Department of Energy
Carlsbad Area Office
P. O. Box 3090
Carlsbad, New Mexico 88221

May 29, 1996

Ms. Barbara Hoditschek
RCRA Permits Program Manager
New Mexico Environment Department
P.O. Box 26110
Santa Fe, N.M. 87502

Dear Ms Hoditschek:

Enclosed are two copies of the Solid Waste Management Units (SWMUs) Data Report Number 4 which contains information requested in your April 23, 1996 letter.

Data Reports 1 through 3 previously sent to you included supporting information on particular SWMUs that was intended to update the Resource Conservation and Recovery Act (RCRA) Facility Assessment for the Waste Isolation Pilot Plant (WIPP). Data Report Number 4 completes our discourse at this time on addressing the SWMUs at the WIPP facility. We believe this information provides the needed documentation for you to complete the Hazardous and Solid Waste Amendments (HSWA) module development of the RCRA Part B permit.

Two copies of this material are also being provided by courtesy copy of this letter to Mr. Rafael Casanova of the Environmental Protection Agency Region VI office.

Should you have any further questions or requests, please do not hesitate to contact Craig Snider of my staff at (505) 234-7452.

Sincerely,

James A. Mewhinney

James A. Mewhinney
Compliance Team Leader
Office of Regulatory Compliance

Enclosure

cc w/enclosure:
Rafael Casanova, EPA (2)

Printed on recycled paper

960523

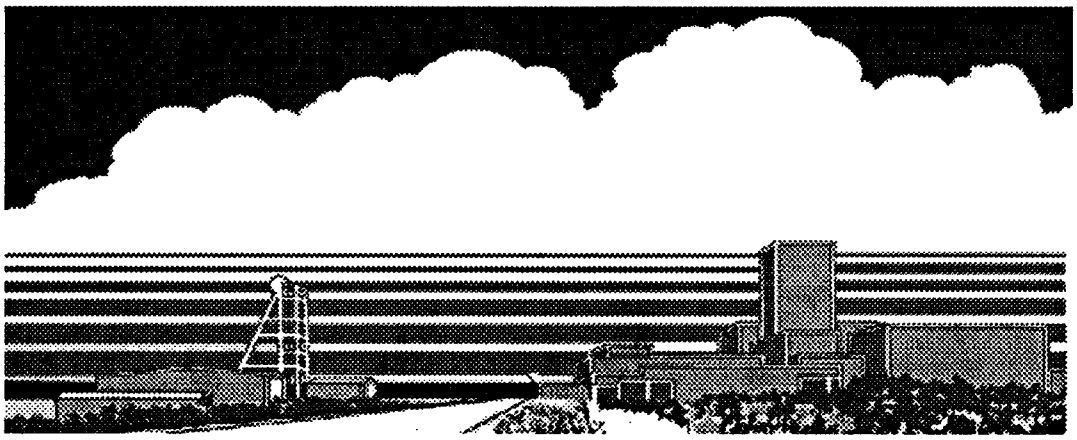
bcc w/enclosure:
K. Hunter, CAO (1)
C. Wayman, CAO (1)
C. Snider, CAO (4)
B. Bennington, CAO (1)

bcc w/o enclosure:
K. Donovan, WID, MS #150
S. Kouba, WID, MS #170
D. Robertson, WID, MS #170

WIPP Library

Data Summary Report No. 4

Solid Waste Management Units Identified In The Waste Isolation Pilot Plant RCRA Facility Assessment



Supplement to DOE/WIPP Draft -2115

1.0 INTRODUCTION 1

2.0 SWMUS WHICH MAY BE SUBJECT TO DUAL REGULATORY AUTHORITY OR MAY BE REGULATED UNDER OTHER REGULATORY AUTHORITY . . 21

2.1 Badger Unit and Cotton Baby SWMU Sites 21
2.2 Brinderson and Construction Landfill Sites 21
2.3 Sewage Treatment Facility 22

3.0 LOCATIONS THAT ARE REGULATED UNDER DUAL REGULATORY AUTHORITY OR THAT DO NOT MEET THE REGULATORY DEFINITION OF A SWMU 22

3.1 Abandoned Well Pad Located Between the H-14 and H-4 Well Sites (SWMU 001aq) 23
3.2 Top Soil Storage Areas (SWMU 002c and SWMU 002d) 23
3.3 Satellite Accumulation Areas (SAAs) SWMUS 008a-008q and SWMUs 009a-009L 24
3.4 Petroleum Storage Building 454 (SWMU 008k) 25
3.5 Hazardous Waste Management Areas (SWMUs 008n, 008L, 008n) 25
3.6 Nonhazardous Surface and Underground Trash Bins (SWMU Group 012) 26

4.0 NEW SWMU SITES DESCRIBED IN CHAPTER J OF THE PART B PERMIT APPLICATION 26

4.1 H-19 Hydropad (SWMU 001ah) 27
4.2 WQSP Well Sites (SWMUS 001ai-001an) 28

5.0 SWMUS WHERE RELEASE ASSESSMENT SAMPLING AND NO FURTHER ACTION DETERMINATION HAVE BEEN SUBMITTED 28

6.0 SWMU SITES IDENTIFIED IN THE RFA AS HAVING A VERY LOW POTENTIAL TO RELEASE HAZARDOUS CONSTITUENTS 29

6.1 SWMU Mudpit Locations 30
6.2 Concrete Batch Plant Storage Areas 31
6.2.1 Waste Handling Building Concrete Batch Plant (SWMU 005a) 31
6.2.2 Concrete Batch Plant (SWMU 005b) 31
6.2.3 Concrete Batch Plant at the H-1 Drill Pad (SWMU 005c) 32
6.3 Evaporation Ponds 32
6.4 Underground Shaft Sumps 32
6.4.1 Salt Handling Shaft Sump (SWMU 010a) . . 32
6.4.2 Waste Handling Shaft Sump (SWMU 010b) . . 33
6.4.3 Exhaust Shaft Sump (SWMU 010c) 33
6.4.4 AIS Shaft Sump (SWMU 010d) 34

LIST OF TABLES

Table 1 SWMU SUMMARY MATRIX 8-19

LIST OF FIGURES

Figure 1 Location of SWMU Mudpits and Landfills Located at the WIPP. 2

Figure 2 Location of SWMUs Where Voluntary Release Assessments Have Been Completed. 3

Figure 3 Location of Material Storage and Stockpile Area SWMUs 4

Figure 4 Historical Location of Evaporation and Holding Ponds Described in the RFA 5

Figure 5 Location of Underground Satellite Accumulation Areas (SAAs) and Shaft Sumps Described in the WIPP RFA 6

LIST OF APPENDICES

Appendix A	Tracer Chemicals and Drilling Additives Used at the H-19 Hydropad
Appendix B	H-19 Tracer Test Permit Correspondence with the NMED Ground Water Protection and Remediation Bureau
Appendix C	Sampling Data Collected from the Salt Handling Sump During Routine Maintenance Operations
Appendix D	Representative Analytical Data from Waste Handling Shaft Sump Brine and Muck Samples
Appendix E	Representative Analytical Data from Exhaust Shaft Sump Brine and Muck Samples
Appendix F	Sampling Data Collected From the AIS Shaft Sump During Routine Maintenance Operations
Appendix G	Analytical Data Collected From the Salt Shaft Holding Pond

1.0 INTRODUCTION

This is the fourth of four Data Summary Reports to be submitted to the EPA Region VI Hazardous Waste Management Division, and the NMED Hazardous and Radioactive Materials Bureau. On April 23, 1996, the NMED submitted a letter to the DOE requesting supplemental information about Solid Waste Management Units (SWMUs) described in the WIPP RCRA Facility Assessment (RFA), the *Assessment of Solid Waste Management Units at the Waste Isolation Pilot Plant*, NMED/DOE/AIP 94/1. The NMED will utilize this information to assist in the development of a "Statement of Basis" to justify the inclusion or exclusion of SWMUs in the Hazardous and Solid Waste Amendments (HSWA) permit module. Data Summary Report #4 will focus on describing the potential for release from SWMUs described in the WIPP RFA which were not evaluated as part of the WIPP voluntary release assessment program.

The April 23, 1996, request for information was divided into four sections. These information request included the following:
(1) A map or maps depicting all of the SWMU sites described in the RFA; (2) The identity of SWMUs which are currently inaccessible (ie. covered by pavement or permanent structures) that may impact future investigation or remediation efforts;
(3) The identity of any SWMU sites which may be regulated under dual regulatory authority; and (4) And supplemental information which may be useful in determining which SWMUs will be identified for corrective action in the HSWA permit module of the RCRA Part B permit.

The DOE has provided five drawings to illustrate the location of the various SWMU sites described in the RFA. The location of SWMU mudpits and landfills located at the WIPP is provided in Figure 1. The location of SWMUs where voluntary release assessments have been completed is provided in Figure 2. Figure 3 illustrates the location of material storage and stockpile area SWMUs described in the RFA. The historical location of evaporation and holding ponds described in the RFA is provided in Figure 4. The location of underground satellite accumulation areas (SAAs) and shaft sumps described in the WIPP RFA is illustrated in Figure 5.

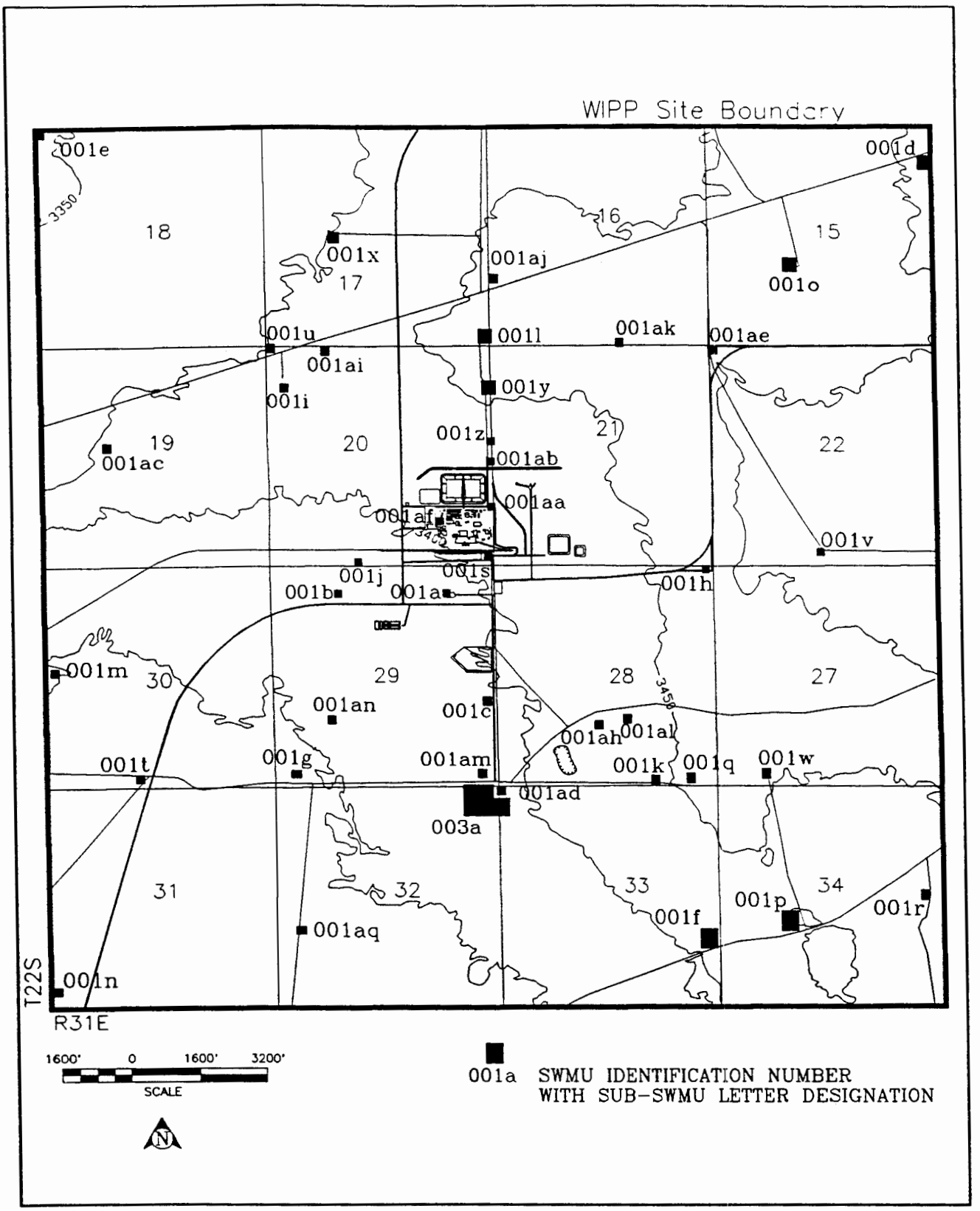


Figure 1

Location of SWMU Mudpits and Landfills within the WIPP Site Boundary

DROB6

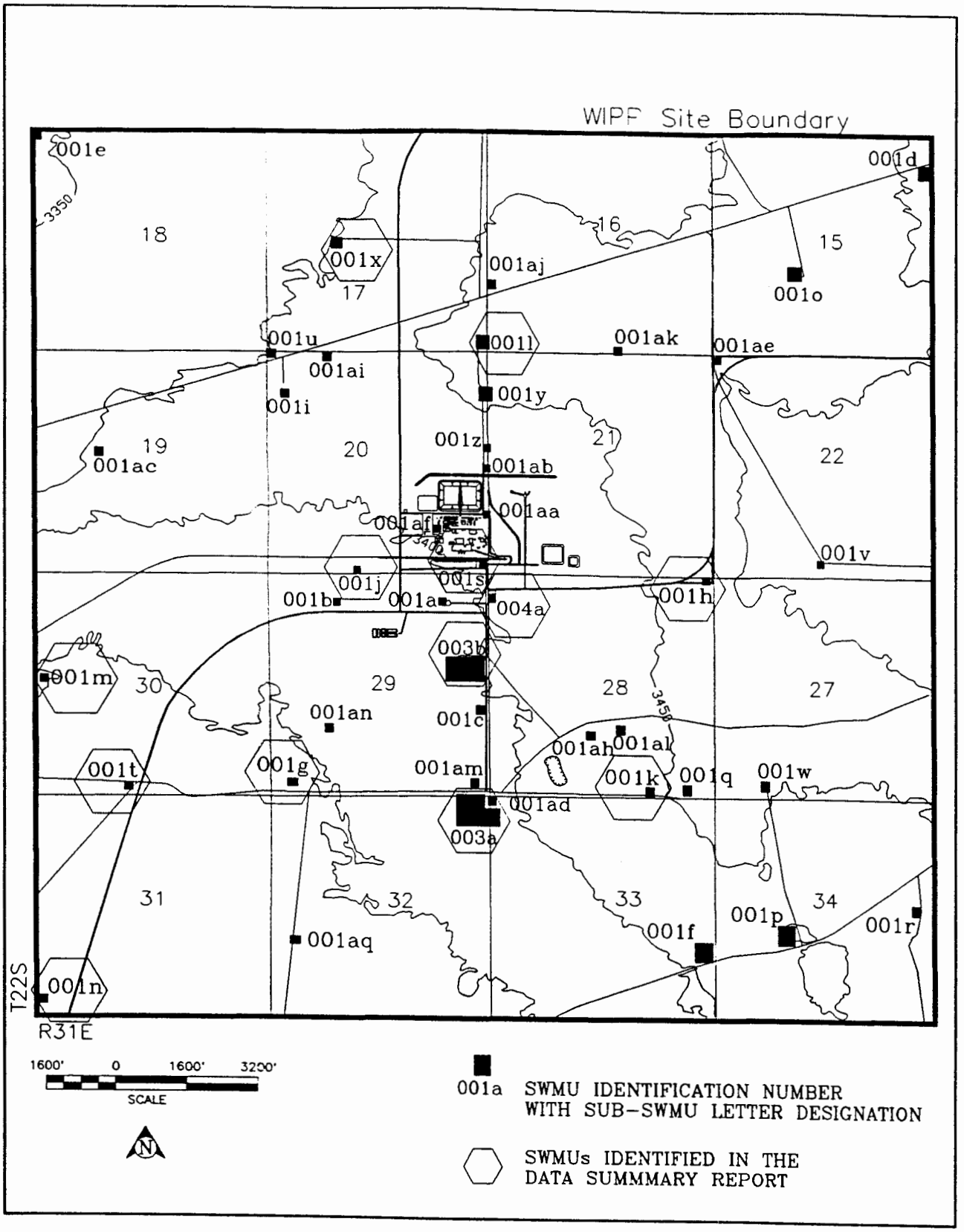


Figure 2

Location of SWMUs Where Voluntary Release Assessments Have Been Completed

DROB10

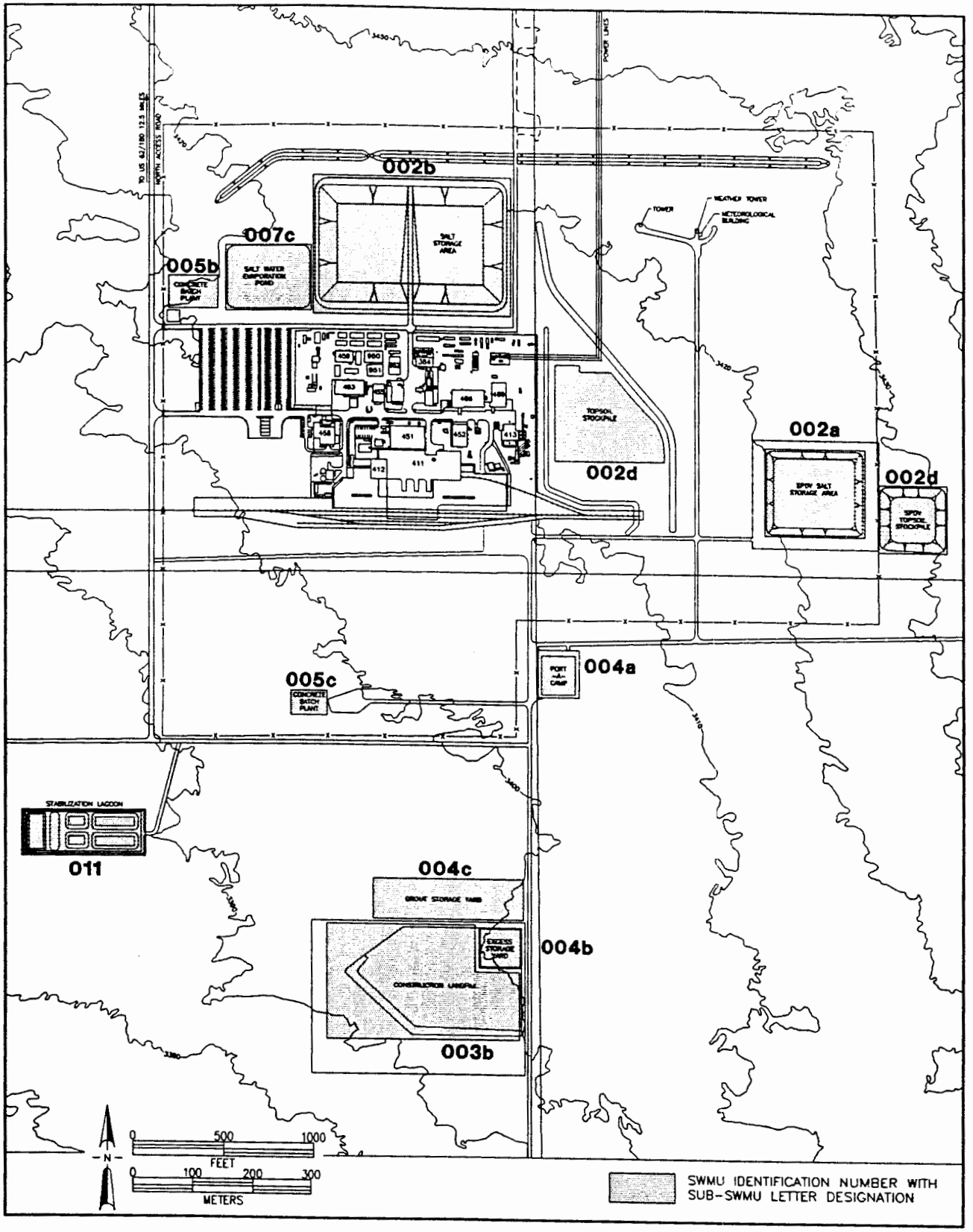


Figure 3

Location of Material Storage and Stockpile Area SWMUs within the WIPP Site Boundary

DR0B7

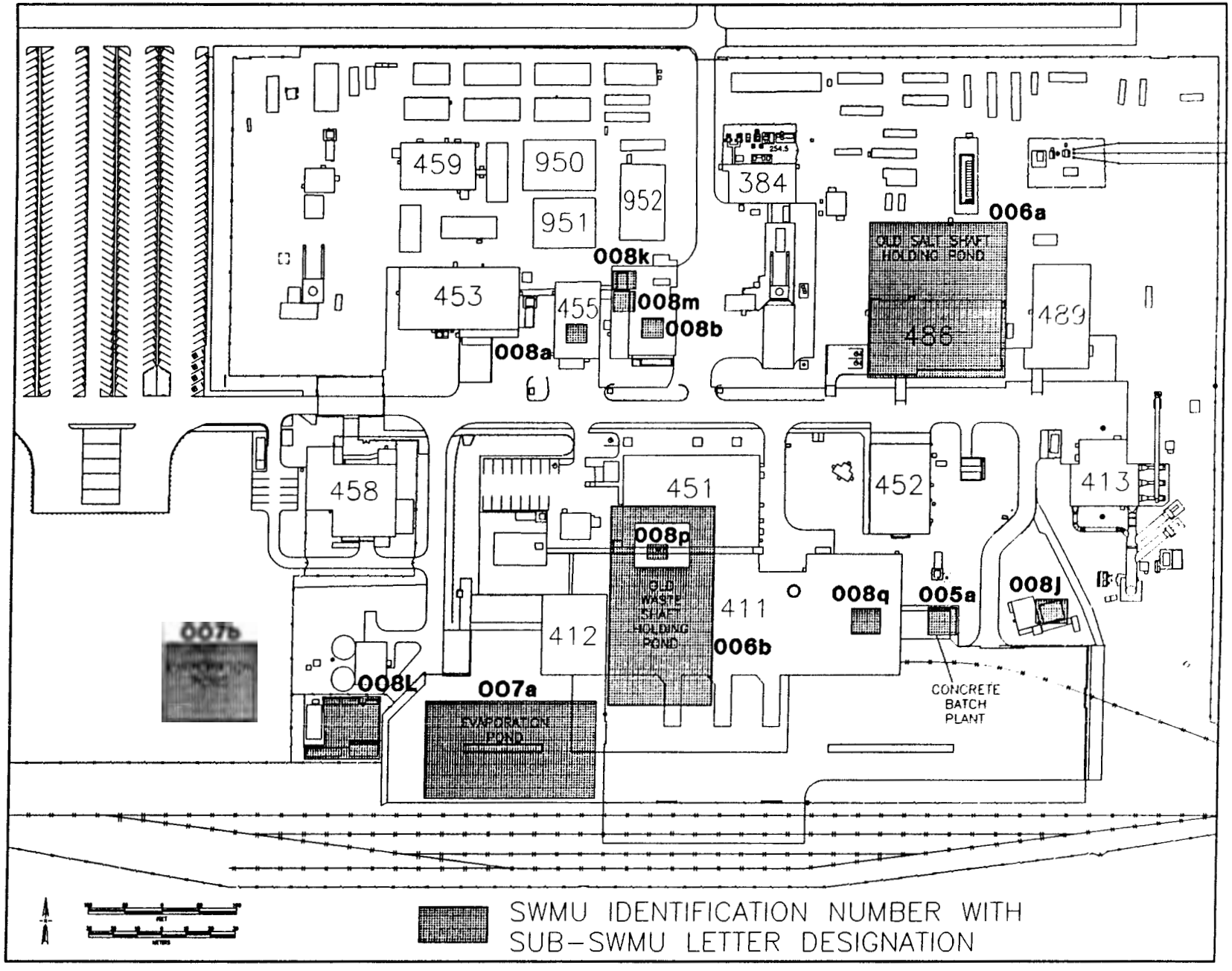


Figure 4

WIPP Surface Facilities and Evaporation Pond and Holding Pond SWMUs

DR0B8

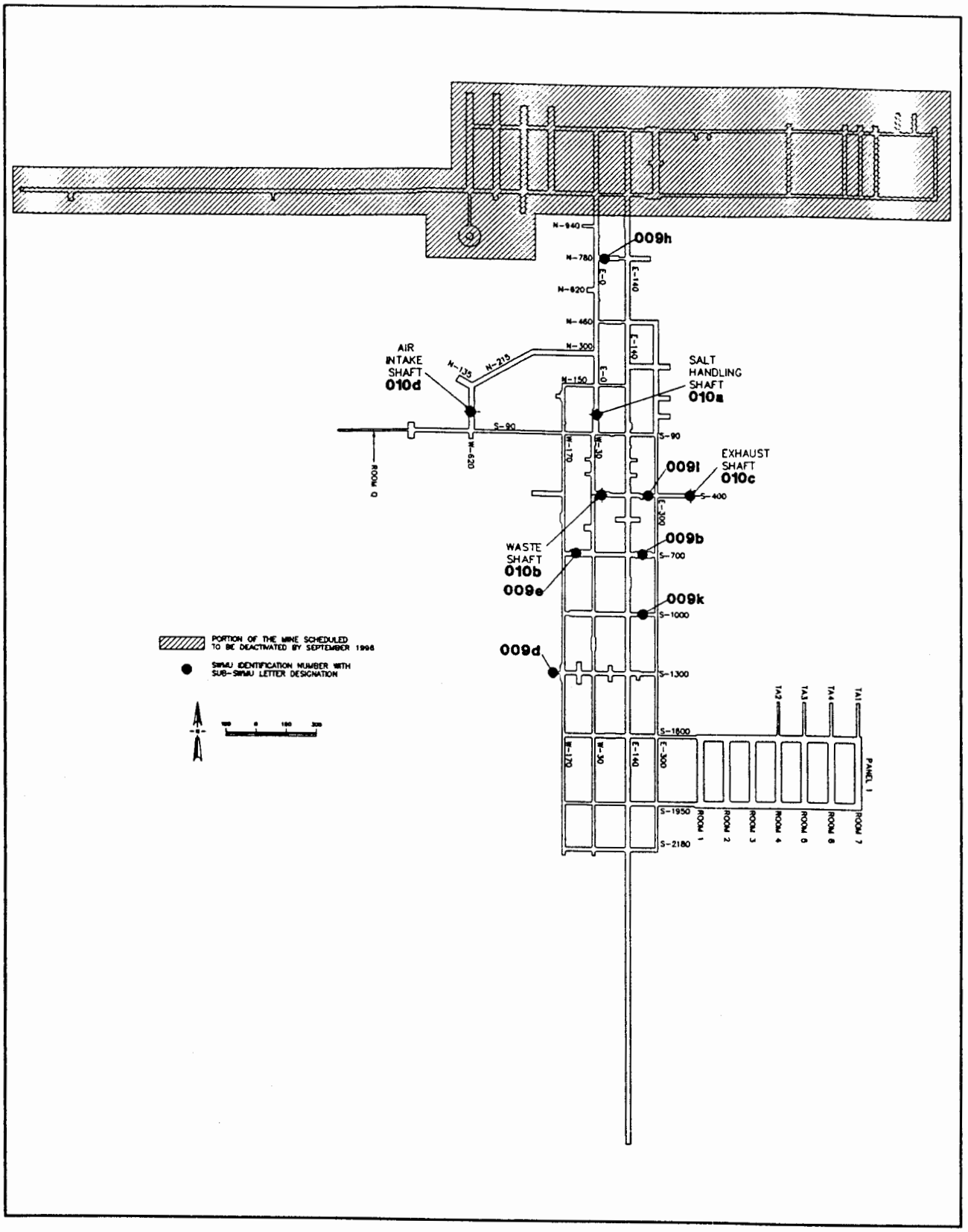


Figure 5

WIPP Underground Facilities and SAA and Shaft Sump SWMUs

DROB9

The identity of SWMU sites which have been covered by permanent buildings or asphalt is illustrated in Figure 4. The status of each of these sites and need for future corrective actions are provided in Sections 6.3.1, 7.8.1, and 7.8.2 of this Data Summary Report.

The identity of SWMU sites which may be regulated under dual regulatory authority is briefly described in Table 1, the *SWMU Assessment Matrix*. Specific details regarding the DOE's assessment of hazardous constituent releases at selected SWMUs is provided throughout the text.

Table 1.

SWMU Assessment Matrix

SWMU number and description	Known release of hazardous constituents	Hazardous constituents present	Hazardous constituents precluded by sampling or management	No potential for release	Regulated by other regulatory authority	Comments or regulatory reference
Mudpits						
001a H-1 mudpit			✓	✓		Constituents precluded by Section 4.1.1 of RFA.
001b H-2 mudpit			✓	✓		Constituents precluded by Section 4.1.2 of RFA.
001c H-3 mudpit			✓	✓		Precluded by review of drilling logs and SNL Hydrologic Reports.
001d H-5/P-21 mudpit			✓	✓		Constituents precluded by Section 4.1.4 of RFA.
001e H-6/P-13 mudpit			✓	✓		Constituents precluded by Section 4.1.5 of RFA.
001f H-11/p-9 mudpit			✓	✓		Precluded by review of drilling logs and SNL Hydrologic Reports.
001g H-14/P-1 mudpit			✓	✓		Voluntary Release Assessment Sampling Data Summary Report #2.
001h H-15/P-2 mudpit			✓	✓		Voluntary Release Assessment Sampling Data Summary Report #3.
001i H-18 mudpit			✓	✓		Constituents precluded by Section 4.1.9 of RFA.

Table 1. (continued)

SWMU number and description	Known release of hazardous constituents	Hazardous constituents present	Hazardous constituents precluded by sampling or management	No potential for release	Regulated by other regulatory authority	Comments or regulatory reference
001j P-3 mudpit			✓	✓		Voluntary Release Assessment Sampling Data Summary Report #1.
001k P-4 mudpit			✓	✓		Voluntary Release Assessment Sampling Data Summary Report #2.
001L Wipp-12/P-5 mudpit			✓	✓		Voluntary Release Assessment Sampling Data Summary Report #3.
001m P-6 mudpit			✓	✓		Voluntary Release Assessment Sampling Data Summary Report #1.
001n P-15 mudpit			✓	✓		Voluntary Release Assessment Sampling Data Summary Report #2.
001o Badger Unit mudpit	✓	✓			✓	NMOCD and BLM regulations excluded by 40 CFR § 261.4(b)(5). Proposed voluntary corrective action is capping-in-place with caliche cap and reclamation.
001p Cotton Baby mudpit	✓	✓			✓	NMOCD and BLM regulations excluded by 40 CFR § 261.4(b)(5). Proposed voluntary corrective action is capping-in-place with caliche cap and reclamation.

Table 1. (continued)

SWMU number and description	Known release of hazardous constituents	Hazardous constituents present	Hazardous constituents precluded by sampling or management	No potential for release	Regulated by other regulatory authority	Comments or regulatory reference
001q DOE-1 mudpit	✓	✓				NMOCD and BLM regulations excluded by 40 CFR § 261.4(b)(5). Proposed voluntary corrective action is capping-in-place with caliche cap and reclamation.
001r D-123 mudpit			✓	✓		Precluded by review of Duval Drilling Logs and Section 4.1.19 of the RFA.
001s ERDA-9 mudpit			✓	✓		Voluntary Release Assessment Sampling Data Summary Report #3.
001t IMC-374 mudpit			✓	✓		Voluntary Release Assessment Sampling Data Summary Report #1.
001u IMC-376 mudpit			✓	✓		Constituents precluded by Section 4.1.22 of RFA.
001v IMC-456 mudpit			✓	✓		Constituents precluded by Section 4.1.23 of RFA.
001w IMC-457 mudpit			✓	✓		Precluded by review of IMC Drilling Logs.
001x WIPP-13 mudpit			✓	✓		Voluntary Release Assessment Sampling Data Summary Report #2.
001y WIPP-18 mudpit			✓	✓		Constituents precluded by Section 4.1.26 of RFA.

Table 1. (continued)

SWMU number and description	Known release of hazardous constituents	Hazardous constituents present	Hazardous constituents precluded by sampling or management	No potential for release	Regulated by other regulatory authority	Comments or regulatory reference
001z WIPP-19 mudpit			✓	✓		Constituents precluded by Section 4.1.27 of RFA.
001aa WIPP-21 mudpit			✓	✓		Constituents precluded by Section 4.1.28 of RFA.
001ab WIPP-22 mudpit			✓	✓		Constituents precluded by Section 4.1.29 of RFA.
001ac DSP-207 mudpit			✓	✓		Precluded by review of Duval Drilling Logs.
001ad IMC-375 mudpit			✓	✓		Precluded by review of IMC Drilling Logs.
001ae IMC-377 mudpit			✓	✓		Precluded by review of IMC Drilling Logs.
001af H-16 mudpit			✓	✓		Precluded by review of Drilling Logs / Sandia Hydrologic Reports.
001ah H-19 mudpit			✓	✓		Precluded by Management Plan and 20 NMAC 6.2 Permit Review.
001ai WQSP-I mudpit			✓	✓		Precluded by Management Plan and 20 NMAC 6.2 Permit Review.
001aj WQSP-2 mudpit			✓	✓		Constituents precluded by Management Plan (RCRA Monitoring Well design).

Table 1. (continued)

SWMU number and description	Known release of hazardous constituents	Hazardous constituents present	Hazardous constituents precluded by sampling or management	No potential for release	Regulated by other regulatory authority	Comments or regulatory reference
001ak WQSP-3 mudpit			✓	✓		Constituents precluded by Management Plan (RCRA Monitoring Well design).
001al WQSP-4 mudpit			✓	✓		Constituents precluded by Management Plan (RCRA Monitoring Well design).
001am WQSP-5 mudpit			✓	✓		Constituents precluded by Management Plan (RCRA Monitoring Well design).
001an WQSP-6/6a mudpit			✓	✓		Constituents precluded by Management Plan (RCRA Monitoring Well design).
001aq between H-14&H-4 mudpit			✓	✓		Oil and gas exploration hole was never drilled. Delete from SWMU list.
Salt Piles						
002a SPDV Salt Pile			✓	✓		Constituents precluded by sampling data and documentation in Section 4.2.1 of RFA.
002b Salt Storage Pile			✓	✓		Constituents precluded by sampling data and documentation in Section 4.2.2 of RFA.

Table 1. (continued)

SWMU number and description	Known release of hazardous constituents	Hazardous constituents present	Hazardous constituents precluded by sampling or management	No potential for release	Regulated by other regulatory authority	Comments or regulatory reference
Top Soil Storage						
002c Top Soil Storage Pile			✓	✓		Constituents precluded by documentation in Section 4.2.3 of RFA. This material is not a solid waste. Delete from list of SWMUs
002d SPDV Top Soil Pile			✓	✓		Constituents precluded by sampling data and documentation in Section 4.2.4 of RFA. This material is not a solid waste. Delete from list of SWMUs
Landfill Sites						
003a Brinderson Landfill			✓	✓	✓	Precluded by adherence to BLM Land Use Permit NM-067-LUP-219. Correspondence from BLM and NMED staff.
003b Construction landfill			✓	✓	✓	Precluded by adherence to BLM Land Use Permit NM-067-LUP-237. Correspondence from BLM and NMED staff.

Table 1. (continued)

SWMU number and description	Known release of hazardous constituents	Hazardous constituents present	Hazardous constituents precluded by sampling or management	No potential for release	Regulated by other regulatory authority	Comments or regulatory reference
Material Storage Areas						
004a Portacamp, west side			✓	✓		Voluntary Release Assessment Sampling Data Summary Report #3.
004b Reclaimables Storage Yard			✓	✓		Precluded by documentation in Section 4.4.2 of RFA.
004c Grout Storage Yard			✓	✓		Precluded by documentation in Section 4.4.3 of RFA.
Concrete Batch Plants						
005a Concrete Batch Plant, WHB			✓	✓		Inaccessible. Precluded by documentation in Section 4.5.1 of RFA.
005b Concrete Batch Plant			✓	✓		Precluded by documentation in Section 4.5.2 of RFA.
005c Concrete Batch Plant			✓	✓		Precluded by documentation in Section 4.5.3 of RFA.
Holding Ponds						
006a Salt Shaft Holding Pond			✓	✓		Inaccessible. Precluded by documentation in Section 4.6.1 of RFA.
006b Waste Handling Building Pond			✓	✓		Inaccessible. Precluded by documentation in Section 4.6.2 of RFA.

Table 1. (continued)

SWMU number and description	Known release of hazardous constituents	Hazardous constituents present	Hazardous constituents precluded by sampling or management	No potential for release	Regulated by other regulatory authority	Comments or regulatory reference
Evaporation Ponds						
007a Evaporation Pond			✓	✓		Inaccessible. Precluded by documentation in Section 4.7.1 of RFA.
007b Evaporation Pond			✓	✓		Inaccessible. Precluded by documentation in Section 4.7.2 of RFA.
007c Evaporation Pond			✓	✓		Precluded by documentation in Section 4.7.3 of RFA.
Satellite Accumulation Areas (SAA) and Hazardous Materials Areas						
008a SAA, Bldg 455		✓	✓	✓	✓	40 CFR § 262.34 and 06-HW-3109. Non-Radioactive Satellite Waste Accumulation Area Inspection Procedure.
008b SAA, Bldg 454		✓	✓	✓	✓	40 CFR § 262.34 and 06-HW-3109. Non-Radioactive Satellite Waste Accumulation Area Inspection Procedure.
008c SAA, Bldg 993						closed
008d SAA, Bldg W083						closed

Table 1. (continued)

SWMU number and description	Known release of hazardous constituents	Hazardous constituents present	Hazardous constituents precluded by sampling or management	No potential for release	Regulated by other regulatory authority	Comments or regulatory reference
008e SAA, Bldg 473						closed
008f SAA, Bldg 486						closed
008g SAA, Safety Bldg						closed
008h Inactive Hazardous Waste Storage Area		✓	✓	✓	✓	This site was managed in accordance with 40 CFR § 262.34. All hazardous waste managed in this area were contained in a hazardous waste trailer equipped with spill containment devices. This site was decommissioned when the 474 area became operational. No release has occurred and this SWMU (008h) should be deleted from the list of SWMUs.
008i SAA, AIS						closed
008j SAA, Bldg 482		✓	✓	✓	✓	40 CFR 262.34 WP06-HM3109. Non-Radioactive Satellite Waste Accumulation Area Inspection Procedure.

Table 1. (continued)

SWMU number and description	Known release of hazardous constituents	Hazardous constituents present	Hazardous constituents precluded by sampling or management	No potential for release	Regulated by other regulatory authority	Comments or regulatory reference
008k petroleum product/used oil, Bldg 454		✓	✓	✓	✓	These materials are not solid waste and 008k should be deleted from the SWMU list.
008l Hazardous Waste Staging Area, Bldg 474B		✓	✓	✓	✓	40 CFR 262.34 WP02-RC.01. Site Generated Non-Radioactive Hazardous waste Management Plan.
008m Maintenance Tool Crib SAA , Bldg 454		✓	✓	✓	✓	40 CFR 262.34. Non-Radioactive Satellite Waste Accumulation Area Inspection Procedure.
008n Future Hazardous Waste Staging Area, Bldg 474A			✓	✓		This area was not constructed and should be deleted from SWMU list.
008o SAA, Bldg 474E						closed
008p Analytical Lab SAA, Bldg 451		✓	✓	✓	✓	40 CFR 262.34. Non-Radioactive Satellite Waste Accumulation Area Inspection Procedure (new).
008q RH Bay SAA, Bldg 411		✓	✓	✓	✓	40 CFR 262.34. Non-Radioactive Satellite Waste Accumulation Area Inspection Procedure (new).
009a SAA, S1300/W30						closed

Table 1. (continued)

SWMU number and description	Known release of hazardous constituents	Hazardous constituents present	Hazardous constituents precluded by sampling or management	No potential for release	Regulated by other regulatory authority	Comments or regulatory reference
009b SAA, E300 Shop		✓	✓	✓	✓	40 CFR 262.34. Non-Radioactive Satellite Waste Accumulation Area Inspection Procedure.
009c SAA, S1300/W170 Intersection						closed
009d Sat/Materials Storage West, S1300/W170						closed
009e Sat/Haz Materials Storage, E140/S700		✓	✓	✓	✓	40 CFR 262.34. Non-Radioactive Satellite Waste Accumulation Area Inspection Procedure.
009f SAA, S1600/W30						closed
009g SAA, S1300/E140						closed
009h SAA/Storage, N780						closed
009i SPDV Room 1, old Maintenance Shop						closed
009j SAA, west end N1420						closed

Table 1. (continued)

SWMU number and description	Known release of hazardous constituents	Hazardous constituents present	Hazardous constituents precluded by sampling or management	No potential for release	Regulated by other regulatory authority	Comments or regulatory reference
009k S1000 Tool Crib		✓	✓	✓	✓	40 CFR 262.34. Non-Radioactive Satellite Waste Accumulation Area Inspection Procedure (new).
009l E200/S400 Borehole Construction SAA		✓	✓	✓	✓	40 CFR 262.34. Non-Radioactive Satellite Waste Accumulation Area Inspection Procedure (new).
Shaft Sumps						
010a Salt Handling Shaft Sump			✓	✓		Sampling documents that a release of hazardous constituents has not occurred.
010b Waste Handling Shaft Sump		✓		✓	✓	RCRA Part B permitted facility managed in accordance with 40 CFR 262.34, 265, 268, 270.
010c Exhaust Shaft Sump			✓	✓	✓	RCRA Part B permitted facility managed in accordance with 40 CFR 262.34, 265, 268, 270.
010d Air Intake Shaft Sump			✓	✓		Sampling documents that a release of hazardous constituents has not occurred.

Table 1. (continued)

SWMU number and description	Known release of hazardous constituents	Hazardous constituents present	Hazardous constituents precluded by sampling or management	No potential for release	Regulated by other regulatory authority	Comments or regulatory reference
Sewage Treatment Facility						
011 Sewage Treatment Facility			✓	✓	✓	Permitted under NM Groundwater and Control Commission Regulations 20 NMAC 6.2 permit # DP.831
Waste Bins						
012a Surface Bins			✓	✓	✓	Managed in accordance in NM Solid Waste Management Regulations 20 NMAC 9.1
012b Underground Bins			✓	✓	✓	Managed in accordance in NM Solid Waste Management Regulations 20 NMAC 9.1

2.0 SWMUS WHICH MAY BE SUBJECT TO DUAL REGULATORY AUTHORITY OR MAY BE REGULATED UNDER OTHER REGULATORY AUTHORITY

The following list of SWMUs are sites that are or have been regulated under other regulatory authority.

