PHILIPS

Philips Semiconductors

Philips Semiconductors
a North American Philips Company

9201 Pan American Freeway, NE
Albuquerque, New Mexico 87113
(505) 822-7000

March 4, 1996

Ms. Barbara Hoditschek, Permits Division
Hazardous & Radioactive Materials Bureau
NMED
2044 Galisteo
Santa Fe, NM 87505

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MAR _5 1996

Federal Express Delivery

SUBJECT: Philips Semiconductors (NMD000709782) - Final Closure Report and Certification

Dear Ms. Hoditschek:

Philips Semiconductors (Philips) located at 9201 Pan American Fwy N.E. in Albuquerque completed Closure of its hazardous waste storage facility on January 10, 1996, and began operation according to 90-day generator standards codified in 40 CFR 262. Enclosed is the Final Closure Report for review and approval. Within this report is the required Certification statement from our designated representative, Keith Hampe, Vice President of Albuquerque Operations. This submittal meets the requirements of 40 CFR 264.115 and the approved Philips Closure Plan.

If you have any questions, please call me at (505) 822-7634.

Sincerely,

Melanie McKinley

Melanie McKinley
Environmental Engineer

(ENV612)

cc w/o enclosure:
Keith Hampe, Vice President, Albuquerque Operations
Jim Cochran, EHS Manager
James Casey, Legal Counsel

FINAL RCRA CLOSURE REPORT
PERMIT #NMD000709782

Dates: April 1, 1986 - April 1, 1996

Philips Semiconductors
9201 Pan American Frwy. NE
Albuquerque, NM 87113

MARCH 4, 1996

Philips Semiconductors
Closure Report
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Philips Semiconductors
Closure Report

Introduction/Summary

Philips Semiconductors (Philips) located at 9201 Pan American Freeway, NE, obtained a RCRA Part B permit in 1986. This permit expires on April 1, 1996, and has only allowed for storage of waste on the facility with no treatment or disposal alternatives. In June of 1995, Philips decided not to pursue reissuance of the Part B permit but to begin functioning under the Large Quantity Generator (LQG) requirements instead. This was communicated to Sherry Brown-Wilson, US EPA Region VI, on June 2, 1995; to Barbara Hoditschek, New Mexico Environment Department (NMED), on June 13, 1995; and to Benito Garcia, NMED, on June 15, 1995. In order to accomplish the transition from permitted facility to LQG, closure of the existing hazardous waste storage units was required.

A modified closure plan to account for the earlier closure date of December 1995 was submitted to NMED on September 18, 1995. On October 20, 1995, a Notice of Deficiency was received from NMED regarding required changes to the closure plan and addition of a sampling plan. These changes were made and sent to NMED on October 26, 1995. The final plan was accepted by NMED and Federal EPA on November 22, 1995, and was deemed a Class I modification requiring public notice. Public notice was sent to the designated list of people provided by NMED. It also appeared in the Legal Notices section of the Albuquerque Journal and the Albuquerque Tribune. Copies of the closure plan and the sampling plan can be found in Sections 2 and 3, respectively, of this report.

International Technology Corporation (IT) was selected to perform closure activities with ERM-Rocky Mountain, Inc. providing independent oversight and certification. Closure began on December 20, 1995, with the decontamination of Flammable Storage room #4 and concluded on January 10, 1996, with the sampling of the soil ports around the storage tanks. Full details of the closure activities are included in Section 4 of this report. No deviation of the closure plan occurred.

The samples obtained during closure were sent to Analytical Technologies of New Mexico for analysis and the subsequent results met the standards specified in the sampling plan. There was deviation from the sampling plan as was agreed to by NMED on December 21, 1995. This deviation allowed for the rinsate performance standards of eight volatile organic compounds to be raised to the laboratory practical quantitation limits. All sample results and QA/QC data are included in Section 5 of this report.

The 55 gallons of wastewater generated from closure of CS-2 was tested for TCLP metals and, based on the non-RCRA hazardous results, was disposed of in the internal wastewater treatment system. The remainder of waste was used as fuel for their incinerator or was incinerated by Ensco in El Dorado, AR. The sample results from CS-2, drum logs, and hazardous waste manifests are included in Section 6.

Closure was certified internally by Keith Hampe, Vice President of Albuquerque Operations, and externally by professional engineer Mike Brazie, ERM-Rocky Mountain, Inc. These certifications can be found in Section 7.

RCRA CLOSURE PLAN REVISION
(REVISION OF PERMIT ATTACHMENT F)

PHILIPS SEMICONDUCTORS
9201 Pan American Freeway NE
Albuquerque, New Mexico 87113

EPA ID No. - NMD000709782

November 1995

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PERMIT ATTACHMENT F

PERMIT APPLICATION SECTION I

CLOSURE PLAN, POST-CLOSURE PLAN, AND
FINANCIAL REQUIREMENTS

This plan identifies the steps required to close the RCRA waste storage facility located at Philips Semiconductors (Philips-Albuquerque), 9201 Pan American Freeway NE, Albuquerque, New Mexico.

This plan has been prepared in accordance with the requirements of HWMR 206.D.2 and is a modification of the approved closure plan for the facility. The plan is being modified to accommodate an earlier closure than originally anticipated in the RCRA Part B Permit. A post-closure plan is not required because this is not a disposal facility and all wastes will be removed at closure.

Philips-Albuquerque will maintain an onsite copy of the approved closure plan and all revisions to the plan until the certification of closure completeness has been submitted and accepted by the Secretary of the New Mexico Environment Department. Philips-Albuquerque has notified the Secretary in a letter dated June 15, 1995, of its intention to perform final closure of the waste storage areas beginning on December 23, 1995. Upon completion of closure, Philips-Albuquerque and a New Mexico Professional Engineer will submit certification that the facility has been closed in accordance with the specifications in the approved closure plan.

I.1. Closure Plan:

I.1.a. Closure Performance Standard (HWMR 206.D.2.b.):

This Closure Plan is a controlled maintenance system designed to minimize or eliminate threats to human health and discharge of hazardous waste into the environment. The facility stores wastes generated solely from its manufacturing operations. However, because of the coated concrete containment for these facilities, no such contamination is anticipated. The inspection logs for the storage facility show that the only material spilled at the site is photoresist, which is believed to be not a RCRA hazardous waste. Soil samples will be collected to confirm the indication that there has not been a release from the storage facility. A Sampling Plan has been developed as an Addendum to this document. Any contaminated soil will be excavated, removed, and disposed of at a proper disposal facility. Based upon the results of soil samples collected, a determination will be made concerning potential impact to ground water from the waste storage areas. If soil sampling indicates that there may be an impact to groundwater, the groundwater

will be remediated. The closure performance for each closure activity is listed in the following table. The following sections discuss in detail efforts to be made at Philips-Semiconductors to satisfy the closure performance standard.

Area	Parameters	Performance Standard
Chemical Storage #2	Arsenic Mercury	0.05 mg/l 0.002 mg/l
Flammable Storage #4	Ignitability Volatile Organics	Non-ignitable RBC
Acid Tanks	pH	Greater than 5
Solvent Tank	Ignitability Volatile Organics	Non-ignitable RBC

Note: RBC = Risk-based Concentration (see Sampling Plan Table 3)

I.1.b. Final Closure Activities (HWMR 206.D.2.c.(a)):

This closure will be a final closure of the hazardous waste storage areas at the facility. These areas consist of two containerized waste storage areas, two 5000-gallon waste acid tanks, and one 5000-gallon solvent waste tank. The maximum waste inventory from each of these is listed in Section I.1.c of this closure plan. The closure activities will involve removing the RCRA containers and cleaning the waste storage areas, and cleaning the storage tanks and tank vault. Although hazardous waste will be stored at the facility during the closure activities, the storage tanks and piping will temporarily be taken off line for closure, and any hazardous waste generated during the closure period will be collected in drums. During closure cleaning activities, drummed flammable hazardous waste and arsenic and mercury waste will be stored under the 90-day generator regulations delineated in 40 CFR 262. The 90-day flammable storage area will be in one of the other flammable storage rooms (FS-1, FS-2, or FS-3), will be limited to 12 drums of waste, and will be properly labeled as such. The 90-day mercury and arsenic storage area will be CG-2, will be limited to 12 drums of waste, and will be properly labeled as such. These waste drums will be removed from the facility for appropriate treatment and disposal within 90 days.

I.1.c. Maximum Waste Inventory (HWMR 206.D.2.C.(b)):

The following table shows the maximum inventory of wastes in storage at any given time during the operating life of Philips-Albuquerque.

4,700 gal	Waste Hydrofluoric Acid
4,700 gal	Waste Buffered Oxide Etch (Hydrofluoric Acid/Ammonium Fluoride)
4,700 gal	Waste Solvent I
36 x 55 gl	Waste Solvent II (Flammable Storage #4)
64 x 55 gl	Arsenic or Mercury-Contaminated Waste (Chemical Storage #2)

Chemical Storage #2 is a taped area within System Center and is used for container storage of D004 and D009 hazardous wastes. There is a maximum of 64 55-gallon drums of solid waste contaminated with arsenic or mercury. Flammable Storage #4 is a room within the System Center and is used for container storage of D001 and F003 hazardous waste. There is a maximum of 36 55-gallon drums of liquid waste solvent II and solid waste contaminated with waste solvent II. Containment of this area is coated concrete with a drain into Tank #3.

All three tanks are within a coated concrete vault which provides secondary containment. The vault is within the wastewater neutralization area. Tank #3 is a steel tank used for storage of Waste Solvent I liquid hazardous waste (F002, F003, and D001). Tank #4 is a fiberglass re-inforced plastic (FRP) tank used for storage of D002 liquid hazardous waste, which is the waste buffered oxide etch. Tank #5 is a FRP tank used for storage of waste hydrofluoric acid (D002).

I.1.d. General Closure Procedures:

A) Philips-Albuquerque will utilize its employees and outside contractors for final closure of the facility. The activities involved are:

1) Removal of hazardous waste inventory
2) Decontamination of piping
3) Disposal of tank contents
4) Decontamination of tanks
5) Decontamination of containment vaults
6) Disposal of drum inventory
7) Clean up drum storage area

The work involved in decontamination will be supervised and performed by qualified Philips-Albuquerque personnel, except where stated otherwise. Safety precautions will be taken during decontamination procedures to prevent personal injury. Personnel will be equipped with the necessary safety equipment such as goggles, gloves, boots, respirators and coverall clothing.

