J
36-005	36-3018	0	6	IN	Calcium	1500	MG/KG	J
36-005	36-3051	0	6	IN	Carbon Disulfide	5	UG/KG	U
36-005	36-3050	0	6	IN	Carbon Disulfide	6	UG/KG	U
36-005	36-3050	0	6	IN	Carbon Disulfide	6	UG/KG	U
36-005	36-3049	0	6	IN	Carbon Disulfide	6	UG/KG	U
36-005	36-3048	0	6	IN	Carbon Disulfide	6	UG/KG	U
36-005	36-3047	0	6	IN	Carbon Disulfide	6	UG/KG	U
36-005	36-3046	0	6	IN	Carbon Disulfide	6	UG/KG	U
36-005	36-3045	0	6	IN	Carbon Disulfide	6	UG/KG	U
36-005	36-3044	0	6	IN	Carbon Disulfide	6	UG/KG	U
36-005	36-3043	0	6	IN	Carbon Disulfide	5	UG/KG	U
36-005	36-3042	0	6	IN	Carbon Disulfide	6	UG/KG	U
36-005	36-3042	0	6	IN	Carbon Disulfide	5	UG/KG	U
36-005	36-3041	0	6	IN	Carbon Disulfide	5	UG/KG	U
36-005	36-3040	0	6	IN	Carbon Disulfide	5	UG/KG	U
36-005	36-3039	0	6	IN	Carbon Disulfide	5	UG/KG	U
36-005	36-3038	0	6	IN	Carbon Disulfide	6	UG/KG	U
36-005	36-3037	0	6	IN	Carbon Disulfide	5	UG/KG	U
36-005	36-3036	0	6	IN	Carbon Disulfide	6	UG/KG	U
36-005	36-3035	0	6	IN	Carbon Disulfide	6	UG/KG	U
36-005	36-3034	0	6	IN	Carbon Disulfide	6	UG/KG	U
36-005	36-3034	0	6	IN	Carbon Disulfide	5	UG/KG	U
36-005	36-3026	0	6	IN	Carbon Disulfide	25	UG/KG	U
36-005	36-3025	0	6	IN	Carbon Disulfide	5	UG/KG	U
36-005	36-3024	0	6	IN	Carbon Disulfide	6	UG/KG	U
36-005	36-3023	0	6	IN	Carbon Disulfide	6	UG/KG	U
36-005	36-3022	0	6	IN	Carbon Disulfide	6	UG/KG	U

36-005	36-3021	0	6	IN	Carbon Disulfide	6	UG/KG	U
36-005	36-3020	0	6	IN	Carbon Disulfide	6	UG/KG	U
36-005	36-3019	0	6	IN	Carbon Disulfide	6	UG/KG	U
36-005	36-3018	0	6	IN	Carbon Disulfide	6	UG/KG	U
36-005	36-3018	0	6	IN	Carbon Disulfide	6	UG/KG	U
36-005	36-3051	0	6	IN	Carbon Tetrachloride	5	UG/KG	U
36-005	36-3050	0	6	IN	Carbon Tetrachloride	6	UG/KG	U
36-005	36-3050	0	6	IN	Carbon Tetrachloride	6	UG/KG	U
36-005	36-3049	0	6	IN	Carbon Tetrachloride	6	UG/KG	U
36-005	36-3048	0	6	IN	Carbon Tetrachloride	6	UG/KG	U
36-005	36-3047	0	6	IN	Carbon Tetrachloride	6	UG/KG	U
36-005	36-3046	0	6	IN	Carbon Tetrachloride	6	UG/KG	U
36-005	36-3045	0	6	IN	Carbon Tetrachloride	6	UG/KG	U
36-005	36-3044	0	6	IN	Carbon Tetrachloride	6	UG/KG	U
36-005	36-3043	0	6	IN	Carbon Tetrachloride	5	UG/KG	U
36-005	36-3042	0	6	IN	Carbon Tetrachloride	6	UG/KG	U
36-005	36-3042	0	6	IN	Carbon Tetrachloride	5	UG/KG	U
36-005	36-3041	0	6	IN	Carbon Tetrachloride	5	UG/KG	U
36-005	36-3040	0	6	IN	Carbon Tetrachloride	5	UG/KG	U
36-005	36-3039	0	6	IN	Carbon Tetrachloride	5	UG/KG	U
36-005	36-3038	0	6	IN	Carbon Tetrachloride	6	UG/KG	U
36-005	36-3037	0	6	IN	Carbon Tetrachloride	5	UG/KG	U
36-005	36-3036	0	6	IN	Carbon Tetrachloride	6	UG/KG	U
36-005	36-3035	0	6	IN	Carbon Tetrachloride	6	UG/KG	U
36-005	36-3034	0	6	IN	Carbon Tetrachloride	6	UG/KG	U
36-005	36-3034	0	6	IN	Carbon Tetrachloride	5	UG/KG	U
36-005	36-3026	0	6	IN	Carbon Tetrachloride	25	UG/KG	U
36-005	36-3025	0	6	IN	Carbon Tetrachloride	5	UG/KG	U
36-005	36-3024	0	6	IN	Carbon Tetrachloride	6	UG/KG	U
36-005	36-3023	0	6	IN	Carbon Tetrachloride	6	UG/KG	U
36-005	36-3022	0	6	IN	Carbon Tetrachloride	6	UG/KG	U
36-005	36-3021	0	6	IN	Carbon Tetrachloride	6	UG/KG	U
36-005	36-3020	0	6	IN	Carbon Tetrachloride	6	UG/KG	U
36-005	36-3019	0	6	IN	Carbon Tetrachloride	6	UG/KG	U
36-005	36-3018	0	6	IN	Carbon Tetrachloride	6	UG/KG	U
36-005	36-3018	0	6	IN	Carbon Tetrachloride	6	UG/KG	U
36-005	36-3051	0	6	IN	Chloro-3-methylphenol[4-]	710	UG/KG	U
36-005	36-3050	0	6	IN	Chloro-3-methylphenol[4-]	710	UG/KG	U
36-005	36-3050	0	6	IN	Chloro-3-methylphenol[4-]	700	UG/KG	U
36-005	36-3049	0	6	IN	Chloro-3-methylphenol[4-]	680	UG/KG	U
36-005	36-3048	0	6	IN	Chloro-3-methylphenol[4-]	730	UG/KG	U
36-005	36-3047	0	6	IN	Chloro-3-methylphenol[4-]	780	UG/KG	U
36-005	36-3046	0	6	IN	Chloro-3-methylphenol[4-]	720	UG/KG	U
36-005	36-3045	0	6	IN	Chloro-3-methylphenol[4-]	760	UG/KG	U
36-005	36-3044	0	6	IN	Chloro-3-methylphenol[4-]	760	UG/KG	U
36-005	36-3043	0	6	IN	Chloro-3-methylphenol[4-]	730	UG/KG	U
36-005	36-3042	0	6	IN	Chloro-3-methylphenol[4-]	700	UG/KG	U
36-005	36-3042	0	6	IN	Chloro-3-methylphenol[4-]	690	UG/KG	U
36-005	36-3041	0	6	IN	Chloro-3-methylphenol[4-]	690	UG/KG	UJ
36-005	36-3040	0	6	IN	Chloro-3-methylphenol[4-]	690	UG/KG	UJ
36-005	36-3039	0	6	IN	Chloro-3-methylphenol[4-]	670	UG/KG	UJ
36-005	36-3038	0	6	IN	Chloro-3-methylphenol[4-]	710	UG/KG	UJ
36-005	36-3037	0	6	IN	Chloro-3-methylphenol[4-]	690	UG/KG	UJ
36-005	36-3036	0	6	IN	Chloro-3-methylphenol[4-]	680	UG/KG	UJ
36-005	36-3035	0	6	IN	Chloro-3-methylphenol[4-]	710	UG/KG	UJ
36-005	36-3034	0	6	IN	Chloro-3-methylphenol[4-]	700	UG/KG	UJ
36-005	36-3034	0	6	IN	Chloro-3-methylphenol[4-]	710	UG/KG	UJ
36-005	36-3026	0	6	IN	Chloro-3-methylphenol[4-]	270000	UG/KG	U
36-005	36-3025	0	6	IN	Chloro-3-methylphenol[4-]	730	UG/KG	U
36-005	36-3024	0	6	IN	Chloro-3-methylphenol[4-]	800	UG/KG	U
36-005	36-3023	0	6	IN	Chloro-3-methylphenol[4-]	740	UG/KG	U
36-005	36-3022	0	6	IN	Chloro-3-methylphenol[4-]	710	UG/KG	U
36-005	36-3021	0	6	IN	Chloro-3-methylphenol[4-]	810	UG/KG	U
36-005	36-3020	0	6	IN	Chloro-3-methylphenol[4-]	740	UG/KG	U
36-005	36-3019	0	6	IN	Chloro-3-methylphenol[4-]	740	UG/KG	U
36-005	36-3018	0	6	IN	Chloro-3-methylphenol[4-]	690	UG/KG	U
36-005	36-3018	0	6	IN	Chloro-3-methylphenol[4-]	730	UG/KG	U
36-005	36-3051	0	6	IN	Chloroaniline[4-]	710	UG/KG	U
36-005	36-3050	0	6	IN	Chloroaniline[4-]	710	UG/KG	U
36-005	36-3050	0	6	IN	Chloroaniline[4-]	700	UG/KG	U
36-005	36-3049	0	6	IN	Chloroaniline[4-]	680	UG/KG	U
36-005	36-3048	0	6	IN	Chloroaniline[4-]	730	UG/KG	U
36-005	36-3047	0	6	IN	Chloroaniline[4-]	780	UG/KG	U
36-005	36-3046	0	6	IN	Chloroaniline[4-]	720	UG/KG	U

36-005	36-3045	0	6	IN	Chloroaniline[4-]	760	UG/KG	U
36-005	36-3044	0	6	IN	Chloroaniline[4-]	760	UG/KG	U
36-005	36-3043	0	6	IN	Chloroaniline[4-]	730	UG/KG	U
36-005	36-3042	0	6	IN	Chloroaniline[4-]	700	UG/KG	U
36-005	36-3042	0	6	IN	Chloroaniline[4-]	690	UG/KG	U
36-005	36-3041	0	6	IN	Chloroaniline[4-]	690	UG/KG	U
36-005	36-3040	0	6	IN	Chloroaniline[4-]	690	UG/KG	U
36-005	36-3039	0	6	IN	Chloroaniline[4-]	670	UG/KG	U
36-005	36-3038	0	6	IN	Chloroaniline[4-]	710	UG/KG	U
36-005	36-3037	0	6	IN	Chloroaniline[4-]	690	UG/KG	U
36-005	36-3036	0	6	IN	Chloroaniline[4-]	680	UG/KG	U
36-005	36-3035	0	6	IN	Chloroaniline[4-]	710	UG/KG	U
36-005	36-3034	0	6	IN	Chloroaniline[4-]	700	UG/KG	U
36-005	36-3034	0	6	IN	Chloroaniline[4-]	710	UG/KG	U
36-005	36-3026	0	6	IN	Chloroaniline[4-]	270000	UG/KG	U
36-005	36-3025	0	6	IN	Chloroaniline[4-]	730	UG/KG	U
36-005	36-3024	0	6	IN	Chloroaniline[4-]	800	UG/KG	U
36-005	36-3023	0	6	IN	Chloroaniline[4-]	740	UG/KG	U
36-005	36-3022	0	6	IN	Chloroaniline[4-]	710	UG/KG	U
36-005	36-3021	0	6	IN	Chloroaniline[4-]	810	UG/KG	U
36-005	36-3020	0	6	IN	Chloroaniline[4-]	740	UG/KG	U
36-005	36-3019	0	6	IN	Chloroaniline[4-]	740	UG/KG	U
36-005	36-3018	0	6	IN	Chloroaniline[4-]	690	UG/KG	U
36-005	36-3018	0	6	IN	Chloroaniline[4-]	730	UG/KG	U
36-005	36-3051	0	6	IN	Chlorobenzene	5	UG/KG	U
36-005	36-3050	0	6	IN	Chlorobenzene	6	UG/KG	U
36-005	36-3050	0	6	IN	Chlorobenzene	6	UG/KG	U
36-005	36-3049	0	6	IN	Chlorobenzene	6	UG/KG	U
36-005	36-3048	0	6	IN	Chlorobenzene	6	UG/KG	U
36-005	36-3047	0	6	IN	Chlorobenzene	6	UG/KG	U
36-005	36-3046	0	6	IN	Chlorobenzene	6	UG/KG	U
36-005	36-3045	0	6	IN	Chlorobenzene	6	UG/KG	U
36-005	36-3044	0	6	IN	Chlorobenzene	6	UG/KG	U
36-005	36-3043	0	6	IN	Chlorobenzene	5	UG/KG	U
36-005	36-3042	0	6	IN	Chlorobenzene	6	UG/KG	UJ
36-005	36-3042	0	6	IN	Chlorobenzene	5	UG/KG	U
36-005	36-3041	0	6	IN	Chlorobenzene	5	UG/KG	U
36-005	36-3040	0	6	IN	Chlorobenzene	5	UG/KG	U
36-005	36-3039	0	6	IN	Chlorobenzene	5	UG/KG	U
36-005	36-3038	0	6	IN	Chlorobenzene	6	UG/KG	U
36-005	36-3037	0	6	IN	Chlorobenzene	5	UG/KG	U
36-005	36-3036	0	6	IN	Chlorobenzene	6	UG/KG	U
36-005	36-3035	0	6	IN	Chlorobenzene	6	UG/KG	U
36-005	36-3034	0	6	IN	Chlorobenzene	6	UG/KG	U
36-005	36-3034	0	6	IN	Chlorobenzene	5	UG/KG	U
36-005	36-3026	0	6	IN	Chlorobenzene	25	UG/KG	U
36-005	36-3025	0	6	IN	Chlorobenzene	5	UG/KG	U
36-005	36-3024	0	6	IN	Chlorobenzene	6	UG/KG	U
36-005	36-3023	0	6	IN	Chlorobenzene	6	UG/KG	U
36-005	36-3022	0	6	IN	Chlorobenzene	6	UG/KG	U
36-005	36-3021	0	6	IN	Chlorobenzene	6	UG/KG	U
36-005	36-3020	0	6	IN	Chlorobenzene	6	UG/KG	U
36-005	36-3019	0	6	IN	Chlorobenzene	6	UG/KG	U
36-005	36-3018	0	6	IN	Chlorobenzene	6	UG/KG	U
36-005	36-3018	0	6	IN	Chlorobenzene	6	UG/KG	U
36-005	36-3051	0	6	IN	Chlorodibromomethane	5	UG/KG	U
36-005	36-3050	0	6	IN	Chlorodibromomethane	6	UG/KG	U
36-005	36-3050	0	6	IN	Chlorodibromomethane	6	UG/KG	U
36-005	36-3049	0	6	IN	Chlorodibromomethane	6	UG/KG	U
36-005	36-3048	0	6	IN	Chlorodibromomethane	6	UG/KG	U
36-005	36-3047	0	6	IN	Chlorodibromomethane	6	UG/KG	U
36-005	36-3046	0	6	IN	Chlorodibromomethane	6	UG/KG	U
36-005	36-3045	0	6	IN	Chlorodibromomethane	6	UG/KG	U
36-005	36-3044	0	6	IN	Chlorodibromomethane	6	UG/KG	U
36-005	36-3043	0	6	IN	Chlorodibromomethane	5	UG/KG	U
36-005	36-3042	0	6	IN	Chlorodibromomethane	6	UG/KG	UJ
36-005	36-3042	0	6	IN	Chlorodibromomethane	5	UG/KG	U
36-005	36-3041	0	6	IN	Chlorodibromomethane	5	UG/KG	U
36-005	36-3040	0	6	IN	Chlorodibromomethane	5	UG/KG	U
36-005	36-3039	0	6	IN	Chlorodibromomethane	5	UG/KG	U
36-005	36-3038	0	6	IN	Chlorodibromomethane	6	UG/KG	U
36-005	36-3037	0	6	IN	Chlorodibromomethane	5	UG/KG	U
36-005	36-3036	0	6	IN	Chlorodibromomethane	6	UG/KG	U
36-005	36-3035	0	6	IN	Chlorodibromomethane	6	UG/KG	U

36-005	36-3034	0	6	IN	Chlorodibromomethane	6	UG/KG	U
36-005	36-3034	0	6	IN	Chlorodibromomethane	5	UG/KG	U
36-005	36-3026	0	6	IN	Chlorodibromomethane	25	UG/KG	U
36-005	36-3025	0	6	IN	Chlorodibromomethane	5	UG/KG	U
36-005	36-3024	0	6	IN	Chlorodibromomethane	6	UG/KG	U
36-005	36-3023	0	6	IN	Chlorodibromomethane	6	UG/KG	U
36-005	36-3022	0	6	IN	Chlorodibromomethane	6	UG/KG	U
36-005	36-3021	0	6	IN	Chlorodibromomethane	6	UG/KG	U
36-005	36-3020	0	6	IN	Chlorodibromomethane	6	UG/KG	U
36-005	36-3019	0	6	IN	Chlorodibromomethane	6	UG/KG	U
36-005	36-3018	0	6	IN	Chlorodibromomethane	6	UG/KG	U
36-005	36-3018	0	6	IN	Chlorodibromomethane	6	UG/KG	U
36-005	36-3051	0	6	IN	Chloroethane	10	UG/KG	U
36-005	36-3050	0	6	IN	Chloroethane	11	UG/KG	U
36-005	36-3050	0	6	IN	Chloroethane	11	UG/KG	U
36-005	36-3049	0	6	IN	Chloroethane	11	UG/KG	U
36-005	36-3048	0	6	IN	Chloroethane	11	UG/KG	U
36-005	36-3047	0	6	IN	Chloroethane	12	UG/KG	U
36-005	36-3046	0	6	IN	Chloroethane	11	UG/KG	U
36-005	36-3045	0	6	IN	Chloroethane	11	UG/KG	U
36-005	36-3044	0	6	IN	Chloroethane	11	UG/KG	U
36-005	36-3043	0	6	IN	Chloroethane	10	UG/KG	U
36-005	36-3042	0	6	IN	Chloroethane	11	UG/KG	U
36-005	36-3042	0	6	IN	Chloroethane	10	UG/KG	U
36-005	36-3041	0	6	IN	Chloroethane	10	UG/KG	U
36-005	36-3040	0	6	IN	Chloroethane	10	UG/KG	U
36-005	36-3039	0	6	IN	Chloroethane	10	UG/KG	U
36-005	36-3038	0	6	IN	Chloroethane	11	UG/KG	U
36-005	36-3037	0	6	IN	Chloroethane	10	UG/KG	U
36-005	36-3036	0	6	IN	Chloroethane	11	UG/KG	U
36-005	36-3035	0	6	IN	Chloroethane	11	UG/KG	U
36-005	36-3034	0	6	IN	Chloroethane	11	UG/KG	U
36-005	36-3034	0	6	IN	Chloroethane	10	UG/KG	U
36-005	36-3026	0	6	IN	Chloroethane	50	UG/KG	U
36-005	36-3025	0	6	IN	Chloroethane	10	UG/KG	U
36-005	36-3024	0	6	IN	Chloroethane	12	UG/KG	U
36-005	36-3023	0	6	IN	Chloroethane	11	UG/KG	U
36-005	36-3022	0	6	IN	Chloroethane	12	UG/KG	U
36-005	36-3021	0	6	IN	Chloroethane	12	UG/KG	U
36-005	36-3020	0	6	IN	Chloroethane	11	UG/KG	U
36-005	36-3019	0	6	IN	Chloroethane	11	UG/KG	U
36-005	36-3018	0	6	IN	Chloroethane	11	UG/KG	U
36-005	36-3018	0	6	IN	Chloroethane	11	UG/KG	U
36-005	36-3051	0	6	IN	Chloroform	5	UG/KG	U
36-005	36-3050	0	6	IN	Chloroform	6	UG/KG	U
36-005	36-3050	0	6	IN	Chloroform	6	UG/KG	U
36-005	36-3049	0	6	IN	Chloroform	6	UG/KG	U
36-005	36-3048	0	6	IN	Chloroform	6	UG/KG	U
36-005	36-3047	0	6	IN	Chloroform	6	UG/KG	U
36-005	36-3046	0	6	IN	Chloroform	6	UG/KG	U
36-005	36-3045	0	6	IN	Chloroform	6	UG/KG	U
36-005	36-3044	0	6	IN	Chloroform	6	UG/KG	U
36-005	36-3043	0	6	IN	Chloroform	5	UG/KG	U
36-005	36-3042	0	6	IN	Chloroform	6	UG/KG	U
36-005	36-3042	0	6	IN	Chloroform	5	UG/KG	U
36-005	36-3041	0	6	IN	Chloroform	5	UG/KG	U
36-005	36-3040	0	6	IN	Chloroform	5	UG/KG	U
36-005	36-3039	0	6	IN	Chloroform	5	UG/KG	U
36-005	36-3038	0	6	IN	Chloroform	6	UG/KG	U
36-005	36-3037	0	6	IN	Chloroform	5	UG/KG	U
36-005	36-3036	0	6	IN	Chloroform	6	UG/KG	U
36-005	36-3035	0	6	IN	Chloroform	6	UG/KG	U
36-005	36-3034	0	6	IN	Chloroform	6	UG/KG	U
36-005	36-3034	0	6	IN	Chloroform	5	UG/KG	U
36-005	36-3026	0	6	IN	Chloroform	25	UG/KG	U
36-005	36-3025	0	6	IN	Chloroform	5	UG/KG	U
36-005	36-3024	0	6	IN	Chloroform	6	UG/KG	U
36-005	36-3023	0	6	IN	Chloroform	6	UG/KG	U
36-005	36-3022	0	6	IN	Chloroform	6	UG/KG	U
36-005	36-3021	0	6	IN	Chloroform	6	UG/KG	U
36-005	36-3020	0	6	IN	Chloroform	6	UG/KG	U
36-005	36-3019	0	6	IN	Chloroform	6	UG/KG	U
36-005	36-3018	0	6	IN	Chloroform	6	UG/KG	U
36-005	36-3018	0	6	IN	Chloroform	6	UG/KG	U

36-005	36-3051	0	6	IN	Chloromethane	10	UG/KG	U
36-005	36-3050	0	6	IN	Chloromethane	11	UG/KG	U
36-005	36-3050	0	6	IN	Chloromethane	11	UG/KG	U
36-005	36-3049	0	6	IN	Chloromethane	11	UG/KG	U
36-005	36-3048	0	6	IN	Chloromethane	11	UG/KG	U
36-005	36-3047	0	6	IN	Chloromethane	12	UG/KG	U
36-005	36-3046	0	6	IN	Chloromethane	11	UG/KG	U
36-005	36-3045	0	6	IN	Chloromethane	11	UG/KG	U
36-005	36-3044	0	6	IN	Chloromethane	11	UG/KG	U
36-005	36-3043	0	6	IN	Chloromethane	10	UG/KG	U
36-005	36-3042	0	6	IN	Chloromethane	11	UG/KG	U
36-005	36-3042	0	6	IN	Chloromethane	10	UG/KG	U
36-005	36-3041	0	6	IN	Chloromethane	10	UG/KG	U
36-005	36-3040	0	6	IN	Chloromethane	10	UG/KG	U
36-005	36-3039	0	6	IN	Chloromethane	10	UG/KG	U
36-005	36-3038	0	6	IN	Chloromethane	11	UG/KG	U
36-005	36-3037	0	6	IN	Chloromethane	10	UG/KG	U
36-005	36-3036	0	6	IN	Chloromethane	11	UG/KG	U
36-005	36-3035	0	6	IN	Chloromethane	11	UG/KG	U
36-005	36-3034	0	6	IN	Chloromethane	11	UG/KG	U
36-005	36-3034	0	6	IN	Chloromethane	10	UG/KG	U
36-005	36-3026	0	6	IN	Chloromethane	50	UG/KG	U
36-005	36-3025	0	6	IN	Chloromethane	10	UG/KG	U
36-005	36-3024	0	6	IN	Chloromethane	12	UG/KG	U
36-005	36-3023	0	6	IN	Chloromethane	11	UG/KG	U
36-005	36-3022	0	6	IN	Chloromethane	12	UG/KG	U
36-005	36-3021	0	6	IN	Chloromethane	12	UG/KG	U
36-005	36-3020	0	6	IN	Chloromethane	11	UG/KG	U
36-005	36-3019	0	6	IN	Chloromethane	11	UG/KG	U
36-005	36-3018	0	6	IN	Chloromethane	11	UG/KG	U
36-005	36-3018	0	6	IN	Chloromethane	11	UG/KG	U
36-005	36-3051	0	6	IN	Chloronaphthalene[2-]	350	UG/KG	U
36-005	36-3050	0	6	IN	Chloronaphthalene[2-]	360	UG/KG	U
36-005	36-3050	0	6	IN	Chloronaphthalene[2-]	350	UG/KG	U
36-005	36-3049	0	6	IN	Chloronaphthalene[2-]	340	UG/KG	U
36-005	36-3048	0	6	IN	Chloronaphthalene[2-]	360	UG/KG	U
36-005	36-3047	0	6	IN	Chloronaphthalene[2-]	390	UG/KG	U
36-005	36-3046	0	6	IN	Chloronaphthalene[2-]	360	UG/KG	U
36-005	36-3045	0	6	IN	Chloronaphthalene[2-]	380	UG/KG	U
36-005	36-3044	0	6	IN	Chloronaphthalene[2-]	380	UG/KG	U
36-005	36-3043	0	6	IN	Chloronaphthalene[2-]	360	UG/KG	U
36-005	36-3042	0	6	IN	Chloronaphthalene[2-]	350	UG/KG	U
36-005	36-3042	0	6	IN	Chloronaphthalene[2-]	340	UG/KG	U
36-005	36-3041	0	6	IN	Chloronaphthalene[2-]	350	UG/KG	U
36-005	36-3040	0	6	IN	Chloronaphthalene[2-]	350	UG/KG	U
36-005	36-3039	0	6	IN	Chloronaphthalene[2-]	340	UG/KG	U
36-005	36-3038	0	6	IN	Chloronaphthalene[2-]	360	UG/KG	U
36-005	36-3037	0	6	IN	Chloronaphthalene[2-]	350	UG/KG	U
36-005	36-3036	0	6	IN	Chloronaphthalene[2-]	340	UG/KG	U
36-005	36-3035	0	6	IN	Chloronaphthalene[2-]	350	UG/KG	U
36-005	36-3034	0	6	IN	Chloronaphthalene[2-]	350	UG/KG	U
36-005	36-3034	0	6	IN	Chloronaphthalene[2-]	350	UG/KG	U
36-005	36-3026	0	6	IN	Chloronaphthalene[2-]	140000	UG/KG	U
36-005	36-3025	0	6	IN	Chloronaphthalene[2-]	360	UG/KG	U
36-005	36-3024	0	6	IN	Chloronaphthalene[2-]	400	UG/KG	U
36-005	36-3023	0	6	IN	Chloronaphthalene[2-]	370	UG/KG	U
36-005	36-3022	0	6	IN	Chloronaphthalene[2-]	360	UG/KG	U
36-005	36-3021	0	6	IN	Chloronaphthalene[2-]	400	UG/KG	U
36-005	36-3020	0	6	IN	Chloronaphthalene[2-]	370	UG/KG	U
36-005	36-3019	0	6	IN	Chloronaphthalene[2-]	370	UG/KG	U
36-005	36-3018	0	6	IN	Chloronaphthalene[2-]	350	UG/KG	U
36-005	36-3018	0	6	IN	Chloronaphthalene[2-]	370	UG/KG	U
36-005	36-3051	0	6	IN	Chlorophenol[2-]	350	UG/KG	U
36-005	36-3050	0	6	IN	Chlorophenol[2-]	360	UG/KG	U
36-005	36-3050	0	6	IN	Chlorophenol[2-]	350	UG/KG	U
36-005	36-3049	0	6	IN	Chlorophenol[2-]	340	UG/KG	U
36-005	36-3048	0	6	IN	Chlorophenol[2-]	360	UG/KG	U
36-005	36-3047	0	6	IN	Chlorophenol[2-]	390	UG/KG	U
36-005	36-3046	0	6	IN	Chlorophenol[2-]	360	UG/KG	U
36-005	36-3045	0	6	IN	Chlorophenol[2-]	380	UG/KG	U
36-005	36-3044	0	6	IN	Chlorophenol[2-]	380	UG/KG	U
36-005	36-3043	0	6	IN	Chlorophenol[2-]	360	UG/KG	U
36-005	36-3042	0	6	IN	Chlorophenol[2-]	350	UG/KG	U
36-005	36-3042	0	6	IN	Chlorophenol[2-]	340	UG/KG	U

36-005	36-3041	0	6	IN	Chlorophenol[2-]	350	UG/KG	U
36-005	36-3040	0	6	IN	Chlorophenol[2-]	350	UG/KG	U
36-005	36-3039	0	6	IN	Chlorophenol[2-]	340	UG/KG	U
36-005	36-3038	0	6	IN	Chlorophenol[2-]	360	UG/KG	U
36-005	36-3037	0	6	IN	Chlorophenol[2-]	350	UG/KG	U
36-005	36-3036	0	6	IN	Chlorophenol[2-]	340	UG/KG	U
36-005	36-3035	0	6	IN	Chlorophenol[2-]	350	UG/KG	U
36-005	36-3034	0	6	IN	Chlorophenol[2-]	350	UG/KG	U
36-005	36-3034	0	6	IN	Chlorophenol[2-]	350	UG/KG	U
36-005	36-3026	0	6	IN	Chlorophenol[2-]	140000	UG/KG	U
36-005	36-3025	0	6	IN	Chlorophenol[2-]	360	UG/KG	U
36-005	36-3024	0	6	IN	Chlorophenol[2-]	400	UG/KG	U
36-005	36-3023	0	6	IN	Chlorophenol[2-]	370	UG/KG	U
36-005	36-3022	0	6	IN	Chlorophenol[2-]	360	UG/KG	U
36-005	36-3021	0	6	IN	Chlorophenol[2-]	400	UG/KG	U
36-005	36-3020	0	6	IN	Chlorophenol[2-]	370	UG/KG	U
36-005	36-3019	0	6	IN	Chlorophenol[2-]	370	UG/KG	U
36-005	36-3018	0	6	IN	Chlorophenol[2-]	350	UG/KG	U
36-005	36-3018	0	6	IN	Chlorophenol[2-]	370	UG/KG	U
36-005	36-3051	0	6	IN	Chlorophenyl-phenyl[4-] Ether	350	UG/KG	U
36-005	36-3050	0	6	IN	Chlorophenyl-phenyl[4-] Ether	360	UG/KG	U
36-005	36-3050	0	6	IN	Chlorophenyl-phenyl[4-] Ether	350	UG/KG	U
36-005	36-3049	0	6	IN	Chlorophenyl-phenyl[4-] Ether	340	UG/KG	U
36-005	36-3048	0	6	IN	Chlorophenyl-phenyl[4-] Ether	360	UG/KG	U
36-005	36-3047	0	6	IN	Chlorophenyl-phenyl[4-] Ether	390	UG/KG	U
36-005	36-3046	0	6	IN	Chlorophenyl-phenyl[4-] Ether	360	UG/KG	U
36-005	36-3045	0	6	IN	Chlorophenyl-phenyl[4-] Ether	380	UG/KG	U
36-005	36-3044	0	6	IN	Chlorophenyl-phenyl[4-] Ether	380	UG/KG	U
36-005	36-3043	0	6	IN	Chlorophenyl-phenyl[4-] Ether	360	UG/KG	U
36-005	36-3042	0	6	IN	Chlorophenyl-phenyl[4-] Ether	350	UG/KG	U
36-005	36-3042	0	6	IN	Chlorophenyl-phenyl[4-] Ether	340	UG/KG	U
36-005	36-3041	0	6	IN	Chlorophenyl-phenyl[4-] Ether	350	UG/KG	U
36-005	36-3040	0	6	IN	Chlorophenyl-phenyl[4-] Ether	350	UG/KG	U
36-005	36-3039	0	6	IN	Chlorophenyl-phenyl[4-] Ether	340	UG/KG	U
36-005	36-3038	0	6	IN	Chlorophenyl-phenyl[4-] Ether	360	UG/KG	U
36-005	36-3037	0	6	IN	Chlorophenyl-phenyl[4-] Ether	350	UG/KG	U
36-005	36-3036	0	6	IN	Chlorophenyl-phenyl[4-] Ether	340	UG/KG	U
36-005	36-3035	0	6	IN	Chlorophenyl-phenyl[4-] Ether	350	UG/KG	U
36-005	36-3034	0	6	IN	Chlorophenyl-phenyl[4-] Ether	350	UG/KG	U
36-005	36-3034	0	6	IN	Chlorophenyl-phenyl[4-] Ether	350	UG/KG	U
36-005	36-3026	0	6	IN	Chlorophenyl-phenyl[4-] Ether	140000	UG/KG	U
36-005	36-3025	0	6	IN	Chlorophenyl-phenyl[4-] Ether	360	UG/KG	U
36-005	36-3024	0	6	IN	Chlorophenyl-phenyl[4-] Ether	400	UG/KG	U
36-005	36-3023	0	6	IN	Chlorophenyl-phenyl[4-] Ether	370	UG/KG	U
36-005	36-3022	0	6	IN	Chlorophenyl-phenyl[4-] Ether	360	UG/KG	U
36-005	36-3021	0	6	IN	Chlorophenyl-phenyl[4-] Ether	400	UG/KG	U
36-005	36-3020	0	6	IN	Chlorophenyl-phenyl[4-] Ether	370	UG/KG	U
36-005	36-3019	0	6	IN	Chlorophenyl-phenyl[4-] Ether	370	UG/KG	U
36-005	36-3018	0	6	IN	Chlorophenyl-phenyl[4-] Ether	350	UG/KG	U
36-005	36-3018	0	6	IN	Chlorophenyl-phenyl[4-] Ether	370	UG/KG	U
36-005	36-3051	0	6	IN	Chlorotoluene[2-]	5	UG/KG	U
36-005	36-3050	0	6	IN	Chlorotoluene[2-]	6	UG/KG	U
36-005	36-3050	0	6	IN	Chlorotoluene[2-]	6	UG/KG	U
36-005	36-3049	0	6	IN	Chlorotoluene[2-]	6	UG/KG	U
36-005	36-3048	0	6	IN	Chlorotoluene[2-]	6	UG/KG	UJ
36-005	36-3047	0	6	IN	Chlorotoluene[2-]	6	UG/KG	U
36-005	36-3046	0	6	IN	Chlorotoluene[2-]	6	UG/KG	U
36-005	36-3045	0	6	IN	Chlorotoluene[2-]	6	UG/KG	UJ
36-005	36-3044	0	6	IN	Chlorotoluene[2-]	6	UG/KG	UJ
36-005	36-3043	0	6	IN	Chlorotoluene[2-]	5	UG/KG	U
36-005	36-3042	0	6	IN	Chlorotoluene[2-]	6	UG/KG	UJ
36-005	36-3042	0	6	IN	Chlorotoluene[2-]	5	UG/KG	UJ
36-005	36-3041	0	6	IN	Chlorotoluene[2-]	5	UG/KG	U
36-005	36-3040	0	6	IN	Chlorotoluene[2-]	5	UG/KG	U
36-005	36-3039	0	6	IN	Chlorotoluene[2-]	5	UG/KG	U
36-005	36-3038	0	6	IN	Chlorotoluene[2-]	6	UG/KG	U
36-005	36-3037	0	6	IN	Chlorotoluene[2-]	5	UG/KG	U
36-005	36-3036	0	6	IN	Chlorotoluene[2-]	6	UG/KG	U
36-005	36-3035	0	6	IN	Chlorotoluene[2-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Chlorotoluene[2-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Chlorotoluene[2-]	5	UG/KG	U
36-005	36-3026	0	6	IN	Chlorotoluene[2-]	25	UG/KG	U
36-005	36-3025	0	6	IN	Chlorotoluene[2-]	5	UG/KG	U
36-005	36-3024	0	6	IN	Chlorotoluene[2-]	6	UG/KG	U

36-005	36-3023	0	6	IN	Chlorotoluene[2-]	6	UG/KG	UJ
36-005	36-3022	0	6	IN	Chlorotoluene[2-]	6	UG/KG	U
36-005	36-3021	0	6	IN	Chlorotoluene[2-]	6	UG/KG	UJ
36-005	36-3020	0	6	IN	Chlorotoluene[2-]	6	UG/KG	UJ
36-005	36-3019	0	6	IN	Chlorotoluene[2-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Chlorotoluene[2-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Chlorotoluene[2-]	6	UG/KG	U
36-005	36-3051	0	6	IN	Chlorotoluene[4-]	5	UG/KG	U
36-005	36-3050	0	6	IN	Chlorotoluene[4-]	6	UG/KG	U
36-005	36-3050	0	6	IN	Chlorotoluene[4-]	6	UG/KG	U
36-005	36-3049	0	6	IN	Chlorotoluene[4-]	6	UG/KG	U
36-005	36-3048	0	6	IN	Chlorotoluene[4-]	6	UG/KG	UJ
36-005	36-3047	0	6	IN	Chlorotoluene[4-]	6	UG/KG	U
36-005	36-3046	0	6	IN	Chlorotoluene[4-]	6	UG/KG	U
36-005	36-3045	0	6	IN	Chlorotoluene[4-]	6	UG/KG	UJ
36-005	36-3044	0	6	IN	Chlorotoluene[4-]	6	UG/KG	UJ
36-005	36-3043	0	6	IN	Chlorotoluene[4-]	5	UG/KG	U
36-005	36-3042	0	6	IN	Chlorotoluene[4-]	6	UG/KG	UJ
36-005	36-3042	0	6	IN	Chlorotoluene[4-]	5	UG/KG	UJ
36-005	36-3041	0	6	IN	Chlorotoluene[4-]	5	UG/KG	U
36-005	36-3040	0	6	IN	Chlorotoluene[4-]	5	UG/KG	U
36-005	36-3039	0	6	IN	Chlorotoluene[4-]	5	UG/KG	U
36-005	36-3038	0	6	IN	Chlorotoluene[4-]	6	UG/KG	U
36-005	36-3037	0	6	IN	Chlorotoluene[4-]	5	UG/KG	U
36-005	36-3036	0	6	IN	Chlorotoluene[4-]	6	UG/KG	U
36-005	36-3035	0	6	IN	Chlorotoluene[4-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Chlorotoluene[4-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Chlorotoluene[4-]	5	UG/KG	U
36-005	36-3026	0	6	IN	Chlorotoluene[4-]	25	UG/KG	U
36-005	36-3025	0	6	IN	Chlorotoluene[4-]	5	UG/KG	U
36-005	36-3024	0	6	IN	Chlorotoluene[4-]	6	UG/KG	U
36-005	36-3023	0	6	IN	Chlorotoluene[4-]	6	UG/KG	UJ
36-005	36-3022	0	6	IN	Chlorotoluene[4-]	6	UG/KG	U
36-005	36-3021	0	6	IN	Chlorotoluene[4-]	6	UG/KG	UJ
36-005	36-3020	0	6	IN	Chlorotoluene[4-]	6	UG/KG	UJ
36-005	36-3019	0	6	IN	Chlorotoluene[4-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Chlorotoluene[4-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Chlorotoluene[4-]	6	UG/KG	U
36-005	NA				Chromium, Total	11.1	MG/KG	J
36-005	36-3051	0	6	IN	Chromium, Total	1.7	MG/KG	UJ
36-005	36-3050	0	6	IN	Chromium, Total	6	MG/KG	J
36-005	36-3050	0	6	IN	Chromium, Total	6.5	MG/KG	J
36-005	36-3049	0	6	IN	Chromium, Total	1.9	MG/KG	UJ
36-005	36-3048	0	6	IN	Chromium, Total	9.3	MG/KG	J
36-005	36-3047	0	6	IN	Chromium, Total	5.8	MG/KG	J
36-005	36-3046	0	6	IN	Chromium, Total	3.1	MG/KG	J
36-005	36-3045	0	6	IN	Chromium, Total	8.6	MG/KG	J
36-005	36-3044	0	6	IN	Chromium, Total	6.4	MG/KG	J
36-005	36-3043	0	6	IN	Chromium, Total	2.7	MG/KG	J
36-005	36-3042	0	6	IN	Chromium, Total	3.6	MG/KG	J
36-005	36-3042	0	6	IN	Chromium, Total	4.9	MG/KG	J
36-005	36-3041	0	6	IN	Chromium, Total	6.5	MG/KG	
36-005	36-3040	0	6	IN	Chromium, Total	5.3	MG/KG	
36-005	36-3039	0	6	IN	Chromium, Total	4.5	MG/KG	
36-005	36-3038	0	6	IN	Chromium, Total	7.5	MG/KG	
36-005	36-3037	0	6	IN	Chromium, Total	8.3	MG/KG	
36-005	36-3036	0	6	IN	Chromium, Total	8.6	MG/KG	
36-005	36-3035	0	6	IN	Chromium, Total	9.9	MG/KG	
36-005	36-3034	0	6	IN	Chromium, Total	6	MG/KG	
36-005	36-3034	0	6	IN	Chromium, Total	7	MG/KG	
36-005	36-3026	0	6	IN	Chromium, Total	5.8	MG/KG	J
36-005	36-3025	0	6	IN	Chromium, Total	2.9	MG/KG	J
36-005	36-3024	0	6	IN	Chromium, Total	5.4	MG/KG	J
36-005	36-3023	0	6	IN	Chromium, Total	5.3	MG/KG	J
36-005	36-3022	0	6	IN	Chromium, Total	2	MG/KG	UJ
36-005	36-3021	0	6	IN	Chromium, Total	4.8	MG/KG	J
36-005	36-3020	0	6	IN	Chromium, Total	4.2	MG/KG	J
36-005	36-3019	0	6	IN	Chromium, Total	3.8	MG/KG	J
36-005	36-3018	0	6	IN	Chromium, Total	4	MG/KG	J
36-005	36-3018	0	6	IN	Chromium, Total	2.8	MG/KG	J
36-005	36-3051	0	6	IN	Chrysene	350	UG/KG	U
36-005	36-3050	0	6	IN	Chrysene	360	UG/KG	U
36-005	36-3050	0	6	IN	Chrysene	350	UG/KG	U
36-005	36-3049	0	6	IN	Chrysene	340	UG/KG	U

36-005	36-3048	0	6	IN	Chrysene	360	UG/KG	U
36-005	36-3047	0	6	IN	Chrysene	390	UG/KG	U
36-005	36-3046	0	6	IN	Chrysene	360	UG/KG	U
36-005	36-3045	0	6	IN	Chrysene	380	UG/KG	U
36-005	36-3044	0	6	IN	Chrysene	380	UG/KG	U
36-005	36-3043	0	6	IN	Chrysene	360	UG/KG	U
36-005	36-3042	0	6	IN	Chrysene	350	UG/KG	U
36-005	36-3042	0	6	IN	Chrysene	340	UG/KG	U
36-005	36-3041	0	6	IN	Chrysene	350	UG/KG	U
36-005	36-3040	0	6	IN	Chrysene	350	UG/KG	U
36-005	36-3039	0	6	IN	Chrysene	340	UG/KG	U
36-005	36-3038	0	6	IN	Chrysene	360	UG/KG	U
36-005	36-3037	0	6	IN	Chrysene	350	UG/KG	U
36-005	36-3036	0	6	IN	Chrysene	340	UG/KG	U
36-005	36-3035	0	6	IN	Chrysene	350	UG/KG	U
36-005	36-3034	0	6	IN	Chrysene	350	UG/KG	U
36-005	36-3034	0	6	IN	Chrysene	350	UG/KG	U
36-005	36-3026	0	6	IN	Chrysene	140000	UG/KG	U
36-005	36-3025	0	6	IN	Chrysene	360	UG/KG	U
36-005	36-3024	0	6	IN	Chrysene	400	UG/KG	U
36-005	36-3023	0	6	IN	Chrysene	370	UG/KG	U
36-005	36-3022	0	6	IN	Chrysene	360	UG/KG	U
36-005	36-3021	0	6	IN	Chrysene	400	UG/KG	U
36-005	36-3020	0	6	IN	Chrysene	370	UG/KG	U
36-005	36-3019	0	6	IN	Chrysene	370	UG/KG	U
36-005	36-3018	0	6	IN	Chrysene	350	UG/KG	U
36-005	36-3018	0	6	IN	Chrysene	370	UG/KG	U
36-005	NA				Cobalt	3.1	MG/KG	U
36-005	36-3051	0	6	IN	Cobalt	1.9	MG/KG	U
36-005	36-3050	0	6	IN	Cobalt	7	MG/KG	U
36-005	36-3050	0	6	IN	Cobalt	5.9	MG/KG	U
36-005	36-3049	0	6	IN	Cobalt	1.7	MG/KG	U
36-005	36-3048	0	6	IN	Cobalt	6.9	MG/KG	U
36-005	36-3047	0	6	IN	Cobalt	4.4	MG/KG	U
36-005	36-3046	0	6	IN	Cobalt	2	MG/KG	U
36-005	36-3045	0	6	IN	Cobalt	6.7	MG/KG	U
36-005	36-3044	0	6	IN	Cobalt	5	MG/KG	U
36-005	36-3043	0	6	IN	Cobalt	2.3	MG/KG	U
36-005	36-3042	0	6	IN	Cobalt	3.4	MG/KG	U
36-005	36-3042	0	6	IN	Cobalt	3.7	MG/KG	U
36-005	36-3041	0	6	IN	Cobalt	3.5	MG/KG	U
36-005	36-3040	0	6	IN	Cobalt	2.7	MG/KG	U
36-005	36-3039	0	6	IN	Cobalt	2.2	MG/KG	U
36-005	36-3038	0	6	IN	Cobalt	3.4	MG/KG	U
36-005	36-3037	0	6	IN	Cobalt	6.1	MG/KG	
36-005	36-3036	0	6	IN	Cobalt	4.1	MG/KG	U
36-005	36-3035	0	6	IN	Cobalt	4.7	MG/KG	U
36-005	36-3034	0	6	IN	Cobalt	4.5	MG/KG	U
36-005	36-3034	0	6	IN	Cobalt	4.1	MG/KG	U
36-005	36-3026	0	6	IN	Cobalt	4.3	MG/KG	U
36-005	36-3025	0	6	IN	Cobalt	2.8	MG/KG	U
36-005	36-3024	0	6	IN	Cobalt	4.9	MG/KG	U
36-005	36-3023	0	6	IN	Cobalt	4.8	MG/KG	U
36-005	36-3022	0	6	IN	Cobalt	3	MG/KG	U
36-005	36-3021	0	6	IN	Cobalt	4.2	MG/KG	U
36-005	36-3020	0	6	IN	Cobalt	4.2	MG/KG	U
36-005	36-3019	0	6	IN	Cobalt	4.2	MG/KG	U
36-005	36-3018	0	6	IN	Cobalt	5	MG/KG	U
36-005	36-3018	0	6	IN	Cobalt	3.2	MG/KG	U
36-005	NA				Copper	651	MG/KG	
36-005	36-3051	0	6	IN	Copper	2.7	MG/KG	U
36-005	36-3050	0	6	IN	Copper	6.3	MG/KG	
36-005	36-3050	0	6	IN	Copper	6.2	MG/KG	
36-005	36-3049	0	6	IN	Copper	2.1	MG/KG	U
36-005	36-3048	0	6	IN	Copper	7.3	MG/KG	
36-005	36-3047	0	6	IN	Copper	5.6	MG/KG	
36-005	36-3046	0	6	IN	Copper	3.5	MG/KG	U
36-005	36-3045	0	6	IN	Copper	7.9	MG/KG	
36-005	36-3044	0	6	IN	Copper	4.7	MG/KG	U
36-005	36-3043	0	6	IN	Copper	4	MG/KG	U
36-005	36-3042	0	6	IN	Copper	4.5	MG/KG	U
36-005	36-3042	0	6	IN	Copper	4.5	MG/KG	U
36-005	36-3041	0	6	IN	Copper	4.6	MG/KG	
36-005	36-3040	0	6	IN	Copper	6	MG/KG	