Badger Unit	SWMU 001o
Cotton Baby	SWMU 001p
Brinderson Landfill	SWMU 003a
Construction Landfill	SWMU 003b
Sewage Facility	SWMU 011

2.1 Badger Unit and Cotton Baby SWMU Sites

The 001o and 001p SWMU sites resulted from the drilling of oil and gas exploration wells. These locations were drilled under permit authority issued by the New Mexico Oil Conservation Division (NMOCD) and the Bureau of Land Management (BLM). These sites are specifically exempted from RCRA regulation by the "Oil and Gas" exemption contained in 40 CFR Part 261.4(b)(5). Site abandonment and plugging requirements for the Badger Unit and Cotton Baby well sites are established in Section D, Rule 201,of the NMOCD regulations. Additionally, during the early 1970's when both the Badger Unit and Cotton Baby exploration wells were drilled, the BLM established general closure and reclamation requirements in the Application for Permit to Drill (APD) review process.

The DOE has committed to completing voluntary closure of these sites by capping and reclaiming the sites in accordance with the WIPP Land Management Plan. As described in Section 6.6 of Data Summary Report #3, this capping technology will contain any vertical and horizonal migration of hazardous constituents contained at these sites.

2.2 Brinderson and Construction Landfill Sites

Section 6.0 of Data Summary Report #3 describes how both the Brinderson Landfill (SWMU 003a) and the Construction Landfill (SWMU 003b) were designed, permitted, operated, and closed under Land Use Permits issued by the BLM. Based on this information, the DOE requested a formal determination for "No Further Action" for the Brinderson Landfill and the closed portion of the Construction Landfill. Justification for the "No Further Action" determination and specific details regarding facility permits and closure are provided in Section 6.0 of Data Summary Report #3.

2.3 Sewage Treatment Facility

The WIPP Sewage Treatment Facility (SWMU 011) was designed and permitted as a synthetically-lined, zero discharge evaporation facility. On January 16, 1992, the NMED Groundwater Protection and Remediation Bureau issued Discharge Plan DP-831 for the WIPP Sewage Facility. Conditions of DP-831 include quarterly monitoring, inspection, and spill notification. Additionally, the DOE completes biannual oversight monitoring of the sewage facility. All quarterly monitoring and oversight data demonstrate that hazardous constituents have not been discharged into the sewage facility.

The facility is managed in accordance with WIPP Sewage Facility operating procedures and WIPP sewage system sampling procedures. Closure requirements for the WIPP Sewage Facility will be completed in accordance with the closure plan requirements contained in Part 107(a)(11) of the New Mexico Ground Water Control Commission Regulations (20 NMAC 6.2).

3.0 LOCATIONS THAT ARE REGULATED UNDER DUAL REGULATORY AUTHORITY OR THAT DO NOT MEET THE REGULATORY DEFINITION OF A SWMU

The following list of sites are either regulated under dual regulatory authority or do not meet the regulatory definition of a SWMU:

Abandoned well pad between H-14 and H-4	SWMU 001aq
Top Soil Storage	SWMU 002c
SPDV Soil Storage Area	SWMU 002d
SAA, Bldg. 455	SWMU 008a (active)
SAA, Bldg. 454	SWMU 008b (active)
SAA, Bldg. 993	SWMU 008c (Sandia-closed)
SAA, Bldg. W083	SWMU 008d (Sandia-closed)
SAA, Bldg. 473	SWMU 008e (closed)
SAA, Bldg. 486	SWMU 008f (closed)
SAA, Bldg. 452	SWMU 008g (closed)
SAA, Bldg. 474	SWMU 008h (closed)
SAA, AIS Shaft	SWMU 008i (closed)
SAA, Bldg. 482	SWMU 008j (active)
Petroleum Storage Bldg. 454	SWMU 008k
Haz. Waste Staging Bldg. 474	SWMU 008L (active)
SAA, Maintenance Tool Crib	SWMU 008m (active)
SAA, Bldg. 474-E	SWMU 008o (closed)
Future Haz. Waste Storage	

BLDG. 474	SWMU 008n (not constructed)
SAA Analytical Laboratory Bldg. 451	SWMU 008p (new-surface)
Bldg. 411 RH BAY	SWMU 008q (new-surface
SAA, S1300/W30	SWMU 009a (closed)
SAA, E300 SHOP	SWMU 009b (active)
SAA, S1300/W170	SWMU 009c (closed)
SAA, Material Storage Area S1300/170	SWMU 009d (closed)
SAA, S700/E140	SWMU 009e (active)
SAA, S1600/W30	SWMU 009f (closed)
SAA, S1300/E140	SWMU 009g (closed)
SAA, N780	SWMU 009h (closed)
SAA, SPDV Room	SWMU 009i (closed)
SAA, W. End N1420	SWMU 009j (closed)
SAA, S1000 Tool Crib	SWMU 009k (new-U/G)
SAA, E200/S400 Borehole H20 collection	SWMU 009L (new-U/G)
SURFACE BINS	SWMU 012a
U/G BINS	SWMU 012b

3.1 Abandoned Well Pad Located Between the H-14 and H-4 Well Sites (SWMU 001aq)

Another location that is regulated by other regulatory authority is the abandoned well pad described in Section 4.1.30 of the RFA. SWMU 001aq is described as an abandoned well pad located between the H-14 and H-4 well sites. This well pad and associated well cellar were constructed as an oil exploration well. The exploration well was never drilled, and the DOE speculates that the well pad was constructed in the wrong section before the oil company realized their error. The DOE requests that this SWMU location be deleted from the list of SWMUs at the WIPP. This location does not meet the regulatory definition of a SWMU because no solid wastes have been released at this site. Although this site should not be managed as a SWMU, the DOE proposes to reclaim this site in accordance with reclamation commitments contained in the WIPP Land Management Plan.

3.2 Top Soil Storage Areas (SWMU 002c and SWMU 002d)

The two top soils storage areas were constructed during the two construction phases at the WIPP. The first, the Site Preliminary Design Validation (SPDV), was created during the clearing of an area to support the mining of the Salt Shaft and initial underground drifts. The main top soil storage areas resulted

from the clearing of ground to support the construction of WIPP surface facilities and the waste, exhaust, and air intake shafts.

Although the top soil storage areas were listed as an "Area of Concern" in Table 5.1 of the RFA, the main top soil storage (SWMU 002c) and the SPDV top soil storage area (SWMU 002d) should be deleted from the list of SWMUs at the WIPP. The basis for this request is the regulatory definition of a solid waste. Both areas are composed of top soil material set aside for reclamation and closure of the WIPP. The RFA documents that the main top soil storage area contains some mining debris such as concrete and roof bolts. This material meets the definition of clean fill material under the Solid Waste Management Regulations and has no potential to release hazardous constituents.

Once top soil materials are utilized for reclamation and closure activities, any debris will be moved to the construction landfill area for burial. The SPDV Top Soil area is composed of virgin materials set aside for reclamation and closure activities. These materials do not meet the regulatory definition of a solid waste because they are reusable materials. Because these materials do not meet the definition of a solid waste, the Top Soil Storage Areas are not SWMUs. Based on this information, the DOE requests that the Main and SPDV Top Soil Storage Areas be deleted from the list of SWMUs at the WIPP.

3.3 Satellite Accumulation Areas (SAAs) SWMUS 008a-008q and SWMUs 009a-009L

Although the WIPP RFA identifies the satellite accumulation areas (SAAs) as SWMUs, no release of hazardous constituents has occurred from any SAA at the WIPP. These locations are an integral part of daily site generated waste management operations and are managed in accordance with 40 CFR § 262.34 and the applicable sections of 40 CFR § 265 and § 270. The DOE has established operating procedures for the daily management and inspection of SAA locations by the SAA area custodians. Weekly inspections of all SAA areas are completed by Westinghouse Hazardous Waste Operations and Environmental Compliance and Support personnel. All SAA containers are placed on, or locked inside of spill containment devices.

Since the RFA was issued, the DOE has closed 16 of the original 22 SAAs described in the RFA. The DOE has added two new surface SAA locations and two new underground SAA locations. Thus, a total of 10 SAAs are active at this time. Because SAA containers are managed in accordance with the requirements of 40 CFR § 262.34, the DOE requests that all SAA locations be deleted from the list of SWMUs at the WIPP. This request is supported by data which demonstrates that there has never been a release of hazardous constituents from any SAA, and thus, they do

not meet the regulatory definition of a SWMU. At a minimum, the DOE requests that a "No Further Action" determination be granted for all SAA locations.

3.4 Petroleum Storage Building 454 (SWMU 008k)

The petroleum storage area located at the Tool Crib (Building 454) is a small oil and lubricant distribution area used by Maintenance Operations. The area is comprised of approximately 10-15, 55-gallon drums of oil and lubricant products. All drums and spill devices are located on top of a covered concrete pad. No hazardous materials are stored or utilized in this area.

Drums that are in use are placed on drum racks equipped with spill pans. Unopened drums are stored on spill containment devices. Used oil drums are also stored on spill devices until the drum is full, at which time the drums are transferred to the Portacamp area prior to being sent off-site for recycling in accordance with 40 CFR § 279. Spill reporting logs document that no large spills of oils or lubricants (greater than 10 gallons) have occurred at this area. Small spills of lubricants are absorbed, cleaned up, and disposed of at an off-site disposal facility.

Because no release of hazardous constituents has occurred at this location, the DOE requests that a formal "No Further Action" determination be issued for SWMU 008k. This request for a "No Further Action" determination is supported by information contained in Section 4.8.11 of the RFA.

3.5 Hazardous Waste Management Areas (SWMUs 008n, 008L, 008n)

Similar to the SAA locations, the WIPP Site Generated Hazardous Waste and Material Storage Area (Bldg. 474) is regulated by the requirements of 40 CFR § 262.34. Three waste management areas were identified in the WIPP RFA. SWMU 008h is the Inactive Hazardous Waste Storage Area, SWMU 008L is the Hazardous Waste Staging Area, and SWMU 008n is identified as a Future Hazardous Waste Staging Area.

SWMU 008h was a temporary hazardous waste storage trailer that was closed when the current hazardous waste staging area (SWMU 008L) was constructed. The SWMU 008h trailer was equipped with standard spill containment devices, and all wastes were stored in approved DOT drums. No release of hazardous constituents occurred from the 008h site, and the DOE requests that this location be deleted from the list of WIPP SWMUs. Similarly, SWMU 008n has not been constructed and should be deleted from the list of SWMUs at the WIPP.

SWMU 008L is the active 90-day hazardous waste management area. This area includes three locked waste management buildings equipped with spill containment and ventilation systems. All waste streams are segregated according to chemical compatibility. The entire 474 area is fenced, locked, and regularly patrolled by security personnel. Operating records document that there has not been a release of hazardous constituents in the hazardous waste management area.

Hazardous wastes are managed in the 90-day accumulation area prior to being shipped off-site to the treatment, storage, and disposal facility in accordance with 40 CFR § 262.34 and the applicable sections of 40 CFR § 265, 268, and 270. All waste management activities are controlled by WIPP waste management, emergency response, and inspection procedures. Operation of the hazardous waste and hazardous materials management area is an integral part of day-to-day facility operations.

Because no release of hazardous constituents has occurred at this location, and the facility is managed in accordance with the requirements of Parts 262, 265, 268, and 270, the DOE formally requests that a "No Further Action" determination be issued for SWMU 008L. This request for a "No Further Action" determination is supported by information contained in Section 4.8.12 of the RFA.

3.6 Nonhazardous Surface and Underground Trash Bins (SWMU Group 012)

Both the surface and underground trash bins are regulated under the requirements of the New Mexico Solid Waste Management Regulations (20 NMAC-9.1). All trash is collected by on-site maintenance personnel and transferred to large dumpsters prior to disposal at the Carlsbad and Hobbs Municipal Landfills. Segregation of nonhazardous and hazardous waste streams is completed by a combination of employee training and waste management procedures. Waste management operations and dumpsters are inspected regularly to ensure that nonhazardous and hazardous wastes are managed appropriately. Based on this information and support documentation contained in Section 4.12 of the WIPP RFA, the DOE requests that a "No Further Action" determination be issued for SWMU Group 012. This request is supported by documentation contained in Section 4.12 of the RFA.

4.0 NEW SWMU SITES DESCRIBED IN CHAPTER J OF THE PART B PERMIT APPLICATION

Seven new SWMU sites were identified in Chapter J of the Revision 6 Part B Permit application. Discussion regarding the potential for the release of hazardous constituents in the

application were limited because most of these drill sites were being constructed when the Part B Permit application was submitted. Following is the list on new SWMUs:

H-19 Hydropad	SWMU 001ah
WQSP-1 Mudpit	SWMU 001ai
WQSP-2 Mudpit	SWMU 001aj
WQSP-3 Mudpit	SWMU 001ak
WQSP-4 Mudpit	SWMU 001al
WQSP-5 Mudpit	SWMU 001am
WQSP-6/6a Mudpit	SWMU 001an

4.1 H-19 Hydropad (SWMU 001ah)

The H-19 well pad area was constructed to support a tracer test program conducted by Sandia National Laboratories (SNL) to support Performance Assessment studies at the WIPP. The H-19 project consists of several boreholes set on a large hydropad. Tracer chemicals were injected into the H-19b borehole while adjacent boreholes were being pumped. The transportation of tracer chemicals in the Culebra Formation was monitored to determine the transitivity within this water bearing zone.

During the National Environmental Policy Act (NEPA) review of the tracer test program, the DOE submitted several lists of proposed drilling additives and tracer chemicals to the NMED Ground Water Protection and Remediation Bureau to determine if a discharge permit would be required for the SNL tracer testing program.

The NMED approved the submitted list of tracer chemicals and determined that a discharge plan would not be required for the drilling additives and tracer chemicals utilized during the SNL tracer test program. A copy of all tracer chemicals and drilling additives used at the H-19 hydropad are provided as Appendix A. Copies of tracer test permit correspondence with the Ground Water Bureau are provided as Appendix B.

Because the DOE was actively involved with evaluating the potential impacts of the WIPP voluntary corrective action program, extra precautions were taken to ensure that additional Subpart S liability was not created by the SNL tracer test program. These precautions included the collection of drilling and tracer test circulation waters in a synthetically lined evaporation pond. Additionally, all drill cuttings were collected in lined ponds. Once drill cuttings were completely dried, all drill cuttings were excavated and disposed of at an off-site disposal facility.

Based on the level of regulatory review and the implementation of management plans at the H-19 tracer test program, the DOE requests that a "No Further Action" determination be issued for the H-19 Hydropad.

4.2 WQSP Well Sites (SWMUS 001ai-001an)

The WQSP wells were drilled in 1995 and 1996 to replace older water level monitoring wells at the site. Although the WQSP wells are not intended to function as RCRA monitoring wells, each of the WQSP wells were designed to meet RCRA monitoring well criteria. Special consideration was place on the selection of drilling additives and the use of inert casing and pump materials to assure that water quality was not affected by drilling operations.

Drilling logs and NEPA documentation developed for the WQSP well drilling program indicates that drilling additives used to complete the WQSP wells were limited to saturated brine water and bentonite mud. This information demonstrates that no hazardous constituents were used to develop any of the WQSP wells, and each of these wells is capable of functioning as a RCRA monitoring well.

Based on this information, the DOE requests that a formal "No Further Action" determination be issued for both the H-19 hydropad (SWMU 001ah) and the seven WQSP well locations (SWMUs 001ai-001an).

5.0 SWMUS WHERE RELEASE ASSESSMENT SAMPLING AND NO FURTHER ACTION DETERMINATION HAVE BEEN SUBMITTED

The following list of SWMUs are sites where voluntary release assessment sampling has been completed or proposed corrective actions have been identified. These locations have been discussed in detail in the *Voluntary Release Assessment/ Corrective Action Work Plan* (DOE/WIPP Draft-2115), and in *Data Summary Reports for Solid Waste Management Units at the WIPP* (Data Summary Reports #1-#3).

Based on the information contained in the aforementioned reports, a request for "No Further Action" or a proposed voluntary corrective action has been submitted for agency review. The only SWMUs from this group that will be discussed in Data Summary Report #4 are the Badger Unit and Cotton Baby mudpits and the Brinderson and Construction Landfill sites. The list of SWMUs

where a release assessment sampling has been completed and a "No Further Action" determination has been submitted to the NMED include the following:

H-14/P-1 Mudpit	SWMU 001g
H-15/P-2 Mudpit	SWMU 001h
P-3 Mudpit	SWMU 001j
P-4 Mudpit	SWMU 001k
WIPP-12/ P-5 Mudpits	SWMU 001L
P-6 Mudpit	SWMU 001m
P-15 Mudpit	SWMU 001n
ERDA 9 Mudpit	SWMU 001s
IMC 374 Mudpit	SWMU 001t
WIPP-13 Mudpit	SWMU 001x
Portacamp Storage Area	SWMU 004a
Badger Unit Mudpit	SWMU 001o
Cotton Baby Mudpit	SWMU 001p
DOE -1 Mudpit	SWMU 001q
Brinderson Landfill	SWMU 003a
Construction Landfill	SWMU 003b

6.0 SWMU SITES IDENTIFIED IN THE RFA AS HAVING A VERY LOW POTENTIAL TO RELEASE HAZARDOUS CONSTITUENTS

The DOE reviewed the WIPP RFA, drilling logs, and the series of Hydrologic Date Reports published by Sandia National Laboratories to determine if drilling additives used to complete any of following boreholes contained hazardous wastes or hazardous constituents. These sites were not identified as "Areas of Concern" in the WIPP RFA, or in the list of SWMUs requiring RFI site investigations in the draft HSWA permit module. These borehole/mudpit sites include the following:

H-1 Mudpit	SWMU 001a
H-2 Mudpit	SWMU 001b
H-5/P-21 Mudpit	SWMU 001d
H-6/P-13 Mudpit	SWMU 001e
H-18 Mudpit	SWMU 001i
IMC-376 Mudpit	SWMU 001u
IMC-456 Mudpit	SWMU 001v
WIPP-18 Mudpit	SWMU 001y
WIPP-19 Mudpit	SWMU 001z
WIPP-21 Mudpit	SWMU 001aa
WIPP-22 Mudpit	SWMU 001ab
WHB Concrete Batch Plant	SWMU 005a

SHS Concrete Batch Plant	SWMU 005b
H-1 Concrete Batch Plant	SWMU 005c
Evaporation Pond	SWMU 007a
Evaporation Pond	SWMU 007b
Evaporation Pond	SWMU 007c
Salt Handling Shaft Sump	SWMU 010a
Waste Handling Shaft Sump	SWMU 010b
Exhaust Shaft Sump	SWMU 010c
AIS Shaft Sump	SWMU 010d

6.1 SWMU Mudpit Locations

Based on this review of drilling logs, hydrologic reports, and the RFA, the DOE determined that drilling additives used at these sites are limited to fresh and brine-saturated water, air foam (sodium/phosphate-based material), bentonite drilling mud, attapulgite drilling gel (salt/bentonite gel), paper drilling additive (cellulose), meta-trifluorobenzoic acid tracer, Iodine^{131} (a tracer with an eight year half-life), and Portland and Poz-Mix cement. Additionally, small quantities (trace amounts) of pipe grease and gear lubricants used in normal drilling operations were potentially discharged into drilling mudpits.

Although the RFA identifies the release potential to sandy surface soils at every SWMU site at the WIPP as high, process data demonstrates that no hazardous wastes or hazardous constituents were used to complete any of the previously described boreholes. Thus, no release of hazardous constituents could occur at any of these sites. This premise is supported by release assessment sample data collected at 11 SWMUs sampled during the voluntary release assessment sampling program. Voluntary release assessment data demonstrates that samples collected from SWMU mudpits drilled by the same drilling contractors, using similar drilling additives, during the same time period, did not contain any hazardous wastes or hazardous constituents. This information is especially important considering that the sites sampled during the release assessment program were locations that both the EPA and NMED identified as sites with the greatest potential to contain either hazardous wastes or hazardous constituents. Additionally, the NMED and EPA

documented in RFA Summary Table 5.1 that none of these sites were considered "Areas of Concern," or sites requiring further RFI assessment.

Based on this information, the DOE requests that the NMED grant a formal determination of "No Further Action" for each of the above listed sites. This request is based on historical and process information that demonstrates that a release of hazardous wastes or hazardous constituents has not occurred at any of these sites.

6.2 Concrete Batch Plant Storage Areas

Three locations have been used as temporary operating areas for Concrete Batch Plants from 1984 - 1989. Table 4.6 of the RFA describes the waste generated at the three concrete batch plants as small amounts of spilled concrete and possibly trace amounts of motor oil, grease, and hydraulic fluid from the machinery. Although trace amounts of substances listed above were presumably released during normal operations, most releases consisted of nonhazardous mixtures of water, concrete, sand, and gravel.

6.2.1 Waste Handling Building Concrete Batch Plant (SWMU 005a)

This SWMU 005a Concrete Batch Plan was operational from early 1984 to December 1984. This location is now covered by the Waste Handling Building and adjacent asphalt pavement. As described by Table 4.6 of the RFA, materials contained in the area of the Waste Handling Building Batch Plant are limited to spilled concrete and trace amounts of oil and gear lubricants. Drilling locations discussed in the voluntary release assessment data summary reports are likely to have experienced similar minor spillage of oil and lubricants. Sampling from these locations has demonstrated that the release of hazardous constituents has not occurred. Similarly, the probability of a release of hazardous constituents from the Waste Handling Building Concrete Batch Plant is extremely remote. The DOE requests that a "No Further Action" determination be issued for the Waste Handling Building Concrete Batch Plant (SWMU 005a).

6.2.2 Concrete Batch Plant (SWMU 005b)

The RFA documents that no oily or stained soil occurs at the surface of SWMU 005b. This area is adjacent to the Main Salt Pile Evaporation Pond. The site has been completely reclaimed and is covered with thick vegetation. All concrete debris from this site was moved to the WIPP Construction Landfill before reclamation planting was completed in the late 1980's. No release of hazardous constituents is likely to have occurred at this location, and the DOE requests that a "No Further Action" determination be issued for the SWMU 005b.

6.2.3 Concrete Batch Plant at the H-1 Drill Pad (SWMU 005c)

SWMU 005c is located adjacent to the H-1 drill pad. The RFA documents that some spilled concrete and construction material such as gravel and caliche still cover the general area around SWMU 005c. The RFA also identifies that no oily or stained soil occurs on the surface of SWMU 005c. There is a very low probability that a release of hazardous constituents has occurred at this location, and the DOE requests that a "No Further Action" determination be issued for the SWMU 005b.

6.3 Evaporation Ponds

Section 5.1 of the RFA documents that "there are no Areas of Concern for the evaporation pond SWMU Group." This determination is based on sampling and process knowledge. SWMU 007b was the only evaporation pond sampled as part of the RFA. The former location of SWMU 007b, now completely graded, lies within an area that now receives routine outfall from stormwater and domestic water resulting from fire flow performance testing. Iron, barium, and aluminum metals are found above background levels; however, concentrations are well below RCRA action levels. No semi-volatile compounds or aliphatic hydrocarbons are present. The spot sampling appears to support process knowledge for both grey water evaporation ponds. The SWMU 007c evaporation pond is verified to receive only saturated brine and run-off from the adjacent salt storage area. Based on this information, the DOE requests that all three evaporation ponds (SWMUs 007a, 007b, and 007c) be granted a "No Further Action" determination.

6.4 Underground Shaft Sumps

Section 4.10 of the RFA documents that visual inspections of the Salt Handling Shaft, Waste Handling Shaft, Exhaust Shaft, and the Air Intake Shaft sumps revealed clean, well-managed areas. The most pervasive material flooring all the sumps is rock material (salt). Waste reportedly accumulated during the construction phase (cement grout, chemical grout, grease, etc.) is not apparent. The RFA went on to state that "All the units display low release and exposure potential, and no Areas of Concern are expressed for this SWMU group."

6.4.1 Salt Handling Shaft Sump (SWMU 010a)

Based on the information contained in Section 4.10.1 of the RFA, the DOE requests that a "No Further Action" determination be granted for the Salt Handling Shaft Sump. This request is supported by sampling information collected from the Salt Handling Shaft Sump during routine maintenance operations. Sampling data documenting that no release of hazardous constituents has occurred at SWMU 010a is provided in Appendix C.

6.4.2 Waste Handling Shaft Sump (SWMU 010b)

Although the RFA does not identify the Waste Handling Shaft as an area of concern, in June 1995, increased volumes of brine and hazardous waste levels of Lead were identified in Waste Handling Shaft brine waters. Elevated levels of Lead constituents were identified during routine sampling of the Waste Shaft Sump. Follow-up sampling was completed to confirm previous sample results, and a corrective action plan was immediately implemented.

On September 1, 1995, WIPP personnel met with the NMED Hazardous and Radioactive Materials Bureau to discuss the potential source of the Lead-containing water and discuss on going corrective actions. The source of increased brine flow in the Waste Shaft Sump is water entering the mine through the Exhaust Shaft that then flows into the Waste Shaft Sump. The source of the Lead appears to be Lead bearing products such as galvanized piping and Lead wool used in the construction and grouting of the Exhaust Shaft.

Follow-up sampling demonstrates that Lead constituents remain in solution and do not precipitate into the salt muck contained in the Waste Handling Shaft. Lead concentrations in muck excavated from the Waste Handling Shaft consistently do not exceed hazardous constituent concentrations.

All Lead-containing waters are being managed and disposed of at an off-site Treatment, Storage, and Disposal Facility in accordance with the hazardous waste disposal requirements of 40 CFR § 262. The DOE has implemented corrective actions to minimize the accumulation of Lead bearing brine in the Waste Handling Shaft Sump. The DOE requests that the NMED grant a "No Further Action" determination for the Waste Handling Shaft Sump (SWMU 010b) because corrective action has been implemented in accordance with the requirements of 40 CFR § 262. Representative analytical data from Waste Handling Shaft Sump brine waters and muck samples are provided in Appendix D.

6.4.3 Exhaust Shaft Sump (SWMU 010c)

Characterization sampling has demonstrated that brine waters in the Exhaust Shaft Sump are consistently below RCRA constituent levels. Brine waters from the exhaust shaft are being collected in a catchment basin and managed in accordance with appropriate New Mexico Solid Waste and Water Quality Control Commission Regulations. Additionally, the collection of Exhaust Shaft waters reduces the volume of waters transmitted into the Waste Handling Shaft Sump.

The DOE has eliminated the primary source of water entering the Waste Handling Shaft Sump with the construction of the catchment basin. The DOE requests that the NMED grant a "No Further Action" determination for the Exhaust Shaft Sump (SWMU 010c) based on

analytical results and because corrective actions have been implemented to meet the requirement of the hazardous waste management regulations. Representative analytical data from Exhaust Shaft Sump brine waters and muck samples are provided in Appendix E.

6.4.4 AIS Shaft Sump (SWMU 010d)

Based on the information contained in Section 4.10.4 of the RFA, the DOE requests that a "No Further Action" determination be granted for the Salt Handling Shaft Sump. This request is supported by sampling information collected from the AIS Shaft Sump during routine maintenance operations. Sampling data documenting that no release of hazardous constituents has occurred at SWMU 010d is provided in Appendix F.

7.0 SWMU SITES IDENTIFIED IN THE 1994 RCRA FACILITY ASSESSMENT (RFA) AS "AREA OF CONCERN" OR THAT REQUIRED RFI ASSESSMENT

The following SWMU sites were listed in the 1994 WIPP RFA as either "Areas of Concern" or identified as sites where RFI assessments should be completed. The NMED identified these sites as "Areas of Concern" and recommended that additional information be submitted for each SWMU. In the RFA the NMED recommended that an RFI assessment be conducted at SWMU 001f. This recommendation was based on limited information on drilling additives used at each site or because the sites were not addressed in the Revision 3 Part B Permit Application. It is important to note that although these sites were listed as areas of concern, none of these sites were selected by the EPA as "Areas of Concern" or a SWMU sites requiring assessment under the RFI process. This list of SWMUs includes the following:

H-3 MUDPIT	SWMU 001c
H-11/P-9 MUDPIT	SWMU 001f
D-123 MUDPIT	SWMU 001r
IMC-457 MUDPIT	SWMU 001w
D-207	SWMU 001ac
IMC-375	SWMU 001ad
IMC-377	SWMU 001ae
H-16 MUDPIT	SWMU 001af
SPDV Salt Pile	SWMU 002a
Main Salt Pile	SWMU 002b
Reclaimable (Excess Storage Area)	SWMU 004b
Grout Storage Area	SWMU 004c
Salt Shaft Holding Pond	SWMU 006a
Waste Shaft Holding Pond	SWMU 006b

7.1 H-3 MUDPIT SWMU 001c

Four boreholes are located on the H-3 well pad. The first two wells H-3a and H-3b, were drilled 1976 by the Pennsylvania Drilling Company for the U.S. Geological Survey and SNL as part of the initial WIPP hydrogeologic characterization. The H-3a borehole was a shallow well drilled to characterize the Dewey Lake Formation. The H-3b borehole was drilled to a total depth of 894 feet to evaluate the upper Salado Formation. The drilling summaries contained in the *Interim Data Report on the Geohydrology of the Proposed Waste Isolation Pilot Plant Site, Southeast New Mexico* (Mercer J.W. and Orr B.R., 1979), and Hydrologic Data Report #8 document that air mist, saturated brine mud (attapulgite), and Portland and Poz-Mix cement were the drilling additives used to complete the H-3a and H-3b boreholes.

The H-3c and H-3d wells were drilled in 1987 to monitor and test transmistivity in the Culebra 49er and Dewey Lake formations. Hydrologic Data Report # 8 documents that Pennsylvania Drilling Company used air mist and brine mud (attapulgite) for circulation media during drilling. As in the H-1 and H-2 well sites, Iodine^{131} was injected into the H-3d as a tracer.

Although the RFA presumed that all constituents listed in Table 4.2 were used in the drilling of the H-3 wells, drillers' reports do not support this presumption. Although small quantities (trace amounts) of pipe grease and gear lubricants used in normal drilling operations were potentially discharged into drilling mudpits, there is no evidence that diesel fuel was used as a drilling additive at these sites.

The RFA identifies the release potential to sandy surface soils at <u>every</u> SWMU site at the WIPP as high; however, drill report data demonstrates that no hazardous wastes or hazardous constituents were used to complete any of the H-3 boreholes. Thus, no release of hazardous constituents could occur at any of these sites. This premise is supported by release assessment sample data collected at 11 SWMUs sampled during the voluntary release assessment sampling program. Voluntary release assessment data demonstrates that samples collected from SWMU mudpits drilled by the same drilling contractors, using similar drilling additives, during the same time period did not contain any hazardous wastes or hazardous constituents. This information is especially important considering that the sites sampled during the release assessment program were the locations that both the EPA and NMED identified as sites with the greatest potential to contain either hazardous wastes or hazardous constituents.

Based on documentation contained in the drilling summary reports and data collected during the voluntary release assessment program, the DOE requests that a "No Further Action" determination be provided for the H-3 borehole complex.

7.2 H-19/P-11 Mudpit SWMU 001f

The WIPP RFA identified SWMU 001f as a location requiring further assessment under the RFI process. The NMED based this determination on the proximity of SWMU 001f to the WIPP site boundary and the relatively shallow depth to groundwater encountered in the H-11 and P-9 boreholes. Perched groundwater has been identified at this site at a depth of approximately 220 feet below the ground surface. In Section 4.1.6 of the RFA, the NMED expressed concern that a groundwater pathway could exist from SWMU 001f to off-site water wells if hazardous wastes or hazardous constituents were released from this site.

Although the RFA identifies the release potential to sandy surface soils at **every** SWMU site at the WIPP as high, historical data indicates that the potential for the release of hazardous wastes or hazardous constituents from these sites is remote. Drilling records contained in the Basic Data Report for Drill Holes at the H-11 Complex (Sandia National Laboratory Report SAND89-0200) document that only air mist, saturated brine, Portland and Poz-Mix cement, and meta-trifluorobenzoic acid tracer were used in the drilling of the H-11 borehole. Similarly, drilling logs from Boyles Brothers Drilling Company document that air foam and salt mud were the only drilling additives used in the drilling of the P-9 borehole. Like all other drill sites at the WIPP, small quantities (trace amounts) of pipe grease and gear lubricants used in normal drilling operations were potentially discharged into drilling mudpits.

This historical information demonstrates that drilling additives used to drill the H-11 and P-9 boreholes did not contain hazardous wastes or hazardous constituents and that no release of hazardous constituents could occur at SWMU 001f. This premise is supported by release assessment sample data collected at 11 SWMUs sampled during the voluntary release assessment sampling program. Voluntary release assessment data demonstrates that samples collected from SWMU mudpits drilled by the same drilling contractors, using similar drilling additives, during the same time period did not contain any hazardous wastes or hazardous constituents.

Because the potential for the release of hazardous wastes or hazardous constituents at SWMU 001f is extremely remote, the potential for groundwater migration to perched water-bearing zones 200 feet below surface is not credible. Based on this information, the completion of additional release assessments will not provide further protection to human health and the environment. Thus, the

DOE requests that a formal "No Further Action" determination be granted for SWMU 001f.

7.3 Duval Mining Company D-123 MUDPIT (SWMU 001r) and D-207 (SWMU 001ac)

7.3.1 D-123 Mudpit (SWMU 001r)

The RFA documents that no drilling or operating records were available for Duval Mining Company potash exploration well D-123 (DSP-123). The visual site inspection conducted for the RFA indicated that the D-123 well pad is covered with dune sand and a livestock watering tank. No liners or stained soil were evident, and the only evidence of drilling activity was of angular fragments of red-brown and tan sandstone.

The RFA documents that the WIPP/NMED Oversight Bureau conducted discussions with local potash firms that indicate that KCL/NaCl drilling mud solutions are standard industry practice. The RFA also indicates that the D-123 well pad was relatively clean and well reclaimed, but considered the list of drilling constituents listed in Table 4.2 as potentially present in the D-123 mudpit.

Assuming that all the constituents described in table 4.2 were present, similar constituents were present in the boreholes evaluated during the voluntary release assessment program. Analytical data demonstrates that there was no potential for the release of hazardous constituents to the environment.

Voluntary release assessment data demonstrates that samples collected from SWMU mudpits drilled by the same drilling contractors, using the similar drilling additives, during the same time period did not contain any hazardous wastes or hazardous constituents.

Because the potential for the release of hazardous wastes or hazardous constituents at SWMU 001ac is extremely remote, the DOE requests that a formal "No Further Action" determination be granted for the D-207 mudpit area (SWMU 001ac).

7.3.2 D-207 Mudpit (SWMU 001ac)

The D-207 (SWMU 001ac) potash exploration well was drilled by Duval Sulphur and Potash Company in May 1958. The 1958 Notice of Intent to Drill submitted to the U.S. Geologic Survey describes drilling additives used to complete the D-207 well as sodium and potassium chloride brine and drilling mud. Cement was used to plug the well. The DOE contacted New Mexico Potash Corporation to obtain additional information about the D-207 borehole. New Mexico Potash Corporation acquired Duval's interest in these wells. The DOE was not able to obtain any additional information about this location; however, it can be assumed that minor amounts of oil, grease and

drilling lubricants were also used to complete this well.

Assuming that the constituents used were similar to those used to complete the boreholes evaluated in during the voluntary release assessment program, there is a very low probability that any hazardous constituents could be released to the environment. This premise is supported by release assessment sample data collected at 11 SWMUs sampled during the voluntary release assessment sampling program. Voluntary release assessment data demonstrates that samples collected from SWMU mudpits drilled by the same drilling contractors, using similar drilling additives, during the same time period did not contain any hazardous wastes or hazardous constituents.

Because the potential for the release of hazardous wastes or hazardous constituents at SWMU 001ac is extremely remote, the DOE requests that a formal "No Further Action" determination be granted for the D-207 mudpit area (SWMU 001ac).

7.4 International Minerals Corporation IMC-457 Mudpit (SWMU 001w), IMC-375 (SWMU 001ad), and IMC-377 (SWMU 001ae)

7.4.1 IMC-457 Mudpit (SWMU 001w)

No substantive records were located on IMC-457. The IMC-457 borehole was drilled by Boyles Brothers Drilling Company in November 1976. The DOE contacted International Minerals Corporation (IMC) to obtain copies of drilling records for the IMC-457 site. The only record that could be located was the IMC-457 Notice of Intent to Drill dated June 21, 1976. This report documented that saturated potassium chloride brine was used as a drilling additive and that the hole was cemented, assumably using Portland cement. The hole was closed and abandoned (cemented to total depth) on November 22, 1976.

The RFA describes the IMC-457 mudpit area as a zone of positive relief that is correlated with discolored soils (from grading) and youthful/atypical vegetation. The RFA went on to state that "although KCL/NaCl drilling mud solutions are standard industry practice for potash test holes, the suite of potential mudpit contents listed in Table 4.2 is considered present for migration and exposure assessments."

Assuming that all constituents described in Table 4.2 were present, it is still very unlikely that hazardous constituents were released from the IMC-457 mudpit. This premise is supported by release assessment sample data collected at the IMC 374 borehole collected during the voluntary release assessment sampling program. Voluntary release assessment data demonstrates that samples collected from the IMC-374 mudpit drilled by the same drilling contractors, using similar drilling additives, during the same time

period did not contain any hazardous wastes or hazardous constituents. Based on this information, the DOE request that a "No Further Action" determination be issued for the IMC-457 mudpit (SWMU 001w).

7.4.2 IMC-375 (SWMU 001ad)

Limited records were located on IMC-375. The IMC-375 borehole was drilled by Boyles Brothers Drilling Company in April 1965. This documents that the IMC-375 borehole was drilled by the same drilling contractor within two weeks of the drilling of IMC-374 borehole described in *Data Summary Report #1*. The DOE contacted IMC to obtain additional drilling records for the IMC-375 site. The only record that could be located was the IMC-375 Notice of Intent to Drill dated April 8, 1965. This report documented that saturated potassium chloride brine, drill mud, and air-mist were used as drilling additives. The report also notes that the hole was cemented, assumably using Portland cement. The hole was closed and abandoned (cemented to total depth) on May 13, 1965.

Historical data demonstrates that the release of hazardous constituents from the IMC-375 mudpit are very unlikely. This premise is supported by release assessment sample data collected at the IMC-374 borehole collected during the voluntary release assessment sampling program. Voluntary release assessment data demonstrates that samples collected from the IMC-374 mudpit drilled by the same drilling contractors, using similar drilling additives, during the same time period did not contain any hazardous wastes or hazardous constituents. Based on this information, the DOE requests that a "No Further Action" determination be issued for the IMC-375 mudpit (SWMU 001ad).

7.4.3. IMC-377 (SWMU 001ae)

As with the IMC-457 and 375 boreholes, limited records were located for the IMC-377 well site. The IMC-377 borehole was drilled by Boyles Brothers Drilling Company in June 1965. This documents that the IMC-377 borehole was drilled by the same drilling contractor approximately one month after the IMC-374 borehole described in *Data Summary Report #1* was drilled. The DOE contacted IMC to obtain additional drilling records for the IMC-377 site. The only record that could be located was the
IMC-377 Subsequent Report of Abandonment dated July 20, 1965. This report documented that saturated potassium chloride brine and drilling mud were used as drilling additives. The report also notes that the hole was cemented, assumably using Portland cement. The hole was closed and abandoned (cemented to total depth) on July 16, 1965.

Historical data demonstrates that the release of hazardous constituents from the IMC-377 mudpit are very unlikely. This premise is supported by release assessment sample data collected at

the IMC-374 borehole collected during the voluntary release assessment sampling program. Voluntary release assessment data demonstrates that samples collected from the IMC-374 mudpit drilled by the same drilling contractors, using similar drilling additives, during the same time period did not contain any hazardous wastes or hazardous constituents. Based on this information, the DOE requests that a "No Further Action" determination be issued for the IMC-377 mudpit (SWMU 001ae).

7.5 H-16 MUDPIT SWMU 001af

The H-16 mudpit area was apparently omitted from the Revision 3 Part B permit application and was only mentioned in the Chapter 5.0 of the RFA. The NMED at that time requested additional information about this location. The DOE reviewed the *Basic Data Report for Drill Hole H-16* (SAND89-0203) to obtain information about the type of drilling additives used to drill the H-16 borehole.

Pennsylvania Drilling Company drill logs document that only fresh water, saturated brine, bentonite gel, Portland and Poz-Mix cement, and CW-7 chemical wash were used in the drilling of the H-16 borehole. CW-7 chemical wash is a biodegradable soap used to clean and rinse the borehole prior to cementing the hole.

Although the RFA identifies the release potential to sandy surface soils at **every** SWMU site at the WIPP as high, historical data indicates that the potential for the release of hazardous wastes or hazardous constituents from this site is remote. As with all other drill sites at the WIPP small quantities (trace amounts) of pipe grease and gear lubricants used in normal drilling operations were potentially discharged into drilling mudpits.

This historical information demonstrates that drilling additives used to drill the H-16 borehole did not contain hazardous wastes or hazardous constituents and that no release of hazardous constituents could occur at SWMU 001af. This premise is supported by release assessment sample data collected at 11 SWMUs sampled during the voluntary release assessment sampling program. Voluntary release assessment data demonstrates that samples collected from SWMU mudpits drilled by the same drilling contractors, using similar drilling additives, during the same time period did not contain any hazardous wastes or hazardous constituents.

Because the potential for the release of hazardous wastes or hazardous constituents at SWMU 001af is extremely remote, the DOE requests that a formal "No Further Action" determination be granted for the H-16 mudpit area (SWMU 001af).

7.6 Salt Pile Storage Areas

7.6.1 SPDV Salt Pile (SWMU 002a)

The SPDV Salt Pile is composed of mined rock from the excavation of the Waste and Salt Handling Shafts as well as salt excavated during the mining of the main and experimental drifts in the repository horizon. The pile contains up to 340,000 tons of claystone, anhydrite and salt. Inspections have documented plastic liners protruding from portions of the salt pile. This liner material resulted from the excavation of the evaporation ponds used during the mining of the Salt and Waste Handling Shafts.

As described in the Summary Table 4.8 of the RFA no release of hazardous waste or hazardous constituents occurred at from either evaporation pond. This is further supported by sampling of the Salt Shaft Holding Pond conducted by the WIPP NMED Oversight Bureau. The results of samples collected from the Salt Shaft Holding Pond document that no hazardous constituents are contained in the Salt Shaft Evaporation Pond. The results of sampling in the Salt Shaft Holding Pond are provided in Appendix G.