No open flames, sparking tools, or smoking will be allowed near the Ignitable Storage Area. A combustible gas detector capable of measuring lower explosion limits (LEL) will be available to the workers to assess any hazards posed by ignitable vapors. Fire extinguishers will be made available.

The appropriate absorbent and neutralizing materials will be available in case of a spill during clean-up procedures (i.e., Solusorb for organic solvents, Neutrasorb for acids, and Neutracit for bases). Should any spill-control materials be employed, the resulting waste will be placed in a 55-gallon drum available at the clean-up site. This drum will be disposed of with the other drummed wastes generated during clean-up.

Before leaving the work area, members of the clean-up team will rinse off their boots, and other contaminated clothing, and wash areas of exposed skin. They will be inspected for cleanliness by a supervisor before leaving the site.

Equipment used in the clean-up (pumps, safety gear, scrub brushes, steam-cleaning equipment, etc.) will be washed with water, or steam cleaned if necessary, to ensure it is clean after its final use. A visual inspection or lab analysis of each article will be made before it is declared decontaminated and can be stored or returned.

The inspections of equipment cleanliness and personnel will be made by the clean-up team supervisor. Visual inspections made by clean-up personnel to assure decontamination will be recorded by the supervisor.

Soil is not expected to be contaminated by waste storage at Philips-Albuquerque. Soil contamination is not anticipated because the wastes are stored in tanks situated within coated concrete vaults to provide primary and secondary containment. However, soil sampling will be performed beneath the flammable storage area and beneath the tank storage area. Past spills have been decontaminated at the time of the incident, as specified in the Container Management Plan and Contingency Plan.

The following is a list of anticipated clean-up materials:

1 long-handled squeegee
1 long-handled shovel
1-2 brooms
Dust pan
3 mil thick plastic bags
40 55-gl drums
5 sets of clean-up clothing
Sampling bottles and equipment
Steam cleaner
Scrub brushes

Pump (hand or electric)
Neutralizing and Absorbent materials
Portable combustible gas detector
Fire extinguisher
Garden hose and water
pH paper

I.1.e. Decontamination and Closure of Drum Storage:

The hazardous waste-containing drums will be properly labeled, marked, manifested and shipped by a permitted transporter to a disposal facility. If spills or leaks remain, the storage area will be cleaned by scraping or absorbing with Neutrasorb. Any residuals will be drummed and analyzed, and shipped to an appropriate disposal facility. Analysis of residual material will depend on the location where they are obtained from, either Chemical Storage #2 or Flammable Storage #4. For material collected in Chemical Storage #2, analysis will determine the level of mercury and/or arsenic in the residue by the Toxicity Characteristic Leaching Procedure (TCLP). The closure performance standard for this area will be concentrations of mercury and arsenic in the rinsate not greater than the Maximum Contaminant Level (MCL) for those elements. Material obtained from Flammable Storage #4 will be tested to determine if it should be considered as an ignitable material. The closure performance standard will be the absence of ignitable characteristic waste based on analysis of the rinsate. In addition, samples from Flammable Storage #4 will be tested for total organic carbon and volatile organics. After the drums have been removed, the floor of the areas will be washed with a detergent and hot water mixture to remove any residual waste. The area will then be rinsed to remove residual detergent and then sampled to determine if the closure performance standard has been met. If the closure performance standard cannot be met using this procedure, concrete scrabbling or another appropriate and approved technique may be used to meet the standard. The minimum necessary amount of water will be used to wash and rinse the area, with no greater depth of water than 2 inches within the containment area.

I.1.f. Decontamination and Closure of Tank Storage:

Decontamination and closure of the tank storage area will occur in the following steps:

Step 1

The drain lines leading to the hazardous waste storage tanks will be rinsed copiously with water. The pH of the rinsate will be tested to be greater than 5 at the last clean-out trap. The two acid storage tanks will be rinsed with water and the rinsate removed by a commercial vendor or, where appropriate, pumped into wastewater neutralization. The procedures will be repeated until the pH of the rinsate is greater than 5, which will be the closure performance standard for those two tanks.

Step 2

The solvent-containing tank will be rinsed with water and pumped out for hazardous waste disposal. It will then be visually inspected for sludge. If there is sludge in the tank, a sample will be collected and analyzed for ignitability and TCLP toxicity to determine the appropriate disposal method.

Sludge will be removed from the tanks by scraping from outside the tank through the 24-inch manhole. The sludge will be collected in a 55-gallon drum and then stored with the other wastes generated during clean-up until the final waste pick-up. It is anticipated that less than one drum of waste sludge will be collected.

Many of the solvents stored in this tank have flash points below 100 degrees C and the residue of these solvents may result in a sludge that is ignitable. The solvent waste stream does not include any TCLP toxic material; however, as many solvents are used for cleaning purposes, it is possible that over the life of the tank insoluble TCLP toxic materials may be partitioned and concentrate as a sludge on the bottom of the tank. Therefore, the risk-based concentrations of volatile organic compounds will be used as the closure performance standard for the rinsate and sludge.

Step 3

A steam-cleaning unit will be rented to decontaminate the tanks. Steam (a typical unit operated at 700 psi and 220 degrees F) will be injected into the tank. The resulting wash water will be sampled and tested for the closure standards, and pumped into 55-gallon drums to be stored until the final waste pick-up. This waste water will be tested to determine the waste characteristics and disposed of in an appropriate manner.

The solvent tank collects both routine, large-volume, process solvents and the small volume special purpose solvents. The mixture of these solvents is complex and the use of VOC measurements will give an accurate indication of when all solvents or oily residue have been removed from the surfaces of the tank.

Step 4

The tanks will be decontaminated and inspected in place, if there is sufficient access within the containment vault to perform such operations. The tanks will remain in place after closure. After decontamination, an ultrasonic shell thickness test will be performed on Tank #3 to ensure that the shell thickness is a minimum of 0.125 inch (total shell thickness) before it is placed back into service under 90-day generator status.

Step 5

Residual liquids remaining in vaults as a result of decontamination will be pumped into wastewater neutralization or drums. Surfaces will be washed down with detergent and rinsed. It is estimated that a maximum of 1,000 gallons or 20 drums of liquids will be generated from the above procedures. The drums will be disposed of as hazardous wastes.

I.1.g. Schedule for Closure (HWMR 206.D.2.d.):

Closure is planned to occur between December 20, 1995 and January 15, 1996. The Secretary has been notified more than 180 days before the scheduled beginning of closure. Final closure will be supervised and certified by an independent Professional Engineer in addition to Philips' personnel. Within 60 days after completion of closure, Philips-Albuquerque will submit to the Secretary certification that the waste storage areas have been closed in accordance with the approved closure plan. The certification will be signed by the owner or operator and by an independent Professional Engineer registered in New Mexico.

I.1.h. Extension for Closure Time:

At this time, no extension for closure time is required.

I.2. Post-Closure Plans:

Post-closure care will not be needed for this facility because this is not a disposal facility.

I.3. Notice in Deed and Notice to Local Land Authority:

Because Philips-Albuquerque is only a hazardous waste storage facility, and not a disposal facility, notation is not necessary in the deed informing potential purchasers of restrictions associated with a disposal site, as required by HWMR 206.D.2.i.j.

I.4 Closure Cost Estimate (HWMR 206.D.3.c.):

An estimated $90,200 (August 1995 cost estimate) will be needed to close the Philips-Albuquerque hazardous waste storage facilities. The closure costs are presented by activity in Table I-1. Activities include removal of waste inventory, decontamination, disposal of rinsates, removal of tanks, lab analyses, and closure certification.

This closure cost estimate will be kept on file at the Philips facility. It will be revised if the closure construction bids affects the cost of closure.

1.5 Financial Assurance Mechanism for Closure (HWMR 206.D.3.d.):

1.5.a. Financial Test and Corporate Guarantee for Closure (HWMR 206.D.3.d.(5)):

Per the document in Exhibit I-2, Philips-Albuquerque has elected to utilize the Financial Test as a mechanism for assuring closure funds.

1.6. Post-Closure Cost Estimate (HWMR 206.D.3.e.):

Since all wastes will be disposed of off-site, there will be no post-closure activities or costs.

1.7. Financial Assurance Mechanism for Post-Closure (HWMR 206.D.e.f.):

Since all wastes will be disposed of off-site, there will be no post-closure activities or costs.

I.8. Liability Insurance (HWMR 206.D.3.h):

I.8.a. Sudden Insurance (HWMR 206.D.3.h.(1)):

Philips-Albuquerque has obtained liability insurance for sudden and accidental occurrences in the amount of $4 million per occurrence with an annual aggregate of $8 million exclusive of legal defense costs. A copy of the signed certificate has been sent to the Secretary by certified mail. The certificate is worded as specified in HWMR 206.D.3.j.(10) (see Exhibit I-3).

I.8.b. Nonsudden Insurance (HWMR 206.D.3.h.(2)):

Philips-Albuquerque is a storage facility; therefore, no liability insurance is required for a nonsudden accidental occurrence.

I.8.c. Financial Test (HWMR 206.D.3.h.(6)):

Philips-Albuquerque has an insurance policy for sudden and accidental occurrences; therefore, the financial test is not necessary.

I.8.d. Variance Procedures (HWMR 206.D.3.h.(3)):
Philips-Albuquerque will not request the Secretary for a reduction of liability amounts.

I.8.e. Adjustment Procedures (HWMR 206.D.3.h.(4)):

If the Secretary increases the amounts of liability coverage or elects to improve nonsudden liability coverage requirements, Philips-Albuquerque will immediately seek an adjustment to the insurance policy discussed above.