36-005	36-3039	0	6	IN	Copper	4.3	MG/KG	
36-005	36-3038	0	6	IN	Copper	5.1	MG/KG	
36-005	36-3037	0	6	IN	Copper	6.2	MG/KG	
36-005	36-3036	0	6	IN	Copper	4.5	MG/KG	
36-005	36-3035	0	6	IN	Copper	7.5	MG/KG	
36-005	36-3034	0	6	IN	Copper	5.9	MG/KG	
36-005	36-3034	0	6	IN	Copper	5.9	MG/KG	
36-005	36-3026	0	6	IN	Copper	5.3	MG/KG	
36-005	36-3025	0	6	IN	Copper	3.9	MG/KG	UJ
36-005	36-3024	0	6	IN	Copper	8.6	MG/KG	J
36-005	36-3023	0	6	IN	Copper	7.1	MG/KG	J
36-005	36-3022	0	6	IN	Copper	5.3	MG/KG	UJ
36-005	36-3021	0	6	IN	Copper	8.3	MG/KG	J
36-005	36-3020	0	6	IN	Copper	11.7	MG/KG	J
36-005	36-3019	0	6	IN	Copper	5.5	MG/KG	J
36-005	36-3018	0	6	IN	Copper	6.8	MG/KG	J
36-005	36-3018	0	6	IN	Copper	5.3	MG/KG	UJ
36-005	36-3051	0	6	IN	Dibenz(a,h)anthracene	350	UG/KG	U
36-005	36-3050	0	6	IN	Dibenz(a,h)anthracene	360	UG/KG	U
36-005	36-3050	0	6	IN	Dibenz(a,h)anthracene	350	UG/KG	U
36-005	36-3049	0	6	IN	Dibenz(a,h)anthracene	340	UG/KG	U
36-005	36-3048	0	6	IN	Dibenz(a,h)anthracene	360	UG/KG	U
36-005	36-3047	0	6	IN	Dibenz(a,h)anthracene	390	UG/KG	U
36-005	36-3046	0	6	IN	Dibenz(a,h)anthracene	360	UG/KG	U
36-005	36-3045	0	6	IN	Dibenz(a,h)anthracene	380	UG/KG	U
36-005	36-3044	0	6	IN	Dibenz(a,h)anthracene	380	UG/KG	U
36-005	36-3043	0	6	IN	Dibenz(a,h)anthracene	360	UG/KG	U
36-005	36-3042	0	6	IN	Dibenz(a,h)anthracene	350	UG/KG	U
36-005	36-3042	0	6	IN	Dibenz(a,h)anthracene	340	UG/KG	U
36-005	36-3041	0	6	IN	Dibenz(a,h)anthracene	350	UG/KG	U
36-005	36-3040	0	6	IN	Dibenz(a,h)anthracene	350	UG/KG	U
36-005	36-3039	0	6	IN	Dibenz(a,h)anthracene	340	UG/KG	U
36-005	36-3038	0	6	IN	Dibenz(a,h)anthracene	360	UG/KG	U
36-005	36-3037	0	6	IN	Dibenz(a,h)anthracene	350	UG/KG	U
36-005	36-3036	0	6	IN	Dibenz(a,h)anthracene	340	UG/KG	U
36-005	36-3035	0	6	IN	Dibenz(a,h)anthracene	350	UG/KG	U
36-005	36-3034	0	6	IN	Dibenz(a,h)anthracene	350	UG/KG	U
36-005	36-3034	0	6	IN	Dibenz(a,h)anthracene	350	UG/KG	U
36-005	36-3026	0	6	IN	Dibenz(a,h)anthracene	140000	UG/KG	U
36-005	36-3025	0	6	IN	Dibenz(a,h)anthracene	360	UG/KG	U
36-005	36-3024	0	6	IN	Dibenz(a,h)anthracene	400	UG/KG	U
36-005	36-3023	0	6	IN	Dibenz(a,h)anthracene	370	UG/KG	U
36-005	36-3022	0	6	IN	Dibenz(a,h)anthracene	360	UG/KG	U
36-005	36-3021	0	6	IN	Dibenz(a,h)anthracene	400	UG/KG	U
36-005	36-3020	0	6	IN	Dibenz(a,h)anthracene	370	UG/KG	U
36-005	36-3019	0	6	IN	Dibenz(a,h)anthracene	370	UG/KG	U
36-005	36-3018	0	6	IN	Dibenz(a,h)anthracene	350	UG/KG	U
36-005	36-3018	0	6	IN	Dibenz(a,h)anthracene	370	UG/KG	U
36-005	36-3051	0	6	IN	Dibenzofuran	350	UG/KG	U
36-005	36-3050	0	6	IN	Dibenzofuran	360	UG/KG	U
36-005	36-3050	0	6	IN	Dibenzofuran	350	UG/KG	U
36-005	36-3049	0	6	IN	Dibenzofuran	340	UG/KG	U
36-005	36-3048	0	6	IN	Dibenzofuran	360	UG/KG	U
36-005	36-3047	0	6	IN	Dibenzofuran	390	UG/KG	U
36-005	36-3046	0	6	IN	Dibenzofuran	360	UG/KG	U
36-005	36-3045	0	6	IN	Dibenzofuran	380	UG/KG	U
36-005	36-3044	0	6	IN	Dibenzofuran	380	UG/KG	U
36-005	36-3043	0	6	IN	Dibenzofuran	360	UG/KG	U
36-005	36-3042	0	6	IN	Dibenzofuran	350	UG/KG	U
36-005	36-3042	0	6	IN	Dibenzofuran	340	UG/KG	U
36-005	36-3041	0	6	IN	Dibenzofuran	350	UG/KG	U
36-005	36-3040	0	6	IN	Dibenzofuran	350	UG/KG	U
36-005	36-3039	0	6	IN	Dibenzofuran	340	UG/KG	U
36-005	36-3038	0	6	IN	Dibenzofuran	360	UG/KG	U
36-005	36-3037	0	6	IN	Dibenzofuran	350	UG/KG	U
36-005	36-3036	0	6	IN	Dibenzofuran	340	UG/KG	U
36-005	36-3035	0	6	IN	Dibenzofuran	350	UG/KG	U
36-005	36-3034	0	6	IN	Dibenzofuran	350	UG/KG	U
36-005	36-3034	0	6	IN	Dibenzofuran	350	UG/KG	U
36-005	36-3026	0	6	IN	Dibenzofuran	140000	UG/KG	U
36-005	36-3025	0	6	IN	Dibenzofuran	360	UG/KG	U
36-005	36-3024	0	6	IN	Dibenzofuran	400	UG/KG	U
36-005	36-3023	0	6	IN	Dibenzofuran	370	UG/KG	U
36-005	36-3022	0	6	IN	Dibenzofuran	360	UG/KG	U

36-005	36-3021	0	6	IN	Dibenzofuran	400	UG/KG	U
36-005	36-3020	0	6	IN	Dibenzofuran	370	UG/KG	U
36-005	36-3019	0	6	IN	Dibenzofuran	370	UG/KG	U
36-005	36-3018	0	6	IN	Dibenzofuran	350	UG/KG	U
36-005	36-3018	0	6	IN	Dibenzofuran	370	UG/KG	U
36-005	36-3051	0	6	IN	Dibromo-3-chloropropane[1,2-]	10	UG/KG	U
36-005	36-3050	0	6	IN	Dibromo-3-chloropropane[1,2-]	11	UG/KG	U
36-005	36-3050	0	6	IN	Dibromo-3-chloropropane[1,2-]	11	UG/KG	U
36-005	36-3049	0	6	IN	Dibromo-3-chloropropane[1,2-]	11	UG/KG	U
36-005	36-3048	0	6	IN	Dibromo-3-chloropropane[1,2-]	11	UG/KG	UJ
36-005	36-3047	0	6	IN	Dibromo-3-chloropropane[1,2-]	12	UG/KG	U
36-005	36-3046	0	6	IN	Dibromo-3-chloropropane[1,2-]	11	UG/KG	U
36-005	36-3045	0	6	IN	Dibromo-3-chloropropane[1,2-]	11	UG/KG	UJ
36-005	36-3044	0	6	IN	Dibromo-3-chloropropane[1,2-]	11	UG/KG	UJ
36-005	36-3043	0	6	IN	Dibromo-3-chloropropane[1,2-]	10	UG/KG	U
36-005	36-3042	0	6	IN	Dibromo-3-chloropropane[1,2-]	11	UG/KG	UJ
36-005	36-3042	0	6	IN	Dibromo-3-chloropropane[1,2-]	10	UG/KG	UJ
36-005	36-3041	0	6	IN	Dibromo-3-chloropropane[1,2-]	10	UG/KG	U
36-005	36-3040	0	6	IN	Dibromo-3-chloropropane[1,2-]	10	UG/KG	U
36-005	36-3039	0	6	IN	Dibromo-3-chloropropane[1,2-]	10	UG/KG	U
36-005	36-3038	0	6	IN	Dibromo-3-chloropropane[1,2-]	11	UG/KG	U
36-005	36-3037	0	6	IN	Dibromo-3-chloropropane[1,2-]	10	UG/KG	U
36-005	36-3036	0	6	IN	Dibromo-3-chloropropane[1,2-]	11	UG/KG	U
36-005	36-3035	0	6	IN	Dibromo-3-chloropropane[1,2-]	11	UG/KG	U
36-005	36-3034	0	6	IN	Dibromo-3-chloropropane[1,2-]	11	UG/KG	U
36-005	36-3034	0	6	IN	Dibromo-3-chloropropane[1,2-]	10	UG/KG	U
36-005	36-3026	0	6	IN	Dibromo-3-chloropropane[1,2-]	50	UG/KG	U
36-005	36-3025	0	6	IN	Dibromo-3-chloropropane[1,2-]	10	UG/KG	U
36-005	36-3024	0	6	IN	Dibromo-3-chloropropane[1,2-]	12	UG/KG	U
36-005	36-3023	0	6	IN	Dibromo-3-chloropropane[1,2-]	11	UG/KG	UJ
36-005	36-3022	0	6	IN	Dibromo-3-chloropropane[1,2-]	12	UG/KG	U
36-005	36-3021	0	6	IN	Dibromo-3-chloropropane[1,2-]	12	UG/KG	UJ
36-005	36-3020	0	6	IN	Dibromo-3-chloropropane[1,2-]	11	UG/KG	UJ
36-005	36-3019	0	6	IN	Dibromo-3-chloropropane[1,2-]	11	UG/KG	U
36-005	36-3018	0	6	IN	Dibromo-3-chloropropane[1,2-]	11	UG/KG	U
36-005	36-3018	0	6	IN	Dibromo-3-chloropropane[1,2-]	11	UG/KG	U
36-005	36-3051	0	6	IN	Dibromoethane[1,2-]	5	UG/KG	U
36-005	36-3050	0	6	IN	Dibromoethane[1,2-]	6	UG/KG	U
36-005	36-3050	0	6	IN	Dibromoethane[1,2-]	6	UG/KG	U
36-005	36-3049	0	6	IN	Dibromoethane[1,2-]	6	UG/KG	U
36-005	36-3048	0	6	IN	Dibromoethane[1,2-]	6	UG/KG	U
36-005	36-3047	0	6	IN	Dibromoethane[1,2-]	6	UG/KG	U
36-005	36-3046	0	6	IN	Dibromoethane[1,2-]	6	UG/KG	U
36-005	36-3045	0	6	IN	Dibromoethane[1,2-]	6	UG/KG	U
36-005	36-3044	0	6	IN	Dibromoethane[1,2-]	6	UG/KG	U
36-005	36-3043	0	6	IN	Dibromoethane[1,2-]	5	UG/KG	U
36-005	36-3042	0	6	IN	Dibromoethane[1,2-]	6	UG/KG	UJ
36-005	36-3042	0	6	IN	Dibromoethane[1,2-]	5	UG/KG	U
36-005	36-3041	0	6	IN	Dibromoethane[1,2-]	5	UG/KG	U
36-005	36-3040	0	6	IN	Dibromoethane[1,2-]	5	UG/KG	U
36-005	36-3039	0	6	IN	Dibromoethane[1,2-]	5	UG/KG	U
36-005	36-3038	0	6	IN	Dibromoethane[1,2-]	6	UG/KG	U
36-005	36-3037	0	6	IN	Dibromoethane[1,2-]	5	UG/KG	U
36-005	36-3036	0	6	IN	Dibromoethane[1,2-]	6	UG/KG	U
36-005	36-3035	0	6	IN	Dibromoethane[1,2-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Dibromoethane[1,2-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Dibromoethane[1,2-]	5	UG/KG	U
36-005	36-3026	0	6	IN	Dibromoethane[1,2-]	25	UG/KG	U
36-005	36-3025	0	6	IN	Dibromoethane[1,2-]	5	UG/KG	U
36-005	36-3024	0	6	IN	Dibromoethane[1,2-]	6	UG/KG	U
36-005	36-3023	0	6	IN	Dibromoethane[1,2-]	6	UG/KG	U
36-005	36-3022	0	6	IN	Dibromoethane[1,2-]	6	UG/KG	U
36-005	36-3021	0	6	IN	Dibromoethane[1,2-]	6	UG/KG	U
36-005	36-3020	0	6	IN	Dibromoethane[1,2-]	6	UG/KG	U
36-005	36-3019	0	6	IN	Dibromoethane[1,2-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Dibromoethane[1,2-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Dibromoethane[1,2-]	6	UG/KG	U
36-005	36-3051	0	6	IN	Dibromomethane	5	UG/KG	U
36-005	36-3050	0	6	IN	Dibromomethane	6	UG/KG	U
36-005	36-3050	0	6	IN	Dibromomethane	6	UG/KG	U
36-005	36-3049	0	6	IN	Dibromomethane	6	UG/KG	U
36-005	36-3048	0	6	IN	Dibromomethane	6	UG/KG	U
36-005	36-3047	0	6	IN	Dibromomethane	6	UG/KG	U
36-005	36-3046	0	6	IN	Dibromomethane	6	UG/KG	U

36-005	36-3045	0	6	IN	Dibromomethane	6	UG/KG	U
36-005	36-3044	0	6	IN	Dibromomethane	6	UG/KG	U
36-005	36-3043	0	6	IN	Dibromomethane	5	UG/KG	U
36-005	36-3042	0	6	IN	Dibromomethane	6	UG/KG	U
36-005	36-3042	0	6	IN	Dibromomethane	5	UG/KG	U
36-005	36-3041	0	6	IN	Dibromomethane	5	UG/KG	U
36-005	36-3040	0	6	IN	Dibromomethane	5	UG/KG	U
36-005	36-3039	0	6	IN	Dibromomethane	5	UG/KG	U
36-005	36-3038	0	6	IN	Dibromomethane	6	UG/KG	U
36-005	36-3037	0	6	IN	Dibromomethane	5	UG/KG	U
36-005	36-3036	0	6	IN	Dibromomethane	6	UG/KG	U
36-005	36-3035	0	6	IN	Dibromomethane	6	UG/KG	U
36-005	36-3034	0	6	IN	Dibromomethane	6	UG/KG	U
36-005	36-3034	0	6	IN	Dibromomethane	5	UG/KG	U
36-005	36-3026	0	6	IN	Dibromomethane	25	UG/KG	U
36-005	36-3025	0	6	IN	Dibromomethane	5	UG/KG	U
36-005	36-3024	0	6	IN	Dibromomethane	6	UG/KG	U
36-005	36-3023	0	6	IN	Dibromomethane	6	UG/KG	U
36-005	36-3022	0	6	IN	Dibromomethane	6	UG/KG	U
36-005	36-3021	0	6	IN	Dibromomethane	6	UG/KG	U
36-005	36-3020	0	6	IN	Dibromomethane	6	UG/KG	U
36-005	36-3019	0	6	IN	Dibromomethane	6	UG/KG	U
36-005	36-3018	0	6	IN	Dibromomethane	6	UG/KG	U
36-005	36-3018	0	6	IN	Dibromomethane	6	UG/KG	U
36-005	36-3051	0	6	IN	Dichlorobenzene[1,2-]	350	UG/KG	U
36-005	36-3051	0	6	IN	Dichlorobenzene[1,2-]	5	UG/KG	U
36-005	36-3050	0	6	IN	Dichlorobenzene[1,2-]	360	UG/KG	U
36-005	36-3050	0	6	IN	Dichlorobenzene[1,2-]	6	UG/KG	U
36-005	36-3050	0	6	IN	Dichlorobenzene[1,2-]	350	UG/KG	U
36-005	36-3050	0	6	IN	Dichlorobenzene[1,2-]	6	UG/KG	U
36-005	36-3049	0	6	IN	Dichlorobenzene[1,2-]	340	UG/KG	U
36-005	36-3049	0	6	IN	Dichlorobenzene[1,2-]	6	UG/KG	U
36-005	36-3048	0	6	IN	Dichlorobenzene[1,2-]	360	UG/KG	U
36-005	36-3048	0	6	IN	Dichlorobenzene[1,2-]	6	UG/KG	UJ
36-005	36-3047	0	6	IN	Dichlorobenzene[1,2-]	390	UG/KG	U
36-005	36-3047	0	6	IN	Dichlorobenzene[1,2-]	6	UG/KG	U
36-005	36-3046	0	6	IN	Dichlorobenzene[1,2-]	360	UG/KG	U
36-005	36-3046	0	6	IN	Dichlorobenzene[1,2-]	6	UG/KG	U
36-005	36-3045	0	6	IN	Dichlorobenzene[1,2-]	6	UG/KG	UJ
36-005	36-3045	0	6	IN	Dichlorobenzene[1,2-]	380	UG/KG	U
36-005	36-3044	0	6	IN	Dichlorobenzene[1,2-]	6	UG/KG	UJ
36-005	36-3044	0	6	IN	Dichlorobenzene[1,2-]	380	UG/KG	U
36-005	36-3043	0	6	IN	Dichlorobenzene[1,2-]	360	UG/KG	U
36-005	36-3043	0	6	IN	Dichlorobenzene[1,2-]	5	UG/KG	U
36-005	36-3042	0	6	IN	Dichlorobenzene[1,2-]	350	UG/KG	U
36-005	36-3042	0	6	IN	Dichlorobenzene[1,2-]	6	UG/KG	UJ
36-005	36-3042	0	6	IN	Dichlorobenzene[1,2-]	5	UG/KG	UJ
36-005	36-3042	0	6	IN	Dichlorobenzene[1,2-]	340	UG/KG	U
36-005	36-3041	0	6	IN	Dichlorobenzene[1,2-]	5	UG/KG	U
36-005	36-3041	0	6	IN	Dichlorobenzene[1,2-]	350	UG/KG	UR
36-005	36-3040	0	6	IN	Dichlorobenzene[1,2-]	5	UG/KG	U
36-005	36-3040	0	6	IN	Dichlorobenzene[1,2-]	350	UG/KG	UR
36-005	36-3039	0	6	IN	Dichlorobenzene[1,2-]	5	UG/KG	U
36-005	36-3039	0	6	IN	Dichlorobenzene[1,2-]	340	UG/KG	UR
36-005	36-3038	0	6	IN	Dichlorobenzene[1,2-]	360	UG/KG	UR
36-005	36-3038	0	6	IN	Dichlorobenzene[1,2-]	6	UG/KG	U
36-005	36-3037	0	6	IN	Dichlorobenzene[1,2-]	5	UG/KG	U
36-005	36-3037	0	6	IN	Dichlorobenzene[1,2-]	350	UG/KG	UR
36-005	36-3036	0	6	IN	Dichlorobenzene[1,2-]	6	UG/KG	U
36-005	36-3036	0	6	IN	Dichlorobenzene[1,2-]	340	UG/KG	UR
36-005	36-3035	0	6	IN	Dichlorobenzene[1,2-]	6	UG/KG	U
36-005	36-3035	0	6	IN	Dichlorobenzene[1,2-]	350	UG/KG	UR
36-005	36-3034	0	6	IN	Dichlorobenzene[1,2-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Dichlorobenzene[1,2-]	350	UG/KG	UR
36-005	36-3034	0	6	IN	Dichlorobenzene[1,2-]	5	UG/KG	U
36-005	36-3034	0	6	IN	Dichlorobenzene[1,2-]	350	UG/KG	UR
36-005	36-3026	0	6	IN	Dichlorobenzene[1,2-]	140000	UG/KG	U
36-005	36-3026	0	6	IN	Dichlorobenzene[1,2-]	25	UG/KG	U
36-005	36-3025	0	6	IN	Dichlorobenzene[1,2-]	360	UG/KG	U
36-005	36-3025	0	6	IN	Dichlorobenzene[1,2-]	5	UG/KG	U
36-005	36-3024	0	6	IN	Dichlorobenzene[1,2-]	400	UG/KG	U
36-005	36-3024	0	6	IN	Dichlorobenzene[1,2-]	6	UG/KG	U
36-005	36-3023	0	6	IN	Dichlorobenzene[1,2-]	370	UG/KG	U
36-005	36-3023	0	6	IN	Dichlorobenzene[1,2-]	6	UG/KG	UJ

36-005	36-3022	0	6	IN	Dichlorobenzene[1,2-]	360	UG/KG	U
36-005	36-3022	0	6	IN	Dichlorobenzene[1,2-]	6	UG/KG	U
36-005	36-3021	0	6	IN	Dichlorobenzene[1,2-]	400	UG/KG	U
36-005	36-3021	0	6	IN	Dichlorobenzene[1,2-]	6	UG/KG	UJ
36-005	36-3020	0	6	IN	Dichlorobenzene[1,2-]	370	UG/KG	U
36-005	36-3020	0	6	IN	Dichlorobenzene[1,2-]	6	UG/KG	UJ
36-005	36-3019	0	6	IN	Dichlorobenzene[1,2-]	370	UG/KG	U
36-005	36-3019	0	6	IN	Dichlorobenzene[1,2-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Dichlorobenzene[1,2-]	350	UG/KG	U
36-005	36-3018	0	6	IN	Dichlorobenzene[1,2-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Dichlorobenzene[1,2-]	370	UG/KG	U
36-005	36-3018	0	6	IN	Dichlorobenzene[1,2-]	6	UG/KG	U
36-005	36-3051	0	6	IN	Dichlorobenzene[1,3-]	350	UG/KG	U
36-005	36-3051	0	6	IN	Dichlorobenzene[1,3-]	5	UG/KG	U
36-005	36-3050	0	6	IN	Dichlorobenzene[1,3-]	360	UG/KG	U
36-005	36-3050	0	6	IN	Dichlorobenzene[1,3-]	6	UG/KG	U
36-005	36-3050	0	6	IN	Dichlorobenzene[1,3-]	350	UG/KG	U
36-005	36-3050	0	6	IN	Dichlorobenzene[1,3-]	6	UG/KG	U
36-005	36-3049	0	6	IN	Dichlorobenzene[1,3-]	340	UG/KG	U
36-005	36-3049	0	6	IN	Dichlorobenzene[1,3-]	6	UG/KG	U
36-005	36-3048	0	6	IN	Dichlorobenzene[1,3-]	360	UG/KG	U
36-005	36-3048	0	6	IN	Dichlorobenzene[1,3-]	6	UG/KG	UJ
36-005	36-3047	0	6	IN	Dichlorobenzene[1,3-]	390	UG/KG	U
36-005	36-3047	0	6	IN	Dichlorobenzene[1,3-]	6	UG/KG	U
36-005	36-3046	0	6	IN	Dichlorobenzene[1,3-]	360	UG/KG	U
36-005	36-3046	0	6	IN	Dichlorobenzene[1,3-]	6	UG/KG	U
36-005	36-3045	0	6	IN	Dichlorobenzene[1,3-]	380	UG/KG	U
36-005	36-3045	0	6	IN	Dichlorobenzene[1,3-]	6	UG/KG	UJ
36-005	36-3044	0	6	IN	Dichlorobenzene[1,3-]	380	UG/KG	U
36-005	36-3044	0	6	IN	Dichlorobenzene[1,3-]	6	UG/KG	UJ
36-005	36-3043	0	6	IN	Dichlorobenzene[1,3-]	360	UG/KG	U
36-005	36-3043	0	6	IN	Dichlorobenzene[1,3-]	5	UG/KG	U
36-005	36-3042	0	6	IN	Dichlorobenzene[1,3-]	350	UG/KG	U
36-005	36-3042	0	6	IN	Dichlorobenzene[1,3-]	6	UG/KG	UJ
36-005	36-3042	0	6	IN	Dichlorobenzene[1,3-]	340	UG/KG	U
36-005	36-3042	0	6	IN	Dichlorobenzene[1,3-]	5	UG/KG	UJ
36-005	36-3041	0	6	IN	Dichlorobenzene[1,3-]	5	UG/KG	U
36-005	36-3041	0	6	IN	Dichlorobenzene[1,3-]	350	UG/KG	U
36-005	36-3040	0	6	IN	Dichlorobenzene[1,3-]	5	UG/KG	U
36-005	36-3040	0	6	IN	Dichlorobenzene[1,3-]	350	UG/KG	U
36-005	36-3039	0	6	IN	Dichlorobenzene[1,3-]	5	UG/KG	U
36-005	36-3039	0	6	IN	Dichlorobenzene[1,3-]	340	UG/KG	U
36-005	36-3038	0	6	IN	Dichlorobenzene[1,3-]	6	UG/KG	U
36-005	36-3038	0	6	IN	Dichlorobenzene[1,3-]	360	UG/KG	U
36-005	36-3037	0	6	IN	Dichlorobenzene[1,3-]	5	UG/KG	U
36-005	36-3037	0	6	IN	Dichlorobenzene[1,3-]	350	UG/KG	U
36-005	36-3036	0	6	IN	Dichlorobenzene[1,3-]	6	UG/KG	U
36-005	36-3036	0	6	IN	Dichlorobenzene[1,3-]	340	UG/KG	U
36-005	36-3035	0	6	IN	Dichlorobenzene[1,3-]	6	UG/KG	U
36-005	36-3035	0	6	IN	Dichlorobenzene[1,3-]	350	UG/KG	U
36-005	36-3034	0	6	IN	Dichlorobenzene[1,3-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Dichlorobenzene[1,3-]	350	UG/KG	U
36-005	36-3034	0	6	IN	Dichlorobenzene[1,3-]	5	UG/KG	U
36-005	36-3034	0	6	IN	Dichlorobenzene[1,3-]	350	UG/KG	U
36-005	36-3026	0	6	IN	Dichlorobenzene[1,3-]	140000	UG/KG	U
36-005	36-3026	0	6	IN	Dichlorobenzene[1,3-]	25	UG/KG	U
36-005	36-3025	0	6	IN	Dichlorobenzene[1,3-]	360	UG/KG	U
36-005	36-3025	0	6	IN	Dichlorobenzene[1,3-]	5	UG/KG	U
36-005	36-3024	0	6	IN	Dichlorobenzene[1,3-]	400	UG/KG	U
36-005	36-3024	0	6	IN	Dichlorobenzene[1,3-]	6	UG/KG	U
36-005	36-3023	0	6	IN	Dichlorobenzene[1,3-]	370	UG/KG	U
36-005	36-3023	0	6	IN	Dichlorobenzene[1,3-]	6	UG/KG	UJ
36-005	36-3022	0	6	IN	Dichlorobenzene[1,3-]	360	UG/KG	U
36-005	36-3022	0	6	IN	Dichlorobenzene[1,3-]	6	UG/KG	U
36-005	36-3021	0	6	IN	Dichlorobenzene[1,3-]	400	UG/KG	U
36-005	36-3021	0	6	IN	Dichlorobenzene[1,3-]	6	UG/KG	UJ
36-005	36-3020	0	6	IN	Dichlorobenzene[1,3-]	370	UG/KG	U
36-005	36-3020	0	6	IN	Dichlorobenzene[1,3-]	6	UG/KG	UJ
36-005	36-3019	0	6	IN	Dichlorobenzene[1,3-]	370	UG/KG	U
36-005	36-3019	0	6	IN	Dichlorobenzene[1,3-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Dichlorobenzene[1,3-]	350	UG/KG	U
36-005	36-3018	0	6	IN	Dichlorobenzene[1,3-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Dichlorobenzene[1,3-]	370	UG/KG	U
36-005	36-3018	0	6	IN	Dichlorobenzene[1,3-]	6	UG/KG	U

36-005	36-3051	0	6	IN	Dichlorobenzene[1,4-]	5	UG/KG	U
36-005	36-3051	0	6	IN	Dichlorobenzene[1,4-]	350	UG/KG	U
36-005	36-3050	0	6	IN	Dichlorobenzene[1,4-]	360	UG/KG	U
36-005	36-3050	0	6	IN	Dichlorobenzene[1,4-]	6	UG/KG	U
36-005	36-3050	0	6	IN	Dichlorobenzene[1,4-]	350	UG/KG	U
36-005	36-3050	0	6	IN	Dichlorobenzene[1,4-]	6	UG/KG	U
36-005	36-3049	0	6	IN	Dichlorobenzene[1,4-]	340	UG/KG	U
36-005	36-3049	0	6	IN	Dichlorobenzene[1,4-]	6	UG/KG	U
36-005	36-3048	0	6	IN	Dichlorobenzene[1,4-]	360	UG/KG	U
36-005	36-3048	0	6	IN	Dichlorobenzene[1,4-]	6	UG/KG	UJ
36-005	36-3047	0	6	IN	Dichlorobenzene[1,4-]	390	UG/KG	U
36-005	36-3047	0	6	IN	Dichlorobenzene[1,4-]	6	UG/KG	U
36-005	36-3046	0	6	IN	Dichlorobenzene[1,4-]	360	UG/KG	U
36-005	36-3046	0	6	IN	Dichlorobenzene[1,4-]	6	UG/KG	U
36-005	36-3045	0	6	IN	Dichlorobenzene[1,4-]	380	UG/KG	U
36-005	36-3045	0	6	IN	Dichlorobenzene[1,4-]	6	UG/KG	UJ
36-005	36-3044	0	6	IN	Dichlorobenzene[1,4-]	380	UG/KG	U
36-005	36-3044	0	6	IN	Dichlorobenzene[1,4-]	6	UG/KG	UJ
36-005	36-3043	0	6	IN	Dichlorobenzene[1,4-]	5	UG/KG	U
36-005	36-3043	0	6	IN	Dichlorobenzene[1,4-]	360	UG/KG	U
36-005	36-3042	0	6	IN	Dichlorobenzene[1,4-]	350	UG/KG	U
36-005	36-3042	0	6	IN	Dichlorobenzene[1,4-]	6	UG/KG	UJ
36-005	36-3042	0	6	IN	Dichlorobenzene[1,4-]	340	UG/KG	U
36-005	36-3042	0	6	IN	Dichlorobenzene[1,4-]	5	UG/KG	UJ
36-005	36-3041	0	6	IN	Dichlorobenzene[1,4-]	5	UG/KG	U
36-005	36-3041	0	6	IN	Dichlorobenzene[1,4-]	350	UG/KG	U
36-005	36-3040	0	6	IN	Dichlorobenzene[1,4-]	5	UG/KG	U
36-005	36-3040	0	6	IN	Dichlorobenzene[1,4-]	350	UG/KG	U
36-005	36-3039	0	6	IN	Dichlorobenzene[1,4-]	5	UG/KG	U
36-005	36-3039	0	6	IN	Dichlorobenzene[1,4-]	340	UG/KG	U
36-005	36-3038	0	6	IN	Dichlorobenzene[1,4-]	6	UG/KG	U
36-005	36-3038	0	6	IN	Dichlorobenzene[1,4-]	360	UG/KG	U
36-005	36-3037	0	6	IN	Dichlorobenzene[1,4-]	5	UG/KG	U
36-005	36-3037	0	6	IN	Dichlorobenzene[1,4-]	350	UG/KG	U
36-005	36-3036	0	6	IN	Dichlorobenzene[1,4-]	6	UG/KG	U
36-005	36-3036	0	6	IN	Dichlorobenzene[1,4-]	340	UG/KG	U
36-005	36-3035	0	6	IN	Dichlorobenzene[1,4-]	6	UG/KG	U
36-005	36-3035	0	6	IN	Dichlorobenzene[1,4-]	350	UG/KG	U
36-005	36-3034	0	6	IN	Dichlorobenzene[1,4-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Dichlorobenzene[1,4-]	350	UG/KG	U
36-005	36-3034	0	6	IN	Dichlorobenzene[1,4-]	5	UG/KG	U
36-005	36-3034	0	6	IN	Dichlorobenzene[1,4-]	350	UG/KG	U
36-005	36-3026	0	6	IN	Dichlorobenzene[1,4-]	140000	UG/KG	U
36-005	36-3026	0	6	IN	Dichlorobenzene[1,4-]	25	UG/KG	U
36-005	36-3025	0	6	IN	Dichlorobenzene[1,4-]	360	UG/KG	U
36-005	36-3025	0	6	IN	Dichlorobenzene[1,4-]	5	UG/KG	U
36-005	36-3024	0	6	IN	Dichlorobenzene[1,4-]	400	UG/KG	U
36-005	36-3024	0	6	IN	Dichlorobenzene[1,4-]	6	UG/KG	U
36-005	36-3023	0	6	IN	Dichlorobenzene[1,4-]	370	UG/KG	U
36-005	36-3023	0	6	IN	Dichlorobenzene[1,4-]	6	UG/KG	UJ
36-005	36-3022	0	6	IN	Dichlorobenzene[1,4-]	360	UG/KG	U
36-005	36-3022	0	6	IN	Dichlorobenzene[1,4-]	6	UG/KG	U
36-005	36-3021	0	6	IN	Dichlorobenzene[1,4-]	400	UG/KG	U
36-005	36-3021	0	6	IN	Dichlorobenzene[1,4-]	6	UG/KG	UJ
36-005	36-3020	0	6	IN	Dichlorobenzene[1,4-]	370	UG/KG	U
36-005	36-3020	0	6	IN	Dichlorobenzene[1,4-]	6	UG/KG	UJ
36-005	36-3019	0	6	IN	Dichlorobenzene[1,4-]	370	UG/KG	U
36-005	36-3019	0	6	IN	Dichlorobenzene[1,4-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Dichlorobenzene[1,4-]	350	UG/KG	U
36-005	36-3018	0	6	IN	Dichlorobenzene[1,4-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Dichlorobenzene[1,4-]	370	UG/KG	U
36-005	36-3018	0	6	IN	Dichlorobenzene[1,4-]	6	UG/KG	U
36-005	36-3051	0	6	IN	Dichlorobenzidine[3,3'-]	710	UG/KG	U
36-005	36-3050	0	6	IN	Dichlorobenzidine[3,3'-]	710	UG/KG	U
36-005	36-3050	0	6	IN	Dichlorobenzidine[3,3'-]	700	UG/KG	U
36-005	36-3049	0	6	IN	Dichlorobenzidine[3,3'-]	680	UG/KG	U
36-005	36-3048	0	6	IN	Dichlorobenzidine[3,3'-]	730	UG/KG	U
36-005	36-3047	0	6	IN	Dichlorobenzidine[3,3'-]	780	UG/KG	U
36-005	36-3046	0	6	IN	Dichlorobenzidine[3,3'-]	720	UG/KG	U
36-005	36-3045	0	6	IN	Dichlorobenzidine[3,3'-]	760	UG/KG	U
36-005	36-3044	0	6	IN	Dichlorobenzidine[3,3'-]	760	UG/KG	U
36-005	36-3043	0	6	IN	Dichlorobenzidine[3,3'-]	730	UG/KG	U
36-005	36-3042	0	6	IN	Dichlorobenzidine[3,3'-]	700	UG/KG	U
36-005	36-3042	0	6	IN	Dichlorobenzidine[3,3'-]	690	UG/KG	U

36-005	36-3041	0	6	IN	Dichlorobenzidine[3,3'-]	690	UG/KG	U
36-005	36-3040	0	6	IN	Dichlorobenzidine[3,3'-]	690	UG/KG	U
36-005	36-3039	0	6	IN	Dichlorobenzidine[3,3'-]	670	UG/KG	U
36-005	36-3038	0	6	IN	Dichlorobenzidine[3,3'-]	710	UG/KG	U
36-005	36-3037	0	6	IN	Dichlorobenzidine[3,3'-]	690	UG/KG	U
36-005	36-3036	0	6	IN	Dichlorobenzidine[3,3'-]	680	UG/KG	U
36-005	36-3035	0	6	IN	Dichlorobenzidine[3,3'-]	710	UG/KG	U
36-005	36-3034	0	6	IN	Dichlorobenzidine[3,3'-]	700	UG/KG	U
36-005	36-3034	0	6	IN	Dichlorobenzidine[3,3'-]	710	UG/KG	U
36-005	36-3026	0	6	IN	Dichlorobenzidine[3,3'-]	270000	UG/KG	U
36-005	36-3025	0	6	IN	Dichlorobenzidine[3,3'-]	730	UG/KG	U
36-005	36-3024	0	6	IN	Dichlorobenzidine[3,3'-]	800	UG/KG	U
36-005	36-3023	0	6	IN	Dichlorobenzidine[3,3'-]	740	UG/KG	U
36-005	36-3022	0	6	IN	Dichlorobenzidine[3,3'-]	710	UG/KG	U
36-005	36-3021	0	6	IN	Dichlorobenzidine[3,3'-]	810	UG/KG	U
36-005	36-3020	0	6	IN	Dichlorobenzidine[3,3'-]	740	UG/KG	U
36-005	36-3019	0	6	IN	Dichlorobenzidine[3,3'-]	740	UG/KG	U
36-005	36-3018	0	6	IN	Dichlorobenzidine[3,3'-]	690	UG/KG	U
36-005	36-3018	0	6	IN	Dichlorobenzidine[3,3'-]	730	UG/KG	U
36-005	36-3051	0	6	IN	Dichlorodifluoromethane	10	UG/KG	U
36-005	36-3050	0	6	IN	Dichlorodifluoromethane	11	UG/KG	U
36-005	36-3050	0	6	IN	Dichlorodifluoromethane	11	UG/KG	U
36-005	36-3049	0	6	IN	Dichlorodifluoromethane	11	UG/KG	U
36-005	36-3048	0	6	IN	Dichlorodifluoromethane	11	UG/KG	U
36-005	36-3047	0	6	IN	Dichlorodifluoromethane	12	UG/KG	U
36-005	36-3046	0	6	IN	Dichlorodifluoromethane	11	UG/KG	U
36-005	36-3045	0	6	IN	Dichlorodifluoromethane	11	UG/KG	U
36-005	36-3044	0	6	IN	Dichlorodifluoromethane	11	UG/KG	U
36-005	36-3043	0	6	IN	Dichlorodifluoromethane	10	UG/KG	U
36-005	36-3042	0	6	IN	Dichlorodifluoromethane	11	UG/KG	U
36-005	36-3042	0	6	IN	Dichlorodifluoromethane	10	UG/KG	U
36-005	36-3041	0	6	IN	Dichlorodifluoromethane	10	UG/KG	U
36-005	36-3040	0	6	IN	Dichlorodifluoromethane	10	UG/KG	U
36-005	36-3039	0	6	IN	Dichlorodifluoromethane	10	UG/KG	U
36-005	36-3038	0	6	IN	Dichlorodifluoromethane	11	UG/KG	U
36-005	36-3037	0	6	IN	Dichlorodifluoromethane	10	UG/KG	U
36-005	36-3036	0	6	IN	Dichlorodifluoromethane	11	UG/KG	U
36-005	36-3035	0	6	IN	Dichlorodifluoromethane	11	UG/KG	U
36-005	36-3034	0	6	IN	Dichlorodifluoromethane	11	UG/KG	U
36-005	36-3034	0	6	IN	Dichlorodifluoromethane	10	UG/KG	U
36-005	36-3026	0	6	IN	Dichlorodifluoromethane	50	UG/KG	U
36-005	36-3025	0	6	IN	Dichlorodifluoromethane	10	UG/KG	U
36-005	36-3024	0	6	IN	Dichlorodifluoromethane	12	UG/KG	U
36-005	36-3023	0	6	IN	Dichlorodifluoromethane	11	UG/KG	U
36-005	36-3022	0	6	IN	Dichlorodifluoromethane	12	UG/KG	U
36-005	36-3021	0	6	IN	Dichlorodifluoromethane	12	UG/KG	U
36-005	36-3020	0	6	IN	Dichlorodifluoromethane	11	UG/KG	U
36-005	36-3019	0	6	IN	Dichlorodifluoromethane	11	UG/KG	U
36-005	36-3018	0	6	IN	Dichlorodifluoromethane	11	UG/KG	U
36-005	36-3018	0	6	IN	Dichlorodifluoromethane	11	UG/KG	U
36-005	36-3051	0	6	IN	Dichloroethane[1,1-]	5	UG/KG	U
36-005	36-3050	0	6	IN	Dichloroethane[1,1-]	6	UG/KG	U
36-005	36-3050	0	6	IN	Dichloroethane[1,1-]	6	UG/KG	U
36-005	36-3049	0	6	IN	Dichloroethane[1,1-]	6	UG/KG	U
36-005	36-3048	0	6	IN	Dichloroethane[1,1-]	6	UG/KG	U
36-005	36-3047	0	6	IN	Dichloroethane[1,1-]	6	UG/KG	U
36-005	36-3046	0	6	IN	Dichloroethane[1,1-]	6	UG/KG	U
36-005	36-3045	0	6	IN	Dichloroethane[1,1-]	6	UG/KG	U
36-005	36-3044	0	6	IN	Dichloroethane[1,1-]	6	UG/KG	U
36-005	36-3043	0	6	IN	Dichloroethane[1,1-]	5	UG/KG	U
36-005	36-3042	0	6	IN	Dichloroethane[1,1-]	6	UG/KG	U
36-005	36-3042	0	6	IN	Dichloroethane[1,1-]	5	UG/KG	U
36-005	36-3041	0	6	IN	Dichloroethane[1,1-]	5	UG/KG	U
36-005	36-3040	0	6	IN	Dichloroethane[1,1-]	5	UG/KG	U
36-005	36-3039	0	6	IN	Dichloroethane[1,1-]	5	UG/KG	U
36-005	36-3038	0	6	IN	Dichloroethane[1,1-]	6	UG/KG	U
36-005	36-3037	0	6	IN	Dichloroethane[1,1-]	5	UG/KG	U
36-005	36-3036	0	6	IN	Dichloroethane[1,1-]	6	UG/KG	U
36-005	36-3035	0	6	IN	Dichloroethane[1,1-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Dichloroethane[1,1-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Dichloroethane[1,1-]	5	UG/KG	U
36-005	36-3026	0	6	IN	Dichloroethane[1,1-]	25	UG/KG	U
36-005	36-3025	0	6	IN	Dichloroethane[1,1-]	5	UG/KG	U
36-005	36-3024	0	6	IN	Dichloroethane[1,1-]	6	UG/KG	U