No stained rock or soil occurs on the surface or within the berms surrounding the site. An inspection of open cavities eroded into the pile revealed only construction debris (i.e., waste concrete, concrete slabs, decomposing steel, and rebar). Based on this information the DOE requests that a formal "No Further Action" determination be granted for SWMU 002a.

7.6.2 Main Salt Pile SWMU 002b

The active salt pile to the north of the facility (SWMU 002b) is composed primarily of salt excavated during mining of the repository horizon (DOE/EIS-0026, 1980). A review of air photos and excavation history suggests that the southwest quadrant of SWMU-002b was the first section to receive salt fill in 1984. Between 1984 and December 1986, the western two-thirds of the unit received excavated salt from the repository horizon. Air photos suggest that the eastern one-third of the unit began to receive fill by July, 1988. A slurry and rock mixture also appears on this eastern section in the 1988 air photo, which is consistent with a rock slurry reportedly produced during boring of the Air Intake Shaft.

The RFA documents that very small quantities of solid wastes such as wood, several batteries from miners' lights, gloves, and fabric liner material were contained in the Main Salt Pile. Other mining wastes that are contained in the salt pile include decomposing roof bolts, steel rebar, and ground control fencing materials. No stained rock or fill was observed on the surface or within the

7.7 Materials Storage Areas

7.7.1 Reclaimable (Excess Storage Area) SWMU 004b

The Reclaimable or Excess Storage Area is an area identified for the storage and management of materials to be excessed under the government reusable materials program. By definition these materials are not solid wastes. Other materials stored in the Excess Storage Area include batteries and scrap metals that are accumulated prior to being shipped to off-site recycling facilities. Batteries are stored on spill devices prior to off-site shipment. A new battery storage building has just been constructed at the Excess Storage Area to store batteries indoors on spill containment devices. Scrap metals are all stored in large roll-off boxes to facilitate transportation to recycling facilities.

The RFA identifies some housekeeping concerns at the Excess Area. This area has been reorganized and is now managed under WIPP plan for the control of off-site storage areas. No spills or releases of hazardous constituents have occurred at this site, and the DOE requests that a "No Further Action" determination be issued for SWMU 004b.

7.7.2 Grout Storage Area (SWMU 004c)

The grout storage area covers approximately 1 acre, and is used for the storage of grout materials and grouting equipment. The RFA documents that the storage area is used to store grouting equipment and supplies that includes three 250 barrel steel tanks, and 20 white 55-gallon drums of sand used for waste handling practice. Soils in the area show no evidence of discoloration indicating past releases. The stored grout is cementatious and alkaline in nature. Material Safety Data Sheets indicate the grout to be nonhazardous. Because the no hazardous wastes or hazardous materials have been stored in this area, and no release has occurred, the DOE requests that a "No Further Action" determination be issued for SWMU 004c.

7.8 Holding and Evaporation Pond Areas

7.8.1 Salt Shaft Holding Pond (SWMU 006a)

The 1980 DOE/EIS-0026 suggests that as much as 2.4 million gallons of drilling fluid were used for constructing the salt shaft. Earliest air photos from November 1982 show the holding pond as a bermed oval measuring approximately 210 by 100 feet.

The waste description in Table 4.7 from the RFA describes drilling fluid in the holding ponds as brine, bentonite, and traces of grease and hydraulic fluid. The WIPP/NMED Oversight Bureau sampled a section of the Salt Shaft Holding Pond in during an expansion of the WIPP Engineering Building. The results of analyses collected from the Salt Shaft Holding Pond document that no hazardous constituents are contained in the Salt Shaft Holding Pond. Analytical results are provided in Appendix E. Based on the results sampling which demonstrates that no release of hazardous constituents has occurred at the Salt Shaft Holding pond, the DOE requests that a "No Further Action" determination be issued for SWMU 006a.

7.8.2 Waste Shaft Holding Pond (SWMU 006b)

The RFA documents that the Waste Handling Shaft Holding Pond was a bermed rectangular pit measuring approximately 280 by 150 feet. Air photo review verifies the unit as active until at least mid-1984. Drill cuttings excavated from the dried holding pond may have been moved to either SWMU-003b (inactive landfill) or SWMU-003a (Brinderson landfill).

The waste description in Table 4.7 from the RFA describes drilling fluid in the holding ponds as brine, bentonite, and traces of grease and hydraulic fluid generated by the drilling of the Waste Shaft pilot hole. Although no sampling was conducted on the Waste Shaft Holding Pond, the potential list of constituents in the Waste Shaft Holding Pond should be identical to those contained in the Salt Shaft Holding Pond. Sampling from the Salt Shaft Hold Pond demonstrates that no hazardous constituents were released to the environment. Based on process knowledge and sampling results from the Salt Shaft Holding Pond, the DOE request that a "No Further Action" determination be issued for the Waste Shaft Holding Pond (SWMU 006b).

REFERENCES

NMED/DOE/AIP 94/1, 1993, *Assessment of Solid Waste Management Units at the Waste Isolation Pilot Plant*, the WIPP RCRA Facility Assessment (RFA).

Bureau of Land Management (BLM), *Land Use Permit Application NM-067-LUP-219*, January, 1985.

Bureau of Land Management (BLM), *Land Use Permit Application NM-067-LUP-237*, February 9, 1987.

D'Appolonia Consulting Engineers, Inc., 1982, *Basic Data Report for Borehole DOE-1 at the Waste Isolation Pilot Plant*, TME 3159.

D'Appolonia Consulting Engineers, 1982a, *Basic Data Report for Deepening of Drillhole WIPP-13 (Waste Isolation Pilot Plant)*, Sandia National Laboratory Report SAND82-1880.

D'Appolonia Consulting Engineers, 1982b, *Basic Data Report for Drillhole WIPP-12 (Waste Isolation Pilot Plant)*, Sandia National Laboratory Report SAND82-2336.

DOE/WIPP Draft 2115, *Voluntary Release Assessment/Corrective Action Work Plan for Solid Waste Management Units Located at the Waste Isolation Pilot Plant (WIPP)*

DOE/WIPP WP06-108, 1991, Procedure WP06-108, *Construction Landfill Operations*, Waste Isolation Pilot Plant/Controlled Document, Rev. 1.

DOE/WIPP 91-006, 1996, *Resource Conservation and Recovery Act Part B Permit Application: Waste Isolation Pilot Plant*, (Rev. 6)

DOE/WIPP, WP02-EM2, *WIPP Site Effluent and Hazardous Materials Sampling Plan*, WP02-EM2, Rev.0.

EPA, *Corrective Actions for Solid Waste Management Units at Hazardous Waste Management Facilities*, Proposed Rule, Federal Register, Vol. 55, No. 145, July 27, 1990

EPA, 1994, EPA 520-R-94-004, *Final RCRA Corrective Action Plan*, OSWER Directive 9902.3-2A.

EPA, May 1989. EPA 530/SW-89-031, *RCRA Facility Investigation (RFI) Guidance, Development of an RFI Work Plan and General Considerations for RCRA Facility Investigations*, (Vol. 1).

EPA, QA/G-41994, *Guidance for the Data Quality Objectives Process*.

Geohydrology Associates Inc, 1979, *Water Resources Study of the Carlsbad Potash Area, New Mexico*, Denver, Colorado, Bureau of Land Management.

International Minerals and Chemical Corporation, *Log of Prospect Well, IMC 375,* page 1, April 1965.

International Minerals and Chemical Corporation, *Log of Prospect Well, IMC 377,* page 1, April 1965.

International Minerals and Chemical Corporation, *Log of Prospect Well, IMC 457,* page 1, April 1965.

International Minerals and Chemical Corporation, *Log of Prospect Well, IMC 374,* page 1, April 1965.

Mercer, J.W., 1983, *Geohydrology of the Proposed Waste Isolation Pilot Plant Site, Los Medanos Area, Southeastern New Mexico*, U.S. Geological Survey, Water-Resources Investigations Report 83-4016, p. 178.

Mercer, J.W., 1990, *Basic Data Report for Drill Holes at the H-11 Complex*, Waste Isolation Pilot Plant: Sandia National Laboratory Report SAND89-0200

Mercer, J.W., 1990, *Basic Data Report for Drill Holes at the H-16 Complex*, Waste Isolation Pilot Plant: Sandia National Laboratory Report SAND89-0204

Mercer, J.W., 1990, *Basic Data Report for Drill Holes at the H-18 and H-19 Complex*, Waste Isolation Pilot Plant: Sandia National Laboratory Report SAND89-0204

Mercer J.W. and Orr B.R., 1979, *Interim data report on the geohydrology of the proposed Waste Isolation Pilot Plant Site, southeast New Mexico*, U.S. Geological Survey Water Resource Investigations Report 79-78.

NMED/DOE/AIP 94/1, 1993, *Assessment of Solid Waste Management Units at the Waste Isolation Pilot Plant*, the WIPP RCRA Facility Assessment (RFA).

New Mexico Ground Water Control Commission Regulations (20 NMAC 6.2).

New Mexico Solid Waste Management Regulations (20 NMAC 9.1).

Sandia National Laboratory, 1987, *Hydrologic Data Report # 5*, Waste Isolation Pilot Plant, SAND87-7125.

Sandia National Laboratory, 1988a, *Hydrologic Data Report # 6*, Waste Isolation Pilot Plant, Report SAND87-7166.

Sandia National Laboratory, 1988b, *Hydrologic Data Report # 7*, Waste Isolation Pilot Plant, Report SAND88-7014.

Sandia National Laboratory, 1989, *Hydrologic Data Report # 8*, Waste Isolation Pilot Plant, Report SAND89-7056.

USGS, 1978, *Test Drilling for Potash Resources: Waste Isolation Pilot Plant Site, Eddy County, New Mexico*, U.S. Geological Survey Open-File Report 78-592.

APPENDIX A

TRACER CHEMICALS AND DRILLING ADDITIVES USED AT THE H-19 HYDROPAD

TO: Dan Robertson (Westinghouse
FROM: Wayne Stensrud
DATE: May 21, 1996
SUBJECT: Chemicals Used During the H-19 and H-11 Tracer Tests

Provided below is a list of the tracers and chemicals used during the H-19 and H-11 Tracer Test. If you have any questions concerning the following list please feel free to contact me at ph. 885-2754.

2,4 DiChloro Benzoic Acid (DCBA)
2,3 DCBA
2,5 DCBA
3,5 DCBA
2,4 DiFluoro Benzoic Acid (DFBA)
2,5 DFBA
3,5 DFBA
2,3,4 DFBA
3,4 DFBA
2,6 DFBA
2,3,4 TriFluoro Benzoic Acid (TFBA)
2,3,4,5 TFBA
2,3,6 TFBA
2,4,6 TriChloro Benzoic (TCBA)
P-TriFluoro Benzoic Acid (P-TFMBA)
o-TFMBA
PFBA (PentaFluoro Benzoic Acid)
Meta-Toluic Acid
Sodium Iodide (NaI)
Sodium Flouride (NaF)
Sodium Chloride (NaCl)
Methanol (MEOH)
Ethanol (ETOH)
Hydro Chloric Acid (HCL)
Potassium Hydroxide (KOH)
Sodium Hydroxide (Sodium Hydroxide)

cc:

Rick Beauheim, SNL Dept 6115
Lucy Meigs, SNL 6115
Perry Jones, SNL Dept 6743

APPENDIX B

H-19 TRACER TEST PERMIT CORRESPONDENCE WITH THE NMED GROUND WATER PROTECTION AND REMEDIATION BUREAU

WZ:95:03310
DA:95:2311

Westinghouse Electric Corporation

Government Operations

Waste Isolation Division

Box 2078
Carlsbad New Mexico 88221

April 12, 1995

Mr. Client Marshall, Geologist III
New Mexico Environment Department
Ground Water Bureau
P. O. Box 26110
1190 St. Francis Drive
Santa Fe, New Mexico 87502

Subject: REQUEST FOR CONCURRENCE THAT A DISCHARGE PLAN IS NOT REQUIRED FOR THE WASTE ISOLATION PILOT PLANT CULEBRA TRACER INJECTION TEST PROGRAM - ADDITIONAL POTENTIAL TRACER CHEMICALS

Dear Mr. Marshall:

The U. S. Department of Energy, Carlsbad Area Office (DOE-CAO) is requesting written concurrence that a Part 3-100 Discharge Plan will not be required for the proposed Culebra Transport Test Programs under development by Sandia National Laboratories at the Waste Isolation Pilot Plant (WIPP). The Culebra Transport Test Program is designed to collect additional hydrogeologic characterization data from the Culebra, and perhaps Rustler formation, to test hydrological models for the WIPP Performance Assessment.

To accomplish this, Sandia National Laboratories proposed to establish up to 10 hydrologic test wells located along the principle flow path of the Culebra aquifer. Most of the new test wells will be located on the new H-19 hydropad. Three existing wells in the vicinity of the H-19 hydropad and several new wells strategically located around H-19 will be used to monitor pressure responses associated with the hydrologic tracer tests being conducted at the H-19 hydropad.

The DOE-CAO believes that this project should be exempted from the discharge plan requirements because the existing concentration of ground water in adjacent wells exceeds 10,000 mg/l Total Dissolved Solids (TDS). Additionally, none of the proposed tracer chemicals are listed in the New Mexico Water Quality Control Regulations, Part 1-101(UU), *Toxic Pollutants*, or Part 3-103, *Standards for Ground Water of 10,000 mg/l TDS Concentration or Less*.

A list of additional potential tracer chemicals and Material Safety Data Sheets (MSDS) are attached to support our request for concurrence that a Discharge Plan is not required for the Tracer Test project.

If you have any questions about this proposed project or require any additional information, please contact Mr. J. R. Hollen at (505) 234-8271.

Sincerely,

L. R. Fitch, Manager
Environment, Safety, Health and Regulatory Compliance

JRH:saj

Attachments

cc:	M. E. Bennington, CAO	MS-564
	R. D. Kaiser, CAO	MS-570
	A. R. Sattler, SNL	MS-300

bcc: WID Distribution

G. J. Barnes	MS-120

(without attachments)

W. H. Bodily	MS-170
J. L. Epstein	MS-115
D. C. Robertson	MS-170
M. E. Whatley	MS-170

Potential Tracer Chemicals for Use in the Culebra Transport Test Program

CAS Number	Chemical names
1313-73-2	SODIUM HYDROXIDE
548-24-3	EOSIN B, Certified
348-40-3	2-AMINO-6-FLUOROBENZOTHIAZOLE, 99%
15086-94-9	EOSIN Y FREE ACID
4404-43-7	FLUORESCENT BRIGHTNER 28
609-71-2	2-HYDROXYNICOTINIC ACID
18472-87-2	PHLOXINE B, Certified
3087-16-9	LISSAMINE GREEN B
2391-30-2	LISSAMINE FLAVINE FF

OHS21300

ECTION 1 CHEMICAL PRODUCTS & COMPANY IDENTIFICATION

OCCUPATIONAL HEALTH SERVICES, INC.
11 WEST 42ND STREET, 12TH FLOOR
NEW YORK, NEW YORK 10036
1-800-445-MSDS (1-800-445-6737) OR
1-212-789-3535

FOR EMERGENCY SOURCE INFORMATION
CONTACT: 1-615-366-2000 USA

CAS NUMBER: 1310-73-2
RTECS NUMBER: WB4900000

SUBSTANCE: SODIUM HYDROXIDE

TRADE NAMES/SYNONYMS:
CAUSTIC SODA; SODA LYE; LYE; WHITE CAUSTIC; CAUSTIC SODA, BEAD; CAUSTIC SODA, DRY; CAUSTIC SODA, FLAKE; CAUSTIC SODA, GRANULAR; CAUSTIC SODA, SOLID; SODIUM HYDRATE; SODIUM HYDROXIDE (NA(OH)); SODIUM HYDROXIDE, FLAKE; SODIUM HYDROXIDE, DRY; SODIUM HYDROXIDE, SOLID; ASCARITE; SODIUM HYDROXIDE, DRY SOLID, FLAKE, BEAD, OR GRANULAR; FOTOFOIL-ETCHANT (MILLER DIAL); STCC 4935235; UN 1823; NAOH; OHS21300

CHEMICAL FAMILY:
Inorganic base

CREATION DATE: 12/17/84 REVISION DATE: 01/15/94

SECTION 2 COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT : SODIUM HYDROXIDE
CAS NUMBER: 1310-73-2
PERCENTAGE: 100

OTHER CONTAMINANTS: NONE

SECTION 3 HAZARDS IDENTIFICATION

CERCLA RATINGS (SCALE 0-3): HEALTH=3 FIRE=0 REACTIVITY=1 PERSISTENCE=0
NFPA RATINGS (SCALE 0-4): HEALTH=3 FIRE=0 REACTIVITY=1

EMERGENCY OVERVIEW:
Odorless, white or off-white hygroscopic solid.
Harmful if swallowed. Causes severe burns to mucous membranes. Causes respiratory tract, skin and eye burns. May cause blindness. May affect the heart. May damage the lungs. May react with water.
Do not breathe dust. Do not get in eyes, on skin, or on clothing. Do not allow water to get in container. Keep container tightly closed. Wash thoroughly after handling. Use only with adequate ventilation. Handle with caution.

irrigate injured areas with 1% acetic acid until the alkali is completely neutralized. (Dreisbach, Handbook of Poisoning, 11th Edition). Get medical attention immediately.

NOTE TO PHYSICIAN
ANTIDOTE:
No specific antidote. Treat symptomatically and supportively.

SECTION 5 FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARD:
Negligible fire hazard when exposed to heat or flame.

EXTINGUISHING MEDIA:
Dry chemical, carbon dioxide, water spray or regular foam (1990 Emergency Response Guidebook, DOT P 5800.5).

For larger fires, use water spray, fog or regular foam (1990 Emergency Response Guidebook, DOT P 5800.5).

FIREFIGHTING:
Move container from fire area if you can do it without risk. Apply cooling water to sides of containers that are exposed to flames until well after fire is out. Stay away from ends of tanks (1990 Emergency Response Guidebook, DOT P 5800.5, Guide Page 60).

Use agent suitable for type of fire. Use water in flooding quantities as fog. Apply water from as far a distance as possible.

HAZARDOUS COMBUSTION PRODUCTS:
Thermal decomposition may release toxic fumes of sodium oxide.

SECTION 6 ACCIDENTAL RELEASE MEASURES

OCCUPATIONAL SPILL:
Do not touch spilled material. Stop leak if you can do it without risk. For small spills, take up with sand or other absorbent material and place into containers for later disposal. For small dry spills, with clean shovel place material into clean, dry container and cover. Move containers from spill area. For larger spills, dike far ahead of spill for later disposal. Keep unnecessary people away. Isolate hazard area and deny entry.

Reportable Quantity (RQ): 1000 pounds
The Superfund Amendments and Reauthorization Act (SARA) Section 304 requires that a release equal to or greater than the reportable quantity for this substance be immediately reported to the local emergency planning committee and the state emergency response commission (40 CFR 355.40). If the release of this substance is reportable under CERCLA Section 103, the National Response Center must be notified immediately at (800) 424-8802 or (202) 426-2675 in the metropolitan Washington, D.C. area (40 CFR 302.6).

SOIL SPILL:

GLOVES:
Employee must wear appropriate protective gloves to prevent contact with this substance.

RESPIRATOR:
The following respirators and maximum use concentrations are recommendations by the U.S. Department of Health and Human Services, NIOSH Pocket Guide to Chemical Hazards; NIOSH criteria documents or by the U.S. Department of Labor, 29 CFR 1910 Subpart Z.
The specific respirator selected must be based on contamination levels found in the work place, must not exceed the working limits of the respirator and be jointly approved by the National Institute for Occupational Safety and Health and the Mine Safety and Health Administration (NIOSH-MSHA).

SODIUM HYDROXIDE:

50 mg/m3- Any powered air-purifying respirator with a dust and mist filter.
Any supplied-air respirator operated in a continuous flow mode.

100 mg/m3- Any self-contained breathing apparatus with a full facepiece.
Any supplied-air respirator with a full facepiece.
Any air-purifying full facepiece respirator with a high efficiency particulate filter.

250 mg/m3- Any supplied-air respirator with a full facepiece and operated in a pressure-demand or other positive pressure mode.

Escape- Any air-purifying full facepiece respirator with a high efficiency particulate filter.
Any appropriate escape-type self-contained breathing apparatus.

FOR FIREFIGHTING AND OTHER IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONDITIONS:

Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

DESCRIPTION: Odorless, white or off-white hygroscopic solid.
MOLECULAR WEIGHT: 40.00
MOLECULAR FORMULA: NA-O-H
BOILING POINT: 2534 F (1390 C)
MELTING POINT: 604 F (318 C)
VAPOR PRESSURE: 100 mmHg @ 1111 C
SPECIFIC GRAVITY: 2.130
WATER SOLUBILITY: soluble
PH: 14 @ 5% solution

GLYOXAL: Mixing in a closed container increases temperature and pressure.
HALOGENATED HYDROCARBONS: Violent reaction.
HYDROCHLORIC ACID: Mixing in a closed container causes an increase in temperature and pressure.
HYDROFLUORIC ACID: Mixing in a closed container causes an increase in temperature and pressure.
HYDROQUINONE: Rapid decomposition of hydroquinone with evolution of heat.
IRON: Solutions may slowly corrode.
LEAD: May be attacked; flammable hydrogen gas may be liberated.
LEATHER: May be attacked.
MALEIC ANHYDRIDE: Explosive decomposition.
METALS: Corrodes metals, reacting to form flammable hydrogen gas.
4-METHYL-2-NITROPHENOL: Exothermic reaction.
NITRIC ACID: Mixing in closed container increases temperature and pressure.
NITROBENZENE: Possibly explosive reaction upon heating in presence of water.
NITROETHANE: Forms an explosive salt.
NITROMETHANE: Forms an explosive salt.
NITROPARAFFINS: The nitroparaffins, in the presence of water, form dry salts with organic bases. The dry salts are explosive.
NITROPROPANE: Forms an explosive salt.
O-NITROTOLUENE: Possible explosion.
OLEUM: Mixing in a closed container causes an increase in temperature and pressure.
ORGANIC PEROXIDES: Incompatible.
PENTOL (3-METHYL-2-PENTENE-4-YN-1-OL): Possible explosion.
PHOSPHORUS: May form mixed phosphines which may ignite spontaneously in air.
PHOSPHORUS PENTOXIDE: May react violently when heated.
PLASTICS: May be attacked.
B-PROPIOLACTONE: Mixing in a closed container causes an increase in temperature and pressure.
PROPYLENE OXIDE: Ignition or explosion may occur.
RUBBER: May be attacked.
SODIUM TETRAHYDROBORATE: Dry mixtures with sodium hydroxide containing 15-40% of tetrahydroborate liberate hydrogen explosively at 230-270 C.
SULFURIC ACID: Mixing in a closed container causes an increase in temperaure and pressure.
1,2,4,5-TETRACHLOROBENZENE: Violent reaction.
TETRACHLOROBENZENE + METHYL ALCOHOL: Possible explosion.
TETRACHLOROETHYLENE: Possible explosion.
TETRAHYDROFURAN: Serious explosions can occur.
TIN: Evolution of hydrogen gas which may form an explosive mixture.
1,1,1-TRICHLOROETHANOL: Explosion may occur.
TRICHLOROETHYLENE: Formation of explosive mixtures of dichloroacetylene.
TRICHLORONITROMETHANE + METHANOL: May cause violent reaction.
WOOL: May be attacked.
ZINC (DUST): Fire and explosion hazard.
ZIRCONIUM: May cause explosive reaction upon heating.

HAZARDOUS DECOMPOSITION:
Thermal decomposition may release toxic fumes of sodium oxide.

POLYMERIZATION:
Hazardous polymerization has not been reported to occur under normal

Skin biopsies from human subjects having 1 N sodium hydroxide applied to their arms for 15 to 180 minutes showed progressive changes beginning with dissolution of the cells in the horny layer and progressing through edema to total destruction of the epidermis in 60 minutes. A 5% aqueous solution caused severe necrosis to the skin of rabbits when applied for 4 hours. Alkalies penetrate the skin slowly. The extent of injury depends on the duration of contact. If sodium hydroxide is not removed from the skin, severe burns with deep ulceration may occur. Exposure to the dust or mist may cause multiple small burns and temporary loss of hair. Pathologic findings due to alkalies may include gelatinous, necrotic areas at the site of contact.

CHRONIC EXPOSURE- Effects are dependent upon concentration and duration of exposure. Dermatitis or effects similar to those for acute exposure may occur.

EYE CONTACT:
SODIUM HYDROXIDE:
CORROSIVE.

ACUTE EXPOSURE- Contact may cause disintegration and sloughing of conjunctival and corneal epithelium, corneal opacification, marked edema and ulceration. After 7 to 13 days either gradual recovery begins or there is progression of ulceration and corneal opacification. Complications of severe eye burns are symblepharon with overgrowth of the cornea by a vascularized membrane, progressive or recurrent corneal ulceration and permanent corneal opacification. Blindness may occur.

CHRONIC EXPOSURE- Effects are dependent upon concentration and duration of exposure. Conjunctivitis or effects similar to those for acute exposure may occur.

GESTION:
SODIUM HYDROXIDE:
CORROSIVE/TOXIC.

ACUTE EXPOSURE- The reported lethal dose in rats is 140-340 mg/kg. Ingestion may cause a burning sensation in the mouth, corrosion of the lips, mouth, tongue and pharynx, and severe esophageal and abdominal pain, vomiting of blood and large pieces of mucosa, and bloody diarrhea. Asphyxia can occur from swelling of the throat. Mediastinitis, alkalemia, pallor, weak, slow pulse, cardiovascular collapse, shock, coma and death may occur. Perforation of the alimentary tract and constrictive scarring may result. Esophageal stricture may occur weeks, months, or even years later to make swallowing difficult. The estimated fatal dose in man is 5 grams. Cases of squamous cell carcinoma of the esophagus have occurred with latent periods of 12 to 42 years after ingestion. These cancers were believed to be sequela of tissue destruction and possibly scar formation rather than the result of direct carcinogenic action of sodium hydroxide.

CHRONIC EXPOSURE- Depending on the concentration, repeated ingestion of alkaline substances may result in inflammatory and ulcerative effects on the oral mucous membranes and other effects as with acute ingestion.

SECTION 12 ECOLOGICAL INFORMATION

ENVIRONMENTAL IMPACT RATING (0-4): no data available

CALIFORNIA PROPOSITION 65: N

SARA HAZARD CATEGORIES, SARA SECTIONS 311/312 (40 CFR 370.21)

ACUTE HAZARD:	Y
CHRONIC HAZARD:	N
FIRE HAZARD:	N
REACTIVITY HAZARD:	Y
SUDDEN RELEASE HAZARD:	N

SECTION 16 OTHER

COPYRIGHT 1994 OCCUPATIONAL HEALTH SERVICES, INC. ALL RIGHTS RESERVED.

Licensed to: Sandia National Laboratories
To make unlimited paper copies for internal distribution and use only.

Sigma Chemical Co.
P.O. Box 14508
St. Louis, MO 63178
Phone: 314-771-5765

Aldrich Chemical Co., Inc.
1001 West St. Paul
Milwaukee, WI 53233
Phone: 414-273-3850

Fluka Chemical Corp.
980 South Second St.
Ronkonkoma, NY 11779
Phone: 516-467-0980
Emergency Phone: 516-467-3535

SECTION 1. - - - - - - - - - - CHEMICAL IDENTIFICATION- - - - - - - - - -
PRODUCT #: 86100-6 NAME: EOSIN B, CERTIFIED (C.I. 45400)
SECTION 2. - - - - - COMPOSITION/INFORMATION ON INGREDIENTS - - - - - -
CAS #:548-24-3
MF: C20H8BR2N2O9
SECTION 3. - - - - - - - - - - - HAZARDS IDENTIFICATION - - - - - - - - - -
LABEL PRECAUTIONARY STATEMENTS
CAUTION:
AVOID CONTACT AND INHALATION.
SECTION 4. - - - - - - - - - - - FIRST-AID MEASURES- - - - - - - - - - -
IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES.
IN CASE OF CONTACT, IMMEDIATELY WASH SKIN WITH SOAP AND COPIOUS AMOUNTS OF WATER.
IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.
IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS. CALL A PHYSICIAN.
WASH CONTAMINATED CLOTHING BEFORE REUSE.
SECTION 5. - - - - - - - - - - FIRE FIGHTING MEASURES - - - - - - - - - - -
EXTINGUISHING MEDIA
WATER SPRAY.
CARBON DIOXIDE, DRY CHEMICAL POWDER OR APPROPRIATE FOAM.
SPECIAL FIREFIGHTING PROCEDURES
WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES.
UNUSUAL FIRE AND EXPLOSIONS HAZARDS
EMITS TOXIC FUMES UNDER FIRE CONDITIONS.
SECTION 6. - - - - - - - - - ACCIDENTAL RELEASE MEASURES- - - - - - - - -
CHEMICAL SAFETY GOGGLES.
USE PROTECTIVE CLOTHING, GLOVES AND MASK.
SWEEP UP, PLACE IN A BAG AND HOLD FOR WASTE DISPOSAL.
AVOID RAISING DUST.
VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.
SECTION 7. - - - - - - - - - - - HANDLING AND STORAGE- - - - - - - - - - -
REFER TO SECTION 8.
SECTION 8. - - - - - - EXPOSURE CONTROLS/PERSONAL PROTECTION- - - - - -
CHEMICAL SAFETY GOGGLES.
COMPATIBLE CHEMICAL-RESISTANT GLOVES.
NIOSH/MSHA-APPROVED RESPIRATOR.
SAFETY SHOWER AND EYE BATH.
MECHANICAL EXHAUST REQUIRED.
AVOID INHALATION.
AVOID CONTACT WITH EYES, SKIN AND CLOTHING.
AVOID PROLONGED OR REPEATED EXPOSURE.
WASH THOROUGHLY AFTER HANDLING.
KEEP TIGHTLY CLOSED.

Sigma Chemical Co.
P.O. Box 14508
St. Louis, MO 63178
Phone: 314-771-5765

Aldrich Chemical Co., Inc.
1001 West St. Paul
Milwaukee, WI 53233
Phone: 414-273-3850

Fluka Chemical Corp.
980 South Second St.
Ronkonkoma, NY 11779
Phone: 516-467-0980
Emergency Phone: 516-467-3535

SECTION 1. - - - - - - - - - - CHEMICAL IDENTIFICATION- - - - - - - - - -
PRODUCT #: 32421-3 NAME: 2-AMINO-6-FLUOROBENZOTHIAZOLE, 99%
SECTION 2. - - - - - COMPOSITION/INFORMATION ON INGREDIENTS - - - - - -
CAS #:348-40-3
MF: C7H5FN2S
SECTION 3. - - - - - - - - - - - HAZARDS IDENTIFICATION - - - - - - - - - -
LABEL PRECAUTIONARY STATEMENTS
IRRITANT
IRRITATING TO EYES, RESPIRATORY SYSTEM AND SKIN.
IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE.
WEAR SUITABLE GLOVES AND EYE/FACE PROTECTION.
SECTION 4. - - - - - - - - - - - FIRST-AID MEASURES- - - - - - - - - - - -
IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES.
IN CASE OF CONTACT, IMMEDIATELY WASH SKIN WITH SOAP AND COPIOUS AMOUNTS OF WATER.
IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.
IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS. CALL A PHYSICIAN.
WASH CONTAMINATED CLOTHING BEFORE REUSE.
SECTION 5. - - - - - - - - - - FIRE FIGHTING MEASURES - - - - - - - - - - -
EXTINGUISHING MEDIA
WATER SPRAY.
CARBON DIOXIDE, DRY CHEMICAL POWDER OR APPROPRIATE FOAM.
SPECIAL FIREFIGHTING PROCEDURES
WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES.
UNUSUAL FIRE AND EXPLOSIONS HAZARDS
EMITS TOXIC FUMES UNDER FIRE CONDITIONS.
SECTION 6. - - - - - - - - - ACCIDENTAL RELEASE MEASURES- - - - - - - - - -
WEAR RESPIRATOR, CHEMICAL SAFETY GOGGLES, RUBBER BOOTS AND HEAVY RUBBER GLOVES.
SWEEP UP, PLACE IN A BAG AND HOLD FOR WASTE DISPOSAL.
AVOID RAISING DUST.
VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.
SECTION 7. - - - - - - - - - - - HANDLING AND STORAGE- - - - - - - - - - - -
REFER TO SECTION 8.
SECTION 8. - - - - - - EXPOSURE CONTROLS/PERSONAL PROTECTION- - - - - -
CHEMICAL SAFETY GOGGLES.
COMPATIBLE CHEMICAL-RESISTANT GLOVES.
NIOSH/MSHA-APPROVED RESPIRATOR.
SAFETY SHOWER AND EYE BATH.
MECHANICAL EXHAUST REQUIRED.
DO NOT BREATHE DUST.
AVOID CONTACT WITH EYES, SKIN AND CLOTHING.

Sigma Chemical Co.
P.O. Box 14508
St. Louis, MO 63178
Phone: 314-771-5765

Aldrich Chemical Co., Inc.
1001 West St. Paul
Milwaukee, WI 53233
Phone: 414-273-3850

Fluka Chemical Corp.
980 South Second St.
Ronkonkoma, NY 11779
Phone: 516-467-0980
Emergency Phone: 516-467-3535

SECTION 1. - - - - - - - - - - CHEMICAL IDENTIFICATION- - - - - - - - - -

PRODUCT #: E4009

NAME: EOSIN Y FREE ACID

SECTION 2. - - - - - COMPOSITION/INFORMATION ON INGREDIENTS - - - - - -

CAS #:15086-94-9

MF: C20H8BR4O5

SYNONYMS

BROMEOSIN * BROMOEOSIN * BROMOFLUORESCEIC ACID * C.I. 45380:2 * C.I. SOLVENT RED 43 * D AND C RED NO. 21 * EOSIN * EOSINE * 2,4,5,7-TETRABROMO-3,6-FLUORANDIOL * TETRABROMOFLUORESCEIN * 2',4',5',7'-TETRABROMOFLUORESCEIN *

SECTION 3. - - - - - - - - - - HAZARDS IDENTIFICATION - - - - - - - - - -

LABEL PRECAUTIONARY STATEMENTS

CAUTION:

AVOID CONTACT AND INHALATION.

SECTION 4. - - - - - - - - - - FIRST-AID MEASURES- - - - - - - - - - -

IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES.

IN CASE OF CONTACT, IMMEDIATELY WASH SKIN WITH SOAP AND COPIOUS AMOUNTS OF WATER.

IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.

IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS. CALL A PHYSICIAN.

WASH CONTAMINATED CLOTHING BEFORE REUSE.

SECTION 5. - - - - - - - - - - FIRE FIGHTING MEASURES - - - - - - - - - -

EXTINGUISHING MEDIA

WATER SPRAY.

CARBON DIOXIDE, DRY CHEMICAL POWDER OR APPROPRIATE FOAM.

SPECIAL FIREFIGHTING PROCEDURES

WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES.

UNUSUAL FIRE AND EXPLOSIONS HAZARDS

EMITS TOXIC FUMES UNDER FIRE CONDITIONS.

SECTION 6. - - - - - - - - - ACCIDENTAL RELEASE MEASURES- - - - - - - - -

WEAR RESPIRATOR, CHEMICAL SAFETY GOGGLES, RUBBER BOOTS AND HEAVY RUBBER GLOVES.

SWEEP UP, PLACE IN A BAG AND HOLD FOR WASTE DISPOSAL.

AVOID RAISING DUST.

VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.

SECTION 7. - - - - - - - - - - HANDLING AND STORAGE- - - - - - - - - - -

REFER TO SECTION 8.

SECTION 8. - - - - - - EXPOSURE CONTROLS/PERSONAL PROTECTION- - - - - -

CHEMICAL SAFETY GOGGLES.

COMPATIBLE CHEMICAL-RESISTANT GLOVES.

NIOSH/MSHA-APPROVED RESPIRATOR.

SAFETY SHOWER AND EYE BATH.

Sigma Chemical Co.
P.O. Box 14508
. Louis, MO 63178
.hone: 314-771-5765

Aldrich Chemical Co., Inc.
1001 West St. Paul
Milwaukee, WI 53233
Phone: 414-273-3850

Fluka Chemical Corp.
980 South Second St.
Ronkonkoma, NY 11779
Phone: 516-467-0980
Emergency Phone: 516-467-3535

SECTION 1. - - - - - - - - - - CHEMICAL IDENTIFICATION- - - - - - - - - -
PRODUCT #: 29418-7 NAME: FLUORESCENT BRIGHTENER 28
SECTION 2. - - - - - COMPOSITION/INFORMATION ON INGREDIENTS - - - - - -
CAS #:4404-43-7
MF: C40H44N12O10S2
SECTION 3. - - - - - - - - - - - HAZARDS IDENTIFICATION - - - - - - - - - -
LABEL PRECAUTIONARY STATEMENTS
CAUTION:
AVOID CONTACT AND INHALATION.
SECTION 4. - - - - - - - - - - - FIRST-AID MEASURES- - - - - - - - - - -
IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS. CALL A PHYSICIAN.
IN CASE OF SKIN CONTACT, FLUSH WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES. REMOVE CONTAMINATED CLOTHING AND SHOES. CALL A PHYSICIAN.
IF INHALED, REMOVE TO FRESH AIR. IF BREATHING BECOMES DIFFICULT, CALL A PHYSICIAN.
IN CASE OF CONTACT WITH EYES, FLUSH WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES. ASSURE ADEQUATE FLUSHING BY SEPARATING THE EYELIDS WITH FINGERS. CALL A PHYSICIAN.
SECTION 5. - - - - - - - - - - FIRE FIGHTING MEASURES - - - - - - - - - -
.TINGUISHING MEDIA
WATER SPRAY.
CARBON DIOXIDE, DRY CHEMICAL POWDER OR APPROPRIATE FOAM.
SPECIAL FIREFIGHTING PROCEDURES
WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES.
UNUSUAL FIRE AND EXPLOSIONS HAZARDS
EMITS TOXIC FUMES UNDER FIRE CONDITIONS.
SECTION 6. - - - - - - - - - ACCIDENTAL RELEASE MEASURES- - - - - - - - -
WEAR RESPIRATOR, CHEMICAL SAFETY GOGGLES, RUBBER BOOTS AND HEAVY RUBBER GLOVES.
SWEEP UP, PLACE IN A BAG AND HOLD FOR WASTE DISPOSAL.
AVOID RAISING DUST.
VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.
SECTION 7. - - - - - - - - - - - HANDLING AND STORAGE- - - - - - - - - - -
REFER TO SECTION 8.
SECTION 8. - - - - - - - EXPOSURE CONTROLS/PERSONAL PROTECTION- - - - - -
WEAR APPROPRIATE NIOSH/MSHA-APPROVED RESPIRATOR, CHEMICAL-RESISTANT GLOVES, SAFETY GOGGLES, OTHER PROTECTIVE CLOTHING.
MECHANICAL EXHAUST REQUIRED.
SECTION 9. - - - - - - - - PHYSICAL AND CHEMICAL PROPERTIES - - - - - - -
APPEARANCE AND ODOR
YELLOW POWDER
MELTING POINT: 290 C (DEC)
SECTION 10. - - - - - - - - - -STABILITY AND REACTIVITY - - - - - - - - -
TABILITY

Sigma Chemical Co.
P.O. Box 14508
St. Louis, MO 63178
Phone: 314-771-5765

Aldrich Chemical Co., Inc.
1001 West St. Paul
Milwaukee, WI 53233
Phone: 414-273-3850

Fluka Chemical Corp.
980 South Second St.
Ronkonkoma, NY 11779
Phone: 516-467-0980
Emergency Phone: 516-467-3535

SECTION 1. - - - - - - - - - - CHEMICAL IDENTIFICATION- - - - - - - - - -

PRODUCT #: H1014

NAME: 2-HYDROXYNICOTINIC ACID

SECTION 2. - - - - - COMPOSITION/INFORMATION ON INGREDIENTS - - - - - -

CAS #:609-71-2

MF: C6H5N1O2

SECTION 3. - - - - - - - - - - - HAZARDS IDENTIFICATION - - - - - - - - - -

LABEL PRECAUTIONARY STATEMENTS

IRRITANT

IRRITATING TO EYES, RESPIRATORY SYSTEM AND SKIN.

IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE.

WEAR SUITABLE PROTECTIVE CLOTHING.

SECTION 4. - - - - - - - - - - - FIRST-AID MEASURES- - - - - - - - - - -

IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES.

IN CASE OF CONTACT, IMMEDIATELY WASH SKIN WITH SOAP AND COPIOUS AMOUNTS OF WATER.

IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.

IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS. CALL A PHYSICIAN.

WASH CONTAMINATED CLOTHING BEFORE REUSE.

SECTION 5. - - - - - - - - - - FIRE FIGHTING MEASURES - - - - - - - - - -

EXTINGUISHING MEDIA

WATER SPRAY.

CARBON DIOXIDE, DRY CHEMICAL POWDER OR APPROPRIATE FOAM.

SPECIAL FIREFIGHTING PROCEDURES

WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES.

UNUSUAL FIRE AND EXPLOSIONS HAZARDS

EMITS TOXIC FUMES UNDER FIRE CONDITIONS.

SECTION 6. - - - - - - - - - ACCIDENTAL RELEASE MEASURES- - - - - - - - -

WEAR SELF-CONTAINED BREATHING APPARATUS, RUBBER BOOTS AND HEAVY RUBBER GLOVES.

SWEEP UP, PLACE IN A BAG AND HOLD FOR WASTE DISPOSAL.

AVOID RAISING DUST.

VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.

SECTION 7. - - - - - - - - - - - HANDLING AND STORAGE- - - - - - - - - - -

REFER TO SECTION 8.

SECTION 8. - - - - - - EXPOSURE CONTROLS/PERSONAL PROTECTION- - - - - -

CHEMICAL SAFETY GOGGLES.

RUBBER GLOVES.

NIOSH/MSHA-APPROVED RESPIRATOR.

SAFETY SHOWER AND EYE BATH.

MECHANICAL EXHAUST REQUIRED.

AVOID CONTACT AND INHALATION.