TABLE I-1
COST OF CLOSURE ESTIMATE (1995 BASIS)

Chemical Storage #2

Item		Quantity	Unit	Unit Cost	Item Cost
1.	Drum Packing, Labelling, Manifesting	20	m.h.	$50	$1,000
2.	Drum Disposal				
	- Transport	550	load	$4.00	$2,200
	- Disposal Fee	64	Drums	$210	$13,440
3.	Pad Washing				
	- Labor	20	m.h.	$50	$1,000
	- Materials	1	lump	$400	$400
4.	Pad Rinsing				
	- Labor	20	m.h.	$50	$1,000
	- Material	1	lump	$200	$200
5.	Rinsate Analysis (mercury and arsenic)	2	samples	$65	$130
6.	Rinsate Treatment/Disposal	1000	gal.	$1.00	$1,000
7.	Scabble Concrete (Optional)				
		20	m.h.	$50	$1,000
			lump	$500	$500
8.	Concrete Disposal (Optional) (Transport with other drums)	5	drums	$210	$1,050
9.	Equipment Decontamination	1	lump	$500	$500
Subtotal (Rounded)					$23,400
Independent Professional Engineer					$4,000
Contingency (20% of Subtotal) (Rounded)					$4,700
TOTAL COST - CHEMICAL STORAGE #2					$32,100

TABLE I-1 (Cont'd.)
COST OF CLOSURE ESTIMATE (1995 BASIS)

Flammable Storage #4

Item		Quantity	Unit	Unit Cost	Item Cost
1.	Drum Packing, Labeling, Loading	10	m.h.	$50	
2.	Drum Disposal				
	- Transport	550	load	$4.00	$2,200
	- Disposal Fee	36	Drums	$400	$14,400
3.	Pad Washing				
	- Labor	10	m.h.	$50	$500
	- Materials	1	lump	$200	$200
4.	Pad Rinsing				
	- Labor	10	m.h.	$50	$500
	- Material	1	lump	$100	$100
5.	Rinsate Analysis (Ignitability)	2	samples	$40	$80
6.	Rinsate Treatment/Disposal	1000	gal.	$1.00	$1,000
7.	Scabble Concrete (Optional)				
	- Labor	10	m.h.	$50	$500
	- Materials	1	lump	$300	$300
8.	Concrete Disposal (Optional) (Transport with other drums)	3	drums	$400	$1,200
9.	Equipment Decontamination	1	lump	$500	$500
Subtotal (Rounded)					$22,000
Independent Professional Engineer					$4,000
Contingency (20%) of Subtotal) (Rounded)					$4,400
TOTAL COST - FLAMMABLE STORAGE					$30,400

TABLE I-1 (Cont'd.)
COST OF CLOSURE ESTIMATE (1995 BASIS)

Acid Tanks (2)

Item		Quantity	Unit	Unit Cost	Item Cost
1.	Drain/Rinse Pipelines	20	m.h	$50	$1,000
2.	Remove Liquids				
	- Labor	20	m.h.	$50	$1,000
	- Materials	1	lump	$400	$400
3.	Treat/Dispose of Liquids	2000	gal.	$1.00	$2,000
4.	Steam Clean Tanks/Remove Liquids				
	- Labor	20	m.h.	$50	$1,000
	- Material	1	lump	$400	$400
5.	Rinsate Analysis (pH)	2	samples	$10	$20
6.	Wash Secondary Containment				
	- Labor	20	m.h.	$50	$1,000
	- Materials	1	lump	$400	$400
7.	Rinse Secondary Containment				
	- Labor	10	m.h.	$50	$500
	- Materials	1	lump	$200	$200
8.	Rinsate Analysis (pH)	2	samples	$10	$20
9.	Rinsate Treatment/Disposal	1000	gal.	$1.00	$1,000
10.	Equipment Decontamination	1	lump	$500	$500
Subtotal (Rounded)					$9,400
Independent Professional Engineer					$4,000
Contingency (20%) of Subtotal) (Rounded)					$1,900
TOTAL COST - ACID TANKS (2)					$15,300

TABLE I-1 (Cont'd.)
COST OF CLOSURE ESTIMATE (1995 BASIS)

Solvent Tank

Item		Quantity	Unit	Unit Cost	Item Cost
1.	Rinse and Remove Liquids				
	- Labor	10	m.h.	$50	$500
	- Materials	1	lump sum	$200	$200
2.	Treat/Dispose of Liquids	1000	gals.	$1.00	$1,000
3.	Remove Sludge				
	- Labor	10	m.h.	$50	$500
	- Materials	1	lump	$100	$100
4.	Analyze Sludge (VOC, Ignitability)	2	samples	$125	$250
5.	Sludge Disposal (Transport with other	1	drum	$400	$400
6.	Steam Clean Tanks/Remove Liquids				
	- Labor	10	m.h.	$50	$500
	- Materials	1	lump sum	$200	$200
7.	Rinsate Analysis (VOC, Ignitability)	2	samples	$125	$250
8.	Ultrasonic Shell Test	1	lump sum	$500	$500
9.	Wash Secondary Containment				
	- Labor	10	m.h.	$50	$500
	- Materials	1	lump sum	$200	$200
10.	Rinse Secondary Containment				
	- Labor	10	m.h.	$50	$500
	- Materials	1	lump sum	$100	$100
11.	Rinsate Sample (VOC, Ignitability)	2	samples	$125	$250
12.	Rinsate Treatment/Disposal	500	gal.	$1.00	$500
13.	Equipment Decontamination	1	lump sum	$500	$500
Subtotal (Rounded)					$7,000
Independent Professional Engineer					$4,000
Contingency (20% of Subtotal) (Rounded)					$1,400
TOTAL COST - SOLVENT TANK					$12,400

TABLE I-1 (Cont'd.)
COST OF CLOSURE ESTIMATE (1995 BASIS)

Cost Summary

Chemical Storage #2	$32,100
Flammable Storage #4	$30,400
Acid Tanks (2)	$15,300
Solvent Tank	$12,400
TOTAL CLOSURE COST ESTIMATE	$90,200

RCRA CLOSURE PLAN REVISION ADDENDUM
(Revision of Permit Attachment F)
SAMPLING AND ANALYSIS PLAN

PHILIPS SEMICONDUCTORS
9201 Pan American Freeway, NE
Albuquerque, New Mexico 87113

EPA ID No. NMD00709782

November 1995

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1.0 Introduction

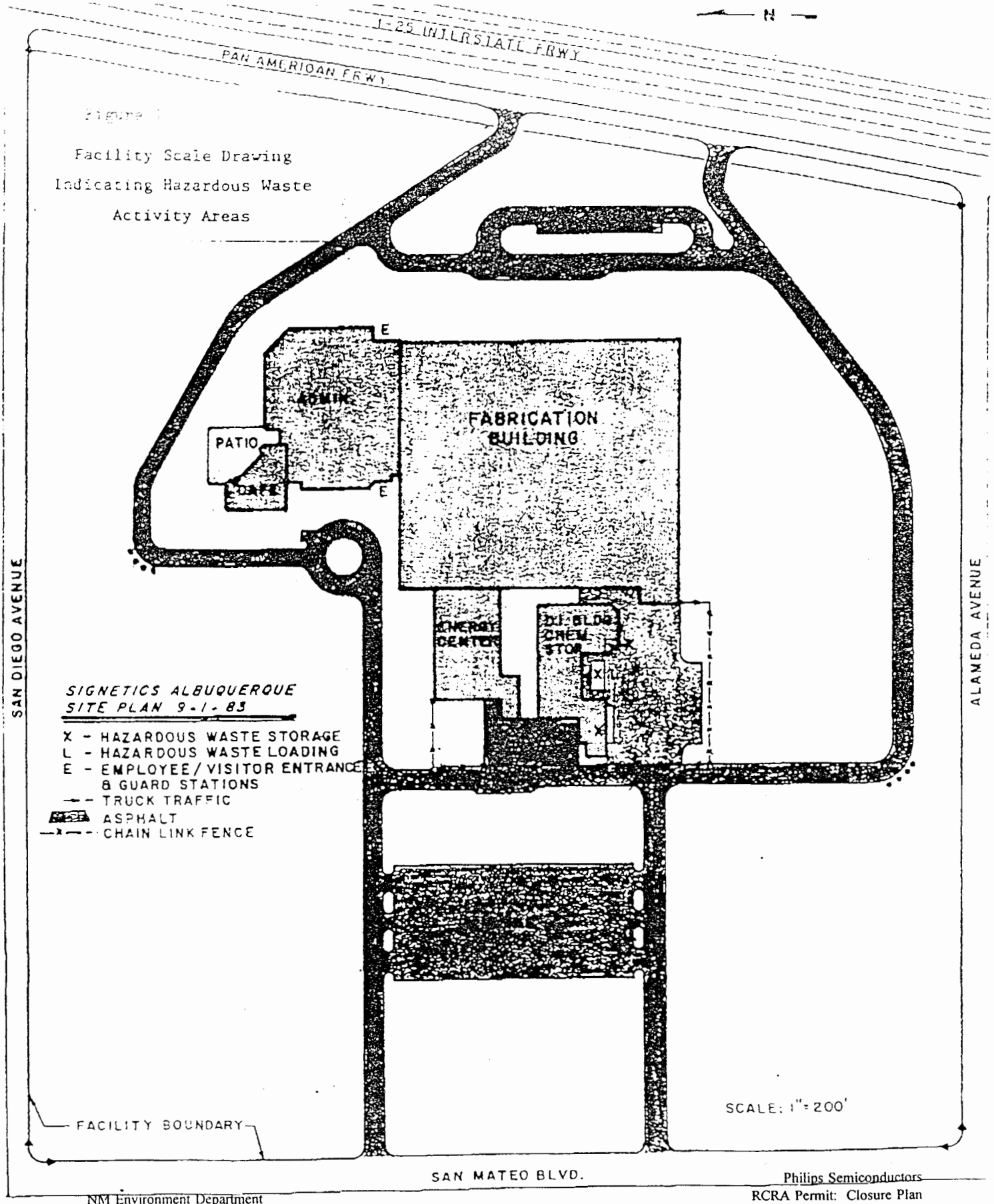
This sampling plan describes the sampling criteria and procedures to be followed during closure of the RCRA Waste Storage Areas located at Philips Semiconductors (Philips-Albuquerque), 9201 Pan American Freeway NE, Albuquerque, New Mexico. This sampling plan is written as an Addendum to the RCRA Closure Plan Revision (Revision of Permit Attachment F) (Philips Semiconductors, October 1995). The Closure Plan outlines the work to be performed as part of closure activities. This sampling plan provides details concerning the actual sampling methods to be used in each permitted waste storage area of the facility.

2.0 Waste Storage Areas

The Philips-Albuquerque facility stores hazardous waste generated solely from its manufacturing operations. There are four specific areas where waste has been stored. These areas consist of two containerized waste storage areas, two 5,000 gallon waste acid tanks, and one 5,000 gallon waste solvent tank. The general layout for the Philips-Albuquerque Facility is shown on Figure 1. A brief description of each storage area and the criteria for sampling during closure are provided below.