36-005	36-3023	0	6	IN	Dichloroethane[1,1-]	6	UG/KG	U
36-005	36-3022	0	6	IN	Dichloroethane[1,1-]	6	UG/KG	U
36-005	36-3021	0	6	IN	Dichloroethane[1,1-]	6	UG/KG	U
36-005	36-3020	0	6	IN	Dichloroethane[1,1-]	6	UG/KG	U
36-005	36-3019	0	6	IN	Dichloroethane[1,1-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Dichloroethane[1,1-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Dichloroethane[1,1-]	6	UG/KG	U
36-005	36-3051	0	6	IN	Dichloroethane[1,2-]	5	UG/KG	U
36-005	36-3050	0	6	IN	Dichloroethane[1,2-]	6	UG/KG	U
36-005	36-3050	0	6	IN	Dichloroethane[1,2-]	6	UG/KG	U
36-005	36-3049	0	6	IN	Dichloroethane[1,2-]	6	UG/KG	U
36-005	36-3048	0	6	IN	Dichloroethane[1,2-]	6	UG/KG	U
36-005	36-3047	0	6	IN	Dichloroethane[1,2-]	6	UG/KG	U
36-005	36-3046	0	6	IN	Dichloroethane[1,2-]	6	UG/KG	U
36-005	36-3045	0	6	IN	Dichloroethane[1,2-]	6	UG/KG	U
36-005	36-3044	0	6	IN	Dichloroethane[1,2-]	6	UG/KG	U
36-005	36-3043	0	6	IN	Dichloroethane[1,2-]	5	UG/KG	U
36-005	36-3042	0	6	IN	Dichloroethane[1,2-]	6	UG/KG	U
36-005	36-3042	0	6	IN	Dichloroethane[1,2-]	5	UG/KG	U
36-005	36-3041	0	6	IN	Dichloroethane[1,2-]	5	UG/KG	U
36-005	36-3040	0	6	IN	Dichloroethane[1,2-]	5	UG/KG	U
36-005	36-3039	0	6	IN	Dichloroethane[1,2-]	5	UG/KG	U
36-005	36-3038	0	6	IN	Dichloroethane[1,2-]	6	UG/KG	U
36-005	36-3037	0	6	IN	Dichloroethane[1,2-]	5	UG/KG	U
36-005	36-3036	0	6	IN	Dichloroethane[1,2-]	6	UG/KG	U
36-005	36-3035	0	6	IN	Dichloroethane[1,2-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Dichloroethane[1,2-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Dichloroethane[1,2-]	5	UG/KG	U
36-005	36-3026	0	6	IN	Dichloroethane[1,2-]	25	UG/KG	U
36-005	36-3025	0	6	IN	Dichloroethane[1,2-]	5	UG/KG	U
36-005	36-3024	0	6	IN	Dichloroethane[1,2-]	6	UG/KG	U
36-005	36-3023	0	6	IN	Dichloroethane[1,2-]	6	UG/KG	U
36-005	36-3022	0	6	IN	Dichloroethane[1,2-]	6	UG/KG	U
36-005	36-3021	0	6	IN	Dichloroethane[1,2-]	6	UG/KG	U
36-005	36-3020	0	6	IN	Dichloroethane[1,2-]	6	UG/KG	U
36-005	36-3019	0	6	IN	Dichloroethane[1,2-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Dichloroethane[1,2-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Dichloroethane[1,2-]	6	UG/KG	U
36-005	36-3051	0	6	IN	Dichloroethene[1,1-]	5	UG/KG	U
36-005	36-3050	0	6	IN	Dichloroethene[1,1-]	6	UG/KG	U
36-005	36-3050	0	6	IN	Dichloroethene[1,1-]	6	UG/KG	U
36-005	36-3049	0	6	IN	Dichloroethene[1,1-]	6	UG/KG	U
36-005	36-3048	0	6	IN	Dichloroethene[1,1-]	6	UG/KG	U
36-005	36-3047	0	6	IN	Dichloroethene[1,1-]	6	UG/KG	U
36-005	36-3046	0	6	IN	Dichloroethene[1,1-]	6	UG/KG	U
36-005	36-3045	0	6	IN	Dichloroethene[1,1-]	6	UG/KG	U
36-005	36-3044	0	6	IN	Dichloroethene[1,1-]	6	UG/KG	U
36-005	36-3043	0	6	IN	Dichloroethene[1,1-]	5	UG/KG	U
36-005	36-3042	0	6	IN	Dichloroethene[1,1-]	6	UG/KG	U
36-005	36-3042	0	6	IN	Dichloroethene[1,1-]	5	UG/KG	U
36-005	36-3041	0	6	IN	Dichloroethene[1,1-]	5	UG/KG	U
36-005	36-3040	0	6	IN	Dichloroethene[1,1-]	5	UG/KG	U
36-005	36-3039	0	6	IN	Dichloroethene[1,1-]	5	UG/KG	U
36-005	36-3038	0	6	IN	Dichloroethene[1,1-]	6	UG/KG	U
36-005	36-3037	0	6	IN	Dichloroethene[1,1-]	5	UG/KG	U
36-005	36-3036	0	6	IN	Dichloroethene[1,1-]	6	UG/KG	U
36-005	36-3035	0	6	IN	Dichloroethene[1,1-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Dichloroethene[1,1-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Dichloroethene[1,1-]	5	UG/KG	U
36-005	36-3026	0	6	IN	Dichloroethene[1,1-]	25	UG/KG	U
36-005	36-3025	0	6	IN	Dichloroethene[1,1-]	5	UG/KG	U
36-005	36-3024	0	6	IN	Dichloroethene[1,1-]	6	UG/KG	U
36-005	36-3023	0	6	IN	Dichloroethene[1,1-]	6	UG/KG	U
36-005	36-3022	0	6	IN	Dichloroethene[1,1-]	6	UG/KG	U
36-005	36-3021	0	6	IN	Dichloroethene[1,1-]	6	UG/KG	U
36-005	36-3020	0	6	IN	Dichloroethene[1,1-]	6	UG/KG	U
36-005	36-3019	0	6	IN	Dichloroethene[1,1-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Dichloroethene[1,1-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Dichloroethene[1,1-]	6	UG/KG	U
36-005	36-3051	0	6	IN	Dichloroethene[cis-1,2-]	5	UG/KG	U
36-005	36-3050	0	6	IN	Dichloroethene[cis-1,2-]	6	UG/KG	U
36-005	36-3050	0	6	IN	Dichloroethene[cis-1,2-]	6	UG/KG	U
36-005	36-3049	0	6	IN	Dichloroethene[cis-1,2-]	6	UG/KG	U
36-005	36-3048	0	6	IN	Dichloroethene[cis-1,2-]	6	UG/KG	U

36-005	36-3047	0	6	IN	Dichloroethene[cis-1,2-]	6	UG/KG	U
36-005	36-3046	0	6	IN	Dichloroethene[cis-1,2-]	6	UG/KG	U
36-005	36-3045	0	6	IN	Dichloroethene[cis-1,2-]	6	UG/KG	U
36-005	36-3044	0	6	IN	Dichloroethene[cis-1,2-]	6	UG/KG	U
36-005	36-3043	0	6	IN	Dichloroethene[cis-1,2-]	5	UG/KG	U
36-005	36-3042	0	6	IN	Dichloroethene[cis-1,2-]	6	UG/KG	U
36-005	36-3042	0	6	IN	Dichloroethene[cis-1,2-]	5	UG/KG	U
36-005	36-3041	0	6	IN	Dichloroethene[cis-1,2-]	5	UG/KG	U
36-005	36-3040	0	6	IN	Dichloroethene[cis-1,2-]	5	UG/KG	U
36-005	36-3039	0	6	IN	Dichloroethene[cis-1,2-]	5	UG/KG	U
36-005	36-3038	0	6	IN	Dichloroethene[cis-1,2-]	6	UG/KG	U
36-005	36-3037	0	6	IN	Dichloroethene[cis-1,2-]	5	UG/KG	U
36-005	36-3036	0	6	IN	Dichloroethene[cis-1,2-]	6	UG/KG	U
36-005	36-3035	0	6	IN	Dichloroethene[cis-1,2-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Dichloroethene[cis-1,2-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Dichloroethene[cis-1,2-]	5	UG/KG	U
36-005	36-3026	0	6	IN	Dichloroethene[cis-1,2-]	25	UG/KG	U
36-005	36-3025	0	6	IN	Dichloroethene[cis-1,2-]	5	UG/KG	U
36-005	36-3024	0	6	IN	Dichloroethene[cis-1,2-]	6	UG/KG	U
36-005	36-3023	0	6	IN	Dichloroethene[cis-1,2-]	6	UG/KG	U
36-005	36-3022	0	6	IN	Dichloroethene[cis-1,2-]	6	UG/KG	U
36-005	36-3021	0	6	IN	Dichloroethene[cis-1,2-]	6	UG/KG	U
36-005	36-3020	0	6	IN	Dichloroethene[cis-1,2-]	6	UG/KG	U
36-005	36-3019	0	6	IN	Dichloroethene[cis-1,2-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Dichloroethene[cis-1,2-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Dichloroethene[cis-1,2-]	6	UG/KG	U
36-005	36-3051	0	6	IN	Dichloroethene[trans-1,2-]	5	UG/KG	U
36-005	36-3050	0	6	IN	Dichloroethene[trans-1,2-]	6	UG/KG	U
36-005	36-3050	0	6	IN	Dichloroethene[trans-1,2-]	6	UG/KG	U
36-005	36-3049	0	6	IN	Dichloroethene[trans-1,2-]	6	UG/KG	U
36-005	36-3048	0	6	IN	Dichloroethene[trans-1,2-]	6	UG/KG	U
36-005	36-3047	0	6	IN	Dichloroethene[trans-1,2-]	6	UG/KG	U
36-005	36-3046	0	6	IN	Dichloroethene[trans-1,2-]	6	UG/KG	U
36-005	36-3045	0	6	IN	Dichloroethene[trans-1,2-]	6	UG/KG	U
36-005	36-3044	0	6	IN	Dichloroethene[trans-1,2-]	6	UG/KG	U
36-005	36-3043	0	6	IN	Dichloroethene[trans-1,2-]	5	UG/KG	U
36-005	36-3042	0	6	IN	Dichloroethene[trans-1,2-]	6	UG/KG	U
36-005	36-3042	0	6	IN	Dichloroethene[trans-1,2-]	5	UG/KG	U
36-005	36-3041	0	6	IN	Dichloroethene[trans-1,2-]	5	UG/KG	U
36-005	36-3040	0	6	IN	Dichloroethene[trans-1,2-]	5	UG/KG	U
36-005	36-3039	0	6	IN	Dichloroethene[trans-1,2-]	5	UG/KG	U
36-005	36-3038	0	6	IN	Dichloroethene[trans-1,2-]	6	UG/KG	U
36-005	36-3037	0	6	IN	Dichloroethene[trans-1,2-]	5	UG/KG	U
36-005	36-3036	0	6	IN	Dichloroethene[trans-1,2-]	6	UG/KG	U
36-005	36-3035	0	6	IN	Dichloroethene[trans-1,2-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Dichloroethene[trans-1,2-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Dichloroethene[trans-1,2-]	5	UG/KG	U
36-005	36-3026	0	6	IN	Dichloroethene[trans-1,2-]	25	UG/KG	U
36-005	36-3025	0	6	IN	Dichloroethene[trans-1,2-]	5	UG/KG	U
36-005	36-3024	0	6	IN	Dichloroethene[trans-1,2-]	6	UG/KG	U
36-005	36-3023	0	6	IN	Dichloroethene[trans-1,2-]	6	UG/KG	U
36-005	36-3022	0	6	IN	Dichloroethene[trans-1,2-]	6	UG/KG	U
36-005	36-3021	0	6	IN	Dichloroethene[trans-1,2-]	6	UG/KG	U
36-005	36-3020	0	6	IN	Dichloroethene[trans-1,2-]	6	UG/KG	U
36-005	36-3019	0	6	IN	Dichloroethene[trans-1,2-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Dichloroethene[trans-1,2-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Dichloroethene[trans-1,2-]	6	UG/KG	U
36-005	36-3051	0	6	IN	Dichlorophenol[2,4-]	350	UG/KG	U
36-005	36-3050	0	6	IN	Dichlorophenol[2,4-]	360	UG/KG	U
36-005	36-3050	0	6	IN	Dichlorophenol[2,4-]	350	UG/KG	U
36-005	36-3049	0	6	IN	Dichlorophenol[2,4-]	340	UG/KG	U
36-005	36-3048	0	6	IN	Dichlorophenol[2,4-]	360	UG/KG	U
36-005	36-3047	0	6	IN	Dichlorophenol[2,4-]	390	UG/KG	U
36-005	36-3046	0	6	IN	Dichlorophenol[2,4-]	360	UG/KG	U
36-005	36-3045	0	6	IN	Dichlorophenol[2,4-]	380	UG/KG	U
36-005	36-3044	0	6	IN	Dichlorophenol[2,4-]	380	UG/KG	U
36-005	36-3043	0	6	IN	Dichlorophenol[2,4-]	360	UG/KG	U
36-005	36-3042	0	6	IN	Dichlorophenol[2,4-]	350	UG/KG	U
36-005	36-3042	0	6	IN	Dichlorophenol[2,4-]	340	UG/KG	U
36-005	36-3041	0	6	IN	Dichlorophenol[2,4-]	350	UG/KG	U
36-005	36-3040	0	6	IN	Dichlorophenol[2,4-]	350	UG/KG	U
36-005	36-3039	0	6	IN	Dichlorophenol[2,4-]	340	UG/KG	U
36-005	36-3038	0	6	IN	Dichlorophenol[2,4-]	360	UG/KG	U
36-005	36-3037	0	6	IN	Dichlorophenol[2,4-]	350	UG/KG	U

36-005	36-3036	0	6	IN	Dichlorophenol[2,4-]	340	UG/KG	U
36-005	36-3035	0	6	IN	Dichlorophenol[2,4-]	350	UG/KG	U
36-005	36-3034	0	6	IN	Dichlorophenol[2,4-]	350	UG/KG	U
36-005	36-3034	0	6	IN	Dichlorophenol[2,4-]	350	UG/KG	U
36-005	36-3026	0	6	IN	Dichlorophenol[2,4-]	140000	UG/KG	U
36-005	36-3025	0	6	IN	Dichlorophenol[2,4-]	360	UG/KG	U
36-005	36-3024	0	6	IN	Dichlorophenol[2,4-]	400	UG/KG	U
36-005	36-3023	0	6	IN	Dichlorophenol[2,4-]	370	UG/KG	U
36-005	36-3022	0	6	IN	Dichlorophenol[2,4-]	360	UG/KG	U
36-005	36-3021	0	6	IN	Dichlorophenol[2,4-]	400	UG/KG	U
36-005	36-3020	0	6	IN	Dichlorophenol[2,4-]	370	UG/KG	U
36-005	36-3019	0	6	IN	Dichlorophenol[2,4-]	370	UG/KG	U
36-005	36-3018	0	6	IN	Dichlorophenol[2,4-]	350	UG/KG	U
36-005	36-3018	0	6	IN	Dichlorophenol[2,4-]	370	UG/KG	U
36-005	36-3051	0	6	IN	Dichloropropane[1,2-]	5	UG/KG	U
36-005	36-3050	0	6	IN	Dichloropropane[1,2-]	6	UG/KG	U
36-005	36-3050	0	6	IN	Dichloropropane[1,2-]	6	UG/KG	U
36-005	36-3049	0	6	IN	Dichloropropane[1,2-]	6	UG/KG	U
36-005	36-3048	0	6	IN	Dichloropropane[1,2-]	6	UG/KG	U
36-005	36-3047	0	6	IN	Dichloropropane[1,2-]	6	UG/KG	U
36-005	36-3046	0	6	IN	Dichloropropane[1,2-]	6	UG/KG	U
36-005	36-3045	0	6	IN	Dichloropropane[1,2-]	6	UG/KG	U
36-005	36-3044	0	6	IN	Dichloropropane[1,2-]	6	UG/KG	U
36-005	36-3043	0	6	IN	Dichloropropane[1,2-]	5	UG/KG	U
36-005	36-3042	0	6	IN	Dichloropropane[1,2-]	6	UG/KG	U
36-005	36-3042	0	6	IN	Dichloropropane[1,2-]	5	UG/KG	U
36-005	36-3041	0	6	IN	Dichloropropane[1,2-]	5	UG/KG	U
36-005	36-3040	0	6	IN	Dichloropropane[1,2-]	5	UG/KG	U
36-005	36-3039	0	6	IN	Dichloropropane[1,2-]	5	UG/KG	U
36-005	36-3038	0	6	IN	Dichloropropane[1,2-]	6	UG/KG	U
36-005	36-3037	0	6	IN	Dichloropropane[1,2-]	5	UG/KG	U
36-005	36-3036	0	6	IN	Dichloropropane[1,2-]	6	UG/KG	U
36-005	36-3035	0	6	IN	Dichloropropane[1,2-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Dichloropropane[1,2-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Dichloropropane[1,2-]	5	UG/KG	U
36-005	36-3026	0	6	IN	Dichloropropane[1,2-]	25	UG/KG	U
36-005	36-3025	0	6	IN	Dichloropropane[1,2-]	5	UG/KG	U
36-005	36-3024	0	6	IN	Dichloropropane[1,2-]	6	UG/KG	U
36-005	36-3023	0	6	IN	Dichloropropane[1,2-]	6	UG/KG	U
36-005	36-3022	0	6	IN	Dichloropropane[1,2-]	6	UG/KG	U
36-005	36-3021	0	6	IN	Dichloropropane[1,2-]	6	UG/KG	U
36-005	36-3020	0	6	IN	Dichloropropane[1,2-]	6	UG/KG	U
36-005	36-3019	0	6	IN	Dichloropropane[1,2-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Dichloropropane[1,2-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Dichloropropane[1,2-]	6	UG/KG	U
36-005	36-3051	0	6	IN	Dichloropropane[1,3-]	5	UG/KG	U
36-005	36-3050	0	6	IN	Dichloropropane[1,3-]	6	UG/KG	U
36-005	36-3050	0	6	IN	Dichloropropane[1,3-]	6	UG/KG	U
36-005	36-3049	0	6	IN	Dichloropropane[1,3-]	6	UG/KG	U
36-005	36-3048	0	6	IN	Dichloropropane[1,3-]	6	UG/KG	U
36-005	36-3047	0	6	IN	Dichloropropane[1,3-]	6	UG/KG	U
36-005	36-3046	0	6	IN	Dichloropropane[1,3-]	6	UG/KG	U
36-005	36-3045	0	6	IN	Dichloropropane[1,3-]	6	UG/KG	U
36-005	36-3044	0	6	IN	Dichloropropane[1,3-]	6	UG/KG	U
36-005	36-3043	0	6	IN	Dichloropropane[1,3-]	5	UG/KG	U
36-005	36-3042	0	6	IN	Dichloropropane[1,3-]	6	UG/KG	UJ
36-005	36-3042	0	6	IN	Dichloropropane[1,3-]	5	UG/KG	U
36-005	36-3041	0	6	IN	Dichloropropane[1,3-]	5	UG/KG	U
36-005	36-3040	0	6	IN	Dichloropropane[1,3-]	5	UG/KG	U
36-005	36-3039	0	6	IN	Dichloropropane[1,3-]	5	UG/KG	U
36-005	36-3038	0	6	IN	Dichloropropane[1,3-]	6	UG/KG	U
36-005	36-3037	0	6	IN	Dichloropropane[1,3-]	5	UG/KG	U
36-005	36-3036	0	6	IN	Dichloropropane[1,3-]	6	UG/KG	U
36-005	36-3035	0	6	IN	Dichloropropane[1,3-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Dichloropropane[1,3-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Dichloropropane[1,3-]	5	UG/KG	U
36-005	36-3026	0	6	IN	Dichloropropane[1,3-]	25	UG/KG	U
36-005	36-3025	0	6	IN	Dichloropropane[1,3-]	5	UG/KG	U
36-005	36-3024	0	6	IN	Dichloropropane[1,3-]	6	UG/KG	U
36-005	36-3023	0	6	IN	Dichloropropane[1,3-]	6	UG/KG	U
36-005	36-3022	0	6	IN	Dichloropropane[1,3-]	6	UG/KG	U
36-005	36-3021	0	6	IN	Dichloropropane[1,3-]	6	UG/KG	U
36-005	36-3020	0	6	IN	Dichloropropane[1,3-]	6	UG/KG	U
36-005	36-3019	0	6	IN	Dichloropropane[1,3-]	6	UG/KG	U

36-005	36-3018	0	6	IN	Dichloropropane[1,3-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Dichloropropane[1,3-]	6	UG/KG	U
36-005	36-3051	0	6	IN	Dichloropropane[2,2-]	5	UG/KG	U
36-005	36-3050	0	6	IN	Dichloropropane[2,2-]	6	UG/KG	U
36-005	36-3050	0	6	IN	Dichloropropane[2,2-]	6	UG/KG	U
36-005	36-3049	0	6	IN	Dichloropropane[2,2-]	6	UG/KG	U
36-005	36-3048	0	6	IN	Dichloropropane[2,2-]	6	UG/KG	U
36-005	36-3047	0	6	IN	Dichloropropane[2,2-]	6	UG/KG	U
36-005	36-3046	0	6	IN	Dichloropropane[2,2-]	6	UG/KG	U
36-005	36-3045	0	6	IN	Dichloropropane[2,2-]	6	UG/KG	U
36-005	36-3044	0	6	IN	Dichloropropane[2,2-]	6	UG/KG	U
36-005	36-3043	0	6	IN	Dichloropropane[2,2-]	5	UG/KG	U
36-005	36-3042	0	6	IN	Dichloropropane[2,2-]	6	UG/KG	U
36-005	36-3042	0	6	IN	Dichloropropane[2,2-]	5	UG/KG	U
36-005	36-3041	0	6	IN	Dichloropropane[2,2-]	5	UG/KG	U
36-005	36-3040	0	6	IN	Dichloropropane[2,2-]	5	UG/KG	U
36-005	36-3039	0	6	IN	Dichloropropane[2,2-]	5	UG/KG	U
36-005	36-3038	0	6	IN	Dichloropropane[2,2-]	6	UG/KG	U
36-005	36-3037	0	6	IN	Dichloropropane[2,2-]	5	UG/KG	U
36-005	36-3036	0	6	IN	Dichloropropane[2,2-]	6	UG/KG	U
36-005	36-3035	0	6	IN	Dichloropropane[2,2-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Dichloropropane[2,2-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Dichloropropane[2,2-]	5	UG/KG	U
36-005	36-3026	0	6	IN	Dichloropropane[2,2-]	25	UG/KG	U
36-005	36-3025	0	6	IN	Dichloropropane[2,2-]	5	UG/KG	U
36-005	36-3024	0	6	IN	Dichloropropane[2,2-]	6	UG/KG	U
36-005	36-3023	0	6	IN	Dichloropropane[2,2-]	6	UG/KG	U
36-005	36-3022	0	6	IN	Dichloropropane[2,2-]	6	UG/KG	U
36-005	36-3021	0	6	IN	Dichloropropane[2,2-]	6	UG/KG	U
36-005	36-3020	0	6	IN	Dichloropropane[2,2-]	6	UG/KG	U
36-005	36-3019	0	6	IN	Dichloropropane[2,2-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Dichloropropane[2,2-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Dichloropropane[2,2-]	6	UG/KG	U
36-005	36-3051	0	6	IN	Dichloropropene[1,1-]	5	UG/KG	U
36-005	36-3050	0	6	IN	Dichloropropene[1,1-]	6	UG/KG	U
36-005	36-3050	0	6	IN	Dichloropropene[1,1-]	6	UG/KG	U
36-005	36-3049	0	6	IN	Dichloropropene[1,1-]	6	UG/KG	U
36-005	36-3048	0	6	IN	Dichloropropene[1,1-]	6	UG/KG	U
36-005	36-3047	0	6	IN	Dichloropropene[1,1-]	6	UG/KG	U
36-005	36-3046	0	6	IN	Dichloropropene[1,1-]	6	UG/KG	U
36-005	36-3045	0	6	IN	Dichloropropene[1,1-]	6	UG/KG	U
36-005	36-3044	0	6	IN	Dichloropropene[1,1-]	6	UG/KG	U
36-005	36-3043	0	6	IN	Dichloropropene[1,1-]	5	UG/KG	U
36-005	36-3042	0	6	IN	Dichloropropene[1,1-]	6	UG/KG	U
36-005	36-3042	0	6	IN	Dichloropropene[1,1-]	5	UG/KG	U
36-005	36-3041	0	6	IN	Dichloropropene[1,1-]	5	UG/KG	U
36-005	36-3040	0	6	IN	Dichloropropene[1,1-]	5	UG/KG	U
36-005	36-3039	0	6	IN	Dichloropropene[1,1-]	5	UG/KG	U
36-005	36-3038	0	6	IN	Dichloropropene[1,1-]	6	UG/KG	U
36-005	36-3037	0	6	IN	Dichloropropene[1,1-]	5	UG/KG	U
36-005	36-3036	0	6	IN	Dichloropropene[1,1-]	6	UG/KG	U
36-005	36-3035	0	6	IN	Dichloropropene[1,1-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Dichloropropene[1,1-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Dichloropropene[1,1-]	5	UG/KG	U
36-005	36-3026	0	6	IN	Dichloropropene[1,1-]	25	UG/KG	U
36-005	36-3025	0	6	IN	Dichloropropene[1,1-]	5	UG/KG	U
36-005	36-3024	0	6	IN	Dichloropropene[1,1-]	6	UG/KG	U
36-005	36-3023	0	6	IN	Dichloropropene[1,1-]	6	UG/KG	U
36-005	36-3022	0	6	IN	Dichloropropene[1,1-]	6	UG/KG	U
36-005	36-3021	0	6	IN	Dichloropropene[1,1-]	6	UG/KG	U
36-005	36-3020	0	6	IN	Dichloropropene[1,1-]	6	UG/KG	U
36-005	36-3019	0	6	IN	Dichloropropene[1,1-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Dichloropropene[1,1-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Dichloropropene[1,1-]	6	UG/KG	U
36-005	36-3051	0	6	IN	Dichloropropene[cis-1,3-]	5	UG/KG	U
36-005	36-3050	0	6	IN	Dichloropropene[cis-1,3-]	6	UG/KG	U
36-005	36-3050	0	6	IN	Dichloropropene[cis-1,3-]	6	UG/KG	U
36-005	36-3049	0	6	IN	Dichloropropene[cis-1,3-]	6	UG/KG	U
36-005	36-3048	0	6	IN	Dichloropropene[cis-1,3-]	6	UG/KG	U
36-005	36-3047	0	6	IN	Dichloropropene[cis-1,3-]	6	UG/KG	U
36-005	36-3046	0	6	IN	Dichloropropene[cis-1,3-]	6	UG/KG	U
36-005	36-3045	0	6	IN	Dichloropropene[cis-1,3-]	6	UG/KG	U
36-005	36-3044	0	6	IN	Dichloropropene[cis-1,3-]	6	UG/KG	U
36-005	36-3043	0	6	IN	Dichloropropene[cis-1,3-]	5	UG/KG	U

36-005	36-3042	0	6	IN	Dichloropropene[cis-1,3-]	6	UG/KG	U
36-005	36-3042	0	6	IN	Dichloropropene[cis-1,3-]	5	UG/KG	U
36-005	36-3041	0	6	IN	Dichloropropene[cis-1,3-]	5	UG/KG	U
36-005	36-3040	0	6	IN	Dichloropropene[cis-1,3-]	5	UG/KG	U
36-005	36-3039	0	6	IN	Dichloropropene[cis-1,3-]	5	UG/KG	U
36-005	36-3038	0	6	IN	Dichloropropene[cis-1,3-]	6	UG/KG	U
36-005	36-3037	0	6	IN	Dichloropropene[cis-1,3-]	5	UG/KG	U
36-005	36-3036	0	6	IN	Dichloropropene[cis-1,3-]	6	UG/KG	U
36-005	36-3035	0	6	IN	Dichloropropene[cis-1,3-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Dichloropropene[cis-1,3-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Dichloropropene[cis-1,3-]	5	UG/KG	U
36-005	36-3026	0	6	IN	Dichloropropene[cis-1,3-]	25	UG/KG	U
36-005	36-3025	0	6	IN	Dichloropropene[cis-1,3-]	5	UG/KG	U
36-005	36-3024	0	6	IN	Dichloropropene[cis-1,3-]	6	UG/KG	U
36-005	36-3023	0	6	IN	Dichloropropene[cis-1,3-]	6	UG/KG	U
36-005	36-3022	0	6	IN	Dichloropropene[cis-1,3-]	6	UG/KG	U
36-005	36-3021	0	6	IN	Dichloropropene[cis-1,3-]	6	UG/KG	U
36-005	36-3020	0	6	IN	Dichloropropene[cis-1,3-]	6	UG/KG	U
36-005	36-3019	0	6	IN	Dichloropropene[cis-1,3-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Dichloropropene[cis-1,3-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Dichloropropene[cis-1,3-]	6	UG/KG	U
36-005	36-3051	0	6	IN	Dichloropropene[trans-1,3-]	5	UG/KG	U
36-005	36-3050	0	6	IN	Dichloropropene[trans-1,3-]	6	UG/KG	U
36-005	36-3050	0	6	IN	Dichloropropene[trans-1,3-]	6	UG/KG	U
36-005	36-3049	0	6	IN	Dichloropropene[trans-1,3-]	6	UG/KG	U
36-005	36-3048	0	6	IN	Dichloropropene[trans-1,3-]	6	UG/KG	U
36-005	36-3047	0	6	IN	Dichloropropene[trans-1,3-]	6	UG/KG	U
36-005	36-3046	0	6	IN	Dichloropropene[trans-1,3-]	6	UG/KG	U
36-005	36-3045	0	6	IN	Dichloropropene[trans-1,3-]	6	UG/KG	U
36-005	36-3044	0	6	IN	Dichloropropene[trans-1,3-]	6	UG/KG	U
36-005	36-3043	0	6	IN	Dichloropropene[trans-1,3-]	5	UG/KG	U
36-005	36-3042	0	6	IN	Dichloropropene[trans-1,3-]	6	UG/KG	U
36-005	36-3042	0	6	IN	Dichloropropene[trans-1,3-]	5	UG/KG	U
36-005	36-3041	0	6	IN	Dichloropropene[trans-1,3-]	5	UG/KG	U
36-005	36-3040	0	6	IN	Dichloropropene[trans-1,3-]	5	UG/KG	U
36-005	36-3039	0	6	IN	Dichloropropene[trans-1,3-]	5	UG/KG	U
36-005	36-3038	0	6	IN	Dichloropropene[trans-1,3-]	6	UG/KG	U
36-005	36-3037	0	6	IN	Dichloropropene[trans-1,3-]	5	UG/KG	U
36-005	36-3036	0	6	IN	Dichloropropene[trans-1,3-]	6	UG/KG	U
36-005	36-3035	0	6	IN	Dichloropropene[trans-1,3-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Dichloropropene[trans-1,3-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Dichloropropene[trans-1,3-]	5	UG/KG	U
36-005	36-3026	0	6	IN	Dichloropropene[trans-1,3-]	25	UG/KG	U
36-005	36-3025	0	6	IN	Dichloropropene[trans-1,3-]	5	UG/KG	U
36-005	36-3024	0	6	IN	Dichloropropene[trans-1,3-]	6	UG/KG	U
36-005	36-3023	0	6	IN	Dichloropropene[trans-1,3-]	6	UG/KG	U
36-005	36-3022	0	6	IN	Dichloropropene[trans-1,3-]	6	UG/KG	U
36-005	36-3021	0	6	IN	Dichloropropene[trans-1,3-]	6	UG/KG	U
36-005	36-3020	0	6	IN	Dichloropropene[trans-1,3-]	6	UG/KG	U
36-005	36-3019	0	6	IN	Dichloropropene[trans-1,3-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Dichloropropene[trans-1,3-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Dichloropropene[trans-1,3-]	6	UG/KG	U
36-005	36-3051	0	6	IN	Diethylphthalate	350	UG/KG	U
36-005	36-3050	0	6	IN	Diethylphthalate	360	UG/KG	U
36-005	36-3050	0	6	IN	Diethylphthalate	350	UG/KG	U
36-005	36-3049	0	6	IN	Diethylphthalate	340	UG/KG	U
36-005	36-3048	0	6	IN	Diethylphthalate	360	UG/KG	U
36-005	36-3047	0	6	IN	Diethylphthalate	390	UG/KG	U
36-005	36-3046	0	6	IN	Diethylphthalate	360	UG/KG	U
36-005	36-3045	0	6	IN	Diethylphthalate	380	UG/KG	U
36-005	36-3044	0	6	IN	Diethylphthalate	380	UG/KG	U
36-005	36-3043	0	6	IN	Diethylphthalate	360	UG/KG	U
36-005	36-3042	0	6	IN	Diethylphthalate	350	UG/KG	U
36-005	36-3042	0	6	IN	Diethylphthalate	340	UG/KG	U
36-005	36-3041	0	6	IN	Diethylphthalate	350	UG/KG	U
36-005	36-3040	0	6	IN	Diethylphthalate	350	UG/KG	U
36-005	36-3039	0	6	IN	Diethylphthalate	340	UG/KG	U
36-005	36-3038	0	6	IN	Diethylphthalate	360	UG/KG	U
36-005	36-3037	0	6	IN	Diethylphthalate	350	UG/KG	U
36-005	36-3036	0	6	IN	Diethylphthalate	340	UG/KG	U
36-005	36-3035	0	6	IN	Diethylphthalate	350	UG/KG	U
36-005	36-3034	0	6	IN	Diethylphthalate	350	UG/KG	U
36-005	36-3034	0	6	IN	Diethylphthalate	350	UG/KG	U
36-005	36-3026	0	6	IN	Diethylphthalate	140000	UG/KG	U

36-005	36-3025	0	6	IN	Diethylphthalate	360	UG/KG	U
36-005	36-3024	0	6	IN	Diethylphthalate	400	UG/KG	U
36-005	36-3023	0	6	IN	Diethylphthalate	370	UG/KG	U
36-005	36-3022	0	6	IN	Diethylphthalate	360	UG/KG	U
36-005	36-3021	0	6	IN	Diethylphthalate	400	UG/KG	U
36-005	36-3020	0	6	IN	Diethylphthalate	370	UG/KG	U
36-005	36-3019	0	6	IN	Diethylphthalate	370	UG/KG	U
36-005	36-3018	0	6	IN	Diethylphthalate	350	UG/KG	U
36-005	36-3018	0	6	IN	Diethylphthalate	370	UG/KG	U
36-005	36-3051	0	6	IN	Dimethyl Phthalate	350	UG/KG	U
36-005	36-3050	0	6	IN	Dimethyl Phthalate	360	UG/KG	U
36-005	36-3050	0	6	IN	Dimethyl Phthalate	350	UG/KG	U
36-005	36-3049	0	6	IN	Dimethyl Phthalate	340	UG/KG	U
36-005	36-3048	0	6	IN	Dimethyl Phthalate	360	UG/KG	U
36-005	36-3047	0	6	IN	Dimethyl Phthalate	390	UG/KG	U
36-005	36-3046	0	6	IN	Dimethyl Phthalate	360	UG/KG	U
36-005	36-3045	0	6	IN	Dimethyl Phthalate	380	UG/KG	U
36-005	36-3044	0	6	IN	Dimethyl Phthalate	380	UG/KG	U
36-005	36-3043	0	6	IN	Dimethyl Phthalate	360	UG/KG	U
36-005	36-3042	0	6	IN	Dimethyl Phthalate	350	UG/KG	U
36-005	36-3042	0	6	IN	Dimethyl Phthalate	340	UG/KG	U
36-005	36-3041	0	6	IN	Dimethyl Phthalate	350	UG/KG	U
36-005	36-3040	0	6	IN	Dimethyl Phthalate	350	UG/KG	U
36-005	36-3039	0	6	IN	Dimethyl Phthalate	340	UG/KG	U
36-005	36-3038	0	6	IN	Dimethyl Phthalate	360	UG/KG	U
36-005	36-3037	0	6	IN	Dimethyl Phthalate	350	UG/KG	U
36-005	36-3036	0	6	IN	Dimethyl Phthalate	340	UG/KG	U
36-005	36-3035	0	6	IN	Dimethyl Phthalate	350	UG/KG	U
36-005	36-3034	0	6	IN	Dimethyl Phthalate	350	UG/KG	U
36-005	36-3034	0	6	IN	Dimethyl Phthalate	350	UG/KG	U
36-005	36-3026	0	6	IN	Dimethyl Phthalate	140000	UG/KG	U
36-005	36-3025	0	6	IN	Dimethyl Phthalate	360	UG/KG	U
36-005	36-3024	0	6	IN	Dimethyl Phthalate	400	UG/KG	U
36-005	36-3023	0	6	IN	Dimethyl Phthalate	370	UG/KG	U
36-005	36-3022	0	6	IN	Dimethyl Phthalate	360	UG/KG	U
36-005	36-3021	0	6	IN	Dimethyl Phthalate	400	UG/KG	U
36-005	36-3020	0	6	IN	Dimethyl Phthalate	370	UG/KG	U
36-005	36-3019	0	6	IN	Dimethyl Phthalate	370	UG/KG	U
36-005	36-3018	0	6	IN	Dimethyl Phthalate	350	UG/KG	U
36-005	36-3018	0	6	IN	Dimethyl Phthalate	370	UG/KG	U
36-005	36-3051	0	6	IN	Dimethylphenol[2,4-]	350	UG/KG	U
36-005	36-3050	0	6	IN	Dimethylphenol[2,4-]	360	UG/KG	U
36-005	36-3050	0	6	IN	Dimethylphenol[2,4-]	350	UG/KG	U
36-005	36-3049	0	6	IN	Dimethylphenol[2,4-]	340	UG/KG	U
36-005	36-3048	0	6	IN	Dimethylphenol[2,4-]	360	UG/KG	U
36-005	36-3047	0	6	IN	Dimethylphenol[2,4-]	390	UG/KG	U
36-005	36-3046	0	6	IN	Dimethylphenol[2,4-]	360	UG/KG	U
36-005	36-3045	0	6	IN	Dimethylphenol[2,4-]	380	UG/KG	U
36-005	36-3044	0	6	IN	Dimethylphenol[2,4-]	380	UG/KG	U
36-005	36-3043	0	6	IN	Dimethylphenol[2,4-]	360	UG/KG	U
36-005	36-3042	0	6	IN	Dimethylphenol[2,4-]	350	UG/KG	U
36-005	36-3042	0	6	IN	Dimethylphenol[2,4-]	340	UG/KG	U
36-005	36-3041	0	6	IN	Dimethylphenol[2,4-]	350	UG/KG	U
36-005	36-3040	0	6	IN	Dimethylphenol[2,4-]	350	UG/KG	U
36-005	36-3039	0	6	IN	Dimethylphenol[2,4-]	340	UG/KG	U
36-005	36-3038	0	6	IN	Dimethylphenol[2,4-]	360	UG/KG	U
36-005	36-3037	0	6	IN	Dimethylphenol[2,4-]	350	UG/KG	U
36-005	36-3036	0	6	IN	Dimethylphenol[2,4-]	340	UG/KG	U
36-005	36-3035	0	6	IN	Dimethylphenol[2,4-]	350	UG/KG	U
36-005	36-3034	0	6	IN	Dimethylphenol[2,4-]	350	UG/KG	U
36-005	36-3034	0	6	IN	Dimethylphenol[2,4-]	350	UG/KG	U
36-005	36-3026	0	6	IN	Dimethylphenol[2,4-]	140000	UG/KG	U
36-005	36-3025	0	6	IN	Dimethylphenol[2,4-]	360	UG/KG	U
36-005	36-3024	0	6	IN	Dimethylphenol[2,4-]	400	UG/KG	U
36-005	36-3023	0	6	IN	Dimethylphenol[2,4-]	370	UG/KG	U
36-005	36-3022	0	6	IN	Dimethylphenol[2,4-]	360	UG/KG	U
36-005	36-3021	0	6	IN	Dimethylphenol[2,4-]	400	UG/KG	U
36-005	36-3020	0	6	IN	Dimethylphenol[2,4-]	370	UG/KG	U
36-005	36-3019	0	6	IN	Dimethylphenol[2,4-]	370	UG/KG	U
36-005	36-3018	0	6	IN	Dimethylphenol[2,4-]	350	UG/KG	U
36-005	36-3018	0	6	IN	Dimethylphenol[2,4-]	370	UG/KG	U
36-005	36-3051	0	6	IN	Di-n-butylphthalate	350	UG/KG	U
36-005	36-3050	0	6	IN	Di-n-butylphthalate	360	UG/KG	U
36-005	36-3050	0	6	IN	Di-n-butylphthalate	350	UG/KG	U

36-005	36-3049	0	6	IN	Di-n-butylphthalate	340	UG/KG	U
36-005	36-3048	0	6	IN	Di-n-butylphthalate	370	UG/KG	U
36-005	36-3047	0	6	IN	Di-n-butylphthalate	390	UG/KG	U
36-005	36-3046	0	6	IN	Di-n-butylphthalate	460	UG/KG	U
36-005	36-3045	0	6	IN	Di-n-butylphthalate	380	UG/KG	U
36-005	36-3044	0	6	IN	Di-n-butylphthalate	380	UG/KG	U
36-005	36-3043	0	6	IN	Di-n-butylphthalate	360	UG/KG	U
36-005	36-3042	0	6	IN	Di-n-butylphthalate	350	UG/KG	U
36-005	36-3042	0	6	IN	Di-n-butylphthalate	510	UG/KG	U
36-005	36-3041	0	6	IN	Di-n-butylphthalate	350	UG/KG	U
36-005	36-3040	0	6	IN	Di-n-butylphthalate	350	UG/KG	U
36-005	36-3039	0	6	IN	Di-n-butylphthalate	340	UG/KG	U
36-005	36-3038	0	6	IN	Di-n-butylphthalate	360	UG/KG	U
36-005	36-3037	0	6	IN	Di-n-butylphthalate	350	UG/KG	U
36-005	36-3036	0	6	IN	Di-n-butylphthalate	340	UG/KG	U
36-005	36-3035	0	6	IN	Di-n-butylphthalate	350	UG/KG	U
36-005	36-3034	0	6	IN	Di-n-butylphthalate	350	UG/KG	U
36-005	36-3034	0	6	IN	Di-n-butylphthalate	350	UG/KG	U
36-005	36-3026	0	6	IN	Di-n-butylphthalate	140000	UG/KG	U
36-005	36-3025	0	6	IN	Di-n-butylphthalate	360	UG/KG	U
36-005	36-3024	0	6	IN	Di-n-butylphthalate	400	UG/KG	U
36-005	36-3023	0	6	IN	Di-n-butylphthalate	370	UG/KG	U
36-005	36-3022	0	6	IN	Di-n-butylphthalate	580	UG/KG	U
36-005	36-3021	0	6	IN	Di-n-butylphthalate	400	UG/KG	U
36-005	36-3020	0	6	IN	Di-n-butylphthalate	370	UG/KG	U
36-005	36-3019	0	6	IN	Di-n-butylphthalate	370	UG/KG	U
36-005	36-3018	0	6	IN	Di-n-butylphthalate	350	UG/KG	U
36-005	36-3018	0	6	IN	Di-n-butylphthalate	460	UG/KG	U
36-005	36-3051	0	6	IN	Dinitro-2-methylphenol[4,6-]	1800	UG/KG	U
36-005	36-3050	0	6	IN	Dinitro-2-methylphenol[4,6-]	1800	UG/KG	U
36-005	36-3050	0	6	IN	Dinitro-2-methylphenol[4,6-]	1700	UG/KG	U
36-005	36-3049	0	6	IN	Dinitro-2-methylphenol[4,6-]	1700	UG/KG	U
36-005	36-3048	0	6	IN	Dinitro-2-methylphenol[4,6-]	1800	UG/KG	U
36-005	36-3047	0	6	IN	Dinitro-2-methylphenol[4,6-]	2000	UG/KG	U
36-005	36-3046	0	6	IN	Dinitro-2-methylphenol[4,6-]	1800	UG/KG	U
36-005	36-3045	0	6	IN	Dinitro-2-methylphenol[4,6-]	1900	UG/KG	U
36-005	36-3044	0	6	IN	Dinitro-2-methylphenol[4,6-]	1900	UG/KG	U
36-005	36-3043	0	6	IN	Dinitro-2-methylphenol[4,6-]	1800	UG/KG	U
36-005	36-3042	0	6	IN	Dinitro-2-methylphenol[4,6-]	1700	UG/KG	U
36-005	36-3042	0	6	IN	Dinitro-2-methylphenol[4,6-]	1700	UG/KG	U
36-005	36-3041	0	6	IN	Dinitro-2-methylphenol[4,6-]	1700	UG/KG	U
36-005	36-3040	0	6	IN	Dinitro-2-methylphenol[4,6-]	1700	UG/KG	U
36-005	36-3039	0	6	IN	Dinitro-2-methylphenol[4,6-]	1700	UG/KG	U
36-005	36-3038	0	6	IN	Dinitro-2-methylphenol[4,6-]	1800	UG/KG	U
36-005	36-3037	0	6	IN	Dinitro-2-methylphenol[4,6-]	1700	UG/KG	U
36-005	36-3036	0	6	IN	Dinitro-2-methylphenol[4,6-]	1700	UG/KG	U
36-005	36-3035	0	6	IN	Dinitro-2-methylphenol[4,6-]	1800	UG/KG	U
36-005	36-3034	0	6	IN	Dinitro-2-methylphenol[4,6-]	1700	UG/KG	U
36-005	36-3034	0	6	IN	Dinitro-2-methylphenol[4,6-]	1800	UG/KG	U
36-005	36-3026	0	6	IN	Dinitro-2-methylphenol[4,6-]	680000	UG/KG	U
36-005	36-3025	0	6	IN	Dinitro-2-methylphenol[4,6-]	1800	UG/KG	U
36-005	36-3024	0	6	IN	Dinitro-2-methylphenol[4,6-]	2000	UG/KG	U
36-005	36-3023	0	6	IN	Dinitro-2-methylphenol[4,6-]	1900	UG/KG	U
36-005	36-3022	0	6	IN	Dinitro-2-methylphenol[4,6-]	1800	UG/KG	U
36-005	36-3021	0	6	IN	Dinitro-2-methylphenol[4,6-]	2000	UG/KG	U
36-005	36-3020	0	6	IN	Dinitro-2-methylphenol[4,6-]	1900	UG/KG	U
36-005	36-3019	0	6	IN	Dinitro-2-methylphenol[4,6-]	1900	UG/KG	U
36-005	36-3018	0	6	IN	Dinitro-2-methylphenol[4,6-]	1700	UG/KG	U
36-005	36-3018	0	6	IN	Dinitro-2-methylphenol[4,6-]	1800	UG/KG	U
36-005	36-3051	0	6	IN	Dinitrobenzene[1,3-]	0.06	UG/G	U
36-005	36-3050	0	6	IN	Dinitrobenzene[1,3-]	0.061	UG/G	U
36-005	36-3050	0	6	IN	Dinitrobenzene[1,3-]	0.061	UG/G	U
36-005	36-3049	0	6	IN	Dinitrobenzene[1,3-]	0.06	UG/G	U
36-005	36-3048	0	6	IN	Dinitrobenzene[1,3-]	0.062	UG/G	U
36-005	36-3047	0	6	IN	Dinitrobenzene[1,3-]	0.061	UG/G	U
36-005	36-3046	0	6	IN	Dinitrobenzene[1,3-]	0.06	UG/G	U
36-005	36-3045	0	6	IN	Dinitrobenzene[1,3-]	0.062	UG/G	U
36-005	36-3044	0	6	IN	Dinitrobenzene[1,3-]	0.061	UG/G	U
36-005	36-3043	0	6	IN	Dinitrobenzene[1,3-]	0.06	UG/G	U
36-005	36-3042	0	6	IN	Dinitrobenzene[1,3-]	0.061	UG/G	U
36-005	36-3042	0	6	IN	Dinitrobenzene[1,3-]	0.061	UG/G	U
36-005	36-3041	0	6	IN	Dinitrobenzene[1,3-]	0.06	UG/G	U
36-005	36-3040	0	6	IN	Dinitrobenzene[1,3-]	0.061	UG/G	U
36-005	36-3039	0	6	IN	Dinitrobenzene[1,3-]	0.06	UG/G	U