Sigma Chemical Co.
P.O. Box 14508
t. Louis, MO 63178
Phone: 314-771-5765

Aldrich Chemical Co., Inc.
1001 West St. Paul
Milwaukee, WI 53233
Phone: 414-273-3850

Fluka Chemical Corp.
980 South Second St.
Ronkonkoma, NY 11779
Phone: 516-467-0980
Emergency Phone: 516-467-3535

SECTION 1. - - - - - - - - - - CHEMICAL IDENTIFICATION- - - - - - - - - -
PRODUCT #: 19827-7 NAME: PHLOXINE B, CERTIFIED
SECTION 2. - - - - - COMPOSITION/INFORMATION ON INGREDIENTS - - - - - -
CAS #:18472-87-2
MF: C20H4BR4CL4O5
SYNONYMS
ACID RED 92 * AIZEN ACID PHLOXINE PB * C.I. 45410 * C.I. ACID RED 92 * CYANOSIN * CYANOSIN (ACID DYE) * CYANOSINE * D AND C RED NO. 28 * EOSIN BLUE * EOSINE BLUE * EOSINE BLUISH * FOOD DYE RED NO. 104 * FOOD RED NO. 104 * JAPAN RED 104 * ORIENT WATER PINK 2 * PHLOXIN B * PHLOXINE B * PHLOXINE P * RED 104 * 11969 RED * RED NO. 104 * 3427 VERI PUR PINK *
SECTION 3. - - - - - - - - - - HAZARDS IDENTIFICATION - - - - - - - - - -
LABEL PRECAUTIONARY STATEMENTS
CAUTION:
AVOID CONTACT AND INHALATION.
SECTION 4. - - - - - - - - - - FIRST-AID MEASURES- - - - - - - - - - -
IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES.
IN CASE OF CONTACT, IMMEDIATELY WASH SKIN WITH SOAP AND COPIOUS AMOUNTS OF WATER.
IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.
IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS. CALL A PHYSICIAN.
WASH CONTAMINATED CLOTHING BEFORE REUSE.
SECTION 5. - - - - - - - - - - FIRE FIGHTING MEASURES - - - - - - - - - -
EXTINGUISHING MEDIA
WATER SPRAY.
CARBON DIOXIDE, DRY CHEMICAL POWDER OR APPROPRIATE FOAM.
SPECIAL FIREFIGHTING PROCEDURES
WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES.
UNUSUAL FIRE AND EXPLOSIONS HAZARDS
EMITS TOXIC FUMES UNDER FIRE CONDITIONS.
SECTION 6. - - - - - - - - - ACCIDENTAL RELEASE MEASURES- - - - - - - - -
WEAR RESPIRATOR, CHEMICAL SAFETY GOGGLES, RUBBER BOOTS AND HEAVY RUBBER GLOVES.
SWEEP UP, PLACE IN A BAG AND HOLD FOR WASTE DISPOSAL.
AVOID RAISING DUST.
VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.
SECTION 7. - - - - - - - - - - HANDLING AND STORAGE- - - - - - - - - - -
REFER TO SECTION 8.
SECTION 8. - - - - - - EXPOSURE CONTROLS/PERSONAL PROTECTION- - - - - -
CHEMICAL SAFETY GOGGLES.
COMPATIBLE CHEMICAL-RESISTANT GLOVES.
NIOSH/MSHA-APPROVED RESPIRATOR.

PACKING SLIP FOR ADDITIONAL TERMS AND CONDITIONS OF SALE.

COPYRIGHT 1994 SIGMA CHEMICAL CO., ALDRICH CHEMICAL CO., INC.,
UKA CHEMIE AG
LICENSE GRANTED TO MAKE UNLIMITED PAPER COPIES FOR INTERNAL USE ONLY

Sigma Chemical Co.
P.O. Box 14508
St. Louis, MO 63178
Phone: 314-771-5765

Aldrich Chemical Co., Inc.
1001 West St. Paul
Milwaukee, WI 53233
Phone: 414-273-3850

Fluka Chemical Corp.
980 South Second St.
Ronkonkoma, NY 11779
Phone: 516-467-0980
Emergency Phone: 516-467-3535

SECTION 1. - - - - - - - - - - CHEMICAL IDENTIFICATION- - - - - - - - - -

PRODUCT #: 19958-3 NAME: LISSAMINE GREEN B (C.I. 44090)

SECTION 2. - - - - - COMPOSITION/INFORMATION ON INGREDIENTS - - - - - -

CAS #:3087-16-9

MF: C27H26N2O7S2

SYNONYMS

ACIDAL WOOL GREEN BS * ACID BRILLIANT GREEN BS * ACID GREEN 50 * ACID LEATHER GREEN S * ACILAN GREEN BS * AMACID WOOL GREEN S * BRILLIANTSAEURE GRUEN BS (GERMAN) * BUCACID WOOL GREEN * CALOCID GREEN S * CALOCID GREEN SB * C.I. 44090 * C.I. ACID GREEN 50, MONOSODIUM SALT * C.I. FOOD GREEN 4 * E 142 * EDICOL SUPRA GREEN B * ERIO GREEN S * FOOD GREEN S * GREEN 5 * 12078 GREEN * GREEN BS * GREEN S * HEXACOL GREEN S * HIDACID WOOL GREEN * KITON GREEN S * LISSAMINE GREEN B * LISSAMINE GREEN BN * NAPHTHAZINE GREEN S * PHARMACID GREEN S * SCHULTZ NR. 836 (GERMAN) * SUMITOMO WOOL GREEN S * UNITERTRACID GREEN BS * VERT ACIDE BRILLIANT BS * VONDACID GREEN S * WATER GREEN SX * WOOL GREEN 5 * WOOL GREEN B * WOOL GREEN BS * WOOL GREEN BSNA * WOOL GREEN MS * WOOL GREEN S * WOOL GREEN S (BIOLOGICAL STAIN) * WOOL GREEN SG * ZELEN KYSELA 50 (CZECH) * ZELEN KYSELA BS (CZECH) * ZELEN POTRAVINARSKA 4 (CZECH) *

SECTION 3. - - - - - - - - - - - HAZARDS IDENTIFICATION - - - - - - - - - -

LABEL PRECAUTIONARY STATEMENTS

HARMFUL

HARMFUL IF SWALLOWED.

IRRITATING TO EYES, RESPIRATORY SYSTEM AND SKIN.

IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE.

WEAR SUITABLE PROTECTIVE CLOTHING.

SECTION 4. - - - - - - - - - - - FIRST-AID MEASURES- - - - - - - - - - -

IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES.

IN CASE OF CONTACT, IMMEDIATELY WASH SKIN WITH SOAP AND COPIOUS AMOUNTS OF WATER.

IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.

IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS. CALL A PHYSICIAN.

WASH CONTAMINATED CLOTHING BEFORE REUSE.

SECTION 5. - - - - - - - - - - FIRE FIGHTING MEASURES - - - - - - - - - -

EXTINGUISHING MEDIA

WATER SPRAY.

CARBON DIOXIDE, DRY CHEMICAL POWDER OR APPROPRIATE FOAM.

SPECIAL FIREFIGHTING PROCEDURES

WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES.

UNUSUAL FIRE AND EXPLOSIONS HAZARDS

EMITS TOXIC FUMES UNDER FIRE CONDITIONS.

(RTECS) DATA IS PRESENTED HERE. SEE ACTUAL ENTRY IN RTECS FOR COMPLETE INFORMATION.

SECTION 12. - - - - - - - - - - ECOLOGICAL INFORMATION - - - - - - - - - - -

DATA NOT YET AVAILABLE.

SECTION 13. - - - - - - - - - - DISPOSAL CONSIDERATIONS - - - - - - - - - -

DISSOLVE OR MIX THE MATERIAL WITH A COMBUSTIBLE SOLVENT AND BURN IN A CHEMICAL INCINERATOR EQUIPPED WITH AN AFTERBURNER AND SCRUBBER. OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS.

SECTION 14. - - - - - - - - - - - TRANSPORT INFORMATION - - - - - - - - - -

CONTACT ALDRICH CHEMICAL COMPANY FOR TRANSPORTATION INFORMATION.

SECTION 15. - - - - - - - - - - REGULATORY INFORMATION - - - - - - - - - - -

REVIEWS, STANDARDS, AND REGULATIONS

NOHS 1974: HZD M2207; NIS 1; TNF 18; NOS 1; TNE 175
NOES 1983: HZD M2207; NIS 1; TNF 98; NOS 4; TNE 1378
EPA GENETOX PROGRAM 1988, NEGATIVE: S CEREVISIAE GENE CONVERSION
EPA TSCA CHEMICAL INVENTORY, JUNE 1993

SECTION 16. - - - - - - - - - - - OTHER INFORMATION- - - - - - - - - - - - -

THE ABOVE INFORMATION IS BELIEVED TO BE CORRECT BUT DOES NOT PURPORT TO BE ALL INCLUSIVE AND SHALL BE USED ONLY AS A GUIDE. SIGMA, ALDRICH, FLUKA SHALL NOT BE HELD LIABLE FOR ANY DAMAGE RESULTING FROM HANDLING OR FROM CONTACT WITH THE ABOVE PRODUCT. SEE REVERSE SIDE OF INVOICE OR PACKING SLIP FOR ADDITIONAL TERMS AND CONDITIONS OF SALE.

COPYRIGHT 1994 SIGMA CHEMICAL CO., ALDRICH CHEMICAL CO., INC., FLUKA CHEMIE AG
LICENSE GRANTED TO MAKE UNLIMITED PAPER COPIES FOR INTERNAL USE ONLY

MATERIAL SAFETY DATA SHEET

LISSAMINE FLAVINE FF 69240

SECTION I - IDENTIFICATION

COMPANY NAME..... PYLAM PRODUCTS
EMERGENCY PHONE NUMBER.. (516) 222-1750
EFFECTIVE DATE..... 08/09/90
REVISED DATE..... 01/13/95
CHEMICAL NAME..... ACID YELLOW 7
TRADE NAME..... LISSAMINE FLAVINE FF
CHEMICAL FAMILY..... AMINOKETONE
CHEMICAL FORMULA..... C20 H18 N4 O9 S2.2NA

SECTION II - HAZARDOUS INGREDIENTS

HAZARDOUS COMPONENTS	HAZARDOUS %	TLV (Units)	PROD. CAS #
NONE AS PER 29CFR PART 1910.1200.			2391-30-2

SECTION III - PHYSICAL DATA

BOILING POINT (F)..... N/A
FREEZING POINT (F)..... N/A
VOLATILITY/VOL (%)..... N/A
MELTING POINT..... N/A
VAPOR PRESSURE..... N/A
VAPOR DENSITY.(Air=1)... N/A
SOLUBILITY IN H2O..... SOLUBLE
APPEARANCE/ODOR..... YELLOW POWDER/NO ODOR
SPECIFIC GRAVITY (H20=1) N/A
VAPORATION RATE..... N/A
pH..... NA

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT..... GREATER THAN 200'F
LOWER FLAME LIMIT..... N/A
HIGHER FLAME LIMIT..... N/A
EXTINGUISH MEDIA..... IN CASE OF FIRE, USE WATER SPRAY, FOAM, DRY CHEMICAL, OR CO2.
FOR FIRE..... FIREFIGHTERS SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS AND TURNOUT GEAR.
UNUSUAL FIRE HAZARD..... NONE

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE... N/A

MATERIAL SAFETY DATA SHEET

LISSAMINE FLAVINE FF 69240

OVER EXPOSURE EFFECTS... NO APPLICABLE INFORMATION WAS FOUND CONCERNING ANY ADVERSE ACUTE/CHRONIC HEALTH EFFECTS RESULTING FROM OVEREXPOSURE TO THIS PRODUCT.

FIRST AID PROCEDURES....

EMERGENCY FIRST AID

INHALATION:
IF LARGE AMOUNTS ARE INHALED, REMOVE TO FRESH AIR IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION, PREFERABLY MOUTH-TO-MOUTH. IF BREATHING IS DIFFICULT GIVE OXYGEN, AND CALL A PHYSICIAN.
SKIN CONTACT:
FLUSH SKIN WITH PLENTY OF WATER AFTER EXCESSIVE CONTACT. WASH THOROUGHLY WITH HANDCREAM OR HANDCLEANER.
EYE CONTACT:
FLUSH EYES IMMEDIATELY WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES. CALL A PHYSICIAN.
INGESTION:
INDUCE VOMITING IMMEDIATELY BY GIVING TWO GLASSES OF WATER. GET MEDICAL ATTENTION. NEVER GIVE FLUIDS TO AN UNCONSCIOUS PERSON.

SECTION VI - REACTIVITY DATA

CHEMICAL STABILITY..... STABLE
CONDITIONS TO AVOID..... NONE
INCOMPATIBLE MATERIALS.. OXIDIZING AND REDUCING AGENTS MAY DESTROY COLOR.
DECOMPOSITION PRODUCTS.. CO,CO2,OXIDES OF NITROGEN, SULFUR, AND OTHER POTENTIALLY TOXIC FUMES.
HAZARDOUS POLYMERIZATION
POLYMERIZATION AVOID.... NONE EXPECTED

SECTION VII - SPILL OR LEAK PROCEDURE

FOR SPILL..... SPILLS SHOULD BE SWEPT UP AND PLACED IN CONTAINERS. SPILL AREAS CAN BE WASHED WITH WATER; COLLECT WASTE WATER FOR APPROVED DISPOSAL.
WASTE DISPOSAL METHOD... WASTE DISPOSAL SHOULD BE IN ACCORDANCE WITH EXISTING FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS.

SECTION VII - A

REGULARTORY INFORMATION

*

EPA . . . . . IN COMPLIANCE WITH TSCA INVENTORY.
EINECS. . . . . ALL PRODUCT COMPONENTS ARE LISTED.
WHMIS . . . . . NOT REGULATED.
RCRA . . . . . NOT REGULATED.

WD:94:10027
DA:94:6287

Westinghouse Electric Corporation
Government Operations
Waste Isolation Division
Box 2078
Carlsbad New Mexico 88221

October 14, 1994

Mr. E. K. Hunter, Chief
WIPP Site Branch
Carlsbad Area Office
U. S. Department of Energy
P. O. Box 3090
Carlsbad, NM 88221-3090

Subject: REQUEST FOR CONCURRENCE THAT A DISCHARGE PLAN IS NOT REQUIRED FOR THE WASTE ISOLATION PILOT PLANT CULEBRA TRACER INJECTION TEST PROGRAM

Dear Mr. Hunter:

This letter transmits a draft request to the NMED Ground Water Bureau for concurrence that a discharge plan is not required for the Sandia National Laboratories Culebra Tracer Injection Test Program. Based on exemptions established in the New Mexico Water Quality Control Commission Regulations (WQCCR 3-100), a discharge plan is not required for discharges into ground waters with a concentration of Total Dissolved Solids (TDS) greater than 10,000 mg/l.

Water quality data from monitoring wells in the area of the proposed Tracer Injection Test Program show that the TDS concentrations of Culebra water bearing zones are greater than 10,000 mg/l. Additionally, none of the proposed tracer chemicals are listed in the New Mexico Water Quality Control Regulations, Part 1-101(UU), *Toxic Pollutants*, or Part 3-103, *Standards for Ground Water of 10,000 mg/l TDS Concentration or Less*.

A determination on the applicability of the Discharge Plan requirements is needed before the program can proceed. If you have any questions regarding this request or require any additional support information, please contact Mr. D. C. Robertson at Extension 8240.

Sincerely,

L. R. Fitch, Manager
Environment, Safety, Health and Regulatory Compliance

DCR:mmo

Attachment

cc: M. E. Bennington, CAO

Mr. Clint Marshall, Geologist III
New Mexico Environment Department
Ground Water Bureau
P. O. Box 26110
1190 St. Francis Drive
Santa Fe, New Mexico

Subject: REQUEST FOR CONCURRENCE THAT A DISCHARGE PLAN IS NOT REQUIRED FOR THE WASTE ISOLATION PILOT PLANT CULEBRA TRACER INJECTION TEST PROGRAM

Dear Mr. Marshall:

The U. S. Department of Energy, Carlsbad Area Office (DOE-CAO) is requesting written concurrence that a Part 3-100 Discharge Plan will not be required for the proposed Culebra Transport Test Programs under development by Sandia National Laboratories at the Waste Isolation Pilot Plant (WIPP). The Culebra Transport Test Program is designed to collect additional hydrogeologic characterization data from the Culebra, and perhaps Rustler formation, to test hydrological models for the WIPP Performance Assessment.

To accomplish this, Sandia National Laboratories proposed to establish up to 10 hydrologic test wells located along the principle flow path of the Culebra aquifer. Most of the new test wells will be located on the new H-19 hydropad. Three existing wells in the vicinity of the H-19 hydropad and several new wells strategically located around H-19 will be used to monitor pressure responses associated with the hydrologic tracer tests being conducted at the H-19 hydropad.

The DOE-CAO believes that this project should be exempted from the discharge plan requirements because the existing concentration of ground water in adjacent wells exceeds 10,000 mg/l Total Dissolved Solids (TDS). Additionally, none of the proposed tracer chemicals are listed in the New Mexico Water Quality Control Regulations, Part 1-101(UU), *Toxic Pollutants*, or Part 3-103, *Standards for Ground Water of 10,000 mg/l TDS Concentration or Less*.

A copy of water quality data from two existing wells located within one-half mile of the H-19 hydropad and a list of proposed tracer chemicals are attached to support our request for concurrence that a Discharge Plan is not required for the Tracer Test project.

If you have any questions about this proposed project or require any additional information, please contact Ms. M. E. Bennington at (505) 234-8132.

E. K. Hunter, Chief
WIPP Site Branch

Attachments

cc: D. C. Robertson, WID

WQSP: H-03b3
ORIGINATOR: R.G.R.
DATE PRINTED: 09-30-93

CHARGE BALANCE FORMULAS
& TDS CALCULATIONS
H-03b3, CULEBRA, ROUND EIGHT
'(RAS ANALYSIS)

	VALUE mg/l	ATOMIC/MOLE WEIGHT	CHARGE UNITS	meq/l
CATIONS				
SODIUM (AA)	12100.00	22.99	1	526.32
POTASSIUM (AA)	448.00	39.10	1	11.46
MAGNESIUM (ICP)	621.00	24.31	2	51.09
CALCIUM (ICP)	1210.00	40.08	2	60.38
BORON	22.50	10.81	3	6.24
SILICA	9.83	28.81	2	0.68
SUM OF CATIONS	14411.33	SUM OF CATION CHARGES		656.17
ANIONS				
CHLORIDE	26700.00	35.45	1	753.11
SULFATE	5275.00	96.05	2	109.84
IODIDE	0.00	126.90	1	0.00
BROMIDE	26.60	79.91	1	0.33
FLUORIDE	1.27	19.00	1	0.07
FIELD HCO3*	51.20	61.01	1	0.84
HCO3 CONVERT TO CO3**	25.18			
SUM OF ANIONS	32028.05	SUM OF ANION CHARGES		864.19
TOTAL DISSOLVED SOLIDS	52500.00	CHARGE DIFFERENCE		208.02
FIELD CONDUCTIVITY	68400.00	% CHARGE DIFFERENCE		13.68
FIELD COND./TDS	1.30			

*FIELD HCO3 UTILIZED FOR CHARGE BALANCE CALCULATION
**FIELD HCO3 CONVERTED TO EQUIVALENT CO3 FOR SUMMATION OF ANIONS AND TDS

Potential Tracers for Use in the Culebra Transport Test Program

CAS Number	Chemical Names	
433-97-6	Ortho-Trifluoromethy Benzoic Acid	✓
454-92-2	A,A,A-Trifluoro-Meta-Toluic Acid	
455-24-3	A,A,A-Trifluoro-P-Toluic Acid	
4519-39-5	2,3-Difluorobenzoic Acid	✓
1583-58-0	2,4-Difluorobenzoic Acid	✓
2991-28-8	2,5-Difluorobenzoic Acid	✓
385-00-2	2,6-Difluorobenzoic Acid	✓
455-86-7	3,4-Difluorobenzoic Acid	✓
455-40-3	3,5-Difluorobenzoic Acid	✓
61079-72-9	2,3,4-Trifluorobenzoic Acid	✓
2358-29-4	2,3,6-Trifluorobenzoic Acid	✓
446-17-3	2,4,5-Trifluorobenzoic Acid	✓
28314-80-9	2,4,6-Trifluorobenzoic Acid	✓
121602-93-5	3,4,5-Trifluorobenzoic Acid	✓
1201-31-6	2,3,4,5-Tetrafluorobenzoic Acid	✓
652-18-6	2,3,5,6-Tetrafluorobenzoic Acid	✓
602-94-8	Pentafluorobenzoic Acid	✓
599-00-8	Trifluoroacetic Acid-d	
422-64-0	Pentafluoropropionic Acid	
375-22-4	Heptafluorobutyric Acid	
451-69-4	2-Fluorocinnamic Acid	
20595-30-6	Trans-3-Fluorocinnamic Acid	
459-32-5	4-Fluorocinnamic Acid	
94977-52-3	Trans-2,4-Difluorocinnamic Acid	
112898-33-6	Trans-2,5-Difluorocinnamic Acid	
102082-89-3	Trans-2,6-Difluorocinnamic Acid	
112897-97-9	Trans-3,4-Difluorocinnamic Acid	
84315-23-1	3,5-Difluorocinnamic Acid	

State of New Mexico
ENVIRONMENT DEPARTMENT
Ground Water Protection and Remediation Bureau
Harold Runnels Building
1190 St. Francis Drive, P.O. Box 26110
Santa Fe, New Mexico 87502
(505) 827-2918 phone
(505) 827-2965 fax

GARY E. JOHNSON
GOVERNOR

MARK E. WEIDLER
SECRETARY

EDGAR T. THORNTON, III
DEPUTY SECRETARY

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

RECEIVED
NOV 27 1995

November 16, 1995

Casper file

K.S. Donovan, Manager
Environment, Safety, Health
and Regulatory Compliance
Westinghouse Electric Corporation
P.O. Box 2078
Carlsbad, NM 88221

RE: Response to Notice of Intent to discharge a tracer chemical and alcohols at the WIPP Site

Dear Mr. Donovan:

The New Mexico Environment Department (NMED) has received your Notice of Intent for the discharge of an additional tracer chemical and alcohols to be used for the Culebra Transport Test Program at the Waste Isolation Pilot Plant in accordance with Section 1-201. of the NM Water Quality Control Commission (WQCC) Regulations. The facility is located approximately 30 miles east of Carlsbad in Section 29, T22S, R31E, Eddy County. The application satisfies the requirements of Section 1-201 of the WQCC Regulations.

Based on the presently available information in your letter, dated October 11, 1995, a discharge plan is not being required for this discharge as long as the discharge is as described.

A discharge plan is not being required because it appears that the discharge conforms to the numerical ground water standards in WQCC Reg. 3-103 and does not contain any toxic pollutants as defined in WQCC Reg.1-101.ZZ, and therefore is exempt from the discharge plan requirement under WQCC Reg.3-105.A.

The exempt discharge is briefly described as follows:

NMED issued two letters dated January 31, 1995 and June 12, 1995, stating that a discharge plan was not required for a group of chemical tracers to be used in the Culebra Transport Test Program. Since that time, the discharger has submitted another request for an additional chemical constituent to be added to the original

group as well as three alcohols.

The Culebra Transport Test Program consists of injecting tracer solutions into the Culebra Formation at the H-19 well at the WIPP site hydropad. Movement of the tracers will be achieved by pumping approximately 10 hydrologic test wells located along the principle flow path of the Culebra aquifer. Monitoring will take place in seven additional wells at the site.

In addition to the constituents approved in the letters, dated January 31, 1995 and June 12, 1995, as possible tracers for the tests, the following tracer chemical and alcohols have been added:

POTASSIUM IODIDE

METHANOL
ETHANOL
ISOPROPYL ALCOHOL

Although a discharge plan is not being required for this discharge, you are not relieved of liability should your operation result in actual pollution of surface or ground waters. Further, this decision by the NMED does not relieve you of your responsibility to comply with any other applicable federal, state, and/or local laws and regulations, such as zoning requirements, plumbing codes and nuisance ordinances.

If at some time in the future you intend to change the amount, the character, or location of your discharge so that it will not be as described, or if observation or monitoring shows that the discharge is not as described, you must file a new request for exemption with the Ground Water Section.

If you have any questions, please contact either Clint Marshall of the Ground Water Section staff at 827-0027 or the Program Manager of the Ground Water Section at 827-2900.

Sincerely,

Marcy Leavitt, Chief
Ground Water Protection &
Remediation Bureau

ML:CLM

xc: Garrison McCaslin, District Manager, NMED Dist. 4
Dan Robertson, Consultant, DOE - WIPP Site, P.O. Box 3090, Carlsbad, NM 88221

Westinghouse
Electric Corporation

Government Operations

WZ:95:03310
DA:95:2345
Waste Isolation Division

Box 2078
Carlsbad NM 88221

May 16, 1995

Mr. Clint Marshall, Geologist III
New Mexico Environment Department
Ground Water Bureau
P. O. Box 26110
1190 St. Francis Drive
Santa Fe, New Mexico 87502

Subject: REQUEST FOR USE OF ADDITIONAL POTENTIAL TRACER CHEMICAL

Dear Mr. Marshall:

Approval is requested for the use of the following chemical in the Culebra Transport Test Programs under development by Sandia National Laboratories at the Waste Isolation Pilot Plant (WIPP). A Material Safety Data Sheet (MSDS) is attached.

Hydrochloric Acid (Hydrogen Chloride)
CAS Number 7647-01-0

Because of additional solubility concerns with the previously approved chlorinated and fluorinated benzoic acid tracers, the use of hydrochloric acid is requested. The total amount of material deployed will be 100 kilograms or less.

Approval is also requested for the chemicals that would be used in the acidization of the DOE-1 well. The chemical requirements for the treatment have been provided by The Western Company with specific chemicals and quantities along with MSDSs.

As with our previous requests, the U. S. Department of Energy, Carlsbad Area Office (DOE-CAO) is requesting written concurrence that a Part 3-100 Discharge Plan will not be required for the proposed Culebra Transport Test Programs. The Culebra Transport Test Program is designed to collect additional hydrogeologic characterization data from the Culebra, and perhaps Rustler formation, to test hydrological models for the WIPP Performance Assessment.

To accomplish this, Sandia National Laboratories proposed to establish up to 10 hydrologic test wells located along the principal flow path of the Culebra aquifer. Most of the new test wells will be located on the new H-19 hydropad. Three existing wells in the vicinity of the H-19 hydropad and several new wells strategically located around H-19 will be used to monitor pressure responses associated with the hydrologic tracer tests being conducted at the H-19 hydropad.

OHS11150

SECTION 1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MDL INFORMATION SYSTEMS, INC.
14600 CATALINA STREET
SAN LEANDRO, CA 94577
1-800-635-0064 OR
1-510-895-1313

FOR EMERGENCY SOURCE INFORMATION
CONTACT: 1-615-366-2000 USA

CAS NUMBER: 7647-01-0
RTECS NUMBER: MW9610000

SUBSTANCE: HYDROGEN CHLORIDE, ANHYDROUS

TRADE NAMES/SYNONYMS:
HYDROCHLORIC ACID, ANHYDROUS; HYDROGEN CHLORIDE; SPIRITS OF SALT; MURIATIC ACID; HYDROCHLORIC ACID; HYDROCHLORIC ACID GAS; ANHYDROUS HYDROCHLORIC ACID; HYDROGEN CHLORIDE (HCL); STCC 4904270; UN 1050; CLH; OHS11150

CHEMICAL FAMILY:
Inorganic acid

CREATION DATE: 11/26/84 REVISION DATE: 12/02/94

SECTION 2 COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT : HYDROGEN CHLORIDE, ANHYDROUS
CAS NUMBER: 7647-01-0
PERCENTAGE: 100

OTHER CONTAMINANTS: NONE

SECTION 3 HAZARDS IDENTIFICATION

CERCLA RATINGS (SCALE 0-3): HEALTH=3 FIRE=0 REACTIVITY=1 PERSISTENCE=0
NFPA RATINGS (SCALE 0-4): HEALTH=3 FIRE=0 REACTIVITY=0

EMERGENCY OVERVIEW:
Colorless gas or fuming liquid with a suffocating odor.
Causes skin burns. Causes severe burns to mucous membranes. Causes respiratory tract and eye irritation, possibly severe.
Container may rupture in heat of fire. May react with water.
Do not breathe gas. Do not get in eyes, on skin, or on clothing. Keep away from heat and flame. Do not allow water to get in container. Do not puncture

least 15-20 minutes). Continue irrigating with normal saline until the pH has returned to normal (30-60 minutes). Cover with sterile bandages. Get medical attention immediately.

INGESTION:
FIRST AID- Do not use gastric lavage or emesis. Give large amounts of water or milk. Repeat if vomiting occurs. Ingested corrosive should be diluted approximately 100 times to render it harmless to tissues. (Dreisbach & Robertson; Handbook of Poisoning; 12th Ed.). Do not give anything by mouth to a person who is unconscious or otherwise unable to swallow. If vomiting occurs, keep head lower than hips to help prevent aspiration. Maintain airway and respiration. Treat symptomatically and supportively. Get medical attention immediately.

NOTE TO PHYSICIAN
ANTIDOTE:
No specific antidote. Treat symptomatically and supportively.

SECTION 5 FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARD:
Negligible fire hazard when exposed to heat or flame.

Container may explode in heat of fire.

EXTINGUISHING MEDIA:
Dry chemical or carbon dioxide
(1993 Emergency Response Guidebook, RSPA P 5800.6).

For larger fires, use water spray, fog or regular foam
(1993 Emergency Response Guidebook, RSPA P 5800.6).

FIREFIGHTING:
Do not get water inside container. Move container from fire area if you can do it without risk. Apply cooling water to sides of containers that are exposed to flames until well after fire is out. Stay away from ends of tanks. Isolate area until gas has dispersed (1993 Emergency Response Guidebook, RSPA P 5800.6, Guide Page 15).

Use agent suitable for type of fire. Cool containers with flooding quantities of water, apply from as far a distance as possible. Avoid breathing corrosive vapors, keep upwind.

FLASH POINT: no data available
LOWER FLAMMABLE LIMIT: no data available
UPPER FLAMMABLE LIMIT: no data available
AUTOIGNITION: no data available

Observe all federal, state and local regulations when storing this substance.

Store in accordance with 29 CFR 1910.101.

Protect against physical damage. Store in cool, well-ventilated place, separated from all oxidizing materials (NFPA 49, Hazardous Chemicals Data, 1975).

Store away from incompatible substances.

Threshold Planning Quantity (TPQ):
The Superfund Amendments and Reauthorization Act (SARA) Section 302 requires that each facility where any extremely hazardous substance is present in a quantity equal to or greater than the TPQ established for that substance notify the state emergency response commission for the state in which it is located. Section 303 of SARA requires these facilities to participate in loca emergency response planning (40 CFR 355.30).

Threshold quantity (TQ): 5000 pounds
The Occupational Safety and Health Administration (OSHA) Process Safety Management (PSM) standard requires that facilities utilizing a process which involves a chemical at or above its specified threshold quantity comply with the provisions of 29 CFR 1910.119, Process Safety Management of highly hazardous chemicals.

SECTION 8 EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:
HYDROGEN CHLORIDE (HYDROCHLORIC ACID):
5 ppm (7.6 mg/m3) OSHA ceiling
5 ppm (7.6 mg/m3) ACGIH ceiling
5 ppm (7.6 mg/m3) NIOSH recommended ceiling
5 ppm (7.6 mg/m3) DFG MAK TWA;
10 ppm (15.2 mg/m3) DFG MAK 5 minute peak, momentary value, 8 times/shift

Measurement method: Silica gel tube; sodium bicarbonate/sodium carbonate; ion chromatography; (NIOSH Vol. III # 7903, Inorganic Acids).

500 pounds SARA Section 302 Threshold Planning Quantity (gas)
5000 pound SARA Section 304 Reportable Quantity (gas)
5000 pounds CERCLA Section 103 Reportable Quantity (liquid)
5000 pounds OSHA Process Safety Management Threshold Quantity (gas)
Subject to SARA Section 313 Annual Toxic Chemical Release Reporting

VENTILATION:
Provide local exhaust ventilation system to meet published exposure limits.

EYE PROTECTION:

Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

DESCRIPTION: Colorless gas or fuming liquid with a suffocating odor.
MOLECULAR WEIGHT: 36.46
MOLECULAR FORMULA: H-CL
BOILING POINT: -121 F (-85 C)
FREEZING POINT: -175 F (-115 C)
VAPOR PRESSURE: 3040 mmHg @ 17.8 C
VAPOR DENSITY: 1.268
SPECIFIC GRAVITY: 1.187 @ -85 C
WATER SOLUBILITY: 82.3% @ 0 C
PH: acidic in solution
ODOR THRESHOLD: 1-5 ppm
EVAPORATION RATE: not applicable
SOLVENT SOLUBILITY: Soluble in alcohol, ether, benzene, methanol.

SECTION 10 STABILITY AND REACTIVITY

REACTIVITY:
HYDROGEN CHLORIDE (HYDROCHLORIC ACID):
May react exothermically with water.

CONDITIONS TO AVOID:
Material is extremely poisonous; avoid inhalation of vapors or contact with skin. Contents may be under pressure; containers may rupture violently and travel a considerable distance.

INCOMPATIBILITIES:
HYDROGEN CHLORIDE (HYDROCHLORIC ACID):
ACETIC ANHYDRIDE: Violent reaction.
ALCOHOLIC HYDROGEN CYANIDE: Explosive reaction.
ALUMINUM: Explosion.
ALUMINUM-TITANIUM ALLOYS: Ignites or incandesces when heated.
2-AMINOETHANOL: Violent reaction.
AMMONIUM HYDROXIDE: Violent reaction.
BASES: Violent reaction.
BRASS: Corrodes.
BRONZE: Corrodes.
CALCIUM CARBIDE: Reacts with incandescence.

2644 ppm/30 minutes inhalation-mouse LC50.
MONOHYDRATE: No data available.
DIHYDRATE: No data available.
TRIHYDRATE: No data available.
HEXAHYDRATE: No data available.
HYDROGEN CHLORIDE (AEROSOL): 5666 ppm/30 minutes inhalation-rat LC50; 2142 ppm/30 minutes inhalation-mouse LC50.
HYDROCHLORIC ACID: 1300 ppm/30 minutes inhalation-human LCLo; 3000 ppm/5 minutes inhalation-human LCLo; 3124 ppm/1 hour inhalation-rat LC50; 1108 ppm/1 hour inhalation-mouse LC50; 4413 ppm/30 minutes inhalation-rabbit LCLo; 4413 ppm/30 minutes inhalation-guinea pig LCLo; 685 ug/m3/24 hours/84 days-continuous inhalation-rat TCLo; 900 mg/kg oral-rabbit LD50; 1449 mg/kg intraperitoneal-mouse LD50; 81 mg/kg unreported-man LDLo; mutagenic data (RTECS); reproductive effects data (RTECS).
CARCINOGEN STATUS: Human Inadequate Evidence, Animal Inadequate Evidence (IARC Group-3).
LOCAL EFFECTS: Corrosive- inhalation, skin, eye and ingestion.
ACUTE TOXICITY LEVEL: Moderately toxic by inhalation and ingestion.
TARGET EFFECTS: No data available.

HEALTH EFFECTS
INHALATION:
HYDROGEN CHLORIDE (HYDROCHLORIC ACID):
CORROSIVE. 100 ppm Immediately Dangerous to Life or Health.
ACUTE EXPOSURE- Inhalation of gas or fumes at levels of 5-35 ppm may cause irritation and burning of the throat, coughing and choking; 50-100 ppm may be barely tolerable for 1 hour. High levels may cause inflammation and occasionally ulceration of the nose, throat or larynx, bronchitis, pneumonia, palpitations and headache. Higher concentrations may cause necrosis of the tracheal and bronchial epithelium, nasoseptal perforation, atelectasis, emphysema, damage to pulmonary blood vessels and lesions of the liver and other organs. Death may be due to laryngeal spasm, bronchopneumonia or pulmonary edema. 1300-2000 ppm may be dangerous, even on brief exposures. Reproductive effects have been reported in animals.
CHRONIC EXPOSURE- Repeated or prolonged exposure may cause erosion and discoloration of exposed teeth, chronic bronchitis and gastritis.

SKIN CONTACT:
HYDROGEN CHLORIDE (HYDROCHLORIC ACID):
CORROSIVE.
ACUTE EXPOSURE- Contact may cause severe irritation, inflammation, ulceration, necrosis and chemical burns. Shock symptoms may develop including rapid pulse, sweating and collapse. Photosensitization reactions may occur in persons previously exposed. Contact with a compressed gas may cause frostbite.
CHRONIC EXPOSURE- Repeated or prolonged contact with vapors or dilute solutions may cause dermatitis. Photosensitization may occur.

100 pound CERCLA Section 103 Reportable Quantity.

SECTION 14 TRANSPORT INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION SHIPPING NAME-ID NUMBER, 49 CFR 172.101:
Hydrogen chloride, refrigerated liquid-UN 2186

U.S. DEPARTMENT OF TRANSPORTATION HAZARD CLASS OR DIVISION, 49 CFR 172.101:
2.3 - Poisonous gas

U.S. DEPARTMENT OF TRANSPORTATION LABELING REQUIREMENTS, 49 CFR 172.101 AND SUBPART E:
Poison gas, corrosive

U.S. DEPARTMENT OF TRANSPORTATION PACKAGING AUTHORIZATIONS:
EXCEPTIONS: None
NON-BULK PACKAGING: None
BULK PACKAGING: 49 CFR 173.314 and 49 CFR 173.315

U.S. DEPARTMENT OF TRANSPORTATION QUANTITY LIMITATIONS 49 CFR 172.101:
PASSENGER AIRCRAFT OR RAILCAR: Forbidden
CARGO AIRCRAFT ONLY: Forbidden

SECTION 15 REGULATORY INFORMATION

TSCA STATUS: Y

CERCLA SECTION 103 (40CFR302.4):	Y		
HYDROGEN CHLORIDE (HYDROCHLORIC ACID)		5000	pounds RQ
SARA SECTION 302 (40CFR355.30):	Y		
HYDROGEN CHLORIDE (HYDROCHLORIC ACID)		500	pounds TPQ
SARA SECTION 304 (40CFR355.40):	Y		
HYDROGEN CHLORIDE (HYDROCHLORIC ACID)		5000	pounds RQ
SARA SECTION 313 (40CFR372.65):	Y		
HYDROGEN CHLORIDE (HYDROCHLORIC ACID)			
OSHA PROCESS SAFETY (29CFR1910.119):	Y		
HYDROGEN CHLORIDE (HYDROCHLORIC ACID)		5000	pounds TQ
CALIFORNIA PROPOSITION 65:	N		

SARA HAZARD CATEGORIES, SARA SECTIONS 311/312 (40 CFR 370.21)

ACUTE HAZARD:	Y
CHRONIC HAZARD:	N
FIRE HAZARD:	N
REACTIVITY HAZARD:	Y
SUDDEN RELEASE HAZARD:	Y

THE WESTERN COMPANY

Treatment Requirements for: ACID TREATMENT

ACID BLEND: 3,000 GALLONS 20% HCL

Containing per 1000 Gallons:
1.00 Gallons I-22, CORROSION INHIBITOR
2.00 Gallons NINE-40, SURFACTANT
5.00 Gallons AC-2, ORGANIC ACID
5.00 Gallons CITRIC ACID LIQUID, IRON CONTROL

FLUSH TO BE PROVIDED BY SANDIA NATIONAL LABS.

Occupational Safety and Health Administration

MATERIAL SAFETY DATA SHEET

DATE: September, 1984

SECTION I

Supplier's Name The Western Company of North America	EMERGENCY TELEPHONE NO. (817) 731-5100
ADDRESS (Number, Street, City, State and ZIP Code) P. O. Box 186, Ft. Worth, TX 6101	
CHEMICAL NAME AND SYNONYMS Proprietary blend	TRADE NAME AND SYNONYMS De-emulsifier, Nino-40
CHEMICAL FAMILY Surfactant	FORMULA W.I.N. 100472

SECTION IA - HAZARDOUS MATERIAL CLASSIFICATION

D.O.T. PROPER SHIPPING NAME	Flammable Liquid, n.o.s.
NAME OF HAZARDOUS COMPONENT	Methanol
HAZARD CLASS	Flammable Liquid
IDENTIFICATION NUMBER	UN1993
D.O.T. LABEL(S) REQUIRED	Flammable Liquid
PRECAUTIONARY LABEL	Attached

SECTION II - HAZARDOUS INGREDIENTS	%	TLV (Units)
Xylene	2	100pp
Methanol		200pp
Isopropanol		400pp
Heavy Aromatic Naphtha		100pp

SECTION III - PHYSICAL DATA

BOILING POINT (°F)	162	SPECIFIC GRAVITY (H2O=1)	0.881
VAPOR PRESSURE (mm Hg)	200	PERCENT VOLATILE BY VOLUME (%)	62
VAPOR DENSITY (AIR=1) @ 100°F	>5	EVAPORATION RATE (n-Butyl Acetate=1)	2.00
SOLUBILITY IN WATER	Dispersible		

APPEARANCE AND ODOR: Light yellow liquid, hydrocarbon odor

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED) 52°F Seta CC-ASTM	FLAMMABLE LIMITS	LEL 0.5	UEL [illegible]

EXTINGUISHING MEDIA
Dry chemical, foam, water spray or water fog

SPECIAL FIRE FIGHTING PROCEDURES
Use water spray to cool fire exposed surfaces and to protect personnel.

UNUSUAL FIRE AND EXPLOSION HAZARDS
Respiratory protection required for fire-fighting personnel.

(Continued on reverse side)

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

MATERIAL SAFETY DATA SHEET

DATE: 31JUL85

SECTION I

Supplier's Name: The Western Company of North America	EMERGENCY TELEPHONE NO.: (817) 731-5100
ADDRESS (Number, Street, City, State, and ZIP Code): P. O. Box 186, Ft. Worth, TX 76101	
CHEMICAL NAME AND SYNONYMS: 40%acetic acid 60%acetic anhydride	TRADE NAME AND SYNONYMS: ACID, AC-2
CHEMICAL FAMILY: Acid	FORMULA: W.I.N.100174

SECTION IA HAZARDOUS MATERIAL CLASSIFICATION

D.O.T. PROPER SHIPPING NAME	Corrosive liquid, N.O.S.
NAME OF HAZARDOUS COMPONENT	Acetic Anhydride
HAZARD CLASS	Corrosive material
IDENTIFICATION NUMBER	UN1760
D.O.T. LABEL(S) REQUIRED	Corrosive
PRECAUTIONARY LABEL	

SECTION II - HAZARDOUS INGREDIENTS

	%	TLV (Units)

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)		SPECIFIC GRAVITY (H_2O=1) @20°C	1.072
VAPOR PRESSURE (mm Hg.)		PERCENT, VOLATILE BY VOLUME (%)	100
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (_____ =1)	
SOLUBILITY IN WATER	miscible		

APPEARANCE AND ODOR: clear, colorless liquid - sharp acrid odor

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used): 112°F, Tag Open cup; 109°F, Tag Closed Cup	FLAMMABLE LIMITS	Lel: ~~2.9%~~	Uel: ~~10.3%~~

EXTINGUISHING MEDIA: Water spray, dry chemical, and alcohol foam are effective extinguishing agents for acetic anhydride fires.