2.1 Chemical Storage #2:

Chemical Storage #2 is a taped-off area located in the southwest corner of the Systems Center, as shown in Figure 2. Chemical Storage #2 has been used for container storage of D004 and D009 hazardous wastes, which are arsenic- and mercury-containing wastes, respectively. This area held a maximum of 64 55-gallon drums. Because the drummed wastes which have been stored in this area are solids, there is no possibility that a release may have occurred through the coated concrete floor of this unit. Based upon this rationale, the area will be cleaned of any residue and decontaminated using a detergent/hot water mixture. A sample of the final rinse water will be collected from Chemical Storage #2 and sent to the analytical laboratory for analysis of arsenic and mercury. Table 1 provides a summary of the analytical parameters for each waste storage area. The analytical methods are presented in Table 2. The sampling method for collection of rinse water samples is described in Section 3.1 below.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DI BLDG CHEM STOR
SAN DIEGO AVENUE
ALAMEDA AVENUE
SIGNETICS ALBUQUERQUE
SITE PLAN 9-1-83
X - HAZARDOUS WASTE STORAGE
L - HAZARDOUS WASTE LOADING
E - EMPLOYEE/VISITOR ENTRANCE
& GUARD STATIONS
TRUCK TRAFFIC
ASPHALT
CHAIN LINK FENCE
SCALE: 1"=200'
FACILITY BOUNDARY
SAN MATEO BLVD.

TABLE 1 - ANALYTICAL PARAMETERS

Area	Rinsate Parameters	Soil Parameters	Performance Standard
Chemical Storage #2	Arsenic Mercury	N/A N/A	0.05 mg/l 0.002 mg/l
Flammable Storage #4	Ignitability Volatile Organics	N/A Volatile Organics	Non-ignitable See Table 3
Acid Tanks	pH	pH	Greater than 5
Solvent Tank	Ignitability Volatile Organics	N/A Volatile Organics	Non-ignitable See Table 3

N/A = Not Applicable

TABLE 2 -
ANALYTICAL METHODS, CONTAINERS, PRESERVATIVES
AND HOLDING TIMES

Analyte	Method*	Container(s)	Preservative	Holding Time
Arsenic	AA 7061/7060	1-1 plastic or glass	4°C, HNO_3 to pH <2	6 months
Mercury	AA 7470/7471	1-1 plastic or glass	4°C, HNO_3 to pH <2	28 days
Ignitability	1010/1020	250 ml Amber glass	4°C	NA
pH	9040	250 ml Amber glass (water)/8 oz Amber glass (soil)	4°C	2 days
VOAs	8240/8260	3 Amber glass VOA Vials (water)/8 oz Amber glass (soil)	4°C, HCL	14 days

* Test methods for Evaluating Solid Waste, Physical/Chemical Methods U.S. EPA SW-846, 3rd Edition, 1986.

2.2 Flammable Storage #4:

Flammable Storage #4 is located in a room within the System Center and has been used for container storage of D001 and F003 hazardous waste. There was a maximum of 36 55-gallon drums stored in this area which contained liquid waste solvent II and solid waste contaminated with waste solvent II. Waste solvent II consists of a variety of proprietary vendor formulas of positive photoresists. Containment in Flammable Storage #4 includes a coated concrete floor that gently slopes to a floor drain in the middle of the room and drains into Tank #3. In accordance with the closure plan, Flammable Storage #4 will be cleaned of any residue and decontaminated using a detergent/hot water mixture. Samples of the final rinse water will be collected and sent to the analytical laboratory for analysis of ignitability, total organic carbon and target list volatile organic compounds. The analytical methods are presented in Table 1. The method for rinse water sample collection is provided in Section 3.1. Table 2 provides specifics concerning analytical methods, sample containers, preservatives and holding times. Table 3 is a list of the target list volatile organic compounds for the closure samples. This list was derived from the list of TCLP volatile organic compounds, as well as compounds generally identified with F003 wastes (40 CFR 261.31).

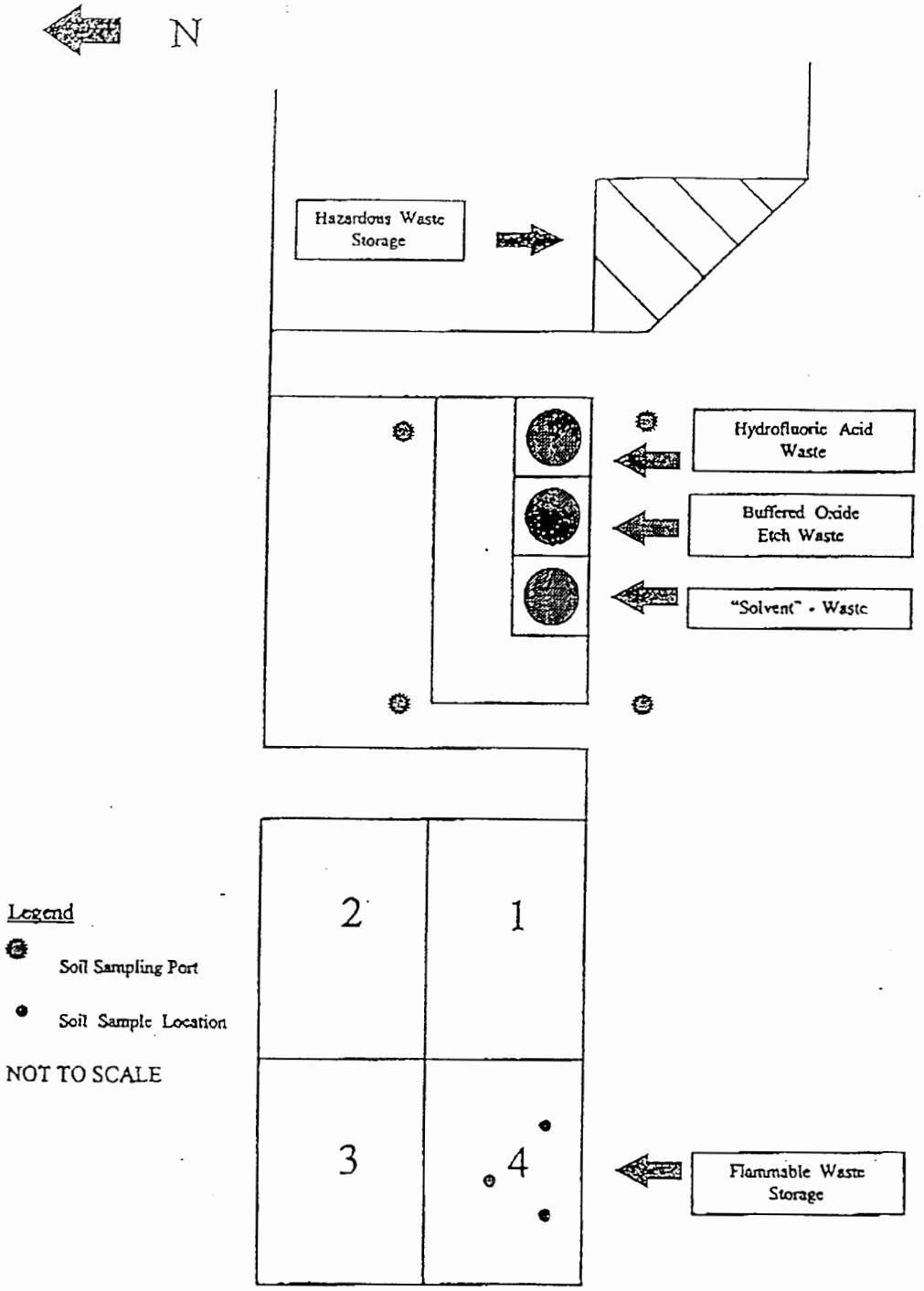
Three soil samples will be collected from beneath the concrete floor at the Flammable Storage Area #4. Sample locations will be at the low point in the room, adjacent to the floor drain; and one location beneath each of the primary drum storage areas in the room. Approximate sample locations are shown in Figure 2. Soil sampling methods are described in Section 3.2.2.

2.3 Tank Storage Area:

There are three tanks located within the wastewater neutralization area of Philips-Albuquerque Facility. These tanks each have a 5,000 gallon capacity and are designated Tank #3, #4, and #5. The tanks are located as shown in Figure 2. All three tanks are located in a secondary containment area that consists of coated concrete. Tank #3 is a steel tank used for storage of waste solvent I. Waste solvent I consists of photolithographic cleaning waste which is categorized as F002, F003, and D001 wastes. Tank #4 is a FRP tank used for the storage of waste buffered oxide etch, which is classified as D002 waste and consists primarily of dilute hydrofluoric acid and ammonium fluoride. Tank #5 is a FRP tank used for storage of waste hydrofluoric acid (D002).

TABLE 3 - VOLATILE ORGANIC PARAMETERS --
FLAMMABLE STORAGE AREA #4 AND TANK STORAGE AREA

Parameter	Rinsate Standard (μg/l)	Soil Standard (mg/kg)
Acetone	3,700	7,800
Benzene	0.36	22
n-Butyl alcohol	3,700	7,800
Carbon disulfide	21	7,800
Carbon Tetrachloride	0.16	4.9
Chlorobenzene	39	1,600
Chloroform	0.15	100
Cyclohexanone	30,000	390,000
1,1-Dichloroethylene	0.044	1.1
1,2-Dichloroethane	0.12	7
Ethyl acetate	33,000	70,000
Ethyl benzene	1,300	7,800
Ethyl ether	1,200	16,000
Isobutanol	1,800	23,000
Methanol	18,000	39,000
Methyl ethyl ketone	1,900	47,000
Methyl isobutyl ketone	2,900	6,300
Methylene chloride	4.1	85
Orthodichlorobenzene	270	7,000
Tetrachloroethylene	1.1	12
Toluene	750	16,000
1,1,1-Trichloroethane	1,300	7,000
1,1,2-Trichloro-1,2,2-Trifluoroethane	59,000	1,000,000
1,1,2-Trichloroethane	0.19	11
Trichloroethylene	1.6	58
Trichlorofluoromethane	1,300	23,000
Vinyl Chloride	0.019	0.34
Xylene	1,400	160,000



WASTE STORAGE AREAS	ERM-ROCKY MOUNTAIN, INC. 2201 Buena Vista SE, Suite 205 Albuquerque, NM 87106 (505) 243-3330	
PHILIPS SEMICONDUCTORS 9201 Pan American Freeway NE Albuquerque, New Mexico 87113	Drawn By: YMG Checked By: CDB Date: 10/10/95	Approx. scale: Not to Scale Job No. N51003.0 Figure: 2

As described in the closure plan, the tanks will be cleaned and decontaminated. Samples will be collected of any sludges remaining in the tanks. Samples will be collected from the final rinse water after the tank enclosures have been washed. A description of those sampling methods is described below. Samples of the rinse water and sludge will be analyzed for pH, ignitability, and target list volatile organic compounds (VOC). Table 1 summarizes the analyses to be performed on the samples from the closure of the waste storage tanks. Table 2 provides information concerning analytical methods, sample containers, preservatives and holding times. Table 3 provides a list of specific analytes that could potentially be associated with the various wastes stored in the three tanks.