36-005	36-3038	0	6	IN	Dinitrobenzene[1,3-]	0.06	UG/G	U
36-005	36-3037	0	6	IN	Dinitrobenzene[1,3-]	0.06	UG/G	U
36-005	36-3036	0	6	IN	Dinitrobenzene[1,3-]	0.06	UG/G	U
36-005	36-3035	0	6	IN	Dinitrobenzene[1,3-]	0.062	UG/G	U
36-005	36-3034	0	6	IN	Dinitrobenzene[1,3-]	0.06	UG/G	U
36-005	36-3034	0	6	IN	Dinitrobenzene[1,3-]	0.06	UG/G	U
36-005	36-3026	0	6	IN	Dinitrobenzene[1,3-]	0.061	UG/G	U
36-005	36-3025	0	6	IN	Dinitrobenzene[1,3-]	0.06	UG/G	U
36-005	36-3024	0	6	IN	Dinitrobenzene[1,3-]	0.06	UG/G	U
36-005	36-3023	0	6	IN	Dinitrobenzene[1,3-]	0.06	UG/G	U
36-005	36-3022	0	6	IN	Dinitrobenzene[1,3-]	0.06	UG/G	U
36-005	36-3021	0	6	IN	Dinitrobenzene[1,3-]	0.06	UG/G	U
36-005	36-3020	0	6	IN	Dinitrobenzene[1,3-]	0.06	UG/G	U
36-005	36-3019	0	6	IN	Dinitrobenzene[1,3-]	0.06	UG/G	U
36-005	36-3018	0	6	IN	Dinitrobenzene[1,3-]	0.06	UG/G	U
36-005	36-3018	0	6	IN	Dinitrobenzene[1,3-]	0.06	UG/G	U
36-005	36-3051	0	6	IN	Dinitrophenol[2,4-]	1800	UG/KG	U
36-005	36-3050	0	6	IN	Dinitrophenol[2,4-]	1800	UG/KG	U
36-005	36-3050	0	6	IN	Dinitrophenol[2,4-]	1700	UG/KG	U
36-005	36-3049	0	6	IN	Dinitrophenol[2,4-]	1700	UG/KG	U
36-005	36-3048	0	6	IN	Dinitrophenol[2,4-]	1800	UG/KG	U
36-005	36-3047	0	6	IN	Dinitrophenol[2,4-]	2000	UG/KG	U
36-005	36-3046	0	6	IN	Dinitrophenol[2,4-]	1800	UG/KG	U
36-005	36-3045	0	6	IN	Dinitrophenol[2,4-]	1900	UG/KG	U
36-005	36-3044	0	6	IN	Dinitrophenol[2,4-]	1900	UG/KG	U
36-005	36-3043	0	6	IN	Dinitrophenol[2,4-]	1800	UG/KG	U
36-005	36-3042	0	6	IN	Dinitrophenol[2,4-]	1700	UG/KG	U
36-005	36-3042	0	6	IN	Dinitrophenol[2,4-]	1700	UG/KG	U
36-005	36-3041	0	6	IN	Dinitrophenol[2,4-]	1700	UG/KG	U
36-005	36-3040	0	6	IN	Dinitrophenol[2,4-]	1700	UG/KG	U
36-005	36-3039	0	6	IN	Dinitrophenol[2,4-]	1700	UG/KG	U
36-005	36-3038	0	6	IN	Dinitrophenol[2,4-]	1800	UG/KG	U
36-005	36-3037	0	6	IN	Dinitrophenol[2,4-]	1700	UG/KG	U
36-005	36-3036	0	6	IN	Dinitrophenol[2,4-]	1700	UG/KG	U
36-005	36-3035	0	6	IN	Dinitrophenol[2,4-]	1800	UG/KG	U
36-005	36-3034	0	6	IN	Dinitrophenol[2,4-]	1700	UG/KG	U
36-005	36-3034	0	6	IN	Dinitrophenol[2,4-]	1800	UG/KG	U
36-005	36-3026	0	6	IN	Dinitrophenol[2,4-]	680000	UG/KG	U
36-005	36-3025	0	6	IN	Dinitrophenol[2,4-]	1800	UG/KG	U
36-005	36-3024	0	6	IN	Dinitrophenol[2,4-]	2000	UG/KG	U
36-005	36-3023	0	6	IN	Dinitrophenol[2,4-]	1900	UG/KG	U
36-005	36-3022	0	6	IN	Dinitrophenol[2,4-]	1800	UG/KG	U
36-005	36-3021	0	6	IN	Dinitrophenol[2,4-]	2000	UG/KG	U
36-005	36-3020	0	6	IN	Dinitrophenol[2,4-]	1900	UG/KG	U
36-005	36-3019	0	6	IN	Dinitrophenol[2,4-]	1900	UG/KG	U
36-005	36-3018	0	6	IN	Dinitrophenol[2,4-]	1700	UG/KG	U
36-005	36-3018	0	6	IN	Dinitrophenol[2,4-]	1800	UG/KG	U
36-005	36-3051	0	6	IN	Dinitrotoluene[2,4-]	350	UG/KG	U
36-005	36-3051	0	6	IN	Dinitrotoluene[2,4-]	0.061	UG/G	U
36-005	36-3050	0	6	IN	Dinitrotoluene[2,4-]	360	UG/KG	U
36-005	36-3050	0	6	IN	Dinitrotoluene[2,4-]	0.063	UG/G	U
36-005	36-3050	0	6	IN	Dinitrotoluene[2,4-]	350	UG/KG	U
36-005	36-3050	0	6	IN	Dinitrotoluene[2,4-]	0.063	UG/G	U
36-005	36-3049	0	6	IN	Dinitrotoluene[2,4-]	340	UG/KG	U
36-005	36-3049	0	6	IN	Dinitrotoluene[2,4-]	0.061	UG/G	U
36-005	36-3048	0	6	IN	Dinitrotoluene[2,4-]	360	UG/KG	U
36-005	36-3048	0	6	IN	Dinitrotoluene[2,4-]	0.063	UG/G	U
36-005	36-3047	0	6	IN	Dinitrotoluene[2,4-]	390	UG/KG	U
36-005	36-3047	0	6	IN	Dinitrotoluene[2,4-]	0.063	UG/G	U
36-005	36-3046	0	6	IN	Dinitrotoluene[2,4-]	360	UG/KG	U
36-005	36-3046	0	6	IN	Dinitrotoluene[2,4-]	0.062	UG/G	U
36-005	36-3045	0	6	IN	Dinitrotoluene[2,4-]	380	UG/KG	U
36-005	36-3045	0	6	IN	Dinitrotoluene[2,4-]	0.064	UG/G	U
36-005	36-3044	0	6	IN	Dinitrotoluene[2,4-]	380	UG/KG	U
36-005	36-3044	0	6	IN	Dinitrotoluene[2,4-]	0.062	UG/G	U
36-005	36-3043	0	6	IN	Dinitrotoluene[2,4-]	360	UG/KG	U
36-005	36-3043	0	6	IN	Dinitrotoluene[2,4-]	0.062	UG/G	U
36-005	36-3042	0	6	IN	Dinitrotoluene[2,4-]	350	UG/KG	U
36-005	36-3042	0	6	IN	Dinitrotoluene[2,4-]	0.063	UG/G	U
36-005	36-3042	0	6	IN	Dinitrotoluene[2,4-]	340	UG/KG	U
36-005	36-3042	0	6	IN	Dinitrotoluene[2,4-]	0.063	UG/G	U
36-005	36-3041	0	6	IN	Dinitrotoluene[2,4-]	350	UG/KG	U
36-005	36-3041	0	6	IN	Dinitrotoluene[2,4-]	0.062	UG/G	U
36-005	36-3040	0	6	IN	Dinitrotoluene[2,4-]	350	UG/KG	U

36-005	36-3040	0	6	IN	Dinitrotoluene[2,4-]	0.063	UG/G	U
36-005	36-3039	0	6	IN	Dinitrotoluene[2,4-]	340	UG/KG	U
36-005	36-3039	0	6	IN	Dinitrotoluene[2,4-]	0.062	UG/G	U
36-005	36-3038	0	6	IN	Dinitrotoluene[2,4-]	360	UG/KG	U
36-005	36-3038	0	6	IN	Dinitrotoluene[2,4-]	0.062	UG/G	U
36-005	36-3037	0	6	IN	Dinitrotoluene[2,4-]	350	UG/KG	U
36-005	36-3037	0	6	IN	Dinitrotoluene[2,4-]	0.062	UG/G	U
36-005	36-3036	0	6	IN	Dinitrotoluene[2,4-]	340	UG/KG	U
36-005	36-3036	0	6	IN	Dinitrotoluene[2,4-]	0.062	UG/G	U
36-005	36-3035	0	6	IN	Dinitrotoluene[2,4-]	350	UG/KG	U
36-005	36-3035	0	6	IN	Dinitrotoluene[2,4-]	0.064	UG/G	U
36-005	36-3034	0	6	IN	Dinitrotoluene[2,4-]	350	UG/KG	U
36-005	36-3034	0	6	IN	Dinitrotoluene[2,4-]	0.062	UG/G	U
36-005	36-3034	0	6	IN	Dinitrotoluene[2,4-]	350	UG/KG	U
36-005	36-3034	0	6	IN	Dinitrotoluene[2,4-]	0.062	UG/G	U
36-005	36-3026	0	6	IN	Dinitrotoluene[2,4-]	140000	UG/KG	U
36-005	36-3026	0	6	IN	Dinitrotoluene[2,4-]	0.062	UG/G	U
36-005	36-3025	0	6	IN	Dinitrotoluene[2,4-]	360	UG/KG	U
36-005	36-3025	0	6	IN	Dinitrotoluene[2,4-]	0.054	UG/G	U
36-005	36-3024	0	6	IN	Dinitrotoluene[2,4-]	400	UG/KG	U
36-005	36-3024	0	6	IN	Dinitrotoluene[2,4-]	0.054	UG/G	U
36-005	36-3023	0	6	IN	Dinitrotoluene[2,4-]	370	UG/KG	U
36-005	36-3023	0	6	IN	Dinitrotoluene[2,4-]	0.055	UG/G	U
36-005	36-3022	0	6	IN	Dinitrotoluene[2,4-]	360	UG/KG	U
36-005	36-3022	0	6	IN	Dinitrotoluene[2,4-]	0.054	UG/G	U
36-005	36-3021	0	6	IN	Dinitrotoluene[2,4-]	400	UG/KG	U
36-005	36-3021	0	6	IN	Dinitrotoluene[2,4-]	0.054	UG/G	U
36-005	36-3020	0	6	IN	Dinitrotoluene[2,4-]	370	UG/KG	U
36-005	36-3020	0	6	IN	Dinitrotoluene[2,4-]	0.054	UG/G	U
36-005	36-3019	0	6	IN	Dinitrotoluene[2,4-]	370	UG/KG	U
36-005	36-3019	0	6	IN	Dinitrotoluene[2,4-]	0.054	UG/G	U
36-005	36-3018	0	6	IN	Dinitrotoluene[2,4-]	350	UG/KG	U
36-005	36-3018	0	6	IN	Dinitrotoluene[2,4-]	0.054	UG/G	U
36-005	36-3018	0	6	IN	Dinitrotoluene[2,4-]	370	UG/KG	U
36-005	36-3018	0	6	IN	Dinitrotoluene[2,4-]	0.054	UG/G	U
36-005	36-3051	0	6	IN	Dinitrotoluene[2,6-]	350	UG/KG	U
36-005	36-3051	0	6	IN	Dinitrotoluene[2,6-]	0.092	UG/G	U
36-005	36-3050	0	6	IN	Dinitrotoluene[2,6-]	360	UG/KG	U
36-005	36-3050	0	6	IN	Dinitrotoluene[2,6-]	0.094	UG/G	U
36-005	36-3050	0	6	IN	Dinitrotoluene[2,6-]	350	UG/KG	U
36-005	36-3050	0	6	IN	Dinitrotoluene[2,6-]	0.094	UG/G	U
36-005	36-3049	0	6	IN	Dinitrotoluene[2,6-]	340	UG/KG	U
36-005	36-3049	0	6	IN	Dinitrotoluene[2,6-]	0.092	UG/G	U
36-005	36-3048	0	6	IN	Dinitrotoluene[2,6-]	360	UG/KG	U
36-005	36-3048	0	6	IN	Dinitrotoluene[2,6-]	0.095	UG/G	U
36-005	36-3047	0	6	IN	Dinitrotoluene[2,6-]	390	UG/KG	U
36-005	36-3047	0	6	IN	Dinitrotoluene[2,6-]	0.094	UG/G	U
36-005	36-3046	0	6	IN	Dinitrotoluene[2,6-]	360	UG/KG	U
36-005	36-3046	0	6	IN	Dinitrotoluene[2,6-]	0.092	UG/G	U
36-005	36-3045	0	6	IN	Dinitrotoluene[2,6-]	380	UG/KG	U
36-005	36-3045	0	6	IN	Dinitrotoluene[2,6-]	0.096	UG/G	U
36-005	36-3044	0	6	IN	Dinitrotoluene[2,6-]	380	UG/KG	U
36-005	36-3044	0	6	IN	Dinitrotoluene[2,6-]	0.094	UG/G	U
36-005	36-3043	0	6	IN	Dinitrotoluene[2,6-]	360	UG/KG	U
36-005	36-3043	0	6	IN	Dinitrotoluene[2,6-]	0.092	UG/G	U
36-005	36-3042	0	6	IN	Dinitrotoluene[2,6-]	350	UG/KG	U
36-005	36-3042	0	6	IN	Dinitrotoluene[2,6-]	0.094	UG/G	U
36-005	36-3042	0	6	IN	Dinitrotoluene[2,6-]	340	UG/KG	U
36-005	36-3042	0	6	IN	Dinitrotoluene[2,6-]	0.094	UG/G	U
36-005	36-3041	0	6	IN	Dinitrotoluene[2,6-]	350	UG/KG	U
36-005	36-3041	0	6	IN	Dinitrotoluene[2,6-]	0.092	UG/G	U
36-005	36-3040	0	6	IN	Dinitrotoluene[2,6-]	350	UG/KG	U
36-005	36-3040	0	6	IN	Dinitrotoluene[2,6-]	0.094	UG/G	U
36-005	36-3039	0	6	IN	Dinitrotoluene[2,6-]	340	UG/KG	U
36-005	36-3039	0	6	IN	Dinitrotoluene[2,6-]	0.093	UG/G	U
36-005	36-3038	0	6	IN	Dinitrotoluene[2,6-]	360	UG/KG	U
36-005	36-3038	0	6	IN	Dinitrotoluene[2,6-]	0.093	UG/G	U
36-005	36-3037	0	6	IN	Dinitrotoluene[2,6-]	350	UG/KG	U
36-005	36-3037	0	6	IN	Dinitrotoluene[2,6-]	0.093	UG/G	U
36-005	36-3036	0	6	IN	Dinitrotoluene[2,6-]	340	UG/KG	U
36-005	36-3036	0	6	IN	Dinitrotoluene[2,6-]	0.093	UG/G	U
36-005	36-3035	0	6	IN	Dinitrotoluene[2,6-]	350	UG/KG	U
36-005	36-3035	0	6	IN	Dinitrotoluene[2,6-]	0.095	UG/G	U
36-005	36-3034	0	6	IN	Dinitrotoluene[2,6-]	0.093	UG/G	U

36-005	36-3034	0	6	IN	Dinitrotoluene[2,6-]	350	UG/KG	U
36-005	36-3034	0	6	IN	Dinitrotoluene[2,6-]	350	UG/KG	U
36-005	36-3034	0	6	IN	Dinitrotoluene[2,6-]	0.093	UG/G	U
36-005	36-3026	0	6	IN	Dinitrotoluene[2,6-]	140000	UG/KG	U
36-005	36-3026	0	6	IN	Dinitrotoluene[2,6-]	0.093	UG/G	U
36-005	36-3025	0	6	IN	Dinitrotoluene[2,6-]	360	UG/KG	U
36-005	36-3025	0	6	IN	Dinitrotoluene[2,6-]	0.08	UG/G	U
36-005	36-3024	0	6	IN	Dinitrotoluene[2,6-]	400	UG/KG	U
36-005	36-3024	0	6	IN	Dinitrotoluene[2,6-]	0.081	UG/G	U
36-005	36-3023	0	6	IN	Dinitrotoluene[2,6-]	370	UG/KG	U
36-005	36-3023	0	6	IN	Dinitrotoluene[2,6-]	0.081	UG/G	U
36-005	36-3022	0	6	IN	Dinitrotoluene[2,6-]	360	UG/KG	U
36-005	36-3022	0	6	IN	Dinitrotoluene[2,6-]	0.081	UG/G	U
36-005	36-3021	0	6	IN	Dinitrotoluene[2,6-]	400	UG/KG	U
36-005	36-3021	0	6	IN	Dinitrotoluene[2,6-]	0.081	UG/G	U
36-005	36-3020	0	6	IN	Dinitrotoluene[2,6-]	370	UG/KG	U
36-005	36-3020	0	6	IN	Dinitrotoluene[2,6-]	0.081	UG/G	U
36-005	36-3019	0	6	IN	Dinitrotoluene[2,6-]	370	UG/KG	U
36-005	36-3019	0	6	IN	Dinitrotoluene[2,6-]	0.081	UG/G	U
36-005	36-3018	0	6	IN	Dinitrotoluene[2,6-]	350	UG/KG	U
36-005	36-3018	0	6	IN	Dinitrotoluene[2,6-]	0.081	UG/G	U
36-005	36-3018	0	6	IN	Dinitrotoluene[2,6-]	370	UG/KG	U
36-005	36-3018	0	6	IN	Dinitrotoluene[2,6-]	0.081	UG/G	U
36-005	36-3051	0	6	IN	Di-n-octylphthalate	350	UG/KG	U
36-005	36-3050	0	6	IN	Di-n-octylphthalate	360	UG/KG	U
36-005	36-3050	0	6	IN	Di-n-octylphthalate	350	UG/KG	U
36-005	36-3049	0	6	IN	Di-n-octylphthalate	340	UG/KG	U
36-005	36-3048	0	6	IN	Di-n-octylphthalate	360	UG/KG	U
36-005	36-3047	0	6	IN	Di-n-octylphthalate	390	UG/KG	U
36-005	36-3046	0	6	IN	Di-n-octylphthalate	360	UG/KG	U
36-005	36-3045	0	6	IN	Di-n-octylphthalate	380	UG/KG	U
36-005	36-3044	0	6	IN	Di-n-octylphthalate	380	UG/KG	U
36-005	36-3043	0	6	IN	Di-n-octylphthalate	360	UG/KG	U
36-005	36-3042	0	6	IN	Di-n-octylphthalate	350	UG/KG	U
36-005	36-3042	0	6	IN	Di-n-octylphthalate	340	UG/KG	U
36-005	36-3041	0	6	IN	Di-n-octylphthalate	350	UG/KG	U
36-005	36-3040	0	6	IN	Di-n-octylphthalate	350	UG/KG	U
36-005	36-3039	0	6	IN	Di-n-octylphthalate	340	UG/KG	U
36-005	36-3038	0	6	IN	Di-n-octylphthalate	360	UG/KG	U
36-005	36-3037	0	6	IN	Di-n-octylphthalate	350	UG/KG	U
36-005	36-3036	0	6	IN	Di-n-octylphthalate	340	UG/KG	U
36-005	36-3035	0	6	IN	Di-n-octylphthalate	350	UG/KG	U
36-005	36-3034	0	6	IN	Di-n-octylphthalate	350	UG/KG	U
36-005	36-3034	0	6	IN	Di-n-octylphthalate	350	UG/KG	U
36-005	36-3026	0	6	IN	Di-n-octylphthalate	140000	UG/KG	U
36-005	36-3025	0	6	IN	Di-n-octylphthalate	360	UG/KG	U
36-005	36-3024	0	6	IN	Di-n-octylphthalate	400	UG/KG	U
36-005	36-3023	0	6	IN	Di-n-octylphthalate	370	UG/KG	U
36-005	36-3022	0	6	IN	Di-n-octylphthalate	360	UG/KG	U
36-005	36-3021	0	6	IN	Di-n-octylphthalate	400	UG/KG	U
36-005	36-3020	0	6	IN	Di-n-octylphthalate	370	UG/KG	U
36-005	36-3019	0	6	IN	Di-n-octylphthalate	370	UG/KG	U
36-005	36-3018	0	6	IN	Di-n-octylphthalate	350	UG/KG	U
36-005	36-3018	0	6	IN	Di-n-octylphthalate	370	UG/KG	U
36-005	36-3051	0	6	IN	Ethylbenzene	5	UG/KG	U
36-005	36-3050	0	6	IN	Ethylbenzene	6	UG/KG	U
36-005	36-3050	0	6	IN	Ethylbenzene	6	UG/KG	U
36-005	36-3049	0	6	IN	Ethylbenzene	6	UG/KG	U
36-005	36-3048	0	6	IN	Ethylbenzene	6	UG/KG	U
36-005	36-3047	0	6	IN	Ethylbenzene	6	UG/KG	U
36-005	36-3046	0	6	IN	Ethylbenzene	6	UG/KG	U
36-005	36-3045	0	6	IN	Ethylbenzene	6	UG/KG	U
36-005	36-3044	0	6	IN	Ethylbenzene	6	UG/KG	U
36-005	36-3043	0	6	IN	Ethylbenzene	5	UG/KG	U
36-005	36-3042	0	6	IN	Ethylbenzene	6	UG/KG	UJ
36-005	36-3042	0	6	IN	Ethylbenzene	5	UG/KG	U
36-005	36-3041	0	6	IN	Ethylbenzene	5	UG/KG	U
36-005	36-3040	0	6	IN	Ethylbenzene	5	UG/KG	U
36-005	36-3039	0	6	IN	Ethylbenzene	5	UG/KG	U
36-005	36-3038	0	6	IN	Ethylbenzene	6	UG/KG	U
36-005	36-3037	0	6	IN	Ethylbenzene	5	UG/KG	U
36-005	36-3036	0	6	IN	Ethylbenzene	6	UG/KG	U
36-005	36-3035	0	6	IN	Ethylbenzene	6	UG/KG	U
36-005	36-3034	0	6	IN	Ethylbenzene	6	UG/KG	U

36-005	36-3034	0	6	IN	Ethylbenzene	5	UG/KG	U
36-005	36-3026	0	6	IN	Ethylbenzene	25	UG/KG	U
36-005	36-3025	0	6	IN	Ethylbenzene	5	UG/KG	U
36-005	36-3024	0	6	IN	Ethylbenzene	6	UG/KG	U
36-005	36-3023	0	6	IN	Ethylbenzene	6	UG/KG	U
36-005	36-3022	0	6	IN	Ethylbenzene	6	UG/KG	U
36-005	36-3021	0	6	IN	Ethylbenzene	6	UG/KG	U
36-005	36-3020	0	6	IN	Ethylbenzene	6	UG/KG	U
36-005	36-3019	0	6	IN	Ethylbenzene	6	UG/KG	U
36-005	36-3018	0	6	IN	Ethylbenzene	6	UG/KG	U
36-005	36-3018	0	6	IN	Ethylbenzene	6	UG/KG	U
36-005	36-3051	0	6	IN	Fluoranthene	350	UG/KG	U
36-005	36-3050	0	6	IN	Fluoranthene	360	UG/KG	U
36-005	36-3050	0	6	IN	Fluoranthene	350	UG/KG	U
36-005	36-3049	0	6	IN	Fluoranthene	340	UG/KG	U
36-005	36-3048	0	6	IN	Fluoranthene	360	UG/KG	U
36-005	36-3047	0	6	IN	Fluoranthene	390	UG/KG	U
36-005	36-3046	0	6	IN	Fluoranthene	360	UG/KG	U
36-005	36-3045	0	6	IN	Fluoranthene	380	UG/KG	U
36-005	36-3044	0	6	IN	Fluoranthene	380	UG/KG	U
36-005	36-3043	0	6	IN	Fluoranthene	360	UG/KG	U
36-005	36-3042	0	6	IN	Fluoranthene	350	UG/KG	U
36-005	36-3042	0	6	IN	Fluoranthene	340	UG/KG	U
36-005	36-3041	0	6	IN	Fluoranthene	350	UG/KG	U
36-005	36-3040	0	6	IN	Fluoranthene	350	UG/KG	U
36-005	36-3039	0	6	IN	Fluoranthene	340	UG/KG	U
36-005	36-3038	0	6	IN	Fluoranthene	360	UG/KG	U
36-005	36-3037	0	6	IN	Fluoranthene	350	UG/KG	U
36-005	36-3036	0	6	IN	Fluoranthene	340	UG/KG	U
36-005	36-3035	0	6	IN	Fluoranthene	350	UG/KG	U
36-005	36-3034	0	6	IN	Fluoranthene	350	UG/KG	U
36-005	36-3034	0	6	IN	Fluoranthene	350	UG/KG	U
36-005	36-3026	0	6	IN	Fluoranthene	140000	UG/KG	U
36-005	36-3025	0	6	IN	Fluoranthene	360	UG/KG	U
36-005	36-3024	0	6	IN	Fluoranthene	400	UG/KG	U
36-005	36-3023	0	6	IN	Fluoranthene	370	UG/KG	U
36-005	36-3022	0	6	IN	Fluoranthene	360	UG/KG	U
36-005	36-3021	0	6	IN	Fluoranthene	400	UG/KG	U
36-005	36-3020	0	6	IN	Fluoranthene	370	UG/KG	U
36-005	36-3019	0	6	IN	Fluoranthene	370	UG/KG	U
36-005	36-3018	0	6	IN	Fluoranthene	350	UG/KG	U
36-005	36-3018	0	6	IN	Fluoranthene	370	UG/KG	U
36-005	36-3051	0	6	IN	Fluorene	350	UG/KG	U
36-005	36-3050	0	6	IN	Fluorene	360	UG/KG	U
36-005	36-3050	0	6	IN	Fluorene	350	UG/KG	U
36-005	36-3049	0	6	IN	Fluorene	340	UG/KG	U
36-005	36-3048	0	6	IN	Fluorene	360	UG/KG	U
36-005	36-3047	0	6	IN	Fluorene	390	UG/KG	U
36-005	36-3046	0	6	IN	Fluorene	360	UG/KG	U
36-005	36-3045	0	6	IN	Fluorene	380	UG/KG	U
36-005	36-3044	0	6	IN	Fluorene	380	UG/KG	U
36-005	36-3043	0	6	IN	Fluorene	360	UG/KG	U
36-005	36-3042	0	6	IN	Fluorene	350	UG/KG	U
36-005	36-3042	0	6	IN	Fluorene	340	UG/KG	U
36-005	36-3041	0	6	IN	Fluorene	350	UG/KG	U
36-005	36-3040	0	6	IN	Fluorene	350	UG/KG	U
36-005	36-3039	0	6	IN	Fluorene	340	UG/KG	U
36-005	36-3038	0	6	IN	Fluorene	360	UG/KG	U
36-005	36-3037	0	6	IN	Fluorene	350	UG/KG	U
36-005	36-3036	0	6	IN	Fluorene	340	UG/KG	U
36-005	36-3035	0	6	IN	Fluorene	350	UG/KG	U
36-005	36-3034	0	6	IN	Fluorene	350	UG/KG	U
36-005	36-3034	0	6	IN	Fluorene	350	UG/KG	U
36-005	36-3026	0	6	IN	Fluorene	140000	UG/KG	U
36-005	36-3025	0	6	IN	Fluorene	360	UG/KG	U
36-005	36-3024	0	6	IN	Fluorene	400	UG/KG	U
36-005	36-3023	0	6	IN	Fluorene	370	UG/KG	U
36-005	36-3022	0	6	IN	Fluorene	360	UG/KG	U
36-005	36-3021	0	6	IN	Fluorene	400	UG/KG	U
36-005	36-3020	0	6	IN	Fluorene	370	UG/KG	U
36-005	36-3019	0	6	IN	Fluorene	370	UG/KG	U
36-005	36-3018	0	6	IN	Fluorene	350	UG/KG	U
36-005	36-3018	0	6	IN	Fluorene	370	UG/KG	U
36-005	36-3051	0	6	IN	Hexachlorobenzene	350	UG/KG	U

36-005	36-3050	0	6	IN	Hexachlorobenzene	360	UG/KG	U
36-005	36-3050	0	6	IN	Hexachlorobenzene	350	UG/KG	U
36-005	36-3049	0	6	IN	Hexachlorobenzene	340	UG/KG	U
36-005	36-3048	0	6	IN	Hexachlorobenzene	360	UG/KG	U
36-005	36-3047	0	6	IN	Hexachlorobenzene	390	UG/KG	U
36-005	36-3046	0	6	IN	Hexachlorobenzene	360	UG/KG	U
36-005	36-3045	0	6	IN	Hexachlorobenzene	380	UG/KG	U
36-005	36-3044	0	6	IN	Hexachlorobenzene	380	UG/KG	U
36-005	36-3043	0	6	IN	Hexachlorobenzene	360	UG/KG	U
36-005	36-3042	0	6	IN	Hexachlorobenzene	350	UG/KG	U
36-005	36-3042	0	6	IN	Hexachlorobenzene	340	UG/KG	U
36-005	36-3041	0	6	IN	Hexachlorobenzene	350	UG/KG	U
36-005	36-3040	0	6	IN	Hexachlorobenzene	350	UG/KG	U
36-005	36-3039	0	6	IN	Hexachlorobenzene	340	UG/KG	U
36-005	36-3038	0	6	IN	Hexachlorobenzene	360	UG/KG	U
36-005	36-3037	0	6	IN	Hexachlorobenzene	350	UG/KG	U
36-005	36-3036	0	6	IN	Hexachlorobenzene	340	UG/KG	U
36-005	36-3035	0	6	IN	Hexachlorobenzene	350	UG/KG	U
36-005	36-3034	0	6	IN	Hexachlorobenzene	350	UG/KG	U
36-005	36-3034	0	6	IN	Hexachlorobenzene	350	UG/KG	U
36-005	36-3026	0	6	IN	Hexachlorobenzene	140000	UG/KG	U
36-005	36-3025	0	6	IN	Hexachlorobenzene	360	UG/KG	U
36-005	36-3024	0	6	IN	Hexachlorobenzene	400	UG/KG	U
36-005	36-3023	0	6	IN	Hexachlorobenzene	370	UG/KG	U
36-005	36-3022	0	6	IN	Hexachlorobenzene	360	UG/KG	U
36-005	36-3021	0	6	IN	Hexachlorobenzene	400	UG/KG	U
36-005	36-3020	0	6	IN	Hexachlorobenzene	370	UG/KG	U
36-005	36-3019	0	6	IN	Hexachlorobenzene	370	UG/KG	U
36-005	36-3018	0	6	IN	Hexachlorobenzene	350	UG/KG	U
36-005	36-3018	0	6	IN	Hexachlorobenzene	370	UG/KG	U
36-005	36-3051	0	6	IN	Hexachlorobutadiene	350	UG/KG	U
36-005	36-3050	0	6	IN	Hexachlorobutadiene	360	UG/KG	U
36-005	36-3050	0	6	IN	Hexachlorobutadiene	350	UG/KG	U
36-005	36-3049	0	6	IN	Hexachlorobutadiene	340	UG/KG	U
36-005	36-3048	0	6	IN	Hexachlorobutadiene	360	UG/KG	U
36-005	36-3047	0	6	IN	Hexachlorobutadiene	390	UG/KG	U
36-005	36-3046	0	6	IN	Hexachlorobutadiene	360	UG/KG	U
36-005	36-3045	0	6	IN	Hexachlorobutadiene	380	UG/KG	U
36-005	36-3044	0	6	IN	Hexachlorobutadiene	380	UG/KG	U
36-005	36-3043	0	6	IN	Hexachlorobutadiene	360	UG/KG	U
36-005	36-3042	0	6	IN	Hexachlorobutadiene	350	UG/KG	U
36-005	36-3042	0	6	IN	Hexachlorobutadiene	340	UG/KG	U
36-005	36-3041	0	6	IN	Hexachlorobutadiene	350	UG/KG	U
36-005	36-3040	0	6	IN	Hexachlorobutadiene	350	UG/KG	U
36-005	36-3039	0	6	IN	Hexachlorobutadiene	340	UG/KG	U
36-005	36-3038	0	6	IN	Hexachlorobutadiene	360	UG/KG	U
36-005	36-3037	0	6	IN	Hexachlorobutadiene	350	UG/KG	U
36-005	36-3036	0	6	IN	Hexachlorobutadiene	340	UG/KG	U
36-005	36-3035	0	6	IN	Hexachlorobutadiene	350	UG/KG	U
36-005	36-3034	0	6	IN	Hexachlorobutadiene	350	UG/KG	U
36-005	36-3034	0	6	IN	Hexachlorobutadiene	350	UG/KG	U
36-005	36-3026	0	6	IN	Hexachlorobutadiene	140000	UG/KG	U
36-005	36-3025	0	6	IN	Hexachlorobutadiene	360	UG/KG	U
36-005	36-3024	0	6	IN	Hexachlorobutadiene	400	UG/KG	U
36-005	36-3023	0	6	IN	Hexachlorobutadiene	370	UG/KG	U
36-005	36-3022	0	6	IN	Hexachlorobutadiene	360	UG/KG	U
36-005	36-3021	0	6	IN	Hexachlorobutadiene	400	UG/KG	U
36-005	36-3020	0	6	IN	Hexachlorobutadiene	370	UG/KG	U
36-005	36-3019	0	6	IN	Hexachlorobutadiene	370	UG/KG	U
36-005	36-3018	0	6	IN	Hexachlorobutadiene	350	UG/KG	U
36-005	36-3018	0	6	IN	Hexachlorobutadiene	370	UG/KG	U
36-005	36-3051	0	6	IN	Hexachlorocyclopentadiene	350	UG/KG	U
36-005	36-3050	0	6	IN	Hexachlorocyclopentadiene	360	UG/KG	U
36-005	36-3050	0	6	IN	Hexachlorocyclopentadiene	350	UG/KG	U
36-005	36-3049	0	6	IN	Hexachlorocyclopentadiene	340	UG/KG	U
36-005	36-3048	0	6	IN	Hexachlorocyclopentadiene	360	UG/KG	U
36-005	36-3047	0	6	IN	Hexachlorocyclopentadiene	390	UG/KG	U
36-005	36-3046	0	6	IN	Hexachlorocyclopentadiene	360	UG/KG	U
36-005	36-3045	0	6	IN	Hexachlorocyclopentadiene	380	UG/KG	U
36-005	36-3044	0	6	IN	Hexachlorocyclopentadiene	380	UG/KG	U
36-005	36-3043	0	6	IN	Hexachlorocyclopentadiene	360	UG/KG	U
36-005	36-3042	0	6	IN	Hexachlorocyclopentadiene	350	UG/KG	U
36-005	36-3042	0	6	IN	Hexachlorocyclopentadiene	340	UG/KG	U
36-005	36-3041	0	6	IN	Hexachlorocyclopentadiene	350	UG/KG	U

36-005	36-3040	0	6	IN	Hexachlorocyclopentadiene	350	UG/KG	U
36-005	36-3039	0	6	IN	Hexachlorocyclopentadiene	340	UG/KG	U
36-005	36-3038	0	6	IN	Hexachlorocyclopentadiene	360	UG/KG	U
36-005	36-3037	0	6	IN	Hexachlorocyclopentadiene	350	UG/KG	U
36-005	36-3036	0	6	IN	Hexachlorocyclopentadiene	340	UG/KG	U
36-005	36-3035	0	6	IN	Hexachlorocyclopentadiene	350	UG/KG	U
36-005	36-3034	0	6	IN	Hexachlorocyclopentadiene	350	UG/KG	U
36-005	36-3034	0	6	IN	Hexachlorocyclopentadiene	350	UG/KG	U
36-005	36-3026	0	6	IN	Hexachlorocyclopentadiene	140000	UG/KG	U
36-005	36-3025	0	6	IN	Hexachlorocyclopentadiene	360	UG/KG	U
36-005	36-3024	0	6	IN	Hexachlorocyclopentadiene	400	UG/KG	U
36-005	36-3023	0	6	IN	Hexachlorocyclopentadiene	370	UG/KG	U
36-005	36-3022	0	6	IN	Hexachlorocyclopentadiene	360	UG/KG	U
36-005	36-3021	0	6	IN	Hexachlorocyclopentadiene	400	UG/KG	U
36-005	36-3020	0	6	IN	Hexachlorocyclopentadiene	370	UG/KG	U
36-005	36-3019	0	6	IN	Hexachlorocyclopentadiene	370	UG/KG	U
36-005	36-3018	0	6	IN	Hexachlorocyclopentadiene	350	UG/KG	U
36-005	36-3018	0	6	IN	Hexachlorocyclopentadiene	370	UG/KG	U
36-005	36-3051	0	6	IN	Hexachloroethane	350	UG/KG	U
36-005	36-3050	0	6	IN	Hexachloroethane	360	UG/KG	U
36-005	36-3050	0	6	IN	Hexachloroethane	350	UG/KG	U
36-005	36-3049	0	6	IN	Hexachloroethane	340	UG/KG	U
36-005	36-3048	0	6	IN	Hexachloroethane	360	UG/KG	U
36-005	36-3047	0	6	IN	Hexachloroethane	390	UG/KG	U
36-005	36-3046	0	6	IN	Hexachloroethane	360	UG/KG	U
36-005	36-3045	0	6	IN	Hexachloroethane	380	UG/KG	U
36-005	36-3044	0	6	IN	Hexachloroethane	380	UG/KG	U
36-005	36-3043	0	6	IN	Hexachloroethane	360	UG/KG	U
36-005	36-3042	0	6	IN	Hexachloroethane	350	UG/KG	U
36-005	36-3042	0	6	IN	Hexachloroethane	340	UG/KG	U
36-005	36-3041	0	6	IN	Hexachloroethane	350	UG/KG	UR
36-005	36-3040	0	6	IN	Hexachloroethane	350	UG/KG	UR
36-005	36-3039	0	6	IN	Hexachloroethane	340	UG/KG	UR
36-005	36-3038	0	6	IN	Hexachloroethane	360	UG/KG	UR
36-005	36-3037	0	6	IN	Hexachloroethane	350	UG/KG	UR
36-005	36-3036	0	6	IN	Hexachloroethane	340	UG/KG	UR
36-005	36-3035	0	6	IN	Hexachloroethane	350	UG/KG	UR
36-005	36-3034	0	6	IN	Hexachloroethane	350	UG/KG	UR
36-005	36-3034	0	6	IN	Hexachloroethane	350	UG/KG	UR
36-005	36-3026	0	6	IN	Hexachloroethane	140000	UG/KG	U
36-005	36-3025	0	6	IN	Hexachloroethane	360	UG/KG	U
36-005	36-3024	0	6	IN	Hexachloroethane	400	UG/KG	U
36-005	36-3023	0	6	IN	Hexachloroethane	370	UG/KG	U
36-005	36-3022	0	6	IN	Hexachloroethane	360	UG/KG	U
36-005	36-3021	0	6	IN	Hexachloroethane	400	UG/KG	U
36-005	36-3020	0	6	IN	Hexachloroethane	370	UG/KG	U
36-005	36-3019	0	6	IN	Hexachloroethane	370	UG/KG	U
36-005	36-3018	0	6	IN	Hexachloroethane	350	UG/KG	U
36-005	36-3018	0	6	IN	Hexachloroethane	370	UG/KG	U
36-005	36-3051	0	6	IN	Hexanone[2-]	20	UG/KG	U
36-005	36-3050	0	6	IN	Hexanone[2-]	22	UG/KG	U
36-005	36-3050	0	6	IN	Hexanone[2-]	22	UG/KG	U
36-005	36-3049	0	6	IN	Hexanone[2-]	22	UG/KG	U
36-005	36-3048	0	6	IN	Hexanone[2-]	22	UG/KG	U
36-005	36-3047	0	6	IN	Hexanone[2-]	24	UG/KG	U
36-005	36-3046	0	6	IN	Hexanone[2-]	22	UG/KG	U
36-005	36-3045	0	6	IN	Hexanone[2-]	22	UG/KG	U
36-005	36-3044	0	6	IN	Hexanone[2-]	22	UG/KG	U
36-005	36-3043	0	6	IN	Hexanone[2-]	20	UG/KG	U
36-005	36-3042	0	6	IN	Hexanone[2-]	22	UG/KG	UJ
36-005	36-3042	0	6	IN	Hexanone[2-]	20	UG/KG	U
36-005	36-3041	0	6	IN	Hexanone[2-]	20	UG/KG	U
36-005	36-3040	0	6	IN	Hexanone[2-]	20	UG/KG	U
36-005	36-3039	0	6	IN	Hexanone[2-]	20	UG/KG	U
36-005	36-3038	0	6	IN	Hexanone[2-]	22	UG/KG	U
36-005	36-3037	0	6	IN	Hexanone[2-]	20	UG/KG	U
36-005	36-3036	0	6	IN	Hexanone[2-]	22	UG/KG	U
36-005	36-3035	0	6	IN	Hexanone[2-]	22	UG/KG	U
36-005	36-3034	0	6	IN	Hexanone[2-]	22	UG/KG	U
36-005	36-3034	0	6	IN	Hexanone[2-]	20	UG/KG	U
36-005	36-3026	0	6	IN	Hexanone[2-]	100	UG/KG	U
36-005	36-3025	0	6	IN	Hexanone[2-]	20	UG/KG	U
36-005	36-3024	0	6	IN	Hexanone[2-]	24	UG/KG	U
36-005	36-3023	0	6	IN	Hexanone[2-]	22	UG/KG	U