SPECIAL FIRE FIGHTING PROCEDURES: Addition of water will reduce intensity of flames. If a leak or spill has not ignited, use water spray to disperse the vapor and to protect the personnel trying to stop the leak. Fire fighters should wear self-contained breathing apparatus and full protective clothing.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Water and foam react with chemical, but the heat liberated is not enough to create a hazard. Dry chemical forced below surface can cause foaming and boiling.

U.S. DEPARTMENT OF LABOR
WORKPLACE STANDARDS ADMINISTRATION
Bureau of Labor Standards

MATERIAL SAFETY DATA SHEET

February 28, 1

SECTION I

MANUFACTURER'S NAME: Miles Laboratories, Inc., Marschall Division	EMERGENCY TELEPHONE NO.: (219) 264-8238
ADDRESS (Number, Street, City, State, and ZIP Code): 1127 Myrtle Street, Elkhart, Indiana 46514	
CHEMICAL NAME AND SYNONYMS: 2 Hydroxyl-1,2,3 propane tricarboxylic acid	TRADE NAME AND SYNONYMS: Citric Acid, U.S.P., F.C.C. Anh.
CHEMICAL FAMILY: Organic Acid (M.W. 192.13)	FORMULA: $HOC(CH_2COOH)_2\ COOH$ $C_6H_8O_7$

SECTION II HAZARDOUS INGREDIENTS

N/A

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					

N/A

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)

SECTION III PHYSICAL DATA

BOILING POINT (°F)	N/A	SPECIFIC GRAVITY (H_2O=1)	1.665
VAPOR PRESSURE (mm Hg)	N/A	PERCENT VOLATILE BY VOLUME (%)	N/A
VAPOR DENSITY (AIR=1)	N/A	EVAPORATION RATE (=1)	N/A
SOLUBILITY IN WATER @ 25°C	162 g/100 ml.	Melting Point	153°C

APPEARANCE AND ODOR: Colorless, translucent, odorless, free-flowing, white crystalline granular powder.

SECTION IV FIRE AND EXPLOSION HAZARD DATA

N/A

FLASH POINT (METHOD USED)	FLAMMABLE LIMITS	LEL	UEL

EXTINGUISHING MEDIA

SPECIAL FIRE FIGHTING PROCEDURES

UNUSUAL FIRE AND EXPLOSION HAZARDS

The statements, recommendations and suggestions appearing herein are based upon opinions believed to be reliable; however, it is the user's responsibility to satisfy himself as to the safety, toxicity and suitability of this product for his own use. This product should not be considered to produce any [illegible]

MATERIAL SAFETY DATA SHEET

DATE: August 17, 1990

SECTION I

Supplier's Name The Western Company of North America	EMERGENCY TELEPHONE NO. (817) 731-5100
ADDRESS (Number, Street, City, State, and ZIP Code) P. O. Box 186, Ft. Worth, TX 76101	
CHEMICAL NAME AND SYNONYMS	TRADE NAME AND SYNONYMS I-22
CHEMICAL FAMILY Surfactant Blend	FORMULA Proprietary W.I.N. 19965

SECTION IA HAZARDOUS MATERIAL CLASSIFICATION

D.O.T. PROPER SHIPPING NAME	Flammable liquid (n.o.s.) (RQ /)
NAME OF HAZARDOUS COMPONENT	Methanol
HAZARD CLASS	Flammable liquid
IDENTIFICATION NUMBER	UN 1993
D.O.T. LABEL(S) REQUIRED	Flammable
PRECAUTIONARY LABEL	Flammable

SECTION II - HAZARDOUS INGREDIENTS	%	TLV (Units)
Methanol (67561)	15-25	200
Heavy Aromatic Naptha (64742945)	3-4	100

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	ND	SPECIFIC GRAVITY (H_2O=1)	0.94
VAPOR PRESSURE (mm Hg.)	ND	PERCENT, VOLATILE BY VOLUME (%)	25
VAPOR DENSITY (AIR=1)	ND	EVAPORATION RATE (_____=1)	ND
SOLUBILITY IN WATER	Dispersible		
APPEARANCE AND ODOR	Dark liquid with methanol/alkyl amine odor		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) 62 F (PMCC)	FLAMMABLE LIMITS	LEL [illegible]	UEL [illegible]

EXTINGUISHING MEDIA
Foam, dry chemical, CO_2, water spray.

SPECIAL FIRE FIGHTING PROCEDURES
Water spray may be used to cool fire exposed metal containers to prevent re-ignition from hot surfaces. Do not breathe smoke or hot fumes.

UNUSUAL FIRE AND EXPLOSION HAZARDS
None known

(Continued on reverse side)

WZ:95:03350
DA:95:3180

December 27, 1995

Mr. Clint L. Marshall, Geologist III
New Mexico Environment Department
Ground Water Bureau
P. O. Box 26110
1190 St. Francis Drive
Santa Fe, New Mexico 87502

Subject: REQUEST FOR USE OF ADDITIONAL TRACER CHEMICAL AND INCREASED ALCOHOL USAGE

Dear Mr. Marshall:

The Westinghouse Waste Isolation Division (WID) requests your approval for the use of the following tracer chemical in the Culebra Transport Test Programs under development by Sandia National Laboratories at the Waste Isolation Pilot Plant. Material Safety Data Sheets are attached.

- 2,3,5-Trifluorobenzoic acid - CAS Number 654-87-5

The amount of 2,3,5-Trifluorobenzoic acid used through the remainder of the Culebra Transport Test Program is approximately five kilograms.

The WID also requests an increase in the quantity of alcohols that may be injected as part of the Culebra Transport Test Program. The alcohols previously approved by you are methanol, ethanol and isopropyl alcohol, in combined total of seven liters. The amount now requested for injection is no more than 100 liters of any one approved alcohol, and no more than 180 liters combined total for all three approved alcohols. The increase in alcohol use is required because it is necessary to dissolve some approved tracer compounds in water soluble organic solvents.

Additionally, the U. S. Department of Energy, Carlsbad Area Office (DOE-CAO) is requesting written concurrence that a Discharge Plan will not be required for the proposed Culebra Transport Test Programs. The Culebra Transport Test Program is designed to collect additional hydrogeologic characterization data from the Culebra aquifer to test hydrological models for the WIPP Performance Assessment.

The DOE-CAO believes that this project should be exempted from the discharge plan requirements because the existing concentration of Total Dissolved Solids (TDS) in ground water in adjacent wells exceeds 10,000 mg/l. Additionally, neither the proposed tracer nor the chemical solvents are listed in Title 20, Chapter 6, Part 2, Subpart I, Section 1101, *Toxic Pollutants*, or Section 3103, *Standards for Ground Water of 10,000 mg/l TDS Concentration or Less*.

If you have any questions about this proposed project or require any additional information, please contact Mr. Jim Hollen at (505) 234--271.

Sincerely,

K. S. Donovan, Manager
Environment, Safety, and Health

JRH:paa

Attachments

cc: R. D. Kaiser, CAO
A. R. Sattler, SNL

bcc: WID Distribution

G. J. Barnes	MS-120
J. L. Lee	MS-115

WZ:95:03340
DA:95:3102

Westinghouse Electric Corporation
Government Operations
Waste Isolation Division
Box 2078
Carlsbad New Mexico 88221

October 11, 1995

Mr. Clint Marshall, Geologist III
New Mexico Environment Department
Ground Water Bureau
P. O. Box 26110
1190 St. Francis Drive
Santa Fe, New Mexico 87502

Subject: REQUEST FOR USE OF ADDITIONAL TRACER CHEMICALS

Dear Mr. Marshall:

Approval is requested for the use of the following tracer chemical in the Culebra Transport Test Programs under development by Sandia National Laboratories at the Waste Isolation Pilot Plant (WIPP). Material Safety Data Sheets (MSDS) are attached.

Potassium Iodide - CAS Number 7681-11-0

The amount of potassium iodide used through the remainder of the Culebra Transport Test Program is approximately six kilograms.

Approval is also requested for the following alcohols:

Methanol - CAS Number 67-56-1
Ethanol - CAS Number 64-17-5
Isopropyl Alcohol - CAS Number 67-63-0

These may be deployed to enhance the solubility of other previously approved tracer chemicals. The combined total amount of these alcohols would not exceed seven liters.

As with our previous requests, the U. S. Department of Energy, Carlsbad Area Office (DOE-CAO) is requesting written concurrence that a Part 3-100 Discharge Plan will not be required for the proposed Culebra Transport Test Programs. The Culebra Transport Test Program is designed to collect additional hydrogeologic characterization data from the Culebra aquifer to test hydrological models for the WIPP Performance Assessment.

The DOE-CAO believes that this project should be exempted from the discharge plan requirements because the existing concentration of ground water in adjacent wells exceeds 10,000 mg/l Total Dissolved Solids (TDS). Additionally, neither the proposed tracer nor the alcohols are listed in the New Mexico Water Quality Control Regulations, Part 1-101(2ZZ), *Toxic Pollutants*, or Part 3-103, *Standards for Ground Water of 10,000 mg/l TDS Concentration or Less*.

If you have any questions about this proposed project or require any additional information, please contact Mr. J. R. Hollen at (505) 234-8271.

Sincerely,

Chuan-Fu Wu for

K. S. Donovan, Manager
Environment, Safety, and Health

JRH:lwg

Attachment

cc: R. D. Kaiser, CAO
A. R. Sattler, SNL

State of New Mexico
ENVIRONMENT DEPARTMENT
Ground Water Protection and Remediation Bureau
Harold Runnels Building
1190 St. Francis Drive, P.O. Box 26110
Santa Fe, New Mexico 87502
(505) 827-2918 phone
(505) 827-2965 fax

GARY E. JOHNSON
GOVERNOR

MARK E. WEIDLER
SECRETARY

EDGAR T. THORNTON, III
DEPUTY SECRETARY

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

RECEIVED
FEB 17 1996

February 14, 1996

K.S. Donovan, Manager
Environment, Safety, Health
and Regulatory Compliance
Westinghouse Electric Corporation
P.O. Box 2078
Carlsbad, NM 88221

RE: Response to Notice of Intent to discharge an additional tracer chemical and increased alcohol usage at the WIPP Site

Dear Mr. Donovan:

The New Mexico Environment Department (NMED) has received your Notice of Intent for the discharge of an additional tracer chemical and to increase alcohol usage for the Culebra Transport Test Program at the Waste Isolation Pilot Plant in accordance with Section 1201. of the NM Water Quality Control Commission (WQCC) Regulations. The facility is located approximately 30 miles east of Carlsbad in Section 29, T22S, R31E, Eddy County. The application satisfies the requirements of Section 1201 of the WQCC Regulations.

Based on the presently available information in your letter, dated December 27, 1995, a discharge plan is not being required for this discharge as long as the discharge is as described.

A discharge plan is not being required because it appears that the discharge conforms to the numerical ground water standards in WQCC Reg. 3103 and does not contain any toxic pollutants as defined in WQCC Reg. 1101.TT, and therefore is exempt from the discharge plan requirement under WQCC Reg. 3105.A.

The exempt discharge is briefly described as follows:

NMED issued three letters dated January 31, 1995, June 12, 1995 and November 16, 1995 stating that a discharge plan was not required for a group of chemical tracers and alcohols to be used in the Culebra Transport Test Program. Since that time, the discharger has submitted another request for an additional chemical constituent to be added to the original group and to increase the quantity of alcohols used in the test.

The Culebra Transport Test Program consists of injecting tracer solutions into the Culebra Formation at the H-19 well at the WIPP site hydropad. Movement of the tracers will be achieved by pumping approximately 10 hydrologic test wells located along the principle flow path of the Culebra aquifer. Monitoring will take place in seven additional wells at the site.

In addition to the constituents approved in the letters dated January 31, 1995, June 12, 1995 and November 16, 1995, as possible tracers for the tests, the following tracer chemical has been added:

2,3,5-TRIFLUOROBENZOIC ACID

Quantities of the following alcohols will be increased from a combined total of 7 liters to no more than 100 liters for any one approved alcohol, or a combined total not to exceed 180 liters.

METHANOL
ETHANOL
ISOPROPYL ALCOHOL

Although a discharge plan is not being required for this discharge, you are not relieved of liability should your operation result in actual pollution of surface or ground waters. Further, this decision by the NMED does not relieve you of your responsibility to comply with any other applicable federal, state, and/or local laws and regulations, such as zoning requirements, plumbing codes and nuisance ordinances.

If at some time in the future you intend to change the amount, the character, or location of your discharge so that it will not be as described, or if observation or monitoring shows that the discharge is not as described, you must file a new request for exemption with the Ground Water Section.

If you have any questions, please contact either Clint Marshall of the Ground Water Section staff at 827-0027 or the Program Manager of the Ground Water Section at 827-2900.

Sincerely,

Marcy Leavitt, Chief
Ground Water Quality Bureau

ML:CLM

xc: Garrison McCaslin, District Manager, NMED Dist. 4
Dan Robertson, Consultant, DOE - WIPP Site, P.O. Box 3090, Carlsbad, NM 88221

State of New Mexico
ENVIRONMENT DEPARTMENT
Ground Water Protection and Remediation Bureau
Harold Runnels Building
1190 St. Francis Drive, P.O. Box 26110
Santa Fe, New Mexico 87502
(505) 827-2918 phone
(505) 827-2965 fax

GARY E. JOHNSON
GOVERNOR

MARK E. WEIDLER
SECRETARY
EDGAR T. THORNTON, III
DEPUTY SECRETARY

RECEIVED
NOV 30 1995

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

RECEIVED
27 1995

November 16, 1995

K.S. Donovan, Manager
Environment, Safety, Health
and Regulatory Compliance
Westinghouse Electric Corporation
P.O. Box 2078
Carlsbad, NM 88221

RE: Response to Notice of Intent to discharge a tracer chemical and alcohols at the WIPP Site

Dear Mr. Donovan:

The New Mexico Environment Department (NMED) has received your Notice of Intent for the discharge of an additional tracer chemical and alcohols to be used for the Culebra Transport Test Program at the Waste Isolation Pilot Plant in accordance with Section 1-201. of the NM Water Quality Control Commission (WQCC) Regulations. The facility is located approximately 30 miles east of Carlsbad in Section 29, T22S, R31E, Eddy County. The application satisfies the requirements of Section 1-201 of the WQCC Regulations.

Based on the presently available information in your letter, dated October 11, 1995, a discharge plan is not being required for this discharge as long as the discharge is as described.

A discharge plan is not being required because it appears that the discharge conforms to the numerical ground water standards in WQCC Reg. 3-103 and does not contain any toxic pollutants as defined in WQCC Reg.1-101.ZZ, and therefore is exempt from the discharge plan requirement under WQCC Reg.3-105.A.

The exempt discharge is briefly described as follows:

NMED issued two letters dated January 31, 1995 and June 12, 1995, stating that a discharge plan was not required for a group of chemical tracers to be used in the Culebra Transport Test Program. Since that time, the discharger has submitted another request for an additional chemical constituent to be added to the original

group as well as three alcohols.

The Culebra Transport Test Program consists of injecting tracer solutions into the Culebra Formation at the H-19 well at the WIPP site hydropad. Movement of the tracers will be achieved by pumping approximately 10 hydrologic test wells located along the principle flow path of the Culebra aquifer. Monitoring will take place in seven additional wells at the site.

In addition to the constituents approved in the letters, dated January 31, 1995 and June 12, 1995, as possible tracers for the tests, the following tracer chemical and alcohols have been added:

POTASSIUM IODIDE

METHANOL
ETHANOL
ISOPROPYL ALCOHOL

Although a discharge plan is not being required for this discharge, you are not relieved of liability should your operation result in actual pollution of surface or ground waters. Further, this decision by the NMED does not relieve you of your responsibility to comply with any other applicable federal, state, and/or local laws and regulations, such as zoning requirements, plumbing codes and nuisance ordinances.

If at some time in the future you intend to change the amount, the character, or location of your discharge so that it will not be as described, or if observation or monitoring shows that the discharge is not as described, you must file a new request for exemption with the Ground Water Section.

If you have any questions, please contact either Clint Marshall of the Ground Water Section staff at 827-0027 or the Program Manager of the Ground Water Section at 827-2900.

Sincerely,

Marcy Leavitt, Chief
Ground Water Protection &
Remediation Bureau

ML:CLM

xc: Garrison McCaslin, District Manager, NMED Dist. 4
Dan Robertson, Consultant, DOE - WIPP Site, P.O. Box 3090, Carlsbad, NM 88221

State of New Mexico
ENVIRONMENT DEPARTMENT
Ground Water Protection and Remediation Bureau
Harold Runnels Building
1190 St. Francis Drive, P.O. Box 26110
Santa Fe, New Mexico 87502
(505) 827-2918 phone
(505) 827-2965 fax

'ARY E. JOHNSON
GOVERNOR

MARK E. WEIDLER
SECRETARY

EDGAR T. THORNTON, III
DEPUTY SECRETARY

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

June 12, 1995

L.R. Fitch, Manager
Environment, Safety, Health
and Regulatory Compliance
Westinghouse Electric Corporation
P.O. Box 2078
Carlsbad, NM 88221

RE: Response to Notice of Intent to discharge additional tracer chemicals at the WIPP Site

Dear Mr. Fitch:

The New Mexico Environment Department (NMED) has received your Notice of Intent for the discharge of additional tracer chemicals to be used for the Culebra Transport Test Program at the Waste Isolation Pilot Plant in accordance with Section 1-201. of the NM Water Quality Control Commission (WQCC) Regulations. The facility is located approximately 30 miles east of Carlsbad in Section 29, T22S, R31E, Eddy County. The application satisfies the requirements of Section 1-201 of the WQCC Regulations.

Based on the presently available information in your letters, dated April 12, 1995, May 16, 1995 and May 24, 1995, a discharge plan is not being required for this discharge as long as the discharge is as described.

A discharge plan is not being required because it appears that the discharge conforms to the numerical ground water standards in WQCC Reg. 3-103 and does not contain any toxic pollutants as defined in WQCC Reg.1-101.ZZ, and therefore is exempt from the discharge plan requirement under WQCC Reg.3-105.A.

The exempt discharge is briefly described as follows:

NMED issued a letter on January 31, 1995 stating that a discharge

plan was not required for a group of chemical tracers to be used in the Culebra Transport Test Program. Since that time, the discharger has submitted two requests for additional chemical constituents to be added to the original group.

The Culebra Transport Test Program consists of injecting tracer solutions into the Culebra Formation at the H-19 well at the WIPP site hydropad. Movement of the tracers will be achieved by pumping approximately 10 hydrologic test wells located along the principle flow path of the Culebra aquifer. Monitoring will take place in seven additional wells at the site.

In addition to the constituents approved in the letter, dated January 31, 1995, as possible tracers for the tests, the following chemicals have been added:

SODIUM HYDROXIDE
EOSIN B, Certified
2-AMINO-6-FLOUROBENZOTHIAZOLE, 99%
EOSIN Y FREE ACID
FLUORESCENT BRIGHTENER 28
2-HYDROXYNICOTINIC ACID
PHLOXINE B, Certified
LISSAMINE GREEN B
LISSAMINE FLAVINE FF
HYDROCHLORIC ACID
AC-2 (Organic Acid)
CITRIC ACID
I-22 (Corrosion Inhibitor)
NINE 40 (Surfactant)

Although a discharge plan is not being required for this discharge, you are not relieved of liability should your operation result in actual pollution of surface or ground waters. Further, this decision by the NMED does not relieve you of your responsibility to comply with any other applicable federal, state, and/or local laws and regulations, such as zoning requirements, plumbing codes and nuisance ordinances.

If at some time in the future you intend to change the amount, the character, or location of your discharge so that it will not be as described, or if observation or monitoring shows that the discharge is not as described, you must file a new request for exemption with the Ground Water Section.

If you have any questions, please contact either Clint Marshall of the Ground Water Section staff at 827-0027 or the Program Manager of the Ground Water Section at 827-2900.

Sincerely,

Marcy Leavitt, Chief
Ground Water Protection &
Remediation Bureau

ML:CLM

xc: Garrison McCaslin, District Manager, NMED Dist. 4
Dan Robertson, Consultant, DOE - WIPP Site, P.O. Box 3090, Carlsbad, NM 88221

ENVIRONMENT DEPARTMENT
Harold Runnels Building
1190 St. Francis Drive, P.O. Box 26110
Santa Fe, New Mexico 87502
(505) 827-2850

MARK E. WEIDLER
SECRETARY

EDGAR T. THORNTON, III
DEPUTY SECRETARY

GARY E. JOHNSON
GOVERNOR

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

January 31, 1995

E. K. Hunter, Chief
DOE - WIPP Site Branch
P.O. Box 3090
Carlsbad, NM 88221

RE: WIPP - Culebra Transport Test Program

Dear Mr. Hunter:

The New Mexico Environment Department (NMED) has received your letter for the Culebra Transport Test Program at the Waste Isolation Pilot Plant (WIPP) in accordance with Section 1-201. of the NM Water Quality Control Commission (WQCC) Regulations. The facility is located approximately 30 miles east of Carlsbad in Section 29, T22S, R31E, Eddy County. The application satisfies the requirements of Section 1-201 of the WQCC Regulations.

Based on the presently available information in your letter, a discharge plan is not being required for this discharge as long as the discharge is as described in your letter of October 21, 1994.

A discharge plan is not being required because it appears that the discharge conforms to the numerical ground water standards and does not contain any toxic pollutants as defined in WQCC Reg.1-101.ZZ, and therefore is exempt from the discharge plan requirement under WQCC Reg.3-105.A.

The exempt discharge is briefly described as follows:

Tracer solutions will be injected into the Culebra Formation at the H-19 well at the WIPP site hydropad. Movement of the tracers will be achieved by pumping approximately 10 hydrologic test wells located along the principle flow path of the Culebra aquifer. Monitoring will take place in seven additional wells at the site. Among the list of constituents submitted as possible tracers for the tests, Trifluoroacetic Acid-d will be excluded because it may possibly degrade to one or more of the contaminants listed in WQCC Regulation 1-101.ZZ.

Although a discharge plan is not being required for this discharge, you are not relieved of liability should your operation result in actual pollution of surface or ground waters. Further, this decision by the NMED does not relieve you of your responsibility to comply with any other applicable federal, state, and/or local laws and regulations, such as zoning requirements, plumbing codes and nuisance ordinances.

If at some time in the future you intend to change the amount, the character, or location of your discharge so that it will not be as described, or if observation or monitoring shows that the discharge is not as described, you must file a new request for exemption with the Ground Water Section.

If you have any questions, please contact either Clint Marshall of the Ground Water Section staff at 827-0027 or the Program Manager of the Ground Water Section at 827-2900.

Sincerely,

Marcy Leavitt, Chief
Ground Water Protection &
Remediation Bureau

ML:CLM/clm

xc: Garrison McCaslin, District Manager, NMED Dist. 4
Thomas Burt, HPM, NMED District 4, Carlsbad
Dan Robertson, Consultant, DOE - WIPP Site, P.O. Box 3090, Carlsbad, NM 88221

APPENDIX C

SAMPLING DATA COLLECTED FROM THE SALT HANDLING SHAFT SUMP DURING ROUTINE MAINTENANCE OPERATIONS

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

July 11, 1995
Report No.: 00026683

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, WID/WIPP
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. KAREN GAYDOSH

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

Carbon Copy:

SAMPLE ID: WST-95-112 TCLP
NUS SAMPLE NO: P0313855
P.O. NO.: 67763

DATE SAMPLED: 22-JUN-95
DATE RECEIVED: 23-JUN-95
APPROVED BY: Kieda, Chuck

LN	TEST CODE	DETERMINATION	RESULT	UNITS
1	S903	TCLP Bottle Extraction		
		Begin Date/Time	06/27(1300)	
		End Date/Time	07/28(0800)	
		Extraction Fluid	1	
		Final Leachate pH	5.3	
2	AAGL	Silver, Leachable (Ag)	< 0.01	mg/L
3	AASL	Arsenic, Leachable (As)	0.4	mg/L
4	ABAL	Barium, Leachable (Ba)	0.26	mg/L
5	ACDL	Cadmium, Leachable (Cd)	0.19	mg/L
6	ACRL	Chromium, Leachable (Cr)	0.05	mg/L
7	AHGL	Mercury, Leachable (Hg)	< 0.0002	mg/L
8	APBL	Lead, Leachable (Pb)	< 0.05	mg/L
9	ASEL	Selenium, Leachable (Se)	< 0.1	mg/L

COMMENTS:

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

July 11, 1995
Report No.: 00026683

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, WID/WIPP
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. KAREN GAYDOSH

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

Carbon Copy:

SAMPLE ID: WST-95-113 TCLP
NUS SAMPLE NO: P0313856
P.O. NO.: 67763

DATE SAMPLED: 22-JUN-95
DATE RECEIVED: 23-JUN-95
APPROVED BY: Kieda, Chuck

LN	TEST CODE	DETERMINATION	RESULT	UNITS
1	S903	TCLP Bottle Extraction		
		Begin Date/Time	06/27(1300)	
		End Date/Time	06/28(0800)	
		Extraction Fluid	1	
		Final Leachate pH	5.3	
2	OTCLP	SEMIVOLATILES - TCLP		
		1,4-dichlorobenzene [p-dichlorobenzene]	< 0.1	mg/L
		2,4,5-trichlorophenol	< 0.5	mg/L
		2,4,6-trichlorophenol	< 0.1	mg/L
		2,4-dinitrotoluene	< 0.1	mg/L
		2-methylphenol [o-cresol]	< 0.1	mg/L
		3/4-methylphenol (m-cresol/p-cresol)	< 0.1	mg/L
		hexachlorobenzene	< 0.1	mg/L
		hexachlorobutadiene	< 0.1	mg/L
		hexachloroethane	< 0.1	mg/L
		nitrobenzene	< 0.1	mg/L
		pentachlorophenol	< 0.5	mg/L
		pyridine	< 0.1	mg/L
4	G130L	CHLORINATED HERBICIDES - TCLP		
		2,4,5-TP [silvex]	< 0.5	ug/L
		2,4-D	< 5	ug/L
6	G121L	ORGANOCHLORINE PESTICIDES - TCLP		
		chlordane	< 1	ug/L
		endrin	< 0.5	ug/L
		gamma-BHC [lindane]	< 0.2	ug/L
		heptachlor	< 0.2	ug/L
		methoxychlor	< 5	ug/L
		toxaphene	< 10	ug/L
8	S904	Zero Headspace Extraction [ZHE]		
		Begin Date/Time	06/29(1300)	
		End Date/Time	06/30(0830)	

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, WID/WIPP
SAMPLE ID: WST-95-113 TCLP
NUS SAMPLE NO: P0313856

LN	TEST CODE	DETERMINATION	RESULT	UNITS
9	OVZHE	VOLATILES - TCLP/ZHE		
		1,1-dichloroethene [1,1-dichloroethylene]	< 0.05	mg/L
		1,2-dichloroethane	< 0.05	mg/L
		2-butanone [methylethyl ketone] [MEK]	< 0.5	mg/L
		benzene	< 0.05	mg/L
		carbon tetrachloride	< 0.05	mg/L
		chlorobenzene	< 0.05	mg/L
		chloroform	< 0.05	mg/L
		tetrachloroethene [tetrachloroethylene]	< 0.05	mg/L
		trichloroethene [trichloroethylene]	< 0.05	mg/L
		vinyl chloride	< 0.1	mg/L

COMMENTS:
6 Unable to analyze at less dilution due to the sample matrix.

APPENDIX D

REPRESENTATIVE ANALYTICAL DATA FROM WASTE HANDLING SHAFT SUMP BRINE WATERS AND MUCK SAMPLES

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

March 06, 1996
Report No.: 00029730
Section A Page 2

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-067 TCLP
NUS SAMPLE NO: P0335815
P.O. NO.: 500101

DATE SAMPLED: 20-FEB-96
DATE RECEIVED: 21-FEB-96
APPROVED BY: Simanic, Joanne

WSS Brine Water Barrel Nos. 96-031 — 96-035

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	S903	TCLP Bottle Extraction		
		Final Leachate pH		7.5
2	AAGL	Silver, Leachable (Ag)	100	< 1 mg/L
4	ABAL	Barium, Leachable (Ba)	100	5.6 mg/L
5	ACDL	Cadmium, Leachable (Cd)	100	< 0.5 mg/L
6	ACRL	Chromium, Leachable (Cr)	100	< 2 mg/L
7	AHGL	Mercury, Leachable (Hg)	4	< 0.0004 mg/L
8	APBL	Lead, Leachable (Pb)	100	6 mg/L
10	AASA	Arsenic, Total (As)		
		Arsenic, Leachable (As)	100	< 0.3 mg/L
11	ASEA	Selenium, Total (Se)		
		Selenium, Leachable (Se)	200	< 0.8 mg/L

COMMENTS:

1 This sample was less than 0.5% solid, thus the sample was filtered, not extracted.

3 Elevated detection limits are reported for arsenic, silver, cadmium, chromium, mercury and selenium due to sample matrix interference.

Halliburton NUS
CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

March 06, 1996
Report No.: 00029730
Section A Page 1

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-067
NUS SAMPLE NO: P0335814
P.O. NO.: 500101

DATE SAMPLED: 20-FEB-96
DATE RECEIVED: 21-FEB-96
APPROVED BY: Simanic, Joanne

Brine
WSS Lead Water / Barrel No. 96-031 — 96-035

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT	UNITS
1	1490	pH	1	7.3	

COMMENTS:

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

March 06, 1996
Report No.: 00029730
Section A Page 4

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-068 TCLP
NUS SAMPLE NO: P0335817
P.O. NO.: 500101

DATE SAMPLED: 20-FEB-96
DATE RECEIVED: 21-FEB-96
APPROVED BY: Simanic, Joanne

WSS Brine Water Barrel Nos. 96-036 — 96-039

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	S903	TCLP Bottle Extraction		
		Begin Date/Time		02/22(1300)
		End Date/Time		02/23(0700)
		Extraction Fluid		2
		Final Leachate pH		7.4
2	AAGL	Silver, Leachable (Ag)	10	< 0.1 mg/L
3	AASL	Arsenic, Leachable (As)	10	< 1 mg/L
4	ABAL	Barium, Leachable (Ba)	10	1.6 mg/L
5	ACDL	Cadmium, Leachable (Cd)	10	< 0.05 mg/L
6	ACRL	Chromium, Leachable (Cr)	10	< 0.2 mg/L
7	AHGL	Mercury, Leachable (Hg)	4	< 0.0004 mg/L
8	APBL	Lead, Leachable (Pb)	10	0.7 mg/L
9	ASEL	Selenium, Leachable (Se)	10	< 1 mg/L

COMMENTS:

2 Elevated detection limits are reported for silver, arsenic, cadmium, chromium, mercury and selenium due to sample matrix interference.

Halliburton NUS
CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

March 06, 1996
Report No.: 00029730
Section A Page 3

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-068
NUS SAMPLE NO: P0335816
P.O. NO.: 500101

DATE SAMPLED: 20-FEB-96
DATE RECEIVED: 21-FEB-96
APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT	UNITS
1	I490	pH	1	7.6	

COMMENTS:

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

March 06, 1996
Report No.: 00029730
Section A Page 6

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-069 TCLP
NUS SAMPLE NO: P0335819
P.O. NO.: 500101

DATE SAMPLED: 20-FEB-96
DATE RECEIVED: 21-FEB-96
APPROVED BY: Simanic, Joanne

Borehole water from WSS Barrel No. 96-040

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	S903	TCLP Bottle Extraction		
		Final Leachate pH		7.1
2	AAGL	Silver, Leachable (Ag)	100	< 1 mg/L
4	ABAL	Barium, Leachable (Ba)	100	3.5 mg/L
5	ACDL	Cadmium, Leachable (Cd)	100	< 0.5 mg/L
6	ACRL	Chromium, Leachable (Cr)	100	< 2 mg/L
7	AHGL	Mercury, Leachable (Hg)	4	< 0.0004 mg/L
8	APBL	Lead, Leachable (Pb)	100	14 mg/L
10	AASA	Arsenic, Total (As)		
		Arsenic, Leachable (As)	100	< 0.3 mg/L
11	ASEA	Selenium, Total (Se)		
		Selenium, Leachable (Se)	200	< 0.8 mg/L

COMMENTS:

1 This sample was less than 0.5% solid, thus the sample was filtered, not extracted.

2 Elevated detection limits are reported for silver, arsenic, cadmium, chromium, mercury and selenium due to sample matrix interference.

Halliburton NUS
CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

March 06, 1996
Report No.: 00029730
Section A Page 5

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-069
NUS SAMPLE NO: P0335818
P.O. NO.: 500101

DATE SAMPLED: 20-FEB-96
DATE RECEIVED: 21-FEB-96
APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT	UNITS
1	1490	pH	1	7.1	

COMMENTS:

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

March 06, 1996
Report No.: 00029730
Section A Page 8

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-070 TCLP
NUS SAMPLE NO: P0335821
P.O. NO.: 500101

DATE SAMPLED: 20-FEB-96
DATE RECEIVED: 21-FEB-96
APPROVED BY: Simanic, Joanne

WS5 Brine Water Barrel No 96-029, 96-030

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	S903	TCLP Bottle Extraction		
		Final Leachate pH		7.1
2	AAGL	Silver, Leachable (Ag)	100	< 1 mg/L
4	ABAL	Barium, Leachable (Ba)	100	6.4 mg/L
5	ACDL	Cadmium, Leachable (Cd)	100	< 0.5 mg/L
6	ACRL	Chromium, Leachable (Cr)	100	< 2 mg/L
7	AHGL	Mercury, Leachable (Hg)	4	< 0.0004 mg/L
8	APBL	Lead, Leachable (Pb)	100	11 mg/L
10	AASA	Arsenic, Total (As)	100	< 0.3 mg/L
11	ASEA	Selenium, Total (Se)	200	< 0.8 mg/L

COMMENTS:

1 This sample was less than 0.5% solid, thus the sample was filtered, not extracted.

2 Elevated detection limits are reported for silver, arsenic, cadmium, chromium, mercury and selenium due to sample matrix interference.

Halliburton NUS
CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

March 06, 1996
Report No.: 00029730

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-070
NUS SAMPLE NO: P0335820
P.O. NO.: 500101

DATE SAMPLED: 20-FEB-96
DATE RECEIVED: 21-FEB-96
APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT	UNITS
1	I490	pH	1	7.1	

COMMENTS:

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

March 06, 1996
Report No.: 00029730
Section A Page 10

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-071 TCLP
NUS SAMPLE NO: P0335823
P.O. NO.: 500101

DATE SAMPLED: 20-FEB-96
DATE RECEIVED: 21-FEB-96
APPROVED BY: Simanic, Joanne

WSS Brine Water 96-043, 96-044

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	S903	TCLP Bottle Extraction		
		Final Leachate pH		7.4
2	AAGL	Silver, Leachable (Ag)	100	< 1 mg/L
4	ABAL	Barium, Leachable (Ba)	100	8.6 mg/L
5	ACDL	Cadmium, Leachable (Cd)	100	< 0.5 mg/L
6	ACRL	Chromium, Leachable (Cr)	100	< 2 mg/L
7	AHGL	Mercury, Leachable (Hg)	4	< 0.0004 mg/L
8	APBL	Lead, Leachable (Pb)	100	8 mg/L
10	AASA	Arsenic, Total (As)	100	< 0.3 mg/L
11	ASEA	Selenium, Total (Se)	200	< 0.8 mg/L

COMMENTS:

1 This sample was less than 0.5% solid, thus the sample was filtered, not extracted.

2 Elevated detection limits are reported for silver, arsenic, cadmium, chromium, mercury and selenium due to sample matrix interference.

Halliburton NUS
CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

March 06, 1996
Report No.: 00029730
Section A Page 9

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-071
NUS SAMPLE NO: P0335822
P.O. NO.: 500101

DATE SAMPLED: 20-FEB-96
DATE RECEIVED: 21-FEB-96
APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT	UNITS
1	I490	pH	1	7.4	

COMMENTS:

Halliburton NUS
CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

March 26, 1996
Report No.: 00029942
Section A Page 1

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-072 P335825
NUS SAMPLE NO: P0338153
P.O. NO.: 500101

DATE SAMPLED: 20-FEB-96
DATE RECEIVED: 21-FEB-96
APPROVED BY: Simanic, Joanne

Waste Oil Barrell No.: 96-047

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	ASEA	Selenium, Total (Se)	100	0.94 mg/L

COMMENTS:

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

March 05, 1996
Report No.: 00029705

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-073 TCLP
NUS SAMPLE NO: P0335971
P.O. NO.: 500101

DATE SAMPLED: 21-FEB-96
DATE RECEIVED: 26-FEB-96
APPROVED BY: Simanic, Joanne

WSS muck pile N of site

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	S903	TCLP Bottle Extraction		
		Begin Date/Time		02/27(1315)
		End Date/Time		02/28(0700)
		Extraction Fluid		1
		Final Leachate pH		6.7
2	AAGL	Silver, Leachable (Ag)	2	< 0.02 mg/L
3	AASL	Arsenic, Leachable (As)	2	0.5 mg/L
4	ABAL	Barium, Leachable (Ba)	2	0.45 mg/L
5	ACDL	Cadmium, Leachable (Cd)	2	0.018 mg/L
6	ACRL	Chromium, Leachable (Cr)	2	< 0.04 mg/L
7	AHGL	Mercury, Leachable (Hg)	4	< 0.0004 mg/L
8	APBL	Lead, Leachable (Pb)	2	0.12 mg/L
9	ASEL	Selenium, Leachable (Se)	2	< 0.2 mg/L

COMMENTS:

2 Elevated detection limits are reported on silver, chromium, mercury and selenium due to sample matrix interference.

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

March 05, 1996
Report No.: 00029705

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-074 TCLP
NUS SAMPLE NO: P0335972
P.O. NO.: 500101

DATE SAMPLED: 21-FEB-96
DATE RECEIVED: 26-FEB-96
APPROVED BY: Simanic, Joanne

WSS much like my Site

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	S903	TCLP Bottle Extraction		
		Begin Date/Time		02/27(1315)
		End Date/Time		02/28(0700)
		Extraction Fluid		1
		Final Leachate pH		6.8
2	OTCLP	SEMIVOLATILES - TCLP		
		1,4-dichlorobenzene [p-dichlorobenzene]	10	< 0.1 mg/L
		2,4,5-trichlorophenol	10	< 0.5 mg/L
		2,4,6-trichlorophenol	10	< 0.1 mg/L
		2,4-dinitrotoluene	10	< 0.1 mg/L
		2-methylphenol [o-cresol]	10	< 0.1 mg/L
		3/4-methylphenol (m-cresol/p-cresol)	10	< 0.1 mg/L
		hexachlorobenzene	10	< 0.1 mg/L
		hexachlorobutadiene	10	< 0.1 mg/L
		hexachloroethane	10	< 0.1 mg/L
		nitrobenzene	10	< 0.1 mg/L
		pentachlorophenol	10	< 0.5 mg/L
		pyridine	10	< 0.1 mg/L
8	S904	Zero Headspace Extraction [ZHE]		
		Begin Date/Time		02/27(1240)
		End Date/Time		02/28(0700)
9	OVZHE	VOLATILES - TCLP/ZHE		
		1,1-dichloroethene [1,1-dichloroethylene]	10	< 0.05 mg/L
		1,2-dichloroethane	10	< 0.05 mg/L
		2-butanone [methylethyl ketone] [MEK]	10	< 0.5 mg/L
		benzene	10	< 0.05 mg/L
		carbon tetrachloride	10	< 0.05 mg/L
		chlorobenzene	10	< 0.05 mg/L
		chloroform	10	< 0.05 mg/L
		tetrachloroethene [tetrachloroethylene]	10	< 0.05 mg/L
		trichloroethene [trichloroethylene]	10	< 0.05 mg/L
		vinyl chloride	10	< 0.1 mg/L

Halliburton NUS
CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

March 05, 1996
Report No.: 00029705
Section A Page 3

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO
SAMPLE ID: WST-96-074 TCLP
NUS SAMPLE NO: P0335972

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT	UNITS

COMMENTS:

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

March 05, 1996
Report No.: 00029705

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-075 TCLP
NUS SAMPLE NO: P0335973
P.O. NO.: 500101

DATE SAMPLED: 21-FEB-96
DATE RECEIVED: 26-FEB-96
APPROVED BY: Simanic, Joanne

WSS Muck N of Site (Southside of pile)

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	S903	TCLP Bottle Extraction		
		Begin Date/Time		02/27(1315)
		End Date/Time		02/28(0700)
		Extraction Fluid		1
		Final Leachate pH		6.8
2	OTCLP	SEMIVOLATILES - TCLP		
		1,4-dichlorobenzene [p-dichlorobenzene]	10	< 0.1 mg/L
		2,4,5-trichlorophenol	10	< 0.5 mg/L
		2,4,6-trichlorophenol	10	< 0.1 mg/L
		2,4-dinitrotoluene	10	< 0.1 mg/L
		2-methylphenol [o-cresol]	10	< 0.1 mg/L
		3/4-methylphenol (m-cresol/p-cresol)	10	< 0.1 mg/L
		hexachlorobenzene	10	< 0.1 mg/L
		hexachlorobutadiene	10	< 0.1 mg/L
		hexachloroethane	10	< 0.1 mg/L
		nitrobenzene	10	< 0.1 mg/L
		pentachlorophenol	10	< 0.5 mg/L
		pyridine	10	< 0.1 mg/L
8	S904	Zero Headspace Extraction [ZHE]		
		Begin Date/Time		02/27(1240)
		End Date/Time		02/28(0700)
9	OVZHE	VOLATILES - TCLP/ZHE		
		1,1-dichloroethene [1,1-dichloroethylene]	10	< 0.05 mg/L
		1,2-dichloroethane	10	< 0.05 mg/L
		2-butanone [methylethyl ketone] [MEK]	10	< 0.5 mg/L
		benzene	10	< 0.05 mg/L
		carbon tetrachloride	10	< 0.05 mg/L
		chlorobenzene	10	< 0.05 mg/L
		chloroform	10	< 0.05 mg/L
		tetrachloroethene [tetrachloroethylene]	10	< 0.05 mg/L
		trichloroethene [trichloroethylene]	10	< 0.05 mg/L
		vinyl chloride	10	< 0.1 mg/L

Halliburton NUS
CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

March 05, 1996
Report No.: 00029705
Section A Page 5

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO
SAMPLE ID: WST-96-075 TCLP
NUS SAMPLE NO: P0335973

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT	UNITS

COMMENTS:

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

March 05, 1996
Report No.: 00029705
Section A Page 6

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-076 TCLP
NUS SAMPLE NO: P0335974
P.O. NO.: 500101

DATE SAMPLED: 21-FEB-96
DATE RECEIVED: 26-FEB-96
APPROVED BY: Simanic, Joanne

WSS mud Pile Nz site Southside

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	S903	TCLP Bottle Extraction		
		Begin Date/Time		02/27(1315)
		End Date/Time		02/28(0700)
		Extraction Fluid		1
		Final Leachate pH		6.7
2	AAGL	Silver, Leachable (Ag)	2	< 0.02 mg/L
3	AASL	Arsenic, Leachable (As)	2	0.4 mg/L
4	ABAL	Barium, Leachable (Ba)	2	0.45 mg/L
5	ACDL	Cadmium, Leachable (Cd)	2	0.014 mg/L
6	ACRL	Chromium, Leachable (Cr)	2	< 0.04 mg/L
7	AHGL	Mercury, Leachable (Hg)	4	< 0.0004 mg/L
8	APBL	Lead, Leachable (Pb)	2	< 0.1 mg/L
9	ASEL	Selenium, Leachable (Se)	2	< 0.2 mg/L

COMMENTS:

2 Elevated detection limits are reported on silver, chromium, mercury, lead and selenium due to sample matrix interference.