Four soil samples will be collected from existing soil sampling ports located in the waste tank storage area. A description of the sampling method is provided in Section 3.2.1. The soil samples will be analyzed for soil pH and the list of volatile organic parameters on Table 3.

3.0 Sampling Methods

During closure, samples will be collected of rinse water and soils in each area, as appropriate. The sampling methods are described in this section.

3.1 Rinse Water Sampling:

As described in the closure plan, the concrete containment areas associated with Chemical Storage #2, Flammable Waste Storage #4, and the Waste Storage Tanks will be cleaned and decontaminated. Samples of the final rinse water will be collected for laboratory analysis. These samples will be collected into the appropriate sample containers provided by the analytical laboratory and preserved as described on Table 2.

The sampling personnel will collect rinse water directly into the sample containers by submerging the containers into the rinse water at a low point in the floor or tank. In Chemical Storage #2 it may be necessary to collect the rinse water into a drum or other container prior to sampling. Care will be taken to ensure no loss of preservatives. Samples of volatile organic compounds will be collected into 40-ml VOA vials in such a manner that no air bubbles are retained in the container.

3.2 Soil Sampling:

3.2.1 Waste Storage Tanks:

At the waste storage tanks, soil samples will be collected beneath the concrete containment area. At the time the facility was constructed, sampling ports were installed along the perimeter of the tanks, although sampling has never been performed. These sampling ports consist of 4-inch inside diameter (ID) steel pipe, which are closed with a threaded cap at floor surface and are completed into soil at their base. Design information concerning these ports indicate that they vary in length from 8 to 17 feet. Soil samples will be collected from four of the sampling ports, which are located at the four corners of the tank enclosure. The following general procedure will be followed for the soil sampling:

- Plastic sheeting will be placed upon the floor surrounding the sampling port to ensure that sampling equipment and supplies do not come in contact with the floor.

- The pipe will be uncapped and ambient organic vapor readings will be taken with a photoionization detector (PID).

- An oil-water interface probe will be used to monitor for fluids (including water or separate phase liquids) in the sampling ports.

- Although no fluids are anticipated, if fluids are present, a bottom-loading disposable polyethylene bailer will be used to collect a sample of the fluid, before any soil sampling is attempted.

- A clean, stainless steel sampling device will be lowered down the sampling port to collect a soil sample. This device will be operated by hand using either a split-spoon sampler, or an auger-type soil sampler. A sufficient volume of soil will be brought to the surface to fill two 8-ounce amber glass containers.

- Samples will be transferred rapidly from the sampling device to the sample containers with a clean latex glove, or with a decontaminated stainless steel sampling tool. The sample containers will be filled rapidly to limit any loss of volatile constituents.

- Samples will be handled as described in section 5.3.

3.2.2 Flammable Storage Area #4:

After the concrete floor has been cleaned and decontaminated at Flammable Storage Area # 4, small sections of the concrete floor will be removed by coring, sawing or drilling to provide access for soil sampling. The following general procedure will be followed for soil sampling:

- Plastic sheeting will be placed around the hole in the concrete, so that sampling equipment can be kept clean.

- Soil samples will be collected from each location using a clean sampling device or a latex glove. The actual sampling method will be determined after the nature of the soil material is evaluated. The use of a hand-auger or split-spoon sampler may be necessary if the soil is compacted. The sampling interval will be 0-6 inches below grade. A sufficient volume of soil will be brought to the surface to fill two 8-ounce amber glass containers.

- Each sampling location will be monitored for organic vapors with the PID.

- Samples will be transferred rapidly from the sampling device to the sample containers with a clean latex glove, or with a decontaminated stainless steel sampling tool. The sample containers will be filled rapidly to limit any loss of volatile constituents. Samples will be handled as described below.

- After sample collection, the concrete floor will be patched.

3.2.3 Sampling Equipment Decontamination:

Decontamination stations will be set up using 5-gallon buckets filled with soapy-water, clear potable water, and distilled water. The soap used will be a phosphate free product, such as Alconox™. All sampling equipment will be decontaminated by the following procedure:

- Debris and soil will be cleaned from the device with a stiff brush;

- The sampling device will be washed in soapy-water using a brush, triple-rinsed in potable water, and given a final rinse in distilled water; and

- The sampling device will be allowed to air-dry before storage in plastic sheeting.

4.0 Quality Assurance/Quality Control

4.1 Record-Keeping:

All information concerning sampling activities will be recorded in a bound field-logbook using a ball-point pen. The type of information recorded includes the following:

- Time-table of work and other activities performed at the site;
- Samplers and other personnel at each sampling location;
- Visitors to the sampling area;
- Specific sampling methods used and any necessary deviations from the sampling plan;
- Description of soils collected including soil classification, moisture content, color, unusual odors, depth of sample interval, etc.
- Sample identification, number of sample containers filled, analytical parameters, preservative used, and name of laboratory.

4.2 Field QA Samples:

Samples will be collected in the field to document data reproducibility, the effectiveness of the decontamination procedures, and the impacts of sample shipping. These samples will include the following:

Trip blanks-- Trip blanks are provided by the laboratory and travel with the sample bottles to the site and are placed in each cooler as sampling proceeds. Trip blanks are analyzed for volatile organic parameters, and monitor the presence of volatile constituents which may have crossed the sample container septum during sample shipping and storage. One trip blank will be used for each sample cooler.

Rinsate blanks-- Rinsate blanks consist of laboratory pure water poured over and through the sampling equipment after equipment decontamination. The rinsate blank provides data concerning the effectiveness of decontamination procedures. One rinsate blank will be collected during the soil sampling activities.

Duplicate Sample-- Duplicate samples are collected at the same time and in the same manner as the regular soil or water samples. They are used to demonstrate the reproducibility of the sample collection methods and to clarify sample matrix effects.

One duplicate sample will be collected during the rinse water sampling.

Matrix Spike/Matrix Spike Duplicates-- These samples will be coordinated with specific laboratory requirements and are further described in Section 5.2.1.

4.3 Chain-of-Custody:

All samples will be collected and shipped under appropriate chain-of-custody (COC). The COC procedures include completion of forms which document the samples collected and the chain of responsible parties. The form will include the project name and number, names of field sampling personnel, Project Manager, sample number, date and time sample was collected, sample location, whether it is a composite or grab sample, sample matrix, number of containers filled for each sample, and constituents to be analyzed. Additionally, the form will document the date, time, and signature of person(s) relinquishing and receiving custody of the samples. Custody tape is used to seal coolers or sample containers, and the samples are kept in view, or under "lock and key" until delivery to the laboratory. If it is necessary to store samples overnight, pending delivery to the laboratory, they will be stored in ERM's sample refrigerator which is located in a locked sample room. The samples will be hand-delivered to a local laboratory or shipped via Federal Express using COC procedures. Once the samples are received at the laboratory, the laboratory will maintain an internal COC that documents sample handling.

4.4 Sample Handling:

As each sample is collected, the container is appropriately labeled and the pertinent information concerning the sample is entered in the logbook. Sample containers are wrapped in bubble wrap, placed inside a resealable plastic bag, and stored in an insulated cooler. Sufficient "blue ice" is kept in the cooler to maintain a temperature of 4 degrees centigrade inside the cooler.

4.5 Equipment Calibration:

All monitoring and sampling equipment used at the site will be calibrated according to manufacturer's specifications. Calibration is normally performed first thing each morning and at mid-day.

4.6 Health and Safety:

A Health and Safety Plan will be developed and will be oriented toward specific closure procedures. The Health and Safety Plan will be available on-site during work activities. Periodic Health and Safety meetings will be held at the site during regular work hours to review safety concerns.

5.0 Laboratory QA/QC and Reporting

Analytical methods to be used for the Philips-Albuquerque RCRA closure will be documented in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd edition (USEPA, 1986/1992). The following section describes the QA/QC procedures used to control data analysis and reporting.

5.1 Laboratory Selection:

The laboratory selected for the analyses of various sample matrices collected at the site must be capable of providing sufficiently accurate and precise analytical results for the types of samples analyzed. Laboratories for the analysis of samples collected for this project will be selected based upon the following: 1) experience analyzing environmental samples while providing accurate and precise analyses; 2) experience with analyses of similar matrix types; 3) experience with the specified analytical methodologies; 4) operation of a stringent internal quality assurance program; and 5) cost.

5.2 Laboratory QA/QC Procedures:

To verify the precision and accuracy of all laboratory analyses, the laboratory will have a quality assurance/quality control program in effect at all times. The QA/QC procedures are designed to ensure that laboratory accuracy and precision are within established acceptance criteria, such that the analytical results can be considered valid and representative. The selected analytical laboratory will submit a quality assurance plan for review. The following sections detail laboratory actions to ensure quality control.

5.2.1 Internal Laboratory Quality Control:

The laboratory QC effort will be equivalent to the EPA Level III program. Matrix spike and matrix spike duplicate samples and laboratory control samples will be analyzed, if specified in the analytical method, to determine if recoveries outside acceptance goals are attributable to sample matrix interferences or to laboratory analytical errors. The laboratory will provide a copy of the Level III QC Data Package with each sample data group. The data packages will be reviewed, and a summary of the QC results will be provided with any reports.

5.2.2 Sample Tracking:

Upon arrival at the laboratory facility, each sample will be assigned a unique identification number. This number will then be placed on all laboratory apparatus used for that sample during analysis. After the analysis has been completed, this number will also be used for retrieving raw data for any sample.

Records of all analyses will be stored on a hard disc and magnetic tape. In addition, copies of all analytical reports, including raw data, will be kept in storage, as required.

5.2.3 Data Handling and Reporting:

The laboratory will have an established system for controlling the passage of data through the laboratory. A general outline of the data handling process is described below:

- As results are completed, information such as the name of the analyst who performed the work, his/her calculations for the sample, and all pertinent data that would allow recalculation of results at a later time will be noted on the results sheets or notebooks.

- After all analyses are completed, the data will be validated by a laboratory supervisor.

The laboratory will be responsible for recognizing anomalous results and taking action, so that a sample can be reanalyzed within holding times.