36-005	36-3022	0	6	IN	Hexanone[2-]	24	UG/KG	U
36-005	36-3021	0	6	IN	Hexanone[2-]	24	UG/KG	U
36-005	36-3020	0	6	IN	Hexanone[2-]	22	UG/KG	U
36-005	36-3019	0	6	IN	Hexanone[2-]	22	UG/KG	U
36-005	36-3018	0	6	IN	Hexanone[2-]	22	UG/KG	U
36-005	36-3018	0	6	IN	Hexanone[2-]	22	UG/KG	U
36-005	36-3051	0	6	IN	HMX	0.164	UG/G	U
36-005	36-3050	0	6	IN	HMX	0.168	UG/G	U
36-005	36-3050	0	6	IN	HMX	0.167	UG/G	U
36-005	36-3049	0	6	IN	HMX	0.164	UG/G	U
36-005	36-3048	0	6	IN	HMX	0.169	UG/G	U
36-005	36-3047	0	6	IN	HMX	0.167	UG/G	U
36-005	36-3046	0	6	IN	HMX	0.165	UG/G	U
36-005	36-3045	0	6	IN	HMX	0.172	UG/G	U
36-005	36-3044	0	6	IN	HMX	0.167	UG/G	U
36-005	36-3043	0	6	IN	HMX	0.165	UG/G	U
36-005	36-3042	0	6	IN	HMX	0.167	UG/G	U
36-005	36-3042	0	6	IN	HMX	0.167	UG/G	U
36-005	36-3041	0	6	IN	HMX	0.165	UG/G	U
36-005	36-3040	0	6	IN	HMX	0.167	UG/G	U
36-005	36-3039	0	6	IN	HMX	0.165	UG/G	U
36-005	36-3038	0	6	IN	HMX	0.166	UG/G	U
36-005	36-3037	0	6	IN	HMX	0.165	UG/G	U
36-005	36-3036	0	6	IN	HMX	0.166	UG/G	U
36-005	36-3035	0	6	IN	HMX	0.17	UG/G	U
36-005	36-3034	0	6	IN	HMX	0.166	UG/G	U
36-005	36-3034	0	6	IN	HMX	0.166	UG/G	U
36-005	36-3026	0	6	IN	HMX	0.67	UG/G	U
36-005	36-3025	0	6	IN	HMX	0.164	UG/G	U
36-005	36-3024	0	6	IN	HMX	0.165	UG/G	U
36-005	36-3023	0	6	IN	HMX	0.166	UG/G	U
36-005	36-3022	0	6	IN	HMX	0.165	UG/G	U
36-005	36-3021	0	6	IN	HMX	0.165	UG/G	U
36-005	36-3020	0	6	IN	HMX	0.165	UG/G	U
36-005	36-3019	0	6	IN	HMX	0.165	UG/G	U
36-005	36-3018	0	6	IN	HMX	0.164	UG/G	U
36-005	36-3018	0	6	IN	HMX	0.165	UG/G	U
36-005	36-3051	0	6	IN	Indeno(1,2,3-cd)pyrene	350	UG/KG	U
36-005	36-3050	0	6	IN	Indeno(1,2,3-cd)pyrene	360	UG/KG	U
36-005	36-3050	0	6	IN	Indeno(1,2,3-cd)pyrene	350	UG/KG	U
36-005	36-3049	0	6	IN	Indeno(1,2,3-cd)pyrene	340	UG/KG	U
36-005	36-3048	0	6	IN	Indeno(1,2,3-cd)pyrene	360	UG/KG	U
36-005	36-3047	0	6	IN	Indeno(1,2,3-cd)pyrene	390	UG/KG	U
36-005	36-3046	0	6	IN	Indeno(1,2,3-cd)pyrene	360	UG/KG	U
36-005	36-3045	0	6	IN	Indeno(1,2,3-cd)pyrene	380	UG/KG	U
36-005	36-3044	0	6	IN	Indeno(1,2,3-cd)pyrene	380	UG/KG	U
36-005	36-3043	0	6	IN	Indeno(1,2,3-cd)pyrene	360	UG/KG	U
36-005	36-3042	0	6	IN	Indeno(1,2,3-cd)pyrene	350	UG/KG	U
36-005	36-3042	0	6	IN	Indeno(1,2,3-cd)pyrene	340	UG/KG	U
36-005	36-3041	0	6	IN	Indeno(1,2,3-cd)pyrene	350	UG/KG	U
36-005	36-3040	0	6	IN	Indeno(1,2,3-cd)pyrene	350	UG/KG	U
36-005	36-3039	0	6	IN	Indeno(1,2,3-cd)pyrene	340	UG/KG	U
36-005	36-3038	0	6	IN	Indeno(1,2,3-cd)pyrene	360	UG/KG	U
36-005	36-3037	0	6	IN	Indeno(1,2,3-cd)pyrene	350	UG/KG	U
36-005	36-3036	0	6	IN	Indeno(1,2,3-cd)pyrene	340	UG/KG	U
36-005	36-3035	0	6	IN	Indeno(1,2,3-cd)pyrene	350	UG/KG	U
36-005	36-3034	0	6	IN	Indeno(1,2,3-cd)pyrene	350	UG/KG	U
36-005	36-3034	0	6	IN	Indeno(1,2,3-cd)pyrene	350	UG/KG	U
36-005	36-3026	0	6	IN	Indeno(1,2,3-cd)pyrene	140000	UG/KG	U
36-005	36-3025	0	6	IN	Indeno(1,2,3-cd)pyrene	360	UG/KG	U
36-005	36-3024	0	6	IN	Indeno(1,2,3-cd)pyrene	400	UG/KG	U
36-005	36-3023	0	6	IN	Indeno(1,2,3-cd)pyrene	370	UG/KG	U
36-005	36-3022	0	6	IN	Indeno(1,2,3-cd)pyrene	360	UG/KG	U
36-005	36-3021	0	6	IN	Indeno(1,2,3-cd)pyrene	400	UG/KG	U
36-005	36-3020	0	6	IN	Indeno(1,2,3-cd)pyrene	370	UG/KG	U
36-005	36-3019	0	6	IN	Indeno(1,2,3-cd)pyrene	370	UG/KG	U
36-005	36-3018	0	6	IN	Indeno(1,2,3-cd)pyrene	350	UG/KG	U
36-005	36-3018	0	6	IN	Indeno(1,2,3-cd)pyrene	370	UG/KG	U
36-005	36-3051	0	6	IN	Iodomethane	5	UG/KG	U
36-005	36-3050	0	6	IN	Iodomethane	6	UG/KG	U
36-005	36-3050	0	6	IN	Iodomethane	6	UG/KG	U
36-005	36-3049	0	6	IN	Iodomethane	6	UG/KG	U
36-005	36-3048	0	6	IN	Iodomethane	6	UG/KG	U
36-005	36-3047	0	6	IN	Iodomethane	6	UG/KG	U

36-005	36-3046	0	6	IN	Iodomethane	6	UG/KG	U
36-005	36-3045	0	6	IN	Iodomethane	6	UG/KG	U
36-005	36-3044	0	6	IN	Iodomethane	6	UG/KG	U
36-005	36-3043	0	6	IN	Iodomethane	5	UG/KG	U
36-005	36-3042	0	6	IN	Iodomethane	6	UG/KG	U
36-005	36-3042	0	6	IN	Iodomethane	5	UG/KG	U
36-005	36-3041	0	6	IN	Iodomethane	5	UG/KG	U
36-005	36-3040	0	6	IN	Iodomethane	5	UG/KG	U
36-005	36-3039	0	6	IN	Iodomethane	5	UG/KG	U
36-005	36-3038	0	6	IN	Iodomethane	6	UG/KG	U
36-005	36-3037	0	6	IN	Iodomethane	5	UG/KG	U
36-005	36-3036	0	6	IN	Iodomethane	6	UG/KG	U
36-005	36-3035	0	6	IN	Iodomethane	6	UG/KG	U
36-005	36-3034	0	6	IN	Iodomethane	6	UG/KG	U
36-005	36-3034	0	6	IN	Iodomethane	5	UG/KG	U
36-005	36-3026	0	6	IN	Iodomethane	25	UG/KG	U
36-005	36-3025	0	6	IN	Iodomethane	5	UG/KG	U
36-005	36-3024	0	6	IN	Iodomethane	6	UG/KG	U
36-005	36-3023	0	6	IN	Iodomethane	6	UG/KG	U
36-005	36-3022	0	6	IN	Iodomethane	6	UG/KG	U
36-005	36-3021	0	6	IN	Iodomethane	6	UG/KG	U
36-005	36-3020	0	6	IN	Iodomethane	6	UG/KG	U
36-005	36-3019	0	6	IN	Iodomethane	6	UG/KG	U
36-005	36-3018	0	6	IN	Iodomethane	6	UG/KG	U
36-005	36-3018	0	6	IN	Iodomethane	6	UG/KG	U
36-005	NA				Iron	19100	MG/KG	
36-005	36-3051	0	6	IN	Iron	4320	MG/KG	
36-005	36-3050	0	6	IN	Iron	8770	MG/KG	
36-005	36-3050	0	6	IN	Iron	9030	MG/KG	
36-005	36-3049	0	6	IN	Iron	5530	MG/KG	
36-005	36-3048	0	6	IN	Iron	13200	MG/KG	
36-005	36-3047	0	6	IN	Iron	7980	MG/KG	
36-005	36-3046	0	6	IN	Iron	6860	MG/KG	
36-005	36-3045	0	6	IN	Iron	12300	MG/KG	
36-005	36-3044	0	6	IN	Iron	8780	MG/KG	
36-005	36-3043	0	6	IN	Iron	6620	MG/KG	
36-005	36-3042	0	6	IN	Iron	6560	MG/KG	
36-005	36-3042	0	6	IN	Iron	7760	MG/KG	
36-005	36-3041	0	6	IN	Iron	11100	MG/KG	
36-005	36-3040	0	6	IN	Iron	9060	MG/KG	
36-005	36-3039	0	6	IN	Iron	8740	MG/KG	
36-005	36-3038	0	6	IN	Iron	11200	MG/KG	
36-005	36-3037	0	6	IN	Iron	11900	MG/KG	
36-005	36-3036	0	6	IN	Iron	12100	MG/KG	
36-005	36-3035	0	6	IN	Iron	13200	MG/KG	
36-005	36-3034	0	6	IN	Iron	8320	MG/KG	
36-005	36-3034	0	6	IN	Iron	9490	MG/KG	
36-005	36-3026	0	6	IN	Iron	8000	MG/KG	
36-005	36-3025	0	6	IN	Iron	7200	MG/KG	J
36-005	36-3024	0	6	IN	Iron	12700	MG/KG	J
36-005	36-3023	0	6	IN	Iron	9820	MG/KG	J
36-005	36-3022	0	6	IN	Iron	4380	MG/KG	J
36-005	36-3021	0	6	IN	Iron	8800	MG/KG	J
36-005	36-3020	0	6	IN	Iron	9.2	MG/KG	J
36-005	36-3019	0	6	IN	Iron	7350	MG/KG	J
36-005	36-3018	0	6	IN	Iron	9340	MG/KG	J
36-005	36-3018	0	6	IN	Iron	6510	MG/KG	J
36-005	36-3051	0	6	IN	Isophorone	350	UG/KG	U
36-005	36-3050	0	6	IN	Isophorone	360	UG/KG	U
36-005	36-3050	0	6	IN	Isophorone	350	UG/KG	U
36-005	36-3049	0	6	IN	Isophorone	340	UG/KG	U
36-005	36-3048	0	6	IN	Isophorone	360	UG/KG	U
36-005	36-3047	0	6	IN	Isophorone	390	UG/KG	U
36-005	36-3046	0	6	IN	Isophorone	360	UG/KG	U
36-005	36-3045	0	6	IN	Isophorone	380	UG/KG	U
36-005	36-3044	0	6	IN	Isophorone	380	UG/KG	U
36-005	36-3043	0	6	IN	Isophorone	360	UG/KG	U
36-005	36-3042	0	6	IN	Isophorone	350	UG/KG	U
36-005	36-3042	0	6	IN	Isophorone	340	UG/KG	U
36-005	36-3041	0	6	IN	Isophorone	350	UG/KG	U
36-005	36-3040	0	6	IN	Isophorone	350	UG/KG	U
36-005	36-3039	0	6	IN	Isophorone	340	UG/KG	U
36-005	36-3038	0	6	IN	Isophorone	360	UG/KG	U
36-005	36-3037	0	6	IN	Isophorone	350	UG/KG	U

36-005	36-3036	0	6	IN	Isophorone	340	UG/KG	U
36-005	36-3035	0	6	IN	Isophorone	350	UG/KG	U
36-005	36-3034	0	6	IN	Isophorone	350	UG/KG	U
36-005	36-3034	0	6	IN	Isophorone	350	UG/KG	U
36-005	36-3026	0	6	IN	Isophorone	140000	UG/KG	U
36-005	36-3025	0	6	IN	Isophorone	360	UG/KG	U
36-005	36-3024	0	6	IN	Isophorone	400	UG/KG	U
36-005	36-3023	0	6	IN	Isophorone	370	UG/KG	U
36-005	36-3022	0	6	IN	Isophorone	360	UG/KG	U
36-005	36-3021	0	6	IN	Isophorone	400	UG/KG	U
36-005	36-3020	0	6	IN	Isophorone	370	UG/KG	U
36-005	36-3019	0	6	IN	Isophorone	370	UG/KG	U
36-005	36-3018	0	6	IN	Isophorone	350	UG/KG	U
36-005	36-3018	0	6	IN	Isophorone	370	UG/KG	U
36-005	36-3051	0	6	IN	Isopropylbenzene	5	UG/KG	U
36-005	36-3050	0	6	IN	Isopropylbenzene	6	UG/KG	U
36-005	36-3050	0	6	IN	Isopropylbenzene	6	UG/KG	U
36-005	36-3049	0	6	IN	Isopropylbenzene	6	UG/KG	U
36-005	36-3048	0	6	IN	Isopropylbenzene	6	UG/KG	UJ
36-005	36-3047	0	6	IN	Isopropylbenzene	6	UG/KG	U
36-005	36-3046	0	6	IN	Isopropylbenzene	6	UG/KG	U
36-005	36-3045	0	6	IN	Isopropylbenzene	6	UG/KG	UJ
36-005	36-3044	0	6	IN	Isopropylbenzene	6	UG/KG	UJ
36-005	36-3043	0	6	IN	Isopropylbenzene	5	UG/KG	U
36-005	36-3042	0	6	IN	Isopropylbenzene	6	UG/KG	UJ
36-005	36-3042	0	6	IN	Isopropylbenzene	5	UG/KG	UJ
36-005	36-3041	0	6	IN	Isopropylbenzene	5	UG/KG	U
36-005	36-3040	0	6	IN	Isopropylbenzene	5	UG/KG	U
36-005	36-3039	0	6	IN	Isopropylbenzene	5	UG/KG	U
36-005	36-3038	0	6	IN	Isopropylbenzene	6	UG/KG	U
36-005	36-3037	0	6	IN	Isopropylbenzene	5	UG/KG	U
36-005	36-3036	0	6	IN	Isopropylbenzene	6	UG/KG	U
36-005	36-3035	0	6	IN	Isopropylbenzene	6	UG/KG	U
36-005	36-3034	0	6	IN	Isopropylbenzene	6	UG/KG	U
36-005	36-3034	0	6	IN	Isopropylbenzene	5	UG/KG	U
36-005	36-3026	0	6	IN	Isopropylbenzene	25	UG/KG	U
36-005	36-3025	0	6	IN	Isopropylbenzene	5	UG/KG	U
36-005	36-3024	0	6	IN	Isopropylbenzene	6	UG/KG	U
36-005	36-3023	0	6	IN	Isopropylbenzene	6	UG/KG	UJ
36-005	36-3022	0	6	IN	Isopropylbenzene	6	UG/KG	U
36-005	36-3021	0	6	IN	Isopropylbenzene	6	UG/KG	UJ
36-005	36-3020	0	6	IN	Isopropylbenzene	6	UG/KG	UJ
36-005	36-3019	0	6	IN	Isopropylbenzene	6	UG/KG	U
36-005	36-3018	0	6	IN	Isopropylbenzene	6	UG/KG	U
36-005	36-3018	0	6	IN	Isopropylbenzene	6	UG/KG	U
36-005	36-3051	0	6	IN	Isopropyltoluene[4-]	5	UG/KG	U
36-005	36-3050	0	6	IN	Isopropyltoluene[4-]	6	UG/KG	U
36-005	36-3050	0	6	IN	Isopropyltoluene[4-]	6	UG/KG	U
36-005	36-3049	0	6	IN	Isopropyltoluene[4-]	6	UG/KG	U
36-005	36-3048	0	6	IN	Isopropyltoluene[4-]	6	UG/KG	UJ
36-005	36-3047	0	6	IN	Isopropyltoluene[4-]	6	UG/KG	U
36-005	36-3046	0	6	IN	Isopropyltoluene[4-]	6	UG/KG	U
36-005	36-3045	0	6	IN	Isopropyltoluene[4-]	6	UG/KG	UJ
36-005	36-3044	0	6	IN	Isopropyltoluene[4-]	6	UG/KG	UJ
36-005	36-3043	0	6	IN	Isopropyltoluene[4-]	5	UG/KG	U
36-005	36-3042	0	6	IN	Isopropyltoluene[4-]	6	UG/KG	UJ
36-005	36-3042	0	6	IN	Isopropyltoluene[4-]	5	UG/KG	UJ
36-005	36-3041	0	6	IN	Isopropyltoluene[4-]	5	UG/KG	U
36-005	36-3040	0	6	IN	Isopropyltoluene[4-]	5	UG/KG	U
36-005	36-3039	0	6	IN	Isopropyltoluene[4-]	5	UG/KG	U
36-005	36-3038	0	6	IN	Isopropyltoluene[4-]	6	UG/KG	U
36-005	36-3037	0	6	IN	Isopropyltoluene[4-]	5	UG/KG	U
36-005	36-3036	0	6	IN	Isopropyltoluene[4-]	6	UG/KG	U
36-005	36-3035	0	6	IN	Isopropyltoluene[4-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Isopropyltoluene[4-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Isopropyltoluene[4-]	5	UG/KG	U
36-005	36-3026	0	6	IN	Isopropyltoluene[4-]	25	UG/KG	U
36-005	36-3025	0	6	IN	Isopropyltoluene[4-]	5	UG/KG	U
36-005	36-3024	0	6	IN	Isopropyltoluene[4-]	6	UG/KG	U
36-005	36-3023	0	6	IN	Isopropyltoluene[4-]	6	UG/KG	UJ
36-005	36-3022	0	6	IN	Isopropyltoluene[4-]	6	UG/KG	U
36-005	36-3021	0	6	IN	Isopropyltoluene[4-]	6	UG/KG	UJ
36-005	36-3020	0	6	IN	Isopropyltoluene[4-]	6	UG/KG	UJ
36-005	36-3019	0	6	IN	Isopropyltoluene[4-]	6	UG/KG	U

36-005	36-3018	0	6	IN	Isopropyltoluene[4-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Isopropyltoluene[4-]	6	UG/KG	U
36-005	NA				Lead	4340	MG/KG	
36-005	36-3051	0	6	IN	Lead	5.3	MG/KG	
36-005	36-3050	0	6	IN	Lead	11.7	MG/KG	
36-005	36-3050	0	6	IN	Lead	12.8	MG/KG	
36-005	36-3049	0	6	IN	Lead	5.5	MG/KG	
36-005	36-3048	0	6	IN	Lead	12.5	MG/KG	
36-005	36-3047	0	6	IN	Lead	11.3	MG/KG	
36-005	36-3046	0	6	IN	Lead	6.8	MG/KG	
36-005	36-3045	0	6	IN	Lead	13.6	MG/KG	
36-005	36-3044	0	6	IN	Lead	13.9	MG/KG	
36-005	36-3043	0	6	IN	Lead	8.2	MG/KG	
36-005	36-3042	0	6	IN	Lead	7.4	MG/KG	
36-005	36-3042	0	6	IN	Lead	7.6	MG/KG	
36-005	36-3041	0	6	IN	Lead	6.4	MG/KG	
36-005	36-3040	0	6	IN	Lead	10.2	MG/KG	
36-005	36-3039	0	6	IN	Lead	9.4	MG/KG	
36-005	36-3038	0	6	IN	Lead	11.7	MG/KG	
36-005	36-3037	0	6	IN	Lead	14.1	MG/KG	
36-005	36-3036	0	6	IN	Lead	6.3	MG/KG	
36-005	36-3035	0	6	IN	Lead	13.3	MG/KG	
36-005	36-3034	0	6	IN	Lead	12.4	MG/KG	
36-005	36-3034	0	6	IN	Lead	10.1	MG/KG	
36-005	36-3026	0	6	IN	Lead	10.6	MG/KG	
36-005	36-3025	0	6	IN	Lead	11.1	MG/KG	
36-005	36-3024	0	6	IN	Lead	9.6	MG/KG	
36-005	36-3023	0	6	IN	Lead	20.5	MG/KG	
36-005	36-3022	0	6	IN	Lead	11.7	MG/KG	
36-005	36-3021	0	6	IN	Lead	13	MG/KG	
36-005	36-3020	0	6	IN	Lead	9.2	MG/KG	
36-005	36-3019	0	6	IN	Lead	20.3	MG/KG	
36-005	36-3018	0	6	IN	Lead	8.8	MG/KG	
36-005	36-3018	0	6	IN	Lead	11.8	MG/KG	
36-005	NA				Magnesium	2690	MG/KG	
36-005	36-3051	0	6	IN	Magnesium	460	MG/KG	U
36-005	36-3050	0	6	IN	Magnesium	1560	MG/KG	
36-005	36-3050	0	6	IN	Magnesium	1550	MG/KG	
36-005	36-3049	0	6	IN	Magnesium	387	MG/KG	U
36-005	36-3048	0	6	IN	Magnesium	2350	MG/KG	
36-005	36-3047	0	6	IN	Magnesium	1180	MG/KG	
36-005	36-3046	0	6	IN	Magnesium	569	MG/KG	U
36-005	36-3045	0	6	IN	Magnesium	2820	MG/KG	
36-005	36-3044	0	6	IN	Magnesium	1250	MG/KG	
36-005	36-3043	0	6	IN	Magnesium	562	MG/KG	U
36-005	36-3042	0	6	IN	Magnesium	1050	MG/KG	
36-005	36-3042	0	6	IN	Magnesium	1080	MG/KG	
36-005	36-3041	0	6	IN	Magnesium	1240	MG/KG	
36-005	36-3040	0	6	IN	Magnesium	1240	MG/KG	
36-005	36-3039	0	6	IN	Magnesium	1000	MG/KG	
36-005	36-3038	0	6	IN	Magnesium	1620	MG/KG	
36-005	36-3037	0	6	IN	Magnesium	1480	MG/KG	
36-005	36-3036	0	6	IN	Magnesium	1700	MG/KG	
36-005	36-3035	0	6	IN	Magnesium	2350	MG/KG	
36-005	36-3034	0	6	IN	Magnesium	1460	MG/KG	
36-005	36-3034	0	6	IN	Magnesium	1690	MG/KG	
36-005	36-3026	0	6	IN	Magnesium	1150	MG/KG	
36-005	36-3025	0	6	IN	Magnesium	562	MG/KG	UJ
36-005	36-3024	0	6	IN	Magnesium	1060	MG/KG	UJ
36-005	36-3023	0	6	IN	Magnesium	1310	MG/KG	J
36-005	36-3022	0	6	IN	Magnesium	904	MG/KG	UJ
36-005	36-3021	0	6	IN	Magnesium	990	MG/KG	UJ
36-005	36-3020	0	6	IN	Magnesium	925	MG/KG	UJ
36-005	36-3019	0	6	IN	Magnesium	946	MG/KG	UJ
36-005	36-3018	0	6	IN	Magnesium	1040	MG/KG	UJ
36-005	36-3018	0	6	IN	Magnesium	723	MG/KG	UJ
36-005	NA				Manganese	880	MG/KG	
36-005	36-3051	0	6	IN	Manganese	184	MG/KG	
36-005	36-3050	0	6	IN	Manganese	350	MG/KG	
36-005	36-3050	0	6	IN	Manganese	330	MG/KG	
36-005	36-3049	0	6	IN	Manganese	202	MG/KG	
36-005	36-3048	0	6	IN	Manganese	359	MG/KG	
36-005	36-3047	0	6	IN	Manganese	280	MG/KG	
36-005	36-3046	0	6	IN	Manganese	226	MG/KG	

36-005	36-3045	0	6	IN	Manganese	359	MG/KG	
36-005	36-3044	0	6	IN	Manganese	316	MG/KG	
36-005	36-3043	0	6	IN	Manganese	220	MG/KG	
36-005	36-3042	0	6	IN	Manganese	319	MG/KG	
36-005	36-3042	0	6	IN	Manganese	300	MG/KG	
36-005	36-3041	0	6	IN	Manganese	252	MG/KG	
36-005	36-3040	0	6	IN	Manganese	274	MG/KG	
36-005	36-3039	0	6	IN	Manganese	277	MG/KG	
36-005	36-3038	0	6	IN	Manganese	283	MG/KG	
36-005	36-3037	0	6	IN	Manganese	464	MG/KG	
36-005	36-3036	0	6	IN	Manganese	316	MG/KG	
36-005	36-3035	0	6	IN	Manganese	280	MG/KG	
36-005	36-3034	0	6	IN	Manganese	286	MG/KG	
36-005	36-3034	0	6	IN	Manganese	284	MG/KG	
36-005	36-3026	0	6	IN	Manganese	290	MG/KG	
36-005	36-3025	0	6	IN	Manganese	205	MG/KG	
36-005	36-3024	0	6	IN	Manganese	354	MG/KG	
36-005	36-3023	0	6	IN	Manganese	365	MG/KG	
36-005	36-3022	0	6	IN	Manganese	268	MG/KG	
36-005	36-3021	0	6	IN	Manganese	374	MG/KG	
36-005	36-3020	0	6	IN	Manganese	335	MG/KG	
36-005	36-3019	0	6	IN	Manganese	354	MG/KG	
36-005	36-3018	0	6	IN	Manganese	355	MG/KG	
36-005	36-3018	0	6	IN	Manganese	256	MG/KG	
36-005	NA				Mercury	1.3	MG/KG	J
36-005	36-3051	0	6	IN	Mercury	0.05	MG/KG	U
36-005	36-3050	0	6	IN	Mercury	0.05	MG/KG	U
36-005	36-3050	0	6	IN	Mercury	0.05	MG/KG	U
36-005	36-3049	0	6	IN	Mercury	0.05	MG/KG	U
36-005	36-3048	0	6	IN	Mercury	0.05	MG/KG	U
36-005	36-3047	0	6	IN	Mercury	0.06	MG/KG	U
36-005	36-3046	0	6	IN	Mercury	0.05	MG/KG	U
36-005	36-3045	0	6	IN	Mercury	0.06	MG/KG	U
36-005	36-3044	0	6	IN	Mercury	0.05	MG/KG	U
36-005	36-3043	0	6	IN	Mercury	0.05	MG/KG	U
36-005	36-3042	0	6	IN	Mercury	0.05	MG/KG	U
36-005	36-3042	0	6	IN	Mercury	0.05	MG/KG	U
36-005	36-3041	0	6	IN	Mercury	0.05	MG/KG	U
36-005	36-3040	0	6	IN	Mercury	0.07	MG/KG	U
36-005	36-3039	0	6	IN	Mercury	0.08	MG/KG	U
36-005	36-3038	0	6	IN	Mercury	0.06	MG/KG	U
36-005	36-3037	0	6	IN	Mercury	0.09	MG/KG	U
36-005	36-3036	0	6	IN	Mercury	0.06	MG/KG	U
36-005	36-3035	0	6	IN	Mercury	0.07	MG/KG	U
36-005	36-3034	0	6	IN	Mercury	0.07	MG/KG	U
36-005	36-3034	0	6	IN	Mercury	0.09	MG/KG	U
36-005	36-3026	0	6	IN	Mercury	0.05	MG/KG	U
36-005	36-3025	0	6	IN	Mercury	0.08	MG/KG	U
36-005	36-3024	0	6	IN	Mercury	0.09	MG/KG	U
36-005	36-3023	0	6	IN	Mercury	0.09	MG/KG	U
36-005	36-3022	0	6	IN	Mercury	0.09	MG/KG	U
36-005	36-3021	0	6	IN	Mercury	0.1	MG/KG	U
36-005	36-3020	0	6	IN	Mercury	0.09	MG/KG	U
36-005	36-3019	0	6	IN	Mercury	0.1	MG/KG	U
36-005	36-3018	0	6	IN	Mercury	0.07	MG/KG	U
36-005	36-3018	0	6	IN	Mercury	0.09	MG/KG	U
36-005	36-3051	0	6	IN	Methyl-2-pentanone[4-]	20	UG/KG	U
36-005	36-3050	0	6	IN	Methyl-2-pentanone[4-]	22	UG/KG	U
36-005	36-3050	0	6	IN	Methyl-2-pentanone[4-]	22	UG/KG	U
36-005	36-3049	0	6	IN	Methyl-2-pentanone[4-]	22	UG/KG	U
36-005	36-3048	0	6	IN	Methyl-2-pentanone[4-]	22	UG/KG	U
36-005	36-3047	0	6	IN	Methyl-2-pentanone[4-]	24	UG/KG	U
36-005	36-3046	0	6	IN	Methyl-2-pentanone[4-]	22	UG/KG	U
36-005	36-3045	0	6	IN	Methyl-2-pentanone[4-]	22	UG/KG	U
36-005	36-3044	0	6	IN	Methyl-2-pentanone[4-]	22	UG/KG	U
36-005	36-3043	0	6	IN	Methyl-2-pentanone[4-]	20	UG/KG	U
36-005	36-3042	0	6	IN	Methyl-2-pentanone[4-]	22	UG/KG	UJ
36-005	36-3042	0	6	IN	Methyl-2-pentanone[4-]	20	UG/KG	U
36-005	36-3041	0	6	IN	Methyl-2-pentanone[4-]	20	UG/KG	U
36-005	36-3040	0	6	IN	Methyl-2-pentanone[4-]	20	UG/KG	U
36-005	36-3039	0	6	IN	Methyl-2-pentanone[4-]	20	UG/KG	
36-005	36-3038	0	6	IN	Methyl-2-pentanone[4-]	22	UG/KG	U
36-005	36-3037	0	6	IN	Methyl-2-pentanone[4-]	20	UG/KG	U
36-005	36-3036	0	6	IN	Methyl-2-pentanone[4-]	22	UG/KG	U

36-005	36-3035	0	6	IN	Methyl-2-pentanone[4-]	22	UG/KG	U
36-005	36-3034	0	6	IN	Methyl-2-pentanone[4-]	22	UG/KG	U
36-005	36-3034	0	6	IN	Methyl-2-pentanone[4-]	20	UG/KG	U
36-005	36-3026	0	6	IN	Methyl-2-pentanone[4-]	100	UG/KG	U
36-005	36-3025	0	6	IN	Methyl-2-pentanone[4-]	20	UG/KG	U
36-005	36-3024	0	6	IN	Methyl-2-pentanone[4-]	24	UG/KG	U
36-005	36-3023	0	6	IN	Methyl-2-pentanone[4-]	22	UG/KG	U
36-005	36-3022	0	6	IN	Methyl-2-pentanone[4-]	24	UG/KG	U
36-005	36-3021	0	6	IN	Methyl-2-pentanone[4-]	24	UG/KG	U
36-005	36-3020	0	6	IN	Methyl-2-pentanone[4-]	22	UG/KG	U
36-005	36-3019	0	6	IN	Methyl-2-pentanone[4-]	22	UG/KG	U
36-005	36-3018	0	6	IN	Methyl-2-pentanone[4-]	22	UG/KG	U
36-005	36-3018	0	6	IN	Methyl-2-pentanone[4-]	22	UG/KG	U
36-005	36-3051	0	6	IN	Methylene Chloride	21	UG/KG	U
36-005	36-3050	0	6	IN	Methylene Chloride	18	UG/KG	U
36-005	36-3050	0	6	IN	Methylene Chloride	15	UG/KG	U
36-005	36-3049	0	6	IN	Methylene Chloride	12	UG/KG	U
36-005	36-3048	0	6	IN	Methylene Chloride	11	UG/KG	U
36-005	36-3047	0	6	IN	Methylene Chloride	6	UG/KG	U
36-005	36-3046	0	6	IN	Methylene Chloride	9	UG/KG	U
36-005	36-3045	0	6	IN	Methylene Chloride	6	UG/KG	U
36-005	36-3044	0	6	IN	Methylene Chloride	11	UG/KG	U
36-005	36-3043	0	6	IN	Methylene Chloride	5	UG/KG	U
36-005	36-3042	0	6	IN	Methylene Chloride	9	UG/KG	U
36-005	36-3042	0	6	IN	Methylene Chloride	30	UG/KG	U
36-005	36-3041	0	6	IN	Methylene Chloride	10	UG/KG	
36-005	36-3040	0	6	IN	Methylene Chloride	10	UG/KG	
36-005	36-3039	0	6	IN	Methylene Chloride	5	UG/KG	U
36-005	36-3038	0	6	IN	Methylene Chloride	16	UG/KG	
36-005	36-3037	0	6	IN	Methylene Chloride	5	UG/KG	U
36-005	36-3036	0	6	IN	Methylene Chloride	6	UG/KG	U
36-005	36-3035	0	6	IN	Methylene Chloride	10	UG/KG	
36-005	36-3034	0	6	IN	Methylene Chloride	8	UG/KG	
36-005	36-3034	0	6	IN	Methylene Chloride	5	UG/KG	U
36-005	36-3026	0	6	IN	Methylene Chloride	130	UG/KG	J
36-005	36-3025	0	6	IN	Methylene Chloride	11	UG/KG	U
36-005	36-3024	0	6	IN	Methylene Chloride	8	UG/KG	
36-005	36-3023	0	6	IN	Methylene Chloride	7	UG/KG	
36-005	36-3022	0	6	IN	Methylene Chloride	12	UG/KG	
36-005	36-3021	0	6	IN	Methylene Chloride	6	UG/KG	U
36-005	36-3020	0	6	IN	Methylene Chloride	6	UG/KG	U
36-005	36-3019	0	6	IN	Methylene Chloride	6	UG/KG	U
36-005	36-3018	0	6	IN	Methylene Chloride	6	UG/KG	U
36-005	36-3018	0	6	IN	Methylene Chloride	11	UG/KG	
36-005	36-3051	0	6	IN	Methylnaphthalene[2-]	350	UG/KG	U
36-005	36-3050	0	6	IN	Methylnaphthalene[2-]	360	UG/KG	U
36-005	36-3050	0	6	IN	Methylnaphthalene[2-]	350	UG/KG	U
36-005	36-3049	0	6	IN	Methylnaphthalene[2-]	340	UG/KG	U
36-005	36-3048	0	6	IN	Methylnaphthalene[2-]	360	UG/KG	U
36-005	36-3047	0	6	IN	Methylnaphthalene[2-]	390	UG/KG	U
36-005	36-3046	0	6	IN	Methylnaphthalene[2-]	360	UG/KG	U
36-005	36-3045	0	6	IN	Methylnaphthalene[2-]	380	UG/KG	U
36-005	36-3044	0	6	IN	Methylnaphthalene[2-]	380	UG/KG	U
36-005	36-3043	0	6	IN	Methylnaphthalene[2-]	360	UG/KG	U
36-005	36-3042	0	6	IN	Methylnaphthalene[2-]	350	UG/KG	U
36-005	36-3042	0	6	IN	Methylnaphthalene[2-]	340	UG/KG	U
36-005	36-3041	0	6	IN	Methylnaphthalene[2-]	350	UG/KG	U
36-005	36-3040	0	6	IN	Methylnaphthalene[2-]	350	UG/KG	U
36-005	36-3039	0	6	IN	Methylnaphthalene[2-]	340	UG/KG	U
36-005	36-3038	0	6	IN	Methylnaphthalene[2-]	360	UG/KG	U
36-005	36-3037	0	6	IN	Methylnaphthalene[2-]	350	UG/KG	U
36-005	36-3036	0	6	IN	Methylnaphthalene[2-]	340	UG/KG	U
36-005	36-3035	0	6	IN	Methylnaphthalene[2-]	350	UG/KG	U
36-005	36-3034	0	6	IN	Methylnaphthalene[2-]	350	UG/KG	U
36-005	36-3034	0	6	IN	Methylnaphthalene[2-]	350	UG/KG	U
36-005	36-3026	0	6	IN	Methylnaphthalene[2-]	140000	UG/KG	U
36-005	36-3025	0	6	IN	Methylnaphthalene[2-]	360	UG/KG	U
36-005	36-3024	0	6	IN	Methylnaphthalene[2-]	400	UG/KG	U
36-005	36-3023	0	6	IN	Methylnaphthalene[2-]	370	UG/KG	U
36-005	36-3022	0	6	IN	Methylnaphthalene[2-]	360	UG/KG	U
36-005	36-3021	0	6	IN	Methylnaphthalene[2-]	400	UG/KG	U
36-005	36-3020	0	6	IN	Methylnaphthalene[2-]	370	UG/KG	U
36-005	36-3019	0	6	IN	Methylnaphthalene[2-]	370	UG/KG	U
36-005	36-3018	0	6	IN	Methylnaphthalene[2-]	350	UG/KG	U

36-005	36-3018	0	6	IN	Methylnaphthalene[2-]	370	UG/KG	U
36-005	36-3051	0	6	IN	Methylphenol[2-]	350	UG/KG	U
36-005	36-3050	0	6	IN	Methylphenol[2-]	360	UG/KG	U
36-005	36-3050	0	6	IN	Methylphenol[2-]	350	UG/KG	U
36-005	36-3049	0	6	IN	Methylphenol[2-]	340	UG/KG	U
36-005	36-3048	0	6	IN	Methylphenol[2-]	360	UG/KG	U
36-005	36-3047	0	6	IN	Methylphenol[2-]	390	UG/KG	U
36-005	36-3046	0	6	IN	Methylphenol[2-]	360	UG/KG	U
36-005	36-3045	0	6	IN	Methylphenol[2-]	380	UG/KG	U
36-005	36-3044	0	6	IN	Methylphenol[2-]	380	UG/KG	U
36-005	36-3043	0	6	IN	Methylphenol[2-]	360	UG/KG	U
36-005	36-3042	0	6	IN	Methylphenol[2-]	350	UG/KG	U
36-005	36-3042	0	6	IN	Methylphenol[2-]	340	UG/KG	U
36-005	36-3041	0	6	IN	Methylphenol[2-]	350	UG/KG	UR
36-005	36-3040	0	6	IN	Methylphenol[2-]	350	UG/KG	UR
36-005	36-3039	0	6	IN	Methylphenol[2-]	340	UG/KG	UR
36-005	36-3038	0	6	IN	Methylphenol[2-]	360	UG/KG	UR
36-005	36-3037	0	6	IN	Methylphenol[2-]	350	UG/KG	UR
36-005	36-3036	0	6	IN	Methylphenol[2-]	340	UG/KG	UR
36-005	36-3035	0	6	IN	Methylphenol[2-]	350	UG/KG	UR
36-005	36-3034	0	6	IN	Methylphenol[2-]	350	UG/KG	UR
36-005	36-3034	0	6	IN	Methylphenol[2-]	350	UG/KG	UR
36-005	36-3026	0	6	IN	Methylphenol[2-]	140000	UG/KG	U
36-005	36-3025	0	6	IN	Methylphenol[2-]	360	UG/KG	U
36-005	36-3024	0	6	IN	Methylphenol[2-]	400	UG/KG	U
36-005	36-3023	0	6	IN	Methylphenol[2-]	370	UG/KG	U
36-005	36-3022	0	6	IN	Methylphenol[2-]	360	UG/KG	U
36-005	36-3021	0	6	IN	Methylphenol[2-]	400	UG/KG	U
36-005	36-3020	0	6	IN	Methylphenol[2-]	370	UG/KG	U
36-005	36-3019	0	6	IN	Methylphenol[2-]	370	UG/KG	U
36-005	36-3018	0	6	IN	Methylphenol[2-]	350	UG/KG	U
36-005	36-3018	0	6	IN	Methylphenol[2-]	370	UG/KG	U
36-005	36-3051	0	6	IN	Methylphenol[4-]	350	UG/KG	U
36-005	36-3050	0	6	IN	Methylphenol[4-]	360	UG/KG	U
36-005	36-3050	0	6	IN	Methylphenol[4-]	350	UG/KG	U
36-005	36-3049	0	6	IN	Methylphenol[4-]	340	UG/KG	U
36-005	36-3048	0	6	IN	Methylphenol[4-]	360	UG/KG	U
36-005	36-3047	0	6	IN	Methylphenol[4-]	390	UG/KG	U
36-005	36-3046	0	6	IN	Methylphenol[4-]	360	UG/KG	U
36-005	36-3045	0	6	IN	Methylphenol[4-]	380	UG/KG	U
36-005	36-3044	0	6	IN	Methylphenol[4-]	380	UG/KG	U
36-005	36-3043	0	6	IN	Methylphenol[4-]	360	UG/KG	U
36-005	36-3042	0	6	IN	Methylphenol[4-]	350	UG/KG	U
36-005	36-3042	0	6	IN	Methylphenol[4-]	340	UG/KG	U
36-005	36-3041	0	6	IN	Methylphenol[4-]	350	UG/KG	U
36-005	36-3040	0	6	IN	Methylphenol[4-]	350	UG/KG	U
36-005	36-3039	0	6	IN	Methylphenol[4-]	340	UG/KG	U
36-005	36-3038	0	6	IN	Methylphenol[4-]	360	UG/KG	U
36-005	36-3037	0	6	IN	Methylphenol[4-]	350	UG/KG	U
36-005	36-3036	0	6	IN	Methylphenol[4-]	340	UG/KG	U
36-005	36-3035	0	6	IN	Methylphenol[4-]	350	UG/KG	U
36-005	36-3034	0	6	IN	Methylphenol[4-]	350	UG/KG	U
36-005	36-3034	0	6	IN	Methylphenol[4-]	350	UG/KG	U
36-005	36-3026	0	6	IN	Methylphenol[4-]	140000	UG/KG	U
36-005	36-3025	0	6	IN	Methylphenol[4-]	360	UG/KG	U
36-005	36-3024	0	6	IN	Methylphenol[4-]	400	UG/KG	U
36-005	36-3023	0	6	IN	Methylphenol[4-]	370	UG/KG	U
36-005	36-3022	0	6	IN	Methylphenol[4-]	360	UG/KG	U
36-005	36-3021	0	6	IN	Methylphenol[4-]	400	UG/KG	U
36-005	36-3020	0	6	IN	Methylphenol[4-]	370	UG/KG	U
36-005	36-3019	0	6	IN	Methylphenol[4-]	370	UG/KG	U
36-005	36-3018	0	6	IN	Methylphenol[4-]	350	UG/KG	U
36-005	36-3018	0	6	IN	Methylphenol[4-]	370	UG/KG	U
36-005	36-3051	0	6	IN	Naphthalene	350	UG/KG	U
36-005	36-3050	0	6	IN	Naphthalene	360	UG/KG	U
36-005	36-3050	0	6	IN	Naphthalene	350	UG/KG	U
36-005	36-3049	0	6	IN	Naphthalene	340	UG/KG	U
36-005	36-3048	0	6	IN	Naphthalene	360	UG/KG	U
36-005	36-3047	0	6	IN	Naphthalene	390	UG/KG	U
36-005	36-3046	0	6	IN	Naphthalene	360	UG/KG	U
36-005	36-3045	0	6	IN	Naphthalene	380	UG/KG	U
36-005	36-3044	0	6	IN	Naphthalene	380	UG/KG	U
36-005	36-3043	0	6	IN	Naphthalene	360	UG/KG	U
36-005	36-3042	0	6	IN	Naphthalene	350	UG/KG	U

36-005	36-3042	0	6	IN	Naphthalene	340	UG/KG	U
36-005	36-3041	0	6	IN	Naphthalene	350	UG/KG	UJ
36-005	36-3040	0	6	IN	Naphthalene	350	UG/KG	UJ
36-005	36-3039	0	6	IN	Naphthalene	340	UG/KG	UJ
36-005	36-3038	0	6	IN	Naphthalene	360	UG/KG	UJ
36-005	36-3037	0	6	IN	Naphthalene	350	UG/KG	UJ
36-005	36-3036	0	6	IN	Naphthalene	340	UG/KG	UJ
36-005	36-3035	0	6	IN	Naphthalene	350	UG/KG	UJ
36-005	36-3034	0	6	IN	Naphthalene	350	UG/KG	UJ
36-005	36-3034	0	6	IN	Naphthalene	350	UG/KG	UJ
36-005	36-3026	0	6	IN	Naphthalene	140000	UG/KG	U
36-005	36-3025	0	6	IN	Naphthalene	360	UG/KG	U
36-005	36-3024	0	6	IN	Naphthalene	400	UG/KG	U
36-005	36-3023	0	6	IN	Naphthalene	370	UG/KG	U
36-005	36-3022	0	6	IN	Naphthalene	360	UG/KG	U
36-005	36-3021	0	6	IN	Naphthalene	400	UG/KG	U
36-005	36-3020	0	6	IN	Naphthalene	370	UG/KG	U
36-005	36-3019	0	6	IN	Naphthalene	370	UG/KG	U
36-005	36-3018	0	6	IN	Naphthalene	350	UG/KG	U
36-005	36-3018	0	6	IN	Naphthalene	370	UG/KG	U
36-005	NA				Nickel	13.2	MG/KG	
36-005	36-3051	0	6	IN	Nickel	4.8	MG/KG	U
36-005	36-3050	0	6	IN	Nickel	5.6	MG/KG	U
36-005	36-3050	0	6	IN	Nickel	7.9	MG/KG	U
36-005	36-3049	0	6	IN	Nickel	2	MG/KG	U
36-005	36-3048	0	6	IN	Nickel	8.7	MG/KG	U
36-005	36-3047	0	6	IN	Nickel	4.2	MG/KG	U
36-005	36-3046	0	6	IN	Nickel	3.7	MG/KG	U
36-005	36-3045	0	6	IN	Nickel	9.7	MG/KG	
36-005	36-3044	0	6	IN	Nickel	6.2	MG/KG	U
36-005	36-3043	0	6	IN	Nickel	3.4	MG/KG	U
36-005	36-3042	0	6	IN	Nickel	5	MG/KG	U
36-005	36-3042	0	6	IN	Nickel	5.2	MG/KG	U
36-005	36-3041	0	6	IN	Nickel	5.9	MG/KG	
36-005	36-3040	0	6	IN	Nickel	4.2	MG/KG	
36-005	36-3039	0	6	IN	Nickel	3.7	MG/KG	U
36-005	36-3038	0	6	IN	Nickel	6.1	MG/KG	
36-005	36-3037	0	6	IN	Nickel	6.6	MG/KG	
36-005	36-3036	0	6	IN	Nickel	6	MG/KG	
36-005	36-3035	0	6	IN	Nickel	9.5	MG/KG	
36-005	36-3034	0	6	IN	Nickel	5.1	MG/KG	
36-005	36-3034	0	6	IN	Nickel	5.7	MG/KG	
36-005	36-3026	0	6	IN	Nickel	6.5	MG/KG	U
36-005	36-3025	0	6	IN	Nickel	2.5	MG/KG	UJ
36-005	36-3024	0	6	IN	Nickel	4.1	MG/KG	UJ
36-005	36-3023	0	6	IN	Nickel	4.9	MG/KG	UJ
36-005	36-3022	0	6	IN	Nickel	5.5	MG/KG	UJ
36-005	36-3021	0	6	IN	Nickel	4.4	MG/KG	UJ
36-005	36-3020	0	6	IN	Nickel	4.6	MG/KG	UJ
36-005	36-3019	0	6	IN	Nickel	3.2	MG/KG	UJ
36-005	36-3018	0	6	IN	Nickel	5.8	MG/KG	UJ
36-005	36-3018	0	6	IN	Nickel	3.3	MG/KG	UJ
36-005	36-3051	0	6	IN	Nitroaniline[2-]	1800	UG/KG	U
36-005	36-3050	0	6	IN	Nitroaniline[2-]	1800	UG/KG	U
36-005	36-3050	0	6	IN	Nitroaniline[2-]	1700	UG/KG	U
36-005	36-3049	0	6	IN	Nitroaniline[2-]	1700	UG/KG	U
36-005	36-3048	0	6	IN	Nitroaniline[2-]	1800	UG/KG	U
36-005	36-3047	0	6	IN	Nitroaniline[2-]	2000	UG/KG	U
36-005	36-3046	0	6	IN	Nitroaniline[2-]	1800	UG/KG	U
36-005	36-3045	0	6	IN	Nitroaniline[2-]	1900	UG/KG	U
36-005	36-3044	0	6	IN	Nitroaniline[2-]	1900	UG/KG	U
36-005	36-3043	0	6	IN	Nitroaniline[2-]	1800	UG/KG	U
36-005	36-3042	0	6	IN	Nitroaniline[2-]	1700	UG/KG	U
36-005	36-3042	0	6	IN	Nitroaniline[2-]	1700	UG/KG	U
36-005	36-3041	0	6	IN	Nitroaniline[2-]	1700	UG/KG	U
36-005	36-3040	0	6	IN	Nitroaniline[2-]	1700	UG/KG	U
36-005	36-3039	0	6	IN	Nitroaniline[2-]	1700	UG/KG	U
36-005	36-3038	0	6	IN	Nitroaniline[2-]	1800	UG/KG	U
36-005	36-3037	0	6	IN	Nitroaniline[2-]	1700	UG/KG	U
36-005	36-3036	0	6	IN	Nitroaniline[2-]	1700	UG/KG	U
36-005	36-3035	0	6	IN	Nitroaniline[2-]	1800	UG/KG	U
36-005	36-3034	0	6	IN	Nitroaniline[2-]	1700	UG/KG	U
36-005	36-3034	0	6	IN	Nitroaniline[2-]	1800	UG/KG	U
36-005	36-3026	0	6	IN	Nitroaniline[2-]	680000	UG/KG	U