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

March 05, 1996
Report No.: 00029705
Section A Page 7

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-077 TCLP
NUS SAMPLE NO: P0335975
P.O. NO.: 500101

DATE SAMPLED: 22-FEB-96
DATE RECEIVED: 26-FEB-96
APPROVED BY: Simanic, Jeanne

WSS Insitu Muck

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	S903	TCLP Bottle Extraction		
		Begin Date/Time		02/27(1315)
		End Date/Time		02/28(0700)
		Extraction Fluid		1
		Final Leachate pH		7.8
2	OTCLP	SEMIVOLATILES - TCLP		
		1,4-dichlorobenzene [p-dichlorobenzene]	10	< 0.1 mg/L
		2,4,5-trichlorophenol	10	< 0.5 mg/L
		2,4,6-trichlorophenol	10	< 0.1 mg/L
		2,4-dinitrotoluene	10	< 0.1 mg/L
		2-methylphenol [o-cresol]	10	< 0.1 mg/L
		3/4-methylphenol (m-cresol/p-cresol)	10	< 0.1 mg/L
		hexachlorobenzene	10	< 0.1 mg/L
		hexachlorobutadiene	10	< 0.1 mg/L
		hexachloroethane	10	< 0.1 mg/L
		nitrobenzene	10	< 0.1 mg/L
		pentachlorophenol	10	< 0.5 mg/L
		pyridine	10	< 0.1 mg/L

COMMENTS:

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

March 05, 1996
Report No.: 00029705
Section A Page 8

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-078 TCLP
NUS SAMPLE NO: P0335976
P.O. NO.: 500101

DATE SAMPLED: 22-FEB-96
DATE RECEIVED: 26-FEB-96
APPROVED BY: Simanic, Joanne

WSS Insitu muck

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT	UNITS
1	S903	TCLP Bottle Extraction			
		Begin Date/Time		02/27(1315)	
		End Date/Time		02/28(0700)	
		Extraction Fluid		1	
		Final Leachate pH		7.7	
2	AAGL	Silver, Leachable (Ag)	2	< 0.02	mg/L
3	AASL	Arsenic, Leachable (As)	2	0.4	mg/L
4	ABAL	Barium, Leachable (Ba)	2	0.41	mg/L
5	ACDL	Cadmium, Leachable (Cd)	2	< 0.01	mg/L
6	ACRL	Chromium, Leachable (Cr)	2	< 0.04	mg/L
7	AHGL	Mercury, Leachable (Hg)	4	< 0.0004	mg/L
8	APBL	Lead, Leachable (Pb)	2	< 0.1	mg/L
9	ASEL	Selenium, Leachable (Se)	2	< 0.2	mg/L

COMMENTS:

2 Elevated detection limits are reported on silver, cadmium, chromium, mercury, lead and selenium due to sample matrix interference.

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

March 05, 1996
Report No.: 00029705
Section A Page 9

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-079
NUS SAMPLE NO: P0335977
P.O. NO.: 500101

DATE SAMPLED: 22-FEB-96
DATE RECEIVED: 26-FEB-96
APPROVED BY: Simanic, Joanne

WSS Insitu Muck

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	OVTCS	TCL - VOLATILES		
		1,1,1-trichloroethane	1	< 5 ug/L
		1,1,2,2-tetrachloroethane	1	< 5 ug/L
		1,1,2-trichloroethane	1	< 5 ug/L
		1,1-dichloroethane	1	< 5 ug/L
		1,1-dichloroethene [1,1-dichloroethylene]	1	< 5 ug/L
		1,2-dichloroethane	1	< 5 ug/L
		1,2-dichloroethene (total)	1	< 5 ug/L
		1,2-dichloropropane	1	< 5 ug/L
		2-butanone [methylethyl ketone] [MEK]	1	< 50 ug/L
		2-hexanone	1	< 50 ug/L
		4-methyl-2-pentanone [methyl isobutyl ketone] [MIBK]	1	< 50 ug/L
		acetone	1	54 ug/L
		benzene	1	< 5 ug/L
		bromodichloromethane [dichlorobromomethane]	1	< 5 ug/L
		bromomethane [methyl bromide]	1	< 10 ug/L
		carbon disulfide	1	< 5 ug/L
		carbon tetrachloride	1	< 5 ug/L
		chlorobenzene	1	< 5 ug/L
		chloroethane	1	< 10 ug/L
		chloroform	1	< 5 ug/L
		chloromethane [methyl chloride]	1	< 10 ug/L
		cis-1,3-dichloropropene	1	< 5 ug/L
		dibromochloromethane	1	< 5 ug/L
		dichloromethane [methylene chloride]	1	< 5 ug/L
		ethylbenzene	1	7 ug/L
		methylbenzene [toluene]	1	15 ug/L
		styrene	1	< 5 ug/L
		tetrachloroethene [tetrachloroethylene]	1	< 5 ug/L
		trans-1,3-dichloropropene	1	< 5 ug/L
		tribromomethane [bromoform]	1	< 5 ug/L
		trichloroethene [trichloroethylene]	1	< 5 ug/L
		vinyl chloride	1	< 10 ug/L

Halliburton NUS
CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

March 05, 1996
Report No.: 00029705
Section A Page 10

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO
SAMPLE ID: WST-96-079
NUS SAMPLE NO: P0335977

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
		xylenes (total)	1	35 ug/L

COMMENTS:

APPENDIX E

REPRESENTATIVE ANALYTICAL DATA FROM EXHAUST SHAFT SUMP BRINE WATERS AND MUCK SAMPLES

Halliburton NUS
CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

May 02, 1996
Report No.: 00030580
Section A Page 1

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, W
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-105 TCLP P338435
NUS SAMPLE NO: P0341383
P.O. NO.: 500101

DATE SAMPLED: 18-MAR-96
DATE RECEIVED: 20-MAR-96
APPROVED BY: Simanic, Joanne

EXHAUST SHAFT BRINE WATER

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT	UNIT
1	APBL	Lead, Leachable (Pb)	50	0.5	mg/L

COMMENTS:
1 Result was obtained by method of standard addition. A linear correlation was unable to be established. Matrix interference is suspected. This should be considered when evaluating the data.

RECEIVED
MAY - 1996

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

May 02, 1996
Report No.: 00030580

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, W
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-105 TCLP P338435
NUS SAMPLE NO: P0341740
P.O. NO.: 500101

DATE SAMPLED: 18-MAR-96
DATE RECEIVED: 20-MAR-96
APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
2	AAGL	Silver, Leachable (Ag)	10	0.008 mg/L
5	ACDL	Cadmium, Leachable (Cd)	10	0.015 mg/L
6	ACRL	Chromium, Leachable (Cr)	50	0.18 mg/L
8	APBL	Lead, Leachable (Pb)	50	0.34 mg/L

COMMENTS:

5 Recovery of the graphite furnace analytical spike was less than fifty percent, indicating the presence of a matrix interference. The result is therefore estimated because of the presence of this interference.

8 Analyzed by the method of standard additions.

Halliburton NUS
CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

April 04, 1996
Report No.: 00030083
Section A Page 1

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-105
NUS SAMPLE NO: P0338434
P.O. NO.: 500101

DATE SAMPLED: 18-MAR-96
DATE RECEIVED: 20-MAR-96
APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT	UNITS
1	1490	pH	1	6.9	

COMMENTS:

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

April 04, 1996
Report No.: 00030083
Section A Page 2

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-105 TCLP
NUS SAMPLE NO: P0338435
P.O. NO.: 500101

DATE SAMPLED: 18-MAR-96
DATE RECEIVED: 20-MAR-96
APPROVED BY: Simanic, Joanne

Exhaust Draft Catch Basin

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	S903	TCLP Bottle Extraction		
		Final Leachate pH		6.9
2	AAGL	Silver, Leachable (Ag)	50	< 0.5 mg/L
3	AASL	Arsenic, Leachable (As) TCLP ICP	50	< 5 mg/L
4	ABAL	Barium, Leachable (Ba)	50	1.8 mg/L
5	ACDL	Cadmium, Leachable (Cd)	50	< 0.2 mg/L
6	ACRL	Chromium, Leachable (Cr)	50	< 1 mg/L
7	AHGL	Mercury, Leachable (Hg)	1	< 0.0001 mg/L
8	APBL	Lead, Leachable (Pb)	50	< 2 mg/L
9	ASEL	Selenium, Leachable (Se) TCLP ICP	50	< 5 mg/L
10	ASEL	Selenium, Leachable (Se) TCLP AA	100	< 0.4 mg/L
11	AASL	Arsenic, Leachable (As) TCLP AA	100	< 0.3 mg/L

COMMENTS:

1 This sample was less than 0.5% solid, thus the sample was filtered, not extracted.

2 Elevated detection limits are reported for all metals except barium and mercury due to sample matrix interference.

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

April 04, 1996
Report No.: 00030083

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-106 TCLP
NUS SAMPLE NO: P0338436
P.O. NO.: 500101

DATE SAMPLED: 18-MAR-96
DATE RECEIVED: 20-MAR-96
APPROVED BY: Simanic, Joanne

Exhaust Shop Calch Basin

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	S903	TCLP Bottle Extraction		
		Final Leachate pH		6.9
2	OTCLP	SEMIVOLATILES - TCLP		
		1,4-dichlorobenzene [p-dichlorobenzene]	10	< 0.1 mg/L
		2,4,5-trichlorophenol	10	< 0.2 mg/L
		2,4,6-trichlorophenol	10	< 0.1 mg/L
		2,4-dinitrotoluene	10	< 0.1 mg/L
		2-methylphenol [o-cresol]	10	< 0.1 mg/L
		3/4-methylphenol [m-cresol/p-cresol[B]	10	< 0.1 mg/L
		hexachlorobenzene	10	< 0.1 mg/L
		hexachlorobutadiene	10	< 0.1 mg/L
		hexachloroethane	10	< 0.1 mg/L
		nitrobenzene	10	< 0.1 mg/L
		pentachlorophenol	10	< 0.2 mg/L
		pyridine	10	< 0.1 mg/L

COMMENTS:
1 This sample was less than 0.5% solid, thus the sample was filtered, not extracted.

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

April 04, 1996
Report No.: 00030083
Section A Page 4

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-107 TCLP
NUS SAMPLE NO: P0338437
P.O. NO.: 500101

DATE SAMPLED: 18-MAR-96
DATE RECEIVED: 20-MAR-96
APPROVED BY: Simanic, Joanne

Exhaust Shaft Catch Basin

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	S904	Zero Headspace Extraction [ZHE]		
		Begin Date/Time		03/22(0700)
		End Date/Time		03/22(0700)
2	OVZHE	VOLATILES - TCLP/ZHE		
		1,1-dichloroethene [1,1-dichloroethylene]	10	< 0.05 mg/L
		1,2-dichloroethane	10	< 0.05 mg/L
		2-butanone [methylethyl ketone] [MEK]	10	< 0.5 mg/L
		benzene	10	< 0.05 mg/L
		carbon tetrachloride	10	< 0.05 mg/L
		chlorobenzene	10	< 0.05 mg/L
		chloroform	10	< 0.05 mg/L
		tetrachloroethene [tetrachloroethylene]	10	< 0.05 mg/L
		trichloroethene [trichloroethylene]	10	< 0.05 mg/L
		vinyl chloride	10	< 0.1 mg/L

COMMENTS:

1 This sample was less than 0.5% solid, thus the sample was filtered, not extracted.

Halliburton NUS
CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

May 03, 1996
Report No.: 00030624
Section A Page 1

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-108 TCLP P338924
NUS SAMPLE NO: P0341384
P.O. NO.: 500101

DATE SAMPLED: 26-MAR-96
DATE RECEIVED: 28-MAR-96
APPROVED BY: Simanic, Joanne

Exhaust Shaft Debris in Grout Bag Liner

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	APBL	Lead, Leachable (Pb)	50	< 0.1 mg/L
2	ASEL	Selenium, Leachable (Se)	50	< 0.2 mg/L
3	AASL	Arsenic, Leachable (As)	50	< 0.2 mg/L

COMMENTS:

RECEIVED
MAY - 8 1996

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

May 03, 1996
Report No.: 00030624
Section A Page 2

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-109 TCLP P338925
NUS SAMPLE NO: P0341385
P.O. NO.: 500101

DATE SAMPLED: 26-MAR-96
DATE RECEIVED: 28-MAR-96
APPROVED BY: Simanic, Joanne

Scrapings from 6" pipe

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	APBL	Lead, Leachable (Pb)	50	< 0.1 mg/L
2	ASEL	Selenium, Leachable (Se)	50	< 0.2 mg/L
3	AASL	Arsenic, Leachable (As)	50	< 0.2 mg/L

COMMENTS:

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

May 03, 1996
Report No.: 00030624
Section A Page 3

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-110 TCLP P338926
NUS SAMPLE NO: P0341386
P.O. NO.: 500101

DATE SAMPLED: 26-MAR-96
DATE RECEIVED: 28-MAR-96
APPROVED BY: Simanic, Joanne

Scrapings from I Beam

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	APBL	Lead, Leachable (Pb)	50	< 0.1 mg/L
2	ASEL	Selenium, Leachable (Se)	50	< 0.2 mg/L
3	AASL	Arsenic, Leachable (As)	50	< 0.2 mg/L

COMMENTS:

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

May 03, 1996
Report No.: 00030624
Section A Page 4

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-111 TCLP P338927
NUS SAMPLE NO: P0341387
P.O. NO.: 500101

DATE SAMPLED: 26-MAR-96
DATE RECEIVED: 28-MAR-96
APPROVED BY: Simanic, Joanne

Hardened Grout Material

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	APBL	Lead, Leachable (Pb)	50	< 0.1 mg/L
2	ASEL	Selenium, Leachable (Se)	50	< 0.2 mg/L
3	AASL	Arsenic, Leachable (As)	50	< 0.2 mg/L

COMMENTS:

Halliburton NUS
CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

May 03, 1996
Report No.: 00030624
Section A Page 5

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-112 TCLP P338928
NUS SAMPLE NO: P0341388
P.O. NO.: 500101

DATE SAMPLED: 26-MAR-96
DATE RECEIVED: 28-MAR-96
APPROVED BY: Simanic, Joanne

Grout Material

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	APBL	Lead, Leachable (Pb)	50	< 0.1 mg/L
2	ASEL	Selenium, Leachable (Se)	50	< 0.2 mg/L
3	AASL	Arsenic, Leachable (As)	50	< 0.2 mg/L

COMMENTS:

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

May 03, 1996
Report No.: 00030624

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-113 TCLP P338929
NUS SAMPLE NO: P0341389
P.O. NO.: 500101

DATE SAMPLED: 26-MAR-96
DATE RECEIVED: 28-MAR-96
APPROVED BY: Simanic, Joanne

Scrapings from I. Beam

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	APBL	Lead, Leachable (Pb)	50	< 0.1 mg/L
2	ASEL	Selenium, Leachable (Se)	50	< 0.2 mg/L
3	AASL	Arsenic, Leachable (As)	50	< 0.2 mg/L

COMMENTS:

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

May 03, 1996
Report No.: 00030624
Section A Page 7

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-114 TCLP P338930
NUS SAMPLE NO: P0341390
P.O. NO.: 500101

DATE SAMPLED: 26-MAR-96
DATE RECEIVED: 28-MAR-96
APPROVED BY: Simanic, Joanne

Salt Sample / Stratified

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	APBL	Lead, Leachable (Pb)	50	< 0.1 mg/L
2	ASEL	Selenium, Leachable (Se)	50	< 0.2 mg/L
3	AASL	Arsenic, Leachable (As)	50	< 0.2 mg/L

COMMENTS:

Halliburton NUS
CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

May 03, 1996
Report No.: 00030624
Section A Page 8

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-115 TCLP P338931
NUS SAMPLE NO: P0341391
P.O. NO.: 500101

DATE SAMPLED: 26-MAR-96
DATE RECEIVED: 28-MAR-96
APPROVED BY: Simanic, Joanne

Scrapings from 6" Metal Pipe

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	APBL	Lead, Leachable (Pb)	50	< 0.1 mg/L
2	ASEL	Selenium, Leachable (Se)	50	< 0.2 mg/L
3	AASL	Arsenic, Leachable (As)	50	< 0.2 mg/L

COMMENTS:

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

May 03, 1996
Report No.: 00030624

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-116 TCLP P338932
NUS SAMPLE NO: P0341392
P.O. NO.: 500101

DATE SAMPLED: 26-MAR-96
DATE RECEIVED: 28-MAR-96
APPROVED BY: Simanic, Joanne

Scrapings from large pipe

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	APBL	Lead, Leachable (Pb)	50	1.0 mg/L
2	ASEL	Selenium, Leachable (Se)	50	< 0.2 mg/L
3	AASL	Arsenic, Leachable (As)	50	< 0.2 mg/L

COMMENTS:

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

May 03, 1996
Report No.: 00030624
Section A Page 10

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-117 TCLP P338933
NUS SAMPLE NO: P0341393
P.O. NO.: 500101

DATE SAMPLED: 27-MAR-96
DATE RECEIVED: 28-MAR-96
APPROVED BY: Simanic, Joanne

Scraping from Stairs

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	APBL	Lead, Leachable (Pb)	50	< 0.1 mg/L
2	ASEL	Selenium, Leachable (Se)	50	< 0.2 mg/L
3	AASL	Arsenic, Leachable (As)	50	< 0.2 mg/L

COMMENTS:

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

May 03, 1996
Report No.: 00030624

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-118 TCLP P338934
NUS SAMPLE NO: P0341394
P.O. NO.: 500101

DATE SAMPLED: 27-MAR-96
DATE RECEIVED: 28-MAR-96
APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	APBL	Lead, Leachable (Pb)	50	< 0.1 mg/L
2	ASEL	Selenium, Leachable (Se)	50	< 0.2 mg/L
3	AASL	Arsenic, Leachable (As)	50	< 0.2 mg/L

COMMENTS:

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

May 03, 1996
Report No.: 00030624
Section A Page 12

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-119 TCLP P338935
NUS SAMPLE NO: P0341395
P.O. NO.: 500101

DATE SAMPLED: 27-MAR-96
DATE RECEIVED: 28-MAR-96
APPROVED BY: Simanic, Joanne

Material In Grout Bag

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	APBL	Lead, Leachable (Pb)	50	< 0.1 mg/L
2	ASEL	Selenium, Leachable (Se)	50	< 0.2 mg/L
3	AASL	Arsenic, Leachable (As)	50	< 0.2 mg/L

COMMENTS:

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

May 03, 1996
Report No.: 00030624

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-120 TCLP P338936
NUS SAMPLE NO: P0341396
P.O. NO.: 500101

DATE SAMPLED: 27-MAR-96
DATE RECEIVED: 28-MAR-96
APPROVED BY: Simanic, Joanne

Salt Composite from rag

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	APBL	Lead, Leachable (Pb)	50	< 0.1 mg/L
2	ASEL	Selenium, Leachable (Se)	50	< 0.2 mg/L
3	AASL	Arsenic, Leachable (As)	50	< 0.2 mg/L

COMMENTS:

Halliburton NUS
CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

May 03, 1996
Report No.: 00030624
Section A Page 14

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-121 TCLP P338937
NUS SAMPLE NO: P0341397
P.O. NO.: 500101

DATE SAMPLED: 27-MAR-96
DATE RECEIVED: 28-MAR-96
APPROVED BY: Simanic, Joanne

Large Salt Rock

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	APBL	Lead, Leachable (Pb)	50	1.0 mg/L
2	ASEL	Selenium, Leachable (Se)	50	< 0.2 mg/L
3	AASL	Arsenic, Leachable (As)	50	< 0.2 mg/L

COMMENTS:

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

May 03, 1996
Report No.: 00030624

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-122 TCLP P338938
NUS SAMPLE NO: P0341398
P.O. NO.: 500101

DATE SAMPLED: 27-MAR-96
DATE RECEIVED: 28-MAR-96
APPROVED BY: Simanic, Joanne

Composite Scrapings from Pipe

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	APBL	Lead, Leachable (Pb)	50	< 0.1 mg/L
2	ASEL	Selenium, Leachable (Se)	50	< 0.2 mg/L
3	AASL	Arsenic, Leachable (As)	50	< 0.2 mg/L

COMMENTS:

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

April 16, 1996
Report No.: 00030303
Section A Page 1

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, W
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-108 TCLP
NUS SAMPLE NO: P0338924
P.O. NO.: 500101

DATE SAMPLED: 26-MAR-96
DATE RECEIVED: 28-MAR-96
APPROVED BY: Simanic, Joanne

Exhaust Shaft Debris in Grout Bag Liner

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT	UNIT
1	S903	TCLP Bottle Extraction			
		Begin Date/Time		04/01(1330)	
		End Date/Time		04/02(0700)	
		Extraction Fluid		2	
		Final Leachate pH		5.5	
2	AAGL	Silver, Leachable (Ag)	10	< 0.1	mg/L
3	AASL	Arsenic, Leachable (As)	10	< 1	mg/L
4	ABAL	Barium, Leachable (Ba)	10	0.15	mg/L
5	ACDL	Cadmium, Leachable (Cd)	10	< 0.05	mg/L
6	ACRL	Chromium, Leachable (Cr)	10	< 0.2	mg/L
7	AHGL	Mercury, Leachable (Hg)	1	< 0.0001	mg/L
8	APBL	Lead, Leachable (Pb)	10	< 0.5	mg/L
9	ASEL	Selenium, Leachable (Se)	10	< 1	mg/L

COMMENTS:

Elevated detection limits are reported for all metals due to sample matrix interference.

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

April 16, 1996
Report No.: 00030303

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, W
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-109 TCLP
NUS SAMPLE NO: P0338925
P.O. NO.: 500101

DATE SAMPLED: 26-MAR-96
DATE RECEIVED: 28-MAR-96
APPROVED BY: Simanic, Joanne

Scrapings from 6" pipe

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	S903	TCLP Bottle Extraction		
		Begin Date/Time		04/01(1330)
		End Date/Time		04/02(0700)
		Extraction Fluid		2
		Final Leachate pH		5.1
2	AAGL	Silver, Leachable (Ag)	1	< 0.01 mg/L
3	AASL	Arsenic, Leachable (As)	1	0.1 mg/L
4	ABAL	Barium, Leachable (Ba)	1	0.18 mg/L
5	ACDL	Cadmium, Leachable (Cd)	1	< 0.005 mg/L
6	ACRL	Chromium, Leachable (Cr)	1	0.03 mg/L
7	AHGL	Mercury, Leachable (Hg)	1	< 0.0001 mg/L
8	APBL	Lead, Leachable (Pb)	1	0.12 mg/L
9	ASEL	Selenium, Leachable (Se)	1	< 0.1 mg/L

COMMENTS:

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

April 16, 1996
Report No.: 00030303
Section A Page 3

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, W
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-110 TCLP
NUS SAMPLE NO: P0338926
P.O. NO.: 500101

DATE SAMPLED: 26-MAR-96
DATE RECEIVED: 28-MAR-96
APPROVED BY: Simanic, Joanne

Scrapings from I Beam

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	S903	TCLP Bottle Extraction		
		Begin Date/Time		04/01(1330)
		End Date/Time		04/02(0700)
		Extraction Fluid		1
		Final Leachate pH		7.0
2	AAGL	Silver, Leachable (Ag)	10	< 0.1 mg/L
3	AASL	Arsenic, Leachable (As)	10	< 1 mg/L
4	ABAL	Barium, Leachable (Ba)	10	0.34 mg/L
5	ACDL	Cadmium, Leachable (Cd)	10	< 0.05 mg/L
6	ACRL	Chromium, Leachable (Cr)	10	< 0.2 mg/L
7	AHGL	Mercury, Leachable (Hg)	1	< 0.0001 mg/L
8	APBL	Lead, Leachable (Pb)	10	< 0.5 mg/L
9	ASEL	Selenium, Leachable (Se)	10	< 1 mg/L

COMMENTS:
2 Elevated detection limits are reported for all metals due to sample matrix interference.

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

April 16, 1996
Report No.: 00030303
Section A Page 4

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, W
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-111 TCLP
NUS SAMPLE NO: P0338927
P.O. NO.: 500101

DATE SAMPLED: 26-MAR-96
DATE RECEIVED: 28-MAR-96
APPROVED BY: Simanic, Joanne

Hardened Grout Material

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT	UNITS
1	S903	TCLP Bottle Extraction			
		Begin Date/Time		04/01(1330)	
		End Date/Time		04/02(0700)	
		Extraction Fluid		1	
		Final Leachate pH		9.1	
2	AAGL	Silver, Leachable (Ag)	10	< 0.1	mg/L
3	AASL	Arsenic, Leachable (As)	10	< 1	mg/L
4	ABAL	Barium, Leachable (Ba)	10	0.81	mg/L
5	ACDL	Cadmium, Leachable (Cd)	10	< 0.05	mg/L
6	ACRL	Chromium, Leachable (Cr)	10	< 0.2	mg/L
7	AHGL	Mercury, Leachable (Hg)	1	< 0.0001	mg/L
8	APBL	Lead, Leachable (Pb)	10	< 0.5	mg/L
9	ASEL	Selenium, Leachable (Se)	10	< 1	mg/L

COMMENTS:
2 Elevated detection limits are reported for all metals due to sample matrix interference.

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

April 16, 1996
Report No.: 00030303
Section A Page 5

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, W
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-112 TCLP
NUS SAMPLE NO: P0338928
P.O. NO.: 500101

DATE SAMPLED: 26-MAR-96
DATE RECEIVED: 28-MAR-96
APPROVED BY: Simanic, Joanne

Grout Material

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	S903	TCLP Bottle Extraction		
		Begin Date/Time		04/01(1330)
		End Date/Time		04/02(0700)
		Extraction Fluid		1
		Final Leachate pH		9.1
2	AAGL	Silver, Leachable (Ag)	10	< 0.1 mg/L
3	AASL	Arsenic, Leachable (As)	10	< 1 mg/L
4	ABAL	Barium, Leachable (Ba)	10	0.47 mg/L
5	ACDL	Cadmium, Leachable (Cd)	10	< 0.05 mg/L
6	ACRL	Chromium, Leachable (Cr)	10	< 0.2 mg/L
7	AHGL	Mercury, Leachable (Hg)	1	< 0.0001 mg/L
8	APBL	Lead, Leachable (Pb)	10	< 0.5 mg/L
9	ASEL	Selenium, Leachable (Se)	10	< 1 mg/L

COMMENTS:
2 Elevated detection limits are reported for all metals due to sample matrix interference.

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

April 16, 1996
Report No.: 00030303
Section A Page 6

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, W
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-113 TCLP
NUS SAMPLE NO: P0338929
P.O. NO.: 500101

DATE SAMPLED: 26-MAR-96
DATE RECEIVED: 28-MAR-96
APPROVED BY: Simanic, Joanne

Scrapings From I Beam

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	S903	TCLP Bottle Extraction		
		Begin Date/Time		04/01(1330)
		End Date/Time		04/02(0700)
		Extraction Fluid		1
		Final Leachate pH		5.7
2	AAGL	Silver, Leachable (Ag)	10	< 0.1 mg/L
3	AASL	Arsenic, Leachable (As)	10	< 1 mg/L
4	ABAL	Barium, Leachable (Ba)	10	0.31 mg/L
5	ACDL	Cadmium, Leachable (Cd)	10	< 0.05 mg/L
6	ACRL	Chromium, Leachable (Cr)	10	< 0.2 mg/L
7	AHGL	Mercury, Leachable (Hg)	1	< 0.0001 mg/L
8	APBL	Lead, Leachable (Pb)	10	< 0.5 mg/L
9	ASEL	Selenium, Leachable (Se)	10	< 1 mg/L

COMMENTS:

2 Elevated detection limits are reported for all metals due to sample matrix interference.

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

April 16, 1996
Report No.: 00030303
Section A Page 7

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, W
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-114 TCLP
NUS SAMPLE NO: P0338930
P.O. NO.: 500101

DATE SAMPLED: 26-MAR-96
DATE RECEIVED: 28-MAR-96
APPROVED BY: Simanic, Joanne

Salt Sample / Stratified

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT	UNITS
1	S903	TCLP Bottle Extraction			
		Begin Date/Time		04/01(1330)	
		End Date/Time		04/02(0700)	
		Extraction Fluid		1	
		Final Leachate pH		7.2	
2	AAGL	Silver, Leachable (Ag)	10	< 0.1	mg/L
3	AASL	Arsenic, Leachable (As)	10	1	mg/L
4	ABAL	Barium, Leachable (Ba)	10	0.43	mg/L
5	ACDL	Cadmium, Leachable (Cd)	10	< 0.05	mg/L
6	ACRL	Chromium, Leachable (Cr)	10	< 0.2	mg/L
7	AHGL	Mercury, Leachable (Hg)	1	< 0.0001	mg/L
8	APBL	Lead, Leachable (Pb)	10	< 0.5	mg/L
9	ASEL	Selenium, Leachable (Se)	10	< 1	mg/L

COMMENTS:

2 Elevated detection limits are reported for all metals analyses due to sample matrix interference.

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

April 16, 1996
Report No.: 00030303
Section A Page 8

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, W
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-115 TCLP
NUS SAMPLE NO: P0338931
P.O. NO.: 500101

DATE SAMPLED: 26-MAR-96
DATE RECEIVED: 28-MAR-96
APPROVED BY: Simanic, Joanne

Scrapings from 6" Metal Pipe

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	S903	TCLP Bottle Extraction		
		Begin Date/Time		04/02(1315)
		End Date/Time		04/03(0700)
		Extraction Fluid		1
		Final Leachate pH		7.0
2	AAGL	Silver, Leachable (Ag)	10	< 0.1 mg/L
3	AASL	Arsenic, Leachable (As)	10	< 1 mg/L
4	ABAL	Barium, Leachable (Ba)	10	0.44 mg/L
5	ACDL	Cadmium, Leachable (Cd)	10	< 0.05 mg/L
6	ACRL	Chromium, Leachable (Cr)	10	< 0.2 mg/L
7	AHGL	Mercury, Leachable (Hg)	1	< 0.0001 mg/L
8	APBL	Lead, Leachable (Pb)	10	< 0.5 mg/L
9	ASEL	Selenium, Leachable (Se)	10	< 1 mg/L

COMMENTS:
2 Elevated detection limits are reported for all metals due to sample matrix interference.

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

April 16, 1996
Report No.: 00030303
Section A Page 9

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, W
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-116 TCLP
NUS SAMPLE NO: P0338932
P.O. NO.: 500101

DATE SAMPLED: 26-MAR-96
DATE RECEIVED: 28-MAR-96
APPROVED BY: Simanic, Joanne

Scrapings from large pipe

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	S903	TCLP Bottle Extraction		
		Begin Date/Time		04/02(1315)
		End Date/Time		04/03(0700)
		Extraction Fluid		1
		Final Leachate pH		4.9
2	AAGL	Silver, Leachable (Ag)	10	< 0.1 mg/L
3	AASL	Arsenic, Leachable (As)	10	1 mg/L
4	ABAL	Barium, Leachable (Ba)	10	0.29 mg/L
5	ACDL	Cadmium, Leachable (Cd)	10	< 0.04 mg/L
6	ACRL	Chromium, Leachable (Cr)	10	< 0.2 mg/L
7	AHGL	Mercury, Leachable (Hg)	1	< 0.0001 mg/L
8	APBL	Lead, Leachable (Pb)	10	1.2 mg/L
9	ASEL	Selenium, Leachable (Se)	10	< 1 mg/L

COMMENTS:

2 Elevated detection limits are reported for all metals analysis du to sample matrix interference.

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

April 16, 1996
Report No.: 00030303
Section A Page 10

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, W
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-117 TCLP
NUS SAMPLE NO: P0338933
P.O. NO.: 500101

DATE SAMPLED: 27-MAR-96
DATE RECEIVED: 28-MAR-96
APPROVED BY: Simanic, Joanne

Scrapings from Stairs

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT	UNITS
1	S903	TCLP Bottle Extraction			
		Begin Date/Time		04/02(1315)	
		End Date/Time		04/03(0700)	
		Extraction Fluid		2	
		Final Leachate pH		5.3	
2	AAGL	Silver, Leachable (Ag)	10	< 0.1	mg/L
3	AASL	Arsenic, Leachable (As)	10	< 1	mg/L
4	ABAL	Barium, Leachable (Ba)	10	0.76	mg/L
5	ACDL	Cadmium, Leachable (Cd)	10	< 0.05	mg/L
6	ACRL	Chromium, Leachable (Cr)	10	< 0.2	mg/L
7	AHGL	Mercury, Leachable (Hg)	1	< 0.0001	mg/L
8	APBL	Lead, Leachable (Pb)	10	< 0.5	mg/L
9	ASEL	Selenium, Leachable (Se)	10	< 1	mg/L

COMMENTS:

2 Elevated detection limits for all metals analyses are due to sample matrix interference.

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

April 16, 1996
Report No.: 00030303
Section A Page 11

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, W
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-118 TCLP
NUS SAMPLE NO: P0338934
P.O. NO.: 500101

DATE SAMPLED: 27-MAR-96
DATE RECEIVED: 28-MAR-96
APPROVED BY: Simanic, Joanne

Scrapings from stairs

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT	UNITS
1	S903	TCLP Bottle Extraction			
		Begin Date/Time		04/02(1315)	
		End Date/Time		04/03(0700)	
		Extraction Fluid		2	
		Final Leachate pH		6.7	
2	AAGL	Silver, Leachable (Ag)	10	< 0.1	mg/L
3	AASL	Arsenic, Leachable (As)	10	< 1	mg/L
4	ABAL	Barium, Leachable (Ba)	10	0.29	mg/L
5	ACDL	Cadmium, Leachable (Cd)	10	< 0.05	mg/L
6	ACRL	Chromium, Leachable (Cr)	10	< 0.2	mg/L
7	AHGL	Mercury, Leachable (Hg)	1	< 0.0001	mg/L
8	APBL	Lead, Leachable (Pb)	10	< 0.5	mg/L
9	ASEL	Selenium, Leachable (Se)	10	< 1	mg/L

COMMENTS:

2 Elevated detection limits are reported for all metals analysis due to sample matrix interference.

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

April 16, 1996
Report No.: 00030303
Section A Page 12

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, W
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-119 TCLP
NUS SAMPLE NO: P0338935
P.O. NO.: 500101

DATE SAMPLED: 27-MAR-96
DATE RECEIVED: 28-MAR-96
APPROVED BY: Simanic, Joanne

Material In Grout Bag

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	S903	TCLP Bottle Extraction		
		Begin Date/Time		04/02(1315)
		End Date/Time		04/03(0700)
		Extraction Fluid		2
		Final Leachate pH		6.9
2	AAGL	Silver, Leachable (Ag)	10	< 0.1 mg/L
3	AASL	Arsenic, Leachable (As)	10	< 1 mg/L
4	ABAL	Barium, Leachable (Ba)	10	0.78 mg/L
5	ACDL	Cadmium, Leachable (Cd)	10	< 0.05 mg/L
6	ACRL	Chromium, Leachable (Cr)	10	< 0.2 mg/L
7	AHGL	Mercury, Leachable (Hg)	1	< 0.0001 mg/L
8	APBL	Lead, Leachable (Pb)	10	< 0.5 mg/L
9	ASEL	Selenium, Leachable (Se)	10	< 1 mg/L

COMMENTS:

2 Elevated detection limits are reported for all metals analysis due to sample matrix interference.

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

April 16, 1996
Report No.: 00030303
Section A Page 13

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, W
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-120 TCLP
NUS SAMPLE NO: P0338936
P.O. NO.: 500101

DATE SAMPLED: 27-MAR-96
DATE RECEIVED: 28-MAR-96
APPROVED BY: Simanic, Joanne

Salt Composite from rag

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT	UNITS
1	S903	TCLP Bottle Extraction			
		Begin Date/Time		04/03(1305)	
		End Date/Time		04/04(0700)	
		Extraction Fluid		1	
		Final Leachate pH		7.1	
2	AAGL	Silver, Leachable (Ag)	10	< 0.1	mg/L
3	AASL	Arsenic, Leachable (As)	10	< 1	mg/L
4	ABAL	Barium, Leachable (Ba)	10	0.69	mg/L
5	ACDL	Cadmium, Leachable (Cd)	10	< 0.05	mg/L
6	ACRL	Chromium, Leachable (Cr)	10	< 0.2	mg/L
7	AHGL	Mercury, Leachable (Hg)	1	< 0.0001	mg/L
8	APBL	Lead, Leachable (Pb)	10	< 0.5	mg/L
9	ASEL	Selenium, Leachable (Se)	10	< 1	mg/L

COMMENTS:

2 Elevated detection limits are reported for all metals analyses due to sample matrix interference.

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

April 16, 1996
Report No.: 00030303
Section A Page 14

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, W
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-121 TCLP
NUS SAMPLE NO: P0338937
P.O. NO.: 500101

DATE SAMPLED: 27-MAR-96
DATE RECEIVED: 28-MAR-96
APPROVED BY: Simanic, Joanne

Large Salt Rock

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	S903	TCLP Bottle Extraction		
		Begin Date/Time		04/03(1305)
		End Date/Time		04/04(0700)
		Extraction Fluid		1
		Final Leachate pH		4.9
2	AAGL	Silver, Leachable (Ag)	10	< 0.1 mg/L
3	AASL	Arsenic, Leachable (As)	10	1 mg/L
4	ABAL	Barium, Leachable (Ba)	10	0.68 mg/L
5	ACDL	Cadmium, Leachable (Cd)	10	< 0.05 mg/L
6	ACRL	Chromium, Leachable (Cr)	10	< 0.2 mg/L
7	AHGL	Mercury, Leachable (Hg)	1	< 0.0001 mg/L
8	APBL	Lead, Leachable (Pb)	10	< 0.5 mg/L
9	ASEL	Selenium, Leachable (Se)	10	< 1 mg/L

COMMENTS:
2 Elevated detection limits are reported for all metals analyses due to sample matrix interference.

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

April 16, 1996
Report No.: 00030303
Section A Page 15

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, W
ADDRESS: P.O. BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0001
WORK ORDER NO: 55830
VENDOR NO: 01830727

SAMPLE ID: WST-96-122 TCLP
NUS SAMPLE NO: P0338938
P.O. NO.: 500101

DATE SAMPLED: 27-MAR-96
DATE RECEIVED: 28-MAR-96
APPROVED BY: Simanic, Joanne

Composite Scrapings from Pipes

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT	UNITS
1	S903	TCLP Bottle Extraction			
		Begin Date/Time		04/03(1305)	
		End Date/Time		04/04(0700)	
		Extraction Fluid		1	
		Final Leachate pH		6.6	
2	AAGL	Silver, Leachable (Ag)	10	< 0.1	mg/L
3	AASL	Arsenic, Leachable (As)	10	< 1	mg/L
4	ABAL	Barium, Leachable (Ba)	10	0.40	mg/L
5	ACDL	Cadmium, Leachable (Cd)	10	< 0.05	mg/L
6	ACRL	Chromium, Leachable (Cr)	10	< 0.2	mg/L
7	AHGL	Mercury, Leachable (Hg)	1	< 0.0001	mg/L
8	APBL	Lead, Leachable (Pb)	10	< 0.5	mg/L
9	ASEL	Selenium, Leachable (Se)	10	< 1	mg/L

COMMENTS:

2 Elevated detection limits are reported for all metals analyses due to sample matrix interference.

8 This sample was analyzed as a matrix spike. Recovery of the spike for lead was outside established acceptance limits indicating the presence of a possible matrix interference.