5.2.4 Sample Analysis:

Blank and standard spike samples will be routinely analyzed along with the samples as part of the analytical laboratory's internal quality control program. This program will include both intra- and inter-laboratory samples. Also included in this program will be internal laboratory spike (ILS) samples, which are known performance samples introduced by the analyst. All samples with the exception of the ILS's will be assigned code numbers to prevent preferential treatment of samples. Analytical QC samples include the following, as appropriate:

Analytical QC Samples

- Method Blank/Reagent Blank
- Calibration Standards
- Check Standard/Surrogate
- Control
- Spikes
- Laboratory Duplicate Sample
- Quality Control Check Samples
- Matrix Spike/Matrix Spike Duplicates

5.2.5 Documentation:

All QA/QC procedures followed in the laboratory will be documented through the use of logbooks and system audits. Logbooks will be provided for sample handling, instrument monitoring and calibration, preparation of standards, and receipt of all chemicals and supplies. All out-of-compliance occasions will be logged by the QA officer, with corrective actions described and resolution of the out-of-compliance occasion noted as to time, date, and effectiveness.

5.2.6 Laboratory Standard Operating Procedures:

Laboratory Standard Operating Procedures (SOPs) will be in place for all phases of laboratory operations. The SOPs will be provided in the laboratory operating areas and followed by all laboratory personnel.

5.2.7 Calibration Procedures:

All laboratory analytical equipment will be calibrated using standard solutions appropriate to the type of instrument and the method linear range. All calibrations will be performed in accordance with the prescribed procedures and frequencies stated in the selected analytical methods as defined by SOPs. Complete calibrations will be performed prior to analyses. Continuing calibration checks will be analyzed at method-prescribed frequencies. If the continuing calibration check does not meet acceptance criteria, the instrument will be re-calibrated and all affected samples will be re-analyzed. All calibration data will be recorded and maintained in the laboratory's project file.

5.3 Data Reduction, Validation, and Reporting:

Reducing, validating, and reporting of the analytical data will be performed in accordance with the standard operating procedures for the corresponding analytical methods and in accordance with the laboratory's internal quality control program. The analytical laboratory will provide the initial data validation. This will include a review of the data package to ensure that:

- Sample preparation information is correct and complete;
- Analysis information is correct and complete;
- The appropriate SOPs have been followed;
- Analytical results are correct and complete;
- QC samples are within established control limits;
- Blanks are within appropriate QC limits;
- Special sample preparation and analytical requirements have been met; and
- Documentation is complete (all anomalies in the preparation and analysis have been documented; out-of-control forms, if required, are complete; holding times are documented).

The laboratory will also be required to submit a Level III quality assurance package The laboratory will provide the following hard copy information in each analytical data package submitted:

- COC form; cover sheet listing the samples included in the report and narrative comments describing problems encountered in analysis and identification of analyses not meeting quality control criteria, including holding times;
- Tabulated results of compounds identified and quantified, dilution factors, and the reporting limits for all analytes; and
- Analytical results for QC sample spikes, sample duplicates, initial and containing calibration, verifications of standards and blanks, standard procedural blanks, and laboratory control samples.

CLOSURE REPORT
HAZARDOUS WASTE STORAGE AREAS
PHILIPS SEMICONDUCTORS
ALBUQUERQUE, NEW MEXICO

Prepared for:

Philips Semiconductors
9201 Pan American Freeway NE
Albuquerque, New Mexico 87113

Prepared by:

IT Corporation
5301 Central Avenue NE, Suite 700
Albuquerque, New Mexico 87108

February 1996

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1.0 Introduction

Philips Semiconductors (Philips) contracted IT Corporation (IT) to perform Resource Conservation and Recovery Act (RCRA) closure activities at the hazardous waste storage areas for the Philips facility located in Albuquerque, New Mexico. The Philips facility is identified as follows:

Facility:	Philips Semiconductors
Facility Address:	9201 Pan American Freeway NE Albuquerque, New Mexico 87113
U.S. Environmental Protection Agency (EPA) ID Number:	NMD000709782
Permit Number:	NMD000709782-1
Facility Type:	Semiconductor Manufacturing

This report describes the decontamination process for the waste storage areas and tanks and for verification sampling activities. All closure activities were conducted in accordance with the "RCRA Closure Plan Revision (Revision of Permit Attachment F, Sampling and Analysis Plan)," (Philips Semiconductors, October 1995) and the "RCRA Closure Plan Addendum (Revision of Permit Attachment F) Sampling and Analysis Plan" (Philips Semiconductors, November 1995).

2.0 Report Objective

The objective of this report is to document the decontamination and closure of the RCRA hazardous waste storage areas at the Philips facility. This report describes the decontamination of the Chemical Storage #2 (CS#2) and the Flammable Storage #4 (FS#4); the decontamination of two 5,000-gallon acid tanks (Tanks #4 and #5) and one 5,000-gallon waste solvent tank (Tank #3); the verification sampling activities; and an inspection of the waste solvent tank (Tank #3).

3.0 Facility Description

The facility is located at 9201 Pan American Freeway NE in Albuquerque, New Mexico.

The Philips facility stores waste generated solely from its manufacturing operations. Waste has been stored in four specific areas consisting of two containerized waste storage areas: (1) CS#2 and FS#4 and a tank storage area containing two 5,000-gallon waste acid tanks (Tanks #4 and #5) and (2) one 5,000-gallon waste solvent tank (Tank #3).

The facility is a semiconductor manufacturing facility and consists of a manufacturing building, support facilities, and the hazardous waste storage areas (Figure 1). Operations at the facility consist of the fabrication and assembly of semiconductors and involve assembly, etching, cleaning, degreasing, soldering, and tooling of semiconductors.

Chemical Storage #2. CS#2 is a taped-off area located in the southwest corner of the Systems Center, as shown in Figure 2. CS#2 was used for container storage of D004 and D009 hazardous waste, which were solid materials containing arsenic and mercury waste, respectively. The waste was stored in 55-gallon drums. The floor of CS#2 was a coated concrete floor.

Flammable Storage #4. FS#4 was located in a room within the Systems Center, as shown in Figure 2. FS#4 was used for container storage of D001 and F003 hazardous wastes comprised of liquid waste solvent II (which consisted of a variety of proprietary vendor formulas of positive photoresists) and solid waste contaminated with solvent II. The waste was stored in 55-gallon drums. FS#4 included a coated concrete floor that sloped to a floor drain in the middle of the room that drained into the waste solvent (Tank #3).

Tank Waste Storage Area. Three waste tanks are located within the wastewater neutralization area (Figure 2). The tanks are designated as waste solvent (Tank #3), buffered oxide etch waste (Tank #4), and hydrofluoric acid waste (Tank #5). All of the tanks are located in secondary containment areas consisting of below-grade coated concrete vaults.

The waste contained in the 5,000-gallon carbon-steel Tank #3 consists of photolithographic cleaning waste, which is classified as F002, F003, and D001 waste. Tank #4 is a fiberglass-wrapped poly tank used to store waste-buffered oxide etch, which is classified as D002 waste. This waste type consists primarily of dilute hydrofluoric acid and ammonium fluoride.