36-005	36-3025	0	6	IN	Nitroaniline[2-]	1800	UG/KG	U
36-005	36-3024	0	6	IN	Nitroaniline[2-]	2000	UG/KG	U
36-005	36-3023	0	6	IN	Nitroaniline[2-]	1900	UG/KG	U
36-005	36-3022	0	6	IN	Nitroaniline[2-]	1800	UG/KG	U
36-005	36-3021	0	6	IN	Nitroaniline[2-]	2000	UG/KG	U
36-005	36-3020	0	6	IN	Nitroaniline[2-]	1900	UG/KG	U
36-005	36-3019	0	6	IN	Nitroaniline[2-]	1900	UG/KG	U
36-005	36-3018	0	6	IN	Nitroaniline[2-]	1700	UG/KG	U
36-005	36-3018	0	6	IN	Nitroaniline[2-]	1800	UG/KG	U
36-005	36-3051	0	6	IN	Nitroaniline[3-]	1800	UG/KG	U
36-005	36-3050	0	6	IN	Nitroaniline[3-]	1800	UG/KG	U
36-005	36-3050	0	6	IN	Nitroaniline[3-]	1700	UG/KG	U
36-005	36-3049	0	6	IN	Nitroaniline[3-]	1700	UG/KG	U
36-005	36-3048	0	6	IN	Nitroaniline[3-]	1800	UG/KG	U
36-005	36-3047	0	6	IN	Nitroaniline[3-]	2000	UG/KG	U
36-005	36-3046	0	6	IN	Nitroaniline[3-]	1800	UG/KG	U
36-005	36-3045	0	6	IN	Nitroaniline[3-]	1900	UG/KG	U
36-005	36-3044	0	6	IN	Nitroaniline[3-]	1900	UG/KG	U
36-005	36-3043	0	6	IN	Nitroaniline[3-]	1800	UG/KG	U
36-005	36-3042	0	6	IN	Nitroaniline[3-]	1700	UG/KG	U
36-005	36-3042	0	6	IN	Nitroaniline[3-]	1700	UG/KG	U
36-005	36-3041	0	6	IN	Nitroaniline[3-]	1700	UG/KG	U
36-005	36-3040	0	6	IN	Nitroaniline[3-]	1700	UG/KG	U
36-005	36-3039	0	6	IN	Nitroaniline[3-]	1700	UG/KG	U
36-005	36-3038	0	6	IN	Nitroaniline[3-]	1800	UG/KG	U
36-005	36-3037	0	6	IN	Nitroaniline[3-]	1700	UG/KG	U
36-005	36-3036	0	6	IN	Nitroaniline[3-]	1700	UG/KG	U
36-005	36-3035	0	6	IN	Nitroaniline[3-]	1800	UG/KG	U
36-005	36-3034	0	6	IN	Nitroaniline[3-]	1700	UG/KG	U
36-005	36-3034	0	6	IN	Nitroaniline[3-]	1800	UG/KG	U
36-005	36-3026	0	6	IN	Nitroaniline[3-]	680000	UG/KG	U
36-005	36-3025	0	6	IN	Nitroaniline[3-]	1800	UG/KG	U
36-005	36-3024	0	6	IN	Nitroaniline[3-]	2000	UG/KG	U
36-005	36-3023	0	6	IN	Nitroaniline[3-]	1900	UG/KG	U
36-005	36-3022	0	6	IN	Nitroaniline[3-]	1800	UG/KG	U
36-005	36-3021	0	6	IN	Nitroaniline[3-]	2000	UG/KG	U
36-005	36-3020	0	6	IN	Nitroaniline[3-]	1900	UG/KG	U
36-005	36-3019	0	6	IN	Nitroaniline[3-]	1900	UG/KG	U
36-005	36-3018	0	6	IN	Nitroaniline[3-]	1700	UG/KG	U
36-005	36-3018	0	6	IN	Nitroaniline[3-]	1800	UG/KG	U
36-005	36-3051	0	6	IN	Nitroaniline[4-]	710	UG/KG	U
36-005	36-3050	0	6	IN	Nitroaniline[4-]	710	UG/KG	U
36-005	36-3050	0	6	IN	Nitroaniline[4-]	700	UG/KG	U
36-005	36-3049	0	6	IN	Nitroaniline[4-]	680	UG/KG	U
36-005	36-3048	0	6	IN	Nitroaniline[4-]	730	UG/KG	U
36-005	36-3047	0	6	IN	Nitroaniline[4-]	780	UG/KG	U
36-005	36-3046	0	6	IN	Nitroaniline[4-]	720	UG/KG	U
36-005	36-3045	0	6	IN	Nitroaniline[4-]	760	UG/KG	U
36-005	36-3044	0	6	IN	Nitroaniline[4-]	760	UG/KG	U
36-005	36-3043	0	6	IN	Nitroaniline[4-]	730	UG/KG	U
36-005	36-3042	0	6	IN	Nitroaniline[4-]	700	UG/KG	U
36-005	36-3042	0	6	IN	Nitroaniline[4-]	690	UG/KG	U
36-005	36-3041	0	6	IN	Nitroaniline[4-]	690	UG/KG	U
36-005	36-3040	0	6	IN	Nitroaniline[4-]	690	UG/KG	U
36-005	36-3039	0	6	IN	Nitroaniline[4-]	670	UG/KG	U
36-005	36-3038	0	6	IN	Nitroaniline[4-]	710	UG/KG	U
36-005	36-3037	0	6	IN	Nitroaniline[4-]	690	UG/KG	U
36-005	36-3036	0	6	IN	Nitroaniline[4-]	680	UG/KG	U
36-005	36-3035	0	6	IN	Nitroaniline[4-]	710	UG/KG	U
36-005	36-3034	0	6	IN	Nitroaniline[4-]	700	UG/KG	U
36-005	36-3034	0	6	IN	Nitroaniline[4-]	710	UG/KG	U
36-005	36-3026	0	6	IN	Nitroaniline[4-]	270000	UG/KG	U
36-005	36-3025	0	6	IN	Nitroaniline[4-]	730	UG/KG	U
36-005	36-3024	0	6	IN	Nitroaniline[4-]	800	UG/KG	U
36-005	36-3023	0	6	IN	Nitroaniline[4-]	740	UG/KG	U
36-005	36-3022	0	6	IN	Nitroaniline[4-]	710	UG/KG	U
36-005	36-3021	0	6	IN	Nitroaniline[4-]	810	UG/KG	U
36-005	36-3020	0	6	IN	Nitroaniline[4-]	740	UG/KG	U
36-005	36-3019	0	6	IN	Nitroaniline[4-]	740	UG/KG	U
36-005	36-3018	0	6	IN	Nitroaniline[4-]	690	UG/KG	U
36-005	36-3018	0	6	IN	Nitroaniline[4-]	730	UG/KG	U
36-005	36-3051	0	6	IN	Nitrobenzene	350	UG/KG	U
36-005	36-3051	0	6	IN	Nitrobenzene	0.074	UG/G	U
36-005	36-3050	0	6	IN	Nitrobenzene	360	UG/KG	U

36-005	36-3050	0	6	IN	Nitrobenzene	0.076	UG/G	U
36-005	36-3050	0	6	IN	Nitrobenzene	350	UG/KG	U
36-005	36-3050	0	6	IN	Nitrobenzene	0.076	UG/G	U
36-005	36-3049	0	6	IN	Nitrobenzene	340	UG/KG	U
36-005	36-3049	0	6	IN	Nitrobenzene	0.074	UG/G	U
36-005	36-3048	0	6	IN	Nitrobenzene	360	UG/KG	U
36-005	36-3048	0	6	IN	Nitrobenzene	0.077	UG/G	U
36-005	36-3047	0	6	IN	Nitrobenzene	390	UG/KG	U
36-005	36-3047	0	6	IN	Nitrobenzene	0.076	UG/G	U
36-005	36-3046	0	6	IN	Nitrobenzene	360	UG/KG	U
36-005	36-3046	0	6	IN	Nitrobenzene	0.075	UG/G	U
36-005	36-3045	0	6	IN	Nitrobenzene	380	UG/KG	U
36-005	36-3045	0	6	IN	Nitrobenzene	0.078	UG/G	U
36-005	36-3044	0	6	IN	Nitrobenzene	380	UG/KG	U
36-005	36-3044	0	6	IN	Nitrobenzene	0.076	UG/G	U
36-005	36-3043	0	6	IN	Nitrobenzene	360	UG/KG	U
36-005	36-3043	0	6	IN	Nitrobenzene	0.075	UG/G	U
36-005	36-3042	0	6	IN	Nitrobenzene	350	UG/KG	U
36-005	36-3042	0	6	IN	Nitrobenzene	0.076	UG/G	U
36-005	36-3042	0	6	IN	Nitrobenzene	340	UG/KG	U
36-005	36-3042	0	6	IN	Nitrobenzene	0.076	UG/G	U
36-005	36-3041	0	6	IN	Nitrobenzene	350	UG/KG	U
36-005	36-3041	0	6	IN	Nitrobenzene	0.075	UG/G	U
36-005	36-3040	0	6	IN	Nitrobenzene	350	UG/KG	U
36-005	36-3040	0	6	IN	Nitrobenzene	0.076	UG/G	U
36-005	36-3039	0	6	IN	Nitrobenzene	340	UG/KG	U
36-005	36-3039	0	6	IN	Nitrobenzene	0.075	UG/G	U
36-005	36-3038	0	6	IN	Nitrobenzene	360	UG/KG	U
36-005	36-3038	0	6	IN	Nitrobenzene	0.075	UG/G	U
36-005	36-3037	0	6	IN	Nitrobenzene	350	UG/KG	U
36-005	36-3037	0	6	IN	Nitrobenzene	0.075	UG/G	U
36-005	36-3036	0	6	IN	Nitrobenzene	340	UG/KG	U
36-005	36-3036	0	6	IN	Nitrobenzene	0.075	UG/G	U
36-005	36-3035	0	6	IN	Nitrobenzene	350	UG/KG	U
36-005	36-3035	0	6	IN	Nitrobenzene	0.077	UG/G	U
36-005	36-3034	0	6	IN	Nitrobenzene	350	UG/KG	U
36-005	36-3034	0	6	IN	Nitrobenzene	0.075	UG/G	U
36-005	36-3034	0	6	IN	Nitrobenzene	350	UG/KG	U
36-005	36-3034	0	6	IN	Nitrobenzene	0.075	UG/G	U
36-005	36-3026	0	6	IN	Nitrobenzene	140000	UG/KG	U
36-005	36-3026	0	6	IN	Nitrobenzene	0.076	UG/G	U
36-005	36-3025	0	6	IN	Nitrobenzene	360	UG/KG	U
36-005	36-3025	0	6	IN	Nitrobenzene	0.101	UG/G	UJ
36-005	36-3024	0	6	IN	Nitrobenzene	0.102	UG/G	UJ
36-005	36-3024	0	6	IN	Nitrobenzene	400	UG/KG	U
36-005	36-3023	0	6	IN	Nitrobenzene	370	UG/KG	U
36-005	36-3023	0	6	IN	Nitrobenzene	0.102	UG/G	UJ
36-005	36-3022	0	6	IN	Nitrobenzene	360	UG/KG	U
36-005	36-3022	0	6	IN	Nitrobenzene	0.102	UG/G	UJ
36-005	36-3021	0	6	IN	Nitrobenzene	400	UG/KG	U
36-005	36-3021	0	6	IN	Nitrobenzene	0.102	UG/G	UJ
36-005	36-3020	0	6	IN	Nitrobenzene	370	UG/KG	U
36-005	36-3020	0	6	IN	Nitrobenzene	0.101	UG/G	UJ
36-005	36-3019	0	6	IN	Nitrobenzene	370	UG/KG	U
36-005	36-3019	0	6	IN	Nitrobenzene	0.102	UG/G	UJ
36-005	36-3018	0	6	IN	Nitrobenzene	350	UG/KG	U
36-005	36-3018	0	6	IN	Nitrobenzene	0.101	UG/G	UJ
36-005	36-3018	0	6	IN	Nitrobenzene	370	UG/KG	U
36-005	36-3018	0	6	IN	Nitrobenzene	0.101	UG/G	UJ
36-005	36-3051	0	6	IN	Nitrophenol[2-]	350	UG/KG	U
36-005	36-3050	0	6	IN	Nitrophenol[2-]	360	UG/KG	U
36-005	36-3050	0	6	IN	Nitrophenol[2-]	350	UG/KG	U
36-005	36-3049	0	6	IN	Nitrophenol[2-]	340	UG/KG	U
36-005	36-3048	0	6	IN	Nitrophenol[2-]	360	UG/KG	U
36-005	36-3047	0	6	IN	Nitrophenol[2-]	390	UG/KG	U
36-005	36-3046	0	6	IN	Nitrophenol[2-]	360	UG/KG	U
36-005	36-3045	0	6	IN	Nitrophenol[2-]	380	UG/KG	U
36-005	36-3044	0	6	IN	Nitrophenol[2-]	380	UG/KG	U
36-005	36-3043	0	6	IN	Nitrophenol[2-]	360	UG/KG	U
36-005	36-3042	0	6	IN	Nitrophenol[2-]	350	UG/KG	U
36-005	36-3042	0	6	IN	Nitrophenol[2-]	340	UG/KG	U
36-005	36-3041	0	6	IN	Nitrophenol[2-]	350	UG/KG	U
36-005	36-3040	0	6	IN	Nitrophenol[2-]	350	UG/KG	U
36-005	36-3039	0	6	IN	Nitrophenol[2-]	340	UG/KG	U

36-005	36-3038	0	6	IN	Nitrophenol[2-]	360	UG/KG	U
36-005	36-3037	0	6	IN	Nitrophenol[2-]	350	UG/KG	U
36-005	36-3036	0	6	IN	Nitrophenol[2-]	340	UG/KG	U
36-005	36-3035	0	6	IN	Nitrophenol[2-]	350	UG/KG	U
36-005	36-3034	0	6	IN	Nitrophenol[2-]	350	UG/KG	U
36-005	36-3034	0	6	IN	Nitrophenol[2-]	350	UG/KG	U
36-005	36-3026	0	6	IN	Nitrophenol[2-]	140000	UG/KG	U
36-005	36-3025	0	6	IN	Nitrophenol[2-]	360	UG/KG	U
36-005	36-3024	0	6	IN	Nitrophenol[2-]	400	UG/KG	U
36-005	36-3023	0	6	IN	Nitrophenol[2-]	370	UG/KG	U
36-005	36-3022	0	6	IN	Nitrophenol[2-]	360	UG/KG	U
36-005	36-3021	0	6	IN	Nitrophenol[2-]	400	UG/KG	U
36-005	36-3020	0	6	IN	Nitrophenol[2-]	370	UG/KG	U
36-005	36-3019	0	6	IN	Nitrophenol[2-]	370	UG/KG	U
36-005	36-3018	0	6	IN	Nitrophenol[2-]	350	UG/KG	U
36-005	36-3018	0	6	IN	Nitrophenol[2-]	370	UG/KG	U
36-005	36-3051	0	6	IN	Nitrophenol[4-]	1800	UG/KG	U
36-005	36-3050	0	6	IN	Nitrophenol[4-]	1800	UG/KG	U
36-005	36-3050	0	6	IN	Nitrophenol[4-]	1700	UG/KG	U
36-005	36-3049	0	6	IN	Nitrophenol[4-]	1700	UG/KG	U
36-005	36-3048	0	6	IN	Nitrophenol[4-]	1800	UG/KG	U
36-005	36-3047	0	6	IN	Nitrophenol[4-]	2000	UG/KG	U
36-005	36-3046	0	6	IN	Nitrophenol[4-]	1800	UG/KG	U
36-005	36-3045	0	6	IN	Nitrophenol[4-]	1900	UG/KG	U
36-005	36-3044	0	6	IN	Nitrophenol[4-]	1900	UG/KG	U
36-005	36-3043	0	6	IN	Nitrophenol[4-]	1800	UG/KG	U
36-005	36-3042	0	6	IN	Nitrophenol[4-]	1700	UG/KG	U
36-005	36-3042	0	6	IN	Nitrophenol[4-]	1700	UG/KG	U
36-005	36-3041	0	6	IN	Nitrophenol[4-]	1700	UG/KG	U
36-005	36-3040	0	6	IN	Nitrophenol[4-]	1700	UG/KG	U
36-005	36-3039	0	6	IN	Nitrophenol[4-]	1700	UG/KG	U
36-005	36-3038	0	6	IN	Nitrophenol[4-]	1800	UG/KG	U
36-005	36-3037	0	6	IN	Nitrophenol[4-]	1700	UG/KG	U
36-005	36-3036	0	6	IN	Nitrophenol[4-]	1700	UG/KG	U
36-005	36-3035	0	6	IN	Nitrophenol[4-]	1800	UG/KG	U
36-005	36-3034	0	6	IN	Nitrophenol[4-]	1700	UG/KG	U
36-005	36-3034	0	6	IN	Nitrophenol[4-]	1800	UG/KG	U
36-005	36-3026	0	6	IN	Nitrophenol[4-]	680000	UG/KG	U
36-005	36-3025	0	6	IN	Nitrophenol[4-]	1800	UG/KG	U
36-005	36-3024	0	6	IN	Nitrophenol[4-]	2000	UG/KG	U
36-005	36-3023	0	6	IN	Nitrophenol[4-]	1900	UG/KG	U
36-005	36-3022	0	6	IN	Nitrophenol[4-]	1800	UG/KG	U
36-005	36-3021	0	6	IN	Nitrophenol[4-]	2000	UG/KG	U
36-005	36-3020	0	6	IN	Nitrophenol[4-]	1900	UG/KG	U
36-005	36-3019	0	6	IN	Nitrophenol[4-]	1900	UG/KG	U
36-005	36-3018	0	6	IN	Nitrophenol[4-]	1700	UG/KG	U
36-005	36-3018	0	6	IN	Nitrophenol[4-]	1800	UG/KG	U
36-005	36-3051	0	6	IN	Nitrosodimethylamine[N-]	350	UG/KG	U
36-005	36-3050	0	6	IN	Nitrosodimethylamine[N-]	360	UG/KG	U
36-005	36-3050	0	6	IN	Nitrosodimethylamine[N-]	350	UG/KG	U
36-005	36-3049	0	6	IN	Nitrosodimethylamine[N-]	340	UG/KG	U
36-005	36-3048	0	6	IN	Nitrosodimethylamine[N-]	360	UG/KG	U
36-005	36-3047	0	6	IN	Nitrosodimethylamine[N-]	390	UG/KG	U
36-005	36-3046	0	6	IN	Nitrosodimethylamine[N-]	360	UG/KG	U
36-005	36-3045	0	6	IN	Nitrosodimethylamine[N-]	380	UG/KG	U
36-005	36-3044	0	6	IN	Nitrosodimethylamine[N-]	380	UG/KG	U
36-005	36-3043	0	6	IN	Nitrosodimethylamine[N-]	360	UG/KG	U
36-005	36-3042	0	6	IN	Nitrosodimethylamine[N-]	350	UG/KG	U
36-005	36-3042	0	6	IN	Nitrosodimethylamine[N-]	340	UG/KG	U
36-005	36-3041	0	6	IN	Nitrosodimethylamine[N-]	350	UG/KG	U
36-005	36-3040	0	6	IN	Nitrosodimethylamine[N-]	350	UG/KG	U
36-005	36-3039	0	6	IN	Nitrosodimethylamine[N-]	340	UG/KG	U
36-005	36-3038	0	6	IN	Nitrosodimethylamine[N-]	360	UG/KG	U
36-005	36-3037	0	6	IN	Nitrosodimethylamine[N-]	350	UG/KG	U
36-005	36-3036	0	6	IN	Nitrosodimethylamine[N-]	340	UG/KG	U
36-005	36-3035	0	6	IN	Nitrosodimethylamine[N-]	350	UG/KG	U
36-005	36-3034	0	6	IN	Nitrosodimethylamine[N-]	350	UG/KG	U
36-005	36-3034	0	6	IN	Nitrosodimethylamine[N-]	350	UG/KG	U
36-005	36-3026	0	6	IN	Nitrosodimethylamine[N-]	140000	UG/KG	U
36-005	36-3025	0	6	IN	Nitrosodimethylamine[N-]	360	UG/KG	U
36-005	36-3024	0	6	IN	Nitrosodimethylamine[N-]	400	UG/KG	U
36-005	36-3023	0	6	IN	Nitrosodimethylamine[N-]	370	UG/KG	U
36-005	36-3022	0	6	IN	Nitrosodimethylamine[N-]	360	UG/KG	U
36-005	36-3021	0	6	IN	Nitrosodimethylamine[N-]	400	UG/KG	U

36-005	36-3020	0	6	IN	Nitrosodimethylamine[N-]	370	UG/KG	U
36-005	36-3019	0	6	IN	Nitrosodimethylamine[N-]	370	UG/KG	U
36-005	36-3018	0	6	IN	Nitrosodimethylamine[N-]	350	UG/KG	U
36-005	36-3018	0	6	IN	Nitrosodimethylamine[N-]	370	UG/KG	U
36-005	36-3051	0	6	IN	Nitroso-di-n-propylamine[N-]	350	UG/KG	U
36-005	36-3050	0	6	IN	Nitroso-di-n-propylamine[N-]	360	UG/KG	U
36-005	36-3050	0	6	IN	Nitroso-di-n-propylamine[N-]	350	UG/KG	U
36-005	36-3049	0	6	IN	Nitroso-di-n-propylamine[N-]	340	UG/KG	U
36-005	36-3048	0	6	IN	Nitroso-di-n-propylamine[N-]	360	UG/KG	U
36-005	36-3047	0	6	IN	Nitroso-di-n-propylamine[N-]	390	UG/KG	U
36-005	36-3046	0	6	IN	Nitroso-di-n-propylamine[N-]	360	UG/KG	U
36-005	36-3045	0	6	IN	Nitroso-di-n-propylamine[N-]	380	UG/KG	U
36-005	36-3044	0	6	IN	Nitroso-di-n-propylamine[N-]	380	UG/KG	U
36-005	36-3043	0	6	IN	Nitroso-di-n-propylamine[N-]	360	UG/KG	U
36-005	36-3042	0	6	IN	Nitroso-di-n-propylamine[N-]	350	UG/KG	U
36-005	36-3042	0	6	IN	Nitroso-di-n-propylamine[N-]	340	UG/KG	U
36-005	36-3041	0	6	IN	Nitroso-di-n-propylamine[N-]	350	UG/KG	U
36-005	36-3040	0	6	IN	Nitroso-di-n-propylamine[N-]	350	UG/KG	U
36-005	36-3039	0	6	IN	Nitroso-di-n-propylamine[N-]	340	UG/KG	U
36-005	36-3038	0	6	IN	Nitroso-di-n-propylamine[N-]	360	UG/KG	U
36-005	36-3037	0	6	IN	Nitroso-di-n-propylamine[N-]	350	UG/KG	U
36-005	36-3036	0	6	IN	Nitroso-di-n-propylamine[N-]	340	UG/KG	U
36-005	36-3035	0	6	IN	Nitroso-di-n-propylamine[N-]	350	UG/KG	U
36-005	36-3034	0	6	IN	Nitroso-di-n-propylamine[N-]	350	UG/KG	U
36-005	36-3034	0	6	IN	Nitroso-di-n-propylamine[N-]	350	UG/KG	U
36-005	36-3026	0	6	IN	Nitroso-di-n-propylamine[N-]	140000	UG/KG	U
36-005	36-3025	0	6	IN	Nitroso-di-n-propylamine[N-]	360	UG/KG	U
36-005	36-3024	0	6	IN	Nitroso-di-n-propylamine[N-]	400	UG/KG	U
36-005	36-3023	0	6	IN	Nitroso-di-n-propylamine[N-]	370	UG/KG	U
36-005	36-3022	0	6	IN	Nitroso-di-n-propylamine[N-]	360	UG/KG	U
36-005	36-3021	0	6	IN	Nitroso-di-n-propylamine[N-]	400	UG/KG	U
36-005	36-3020	0	6	IN	Nitroso-di-n-propylamine[N-]	370	UG/KG	U
36-005	36-3019	0	6	IN	Nitroso-di-n-propylamine[N-]	370	UG/KG	U
36-005	36-3018	0	6	IN	Nitroso-di-n-propylamine[N-]	350	UG/KG	U
36-005	36-3018	0	6	IN	Nitroso-di-n-propylamine[N-]	370	UG/KG	U
36-005	36-3051	0	6	IN	Nitrosodiphenylamine[N-]	350	UG/KG	U
36-005	36-3050	0	6	IN	Nitrosodiphenylamine[N-]	360	UG/KG	U
36-005	36-3050	0	6	IN	Nitrosodiphenylamine[N-]	350	UG/KG	U
36-005	36-3049	0	6	IN	Nitrosodiphenylamine[N-]	340	UG/KG	U
36-005	36-3048	0	6	IN	Nitrosodiphenylamine[N-]	360	UG/KG	U
36-005	36-3047	0	6	IN	Nitrosodiphenylamine[N-]	390	UG/KG	U
36-005	36-3046	0	6	IN	Nitrosodiphenylamine[N-]	360	UG/KG	U
36-005	36-3045	0	6	IN	Nitrosodiphenylamine[N-]	380	UG/KG	U
36-005	36-3044	0	6	IN	Nitrosodiphenylamine[N-]	380	UG/KG	U
36-005	36-3043	0	6	IN	Nitrosodiphenylamine[N-]	360	UG/KG	U
36-005	36-3042	0	6	IN	Nitrosodiphenylamine[N-]	350	UG/KG	U
36-005	36-3042	0	6	IN	Nitrosodiphenylamine[N-]	340	UG/KG	U
36-005	36-3041	0	6	IN	Nitrosodiphenylamine[N-]	350	UG/KG	U
36-005	36-3040	0	6	IN	Nitrosodiphenylamine[N-]	350	UG/KG	U
36-005	36-3039	0	6	IN	Nitrosodiphenylamine[N-]	340	UG/KG	U
36-005	36-3038	0	6	IN	Nitrosodiphenylamine[N-]	360	UG/KG	U
36-005	36-3037	0	6	IN	Nitrosodiphenylamine[N-]	350	UG/KG	U
36-005	36-3036	0	6	IN	Nitrosodiphenylamine[N-]	340	UG/KG	U
36-005	36-3035	0	6	IN	Nitrosodiphenylamine[N-]	350	UG/KG	U
36-005	36-3034	0	6	IN	Nitrosodiphenylamine[N-]	350	UG/KG	U
36-005	36-3034	0	6	IN	Nitrosodiphenylamine[N-]	350	UG/KG	U
36-005	36-3026	0	6	IN	Nitrosodiphenylamine[N-]	140000	UG/KG	U
36-005	36-3025	0	6	IN	Nitrosodiphenylamine[N-]	360	UG/KG	U
36-005	36-3024	0	6	IN	Nitrosodiphenylamine[N-]	400	UG/KG	U
36-005	36-3023	0	6	IN	Nitrosodiphenylamine[N-]	370	UG/KG	U
36-005	36-3022	0	6	IN	Nitrosodiphenylamine[N-]	360	UG/KG	U
36-005	36-3021	0	6	IN	Nitrosodiphenylamine[N-]	400	UG/KG	U
36-005	36-3020	0	6	IN	Nitrosodiphenylamine[N-]	370	UG/KG	U
36-005	36-3019	0	6	IN	Nitrosodiphenylamine[N-]	370	UG/KG	U
36-005	36-3018	0	6	IN	Nitrosodiphenylamine[N-]	350	UG/KG	U
36-005	36-3018	0	6	IN	Nitrosodiphenylamine[N-]	370	UG/KG	U
36-005	36-3051	0	6	IN	Nitrotoluene[2-]	0.138	UG/G	U
36-005	36-3050	0	6	IN	Nitrotoluene[2-]	0.141	UG/G	U
36-005	36-3050	0	6	IN	Nitrotoluene[2-]	0.14	UG/G	U
36-005	36-3049	0	6	IN	Nitrotoluene[2-]	0.138	UG/G	U
36-005	36-3048	0	6	IN	Nitrotoluene[2-]	0.142	UG/G	U
36-005	36-3047	0	6	IN	Nitrotoluene[2-]	0.14	UG/G	U
36-005	36-3046	0	6	IN	Nitrotoluene[2-]	0.138	UG/G	U
36-005	36-3045	0	6	IN	Nitrotoluene[2-]	0.144	UG/G	U

36-005	36-3044	0	6	IN	Nitrotoluene[2-]	0.14	UG/G	U
36-005	36-3043	0	6	IN	Nitrotoluene[2-]	0.138	UG/G	U
36-005	36-3042	0	6	IN	Nitrotoluene[2-]	0.14	UG/G	U
36-005	36-3042	0	6	IN	Nitrotoluene[2-]	0.14	UG/G	U
36-005	36-3041	0	6	IN	Nitrotoluene[2-]	0.138	UG/G	UJ
36-005	36-3040	0	6	IN	Nitrotoluene[2-]	0.14	UG/G	UJ
36-005	36-3039	0	6	IN	Nitrotoluene[2-]	0.138	UG/G	UJ
36-005	36-3038	0	6	IN	Nitrotoluene[2-]	0.139	UG/G	UJ
36-005	36-3037	0	6	IN	Nitrotoluene[2-]	0.139	UG/G	UJ
36-005	36-3036	0	6	IN	Nitrotoluene[2-]	0.139	UG/G	UJ
36-005	36-3035	0	6	IN	Nitrotoluene[2-]	0.142	UG/G	UJ
36-005	36-3034	0	6	IN	Nitrotoluene[2-]	0.139	UG/G	UJ
36-005	36-3034	0	6	IN	Nitrotoluene[2-]	0.139	UG/G	UJ
36-005	36-3026	0	6	IN	Nitrotoluene[2-]	0.14	UG/G	U
36-005	36-3025	0	6	IN	Nitrotoluene[2-]	0.137	UG/G	U
36-005	36-3024	0	6	IN	Nitrotoluene[2-]	0.138	UG/G	U
36-005	36-3023	0	6	IN	Nitrotoluene[2-]	0.139	UG/G	U
36-005	36-3022	0	6	IN	Nitrotoluene[2-]	0.139	UG/G	U
36-005	36-3021	0	6	IN	Nitrotoluene[2-]	0.139	UG/G	U
36-005	36-3020	0	6	IN	Nitrotoluene[2-]	0.138	UG/G	U
36-005	36-3019	0	6	IN	Nitrotoluene[2-]	0.138	UG/G	U
36-005	36-3018	0	6	IN	Nitrotoluene[2-]	0.138	UG/G	U
36-005	36-3018	0	6	IN	Nitrotoluene[2-]	0.138	UG/G	U
36-005	36-3051	0	6	IN	Nitrotoluene[3-]	0.159	UG/G	U
36-005	36-3050	0	6	IN	Nitrotoluene[3-]	0.163	UG/G	U
36-005	36-3050	0	6	IN	Nitrotoluene[3-]	0.163	UG/G	U
36-005	36-3049	0	6	IN	Nitrotoluene[3-]	0.159	UG/G	U
36-005	36-3048	0	6	IN	Nitrotoluene[3-]	0.164	UG/G	U
36-005	36-3047	0	6	IN	Nitrotoluene[3-]	0.162	UG/G	U
36-005	36-3046	0	6	IN	Nitrotoluene[3-]	0.16	UG/G	U
36-005	36-3045	0	6	IN	Nitrotoluene[3-]	0.167	UG/G	U
36-005	36-3044	0	6	IN	Nitrotoluene[3-]	0.162	UG/G	U
36-005	36-3043	0	6	IN	Nitrotoluene[3-]	0.16	UG/G	U
36-005	36-3042	0	6	IN	Nitrotoluene[3-]	0.162	UG/G	U
36-005	36-3042	0	6	IN	Nitrotoluene[3-]	0.162	UG/G	U
36-005	36-3041	0	6	IN	Nitrotoluene[3-]	0.16	UG/G	UJ
36-005	36-3040	0	6	IN	Nitrotoluene[3-]	0.162	UG/G	UJ
36-005	36-3039	0	6	IN	Nitrotoluene[3-]	0.16	UG/G	UJ
36-005	36-3038	0	6	IN	Nitrotoluene[3-]	0.161	UG/G	UJ
36-005	36-3037	0	6	IN	Nitrotoluene[3-]	0.161	UG/G	UJ
36-005	36-3036	0	6	IN	Nitrotoluene[3-]	0.161	UG/G	UJ
36-005	36-3035	0	6	IN	Nitrotoluene[3-]	0.165	UG/G	UJ
36-005	36-3034	0	6	IN	Nitrotoluene[3-]	0.161	UG/G	UJ
36-005	36-3034	0	6	IN	Nitrotoluene[3-]	0.161	UG/G	UJ
36-005	36-3026	0	6	IN	Nitrotoluene[3-]	0.162	UG/G	U
36-005	36-3025	0	6	IN	Nitrotoluene[3-]	0.159	UG/G	U
36-005	36-3024	0	6	IN	Nitrotoluene[3-]	0.16	UG/G	U
36-005	36-3023	0	6	IN	Nitrotoluene[3-]	0.161	UG/G	U
36-005	36-3022	0	6	IN	Nitrotoluene[3-]	0.16	UG/G	U
36-005	36-3021	0	6	IN	Nitrotoluene[3-]	0.16	UG/G	U
36-005	36-3020	0	6	IN	Nitrotoluene[3-]	0.16	UG/G	U
36-005	36-3019	0	6	IN	Nitrotoluene[3-]	0.16	UG/G	U
36-005	36-3018	0	6	IN	Nitrotoluene[3-]	0.16	UG/G	U
36-005	36-3018	0	6	IN	Nitrotoluene[3-]	0.16	UG/G	U
36-005	36-3051	0	6	IN	Nitrotoluene[4-]	0.185	UG/G	U
36-005	36-3050	0	6	IN	Nitrotoluene[4-]	0.189	UG/G	U
36-005	36-3050	0	6	IN	Nitrotoluene[4-]	0.189	UG/G	U
36-005	36-3049	0	6	IN	Nitrotoluene[4-]	0.185	UG/G	U
36-005	36-3048	0	6	IN	Nitrotoluene[4-]	0.191	UG/G	U
36-005	36-3047	0	6	IN	Nitrotoluene[4-]	0.188	UG/G	U
36-005	36-3046	0	6	IN	Nitrotoluene[4-]	0.186	UG/G	U
36-005	36-3045	0	6	IN	Nitrotoluene[4-]	0.194	UG/G	U
36-005	36-3044	0	6	IN	Nitrotoluene[4-]	0.188	UG/G	U
36-005	36-3043	0	6	IN	Nitrotoluene[4-]	0.186	UG/G	U
36-005	36-3042	0	6	IN	Nitrotoluene[4-]	0.188	UG/G	U
36-005	36-3042	0	6	IN	Nitrotoluene[4-]	0.188	UG/G	U
36-005	36-3041	0	6	IN	Nitrotoluene[4-]	0.186	UG/G	UJ
36-005	36-3040	0	6	IN	Nitrotoluene[4-]	0.188	UG/G	UJ
36-005	36-3039	0	6	IN	Nitrotoluene[4-]	0.186	UG/G	UJ
36-005	36-3038	0	6	IN	Nitrotoluene[4-]	0.187	UG/G	UJ
36-005	36-3037	0	6	IN	Nitrotoluene[4-]	0.186	UG/G	UJ
36-005	36-3036	0	6	IN	Nitrotoluene[4-]	0.187	UG/G	UJ
36-005	36-3035	0	6	IN	Nitrotoluene[4-]	0.191	UG/G	UJ
36-005	36-3034	0	6	IN	Nitrotoluene[4-]	0.187	UG/G	UJ

36-005	36-3034	0	6	IN	Nitrotoluene[4-]	0.187	UG/G	UJ
36-005	36-3026	0	6	IN	Nitrotoluene[4-]	0.188	UG/G	U
36-005	36-3025	0	6	IN	Nitrotoluene[4-]	0.185	UG/G	U
36-005	36-3024	0	6	IN	Nitrotoluene[4-]	0.186	UG/G	U
36-005	36-3023	0	6	IN	Nitrotoluene[4-]	0.187	UG/G	U
36-005	36-3022	0	6	IN	Nitrotoluene[4-]	0.186	UG/G	U
36-005	36-3021	0	6	IN	Nitrotoluene[4-]	0.186	UG/G	U
36-005	36-3020	0	6	IN	Nitrotoluene[4-]	0.186	UG/G	U
36-005	36-3019	0	6	IN	Nitrotoluene[4-]	0.186	UG/G	U
36-005	36-3018	0	6	IN	Nitrotoluene[4-]	0.185	UG/G	U
36-005	36-3018	0	6	IN	Nitrotoluene[4-]	0.186	UG/G	U
36-005	36-3051	0	6	IN	Oxybis(1-chloropropane)[2,2'-]	350	UG/KG	U
36-005	36-3050	0	6	IN	Oxybis(1-chloropropane)[2,2'-]	360	UG/KG	U
36-005	36-3050	0	6	IN	Oxybis(1-chloropropane)[2,2'-]	350	UG/KG	U
36-005	36-3049	0	6	IN	Oxybis(1-chloropropane)[2,2'-]	340	UG/KG	U
36-005	36-3048	0	6	IN	Oxybis(1-chloropropane)[2,2'-]	360	UG/KG	U
36-005	36-3047	0	6	IN	Oxybis(1-chloropropane)[2,2'-]	390	UG/KG	U
36-005	36-3046	0	6	IN	Oxybis(1-chloropropane)[2,2'-]	360	UG/KG	U
36-005	36-3045	0	6	IN	Oxybis(1-chloropropane)[2,2'-]	380	UG/KG	U
36-005	36-3044	0	6	IN	Oxybis(1-chloropropane)[2,2'-]	380	UG/KG	U
36-005	36-3043	0	6	IN	Oxybis(1-chloropropane)[2,2'-]	360	UG/KG	U
36-005	36-3042	0	6	IN	Oxybis(1-chloropropane)[2,2'-]	350	UG/KG	U
36-005	36-3042	0	6	IN	Oxybis(1-chloropropane)[2,2'-]	340	UG/KG	U
36-005	36-3041	0	6	IN	Oxybis(1-chloropropane)[2,2'-]	350	UG/KG	U
36-005	36-3040	0	6	IN	Oxybis(1-chloropropane)[2,2'-]	350	UG/KG	U
36-005	36-3039	0	6	IN	Oxybis(1-chloropropane)[2,2'-]	340	UG/KG	U
36-005	36-3038	0	6	IN	Oxybis(1-chloropropane)[2,2'-]	360	UG/KG	U
36-005	36-3037	0	6	IN	Oxybis(1-chloropropane)[2,2'-]	350	UG/KG	U
36-005	36-3036	0	6	IN	Oxybis(1-chloropropane)[2,2'-]	340	UG/KG	U
36-005	36-3035	0	6	IN	Oxybis(1-chloropropane)[2,2'-]	350	UG/KG	U
36-005	36-3034	0	6	IN	Oxybis(1-chloropropane)[2,2'-]	350	UG/KG	U
36-005	36-3034	0	6	IN	Oxybis(1-chloropropane)[2,2'-]	350	UG/KG	U
36-005	36-3026	0	6	IN	Oxybis(1-chloropropane)[2,2'-]	140000	UG/KG	U
36-005	36-3025	0	6	IN	Oxybis(1-chloropropane)[2,2'-]	360	UG/KG	U
36-005	36-3024	0	6	IN	Oxybis(1-chloropropane)[2,2'-]	400	UG/KG	U
36-005	36-3023	0	6	IN	Oxybis(1-chloropropane)[2,2'-]	370	UG/KG	U
36-005	36-3022	0	6	IN	Oxybis(1-chloropropane)[2,2'-]	360	UG/KG	U
36-005	36-3021	0	6	IN	Oxybis(1-chloropropane)[2,2'-]	400	UG/KG	U
36-005	36-3020	0	6	IN	Oxybis(1-chloropropane)[2,2'-]	370	UG/KG	U
36-005	36-3019	0	6	IN	Oxybis(1-chloropropane)[2,2'-]	370	UG/KG	U
36-005	36-3018	0	6	IN	Oxybis(1-chloropropane)[2,2'-]	350	UG/KG	U
36-005	36-3018	0	6	IN	Oxybis(1-chloropropane)[2,2'-]	370	UG/KG	U
36-005	36-3051	0	6	IN	Pentachlorophenol	1800	UG/KG	U
36-005	36-3050	0	6	IN	Pentachlorophenol	1800	UG/KG	U
36-005	36-3050	0	6	IN	Pentachlorophenol	1700	UG/KG	U
36-005	36-3049	0	6	IN	Pentachlorophenol	1700	UG/KG	U
36-005	36-3048	0	6	IN	Pentachlorophenol	1800	UG/KG	U
36-005	36-3047	0	6	IN	Pentachlorophenol	2000	UG/KG	U
36-005	36-3046	0	6	IN	Pentachlorophenol	1800	UG/KG	U
36-005	36-3045	0	6	IN	Pentachlorophenol	1900	UG/KG	U
36-005	36-3044	0	6	IN	Pentachlorophenol	1900	UG/KG	U
36-005	36-3043	0	6	IN	Pentachlorophenol	1800	UG/KG	U
36-005	36-3042	0	6	IN	Pentachlorophenol	1700	UG/KG	U
36-005	36-3042	0	6	IN	Pentachlorophenol	1700	UG/KG	U
36-005	36-3041	0	6	IN	Pentachlorophenol	1700	UG/KG	U
36-005	36-3040	0	6	IN	Pentachlorophenol	1700	UG/KG	U
36-005	36-3039	0	6	IN	Pentachlorophenol	1700	UG/KG	U
36-005	36-3038	0	6	IN	Pentachlorophenol	1800	UG/KG	U
36-005	36-3037	0	6	IN	Pentachlorophenol	1700	UG/KG	U
36-005	36-3036	0	6	IN	Pentachlorophenol	1700	UG/KG	U
36-005	36-3035	0	6	IN	Pentachlorophenol	1800	UG/KG	U
36-005	36-3034	0	6	IN	Pentachlorophenol	1700	UG/KG	U
36-005	36-3034	0	6	IN	Pentachlorophenol	1800	UG/KG	U
36-005	36-3026	0	6	IN	Pentachlorophenol	680000	UG/KG	U
36-005	36-3025	0	6	IN	Pentachlorophenol	1800	UG/KG	U
36-005	36-3024	0	6	IN	Pentachlorophenol	2000	UG/KG	U
36-005	36-3023	0	6	IN	Pentachlorophenol	1900	UG/KG	U
36-005	36-3022	0	6	IN	Pentachlorophenol	1800	UG/KG	U
36-005	36-3021	0	6	IN	Pentachlorophenol	2000	UG/KG	U
36-005	36-3020	0	6	IN	Pentachlorophenol	1900	UG/KG	U
36-005	36-3019	0	6	IN	Pentachlorophenol	1900	UG/KG	U
36-005	36-3018	0	6	IN	Pentachlorophenol	1700	UG/KG	U
36-005	36-3018	0	6	IN	Pentachlorophenol	1800	UG/KG	U
36-005	36-3051	0	6	IN	Phenanthrene	350	UG/KG	U