APPENDIX F

SAMPLING DATA COLLECTED FROM THE AIS SHAFT SUMP DURING ROUTINE MAINTENANCE OPERATIONS

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

June 02, 1994
Report No.: 00021101

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION
ADDRESS: WASTE ISO. PILOT PLANT/BOX 2078
CARLSBAD, NM 88221-2078
ATTENTION: J.J. WINKEL

NUS CLIENT NO: 0527 0035
WORK ORDER NO: 55830
VENDOR NO:

Carbon Copy:

SAMPLE ID: WIPP 051 TCLP
NUS SAMPLE NO: P0273281
P.O. NO.: 50846

DATE SAMPLED: 17-MAY-94
DATE RECEIVED: 18-MAY-94
APPROVED BY: Kieda, Chuck

LN	TEST CODE	DETERMINATION	RESULT	UNITS
1	S903	TCLP Bottle Extraction		
		End Date/Time	05/24(0735)	
		Extraction Fluid	1	
		Final pH of Leachate	7.0	
		Start Date/Time	05/23(1250)	
2	AAGL	Silver, Leachable (Ag)	< 0.05	mg/L
3	AASL	Arsenic, Leachable (As)	< 0.5	mg/L
4	ABAL	Barium, Leachable (Ba)	0.29	mg/L
5	ACDL	Cadmium, Leachable (Cd)	< 0.02	mg/L
6	ACRL	Chromium, Leachable (Cr)	0.06	mg/L
7	AHGL	Mercury, Leachable (Hg)	< 0.0002	mg/L
8	APBL	Lead, Leachable (Pb)	< 0.2	mg/L
9	ASEL	Selenium, Leachable (Se)	< 0.5	mg/L

COMMENTS:

2 An elevated reporting limit was reported for Silver due to sample matrix interference.

3 An elevated reporting limit was reported for Arsenic due to sample matrix interference.

5 An elevated reporting limit was reported for Cadmium due to sample matrix interference.

8 An elevated reporting limit was reported for Lead due to sample matrix interference.

9 An elevated reporting limit was reported for Selenium due to sample matrix interference.

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

QUALITY CONTROL REPORT
SUPPLEMENTAL INFORMATION

			SAMPLE PREPARATION			SAMPLE ANALYSIS				
LN	TEST CODE	BATCH	LR-METHOD	DATE/TIME	ANALYST	LR-METHOD	DATE/TIME	ANALYST	ANLS BATCH	INSTRUMENT
SAMPLE ID: WIPP 051 AS REC'D								NUS SAMPLE NO:	P0273280	
1	I490S	26155	NA			19-9045	19-MAY-94 635	DB	0	A925A
2	I270S	26370	19-9010			01-D2036	31-MAY-94 700	RAG	0	

LR Method Literature Reference
01 ASTM-American Society for Testing and Materials, Part 31, 1979.
19 EPA-Test Methods for Evaluating Solid Waste, 3rd ed, Nov. 1986

SAMPLE ID: WIPP 051 TCLP								NUS SAMPLE NO:	P0273281	
1	S903	26205	NA			32-268	24-MAY-94 735	JK	0	
2	AAGL	26277	19-3010	25-MAY-94 1835	BW	19-6010	27-MAY-94 139	JWC	0	3560
3	AASL	26277	19-3010			19-6010	27-MAY-94 139	JWC	0	3560
4	ABAL	26277	19-3010			19-6010	27-MAY-94 139	JWC	0	3560
5	ACDL	26277	19-3010			19-6010	27-MAY-94 139	JWC	0	3560
6	ACRL	26277	19-3010			19-6010	27-MAY-94 139	JWC	0	3560
7	AHGL	26306	NA			19-7470	26-MAY-94 900	BJM	0	M50B
8	APBL	26277	19-3010			19-6010	27-MAY-94 139	JWC	0	3560
9	ASEL	26277	19-3010			19-6010	27-MAY-94 139	JWC	0	3560

LR Method Literature Reference
19 EPA-Test Methods for Evaluating Solid Waste, 3rd ed, Nov. 1986
32 EPA- 40 CFR 268, Appendix I

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

June 02, 1994
Report No.: 00021101

QUALITY CONTROL REPORT
LABORATORY CONTROL SAMPLE RECOVERY

TEST CODE	DETERMINATION	PERCENT RECOVERY	DUPLICATE RECOVERY	RPD	ACCEPTANCE LIMITS
BATCH: 26155	SAMPLE ID: Lab Control Sample			NUS SAMPLE NO:	P0274023
I490S	Non-aqueous sample pH in Water	98.2		NA	-
	Non-aqueous sample pH in Water #2	98.1		NA	-
BATCH: 26277	SAMPLE ID: Lab Control Sample			NUS SAMPLE NO:	P0274937
AAGL	Silver, Leachable (Ag)	116		NA	-
AASL	Arsenic, Leachable (As)	101		NA	-
ABAL	Barium, Leachable (Ba)	99.0		NA	-
ACDL	Cadmium, Leachable (Cd)	110		NA	-
ACRL	Chromium, Leachable (Cr)	100		NA	-
APBL	Lead, Leachable (Pb)	96.5		NA	-
ASEL	Selenium, Leachable (Se)	91.6		NA	-
BATCH: 26306	SAMPLE ID: Lab Control Sample			NUS SAMPLE NO:	P0274988
AHGL	Mercury, Leachable (Hg)	112		NA	-
BATCH: 26370	SAMPLE ID: Lab Control Sample			NUS SAMPLE NO:	P0275093
I270S	Cyanide, Total (CN)	90.7		NA	-

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

June 02, 1994
Report No.: 00021101

QUALITY CONTROL REPORT
METHOD BLANK DATA

	TEST CODE	Determination	RESULT	UNITS
BATCH: 26277	SAMPLE ID: Method Blank		NUS SAMPLE NO: P0274938	
	AAGL	Silver, Leachable (Ag)	< 0.01	mg/L
	AASL	Arsenic, Leachable (As)	< 0.1	mg/L
	ABAL	Barium, Leachable (Ba)	< 0.005	mg/L
	ACDL	Cadmium, Leachable (Cd)	< 0.005	mg/L
	ACRL	Chromium, Leachable (Cr)	< 0.01	mg/L
	APBL	Lead, Leachable (Pb)	< 0.05	mg/L
	ASEL	Selenium, Leachable (Se)	< 0.1	mg/L
BATCH: 26306	SAMPLE ID: Method Blank		NUS SAMPLE NO: P0274989	
	AHGL	Mercury, Leachable (Hg)	< 0.0002	mg/L
BATCH: 26370	SAMPLE ID: Method Blank		NUS SAMPLE NO: P0275094	
	I270S	Cyanide, Total (CN)	< 0.005	mg/L

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

June 02, 1994
Report No.: 00021101

QUALITY CONTROL REPORT
DUPLICATE AND MATRIX SPIKE DATA

PREP BATCH: 26370 NUS SAMPLE NO: P0273280

TEST	DETERMINATION	ORIGINAL RESULT	DUPLICATE RESULT	UNITS	RANGE / RPD	UNITS	MS RESULT	MS % RCVRY
I270S	Cyanide, Total (CN)	16.8	19.9	mg/kg	16.9	mg/kg	24.8	163

PREP BATCH: 26277 NUS SAMPLE NO: P0273627

TEST	DETERMINATION	ORIGINAL RESULT	DUPLICATE RESULT	UNITS	RANGE / RPD	UNITS	MS RESULT	MS % RCVRY
AAGL	Silver, Leachable (Ag)	< 0.01	< 0.01	mg/L	NC	mg/L	0.057	114
AASL	Arsenic, Leachable (As)	< 0.1	< 0.1	mg/L	NC	mg/L	4.84	96.8
ABAL	Barium, Leachable (Ba)	< 0.005	< 0.005	mg/L	NC	mg/L	1.93	96.5
ACDL	Cadmium, Leachable (Cd)	< 0.005	< 0.005	mg/L	NC	mg/L	0.049	98.0
ACRL	Chromium, Leachable (Cr)	< 0.01	< 0.01	mg/L	NC	mg/L	0.193	96.5
APBL	Lead, Leachable (Pb)	< 0.05	< 0.05	mg/L	NC	mg/L	0.388	97.0
ASEL	Selenium, Leachable (Se)	< 0.1	< 0.1	mg/L	NC	mg/L	4.52	90.4

Halliburton NUS CORPORATION

NUS LABORATORY
5350 Campbells Run Road
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500
FAX: (412) 747-2559

June 02, 1994
Report No.: 00021101

QUALITY CONTROL REPORT
LEACHATE BLANK DATA

TEST CODE	DETERMINATION	RESULT	UNITS
BATCH: 181	SAMPLE ID: TCLP LEACHATE BLANK 181	NUS SAMPLE NO:	P0274110
AAGL	Silver, Leachable (Ag)	< 0.01	mg/L
AASL	Arsenic, Leachable (As)	0.1	mg/L
ABAL	Barium, Leachable (Ba)	0.24	mg/L
ACDL	Cadmium, Leachable (Cd)	< 0.005	mg/L
ACRL	Chromium, Leachable (Cr)	< 0.01	mg/L
AHGL	Mercury, Leachable (Hg)	< 0.0002	mg/L
APBL	Lead, Leachable (Pb)	< 0.05	mg/L
ASEL	Selenium, Leachable (Se)	< 0.1	mg/L
S903	TCLP Bottle Extraction		
	End Date/Time	05/24(0735)	
	Extraction Fluid	1	
	Final pH of Leachate	4.9	
	Start Date/Time	05/23(1250)	

APPENDIX G

ANALYTICAL DATA COLLECTED FROM THE SALT SHAFT HOLDING POND

State of New Mexico

ENVIRONMENT DEPARTMENT

Hazardous and Radioactive Materials Bureau
DOE Oversight and Monitoring
WIPP Project Site
PO Box 3090
Carlsbad, New Mexico 88221
1-505-887-8947

BRUCE KING
GOVERNOR

JUDITH M. ESPINOSA
SECRETARY

RON CURRY
DEPUTY SECRETARY

Jim Mewhinney, Program Manager, (NMED/WPSO POC) 8-24-93
U.S. Department of Energy
Environmental, Safety and Health
Waste Isolation Pilot Plant
P.O. Box 3090
Carlsbad, New Mexico 88221

Subject: Plan to sample trench adjacent to Engineering Building in former location of the Salt Shaft Holding Pond.

As agreed in the site protocol, NMED/WIPP staff are notifying DOE of our plans to sample a trench that will be cutting the former location of the salt shaft holding pond. Due to the short time frame in which we learned of this trench, we are not able to give DOE a full two weeks notice. In conjunction with the Final Grade engineering drawings I will be retrieving from Engineering, I hope to verify the closure of this SWMU. I will again require a camera for the sampling event. Staff are preparing a short sampling and analysis plan (SAP), as a guide to the sampling event. The attached table identifies the targeted analytes. I've taken the liberty of giving Warren Bodily an advanced notice of our plans. Please call myself or Pat McCasland at 887-8947 if there are any questions.

Respectfully,

Paul E. Sanchez , GEO III
NMED/WIPP DOE Oversight

cc w/o enclosure:
J. Parker, NMED, HRMB
S. Warren, WPSO, ASI
R. Mayer, EPA Region 6

Proposed Sampling 8-30-93

Soil Sample Analyses	Sample Sets	Sample Set Contents	Field-Extracted Vials
Aromatic Halogenated Purgeables	2	Set Contains 3 40-ml Vials	2-methyl alcohol 1-empty vial
Aliphatic Hydrocarbons	2	Set Contains 3 40-ml Vials	2-carbon disulfide 1- empty vial

STATE OF NEW MEXICO DEPARTMENT OF HEALTH

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700 700 Camino de Salud, NE
Albuquerque, NM 87196-4700 [505]-841-2500
ORGANIC CHEMISTRY SECTION [505]-841-2570

September 27, 1993

Request
ID No. 060020

ANALYTICAL REPORT
SLD Accession No. OR-93-2190

Distribution
(_) User 55802
(■) Submitter 536
(※) SLD Files

To: Paul Sanchez
ED - DOE Project; Carlsbad
NM - Envir. Dept.; WIPP
P.O. Box 3090
Carlsbad, NM 88220

From: Organic Chemistry Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: **A soil sample submitted to this laboratory on September 2, 1993**

soil

DEMOGRAPHIC DATA

COLLECTION		*LOCATION*
On: 1-Sep-93	*By:* San . . .	Trench Swmu 006a Shsevpond L1
At: 9:38 hrs.	*In/Near:* Carlsbad	

ANALYTICAL RESULTS: Aliphatic Hydrocarbon (>10 Carbons) Screen (751)

Parameter	Value	Note	MDL	Units
See Laboratory Remarks for Additional Information				

Notations & Comments:

MDL = Minimal Detectable Level.

A = Approximate Value; N = None Detected above Detection Limit; P = Compound Present, but not quantified;
T = Trace (<Detection Limit); U = Compound Identity Not Confirmed.

Evidentiary Seals: Not Sealed [✓]; Intact: No [ ], Yes [ ] & Broken By: _____ Date: _____

Laboratory Remarks: Waste Isolation Pilot Plant

Hydrocarbons found at concentrations less than 10 ppm were not reported.

HYDROCARBON FUEL SCREEN ANALYSIS DATA SHEET

Lab Name: NM SCIENTIFIC LABORATORY DIVISION Contract: N/A
Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A
Matrix: (soil/water) Soil Lab Sample ID: OR-93-2190
Sample wt/vol: 17.3 (g/mL) g SLD Batch No: 292
Level: (low/med) Low Date Received: 09/02/93
% Moisture: not dec. ____ dec. ____ Date Extracted: 09/10/93
Extraction: (SepF/Cont/Sonc) Sonc Date Analyzed: 09/13/93
GPC Cleanup: (Y/N) No pH: ____ Dilution Factor: 1
Extraction Solvent: Carbon Disulfide

CONCENTRATION UNITS:
(mg/L or mg/Kg): mg/kg

RECEIVED
OCT 25 1993
NM ED WIPP Site

(Continued on page 2.)

This sample was analyzed for hydrocarbons in the C5 to C30 molecular weight range using Gas Chromatography with a Flame Ionization Detector (FID). Since the FID is a nonspecific detector, all compound identifications should be considered as tentative. An attempt has been made below to assign the hydrocarbons found in the sample to an appropriate fuel fraction when the gas chromatograhic fingerprint pattern of the sample closely matches a fuel standard. When the hydrocarbons in the sample do not closely match any known specific fuel, the results will be reported as a hydrocarbon range.

TENTATIVELY IDENTIFIED FUEL FRACTIONS

The following fuel fractions were tentatively identified by FID

FUEL FRACTION	CARBON RANGE	EST. CONC.	% of All H-C's
GASOLINE	C5-C12	ND	0.0
JP-4	C5-C15	ND	0.0
STODDARD SOLVENT	C9-C12	ND	0.0
KEROSENE/JET-A	C9-C19	ND	0.0
DIESEL FUEL	C10-C23	ND	0.0
LUBRICATING OIL	C19-C29	ND	0.0
UNKNOWN PATTERN	.	ND	0.0

SURROGATE RECOVERY:
1-Chlorotetradecane: 73.4% RECOVERY

SPIKE RECOVERY FOR BATCH:
Diesel Fuel at 108 mg/kg 101.2% RECOVERY

Analyst: Nancy DeWitt
Analyst, Organic Chemistry

Reviewed By: Richard F. Meyerhein 09/27/93
Supervisor, Organic Chemistry Section

ORGANIC CHEMISTRY ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION
700 CAMINO DE SALUD N.E., ALBUQUERQUE, NM 87106
Organic Chemistry Section - Telephone: (505) 841-257

SLD No. 1 OR93 2190 D

Date Received: 9-2-93

Request ID No. 060020-D

2 User Code #: 5 5 8 0 2

3 Request ID No.:

4 Priority Code #: 3 (If "1" or "2", call ED-SLD Coordinator)

5 Facility Name: Waste Isolation Pilot Plant

6 County: Eddy

7 City: Carlsbad

8 State: N M

9 Sample Location: TRENCH SWMU 0069 SHSEVPOND L1

10 Collected By: Paul (First) Sanchez (Last) On: 93/9/1 (Date: YY/MM/DD) At: 0938 hrs (Time: 24 hr. clock 3:00 pm = 1500 hrs.)

11 Codes: 0 5 3 6 (Submitter) WSS # Organization

12 Latitude (DDMMSS) ° ' "
Longitude (DDDMMSS) ° ' "
2 Digit ID (if needed)

13 Report To: Name: Paul Sanchez/Pat McCasland
Address: NMED/HRMB/WIPP Oversight
PO Box 3090/WIPP Site/Jal Hwy
City, State Zip: Carlsbad, NM 88220

14 Phone #: 505-887-8947

15 Sampling Information:
Sample Purpose:
- Compliance
- NMED Monitoring
- Confirmation
- Special

- Grab
- Composite (Composite Time Period)
- Flow Proportioned
- Equal Aliquot
- Sample Split w/Permittee
- Chain of Custody

16 Field Data: pH: ____, Conductivity: ____ umhos/cm @ Temperature: 74 °F, Chlorine Residual: ____ mg/l, Flow: ____

17 Sample Source:
- Stream
- Lake
- Drain
- Pool
- WWTP
- Entry Point to Distribution
- Well; Depth: ____
- Spring
- Distribution
- Other: soil under old mudpit

18 Field Remarks: Hydrocarbon Fuel Screen

19 Sample Type:
- Water
- Wastewater
- Unchlorinated
- Chlorinated
- Soil,
- Food,
- Other ____

This form accompanies a single sample consisting of:
3 - septum vial(s) (volume = 40 ml ea.)
____ - glass jug(s) (volume = ____ ml ea.)
____ - ____ (volume = ____)

20 Preservation:
- NP — No Preservation; Sample stored at room temperature
- P-Ice — Sample stored in an ice bath (Not Frozen)
- P-TS — Sample Preserved with Sodium Thiosulfate to remove chlorine residual
- P-HCl — Sample Preserved with Hydrochloric Acid (2 drops/40 ml)
- P-$HgCl_2$ — Sample Preserved with 20 mg/l Mercuric Chloride
- Other CS_2 Extracting Agent

21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analytical screen(s) required. Whenever possible, list specific compounds suspected or required, and note below whenever highly contaminated samples are suspected.

Volatile Screens:

- (753) Aliphatic Headspace (Qualitative Screen)
- (754) Aromatic & Halogenated Purgeables (EPA 601/2)
- (765) Mass Spectrometer Purgeables (EPA 624)
- (766) SDWA Total Trihalomethanes (EPA 501.1)
- (774) SDWA VOC's I [21 REGULATED +] (EPA 502.2)
- (775) SDWA VOC's II [EDB & DBCP] (EPA 504)
- (790) Composite Sample for Analysis No. ____

Semivolatile Screens:

- (755) Base/Neutral Extractables (EPA 625)
- (756) Base/Neutral/Acid Extractables (EPA 8270)
- (772) Carbamate Pesticides (EPA 531.1)
- (758) Herbicides, Chlorophenoxy Acid (EPA 515.1)
- (759) Herbicides, Triazine (EPA 507)
- (751) Hydrocarbon Fuel Screen (EPA M-8015)
- (760) Organochlorine Pesticides (EPA 505)
- (761) Organophosphate Pesticides (EPA 507)
- (767) Polychlorinated Biphenyls (PCB's) in Oil
- (762) SDWA Synthetic Org. Cmpds. (SLD 758/760)
- (782) Total Petroleum Hydrocarbons (EPA 418.1)

Other Specific Compounds or Classes:

- ( ) ____
- ( ) ____

Remarks:

Please RETAIN A COPY of your completed form

ORGANIC CHEMISTRY ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION
700 CAMINO DE SALUD N.E., ALBUQUERQUE, NM 87106
Organic Chemistry Section - Telephone: (505) 841-257

SLD No. 1

Date Received:

Request ID No. 060020-D

2 User Code #: 5 5 8 0 2

3 Request ID No.:

4 Priority Code #: 3 (If "1" or "2" call ED-SLD Coordinator)

5 Facility Name: Waste Isolation Pilot Plant

6 County: Eddy

7 City: Carlsbad

8 State: N M

9 Sample Location: TRENCH SWMU 0069 SHSEUPOND 1

10 Collected By: Paul Sanchez (First / Last.....) On: 93/9/1 (Date: YY/MM/DD) At: 0938 hrs (Time: 24 hr. clock 3:00 pm = 1500 hrs.)

11 Codes: 0 5 3 6 Submitter; WSS #; Organization

12 Latitude (DDMMSS) °'"
Longitude (DDDMMSS) °'"
2 Digit ID (if needed)

13 Report To: Name: Paul Sanchez/Pat McCasland

14 Phone #: 505-887-8947

Address: NMED/HRMB/WIPP Oversight
PO Box 3090/WIPP Site/Jal Hwy

City, State Zip: Carlsbad, NM 88220

15 Sampling Information:
Sample Purpose:
- [ ] Compliance
- [x] NMED Monitoring
- [ ] Confirmation
- [ ] Special

- [x] Grab
- [ ] Composite ____ (Composite Time Period)
- [ ] Flow Proportioned
- [ ] Equal Aliquot
- [ ] Sample Split w/Permittee
- [ ] Chain of Custody

16 Field Data: pH: ____, Conductivity: ____ umhos/cm @ Temperature: 74 °F, Chlorine Residual: ____ mg/l, Flow: ____

17 Sample Source:
- [ ] Stream
- [ ] Lake
- [ ] Drain
- [ ] Pool
- [ ] WWTP
- [ ] Entry Point to Distribution
- [ ] Well; Depth: ____
- [ ] Spring
- [ ] Distribution
- [x] Other: soil under old mudpit

18 Field Remarks: Hydrocarbon Fuel Screen

19 Sample Type:
- [ ] Water
- [ ] Wastewater
- [ ] Unchlorinated
- [ ] Chlorinated
- [x] Soil, [ ] Food, [ ] Other ____

This form accompanies a single sample consisting of:
3 - septum vial(s) (volume = 40 ml ea.)
____ - glass jug(s) (volume = ____ ml ea.)
____ - ____ (volume = ____)

20 Preservation:
- [ ] NP — No Preservation; Sample stored at room temperature
- [ ] P-Ice — Sample stored in an ice bath (Not Frozen)
- [ ] P-TS — Sample Preserved with Sodium Thiosulfate to remove chlorine residual
- [ ] P-HCl — Sample Preserved with Hydrochloric Acid (2 drops/40 ml)
- [ ] P-$HgCl_2$ — Sample Preserved with 20 mg/l Mercuric Chloride
- [ ] Other: CS_2 Extracting Agent

21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analytical screen(s) required. Whenever possible, list specific compounds suspected or required, and note below whenever highly contaminated samples are suspected.

Volatile Screens:
- [ ] (753) Aliphatic Headspace (Qualitative Screen)
- [ ] (754) Aromatic & Halogenated Purgeables (EPA 601/2)
- [ ] (765) Mass Spectrometer Purgeables (EPA 624)
- [ ] (766) SDWA Total Trihalomethanes (EPA 501.1)
- [ ] (774) SDWA VOC's I [21 REGULATED +] (EPA 502.2)
- [ ] (775) SDWA VOC's II [EDB & DBCP] (EPA 504)
- [ ] (790) Composite Sample for Analysis No. ____

Other Specific Compounds or Classes:
- [ ] ( ) ____
- [ ] ( ) ____

Semivolatile Screens:
- [ ] (755) Base/Neutral Extractables (EPA 625)
- [ ] (756) Base/Neutral/Acid Extractables (EPA 8270)
- [ ] (772) Carbamate Pesticides (EPA 531.1)
- [ ] (758) Herbicides, Chlorophenoxy Acid (EPA 515.1)
- [ ] (759) Herbicides, Triazine (EPA 507)
- [x] (751) Hydrocarbon Fuel Screen (EPA M-8015)
- [ ] (760) Organochlorine Pesticides (EPA 505)
- [ ] (761) Organophosphate Pesticides (EPA 507)
- [ ] (767) Polychlorinated Biphenyls (PCB's) in Oil
- [ ] (762) SDWA Synthetic Org. Cmpds. (SLD 758/760)
- [ ] (782) Total Petroleum Hydrocarbons (EPA 418.1)

Remarks:

Please RETAIN A COPY of your completed form

STATE OF NEW MEXICO DEPARTMENT OF HEALTH

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700 700 Camino de Salud, NE
Albuquerque, NM 87196-4700 [505]-841-2500
ORGANIC CHEMISTRY SECTION [505]-841-2570

September 27, 1993

Request
ID No. 060021

ANALYTICAL REPORT
SLD Accession No. OR-93-2191

Distribution
(_) User 55802
(■) Submitter 536
(※) SLD Files

To: Paul Sanchez
ED - DOE Project; Carlsbad
NM - Envir. Dept.; WIPP
P.O. Box 3090
Carlsbad, NM 88220

From: Organic Chemistry Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: **A soil sample submitted to this laboratory on September 2, 1993**

DEMOGRAPHIC DATA

COLLECTION		*LOCATION*
On: 1-Sep-93	*By:* San . . .	Trench Swmu 006a Shsevpond L2
At: 10:02 hrs.	*In/Near:* Carlsbad	

ANALYTICAL RESULTS: Aliphatic Hydrocarbon (>10 Carbons) Screen (751)

Parameter	Value	Note	MDL	Units
See Laboratory Remarks for Additional Information				

Notations & Comments:

MDL = Minimal Detectable Level.

A = Approximate Value; N = None Detected above Detection Limit; P = Compound Present, but not quantified;
T = Trace (<Detection Limit); U = Compound Identity Not Confirmed.

Evidentiary Seals: Not Sealed[✓]; Intact: No[ ], Yes[ ] & Broken By: _____ Date: _____

Laboratory Remarks: Waste Isolation Pilot Plant

Hydrocarbons found at concentrations less than 10 ppm were not reported.

HYDROCARBON FUEL SCREEN ANALYSIS DATA SHEET

Lab Name: NM SCIENTIFIC LABORATORY DIVISION Contract: N/A
Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A
Matrix: (soil/water) Soil Lab Sample ID: OR-93-2191
Sample wt/vol: 13.3 (g/mL) g SLD Batch No: 292
Level: (low/med) Low Date Received: 09/02/93
% Moisture: not dec. ____ dec. ____ Date Extracted: 09/10/93
Extraction: (SepF/Cont/Sonc) Sonc Date Analyzed: 09/13/93
GPC Cleanup: (Y/N) No pH: ____ Dilution Factor: 1
Extraction Solvent: [illegible]

CONCENTRATION UNITS:
(mg/L or mg/Kg): mg/kg

RECEIVED
OCT 25 1993
NM ED WIPP Site

(Continued on page 2.)

This sample was analyzed for hydrocarbons in the C5 to C30 molecular weight range using Gas Chromatography with a Flame Ionization Detector (FID). Since the FID is a nonspecific detector, all compound identifications should be considered as tentative. An attempt has been made below to assign the hydrocarbons found in the sample to an appropriate fuel fraction when the gas chromatograhic fingerprint pattern of the sample closely matches a fuel standard. When the hydrocarbons in the sample do not closely match any known specific fuel, the results will be reported as a hydrocarbon range.

TENTATIVELY IDENTIFIED FUEL FRACTIONS

The following fuel fractions were tentatively identified by FID

FUEL FRACTION	CARBON RANGE	EST. CONC.	% of All H-C's
GASOLINE	C5-C12	ND	0.0
JP-4	C5-C15	ND	0.0
STODDARD SOLVENT	C9-C12	ND	0.0
KEROSENE/JET-A	C9-C19	ND	0.0
DIESEL FUEL	C10-C23	ND	0.0
LUBRICATING OIL	C19-C29	ND	0.0
UNKNOWN PATTERN	.	ND	0.0

SURROGATE RECOVERY:
1-Chlorotetradecane: 58.1% RECOVERY

SPIKE RECOVERY FOR BATCH:
Diesel Fuel at 108 mg/kg 101.2% RECOVERY

Analyst: Nancy DeWitt
Analyst, Organic Chemistry

Reviewed By: Richard F. Meyerhein 09/27/93
Supervisor, Organic Chemistry Section

ORGANIC CHEMISTRY ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION
700 CAMINO DE SALUD N.E., ALBUQUERQUE, NM 87106
Organic Chemistry Section - Telephone: (505) 841-2570

SLD No. OR93 2191

Date Received: 9-2-93

Request ID No. 060021-D

2 User Code #: 5 5 8 0 2

3 Request ID No.:

4 Priority Code #: 3

5 Facility Name: Waste Isolation Pilot Plant

6 County: Eddy

7 City: Carlsbad

8 S

9 Sample Location: TRENCH SWMU 006a SHSEV POND L2

10 Collected By: Paul Sanchez (First / Last) On: 93/9/1 (Date: YY/MM/DD) At: 1010 12 (Time: 24 hr. clock 3:00 pm = 1500 hrs.)

11 Codes: 0 5 3 6 (Submitter) WSS # Organization

12 Latitude (DDMMSS) ° ' "

Longitude (DDDMMSS) ° ' "

2 Digi (if need

13 Report To: Name Paul Sanchez/Pat McCasland

14 Phone #: 505-887-8947

Address: NMED/HRMB/WIPP Oversight
PO Box 3090/WIPP Site/Jal Hwy

City, State Zip: Carlsbad, NM 88220

15 Sample Purpose:
- [ ] Compliance
- [x] NMED Monitoring
- [ ] Confirmation
- [ ] Special

Sampling Information:
- [x] Grab
- [ ] Composite (Comp time F)
- [ ] Flow Proportioned
- [ ] Equal Aliquot
- [ ] Sample Split w/Permittee
- [ ] Chain of Custody

16 Field Data: pH: ____, Conductivity: ____ umhos/cm @ Temperature: 74 °F, Chlorine Residual: ____ mg/l, Flow: ____

17 Sample Source:
- [ ] Stream
- [ ] Lake
- [ ] Drain
- [ ] Pool
- [ ] WWTP
- [ ] Entry Point to Distribution
- [ ] Well; Depth: ____
- [ ] Spring
- [ ] Distribution
- [x] Other: mudpit

18 Field Remarks: Hydrocarbon Fuel Screen

19 Sample Type: [ ] Water, [ ] Wastewater, [ ] Unchlorinated, [ ] Chlorinated
[x] Soil, [ ] Food, [ ] Other ____

This form accompanies a single sample consisting of:
3 - septum vial(s) (volume = 40 ml ea.)
____ - glass jug(s) (volume = ____ ml ea.)
____ - ____ (volume = ____)

20 Preservation:
- [ ] NP — No Preservation; Sample stored at room temperature
- [ ] P-Ice — Sample stored in an ice bath (Not Frozen)
- [ ] P-TS — Sample Preserved with Sodium Thiosulfate to remove chlorine resi
- [ ] P-HCl — Sample Preserved with Hydrochloric Acid (2 drops/40 ml)
- [ ] P-$HgCl_2$ — Sample Preserved with 20 mg/l Mercuric Chloride
- [x] Other: CS_2

21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analytical screen(s) required. Whenever possible, list specific compounds suspected or required, and note below whenever highly contaminated samples are suspected.

Volatile Screens:
- [ ] (753) Aliphatic Headspace (Qualitative Screen)
- [ ] (754) Aromatic & Halogenated Purgeables (EPA 601/2)
- [ ] (765) Mass Spectrometer Purgeables (EPA 624)
- [ ] (766) SDWA Total Trihalomethanes (EPA 501.1)
- [ ] (774) SDWA VOC's I [21 REGULATED +] (EPA 502.2)
- [ ] (775) SDWA VOC's II [EDB & DBCP] (EPA 504)
- [ ] (790) Composite Sample for Analysis No. ____

Other Specific Compounds or Classes:
- [ ] ( ) ____
- [ ] ( ) ____

Semivolatile Screens:
- [ ] (755) Base/Neutral Extractables (EPA 625)
- [ ] (756) Base/Neutral/Acid Extractables (EPA 8270)
- [ ] (772) Carbamate Pesticides (EPA 531.1)
- [ ] (758) Herbicides, Chlorophenoxy Acid (EPA 515.
- [ ] (759) Herbicides, Triazine (EPA 507)
- [x] (751) Hydrocarbon Fuel Screen (EPA M-8015)
- [ ] (760) Organochlorine Pesticides (EPA 505)
- [ ] (761) Organophosphate Pesticides (EPA 507)
- [ ] (767) Polychlorinated Biphenyls (PCB's) in Oil
- [ ] (762) SDWA Synthetic Org. Cmpds. (SLD 758/76
- [ ] (782) Total Petroleum Hydrocarbons (EPA 418.1)

Remarks:

Please RETAIN A COPY of your completed fo

ORGANIC CHEMISTRY ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION
700 CAMINO DE SALUD N.E., ALBUQUERQUE, NM 87106
Organic Chemistry Section - Telephone: (505) 841-2570

SLD No. 1

Date Received:

Request ID No. 060021-D

2 User Code #: 5 5 8 0 2

3 Request ID No.:

4 Priority Code #: 3

5 Facility Name: Waste Isolation Pilot Plant

6 County: Eddy

7 City: Carlsbad

8 St: N

9 Sample Location: TRENCH SWMU 006a SHSEUPOND 62

10 Collected By: Paul Sanchez (First / Last) On: 93/9/1 (Date: YY/MM/DD) At: 1010 2 (Time: 24 hr. clock 3:00 pm = 1500 hrs.)

11 Codes: 0 5 3 6 (Submitter) WSS # Organization

12 Latitude (DDMMSS) °

Longitude (DDDMMSS) °

2 Digit (if need

13 Report To: Paul Sanchez/Pat McCasland (Name)

14 Phone #: 505-887-8947

Address: NMED/HRMB/WIPP Oversight
PO Box 3090/WIPP Site/Jal Hwy

City, State Zip: Carlsbad, NM 88220

15 Sampling Information:
- [x] Grab
- [ ] Composite (Comp time F)

Sample Purpose:
- [ ] Compliance
- [x] NMED Monitoring
- [ ] Confirmation
- [ ] Special

- [ ] Flow Proportioned
- [ ] Equal Aliquot
- [ ] Sample Split w/Permittee
- [ ] Chain of Custody

16 Field Data: pH: _____, Conductivity: _____ umhos/cm @ Temperature: 74 °F, Chlorine Residual: _____ mg/l, Flow: _____

17 Sample Source:
- [ ] Stream
- [ ] Lake
- [ ] Drain
- [ ] Pool
- [ ] WWTP
- [ ] Entry Point to Distribution
- [ ] Well; Depth: _____
- [ ] Spring
- [ ] Distribution
- [x] Other: mudpit

18 Field Remarks: Hydrocarbon Fuel Screen

19 Sample Type:
- [ ] Water
- [ ] Wastewater
- [ ] Unchlorinated
- [ ] Chlorinated
- [x] Soil, [ ] Food, [ ] Other _____

This form accompanies a single sample consisting of:
3 - septum vial(s) (volume = 40 ml ea.)
____ - glass jug(s) (volume = _____ ml ea.)
____ - _____ (volume = _____)

20 Preservation:
- [ ] NP — No Preservation; Sample stored at room temperature
- [ ] P-Ice — Sample stored in an ice bath (Not Frozen)
- [ ] P-TS — Sample Preserved with Sodium Thiosulfate to remove chlorine res
- [ ] P-HCl — Sample Preserved with Hydrochloric Acid (2 drops/40 ml)
- [ ] P-$HgCl_2$ — Sample Preserved with 20 mg/l Mercuric Chloride
- [x] Other: CS_2

21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analytical screen(s) required. Whenever possible, list specific compounds suspected or required, and note below whenever highly contaminated samples are suspected.

Volatile Screens:

- [ ] (753) Aliphatic Headspace (Qualitative Screen)
- [ ] (754) Aromatic & Halogenated Purgeables (EPA 601/2)
- [ ] (765) Mass Spectrometer Purgeables (EPA 624)
- [ ] (766) SDWA Total Trihalomethanes (EPA 501.1)
- [ ] (774) SDWA VOC's I [21 REGULATED +] (EPA 502.2)
- [ ] (775) SDWA VOC's II [EDB &DBCP] (EPA 504)
- [ ] (790) Composite Sample for Analysis No. _____

Other Specific Compounds or Classes:

- [ ] ( )
- [ ] ( )

Semivolatile Screens:

- [ ] (755) Base/Neutral Extractables (EPA 625)
- [ ] (756) Base/Neutral/Acid Extractables (EPA 8270)
- [ ] (772) Carbamate Pesticides (EPA 531.1)
- [ ] (758) Herbicides, Chlorophenoxy Acid (EPA 515.1
- [ ] (759) Herbicides, Triazine (EPA 507)
- [x] (751) Hydrocarbon Fuel Screen (EPA M-8015)
- [ ] (760) Organochlorine Pesticides (EPA 505)
- [ ] (761) Organophosphate Pesticides (EPA 507)
- [ ] (767) Polychlorinated Biphenyls (PCB's) in Oil
- [ ] (762) SDWA Synthetic Org. Cmpds. (SLD 758/76
- [ ] (782) Total Petroleum Hydrocarbons (EPA 418.1)

Remarks:

Please RETAIN A COPY of your completed fo

STATE OF NEW MEXICO DEPARTMENT OF HEALTH

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700 700 Camino de Salud, NE
Albuquerque, NM 87196-4700 [505]-841-2500
ORGANIC CHEMISTRY SECTION [505]-841-2570

October 20, 1993

Request
ID No. 060022

ANALYTICAL REPORT
SLD Accession No. OR-93-2188

Distribution
(_) User 55802
(■) Submitter 536
(※) SLD Files

To: Paul Sanchez
ED - DOE Project; Carlsbad
NM - Envir. Dept.; WIPP
P.O. Box 3090
Carlsbad, NM 88221

From: Organic Chemistry Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: **A soil sample submitted to this laboratory on September 2, 1993**

DEMOGRAPHIC DATA

COLLECTION		*LOCATION*
On: 1-Sep-93	*By:* San . . .	Trench Swmu 006a Shsevpond L1
At: 9:42 hrs.	*In/Near:* Carlsbad	

ANALYTICAL RESULTS: Aromatic & Halogenated Purgeable [EPA-601/2] Screen {754}

Parameter	Value	Note	MDL	Units
EPA 601/2 Volatiles (60)	0.00	N	180.00	ppb

See Laboratory Remarks for Additional Information

Notations & Comments:

MDL = Minimal Detectable Level.

A = Approximate Value; N = None Detected above Detection Limit; P = Compound Present, but not quantified;
T = Trace (<Detection Limit); U = Compound Identity Not Confirmed.

Evidentiary Seals: Not Sealed [✓]; Intact: No [ ], Yes [ ] & Broken By: _____ Date: _____

Laboratory Remarks:

VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: NM SCIENTIFIC LABORATORY DIVISION Contract: N/A
Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A
Matrix: (soil/water) Soil Lab Sample ID: OR-93-2188
Sample wt/vol: 15.42 (g/mL) g SLD Batch No: 291
Level: (low/med) Low Date Received: 09/02/93
% Moisture: not dec. 12.1 dec. N/A Date Extracted: N/A
Extraction: (SepF/Cont/Sonc) N/A Date Analyzed: 09/10/93
GPC Cleanup: (Y/N) No pH: Dilution Factor: 200
CONCENTRATION UNITS:
(ug/L or ug/Kg): ug/Kg

(Continued on page 2.)

This sample was analyzed for the following compounds using EPA Methods 601 & 602

CAS NO.	COMPOUND	CONC.	Q	PQL
67-64-1	Acetone		U	900.0
71-43-2	Benzene		U	180.0
108-86-1	Bromobenzene		U	180.0
74-97-5	Bromochloromethane		U	180.0
75-27-4	Bromodichloromethane		U	180.0
75-25-2	Bromoform		U	180.0
78-93-3	2-Butanone (MEK)		U	900.0
104-51-8	n-Butylbenzene		U	180.0
135-98-8	sec-Butylbenzene		U	180.0
98-06-6	tert-Butylbenzene		U	180.0
1634-04-4	tert-Butyl methyl ether (MTBE)		U	900.0
56-23-5	Carbon tetrachloride		U	180.0
108-90-7	Chlorobenzene		U	180.0
67-66-3	Chloroform		U	180.0
95-49-8	2-Chlorotoluene		U	180.0
106-43-4	4-Chlorotoluene		U	180.0
96-12-8	1,2-Dibromo-3-chloropropane		U	180.0
124-48-1	Dibromochloromethane		U	180.0
106-93-4	1,2-Dibromoethane		U	180.0
74-95-3	Dibromomethane		U	180.0
95-50-1	1,2-Dichlorobenzene		U	180.0
541-73-1	1,3-Dichlorobenzene		U	180.0
106-46-7	1,4-Dichlorobenzene		U	180.0
75-71-8	Dichlorodifluoromethane		U	180.0
75-34-3	1,1-Dichloroethane		U	180.0
107-06-2	1,2-Dichloroethane		U	180.0
75-35-4	1,1-Dichloroethene		U	180.0
156-59-4	cis-1,2-Dichloroethene		U	180.0
156-60-5	trans-1,2-Dichloroethene		U	180.0
78-87-5	1,2-Dichloropropane		U	180.0
142-28-9	1,3-Dichloropropane		U	180.0
590-20-7	2,2-Dichloropropane		U	180.0
563-58-6	1,1-Dichloropropene		U	180.0
1006-01-5	cis-1,3-Dichloropropene		U	180.0
1006-02-6	trans-1,3-Dichloropropene		U	180.0
100-41-4	Ethylbenzene		U	180.0
87-68-3	Hexachlorobutadiene		U	180.0
98-82-8	Isopropylbenzene		U	180.0
99-87-6	4-Isopropyltoluene		U	180.0

(Continued on page 3.)

75-09-2	Methylene chloride		U	180.0
90-12-0	1-Methylnaphthalene		U	180.0
91-57-6	2-Methylnaphthalene		U	180.0
91-20-3	Naphthalene		U	180.0
103-65-1	n-Propylbenzene		U	180.0
100-42-5	Styrene		U	180.0
630-20-6	1,1,1,2-Tetrachloroethane		U	180.0
79-34-5	1,1,2,2-Tetrachloroethane		U	180.0
127-18-4	Tetrachloroethene		U	180.0
109-99-9	Tetrahydrofuran (THF)		U	900.0
108-88-3	Toluene		U	180.0
87-61-5	1,2,3-Trichlorobenzene		U	180.0
120-82-1	1,2,4-Trichlorobenzene		U	180.0
71-55-6	1,1,1-Trichloroethane		U	180.0
79-00-5	1,1,2-Trichloroethane		U	180.0
79-01-6	Trichloroethene		U	180.0
75-69-4	Trichlorofluoromethane		U	180.0
96-18-4	1,2,3-Trichloropropane		U	180.0
95-63-6	1,2,4-Trimethylbenzene		U	180.0
108-67-8	1,3,5-Trimethylbenzene		U	180.0
75-01-4	Vinyl chloride		U	180.0
95-47-6	o-Xylene		U	180.0
N/A	p- & m-Xylene		U	180.0

* CONC = CONCENTRAION DETERMINED
  PQL = Practical Quantitation Limit (Approximately 10 times MDL)
* Q = Qualifier Definitions:

B - Indicates compound was detected in the Lab Blank as well as in the sample.
D - Indicates value taken from a secondary (diluted) sample analysis.
E - Indicates compound concentration exceeded the range of the standard curve.
J - Indicates an estimated value for tentatively identified compounds, or for compounds detected and identified but present at a concentration less than the quantitation limit.
N - Indicates that more than one peak was used for quantitation.
U - Indicates compound was analyzed for, but not detected above the concentration listed (Quantitation Limit).

QUALITY CONTROL SUMMARY FOR VOLATILES SCREEN

(Continued on page 4.)

METHOD BLANK: A laboratory method blank was analyzed along with this sample to assure the absence of interfering contaminants from lab reagents, instruments, or the general laboratory environment. Unless listed below, no contaminants were detected in this blank above the reported detection limit.