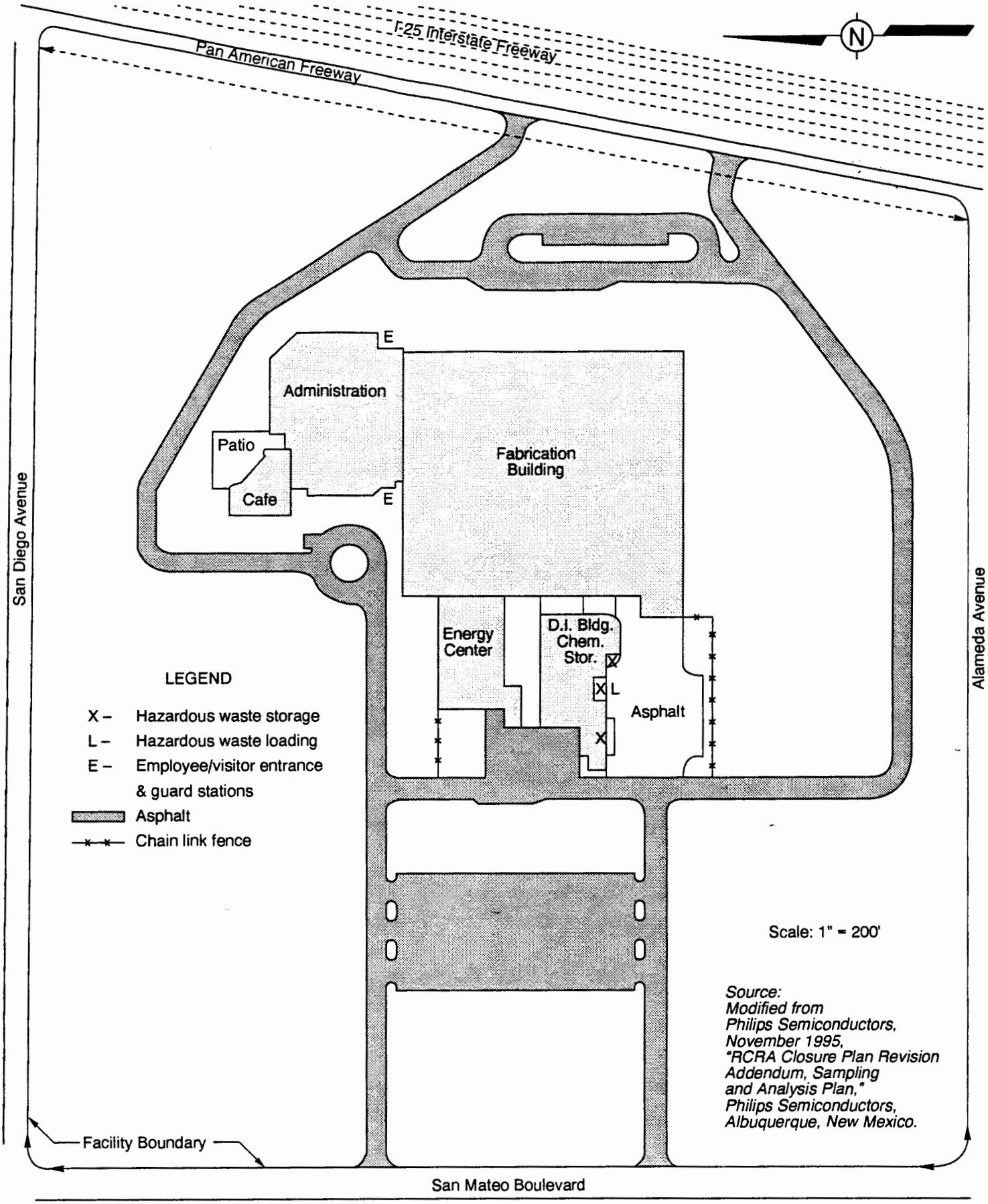

Figure 1

Site Location Map, Philips Semiconductors, Albuquerque, New Mexico

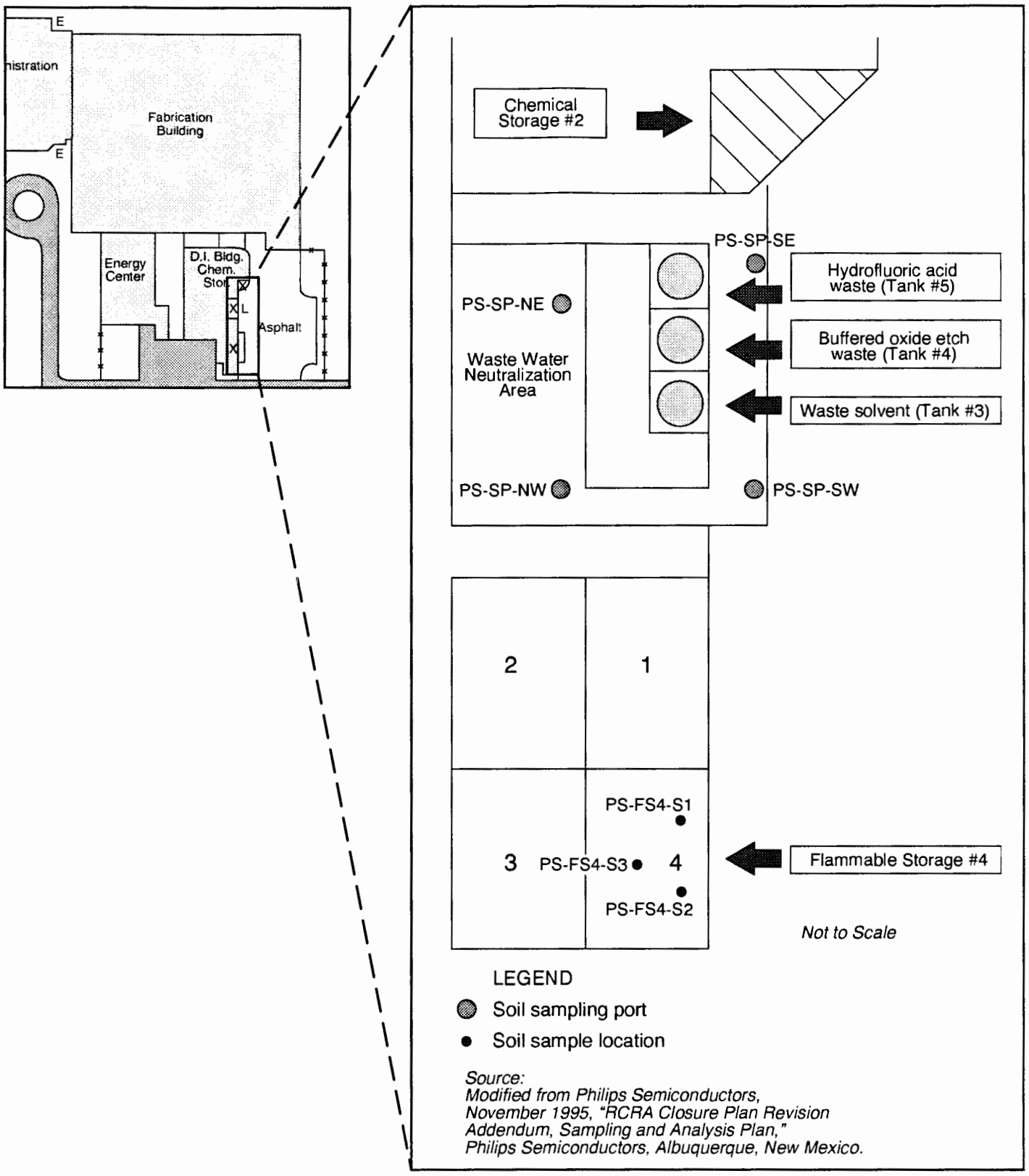

Figure 2

Waste Storage Areas and Sampling Locations

Tank #5 is a fiberglass-wrapped poly tank used to store waste consisting of waste hydrofluoric acid, which is classified as D002 waste. Tank #4 and Tank #5 were inactive for a period of time prior to the cleaning and decontamination process.

4.0 Cleaning and Decontamination Procedures

All cleaning and decontamination procedures were performed in accordance with the "RCRA Closure Plan Revision (Revision of Permit Attachment F) Sampling and Analysis Plan," (Philips Semiconductors, October 1995). Decontamination procedures involved using a high-pressure washer and collecting the rinsate for proper disposal. Information about the daily field activities were entered into daily field logs, copies of which are included in Appendix A. Sections 4.1 through 4.5 describe cleaning and decontamination activities at each of the waste storage areas.

4.1 Chemical Storage #2

Philips removed all drums and equipment from CS#2 prior to initiation of closure on December 20, 1995. A small berm, approximately 2 inches high, was constructed of plastic and sand around the perimeter of CS#2 to prevent the wash water from spreading to other areas. The concrete floor was pressure-washed with a steam pressure washer and Alconox™ detergent. The wash water was collected with wet/dry vacuums. The floor was rinsed twice, and the wash water and rinsate were placed in a 55-gallon drum for disposal by Philips. A sample and a duplicate sample were collected from the final rinsate and analyzed for mercury and arsenic. Because the rinsate contained residual mercury, CS#2 was washed and rinsed a third time on December 23, 1995, using the same methods as those of the previous pressure washing. Section 6.1 describes sampling procedures and analytical results.

4.2 Flammable Storage #4

Philips removed all drums and equipment from FS#4 prior to initiation of closure activities on December 20, 1995. The concrete floor of FS#4 was pressure-washed with a steam pressure washer and Alconox™ detergent. The area was rinsed twice. The wash water and rinsate were drained into the waste solvent tank (Tank #3) through a drain in the center of the room. A sample and a duplicate sample were collected from the final rinsate and analyzed for ignitability, methanol, and volatile organic aromatics (VOAs). Section 6.2 describes sampling procedures and analytical results.

After pressure washing of the floor was completed, a concrete coring machine was used to core the concrete at three locations as shown in Figure 2. Soil samples were collected from beneath the concrete. Section 6.2 describes sampling procedures and analytical results. The concrete cores were placed back in the holes, and the holes were patched with quick-set concrete.

After the coring and sampling were completed, IT's subcontractor, ShotBlast Southwest, Inc., removed 1/8 inch from the concrete surface of the floor using shotblast beads. The residual material was placed in a 55-gallon drum for disposal by Philips. An epoxy coating was placed over the surface of the floor to seal the concrete. The epoxy coating was allowed to dry for 24 hours, and then a self-leveling chemical-resistant epoxy slurry was applied. The epoxy slurry was allowed to dry for six days prior to placement of any equipment or drums in FS#4. Appendix B includes copies of the epoxy product data sheets that describe the chemical resistance and use.

4.3 Waste Solvent (Tank #3)

Prior to the facility shutdown for the Christmas holiday, all of the process waste lines leading to the waste solvent tank were flushed into Tank #3. On December 24, 1995, the bulk product in the tank was removed and pumped into an Ensco 5,000-gallon vacuum tank truck. The lines into the tank were then locked out to prevent accidental liquid from entering the tank during the cleaning and decontamination process. No sludge was encountered in the bottom of the tank.

The tank was pressure-washed with a steam pressure washer and Alconox™ detergent. The wash water was vacuumed into the tank truck. The tank was then triple-rinsed, and the rinsate was vacuumed into the tank truck. A sample and a duplicate sample were collected from the final rinsate for analysis of ignitability, methanol, and VOAs. Section 6.3 describes sampling procedures and analytical results.

After the tank was cleaned, the tank vault was pressure-washed using the same techniques as those used on the tank. The rinsate was also vacuumed into the tank truck. A sample and a duplicate sample were collected from the final rinsate for analysis of ignitability, methanol, and VOAs. Section 6.4 describes sampling procedures and analytical results.

After cleaning and decontamination of the tank and the vault, the tank was retrofitted with a stinger pipe and piping system to facilitate removal of the bulk waste product. The previous process of removal required confined-space entry to remove the bulk waste product.

4.4 Buffered Oxide Etch Waste (Tank #4)

On December 21, 1995, the remaining waste was pumped from the tank by a double-diaphragm pump into the Philips on-site wastewater treatment system. The pH of the product was field-tested with pH paper and was determined to be 5. The tank was then sprayed with a mild solution of citric acid and water to neutralize the residual tank contents to prevent acid fumes from being generated and to allow safe entry into the tank for cleaning.

When the neutralization process was completed, the process line leading to the tank was flushed into the tank, which was then pressure-washed with a steam pressure washer and Alconox™ detergent. The wash water was pumped into the Philips wastewater treatment system. After the tank was rinsed twice with the pressure washer, the rinsate was also pumped into the wastewater treatment system. The tank was left overnight prior to one final rinse.

On December 22, 1995, the tank was pressure-rinsed, and the rinsate was pumped into the wastewater treatment system. A sample was collected from the final rinsate to verify that the tank was clean. Section 6.5 describes sampling procedures and analytical results.

After the tank was cleaned, the tank vault was pressure-washed and rinsed twice. The wash water and rinsate were pumped into the wastewater treatment system. A sample was collected from the final rinsate to verify that the tank vault was clean. Section 6.6 describes sampling procedures and analytical results.

4.5 Hydrofluoric Acid Waste (Tank #5)

On December 21, 1995, the remaining waste was pumped from the tank by a double-diaphragm pump into the Philips on-site wastewater treatment system. The pH of the product was field-tested with pH paper and was determined to be 2.0. The tank was then sprayed with a mild solution of citric acid and water to neutralize the residual tank contents to prevent acid fumes from being generated and to allow safe entry into the tank for cleaning.

After the neutralization process was completed, the process line leading to the tank was flushed into the tank, which was then pressure-washed with a steam pressure washer and Alconox™ detergent. The wash water was pumped into the Philips wastewater treatment system. After the tank was rinsed twice with the pressure washer, the rinsate was also pumped into the wastewater treatment system. The tank was left overnight prior to one final rinse.