36-005	36-3050	0	6	IN	Phenanthrene	360	UG/KG	U
36-005	36-3050	0	6	IN	Phenanthrene	350	UG/KG	U
36-005	36-3049	0	6	IN	Phenanthrene	340	UG/KG	U
36-005	36-3048	0	6	IN	Phenanthrene	360	UG/KG	U
36-005	36-3047	0	6	IN	Phenanthrene	390	UG/KG	U
36-005	36-3046	0	6	IN	Phenanthrene	360	UG/KG	U
36-005	36-3045	0	6	IN	Phenanthrene	380	UG/KG	U
36-005	36-3044	0	6	IN	Phenanthrene	380	UG/KG	U
36-005	36-3043	0	6	IN	Phenanthrene	360	UG/KG	U
36-005	36-3042	0	6	IN	Phenanthrene	350	UG/KG	U
36-005	36-3042	0	6	IN	Phenanthrene	340	UG/KG	U
36-005	36-3041	0	6	IN	Phenanthrene	350	UG/KG	U
36-005	36-3040	0	6	IN	Phenanthrene	350	UG/KG	U
36-005	36-3039	0	6	IN	Phenanthrene	340	UG/KG	U
36-005	36-3038	0	6	IN	Phenanthrene	360	UG/KG	U
36-005	36-3037	0	6	IN	Phenanthrene	350	UG/KG	U
36-005	36-3036	0	6	IN	Phenanthrene	340	UG/KG	U
36-005	36-3035	0	6	IN	Phenanthrene	350	UG/KG	U
36-005	36-3034	0	6	IN	Phenanthrene	350	UG/KG	U
36-005	36-3034	0	6	IN	Phenanthrene	350	UG/KG	U
36-005	36-3026	0	6	IN	Phenanthrene	140000	UG/KG	U
36-005	36-3025	0	6	IN	Phenanthrene	360	UG/KG	U
36-005	36-3024	0	6	IN	Phenanthrene	400	UG/KG	U
36-005	36-3023	0	6	IN	Phenanthrene	370	UG/KG	U
36-005	36-3022	0	6	IN	Phenanthrene	360	UG/KG	U
36-005	36-3021	0	6	IN	Phenanthrene	400	UG/KG	U
36-005	36-3020	0	6	IN	Phenanthrene	370	UG/KG	U
36-005	36-3019	0	6	IN	Phenanthrene	370	UG/KG	U
36-005	36-3018	0	6	IN	Phenanthrene	350	UG/KG	U
36-005	36-3018	0	6	IN	Phenanthrene	370	UG/KG	U
36-005	36-3051	0	6	IN	Phenol	350	UG/KG	U
36-005	36-3050	0	6	IN	Phenol	360	UG/KG	U
36-005	36-3050	0	6	IN	Phenol	350	UG/KG	U
36-005	36-3049	0	6	IN	Phenol	340	UG/KG	U
36-005	36-3048	0	6	IN	Phenol	360	UG/KG	U
36-005	36-3047	0	6	IN	Phenol	390	UG/KG	U
36-005	36-3046	0	6	IN	Phenol	360	UG/KG	U
36-005	36-3045	0	6	IN	Phenol	380	UG/KG	U
36-005	36-3044	0	6	IN	Phenol	380	UG/KG	U
36-005	36-3043	0	6	IN	Phenol	360	UG/KG	U
36-005	36-3042	0	6	IN	Phenol	350	UG/KG	U
36-005	36-3042	0	6	IN	Phenol	340	UG/KG	U
36-005	36-3041	0	6	IN	Phenol	350	UG/KG	U
36-005	36-3040	0	6	IN	Phenol	350	UG/KG	U
36-005	36-3039	0	6	IN	Phenol	340	UG/KG	U
36-005	36-3038	0	6	IN	Phenol	360	UG/KG	U
36-005	36-3037	0	6	IN	Phenol	350	UG/KG	U
36-005	36-3036	0	6	IN	Phenol	340	UG/KG	U
36-005	36-3035	0	6	IN	Phenol	350	UG/KG	U
36-005	36-3034	0	6	IN	Phenol	350	UG/KG	U
36-005	36-3034	0	6	IN	Phenol	350	UG/KG	U
36-005	36-3026	0	6	IN	Phenol	140000	UG/KG	U
36-005	36-3025	0	6	IN	Phenol	360	UG/KG	U
36-005	36-3024	0	6	IN	Phenol	400	UG/KG	U
36-005	36-3023	0	6	IN	Phenol	370	UG/KG	U
36-005	36-3022	0	6	IN	Phenol	360	UG/KG	U
36-005	36-3021	0	6	IN	Phenol	400	UG/KG	U
36-005	36-3020	0	6	IN	Phenol	370	UG/KG	U
36-005	36-3019	0	6	IN	Phenol	370	UG/KG	U
36-005	36-3018	0	6	IN	Phenol	350	UG/KG	U
36-005	36-3018	0	6	IN	Phenol	370	UG/KG	U
36-005	NA				Potassium	802	MG/KG	
36-005	36-3051	0	6	IN	Potassium	640	MG/KG	U
36-005	36-3050	0	6	IN	Potassium	1410	MG/KG	
36-005	36-3050	0	6	IN	Potassium	1430	MG/KG	
36-005	36-3049	0	6	IN	Potassium	515	MG/KG	U
36-005	36-3048	0	6	IN	Potassium	2270	MG/KG	
36-005	36-3047	0	6	IN	Potassium	1300	MG/KG	
36-005	36-3046	0	6	IN	Potassium	575	MG/KG	U
36-005	36-3045	0	6	IN	Potassium	2740	MG/KG	
36-005	36-3044	0	6	IN	Potassium	1360	MG/KG	
36-005	36-3043	0	6	IN	Potassium	592	MG/KG	U
36-005	36-3042	0	6	IN	Potassium	1460	MG/KG	
36-005	36-3042	0	6	IN	Potassium	1450	MG/KG	

36-005	36-3041	0	6	IN	Potassium	1520	MG/KG	
36-005	36-3040	0	6	IN	Potassium	1590	MG/KG	
36-005	36-3039	0	6	IN	Potassium	1290	MG/KG	
36-005	36-3038	0	6	IN	Potassium	1790	MG/KG	
36-005	36-3037	0	6	IN	Potassium	1610	MG/KG	
36-005	36-3036	0	6	IN	Potassium	1810	MG/KG	
36-005	36-3035	0	6	IN	Potassium	2240	MG/KG	
36-005	36-3034	0	6	IN	Potassium	1370	MG/KG	
36-005	36-3034	0	6	IN	Potassium	1570	MG/KG	
36-005	36-3026	0	6	IN	Potassium	1270	MG/KG	
36-005	36-3025	0	6	IN	Potassium	636	MG/KG	U
36-005	36-3024	0	6	IN	Potassium	1180	MG/KG	
36-005	36-3023	0	6	IN	Potassium	1440	MG/KG	
36-005	36-3022	0	6	IN	Potassium	873	MG/KG	U
36-005	36-3021	0	6	IN	Potassium	1070	MG/KG	U
36-005	36-3020	0	6	IN	Potassium	1080	MG/KG	U
36-005	36-3019	0	6	IN	Potassium	1070	MG/KG	
36-005	36-3018	0	6	IN	Potassium	1210	MG/KG	
36-005	36-3018	0	6	IN	Potassium	869	MG/KG	U
36-005	36-3051	0	6	IN	Propylbenzene[1-]	5	UG/KG	U
36-005	36-3050	0	6	IN	Propylbenzene[1-]	6	UG/KG	U
36-005	36-3050	0	6	IN	Propylbenzene[1-]	6	UG/KG	U
36-005	36-3049	0	6	IN	Propylbenzene[1-]	6	UG/KG	U
36-005	36-3048	0	6	IN	Propylbenzene[1-]	6	UG/KG	UJ
36-005	36-3047	0	6	IN	Propylbenzene[1-]	6	UG/KG	U
36-005	36-3046	0	6	IN	Propylbenzene[1-]	6	UG/KG	U
36-005	36-3045	0	6	IN	Propylbenzene[1-]	6	UG/KG	UJ
36-005	36-3044	0	6	IN	Propylbenzene[1-]	6	UG/KG	UJ
36-005	36-3043	0	6	IN	Propylbenzene[1-]	5	UG/KG	U
36-005	36-3042	0	6	IN	Propylbenzene[1-]	6	UG/KG	UJ
36-005	36-3042	0	6	IN	Propylbenzene[1-]	5	UG/KG	UJ
36-005	36-3041	0	6	IN	Propylbenzene[1-]	5	UG/KG	U
36-005	36-3040	0	6	IN	Propylbenzene[1-]	5	UG/KG	U
36-005	36-3039	0	6	IN	Propylbenzene[1-]	5	UG/KG	U
36-005	36-3038	0	6	IN	Propylbenzene[1-]	6	UG/KG	U
36-005	36-3037	0	6	IN	Propylbenzene[1-]	5	UG/KG	U
36-005	36-3036	0	6	IN	Propylbenzene[1-]	6	UG/KG	U
36-005	36-3035	0	6	IN	Propylbenzene[1-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Propylbenzene[1-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Propylbenzene[1-]	5	UG/KG	U
36-005	36-3026	0	6	IN	Propylbenzene[1-]	25	UG/KG	U
36-005	36-3025	0	6	IN	Propylbenzene[1-]	5	UG/KG	U
36-005	36-3024	0	6	IN	Propylbenzene[1-]	6	UG/KG	U
36-005	36-3023	0	6	IN	Propylbenzene[1-]	6	UG/KG	UJ
36-005	36-3022	0	6	IN	Propylbenzene[1-]	6	UG/KG	U
36-005	36-3021	0	6	IN	Propylbenzene[1-]	6	UG/KG	UJ
36-005	36-3020	0	6	IN	Propylbenzene[1-]	6	UG/KG	UJ
36-005	36-3019	0	6	IN	Propylbenzene[1-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Propylbenzene[1-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Propylbenzene[1-]	6	UG/KG	U
36-005	36-3051	0	6	IN	Pyrene	350	UG/KG	U
36-005	36-3050	0	6	IN	Pyrene	360	UG/KG	U
36-005	36-3050	0	6	IN	Pyrene	350	UG/KG	U
36-005	36-3049	0	6	IN	Pyrene	340	UG/KG	U
36-005	36-3048	0	6	IN	Pyrene	360	UG/KG	U
36-005	36-3047	0	6	IN	Pyrene	390	UG/KG	U
36-005	36-3046	0	6	IN	Pyrene	360	UG/KG	U
36-005	36-3045	0	6	IN	Pyrene	380	UG/KG	U
36-005	36-3044	0	6	IN	Pyrene	380	UG/KG	U
36-005	36-3043	0	6	IN	Pyrene	360	UG/KG	U
36-005	36-3042	0	6	IN	Pyrene	350	UG/KG	U
36-005	36-3042	0	6	IN	Pyrene	340	UG/KG	U
36-005	36-3041	0	6	IN	Pyrene	350	UG/KG	U
36-005	36-3040	0	6	IN	Pyrene	350	UG/KG	U
36-005	36-3039	0	6	IN	Pyrene	340	UG/KG	U
36-005	36-3038	0	6	IN	Pyrene	360	UG/KG	U
36-005	36-3037	0	6	IN	Pyrene	350	UG/KG	U
36-005	36-3036	0	6	IN	Pyrene	340	UG/KG	U
36-005	36-3035	0	6	IN	Pyrene	350	UG/KG	U
36-005	36-3034	0	6	IN	Pyrene	350	UG/KG	U
36-005	36-3034	0	6	IN	Pyrene	350	UG/KG	U
36-005	36-3026	0	6	IN	Pyrene	140000	UG/KG	U
36-005	36-3025	0	6	IN	Pyrene	360	UG/KG	U
36-005	36-3024	0	6	IN	Pyrene	400	UG/KG	U

36-005	36-3023	0	6	IN	Pyrene	370	UG/KG	U
36-005	36-3022	0	6	IN	Pyrene	360	UG/KG	U
36-005	36-3021	0	6	IN	Pyrene	400	UG/KG	U
36-005	36-3020	0	6	IN	Pyrene	370	UG/KG	U
36-005	36-3019	0	6	IN	Pyrene	370	UG/KG	U
36-005	36-3018	0	6	IN	Pyrene	350	UG/KG	U
36-005	36-3018	0	6	IN	Pyrene	370	UG/KG	U
36-005	36-3051	0	6	IN	RDX	0.169	UG/G	U
36-005	36-3050	0	6	IN	RDX	0.172	UG/G	U
36-005	36-3050	0	6	IN	RDX	0.172	UG/G	U
36-005	36-3049	0	6	IN	RDX	0.169	UG/G	U
36-005	36-3048	0	6	IN	RDX	0.174	UG/G	U
36-005	36-3047	0	6	IN	RDX	0.172	UG/G	U
36-005	36-3046	0	6	IN	RDX	0.169	UG/G	U
36-005	36-3045	0	6	IN	RDX	0.176	UG/G	U
36-005	36-3044	0	6	IN	RDX	0.172	UG/G	U
36-005	36-3043	0	6	IN	RDX	0.169	UG/G	U
36-005	36-3042	0	6	IN	RDX	0.172	UG/G	U
36-005	36-3042	0	6	IN	RDX	0.172	UG/G	U
36-005	36-3041	0	6	IN	RDX	0.069	UG/G	U
36-005	36-3040	0	6	IN	RDX	0.172	UG/G	U
36-005	36-3039	0	6	IN	RDX	0.17	UG/G	U
36-005	36-3038	0	6	IN	RDX	0.171	UG/G	U
36-005	36-3037	0	6	IN	RDX	0.17	UG/G	U
36-005	36-3036	0	6	IN	RDX	0.171	UG/G	U
36-005	36-3035	0	6	IN	RDX	0.174	UG/G	U
36-005	36-3034	0	6	IN	RDX	0.171	UG/G	U
36-005	36-3034	0	6	IN	RDX	0.171	UG/G	U
36-005	36-3026	0	6	IN	RDX	0.171	UG/G	U
36-005	36-3025	0	6	IN	RDX	0.163	UG/G	U
36-005	36-3024	0	6	IN	RDX	0.165	UG/G	U
36-005	36-3023	0	6	IN	RDX	0.165	UG/G	U
36-005	36-3022	0	6	IN	RDX	1.72	UG/G	
36-005	36-3021	0	6	IN	RDX	0.165	UG/G	U
36-005	36-3020	0	6	IN	RDX	0.164	UG/G	U
36-005	36-3019	0	6	IN	RDX	0.165	UG/G	U
36-005	36-3018	0	6	IN	RDX	0.164	UG/G	U
36-005	36-3018	0	6	IN	RDX	0.164	UG/G	U
36-005	NA				Selenium	9.7	MG/KG	J
36-005	36-3051	0	6	IN	Selenium	0.33	MG/KG	U
36-005	36-3050	0	6	IN	Selenium	0.27	MG/KG	U
36-005	36-3050	0	6	IN	Selenium	0.53	MG/KG	U
36-005	36-3049	0	6	IN	Selenium	0.27	MG/KG	U
36-005	36-3048	0	6	IN	Selenium	0.28	MG/KG	U
36-005	36-3047	0	6	IN	Selenium	0.3	MG/KG	U
36-005	36-3046	0	6	IN	Selenium	0.27	MG/KG	U
36-005	36-3045	0	6	IN	Selenium	0.29	MG/KG	U
36-005	36-3044	0	6	IN	Selenium	0.28	MG/KG	U
36-005	36-3043	0	6	IN	Selenium	0.38	MG/KG	U
36-005	36-3042	0	6	IN	Selenium	0.25	MG/KG	U
36-005	36-3042	0	6	IN	Selenium	0.27	MG/KG	U
36-005	36-3041	0	6	IN	Selenium	0.25	MG/KG	UR
36-005	36-3040	0	6	IN	Selenium	0.25	MG/KG	UR
36-005	36-3039	0	6	IN	Selenium	0.25	MG/KG	UR
36-005	36-3038	0	6	IN	Selenium	0.26	MG/KG	UR
36-005	36-3037	0	6	IN	Selenium	0.26	MG/KG	UR
36-005	36-3036	0	6	IN	Selenium	0.26	MG/KG	UR
36-005	36-3035	0	6	IN	Selenium	0.26	MG/KG	UR
36-005	36-3034	0	6	IN	Selenium	0.27	MG/KG	UR
36-005	36-3034	0	6	IN	Selenium	0.26	MG/KG	UR
36-005	36-3026	0	6	IN	Selenium	0.27	MG/KG	U
36-005	36-3025	0	6	IN	Selenium	0.28	MG/KG	UR
36-005	36-3024	0	6	IN	Selenium	0.29	MG/KG	UR
36-005	36-3023	0	6	IN	Selenium	0.29	MG/KG	UR
36-005	36-3022	0	6	IN	Selenium	0.29	MG/KG	UR
36-005	36-3021	0	6	IN	Selenium	0.29	MG/KG	UR
36-005	36-3020	0	6	IN	Selenium	0.27	MG/KG	UR
36-005	36-3019	0	6	IN	Selenium	0.28	MG/KG	UR
36-005	36-3018	0	6	IN	Selenium	0.28	MG/KG	UR
36-005	36-3018	0	6	IN	Selenium	0.29	MG/KG	UR
36-005	NA				Silver	33.3	MG/KG	
36-005	36-3051	0	6	IN	Silver	1.3	MG/KG	U
36-005	36-3050	0	6	IN	Silver	1.1	MG/KG	U
36-005	36-3050	0	6	IN	Silver	0.58	MG/KG	U

36-005	36-3049	0	6	IN	Silver	0.83	MG/KG	U
36-005	36-3048	0	6	IN	Silver	1.4	MG/KG	U
36-005	36-3047	0	6	IN	Silver	1.3	MG/KG	U
36-005	36-3046	0	6	IN	Silver	1	MG/KG	U
36-005	36-3045	0	6	IN	Silver	1.2	MG/KG	U
36-005	36-3044	0	6	IN	Silver	1.3	MG/KG	U
36-005	36-3043	0	6	IN	Silver	1.2	MG/KG	U
36-005	36-3042	0	6	IN	Silver	0.72	MG/KG	U
36-005	36-3042	0	6	IN	Silver	1.3	MG/KG	U
36-005	36-3041	0	6	IN	Silver	0.52	MG/KG	U
36-005	36-3040	0	6	IN	Silver	0.52	MG/KG	U
36-005	36-3039	0	6	IN	Silver	0.5	MG/KG	U
36-005	36-3038	0	6	IN	Silver	0.54	MG/KG	U
36-005	36-3037	0	6	IN	Silver	0.52	MG/KG	U
36-005	36-3036	0	6	IN	Silver	0.52	MG/KG	U
36-005	36-3035	0	6	IN	Silver	0.53	MG/KG	U
36-005	36-3034	0	6	IN	Silver	0.52	MG/KG	U
36-005	36-3034	0	6	IN	Silver	0.53	MG/KG	U
36-005	36-3026	0	6	IN	Silver	0.54	MG/KG	U
36-005	36-3025	0	6	IN	Silver	0.51	MG/KG	U
36-005	36-3024	0	6	IN	Silver	0.8	MG/KG	U
36-005	36-3023	0	6	IN	Silver	0.51	MG/KG	U
36-005	36-3022	0	6	IN	Silver	0.72	MG/KG	U
36-005	36-3021	0	6	IN	Silver	0.53	MG/KG	U
36-005	36-3020	0	6	IN	Silver	0.5	MG/KG	U
36-005	36-3019	0	6	IN	Silver	0.49	MG/KG	U
36-005	36-3018	0	6	IN	Silver	0.49	MG/KG	U
36-005	36-3018	0	6	IN	Silver	0.51	MG/KG	U
36-005	NA				Sodium	326	MG/KG	U
36-005	36-3051	0	6	IN	Sodium	84.1	MG/KG	U
36-005	36-3050	0	6	IN	Sodium	90	MG/KG	U
36-005	36-3050	0	6	IN	Sodium	76.1	MG/KG	U
36-005	36-3049	0	6	IN	Sodium	84.8	MG/KG	U
36-005	36-3048	0	6	IN	Sodium	136	MG/KG	U
36-005	36-3047	0	6	IN	Sodium	86.9	MG/KG	U
36-005	36-3046	0	6	IN	Sodium	80.9	MG/KG	U
36-005	36-3045	0	6	IN	Sodium	116	MG/KG	U
36-005	36-3044	0	6	IN	Sodium	76.1	MG/KG	U
36-005	36-3043	0	6	IN	Sodium	86.9	MG/KG	U
36-005	36-3042	0	6	IN	Sodium	85.6	MG/KG	U
36-005	36-3042	0	6	IN	Sodium	99.2	MG/KG	U
36-005	36-3041	0	6	IN	Sodium	480	MG/KG	UR
36-005	36-3040	0	6	IN	Sodium	417	MG/KG	UR
36-005	36-3039	0	6	IN	Sodium	451	MG/KG	UR
36-005	36-3038	0	6	IN	Sodium	412	MG/KG	UR
36-005	36-3037	0	6	IN	Sodium	407	MG/KG	UR
36-005	36-3036	0	6	IN	Sodium	428	MG/KG	UR
36-005	36-3035	0	6	IN	Sodium	392	MG/KG	UR
36-005	36-3034	0	6	IN	Sodium	387	MG/KG	UR
36-005	36-3034	0	6	IN	Sodium	106	MG/KG	UR
36-005	36-3026	0	6	IN	Sodium	81	MG/KG	U
36-005	36-3025	0	6	IN	Sodium	85.5	MG/KG	U
36-005	36-3024	0	6	IN	Sodium	101	MG/KG	U
36-005	36-3023	0	6	IN	Sodium	92	MG/KG	U
36-005	36-3022	0	6	IN	Sodium	112	MG/KG	U
36-005	36-3021	0	6	IN	Sodium	88.6	MG/KG	U
36-005	36-3020	0	6	IN	Sodium	83.7	MG/KG	U
36-005	36-3019	0	6	IN	Sodium	66	MG/KG	U
36-005	36-3018	0	6	IN	Sodium	95.6	MG/KG	U
36-005	36-3018	0	6	IN	Sodium	81.9	MG/KG	U
36-005	36-3051	0	6	IN	Styrene	5	UG/KG	U
36-005	36-3050	0	6	IN	Styrene	6	UG/KG	U
36-005	36-3050	0	6	IN	Styrene	6	UG/KG	U
36-005	36-3049	0	6	IN	Styrene	6	UG/KG	U
36-005	36-3048	0	6	IN	Styrene	6	UG/KG	U
36-005	36-3047	0	6	IN	Styrene	6	UG/KG	U
36-005	36-3046	0	6	IN	Styrene	6	UG/KG	U
36-005	36-3045	0	6	IN	Styrene	6	UG/KG	U
36-005	36-3044	0	6	IN	Styrene	6	UG/KG	U
36-005	36-3043	0	6	IN	Styrene	5	UG/KG	U
36-005	36-3042	0	6	IN	Styrene	6	UG/KG	UJ
36-005	36-3042	0	6	IN	Styrene	5	UG/KG	U
36-005	36-3041	0	6	IN	Styrene	5	UG/KG	U
36-005	36-3040	0	6	IN	Styrene	5	UG/KG	U

36-005	36-3039	0	6	IN	Styrene	5	UG/KG	U
36-005	36-3038	0	6	IN	Styrene	6	UG/KG	U
36-005	36-3037	0	6	IN	Styrene	5	UG/KG	U
36-005	36-3036	0	6	IN	Styrene	6	UG/KG	U
36-005	36-3035	0	6	IN	Styrene	6	UG/KG	U
36-005	36-3034	0	6	IN	Styrene	6	UG/KG	U
36-005	36-3034	0	6	IN	Styrene	5	UG/KG	U
36-005	36-3026	0	6	IN	Styrene	25	UG/KG	U
36-005	36-3025	0	6	IN	Styrene	5	UG/KG	U
36-005	36-3024	0	6	IN	Styrene	6	UG/KG	U
36-005	36-3023	0	6	IN	Styrene	6	UG/KG	U
36-005	36-3022	0	6	IN	Styrene	6	UG/KG	U
36-005	36-3021	0	6	IN	Styrene	6	UG/KG	U
36-005	36-3020	0	6	IN	Styrene	6	UG/KG	U
36-005	36-3019	0	6	IN	Styrene	6	UG/KG	U
36-005	36-3018	0	6	IN	Styrene	6	UG/KG	U
36-005	36-3018	0	6	IN	Styrene	6	UG/KG	U
36-005	36-3051	0	6	IN	Tetrachloroethane[1,1,1,2-]	5	UG/KG	U
36-005	36-3050	0	6	IN	Tetrachloroethane[1,1,1,2-]	6	UG/KG	U
36-005	36-3050	0	6	IN	Tetrachloroethane[1,1,1,2-]	6	UG/KG	U
36-005	36-3049	0	6	IN	Tetrachloroethane[1,1,1,2-]	6	UG/KG	U
36-005	36-3048	0	6	IN	Tetrachloroethane[1,1,1,2-]	6	UG/KG	U
36-005	36-3047	0	6	IN	Tetrachloroethane[1,1,1,2-]	6	UG/KG	U
36-005	36-3046	0	6	IN	Tetrachloroethane[1,1,1,2-]	6	UG/KG	U
36-005	36-3045	0	6	IN	Tetrachloroethane[1,1,1,2-]	6	UG/KG	U
36-005	36-3044	0	6	IN	Tetrachloroethane[1,1,1,2-]	6	UG/KG	U
36-005	36-3043	0	6	IN	Tetrachloroethane[1,1,1,2-]	5	UG/KG	U
36-005	36-3042	0	6	IN	Tetrachloroethane[1,1,1,2-]	6	UG/KG	UJ
36-005	36-3042	0	6	IN	Tetrachloroethane[1,1,1,2-]	5	UG/KG	U
36-005	36-3041	0	6	IN	Tetrachloroethane[1,1,1,2-]	5	UG/KG	U
36-005	36-3040	0	6	IN	Tetrachloroethane[1,1,1,2-]	5	UG/KG	U
36-005	36-3039	0	6	IN	Tetrachloroethane[1,1,1,2-]	5	UG/KG	U
36-005	36-3038	0	6	IN	Tetrachloroethane[1,1,1,2-]	6	UG/KG	U
36-005	36-3037	0	6	IN	Tetrachloroethane[1,1,1,2-]	5	UG/KG	U
36-005	36-3036	0	6	IN	Tetrachloroethane[1,1,1,2-]	6	UG/KG	U
36-005	36-3035	0	6	IN	Tetrachloroethane[1,1,1,2-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Tetrachloroethane[1,1,1,2-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Tetrachloroethane[1,1,1,2-]	5	UG/KG	U
36-005	36-3026	0	6	IN	Tetrachloroethane[1,1,1,2-]	25	UG/KG	U
36-005	36-3025	0	6	IN	Tetrachloroethane[1,1,1,2-]	5	UG/KG	U
36-005	36-3024	0	6	IN	Tetrachloroethane[1,1,1,2-]	6	UG/KG	U
36-005	36-3023	0	6	IN	Tetrachloroethane[1,1,1,2-]	6	UG/KG	U
36-005	36-3022	0	6	IN	Tetrachloroethane[1,1,1,2-]	6	UG/KG	U
36-005	36-3021	0	6	IN	Tetrachloroethane[1,1,1,2-]	6	UG/KG	U
36-005	36-3020	0	6	IN	Tetrachloroethane[1,1,1,2-]	6	UG/KG	U
36-005	36-3019	0	6	IN	Tetrachloroethane[1,1,1,2-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Tetrachloroethane[1,1,1,2-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Tetrachloroethane[1,1,1,2-]	6	UG/KG	U
36-005	36-3051	0	6	IN	Tetrachloroethane[1,1,2,2-]	5	UG/KG	U
36-005	36-3050	0	6	IN	Tetrachloroethane[1,1,2,2-]	6	UG/KG	U
36-005	36-3050	0	6	IN	Tetrachloroethane[1,1,2,2-]	6	UG/KG	U
36-005	36-3049	0	6	IN	Tetrachloroethane[1,1,2,2-]	6	UG/KG	U
36-005	36-3048	0	6	IN	Tetrachloroethane[1,1,2,2-]	6	UG/KG	UJ
36-005	36-3047	0	6	IN	Tetrachloroethane[1,1,2,2-]	6	UG/KG	U
36-005	36-3046	0	6	IN	Tetrachloroethane[1,1,2,2-]	6	UG/KG	U
36-005	36-3045	0	6	IN	Tetrachloroethane[1,1,2,2-]	6	UG/KG	UJ
36-005	36-3044	0	6	IN	Tetrachloroethane[1,1,2,2-]	6	UG/KG	UJ
36-005	36-3043	0	6	IN	Tetrachloroethane[1,1,2,2-]	5	UG/KG	U
36-005	36-3042	0	6	IN	Tetrachloroethane[1,1,2,2-]	6	UG/KG	UJ
36-005	36-3042	0	6	IN	Tetrachloroethane[1,1,2,2-]	5	UG/KG	UJ
36-005	36-3041	0	6	IN	Tetrachloroethane[1,1,2,2-]	5	UG/KG	U
36-005	36-3040	0	6	IN	Tetrachloroethane[1,1,2,2-]	5	UG/KG	U
36-005	36-3039	0	6	IN	Tetrachloroethane[1,1,2,2-]	5	UG/KG	U
36-005	36-3038	0	6	IN	Tetrachloroethane[1,1,2,2-]	6	UG/KG	U
36-005	36-3037	0	6	IN	Tetrachloroethane[1,1,2,2-]	5	UG/KG	U
36-005	36-3036	0	6	IN	Tetrachloroethane[1,1,2,2-]	6	UG/KG	U
36-005	36-3035	0	6	IN	Tetrachloroethane[1,1,2,2-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Tetrachloroethane[1,1,2,2-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Tetrachloroethane[1,1,2,2-]	5	UG/KG	U
36-005	36-3026	0	6	IN	Tetrachloroethane[1,1,2,2-]	25	UG/KG	U
36-005	36-3025	0	6	IN	Tetrachloroethane[1,1,2,2-]	5	UG/KG	U
36-005	36-3024	0	6	IN	Tetrachloroethane[1,1,2,2-]	6	UG/KG	U
36-005	36-3023	0	6	IN	Tetrachloroethane[1,1,2,2-]	6	UG/KG	UJ
36-005	36-3022	0	6	IN	Tetrachloroethane[1,1,2,2-]	6	UG/KG	U

36-005	36-3021	0	6	IN	Tetrachloroethane[1,1,2,2-]	6	UG/KG	UJ
36-005	36-3020	0	6	IN	Tetrachloroethane[1,1,2,2-]	6	UG/KG	UJ
36-005	36-3019	0	6	IN	Tetrachloroethane[1,1,2,2-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Tetrachloroethane[1,1,2,2-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Tetrachloroethane[1,1,2,2-]	6	UG/KG	U
36-005	36-3051	0	6	IN	Tetrachloroethene	5	UG/KG	U
36-005	36-3050	0	6	IN	Tetrachloroethene	6	UG/KG	U
36-005	36-3050	0	6	IN	Tetrachloroethene	6	UG/KG	U
36-005	36-3049	0	6	IN	Tetrachloroethene	6	UG/KG	U
36-005	36-3048	0	6	IN	Tetrachloroethene	6	UG/KG	U
36-005	36-3047	0	6	IN	Tetrachloroethene	6	UG/KG	U
36-005	36-3046	0	6	IN	Tetrachloroethene	6	UG/KG	U
36-005	36-3045	0	6	IN	Tetrachloroethene	6	UG/KG	U
36-005	36-3044	0	6	IN	Tetrachloroethene	6	UG/KG	U
36-005	36-3043	0	6	IN	Tetrachloroethene	5	UG/KG	U
36-005	36-3042	0	6	IN	Tetrachloroethene	6	UG/KG	UJ
36-005	36-3042	0	6	IN	Tetrachloroethene	5	UG/KG	U
36-005	36-3041	0	6	IN	Tetrachloroethene	5	UG/KG	U
36-005	36-3040	0	6	IN	Tetrachloroethene	5	UG/KG	U
36-005	36-3039	0	6	IN	Tetrachloroethene	5	UG/KG	U
36-005	36-3038	0	6	IN	Tetrachloroethene	6	UG/KG	U
36-005	36-3037	0	6	IN	Tetrachloroethene	5	UG/KG	U
36-005	36-3036	0	6	IN	Tetrachloroethene	6	UG/KG	U
36-005	36-3035	0	6	IN	Tetrachloroethene	6	UG/KG	U
36-005	36-3034	0	6	IN	Tetrachloroethene	6	UG/KG	U
36-005	36-3034	0	6	IN	Tetrachloroethene	5	UG/KG	U
36-005	36-3026	0	6	IN	Tetrachloroethene	25	UG/KG	U
36-005	36-3025	0	6	IN	Tetrachloroethene	5	UG/KG	U
36-005	36-3024	0	6	IN	Tetrachloroethene	6	UG/KG	U
36-005	36-3023	0	6	IN	Tetrachloroethene	6	UG/KG	U
36-005	36-3022	0	6	IN	Tetrachloroethene	6	UG/KG	U
36-005	36-3021	0	6	IN	Tetrachloroethene	6	UG/KG	U
36-005	36-3020	0	6	IN	Tetrachloroethene	6	UG/KG	U
36-005	36-3019	0	6	IN	Tetrachloroethene	6	UG/KG	U
36-005	36-3018	0	6	IN	Tetrachloroethene	6	UG/KG	U
36-005	36-3018	0	6	IN	Tetrachloroethene	6	UG/KG	U
36-005	36-3051	0	6	IN	Tetryl	0.091	UG/G	UJ
36-005	36-3050	0	6	IN	Tetryl	0.093	UG/G	UJ
36-005	36-3050	0	6	IN	Tetryl	0.093	UG/G	UJ
36-005	36-3049	0	6	IN	Tetryl	0.091	UG/G	UJ
36-005	36-3048	0	6	IN	Tetryl	0.094	UG/G	UJ
36-005	36-3047	0	6	IN	Tetryl	0.092	UG/G	UJ
36-005	36-3046	0	6	IN	Tetryl	0.091	UG/G	UJ
36-005	36-3045	0	6	IN	Tetryl	0.095	UG/G	UJ
36-005	36-3044	0	6	IN	Tetryl	0.092	UG/G	UJ
36-005	36-3043	0	6	IN	Tetryl	0.091	UG/G	UJ
36-005	36-3042	0	6	IN	Tetryl	0.093	UG/G	UJ
36-005	36-3042	0	6	IN	Tetryl	0.093	UG/G	UJ
36-005	36-3041	0	6	IN	Tetryl	0.091	UG/G	U
36-005	36-3040	0	6	IN	Tetryl	0.093	UG/G	U
36-005	36-3039	0	6	IN	Tetryl	0.091	UG/G	U
36-005	36-3038	0	6	IN	Tetryl	0.092	UG/G	U
36-005	36-3037	0	6	IN	Tetryl	0.092	UG/G	U
36-005	36-3036	0	6	IN	Tetryl	0.092	UG/G	U
36-005	36-3035	0	6	IN	Tetryl	0.094	UG/G	U
36-005	36-3034	0	6	IN	Tetryl	0.092	UG/G	U
36-005	36-3034	0	6	IN	Tetryl	0.092	UG/G	U
36-005	36-3026	0	6	IN	Tetryl	0.092	UG/G	UJ
36-005	36-3025	0	6	IN	Tetryl	0.091	UG/G	U
36-005	36-3024	0	6	IN	Tetryl	0.091	UG/G	U
36-005	36-3023	0	6	IN	Tetryl	0.092	UG/G	U
36-005	36-3022	0	6	IN	Tetryl	0.091	UG/G	U
36-005	36-3021	0	6	IN	Tetryl	0.091	UG/G	U
36-005	36-3020	0	6	IN	Tetryl	0.091	UG/G	U
36-005	36-3019	0	6	IN	Tetryl	0.091	UG/G	U
36-005	36-3018	0	6	IN	Tetryl	0.091	UG/G	U
36-005	36-3018	0	6	IN	Tetryl	0.091	UG/G	U
36-005	NA				Thallium	7.6	MG/KG	UJ
36-005	36-3051	0	6	IN	Thallium	1.24	MG/KG	
36-005	36-3050	0	6	IN	Thallium	1.27	MG/KG	U
36-005	36-3050	0	6	IN	Thallium	1.27	MG/KG	U
36-005	36-3049	0	6	IN	Thallium	1.23	MG/KG	U
36-005	36-3048	0	6	IN	Thallium	1.31	MG/KG	U
36-005	36-3047	0	6	IN	Thallium	1.39	MG/KG	U

36-005	36-3046	0	6	IN	Thallium	1.23	MG/KG	U
36-005	36-3045	0	6	IN	Thallium	1.33	MG/KG	U
36-005	36-3044	0	6	IN	Thallium	1.31	MG/KG	U
36-005	36-3043	0	6	IN	Thallium	1.25	MG/KG	U
36-005	36-3042	0	6	IN	Thallium	1.17	MG/KG	U
36-005	36-3042	0	6	IN	Thallium	1.24	MG/KG	U
36-005	36-3041	0	6	IN	Thallium	0.25	MG/KG	UJ
36-005	36-3040	0	6	IN	Thallium	0.25	MG/KG	UJ
36-005	36-3039	0	6	IN	Thallium	0.25	MG/KG	UJ
36-005	36-3038	0	6	IN	Thallium	0.26	MG/KG	UJ
36-005	36-3037	0	6	IN	Thallium	0.26	MG/KG	UJ
36-005	36-3036	0	6	IN	Thallium	0.26	MG/KG	UJ
36-005	36-3035	0	6	IN	Thallium	0.26	MG/KG	UJ
36-005	36-3034	0	6	IN	Thallium	0.27	MG/KG	UJ
36-005	36-3034	0	6	IN	Thallium	0.26	MG/KG	UJ
36-005	36-3026	0	6	IN	Thallium	1.24	MG/KG	U
36-005	36-3025	0	6	IN	Thallium	1.3	MG/KG	U
36-005	36-3024	0	6	IN	Thallium	1.31	MG/KG	U
36-005	36-3023	0	6	IN	Thallium	1.34	MG/KG	U
36-005	36-3022	0	6	IN	Thallium	1.32	MG/KG	U
36-005	36-3021	0	6	IN	Thallium	1.34	MG/KG	U
36-005	36-3020	0	6	IN	Thallium	1.25	MG/KG	U
36-005	36-3019	0	6	IN	Thallium	1.3	MG/KG	U
36-005	36-3018	0	6	IN	Thallium	1.3	MG/KG	U
36-005	36-3018	0	6	IN	Thallium	1.34	MG/KG	U
36-005	36-3051	0	6	IN	Toluene	5	UG/KG	U
36-005	36-3050	0	6	IN	Toluene	6	UG/KG	U
36-005	36-3050	0	6	IN	Toluene	6	UG/KG	U
36-005	36-3049	0	6	IN	Toluene	6	UG/KG	U
36-005	36-3048	0	6	IN	Toluene	6	UG/KG	U
36-005	36-3047	0	6	IN	Toluene	6	UG/KG	U
36-005	36-3046	0	6	IN	Toluene	6	UG/KG	U
36-005	36-3045	0	6	IN	Toluene	6	UG/KG	U
36-005	36-3044	0	6	IN	Toluene	6	UG/KG	U
36-005	36-3043	0	6	IN	Toluene	5	UG/KG	U
36-005	36-3042	0	6	IN	Toluene	6	UG/KG	UJ
36-005	36-3042	0	6	IN	Toluene	5	UG/KG	U
36-005	36-3041	0	6	IN	Toluene	8	UG/KG	
36-005	36-3040	0	6	IN	Toluene	5	UG/KG	U
36-005	36-3039	0	6	IN	Toluene	28	UG/KG	
36-005	36-3038	0	6	IN	Toluene	9	UG/KG	
36-005	36-3037	0	6	IN	Toluene	5	UG/KG	U
36-005	36-3036	0	6	IN	Toluene	6	UG/KG	U
36-005	36-3035	0	6	IN	Toluene	6	UG/KG	U
36-005	36-3034	0	6	IN	Toluene	6	UG/KG	U
36-005	36-3034	0	6	IN	Toluene	5	UG/KG	U
36-005	36-3026	0	6	IN	Toluene	25	UG/KG	U
36-005	36-3025	0	6	IN	Toluene	5	UG/KG	U
36-005	36-3024	0	6	IN	Toluene	6	UG/KG	U
36-005	36-3023	0	6	IN	Toluene	6	UG/KG	U
36-005	36-3022	0	6	IN	Toluene	6	UG/KG	U
36-005	36-3021	0	6	IN	Toluene	6	UG/KG	U
36-005	36-3020	0	6	IN	Toluene	6	UG/KG	U
36-005	36-3019	0	6	IN	Toluene	6	UG/KG	U
36-005	36-3018	0	6	IN	Toluene	6	UG/KG	U
36-005	36-3018	0	6	IN	Toluene	6	UG/KG	U
36-005	36-3051	0	6	IN	Trichloro-1,2,2-trifluoroethane[1,1,2-]	5	UG/KG	U
36-005	36-3050	0	6	IN	Trichloro-1,2,2-trifluoroethane[1,1,2-]	6	UG/KG	U
36-005	36-3050	0	6	IN	Trichloro-1,2,2-trifluoroethane[1,1,2-]	6	UG/KG	U
36-005	36-3049	0	6	IN	Trichloro-1,2,2-trifluoroethane[1,1,2-]	6	UG/KG	U
36-005	36-3048	0	6	IN	Trichloro-1,2,2-trifluoroethane[1,1,2-]	6	UG/KG	U
36-005	36-3047	0	6	IN	Trichloro-1,2,2-trifluoroethane[1,1,2-]	6	UG/KG	U
36-005	36-3046	0	6	IN	Trichloro-1,2,2-trifluoroethane[1,1,2-]	6	UG/KG	U
36-005	36-3045	0	6	IN	Trichloro-1,2,2-trifluoroethane[1,1,2-]	6	UG/KG	U
36-005	36-3044	0	6	IN	Trichloro-1,2,2-trifluoroethane[1,1,2-]	6	UG/KG	U
36-005	36-3043	0	6	IN	Trichloro-1,2,2-trifluoroethane[1,1,2-]	5	UG/KG	U
36-005	36-3042	0	6	IN	Trichloro-1,2,2-trifluoroethane[1,1,2-]	6	UG/KG	U
36-005	36-3042	0	6	IN	Trichloro-1,2,2-trifluoroethane[1,1,2-]	5	UG/KG	U
36-005	36-3041	0	6	IN	Trichloro-1,2,2-trifluoroethane[1,1,2-]	5	UG/KG	U
36-005	36-3040	0	6	IN	Trichloro-1,2,2-trifluoroethane[1,1,2-]	5	UG/KG	U
36-005	36-3039	0	6	IN	Trichloro-1,2,2-trifluoroethane[1,1,2-]	5	UG/KG	U
36-005	36-3038	0	6	IN	Trichloro-1,2,2-trifluoroethane[1,1,2-]	6	UG/KG	U
36-005	36-3037	0	6	IN	Trichloro-1,2,2-trifluoroethane[1,1,2-]	5	UG/KG	U
36-005	36-3036	0	6	IN	Trichloro-1,2,2-trifluoroethane[1,1,2-]	6	UG/KG	U