COMPOUND DETECTED	CONCENTRATION (PPB)
vinyl chloride	3400.0
1,1-dichloroethene	230.0
1,2-dichlorobenzene	1300.0

SURROGATE RECOVERIES:

SURROGATE	CONCENTRATION		% RECOVERY
Bromofluorobenzene	4500.0	ppb	129.0
2-Bromo-1-chloropropane	4500.0	ppb	87.3
m-Chlorotoluene	4500.0	ppb	78.8

SPIKE RECOVERY: The % recoveries for compounds in the batch spike were from 80% to 120% with the exception of the compounds listed below:

COMPOUND	CONCENTRATION	% RECOVERY
vinyl chloride	50.0 ppb	41.6
chloroethane	52.4 ppb	49.3
methylene chloride	25.5 ppb	67.4
1,2-dichloroethane	25.5 ppb	78.1
dibromochloromethane	25.4 ppb	78.3
bromoform	24.8 ppb	79.5
1,1,2,2-tetrachloroethane	25.3 ppb	70.8

Analyst: Patrick R. Hoermann
Patrick R. Hoermann
Analyst, Organic Chemistry

Reviewed By: R F M
Richard F. Meyerhein 09/21/93
Supervisor, Organic Chemistry Section

ORGANIC CHEMISTRY ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION
700 CAMINO DE SALUD N.E., ALBUQUERQUE, NM 87106
Organic Chemistry Section - Telephone: (505) 841-2570

SLD No. 1 OR93 2188

Date Received: 9-2-93

Request ID No. 060022-D

2 User Code #: 5 5 8 0 2

3 Request ID No.:

4 Priority Code #: 3

5 Facility Name: Waste Isolation Pilot Plant

6 County: Eddy

7 City: Carlsbad

8 S: N

9 Sample Location: TRENCH SWMU 006a SHSEV POND L/

10 Collected By: Paul Sanchez (First / Last.....) On: 93/~~08~~/~~31~~ (Date: YY/MM/DD) At: 0914 2 (Time: 24 hr. clock 3:00 pm = 1500 hrs.)

11 Codes: 0 5 3 6 (Submitter) WSS # Organization

12 Latitude (DDMMSS) ° ' "
Longitude (DDDMMSS) ° ' "
2 Digi (if need)

13 Report To: Name: Paul Sanchez/Pat McCasland
Address: NMED/HRMB/WIPP Oversight
PO Box 3090/WIPP Site/Jal Hwy
City, State Zip: Carlsbad, NM 88220

14 Phone #: 505-887-8947

15 Sampling Information:
Sample Purpose:
- ☐ Compliance
- ■ NMED Monitoring
- ☐ Confirmation
- ☐ Special

- ■ Grab
- ☐ Composite (Comp time f)
  - ☐ Flow Proportioned
  - ☐ Equal Aliquot
  - ☐ Sample Split w/Permittee
  - ☐ Chain of Custody

16 Field Data: pH: _____, Conductivity: _____ umhos/cm @ Temperature: 74 °F Chlorine Residual: _____ mg/l, Flow: _____

17 Sample Source:
- ☐ Stream
- ☐ Lake
- ☐ Drain
- ☐ Pool
- ☐ WWTP
- ☐ Entry Point to Distribution
- ☐ Well; Depth: _____
- ☐ Spring
- ☐ Distribution
- ■ Other: mud pit - old

18 Field Remarks: VOC'S

19 Sample Type:
- ☐ Water
- ☐ Wastewater
- ☐ Unchlorinated
- ☐ Chlorinated
- ■ Soil, ☐ Food, ☐ Other _____

This form accompanies a single sample consisting of:
3 - septum vial(s) (volume = 40 ml ea.)
____ - glass jug(s) (volume = _____ ml ea.)
____ - _____ (volume = _____)

20 Preservation:
- ☐ NP — No Preservation; Sample stored at room temperature
- ☐ P-Ice — Sample stored in an ice bath (Not Frozen)
- ☐ P-TS — Sample Preserved with Sodium Thiosulfate to remove chlorine res
- ☐ P-HCl — Sample Preserved with Hydrochloric Acid (2 drops/40 ml)
- ☐ P-$HgCl_2$ — Sample Preserved with 20 mg/l Mercuric Chloride
- ■ Other: MeOH - preserved at SLD 8-27-

21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analytical screen(s) required. Whenever possible, list specific compounds suspected or required, and note below whenever highly contaminated samples are suspected.

Volatile Screens:

- ☐ - (753) Aliphatic Headspace (Qualitative Screen)
- ■ - (754) Aromatic & Halogenated Purgeables (EPA 601/2)
- ☐ - (765) Mass Spectrometer Purgeables (EPA 624)
- ☐ - (766) SDWA Total Trihalomethanes (EPA 501.1)
- ☐ - (774) SDWA VOC's I [21 REGULATED +] (EPA 502.2)
- ☐ - (775) SDWA VOC's II [EDB & DBCP] (EPA 504)
- ☐ - (790) Composite Sample for Analysis No. _____

Other Specific Compounds or Classes:

- ☐ - ( ) _____
- ☐ - ( ) _____

Semivolatile Screens:

- ☐ - (755) Base/Neutral Extractables (EPA 625)
- ☐ - (756) Base/Neutral/Acid Extractables (EPA 8270)
- ☐ - (772) Carbamate Pesticides (EPA 531.1)
- ☐ - (758) Herbicides, Chlorophenoxy Acid (EPA 515.1
- ☐ - (759) Herbicides, Triazine (EPA 507)
- ☐ - (751) Hydrocarbon Fuel Screen (EPA M-8015)
- ☐ - (760) Organochlorine Pesticides (EPA 505)
- ☐ - (761) Organophosphate Pesticides (EPA 507)
- ☐ - (767) Polychlorinated Biphenyls (PCB's) in Oil
- ☐ - (762) SDWA Synthetic Org. Cmpds. (SLD 758/76
- ☐ - (782) Total Petroleum Hydrocarbons (EPA 418.1)

Remarks:

ORGANIC CHEMISTRY ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION
700 CAMINO DE SALUD N.E., ALBUQUERQUE, NM 87106
Organic Chemistry Section - Telephone: (505) 841-2570

SLD No. 1

Date Received:

Request ID No. 060022-D

2 User Code #: 5 5 8 0 2

3 Request ID No.:

4 Priority Code #: 3 (If "1" or "2" call ED-S Coordinator)

5 Facility Name: Waste Isolation Pilot Plant

6 County: Eddy

7 City: Carlsbad

8 St: N

9 Sample Location: TRENCH SWMU 006a SHSEV POND L/

10 Collected By: Paul Sanchez (First / Last) On: 93/~~08~~/~~31~~ (Date: YY/MM/DD) At: 0914 h (Time: 24 hr. clock 3:00 pm = 1500 hrs.)

11 Codes: 0536 (Submitter) WSS # Organization

12 Latitude (DDMMSS) ° ' "
Longitude (DDDMMSS) ° ' "
2 Digit (if needed)

13 Report To: Name Paul Sanchez/Pat McCasland

14 Phone #: 505-887-8947

Address: NMED/HRMB/WIPP Oversight
PO Box 3090/WIPP Site/Jal Hwy

City, State Zip: Carlsbad, NM 88220

15 Sampling Information:
Sample Purpose:
- [ ] Compliance
- [x] NMED Monitoring
- [ ] Confirmation
- [ ] Special

Sampling:
- [x] Grab
- [ ] Composite (Composite Time Period)
- [ ] Flow Proportioned
- [ ] Equal Aliquot
- [ ] Sample Split w/Permittee
- [ ] Chain of Custody

16 Field Data: pH: _____, Conductivity: _____ umhos/cm @ Temperature: 74 °F Chlorine Residual: _____ mg/l, Flow: _____

17 Sample Source:
- [ ] Stream
- [ ] Lake
- [ ] Drain
- [ ] Pool
- [ ] WWTP
- [ ] Entry Point to Distribution
- [ ] Well; Depth: _____
- [ ] Spring
- [ ] Distribution
- [x] Other: mud pit - old

18 Field Remarks: VOC'S

19 Sample Type:
- [ ] Water
- [ ] Wastewater
- [ ] Unchlorinated
- [ ] Chlorinated
- [x] Soil,
- [ ] Food,
- [ ] Other _____

This form accompanies a single sample consisting of:
3 - septum vial(s) (volume = 40 ml ea.)
____ - glass jug(s) (volume = _____ ml ea.)
____ - _____ (volume = _____)

20 Preservation:
- [ ] NP — No Preservation; Sample stored at room temperature
- [ ] P-Ice — Sample stored in an ice bath (Not Frozen)
- [ ] P-TS — Sample Preserved with Sodium Thiosulfate to remove chlorine residu
- [ ] P-HCl — Sample Preserved with Hydrochloric Acid (2 drops/40 ml)
- [ ] P-$HgCl_2$ — Sample Preserved with 20 mg/l Mercuric Chloride
- [x] Other: MeOH - preserved at SLD 8-27-93

21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analytical screen(s) required. Whenever possible, list specific compounds suspected or required, and note below whenever highly contaminated samples are suspected.

Volatile Screens:
- [ ] (753) Aliphatic Headspace (Qualitative Screen)
- [x] (754) Aromatic & Halogenated Purgeables (EPA 601/2)
- [ ] (765) Mass Spectrometer Purgeables (EPA 624)
- [ ] (766) SDWA Total Trihalomethanes (EPA 501.1)
- [ ] (774) SDWA VOC's I [21 REGULATED +] (EPA 502.2)
- [ ] (775) SDWA VOC's II [EDB & DBCP] (EPA 504)
- [ ] (790) Composite Sample for Analysis No. _____

Other Specific Compounds or Classes:
- [ ] ( ) _____
- [ ] ( ) _____

Semivolatile Screens:
- [ ] (755) Base/Neutral Extractables (EPA 625)
- [ ] (756) Base/Neutral/Acid Extractables (EPA 8270)
- [ ] (772) Carbamate Pesticides (EPA 531.1)
- [ ] (758) Herbicides, Chlorophenoxy Acid (EPA 515.1)
- [ ] (759) Herbicides, Triazine (EPA 507)
- [ ] (751) Hydrocarbon Fuel Screen (EPA M-8015)
- [ ] (760) Organochlorine Pesticides (EPA 505)
- [ ] (761) Organophosphate Pesticides (EPA 507)
- [ ] (767) Polychlorinated Biphenyls (PCB's) in Oil
- [ ] (762) SDWA Synthetic Org. Cmpds. (SLD 758/760)
- [ ] (782) Total Petroleum Hydrocarbons (EPA 418.1)

Remarks:

Please RETAIN A COPY of your completed form

STATE OF NEW MEXICO DEPARTMENT OF HEALTH

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700 700 Camino de Salud, NE
Albuquerque, NM 87196-4700 [505]-841-2500
ORGANIC CHEMISTRY SECTION [505]-841-2570

October 20, 1993

Request
ID No. 060023

ANALYTICAL REPORT
SLD Accession No. OR-93-2189

Distribution
( ) User 55802
(■) Submitter 536
(※) SLD Files

To: Paul Sanchez
ED - DOE Project; Carlsbad
NM - Envir. Dept.; WIPP
P.O. Box 3090
Carlsbad, NM 88221

From: Organic Chemistry Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: **A soil sample submitted to this laboratory on September 2, 1993** Soil

DEMOGRAPHIC DATA

COLLECTION		*LOCATION*
On: 1-Sep-93	*By:* San . . .	Trench Swmu 006a Shsevpond L2 w/map
At: 10:04 hrs.	*In/Near:* Carlsbad	

ANALYTICAL RESULTS: Aromatic & Halogenated Purgeable [EPA-601/2] Screen (754)

Parameter	Value	Note	MDL	Units
EPA 601/2 Volatiles (60)	0.00	N	180.00	ppb

See Laboratory Remarks for Additional Information

Notations & Comments:

MDL = Minimal Detectable Level.

A = Approximate Value; N = None Detected above Detection Limit; P = Compound Present, but not quantified;
T = Trace (<Detection Limit); U = Compound Identity Not Confirmed.

Evidentiary Seals: Not Sealed [✓]; Intact: No [ ], Yes [ ] & Broken By: _____ Date: _____

Laboratory Remarks:

VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: NM SCIENTIFIC LABORATORY DIVISION Contract: N/A
Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A
Matrix: (soil/water) Soil Lab Sample ID: OR-93-2189
Sample wt/vol: 13.44 (g/mL) g SLD Batch No: 291
Level: (low/med) Low Date Received: 09/02/93
% Moisture: not dec. 9.3 dec. N/A Date Extracted: N/A
Extraction: (SepF/Cont/Sonc) N/A Date Analyzed: 09/10/93
GPC Cleanup: (Y/N) No pH: Dilution Factor: 200
CONCENTRATION UNITS:
(ug/L or ug/Kg): ug/Kg

(Continued on page 2.)

This sample was analyzed for the following compounds using EPA Methods 601 & 602

CAS NO.	COMPOUND	CONC.	Q	PQL
67-64-1	Acetone		U	900.0
71-43-2	Benzene		U	180.0
108-86-1	Bromobenzene		U	180.0
74-97-5	Bromochloromethane		U	180.0
75-27-4	Bromodichloromethane		U	180.0
75-25-2	Bromoform		U	180.0
78-93-3	2-Butanone (MEK)		U	900.0
104-51-8	n-Butylbenzene		U	180.0
135-98-8	sec-Butylbenzene		U	180.0
98-06-6	tert-Butylbenzene		U	180.0
1634-04-4	tert-Butyl methyl ether (MTBE)		U	900.0
56-23-5	Carbon tetrachloride		U	180.0
108-90-7	Chlorobenzene		U	180.0
67-66-3	Chloroform		U	180.0
95-49-8	2-Chlorotoluene		U	180.0
106-43-4	4-Chlorotoluene		U	180.0
96-12-8	1,2-Dibromo-3-chloropropane		U	180.0
124-48-1	Dibromochloromethane		U	180.0
106-93-4	1,2-Dibromoethane		U	180.0
74-95-3	Dibromomethane		U	180.0
95-50-1	1,2-Dichlorobenzene		U	180.0
541-73-1	1,3-Dichlorobenzene		U	180.0
106-46-7	1,4-Dichlorobenzene		U	180.0
75-71-8	Dichlorodifluoromethane		U	180.0
75-34-3	1,1-Dichloroethane		U	180.0
107-06-2	1,2-Dichloroethane		U	180.0
75-35-4	1,1-Dichloroethene		U	180.0
156-59-4	cis-1,2-Dichloroethene		U	180.0
156-60-5	trans-1,2-Dichloroethene		U	180.0
78-87-5	1,2-Dichloropropane		U	180.0
142-28-9	1,3-Dichloropropane		U	180.0
590-20-7	2,2-Dichloropropane		U	180.0
563-58-6	1,1-Dichloropropene		U	180.0
1006-01-5	cis-1,3-Dichloropropene		U	180.0
1006-02-6	trans-1,3-Dichloropropene		U	180.0
100-41-4	Ethylbenzene		U	180.0
87-68-3	Hexachlorobutadiene		U	180.0
98-82-8	Isopropylbenzene		U	180.0
99-87-6	4-Isopropyltoluene		U	180.0

(Continued on page 3.)

75-09-2	Methylene chloride		U	180.0
90-12-0	1-Methylnaphthalene		U	180.0
91-57-6	2-Methylnaphthalene		U	180.0
91-20-3	Naphthalene		U	180.0
103-65-1	n-Propylbenzene		U	180.0
100-42-5	Styrene		U	180.0
630-20-6	1,1,1,2-Tetrachloroethane		U	180.0
79-34-5	1,1,2,2-Tetrachloroethane		U	180.0
127-18-4	Tetrachloroethene		U	180.0
109-99-9	Tetrahydrofuran (THF)		U	900.0
108-88-3	Toluene		U	180.0
87-61-5	1,2,3-Trichlorobenzene		U	180.0
120-82-1	1,2,4-Trichlorobenzene		U	180.0
71-55-6	1,1,1-Trichloroethane		U	180.0
79-00-5	1,1,2-Trichloroethane		U	180.0
79-01-6	Trichloroethene		U	180.0
75-69-4	Trichlorofluoromethane		U	180.0
96-18-4	1,2,3-Trichloropropane		U	180.0
95-63-6	1,2,4-Trimethylbenzene		U	180.0
108-67-8	1,3,5-Trimethylbenzene		U	180.0
75-01-4	Vinyl chloride		U	180.0
95-47-6	o-Xylene		U	180.0
N/A	p- & m-Xylene		U	180.0

* CONC = CONCENTRAION DETERMINED
  PQL = Practical Quantitation Limit (Approximately 10 times MDL)
* Q = Qualifier Definitions:
B - Indicates compound was detected in the Lab Blank as well as in the sample.
D - Indicates value taken from a secondary (diluted) sample analysis.
E - Indicates compound concentration exceeded the range of the standard curve.
J - Indicates an estimated value for tentatively identified compounds, or for compounds detected and identified but present at a concentration less than the quantitation limit.
N - Indicates that more than one peak was used for quantitation.
U - Indicates compound was analyzed for, but not detected above the concentration listed (Quantitation Limit).

QUALITY CONTROL SUMMARY FOR VOLATILES SCREEN

(Continued on page 4.)

METHOD BLANK: A laboratory method blank was analyzed along with this sample to assure the absence of interfering contaminants from lab reagents, instruments, or the general laboratory environment. Unless listed below, no contaminants were detected in this blank above the reported detection limit.

COMPOUND DETECTED	CONCENTRATION (PPB)
vinyl chloride	3400.0
1,1-dichloroethene	230.0
1,2-dichlorobenzene	1300.0

SURROGATE RECOVERIES:

SURROGATE	CONCENTRATION		% RECOVERY
Bromofluorobenzene	4500.0	ppb	112.0
2-Bromo-1-chloropropane	4500.0	ppb	103.0
m-Chlorotoluene	4500.0	ppb	92.9

SPIKE RECOVERY: The % recoveries for compounds in the batch spike were from 80% to 120% with the exception of the compounds listed below:

COMPOUND	CONCENTRATION	% RECOVERY
vinyl chloride	50.0 ppb	41.6
chloroethane	52.4 ppb	49.3
methylene chloride	25.5 ppb	67.4
1,2-dichloroethane	25.5 ppb	78.1
dibromochloromethane	25.4 ppb	78.3
bromoform	24.8 ppb	79.5
1,1,2,2-tetrachloroethane	25.3 ppb	70.8

Analyst: Patrick R. Hoermann
Patrick R. Hoermann
Analyst, Organic Chemistry

Reviewed By:
Richard F. Meyerhein 09/21/93
Supervisor, Organic Chemistry Section

ORGANIC CHEMISTRY ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION
700 CAMINO DE SALUD N.E., ALBUQUERQUE, NM 87106
Organic Chemistry Section - Telephone: (505) 841-2570

SLD No. OR93 2189

Date Received: 9-2-9

Request ID No. 060023-D

2 User Code #: 5 5 8 0 2

3 Request ID No.:

4 Priority Code #: 3

5 Facility Name: Waste Isolation Pilot Plant

6 County: Eddy

7 City: Carlsbad

8 LN

9 Sample Location: TRENCH SWMU 0069 SHSEV POND

10 Collected By: Paul Sanchez (First / Last.....) On: 93/9/1 (Date: YY/MM/DD) At: 1010 14 (Time: 24 hr. clock 3:00 pm = 1500 hrs.)

11 Codes: 0 5 3 6 (Submitter) WSS # Organization

12 Latitude (DDMMSS) °

Longitude (DDDMMSS) °

2 D

13 Report To: Name Paul Sanchez/Pat McCasland

14 Phone #: 505-887-8947

Address: NMED/HRMB/WIPP Oversight

PO Box 3090/WIPP Site/Jal Hwy

City, State Zip: Carlsbad, NM 88220

15 Sampling Information:
- [x] Grab
- [ ] Composite
- [ ] Flow Proportioned
- [ ] Equal Aliquot
- [ ] Sample Split w/Permitt
- [ ] Chain of Custody

Sample Purpose:
- [ ] Compliance
- [x] NMED Monitoring
- [ ] Confirmation
- [ ] Special

16 Field Data: pH: _____, Conductivity: _____ umhos/cm @ Temperature: 74 °F, Chlorine Residual: _____ mg/l, Flow: _____

17 Sample Source:
- [ ] Stream
- [ ] Lake
- [ ] Drain
- [ ] Pool
- [ ] WWTP
- [ ] Entry Point to Distribution
- [ ] Well; Depth: _____
- [ ] Spring
- [ ] Distribution
- [x] Other: mud pitold

18 Field Remarks:

19 Sample Type:
- [ ] Water
- [ ] Wastewater
- [ ] Unchlorinated
- [ ] Chlorinated
- [x] Soil, [ ] Food, [ ] Other _____

This form accompanies a single sample consisting of:
3 - septum vial(s) (volume = 40 ml ea.)
____ - glass jug(s) (volume = _____ ml ea.)
____ - _____ (volume = _____)

20 Preservation:
- [ ] NP — No Preservation; Sample stored at room temperature
- [ ] P-Ice — Sample stored in an ice bath (Not Frozen)
- [ ] P-TS — Sample Preserved with Sodium Thiosulfate to remove chlorine
- [ ] P-HCl — Sample Preserved with Hydrochloric Acid (2 drops/40 ml)
- [ ] P-$HgCl_2$ — Sample Preserved with 20 mg/l Mercuric Chloride
- [x] Other: MeOH - preserved at SLD 8-2

21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analytical screen(s) required. Whenever possible, list specific compounds suspected or required, and note below whenever highly contaminated samples are suspected.

Volatile Screens:
- [ ] (753) Aliphatic Headspace (Qualitative Screen)
- [x] (754) Aromatic & Halogenated Purgeables (EPA 601/2)
- [ ] (765) Mass Spectrometer Purgeables (EPA 624)
- [ ] (766) SDWA Total Trihalomethanes (EPA 501.1)
- [ ] (774) SDWA VOC's I [21 REGULATED +] (EPA 502.2)
- [ ] (775) SDWA VOC's II [EDB & DBCP] (EPA 504)
- [ ] (790) Composite Sample for Analysis No. _____

Other Specific Compounds or Classes:
- [ ] ( ) _____
- [ ] ( ) _____

Semivolatile Screens:
- [ ] (755) Base/Neutral Extractables (EPA 625)
- [ ] (756) Base/Neutral/Acid Extractables (EPA 82
- [ ] (772) Carbamate Pesticides (EPA 531.1)
- [ ] (758) Herbicides, Chlorophenoxy Acid (EPA 5
- [ ] (759) Herbicides, Triazine (EPA 507)
- [ ] (751) Hydrocarbon Fuel Screen (EPA M-8015)
- [ ] (760) Organochlorine Pesticides (EPA 505)
- [ ] (761) Organophosphate Pesticides (EPA 507)
- [ ] (767) Polychlorinated Biphenyls (PCB's) in O
- [ ] (762) SDWA Synthetic Org. Cmpds. (SLD 758
- [ ] (782) Total Petroleum Hydrocarbons (EPA 41

Remarks:

ORGANIC CHEMISTRY ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION
700 CAMINO DE SALUD N.E., ALBUQUERQUE, NM 87106
Organic Chemistry Section - Telephone: (505) 841-2570

SLD No. 1

Date Received:

Request ID No. 060023-D

2 User Code #: 5 5 8 0 2

3 Request ID No.:

4 Priority Code #: 3 (If "1" or "2" call ED-SI Coordinator)

5 Facility Name: Waste Isolation Pilot Plant

6 County: Eddy

7 City: Carlsbad

8 St: N

9 Sample Location: TRENCH SWMU 006a SHSEVPONO L2

10 Collected By: Paul Sanchez (First / Last.....) On: 93/9/1 (Date: YY/MM/DD) At: 1014 h (Time: 24 hr. clock 3:00 pm = 1500 hrs.)

11 Codes: 0536 (Submitter) - (WSS #) (Organization)

12 Latitude (DDMMSS) ° ' "
Longitude (DDDMMSS) ° ' "
2 Digit (if needed)

13 Report To: Paul Sanchez/Pat McCasland (Name)

14 Phone #: 505-887-8947

Address: NMED/HRMB/WIPP Oversight
PO Box 3090/WIPP Site/Jal Hwy

City, State Zip: Carlsbad, NM 88220

15 Sample Purpose:
- [ ] Compliance
- [x] NMED Monitoring
- [ ] Confirmation
- [ ] Special

Sampling Information:
- [x] Grab
- [ ] Composite ____ (Compo Time Per)
- [ ] Flow Proportioned
- [ ] Equal Aliquot
- [ ] Sample Split w/Permittee
- [ ] Chain of Custody

16 Field Data: pH: ____, Conductivity: ____ umhos/cm @ Temperature: 74 °F, Chlorine Residual: ____ mg/l, Flow: ____

17 Sample Source:
- [ ] Stream
- [ ] Lake
- [ ] Drain
- [ ] Pool
- [ ] WWTP
- [ ] Entry Point to Distribution
- [ ] Well; Depth: ____
- [ ] Spring
- [ ] Distribution
- [x] Other: mud pitold

18 Field Remarks:

19 Sample Type:
- [ ] Water
- [ ] Wastewater
- [ ] Unchlorinated
- [ ] Chlorinated
- [x] Soil, [ ] Food, [ ] Other ____

This form accompanies a single sample consisting of:
3 - septum vial(s) (volume = 40 ml ea.)
____ - glass jug(s) (volume = ____ ml ea.)
____ - ____ (volume = ____)

20 Preservation:
- [ ] NP — No Preservation; Sample stored at room temperature
- [ ] P-Ice — Sample stored in an ice bath (Not Frozen)
- [ ] P-TS — Sample Preserved with Sodium Thiosulfate to remove chlorine resid
- [ ] P-HCl — Sample Preserved with Hydrochloric Acid (2 drops/40 ml)
- [ ] P-$HgCl_2$ — Sample Preserved with 20 mg/l Mercuric Chloride
- [x] Other: MeOH - preserved at SLD 8-27-9

21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analytical screen(s) required. Whenever possible, list specific compounds suspected or required, and note below whenever highly contaminated samples are suspected.

Volatile Screens:
- [ ] (753) Aliphatic Headspace (Qualitative Screen)
- [x] (754) Aromatic & Halogenated Purgeables (EPA 601/2)
- [ ] (765) Mass Spectrometer Purgeables (EPA 624)
- [ ] (766) SDWA Total Trihalomethanes (EPA 501.1)
- [ ] (774) SDWA VOC's I [21 REGULATED +] (EPA 502.2)
- [ ] (775) SDWA VOC's II [EDB & DBCP] (EPA 504)
- [ ] (790) Composite Sample for Analysis No. ____

Other Specific Compounds or Classes:
- [ ] ( ) ____
- [ ] ( ) ____

Semivolatile Screens:
- [ ] (755) Base/Neutral Extractables (EPA 625)
- [ ] (756) Base/Neutral/Acid Extractables (EPA 8270)
- [ ] (772) Carbamate Pesticides (EPA 531.1)
- [ ] (758) Herbicides, Chlorophenoxy Acid (EPA 515.1)
- [ ] (759) Herbicides, Triazine (EPA 507)
- [ ] (751) Hydrocarbon Fuel Screen (EPA M-8015)
- [ ] (760) Organochlorine Pesticides (EPA 505)
- [ ] (761) Organophosphate Pesticides (EPA 507)
- [ ] (767) Polychlorinated Biphenyls (PCB's) in Oil
- [ ] (762) SDWA Synthetic Org. Cmpds. (SLD 758/760)
- [ ] (782) Total Petroleum Hydrocarbons (EPA 418.1)

Remarks:

Please RETAIN A COPY of your completed form

STATE OF NEW MEXICO DEPARTMENT OF HEALTH

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700 700 Camino de Salud, NE
Albuquerque, NM 87196-4700 [505]-841-2500
AIR & HEAVY METALS SECTION [505]-841-2553

February 14, 1994

Request ID No. 060024

ANALYTICAL REPORT
SLD Accession No. IC-93-0776

Distribution
( ) User 55802
(X) Submitter 536
(x) SLD Files

To: P. Sanchez
ED - DOE Project; Carlsbad
NM - Envir. Dept.; WIPP
P.O. Box 3090
Carlsbad, NM 88221

From: Air & Heavy Metals Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: **A soil sample submitted to this laboratory on September 2, 1993**

User:
ED Har. & Rad. Materials Bur.
ED DOE Project, H&R Materials
P.O. Box 26110
Santa Fe, NM 87502

RECEIVED
FEB 22 1994
NM ED WIPP Site

DEMOGRAPHIC DATA

COLLECTION		*LOCATION*
On: 1-Sep-93	*By:* San . . .	Trench Swmu 006a Shsevpond L1
At: 9:44 hrs.	*In/Near:* Carlsbad	

ANALYTICAL RESULTS in uG/Gram

Analysis	Value	Analysis	Value	Analysis	Value
Aluminum	>9999.99	Copper	< 5.00	Silver	< 5.00
Barium	37.00	Iron	9160.00	Strontium	6.70
Beryllium	< 5.00	Lead	< 5.00	Tin	< 5.00
Boron	< 5.00	Magnesium	1450.00	Vanadium	14.00
Cadmium	< 5.00	Manganese	41.00	Zinc	17.00
Calcium	270.00	Molybdenum	< 5.00	Arsenic	1.3000
Chromium	9.30	Nickel	5.50	Chromium	> 9.9999
Cobalt	< 2.50	Silicon	280.00	Lead	4.8300

Laboratory Remarks: Digested. % Solids = 84.8
Aluminum = 11,940.0 ug/g
Chromium = 10.0 ug/g

lc P. 1/4/94

Reviewed By: JM
Jim F. Ashby 02/14/94
Supervisor, Air & Heavy Metals Section

AIR & HEAVY METALS ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION
700 CAMINO DE SALUD N.E., ALBUQUERQUE, NM 87106
Air & Heavy Metals Section - Telephone: (505) 841-2553

1 SLD No.

Date Received:

2 User Code #: 515812

3 Request ID No.: Request ID No. 060024-B

4 Priority Code #: 3 (If "1" or "2", call EID-SLD Coordinator)

5 Facility Name: Waste Isolation Pilot Plant

6 County: Eddy

7 City: Carlsbad 26 miles East

8 State: NM

9 Sample Location: TRENCH SWMU 0016a SHSEVPOND 11

10 Collected By: Paul Sanchez (First / Last) On: 93/9/1 (Date: YY/MM/DD) At: 0914 hrs (Time: 24 hr. clock 3:00 pm = 1500 hrs.)

11 Codes: 536 (Submitter) ___ (WSS #) ___ (Organization)

12 Latitude (DDMMSS) ___ Longitude (DDDMMSS) ___ 2 Digit ID (if needed)

13 Report To: Name: Paul Sanchez

14 Phone #: 887-9947

Address: PO Box 3090
WIPP Site

City, State Zip: Carlsbad New Mexico 88220

15 Sample Purpose:
- [ ] Compliance
- [ ] Check
- [x] Monitoring
- [ ] Special

Sampling Information:
- [x] Grab
- [ ] Composite ___ (Composite Time Period)
  - [ ] Flow Proportioned
  - [ ] Equal Aliquot
- [ ] Sample Split w/Permittee
- [ ] Chain of Custody

16 Field Data: pH: ___, Conductivity: ___ umhos @ ___ °C, Temperature: 74 °F, Chlorine Residual: ___ mg/l, Flow: ___

17 Sample Source:
- [ ] Stream
- [ ] Lake
- [ ] Drain
- [ ] Pool
- [ ] WWTP
- [ ] Well; Depth: ___
- [ ] Spring
- [ ] Distribution
- [ ] Point-of-Entry
- [x] Other: modpit

18 Field Notes/ Sample #:

19 Sample Type: [ ] Water, [x] Soil, [ ] Food, [ ] Wastewater, [ ] Other ___

This form accompanies a single sample consisting of:
- ___ 1 liter cubitainers (1 quart)
- ___ 4 liter cubitainers (1 gallon)
- 1 8 oz Bag

20 Preservation:
- [ ] WNF Water Not Preserved; Filtered
- [ ] WNN Water Not Preserved; Not Filtered
- [ ] WPF Water Preserved with Nitric Acid (HNO3); Filtered
- [ ] WPN Water Preserved with Nitric Acid; Not Filtered
- [ ] WNL Water Not Preserved in Field; Please Add HNO3 at Lab
- [ ] ICE Water Iced
- [ ] Other ___

21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analyses required.

- [x] (704) ICAP Scan
- [ ] (720) SDWA Group I Only
- [ ] (721) SDWA Group I + other parameter(s) marked below

[ ] Aluminum	[x] Lead	[ ] Vanadium
[x] Arsenic	[ ] Manganese	[ ] Zinc
[ ] Barium	[ ] Mercury	[ ] -
[ ] Cadmium	[ ] Molybdenum	[ ] -
[x] Chromium	[ ] Nickel	[ ] -
[ ] Cobalt	[ ] Selenium	[ ] -
[ ] Copper	[ ] Silver	[ ] -
[ ] Iron	[ ] Uranium	[ ] -

Remarks: Lead - use Furnace
chromium - Use Furnace
Arsenic

STATE OF NEW MEXICO DEPARTMENT OF HEALTH

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700 700 Camino de Salud, NE
Albuquerque, NM 87196-4700 [505]-841-2500
AIR & HEAVY METALS SECTION [505]-841-2553

February 14, 1994

Request ID No. 060025

ANALYTICAL REPORT
SLD Accession No. IC-93-0777

Distribution
( ) User 55802
(X) Submitter 536
(x) SLD Files

To: P. Sanchez
ED - DOE Project; Carlsbad
NM - Envir. Dept.; WIPP
P.O. Box 3090
Carlsbad, NM 88221

From: Air & Heavy Metals Section
Scientific Laboratory Div.
700 Camino de Salud, NE
Albuquerque, NM 87106

Re: **A soil sample submitted to this laboratory on September 2, 1993**

User:
ED Har. & Rad. Materials Bur.
ED DOE Project, H&R Materials
P.O. Box 26110
Santa Fe, NM 87502

RECEIVED
FEB 2 2 1994
NM ED WIPP Site

DEMOGRAPHIC DATA

COLLECTION		*LOCATION*
On: 1-Sep-93	*By:* San . . .	Trench Swmu 006a Shsevpond L2
At: 10:08 hrs.	*In/Near:* Carlsbad	

ANALYTICAL RESULTS in uG/Gram

Analysis	Value	Analysis	Value	Analysis	Value
Aluminum	>9999.99	Copper	< 5.00	Silver	< 5.00
Barium	31.00	Iron	7420.00	Strontium	8.00
Beryllium	< 5.00	Lead	< 5.00	Tin	< 5.00
Boron	< 5.00	Magnesium	1320.00	Vanadium	9.10
Cadmium	< 5.00	Manganese	41.70	Zinc	15.00
Calcium	410.00	Molybdenum	< 5.00	Arsenic	1.2000
Chromium	8.40	Nickel	6.30	Chromium	9.8000
Cobalt	< 2.50	Silicon	350.00	Lead	3.5400

Laboratory Remarks: Digested. % Solids = 89.1
Aluminum = 10,690.0 ug/g

ICP. 1/4/94

Reviewed By: Jim F. Ashby 02/14/94
Supervisor, Air & Heavy Metals Section

AIR & HEAVY METALS ANALYTICAL REQUEST FORM

SCIENTIFIC LABORATORY DIVISION
700 CAMINO DE SALUD N.E., ALBUQUERQUE, NM 87106
Air & Heavy Metals Section - Telephone: (505) 841-2553

1 SLD No.

Date Received:

2 User Code #: 5 5 8 0 2

3 Request ID No.: Request ID No. 060025-B

4 Priority Code #: 3

Facility Name: Waste Isolation Pilot Plant

6 County: Eddy

7 City: Carlsbad 26 miles East

8 State: NM

9 Sample Location: TRENCH SWMU 0016a SHSEVP0W01 L2

10 Collected By: Paul SANCHEZ (First / Last.....) On: 93/9/1 (Date: YY/MM/DD) At: 1010 (Time: 24 hr. clock 3:00 pm = 1500 hrs.)

11 Codes: 536 (Submitter) - (WSS #) (Organization)

12 Latitude (DDMMSS) Longitude (DDDMMSS) 2 Digit (if needed)

13 Report To: Name Paul Sanchez

14 Phone #: 887-9947

Address: PO Box 3090 WIPP Site

City, State Zip: Carlsbad New Mexico 88220

15 Sampling Information:
- [x] Grab
- [ ] Composite ____ (Composite Time Period)

Sample Purpose:
- [ ] Compliance
- [ ] Check
- [x] Monitoring
- [ ] Special

- [ ] Flow Proportioned
- [ ] Equal Aliquot
- [ ] Sample Split w/Permittee
- [ ] Chain of Custody

16 Field Data: pH: ____, Conductivity: ____ umhos @ ____ °C, Temperature: 74 °F, Chlorine Residual: ____ mg/l, Flow: ____

17 Sample Source:
- [ ] Stream
- [ ] Lake
- [ ] Drain
- [ ] Pool
- [ ] WWTP
- [ ] Well; Depth: ____
- [ ] Spring
- [ ] Distribution
- [ ] Point-of-Entry
- [x] Other: Evaporation Pond

18 Field Notes/ Sample #:

19 Sample Type: [ ] Water, [x] Soil, [ ] Food, [ ] Wastewater, [ ] Other ____

This form accompanies a single sample consisting of:
- ____ 1 liter cubitainers (1 quart)
- ____ 4 liter cubitainers (1 gallon)
- 1 8 oz plastic bag

20 Preservation:
- [ ] WNF Water Not Preserved; Filtered
- [ ] WNN Water Not Preserved; Not Filtered
- [ ] WPF Water Preserved with Nitric Acid (HNO3); Filtered
- [ ] WPN Water Preserved with Nitric Acid; Not Filtered
- [ ] WNL Water Not Preserved in Field; Please Add HNO3 at Lab
- [ ] ICE Water Iced
- [ ] Other ____

21 Analyses Requested: Please check the appropriate box(es) below to indicate the type of analyses required.

- [x] (704) ICAP Scan
- [ ] (720) SDWA Group I Only
- [ ] (721) SDWA Group I + other parameter(s) marked below

[ ] Aluminum	[x] Lead	[ ] Vanadium
[x] Arsenic	[ ] Manganese	[ ] Zinc
[ ] Barium	[ ] Mercury	[ ] ____
[ ] Cadmium	[ ] Molybdenum	[ ] ____
[x] Chromium	[ ] Nickel	[ ] ____
[ ] Cobalt	[ ] Selenium	[ ] ____
[ ] Copper	[ ] Silver	[ ] ____
[ ] Iron	[ ] Uranium	[ ] ____

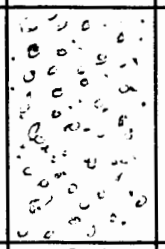
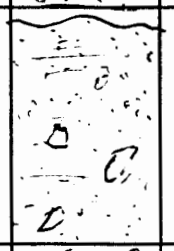
Remarks: lead 3 use furnace
Chromium
Arsenic

SLD 8912-HM Form New 12/89 This Form Will NOT Be Returned With Your Results. Please RETAIN A COPY!

New Mexico Environment Department
DOE/WIPP Oversight
TEST PIT/AUGERED BORING LOG AND DATA SHEET

Project No.	Location. Eng Building Location #1	Boring No. (or Trench)	Sheet 1 of 1

Feature. Trench
Date (Time) Logged. 9-1-93
Area Designation. Trench - Engineering Bldg
Method. Hand Dug / Existing Trench
Logged By. PES
Monitoring.

Depth and Soil Clasification	Graphic Log	Sample Taken	Description of Materials Visual Observations	OVA
1.0			Sand+Gravel: Dark grey brown, poorly sorted, dense med to coarse sand and 3/8" pea gravel, moist, moist porous, Artificial compacted fill - Gray gravel	
2.0			Sand + Gravel: Light grey/brown, poorly sorted, dense, med to coarse sand and 3/8" to 3/4" Gravel, moist, porous, Sharp layered contact top and bottom,	
3.0			Artificial Compacted Fill - 40% Gravel Sand + Gravel: Tan brown, poorly sorted dense silt, fine to coarse sand, occasional angular gravels 1-2" in diameter, moist, porous, Recompacted Pond + Caliche/sand fill	
4.0			Sand: Dark Red Brown, Fine to med, moist to wet, loose porous, no odor looks clean, except at ~~Lower~~ Transition with overlying fill there are inclusions of fill in sand	Dense
5.0		Aromatics VOCs Heavy Metals	Natural Undisturbed Dune Sand	

Remarks: Sample Location #1

Augered Boring ~ (ID) Continued ~~Sheet~~ SAMPLE Location #2	Sheet 1 of 1

Depth and Soil Clasification	Graphic Log	Sample Taken	Description of Materials Visual Observations	OVA
1.0			Sand + Gravel: Dark Grey Brown, poorly sorted dense, fine to coarse Sand, 1" and 1/4-3/8" ~~med~~ gravel, moist; porous, Artificial compacted Fill - 70% Gravel	
2.0				
3.0				
4.0			10 mil fibrous Holding Pond Plastic Liner (see Photo) sloping contact, fill/native/transition zone SAND: Dark Red Brown, fine to med, moist, v. dense, porous no odor looks clean	
5.0			Natural undisturbed Dune Sand — probably at southern limit of former Holding Pond, with remnant of holding pond/fill ~~Eroding~~ steep contact.	

Remarks:

New Mexico Environment Department

DOE/WIPP Oversight

Record of Photographs

Film Type: Poloroid

Photographer: P. Sanchez

Project Code: 550040

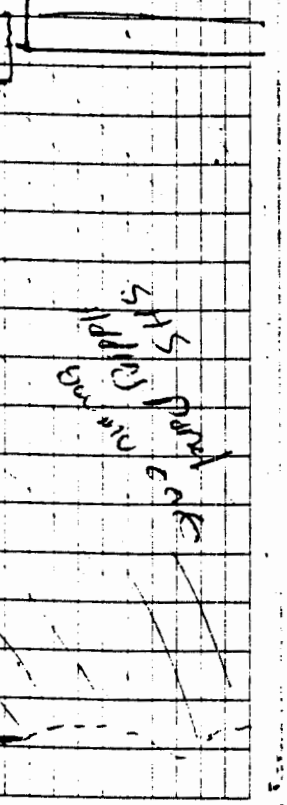
Photo	Date	Time	Weather	Location	Description
1	9-1-93	9:00 AM	Sunny	Trench	Sample Location # 1 close-up
2	"	9:01 AM	"	"	Sample Location # 1 Trench Depth
3	"	9:08 AM	"	"	Sample Location # 1 ~~est~~ Fill/Native transition
4	"	9:15 AM	"	"	Sample Location #2 Trench Depth
5	"	9:16 AM	"	"	Sample Location # 1 Trench View East
6	"	9:17 AM	"	"	Sample Location # 2 Plastic Liner
7	"	9:30 AM	"	"	General Trench - View West
8	"	9:31 AM	"	"	General Trench - View of ~~WEST~~ END
9	"	9:32 AM	"	"	General Trench X section

Trench Sampling

* cuts across Southern Tip of Salt Handling Shaft Holding Pond

Date: ~~8/31/93~~ 9-1-93

Sketch of Trench



P. Macklin, S. Jones, and P. Sauter collected samples a day after heavy rains puddled in trench - Samples collected in native sand, Fill located clean