36-005	36-3035	0	6	IN	Trichloro-1,2,2-trifluoroethane[1,1,2-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Trichloro-1,2,2-trifluoroethane[1,1,2-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Trichloro-1,2,2-trifluoroethane[1,1,2-]	5	UG/KG	U
36-005	36-3026	0	6	IN	Trichloro-1,2,2-trifluoroethane[1,1,2-]	25	UG/KG	U
36-005	36-3025	0	6	IN	Trichloro-1,2,2-trifluoroethane[1,1,2-]	5	UG/KG	U
36-005	36-3024	0	6	IN	Trichloro-1,2,2-trifluoroethane[1,1,2-]	6	UG/KG	U
36-005	36-3023	0	6	IN	Trichloro-1,2,2-trifluoroethane[1,1,2-]	6	UG/KG	U
36-005	36-3022	0	6	IN	Trichloro-1,2,2-trifluoroethane[1,1,2-]	6	UG/KG	U
36-005	36-3021	0	6	IN	Trichloro-1,2,2-trifluoroethane[1,1,2-]	6	UG/KG	U
36-005	36-3020	0	6	IN	Trichloro-1,2,2-trifluoroethane[1,1,2-]	6	UG/KG	U
36-005	36-3019	0	6	IN	Trichloro-1,2,2-trifluoroethane[1,1,2-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Trichloro-1,2,2-trifluoroethane[1,1,2-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Trichloro-1,2,2-trifluoroethane[1,1,2-]	6	UG/KG	U
36-005	36-3051	0	6	IN	Trichlorobenzene[1,2,4-]	350	UG/KG	U
36-005	36-3050	0	6	IN	Trichlorobenzene[1,2,4-]	360	UG/KG	U
36-005	36-3050	0	6	IN	Trichlorobenzene[1,2,4-]	350	UG/KG	U
36-005	36-3049	0	6	IN	Trichlorobenzene[1,2,4-]	340	UG/KG	U
36-005	36-3048	0	6	IN	Trichlorobenzene[1,2,4-]	360	UG/KG	U
36-005	36-3047	0	6	IN	Trichlorobenzene[1,2,4-]	390	UG/KG	U
36-005	36-3046	0	6	IN	Trichlorobenzene[1,2,4-]	360	UG/KG	U
36-005	36-3045	0	6	IN	Trichlorobenzene[1,2,4-]	380	UG/KG	U
36-005	36-3044	0	6	IN	Trichlorobenzene[1,2,4-]	380	UG/KG	U
36-005	36-3043	0	6	IN	Trichlorobenzene[1,2,4-]	360	UG/KG	U
36-005	36-3042	0	6	IN	Trichlorobenzene[1,2,4-]	350	UG/KG	U
36-005	36-3042	0	6	IN	Trichlorobenzene[1,2,4-]	340	UG/KG	U
36-005	36-3041	0	6	IN	Trichlorobenzene[1,2,4-]	350	UG/KG	UJ
36-005	36-3040	0	6	IN	Trichlorobenzene[1,2,4-]	350	UG/KG	UJ
36-005	36-3039	0	6	IN	Trichlorobenzene[1,2,4-]	340	UG/KG	UJ
36-005	36-3038	0	6	IN	Trichlorobenzene[1,2,4-]	360	UG/KG	UJ
36-005	36-3037	0	6	IN	Trichlorobenzene[1,2,4-]	350	UG/KG	UJ
36-005	36-3036	0	6	IN	Trichlorobenzene[1,2,4-]	340	UG/KG	UJ
36-005	36-3035	0	6	IN	Trichlorobenzene[1,2,4-]	350	UG/KG	UJ
36-005	36-3034	0	6	IN	Trichlorobenzene[1,2,4-]	350	UG/KG	UJ
36-005	36-3034	0	6	IN	Trichlorobenzene[1,2,4-]	350	UG/KG	UJ
36-005	36-3026	0	6	IN	Trichlorobenzene[1,2,4-]	140000	UG/KG	U
36-005	36-3025	0	6	IN	Trichlorobenzene[1,2,4-]	360	UG/KG	U
36-005	36-3024	0	6	IN	Trichlorobenzene[1,2,4-]	400	UG/KG	U
36-005	36-3023	0	6	IN	Trichlorobenzene[1,2,4-]	370	UG/KG	U
36-005	36-3022	0	6	IN	Trichlorobenzene[1,2,4-]	360	UG/KG	U
36-005	36-3021	0	6	IN	Trichlorobenzene[1,2,4-]	400	UG/KG	U
36-005	36-3020	0	6	IN	Trichlorobenzene[1,2,4-]	370	UG/KG	U
36-005	36-3019	0	6	IN	Trichlorobenzene[1,2,4-]	370	UG/KG	U
36-005	36-3018	0	6	IN	Trichlorobenzene[1,2,4-]	350	UG/KG	U
36-005	36-3018	0	6	IN	Trichlorobenzene[1,2,4-]	370	UG/KG	U
36-005	36-3051	0	6	IN	Trichloroethane[1,1,1-]	5	UG/KG	U
36-005	36-3050	0	6	IN	Trichloroethane[1,1,1-]	6	UG/KG	U
36-005	36-3050	0	6	IN	Trichloroethane[1,1,1-]	6	UG/KG	U
36-005	36-3049	0	6	IN	Trichloroethane[1,1,1-]	6	UG/KG	U
36-005	36-3048	0	6	IN	Trichloroethane[1,1,1-]	6	UG/KG	U
36-005	36-3047	0	6	IN	Trichloroethane[1,1,1-]	6	UG/KG	U
36-005	36-3046	0	6	IN	Trichloroethane[1,1,1-]	6	UG/KG	U
36-005	36-3045	0	6	IN	Trichloroethane[1,1,1-]	6	UG/KG	U
36-005	36-3044	0	6	IN	Trichloroethane[1,1,1-]	6	UG/KG	U
36-005	36-3043	0	6	IN	Trichloroethane[1,1,1-]	5	UG/KG	U
36-005	36-3042	0	6	IN	Trichloroethane[1,1,1-]	6	UG/KG	U
36-005	36-3042	0	6	IN	Trichloroethane[1,1,1-]	5	UG/KG	U
36-005	36-3041	0	6	IN	Trichloroethane[1,1,1-]	5	UG/KG	U
36-005	36-3040	0	6	IN	Trichloroethane[1,1,1-]	5	UG/KG	U
36-005	36-3039	0	6	IN	Trichloroethane[1,1,1-]	5	UG/KG	U
36-005	36-3038	0	6	IN	Trichloroethane[1,1,1-]	6	UG/KG	U
36-005	36-3037	0	6	IN	Trichloroethane[1,1,1-]	5	UG/KG	U
36-005	36-3036	0	6	IN	Trichloroethane[1,1,1-]	6	UG/KG	U
36-005	36-3035	0	6	IN	Trichloroethane[1,1,1-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Trichloroethane[1,1,1-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Trichloroethane[1,1,1-]	5	UG/KG	U
36-005	36-3026	0	6	IN	Trichloroethane[1,1,1-]	25	UG/KG	U
36-005	36-3025	0	6	IN	Trichloroethane[1,1,1-]	5	UG/KG	U
36-005	36-3024	0	6	IN	Trichloroethane[1,1,1-]	6	UG/KG	U
36-005	36-3023	0	6	IN	Trichloroethane[1,1,1-]	6	UG/KG	U
36-005	36-3022	0	6	IN	Trichloroethane[1,1,1-]	6	UG/KG	U
36-005	36-3021	0	6	IN	Trichloroethane[1,1,1-]	6	UG/KG	U
36-005	36-3020	0	6	IN	Trichloroethane[1,1,1-]	6	UG/KG	U
36-005	36-3019	0	6	IN	Trichloroethane[1,1,1-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Trichloroethane[1,1,1-]	6	UG/KG	U

36-005	36-3018	0	6	IN	Trichloroethane[1,1,1-]	6	UG/KG	U
36-005	36-3051	0	6	IN	Trichloroethane[1,1,2-]	5	UG/KG	U
36-005	36-3050	0	6	IN	Trichloroethane[1,1,2-]	6	UG/KG	U
36-005	36-3050	0	6	IN	Trichloroethane[1,1,2-]	6	UG/KG	U
36-005	36-3049	0	6	IN	Trichloroethane[1,1,2-]	6	UG/KG	U
36-005	36-3048	0	6	IN	Trichloroethane[1,1,2-]	6	UG/KG	U
36-005	36-3047	0	6	IN	Trichloroethane[1,1,2-]	6	UG/KG	U
36-005	36-3046	0	6	IN	Trichloroethane[1,1,2-]	6	UG/KG	U
36-005	36-3045	0	6	IN	Trichloroethane[1,1,2-]	6	UG/KG	U
36-005	36-3044	0	6	IN	Trichloroethane[1,1,2-]	6	UG/KG	U
36-005	36-3043	0	6	IN	Trichloroethane[1,1,2-]	5	UG/KG	U
36-005	36-3042	0	6	IN	Trichloroethane[1,1,2-]	6	UG/KG	U
36-005	36-3042	0	6	IN	Trichloroethane[1,1,2-]	5	UG/KG	U
36-005	36-3041	0	6	IN	Trichloroethane[1,1,2-]	5	UG/KG	U
36-005	36-3040	0	6	IN	Trichloroethane[1,1,2-]	5	UG/KG	U
36-005	36-3039	0	6	IN	Trichloroethane[1,1,2-]	5	UG/KG	U
36-005	36-3038	0	6	IN	Trichloroethane[1,1,2-]	6	UG/KG	U
36-005	36-3037	0	6	IN	Trichloroethane[1,1,2-]	5	UG/KG	U
36-005	36-3036	0	6	IN	Trichloroethane[1,1,2-]	6	UG/KG	U
36-005	36-3035	0	6	IN	Trichloroethane[1,1,2-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Trichloroethane[1,1,2-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Trichloroethane[1,1,2-]	5	UG/KG	U
36-005	36-3026	0	6	IN	Trichloroethane[1,1,2-]	25	UG/KG	U
36-005	36-3025	0	6	IN	Trichloroethane[1,1,2-]	5	UG/KG	U
36-005	36-3024	0	6	IN	Trichloroethane[1,1,2-]	6	UG/KG	U
36-005	36-3023	0	6	IN	Trichloroethane[1,1,2-]	6	UG/KG	U
36-005	36-3022	0	6	IN	Trichloroethane[1,1,2-]	6	UG/KG	U
36-005	36-3021	0	6	IN	Trichloroethane[1,1,2-]	6	UG/KG	U
36-005	36-3020	0	6	IN	Trichloroethane[1,1,2-]	6	UG/KG	U
36-005	36-3019	0	6	IN	Trichloroethane[1,1,2-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Trichloroethane[1,1,2-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Trichloroethane[1,1,2-]	6	UG/KG	U
36-005	36-3051	0	6	IN	Trichloroethene	5	UG/KG	U
36-005	36-3050	0	6	IN	Trichloroethene	6	UG/KG	U
36-005	36-3050	0	6	IN	Trichloroethene	6	UG/KG	U
36-005	36-3049	0	6	IN	Trichloroethene	6	UG/KG	U
36-005	36-3048	0	6	IN	Trichloroethene	6	UG/KG	U
36-005	36-3047	0	6	IN	Trichloroethene	6	UG/KG	U
36-005	36-3046	0	6	IN	Trichloroethene	6	UG/KG	U
36-005	36-3045	0	6	IN	Trichloroethene	6	UG/KG	U
36-005	36-3044	0	6	IN	Trichloroethene	6	UG/KG	U
36-005	36-3043	0	6	IN	Trichloroethene	5	UG/KG	U
36-005	36-3042	0	6	IN	Trichloroethene	6	UG/KG	U
36-005	36-3042	0	6	IN	Trichloroethene	5	UG/KG	U
36-005	36-3041	0	6	IN	Trichloroethene	31	UG/KG	
36-005	36-3040	0	6	IN	Trichloroethene	5	UG/KG	U
36-005	36-3039	0	6	IN	Trichloroethene	110	UG/KG	
36-005	36-3038	0	6	IN	Trichloroethene	35	UG/KG	
36-005	36-3037	0	6	IN	Trichloroethene	5	UG/KG	U
36-005	36-3036	0	6	IN	Trichloroethene	6	UG/KG	U
36-005	36-3035	0	6	IN	Trichloroethene	6	UG/KG	U
36-005	36-3034	0	6	IN	Trichloroethene	6	UG/KG	U
36-005	36-3034	0	6	IN	Trichloroethene	5	UG/KG	U
36-005	36-3026	0	6	IN	Trichloroethene	25	UG/KG	U
36-005	36-3025	0	6	IN	Trichloroethene	5	UG/KG	U
36-005	36-3024	0	6	IN	Trichloroethene	6	UG/KG	U
36-005	36-3023	0	6	IN	Trichloroethene	6	UG/KG	U
36-005	36-3022	0	6	IN	Trichloroethene	6	UG/KG	U
36-005	36-3021	0	6	IN	Trichloroethene	6	UG/KG	U
36-005	36-3020	0	6	IN	Trichloroethene	6	UG/KG	U
36-005	36-3019	0	6	IN	Trichloroethene	6	UG/KG	U
36-005	36-3018	0	6	IN	Trichloroethene	6	UG/KG	U
36-005	36-3018	0	6	IN	Trichloroethene	6	UG/KG	U
36-005	36-3051	0	6	IN	Trichlorofluoromethane	5	UG/KG	U
36-005	36-3050	0	6	IN	Trichlorofluoromethane	6	UG/KG	U
36-005	36-3050	0	6	IN	Trichlorofluoromethane	6	UG/KG	U
36-005	36-3049	0	6	IN	Trichlorofluoromethane	6	UG/KG	U
36-005	36-3048	0	6	IN	Trichlorofluoromethane	6	UG/KG	U
36-005	36-3047	0	6	IN	Trichlorofluoromethane	6	UG/KG	U
36-005	36-3046	0	6	IN	Trichlorofluoromethane	6	UG/KG	U
36-005	36-3045	0	6	IN	Trichlorofluoromethane	6	UG/KG	U
36-005	36-3044	0	6	IN	Trichlorofluoromethane	6	UG/KG	U
36-005	36-3043	0	6	IN	Trichlorofluoromethane	5	UG/KG	U
36-005	36-3042	0	6	IN	Trichlorofluoromethane	6	UG/KG	U

36-005	36-3042	0	6	IN	Trichlorofluoromethane	5	UG/KG	U
36-005	36-3041	0	6	IN	Trichlorofluoromethane	5	UG/KG	U
36-005	36-3040	0	6	IN	Trichlorofluoromethane	5	UG/KG	U
36-005	36-3039	0	6	IN	Trichlorofluoromethane	5	UG/KG	U
36-005	36-3038	0	6	IN	Trichlorofluoromethane	6	UG/KG	U
36-005	36-3037	0	6	IN	Trichlorofluoromethane	5	UG/KG	U
36-005	36-3036	0	6	IN	Trichlorofluoromethane	6	UG/KG	U
36-005	36-3035	0	6	IN	Trichlorofluoromethane	6	UG/KG	U
36-005	36-3034	0	6	IN	Trichlorofluoromethane	6	UG/KG	U
36-005	36-3034	0	6	IN	Trichlorofluoromethane	5	UG/KG	U
36-005	36-3026	0	6	IN	Trichlorofluoromethane	25	UG/KG	U
36-005	36-3025	0	6	IN	Trichlorofluoromethane	5	UG/KG	U
36-005	36-3024	0	6	IN	Trichlorofluoromethane	6	UG/KG	U
36-005	36-3023	0	6	IN	Trichlorofluoromethane	6	UG/KG	U
36-005	36-3022	0	6	IN	Trichlorofluoromethane	6	UG/KG	U
36-005	36-3021	0	6	IN	Trichlorofluoromethane	6	UG/KG	U
36-005	36-3020	0	6	IN	Trichlorofluoromethane	6	UG/KG	U
36-005	36-3019	0	6	IN	Trichlorofluoromethane	6	UG/KG	U
36-005	36-3018	0	6	IN	Trichlorofluoromethane	6	UG/KG	U
36-005	36-3018	0	6	IN	Trichlorofluoromethane	6	UG/KG	U
36-005	36-3051	0	6	IN	Trichlorophenol[2,4,5-]	1800	UG/KG	U
36-005	36-3050	0	6	IN	Trichlorophenol[2,4,5-]	1800	UG/KG	U
36-005	36-3050	0	6	IN	Trichlorophenol[2,4,5-]	1700	UG/KG	U
36-005	36-3049	0	6	IN	Trichlorophenol[2,4,5-]	1700	UG/KG	U
36-005	36-3048	0	6	IN	Trichlorophenol[2,4,5-]	1800	UG/KG	U
36-005	36-3047	0	6	IN	Trichlorophenol[2,4,5-]	2000	UG/KG	U
36-005	36-3046	0	6	IN	Trichlorophenol[2,4,5-]	1800	UG/KG	U
36-005	36-3045	0	6	IN	Trichlorophenol[2,4,5-]	1900	UG/KG	U
36-005	36-3044	0	6	IN	Trichlorophenol[2,4,5-]	1900	UG/KG	U
36-005	36-3043	0	6	IN	Trichlorophenol[2,4,5-]	1800	UG/KG	U
36-005	36-3042	0	6	IN	Trichlorophenol[2,4,5-]	1700	UG/KG	U
36-005	36-3042	0	6	IN	Trichlorophenol[2,4,5-]	1700	UG/KG	U
36-005	36-3041	0	6	IN	Trichlorophenol[2,4,5-]	1700	UG/KG	U
36-005	36-3040	0	6	IN	Trichlorophenol[2,4,5-]	1700	UG/KG	U
36-005	36-3039	0	6	IN	Trichlorophenol[2,4,5-]	1700	UG/KG	U
36-005	36-3038	0	6	IN	Trichlorophenol[2,4,5-]	1800	UG/KG	U
36-005	36-3037	0	6	IN	Trichlorophenol[2,4,5-]	1700	UG/KG	U
36-005	36-3036	0	6	IN	Trichlorophenol[2,4,5-]	1700	UG/KG	U
36-005	36-3035	0	6	IN	Trichlorophenol[2,4,5-]	1800	UG/KG	U
36-005	36-3034	0	6	IN	Trichlorophenol[2,4,5-]	1700	UG/KG	U
36-005	36-3034	0	6	IN	Trichlorophenol[2,4,5-]	1800	UG/KG	U
36-005	36-3026	0	6	IN	Trichlorophenol[2,4,5-]	680000	UG/KG	U
36-005	36-3025	0	6	IN	Trichlorophenol[2,4,5-]	1800	UG/KG	U
36-005	36-3024	0	6	IN	Trichlorophenol[2,4,5-]	2000	UG/KG	U
36-005	36-3023	0	6	IN	Trichlorophenol[2,4,5-]	1900	UG/KG	U
36-005	36-3022	0	6	IN	Trichlorophenol[2,4,5-]	1800	UG/KG	U
36-005	36-3021	0	6	IN	Trichlorophenol[2,4,5-]	2000	UG/KG	U
36-005	36-3020	0	6	IN	Trichlorophenol[2,4,5-]	1900	UG/KG	U
36-005	36-3019	0	6	IN	Trichlorophenol[2,4,5-]	1900	UG/KG	U
36-005	36-3018	0	6	IN	Trichlorophenol[2,4,5-]	1700	UG/KG	U
36-005	36-3018	0	6	IN	Trichlorophenol[2,4,5-]	1800	UG/KG	U
36-005	36-3051	0	6	IN	Trichlorophenol[2,4,6-]	350	UG/KG	U
36-005	36-3050	0	6	IN	Trichlorophenol[2,4,6-]	360	UG/KG	U
36-005	36-3050	0	6	IN	Trichlorophenol[2,4,6-]	350	UG/KG	U
36-005	36-3049	0	6	IN	Trichlorophenol[2,4,6-]	340	UG/KG	U
36-005	36-3048	0	6	IN	Trichlorophenol[2,4,6-]	360	UG/KG	U
36-005	36-3047	0	6	IN	Trichlorophenol[2,4,6-]	390	UG/KG	U
36-005	36-3046	0	6	IN	Trichlorophenol[2,4,6-]	360	UG/KG	U
36-005	36-3045	0	6	IN	Trichlorophenol[2,4,6-]	380	UG/KG	U
36-005	36-3044	0	6	IN	Trichlorophenol[2,4,6-]	380	UG/KG	U
36-005	36-3043	0	6	IN	Trichlorophenol[2,4,6-]	360	UG/KG	U
36-005	36-3042	0	6	IN	Trichlorophenol[2,4,6-]	350	UG/KG	U
36-005	36-3042	0	6	IN	Trichlorophenol[2,4,6-]	340	UG/KG	U
36-005	36-3041	0	6	IN	Trichlorophenol[2,4,6-]	350	UG/KG	UJ
36-005	36-3040	0	6	IN	Trichlorophenol[2,4,6-]	350	UG/KG	UJ
36-005	36-3039	0	6	IN	Trichlorophenol[2,4,6-]	340	UG/KG	UJ
36-005	36-3038	0	6	IN	Trichlorophenol[2,4,6-]	360	UG/KG	UJ
36-005	36-3037	0	6	IN	Trichlorophenol[2,4,6-]	350	UG/KG	UJ
36-005	36-3036	0	6	IN	Trichlorophenol[2,4,6-]	340	UG/KG	UJ
36-005	36-3035	0	6	IN	Trichlorophenol[2,4,6-]	350	UG/KG	UJ
36-005	36-3034	0	6	IN	Trichlorophenol[2,4,6-]	350	UG/KG	UJ
36-005	36-3034	0	6	IN	Trichlorophenol[2,4,6-]	350	UG/KG	UJ
36-005	36-3026	0	6	IN	Trichlorophenol[2,4,6-]	140000	UG/KG	U
36-005	36-3025	0	6	IN	Trichlorophenol[2,4,6-]	360	UG/KG	U

36-005	36-3024	0	6	IN	Trichlorophenol[2,4,6-]	400	UG/KG	U
36-005	36-3023	0	6	IN	Trichlorophenol[2,4,6-]	370	UG/KG	U
36-005	36-3022	0	6	IN	Trichlorophenol[2,4,6-]	360	UG/KG	U
36-005	36-3021	0	6	IN	Trichlorophenol[2,4,6-]	400	UG/KG	U
36-005	36-3020	0	6	IN	Trichlorophenol[2,4,6-]	370	UG/KG	U
36-005	36-3019	0	6	IN	Trichlorophenol[2,4,6-]	370	UG/KG	U
36-005	36-3018	0	6	IN	Trichlorophenol[2,4,6-]	350	UG/KG	U
36-005	36-3018	0	6	IN	Trichlorophenol[2,4,6-]	370	UG/KG	U
36-005	36-3051	0	6	IN	Trichloropropane[1,2,3-]	5	UG/KG	U
36-005	36-3050	0	6	IN	Trichloropropane[1,2,3-]	6	UG/KG	U
36-005	36-3050	0	6	IN	Trichloropropane[1,2,3-]	6	UG/KG	U
36-005	36-3049	0	6	IN	Trichloropropane[1,2,3-]	6	UG/KG	U
36-005	36-3048	0	6	IN	Trichloropropane[1,2,3-]	6	UG/KG	UJ
36-005	36-3047	0	6	IN	Trichloropropane[1,2,3-]	6	UG/KG	U
36-005	36-3046	0	6	IN	Trichloropropane[1,2,3-]	6	UG/KG	U
36-005	36-3045	0	6	IN	Trichloropropane[1,2,3-]	6	UG/KG	UJ
36-005	36-3044	0	6	IN	Trichloropropane[1,2,3-]	6	UG/KG	UJ
36-005	36-3043	0	6	IN	Trichloropropane[1,2,3-]	5	UG/KG	U
36-005	36-3042	0	6	IN	Trichloropropane[1,2,3-]	6	UG/KG	UJ
36-005	36-3042	0	6	IN	Trichloropropane[1,2,3-]	5	UG/KG	UJ
36-005	36-3041	0	6	IN	Trichloropropane[1,2,3-]	5	UG/KG	U
36-005	36-3040	0	6	IN	Trichloropropane[1,2,3-]	5	UG/KG	U
36-005	36-3039	0	6	IN	Trichloropropane[1,2,3-]	5	UG/KG	U
36-005	36-3038	0	6	IN	Trichloropropane[1,2,3-]	6	UG/KG	U
36-005	36-3037	0	6	IN	Trichloropropane[1,2,3-]	5	UG/KG	U
36-005	36-3036	0	6	IN	Trichloropropane[1,2,3-]	6	UG/KG	U
36-005	36-3035	0	6	IN	Trichloropropane[1,2,3-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Trichloropropane[1,2,3-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Trichloropropane[1,2,3-]	5	UG/KG	U
36-005	36-3026	0	6	IN	Trichloropropane[1,2,3-]	25	UG/KG	U
36-005	36-3025	0	6	IN	Trichloropropane[1,2,3-]	5	UG/KG	U
36-005	36-3024	0	6	IN	Trichloropropane[1,2,3-]	6	UG/KG	U
36-005	36-3023	0	6	IN	Trichloropropane[1,2,3-]	6	UG/KG	UJ
36-005	36-3022	0	6	IN	Trichloropropane[1,2,3-]	6	UG/KG	U
36-005	36-3021	0	6	IN	Trichloropropane[1,2,3-]	6	UG/KG	UJ
36-005	36-3020	0	6	IN	Trichloropropane[1,2,3-]	6	UG/KG	UJ
36-005	36-3019	0	6	IN	Trichloropropane[1,2,3-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Trichloropropane[1,2,3-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Trichloropropane[1,2,3-]	6	UG/KG	U
36-005	36-3051	0	6	IN	Trimethylbenzene[1,2,4-]	5	UG/KG	U
36-005	36-3050	0	6	IN	Trimethylbenzene[1,2,4-]	6	UG/KG	U
36-005	36-3050	0	6	IN	Trimethylbenzene[1,2,4-]	6	UG/KG	U
36-005	36-3049	0	6	IN	Trimethylbenzene[1,2,4-]	6	UG/KG	U
36-005	36-3048	0	6	IN	Trimethylbenzene[1,2,4-]	6	UG/KG	UJ
36-005	36-3047	0	6	IN	Trimethylbenzene[1,2,4-]	6	UG/KG	U
36-005	36-3046	0	6	IN	Trimethylbenzene[1,2,4-]	6	UG/KG	U
36-005	36-3045	0	6	IN	Trimethylbenzene[1,2,4-]	6	UG/KG	UJ
36-005	36-3044	0	6	IN	Trimethylbenzene[1,2,4-]	6	UG/KG	UJ
36-005	36-3043	0	6	IN	Trimethylbenzene[1,2,4-]	5	UG/KG	U
36-005	36-3042	0	6	IN	Trimethylbenzene[1,2,4-]	6	UG/KG	UJ
36-005	36-3042	0	6	IN	Trimethylbenzene[1,2,4-]	5	UG/KG	UJ
36-005	36-3041	0	6	IN	Trimethylbenzene[1,2,4-]	55	UG/KG	
36-005	36-3040	0	6	IN	Trimethylbenzene[1,2,4-]	5	UG/KG	U
36-005	36-3039	0	6	IN	Trimethylbenzene[1,2,4-]	120	UG/KG	
36-005	36-3038	0	6	IN	Trimethylbenzene[1,2,4-]	70	UG/KG	
36-005	36-3037	0	6	IN	Trimethylbenzene[1,2,4-]	5	UG/KG	U
36-005	36-3036	0	6	IN	Trimethylbenzene[1,2,4-]	6	UG/KG	U
36-005	36-3035	0	6	IN	Trimethylbenzene[1,2,4-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Trimethylbenzene[1,2,4-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Trimethylbenzene[1,2,4-]	5	UG/KG	U
36-005	36-3026	0	6	IN	Trimethylbenzene[1,2,4-]	25	UG/KG	U
36-005	36-3025	0	6	IN	Trimethylbenzene[1,2,4-]	5	UG/KG	U
36-005	36-3024	0	6	IN	Trimethylbenzene[1,2,4-]	6	UG/KG	U
36-005	36-3023	0	6	IN	Trimethylbenzene[1,2,4-]	6	UG/KG	UJ
36-005	36-3022	0	6	IN	Trimethylbenzene[1,2,4-]	6	UG/KG	U
36-005	36-3021	0	6	IN	Trimethylbenzene[1,2,4-]	6	UG/KG	UJ
36-005	36-3020	0	6	IN	Trimethylbenzene[1,2,4-]	6	UG/KG	UJ
36-005	36-3019	0	6	IN	Trimethylbenzene[1,2,4-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Trimethylbenzene[1,2,4-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Trimethylbenzene[1,2,4-]	6	UG/KG	U
36-005	36-3051	0	6	IN	Trimethylbenzene[1,3,5-]	5	UG/KG	U
36-005	36-3050	0	6	IN	Trimethylbenzene[1,3,5-]	6	UG/KG	U
36-005	36-3050	0	6	IN	Trimethylbenzene[1,3,5-]	6	UG/KG	U
36-005	36-3049	0	6	IN	Trimethylbenzene[1,3,5-]	6	UG/KG	U

36-005	36-3048	0	6	IN	Trimethylbenzene[1,3,5-]	6	UG/KG	UJ
36-005	36-3047	0	6	IN	Trimethylbenzene[1,3,5-]	6	UG/KG	U
36-005	36-3046	0	6	IN	Trimethylbenzene[1,3,5-]	6	UG/KG	U
36-005	36-3045	0	6	IN	Trimethylbenzene[1,3,5-]	6	UG/KG	UJ
36-005	36-3044	0	6	IN	Trimethylbenzene[1,3,5-]	6	UG/KG	UJ
36-005	36-3043	0	6	IN	Trimethylbenzene[1,3,5-]	5	UG/KG	U
36-005	36-3042	0	6	IN	Trimethylbenzene[1,3,5-]	6	UG/KG	UJ
36-005	36-3042	0	6	IN	Trimethylbenzene[1,3,5-]	5	UG/KG	UJ
36-005	36-3041	0	6	IN	Trimethylbenzene[1,3,5-]	5	UG/KG	U
36-005	36-3040	0	6	IN	Trimethylbenzene[1,3,5-]	5	UG/KG	U
36-005	36-3039	0	6	IN	Trimethylbenzene[1,3,5-]	5	UG/KG	U
36-005	36-3038	0	6	IN	Trimethylbenzene[1,3,5-]	6	UG/KG	U
36-005	36-3037	0	6	IN	Trimethylbenzene[1,3,5-]	5	UG/KG	U
36-005	36-3036	0	6	IN	Trimethylbenzene[1,3,5-]	6	UG/KG	U
36-005	36-3035	0	6	IN	Trimethylbenzene[1,3,5-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Trimethylbenzene[1,3,5-]	6	UG/KG	U
36-005	36-3034	0	6	IN	Trimethylbenzene[1,3,5-]	5	UG/KG	U
36-005	36-3026	0	6	IN	Trimethylbenzene[1,3,5-]	25	UG/KG	U
36-005	36-3025	0	6	IN	Trimethylbenzene[1,3,5-]	5	UG/KG	U
36-005	36-3024	0	6	IN	Trimethylbenzene[1,3,5-]	6	UG/KG	U
36-005	36-3023	0	6	IN	Trimethylbenzene[1,3,5-]	6	UG/KG	UJ
36-005	36-3022	0	6	IN	Trimethylbenzene[1,3,5-]	6	UG/KG	U
36-005	36-3021	0	6	IN	Trimethylbenzene[1,3,5-]	6	UG/KG	UJ
36-005	36-3020	0	6	IN	Trimethylbenzene[1,3,5-]	6	UG/KG	UJ
36-005	36-3019	0	6	IN	Trimethylbenzene[1,3,5-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Trimethylbenzene[1,3,5-]	6	UG/KG	U
36-005	36-3018	0	6	IN	Trimethylbenzene[1,3,5-]	6	UG/KG	U
36-005	36-3051	0	6	IN	Trinitrobenzene[1,3,5-]	0.089	UG/G	U
36-005	36-3050	0	6	IN	Trinitrobenzene[1,3,5-]	0.091	UG/G	U
36-005	36-3050	0	6	IN	Trinitrobenzene[1,3,5-]	0.091	UG/G	U
36-005	36-3049	0	6	IN	Trinitrobenzene[1,3,5-]	0.089	UG/G	U
36-005	36-3048	0	6	IN	Trinitrobenzene[1,3,5-]	0.092	UG/G	U
36-005	36-3047	0	6	IN	Trinitrobenzene[1,3,5-]	0.091	UG/G	U
36-005	36-3046	0	6	IN	Trinitrobenzene[1,3,5-]	0.09	UG/G	U
36-005	36-3045	0	6	IN	Trinitrobenzene[1,3,5-]	0.094	UG/G	U
36-005	36-3044	0	6	IN	Trinitrobenzene[1,3,5-]	0.091	UG/G	U
36-005	36-3043	0	6	IN	Trinitrobenzene[1,3,5-]	0.09	UG/G	U
36-005	36-3042	0	6	IN	Trinitrobenzene[1,3,5-]	0.091	UG/G	U
36-005	36-3042	0	6	IN	Trinitrobenzene[1,3,5-]	0.091	UG/G	U
36-005	36-3041	0	6	IN	Trinitrobenzene[1,3,5-]	0.09	UG/G	U
36-005	36-3040	0	6	IN	Trinitrobenzene[1,3,5-]	0.091	UG/G	U
36-005	36-3039	0	6	IN	Trinitrobenzene[1,3,5-]	0.09	UG/G	U
36-005	36-3038	0	6	IN	Trinitrobenzene[1,3,5-]	0.09	UG/G	U
36-005	36-3037	0	6	IN	Trinitrobenzene[1,3,5-]	0.09	UG/G	U
36-005	36-3036	0	6	IN	Trinitrobenzene[1,3,5-]	0.09	UG/G	U
36-005	36-3035	0	6	IN	Trinitrobenzene[1,3,5-]	0.092	UG/G	U
36-005	36-3034	0	6	IN	Trinitrobenzene[1,3,5-]	0.09	UG/G	U
36-005	36-3034	0	6	IN	Trinitrobenzene[1,3,5-]	0.09	UG/G	U
36-005	36-3026	0	6	IN	Trinitrobenzene[1,3,5-]	0.091	UG/G	U
36-005	36-3025	0	6	IN	Trinitrobenzene[1,3,5-]	0.094	UG/G	U
36-005	36-3024	0	6	IN	Trinitrobenzene[1,3,5-]	0.094	UG/G	U
36-005	36-3023	0	6	IN	Trinitrobenzene[1,3,5-]	0.095	UG/G	U
36-005	36-3022	0	6	IN	Trinitrobenzene[1,3,5-]	0.095	UG/G	U
36-005	36-3021	0	6	IN	Trinitrobenzene[1,3,5-]	0.095	UG/G	U
36-005	36-3020	0	6	IN	Trinitrobenzene[1,3,5-]	0.094	UG/G	U
36-005	36-3019	0	6	IN	Trinitrobenzene[1,3,5-]	0.094	UG/G	U
36-005	36-3018	0	6	IN	Trinitrobenzene[1,3,5-]	0.094	UG/G	U
36-005	36-3018	0	6	IN	Trinitrobenzene[1,3,5-]	0.094	UG/G	U
36-005	36-3051	0	6	IN	Trinitrotoluene[2,4,6-]	0.084	UG/G	U
36-005	36-3050	0	6	IN	Trinitrotoluene[2,4,6-]	0.086	UG/G	U
36-005	36-3050	0	6	IN	Trinitrotoluene[2,4,6-]	0.086	UG/G	U
36-005	36-3049	0	6	IN	Trinitrotoluene[2,4,6-]	0.084	UG/G	U
36-005	36-3048	0	6	IN	Trinitrotoluene[2,4,6-]	0.086	UG/G	U
36-005	36-3047	0	6	IN	Trinitrotoluene[2,4,6-]	0.085	UG/G	U
36-005	36-3046	0	6	IN	Trinitrotoluene[2,4,6-]	0.084	UG/G	U
36-005	36-3045	0	6	IN	Trinitrotoluene[2,4,6-]	0.088	UG/G	U
36-005	36-3044	0	6	IN	Trinitrotoluene[2,4,6-]	0.085	UG/G	U
36-005	36-3043	0	6	IN	Trinitrotoluene[2,4,6-]	0.084	UG/G	U
36-005	36-3042	0	6	IN	Trinitrotoluene[2,4,6-]	0.086	UG/G	U
36-005	36-3042	0	6	IN	Trinitrotoluene[2,4,6-]	0.086	UG/G	U
36-005	36-3041	0	6	IN	Trinitrotoluene[2,4,6-]	0.084	UG/G	U
36-005	36-3040	0	6	IN	Trinitrotoluene[2,4,6-]	0.086	UG/G	U
36-005	36-3039	0	6	IN	Trinitrotoluene[2,4,6-]	0.084	UG/G	U
36-005	36-3038	0	6	IN	Trinitrotoluene[2,4,6-]	0.085	UG/G	U

36-005	36-3037	0	6	IN	Trinitrotoluene[2,4,6-]	0.085	UG/G	U
36-005	36-3036	0	6	IN	Trinitrotoluene[2,4,6-]	0.085	UG/G	U
36-005	36-3035	0	6	IN	Trinitrotoluene[2,4,6-]	0.087	UG/G	U
36-005	36-3034	0	6	IN	Trinitrotoluene[2,4,6-]	0.085	UG/G	U
36-005	36-3034	0	6	IN	Trinitrotoluene[2,4,6-]	0.085	UG/G	U
36-005	36-3026	0	6	IN	Trinitrotoluene[2,4,6-]	0.085	UG/G	U
36-005	36-3025	0	6	IN	Trinitrotoluene[2,4,6-]	0.079	UG/G	U
36-005	36-3024	0	6	IN	Trinitrotoluene[2,4,6-]	0.08	UG/G	U
36-005	36-3023	0	6	IN	Trinitrotoluene[2,4,6-]	0.08	UG/G	U
36-005	36-3022	0	6	IN	Trinitrotoluene[2,4,6-]	0.08	UG/G	U
36-005	36-3021	0	6	IN	Trinitrotoluene[2,4,6-]	0.08	UG/G	U
36-005	36-3020	0	6	IN	Trinitrotoluene[2,4,6-]	0.08	UG/G	U
36-005	36-3019	0	6	IN	Trinitrotoluene[2,4,6-]	0.08	UG/G	U
36-005	36-3018	0	6	IN	Trinitrotoluene[2,4,6-]	0.08	UG/G	U
36-005	36-3018	0	6	IN	Trinitrotoluene[2,4,6-]	0.08	UG/G	U
36-005	NA				Vanadium	4.4	MG/KG	UJ
36-005	36-3051	0	6	IN	Vanadium	5.5	MG/KG	U
36-005	36-3050	0	6	IN	Vanadium	18.2	MG/KG	
36-005	36-3050	0	6	IN	Vanadium	18.4	MG/KG	
36-005	36-3049	0	6	IN	Vanadium	6.3	MG/KG	U
36-005	36-3048	0	6	IN	Vanadium	25.7	MG/KG	
36-005	36-3047	0	6	IN	Vanadium	13.9	MG/KG	
36-005	36-3046	0	6	IN	Vanadium	8.4	MG/KG	U
36-005	36-3045	0	6	IN	Vanadium	23	MG/KG	
36-005	36-3044	0	6	IN	Vanadium	17.4	MG/KG	
36-005	36-3043	0	6	IN	Vanadium	7.6	MG/KG	U
36-005	36-3042	0	6	IN	Vanadium	10	MG/KG	
36-005	36-3042	0	6	IN	Vanadium	10.7	MG/KG	
36-005	36-3041	0	6	IN	Vanadium	15.5	MG/KG	
36-005	36-3040	0	6	IN	Vanadium	10.4	MG/KG	
36-005	36-3039	0	6	IN	Vanadium	9.8	MG/KG	
36-005	36-3038	0	6	IN	Vanadium	16.2	MG/KG	
36-005	36-3037	0	6	IN	Vanadium	20.1	MG/KG	
36-005	36-3036	0	6	IN	Vanadium	19.9	MG/KG	
36-005	36-3035	0	6	IN	Vanadium	23.5	MG/KG	
36-005	36-3034	0	6	IN	Vanadium	14.5	MG/KG	
36-005	36-3034	0	6	IN	Vanadium	15.4	MG/KG	
36-005	36-3026	0	6	IN	Vanadium	14.7	MG/KG	
36-005	36-3025	0	6	IN	Vanadium	7.9	MG/KG	UJ
36-005	36-3024	0	6	IN	Vanadium	12.5	MG/KG	J
36-005	36-3023	0	6	IN	Vanadium	10.5	MG/KG	UJ
36-005	36-3022	0	6	IN	Vanadium	9.3	MG/KG	UJ
36-005	36-3021	0	6	IN	Vanadium	10.9	MG/KG	UJ
36-005	36-3020	0	6	IN	Vanadium	9.8	MG/KG	UJ
36-005	36-3019	0	6	IN	Vanadium	9.1	MG/KG	UJ
36-005	36-3018	0	6	IN	Vanadium	9.8	MG/KG	UJ
36-005	36-3018	0	6	IN	Vanadium	8.5	MG/KG	UJ
36-005	36-3051	0	6	IN	Vinyl Chloride	10	UG/KG	U
36-005	36-3050	0	6	IN	Vinyl Chloride	11	UG/KG	U
36-005	36-3050	0	6	IN	Vinyl Chloride	11	UG/KG	U
36-005	36-3049	0	6	IN	Vinyl Chloride	11	UG/KG	U
36-005	36-3048	0	6	IN	Vinyl Chloride	11	UG/KG	U
36-005	36-3047	0	6	IN	Vinyl Chloride	12	UG/KG	U
36-005	36-3046	0	6	IN	Vinyl Chloride	11	UG/KG	U
36-005	36-3045	0	6	IN	Vinyl Chloride	11	UG/KG	U
36-005	36-3044	0	6	IN	Vinyl Chloride	11	UG/KG	U
36-005	36-3043	0	6	IN	Vinyl Chloride	10	UG/KG	U
36-005	36-3042	0	6	IN	Vinyl Chloride	11	UG/KG	U
36-005	36-3042	0	6	IN	Vinyl Chloride	10	UG/KG	U
36-005	36-3041	0	6	IN	Vinyl Chloride	10	UG/KG	U
36-005	36-3040	0	6	IN	Vinyl Chloride	10	UG/KG	U
36-005	36-3039	0	6	IN	Vinyl Chloride	10	UG/KG	U
36-005	36-3038	0	6	IN	Vinyl Chloride	11	UG/KG	U
36-005	36-3037	0	6	IN	Vinyl Chloride	10	UG/KG	U
36-005	36-3036	0	6	IN	Vinyl Chloride	11	UG/KG	U
36-005	36-3035	0	6	IN	Vinyl Chloride	11	UG/KG	U
36-005	36-3034	0	6	IN	Vinyl Chloride	11	UG/KG	U
36-005	36-3034	0	6	IN	Vinyl Chloride	10	UG/KG	U
36-005	36-3026	0	6	IN	Vinyl Chloride	50	UG/KG	U
36-005	36-3025	0	6	IN	Vinyl Chloride	10	UG/KG	U
36-005	36-3024	0	6	IN	Vinyl Chloride	12	UG/KG	U
36-005	36-3023	0	6	IN	Vinyl Chloride	11	UG/KG	U
36-005	36-3022	0	6	IN	Vinyl Chloride	12	UG/KG	U
36-005	36-3021	0	6	IN	Vinyl Chloride	12	UG/KG	U

36-005	36-3020	0	6	IN	Vinyl Chloride	11	UG/KG	U
36-005	36-3019	0	6	IN	Vinyl Chloride	11	UG/KG	U
36-005	36-3018	0	6	IN	Vinyl Chloride	11	UG/KG	U
36-005	36-3018	0	6	IN	Vinyl Chloride	11	UG/KG	U
36-005	36-3051	0	6	IN	Xylene (Total)	5	UG/KG	U
36-005	36-3050	0	6	IN	Xylene (Total)	6	UG/KG	U
36-005	36-3050	0	6	IN	Xylene (Total)	6	UG/KG	U
36-005	36-3049	0	6	IN	Xylene (Total)	6	UG/KG	U
36-005	36-3048	0	6	IN	Xylene (Total)	6	UG/KG	U
36-005	36-3047	0	6	IN	Xylene (Total)	6	UG/KG	U
36-005	36-3046	0	6	IN	Xylene (Total)	6	UG/KG	U
36-005	36-3045	0	6	IN	Xylene (Total)	6	UG/KG	U
36-005	36-3044	0	6	IN	Xylene (Total)	6	UG/KG	U
36-005	36-3043	0	6	IN	Xylene (Total)	5	UG/KG	U
36-005	36-3042	0	6	IN	Xylene (Total)	6	UG/KG	UJ
36-005	36-3042	0	6	IN	Xylene (Total)	5	UG/KG	U
36-005	36-3041	0	6	IN	Xylene (Total)	55	UG/KG	
36-005	36-3040	0	6	IN	Xylene (Total)	5	UG/KG	U
36-005	36-3039	0	6	IN	Xylene (Total)	143	UG/KG	
36-005	36-3038	0	6	IN	Xylene (Total)	61	UG/KG	
36-005	36-3037	0	6	IN	Xylene (Total)	5	UG/KG	U
36-005	36-3036	0	6	IN	Xylene (Total)	6	UG/KG	U
36-005	36-3035	0	6	IN	Xylene (Total)	6	UG/KG	U
36-005	36-3034	0	6	IN	Xylene (Total)	6	UG/KG	U
36-005	36-3034	0	6	IN	Xylene (Total)	5	UG/KG	U
36-005	36-3026	0	6	IN	Xylene (Total)	25	UG/KG	U
36-005	36-3025	0	6	IN	Xylene (Total)	5	UG/KG	U
36-005	36-3024	0	6	IN	Xylene (Total)	6	UG/KG	U
36-005	36-3023	0	6	IN	Xylene (Total)	6	UG/KG	U
36-005	36-3022	0	6	IN	Xylene (Total)	6	UG/KG	U
36-005	36-3021	0	6	IN	Xylene (Total)	6	UG/KG	U
36-005	36-3020	0	6	IN	Xylene (Total)	6	UG/KG	U
36-005	36-3019	0	6	IN	Xylene (Total)	6	UG/KG	U
36-005	36-3018	0	6	IN	Xylene (Total)	6	UG/KG	U
36-005	36-3018	0	6	IN	Xylene (Total)	6	UG/KG	U
36-005	NA				Zinc	2840	MG/KG	
36-005	36-3051	0	6	IN	Zinc	21.3	MG/KG	
36-005	36-3050	0	6	IN	Zinc	20	MG/KG	
36-005	36-3050	0	6	IN	Zinc	20.9	MG/KG	
36-005	36-3049	0	6	IN	Zinc	19.9	MG/KG	
36-005	36-3048	0	6	IN	Zinc	27	MG/KG	
36-005	36-3047	0	6	IN	Zinc	20.9	MG/KG	
36-005	36-3046	0	6	IN	Zinc	25.6	MG/KG	
36-005	36-3045	0	6	IN	Zinc	30.5	MG/KG	
36-005	36-3044	0	6	IN	Zinc	19.3	MG/KG	
36-005	36-3043	0	6	IN	Zinc	25.2	MG/KG	
36-005	36-3042	0	6	IN	Zinc	23.9	MG/KG	
36-005	36-3042	0	6	IN	Zinc	28.9	MG/KG	
36-005	36-3041	0	6	IN	Zinc	41.7	MG/KG	
36-005	36-3040	0	6	IN	Zinc	33.8	MG/KG	
36-005	36-3039	0	6	IN	Zinc	32.9	MG/KG	
36-005	36-3038	0	6	IN	Zinc	31.7	MG/KG	
36-005	36-3037	0	6	IN	Zinc	34.4	MG/KG	
36-005	36-3036	0	6	IN	Zinc	28.8	MG/KG	
36-005	36-3035	0	6	IN	Zinc	28.2	MG/KG	
36-005	36-3034	0	6	IN	Zinc	37.4	MG/KG	
36-005	36-3034	0	6	IN	Zinc	37.5	MG/KG	
36-005	36-3026	0	6	IN	Zinc	22.7	MG/KG	
36-005	36-3025	0	6	IN	Zinc	25	MG/KG	
36-005	36-3024	0	6	IN	Zinc	40.8	MG/KG	
36-005	36-3023	0	6	IN	Zinc	39.4	MG/KG	
36-005	36-3022	0	6	IN	Zinc	18	MG/KG	
36-005	36-3021	0	6	IN	Zinc	38.2	MG/KG	
36-005	36-3020	0	6	IN	Zinc	40.4	MG/KG	
36-005	36-3019	0	6	IN	Zinc	25.2	MG/KG	
36-005	36-3018	0	6	IN	Zinc	34.3	MG/KG	
36-005	36-3018	0	6	IN	Zinc	24.7	MG/KG	