On December 22, 1995, the tank was pressure-rinsed, and the rinsate was pumped into the wastewater treatment system. A sample was collected from the final rinsate to verify that the tank was clean. Section 6.7 describes sampling procedures and analytical results.

After the tank was cleaned, the tank vault was pressure-washed and rinsed twice. The wash and rinsate were pumped into the wastewater treatment system. A sample was collected from the final rinsate to verify that the tank vault was clean. Section 6.8 describes sampling procedures and analytical results.

5.0 Waste Management

Hazardous liquid wastes generated from the closure activities included rinsate from CS#2 and FS#4, the bulk product from the solvent tank (Tank #3), and the decontamination of the waste solvent tank (Tank #3). Hazardous solid waste included all disposable personal protective equipment used during these cleaning and decontamination efforts.

Philips disposed of the drummed rinsate from the decontamination of CS#2. Ensco transported the bulk product and rinsate generated from the decontamination of FS#4 and the waste solvent (Tank #3) to their disposal facility in Arkansas.

6.0 Sampling Procedures and Analytical Results

All samples were collected and analyzed in accordance with the "RCRA Closure Plan Addendum (Revision of Permit Attachment F) Sampling and Analysis Plan," (Philips Semiconductors, November 1995). Samples were collected from the final rinsate generated from each hazardous waste storage area, area tank, and tank vault. Soil samples were collected in FS#4 and from soil ports located in each corner of the wastewater neutralization area (Figure 2) and were provided to Analytical Technologies, Inc., for analysis.

6.1 Chemical Storage #2

On December 20, 1995, one sample (PS-CS2-Rinsate) from the final rinsate was collected from the floor of CS#2 by immersing a clean sample bottle into the rinsate in the wet/dry vacuum. The sample was poured into two 500-milliliter (mL) plastic bottles that were preserved with nitric acid. Using the same technique, a duplicate sample (PS-CS2-Rinsate-Dup) was also collected from the rinsate. The bottles were labeled, sealed with chain-of-custody seals, entered into chain-of-custody documentation, and placed in a chilled cooler for transport to the analytical laboratory.

The samples were analyzed on a 48-hour rush basis for arsenic using EPA Method 6010 (modified) and for mercury using EPA Method 7470. Table 1 summarizes analytical results and presents the detection limits (DL) and the closure performance standards. Appendix C includes copies of the analytical results and the chain-of-custody and sample collection logs.

Arsenic was detected below the performance standard of 0.05 milligram per liter (mg/L) in both PS-CS2-Rinsate and PS-CS2-Rinsate-Dup at 0.02 mg/L. However, mercury was detected above the performance standard of 0.002 mg/L in both samples at 0.028 and 0.034 mg/L, respectively. Therefore, CS#2 was pressure-washed and triple rinsed again (see Section 4.1).

On December 23, 1995, a sample (PS-CS2-Rinsate-Resample) was collected from the final rinsate directly from the floor with a clean plastic scoop. The sample was subsequently poured into one 500-mL plastic bottle preserved with nitric acid, labeled, sealed with a chain-of-custody seal, entered into chain-of-custody documentation, and placed in a chilled cooler for transport to the analytical laboratory. The mercury concentration in sample PS-CS2-Rinsate-Resample was 0.0017 mg/L (Table 1).

6.2 Flammable Storage #4

Concrete Floor Decontamination. On December 20, 1995, a rinsate sample (PS-FS4-Rinsate) and a rinsate duplicate sample (PS-FS4-Rinsate-Dup) were collected from the final rinsate in FS#4 by placing a clean 8-ounce glass jar in the floor drain and allowing it to fill with the final rinsate. The rinsate was then poured into one 250-mL plastic bottle for ignitability analysis, into three 40-mL clear vials for methanol analysis, and into three 40-mL amber vials preserved with hydrochloric acid for the VOA analysis.

Table 1

Chemical Storage #2
Summary of Analytical Results for Arsenic and Mercury

Sample	Analyte	Concentration [Detection Limit] (mg/L)	Performance Standard (mg/L)
PS-CS2-Rinsate Lab ID 512387-01	Arsenic	0.02 [0.01]	0.05
PS-CS2-Rinsate Lab ID 512387-01	Mercury	0.028 [0.002]	0.002
PS-CS2-Rinsate-dup Lab ID 512387-02	Arsenic	0.02 [0.01]	0.05
PS-CS2-Rinsate-dup Lab ID 512387-02	Mercury	0.034 [0.002]	0.002
PS-CS2-Rinsate-resample Lab ID 512402-01	Mercury	0.0017 [0.0002]	0.002

mg/L = Milligrams per liter

The 40-mL vials were collected so that no head space or air bubbles remained after they were capped. All of the sample vials and bottles were labeled, sealed with chain-of-custody seal, entered into chain-of-custody documentation, and placed in a chilled cooler for transport to the analytical laboratory.

The rinsate samples were analyzed for ignitability using EPA Method 1010/1020, for methanol using EPA Method 8015 (modified), and for VOAs using EPA Method 8260. The rinsate was not ignitable and contained no detectable concentration of methanol. Acetone was detected below the performance standard of 3,700 micrograms per liter (µg/L) in the rinsate samples at 22 and 26 µg/L, respectively. Table 2 summarizes the analytical results for the rinsate samples.

Soil Sampling. Soil samples were collected from three locations in FS#4 (Figure 2) with a concrete coring machine that cored holes through the concrete. After the coring, pieces of plastic were placed around each hole to prevent the possibility of cross contamination during the sampling process. Stainless steel spoons were used to collect the soil samples at depths of from 0 to 6 inches below the concrete/soil interface. Prior to the sampling event, each spoon was decontaminated with a solution of water and Alconox™ detergent, triple-rinsed with clean water, and finally rinsed in deionized water. A new spoon was used for each sample location.

The soil from each hole was placed into two 4-ounce glass jars, which were labeled, sealed with chain-of-custody seals, entered into chain-of-custody documentation, and placed in a chilled cooler for transport to the analytical laboratory. The samples were labeled PS-FS4-S1, PS-FS4-S2, and PS-FS4-S3. One duplicate sample (PS-FS4-S1-Dup) was also collected from sample location 1.

An equipment rinsate sample (PS-FS4-Equip) was collected by pouring deionized water over a sample spoon after the spoon had gone through the decontamination process. The laboratory provided a trip blank, which remained in the sample cooler and was logged into the chain-of-custody documentation.

The soil samples were analyzed for methanol using EPA Method 8015 (modified) and for VOAs using EPA Method 8260. The soil samples contained no detectable concentrations of methanol. The only VOA detected was acetone.

Table 2

Flammable Storage #4
Summary of Rinsate Analytical Results for Ignitability, Methanol, and Volatile Organic Aromatics

Lab ID: Analyte	PS-FS4-Rinsate 512388-01 Conc./[DL]	PS-FS4-Rinsate-dup 512388-02 Conc./[DL]	PS-FS4-Equip 512388-07 Conc./[DL]	Trip Blank 512388-08 Conc./[DL]	Performance Standard (µg/L)
Ignitability	>96.5°C	>96.5°C	NA	NA	>60°C
Methanol (µg/L)	ND [5,000]	ND [5,000]	ND [5,000]	ND [5,000]	18,000
Acetone (µg/L)	22 [10]	26 [10]	ND [10]	ND [10]	3,700
Benzene (µg/L)	ND [1]	ND [1]	ND [1]	ND [1]	0.36
n-Butyl alcohol (1) (µg/L)	ND [NA]	ND [NA]	ND [NA]	ND [NA]	3,700
Carbon Disulfide (µg/L)	ND [5]	ND [5]	ND [5]	ND [5]	21
Carbon Tetrachloride (µg/L)	ND [1]	ND [1]	ND [1]	ND [1]	0.16
Chlorobenzene (µg/L)	ND [5]	ND [5]	ND [5]	ND [5]	39
Chloroform (µg/L)	ND [1]	ND [1]	ND [1]	ND [1]	0.15
Cyclohexanone (1) (µg/L)	ND [NA]	ND [NA]	ND [NA]	ND [NA]	30,000
1,1-Dichloroethene (µg/L)	ND [1]	ND [1]	ND [1]	ND [1]	0.044
1,2-Dichloroethane (µg/L)	ND [1]	ND [1]	ND [1]	ND [1]	0.12
Ethyl acetate (1) (µg/L)	ND [NA]	ND [NA]	ND [NA]	ND [NA]	33,000
Ethyl benzene (µg/L)	ND [5]	ND [5]	ND [5]	ND [5]	1,300
Ethyl ether (1) (µg/L)	ND [NA]	ND [NA]	ND [NA]	ND [NA]	1,200
Isobutanol (1) (µg/L)	ND [NA]	ND [NA]	ND [NA]	ND [NA]	1,800
Methyl ethyl ketone (µg/L)	ND [10]	ND [10]	ND [10]	ND [10]	1,900
Methyl isobutyl ketone (µg/L)	ND [10]	ND [10]	ND [10]	ND [10]	2,900
Methylene chloride (µg/L)	ND [4]	ND [4]	ND [4]	ND [4]	4.1
Orthodichlorobenzene (µg/L)	ND [5]	ND [5]	ND [5]	ND [5]	270
Tetrachloroethene (µg/L)	ND [1]	ND [1]	ND [1]	ND [1]	1.1
Toluene (µg/L)	ND [5]	ND [5]	ND [5]	ND [5]	750
1,1,1-Trichloroethane (µg/L)	ND [5]	ND [5]	ND [5]	ND [5]	1,300
1,1,2-Trichloro-1,2,2-Trifluoroethane (µg/L)	ND [5]	ND [5]	ND [5]	ND [5]	59,000
1,1,2-Trichloroethane (µg/L)	ND [1]	ND [1]	ND [1]	ND [1]	0.19
Trichloroethene (µg/L)	ND [1]	ND [1]	ND [1]	ND [1]	1.6
Trichlorofluoromethane (µg/L)	ND [5]	ND [5]	ND [5]	ND [5]	1,300
Vinyl chloride (µg/L)	ND [1]	ND [1]	ND [1]	ND [1]	0.019
Xylene (µg/L)	ND [5]	ND [5]	ND [5]	ND [5]	1,400

(1) = Estimated value, analyte quantitated as a tentatively identified compound.
Conc. = Concentration
°C = Degrees centigrade
DL = Detection limit
µg/L = Micrograms per liter
mg/L = Milligrams per liter
NA = Not analyzed or not applicable
ND = Not detected

The initial analytical results indicated that the acetone concentrations in the soil samples exceeded the equipment calibration range. The samples were reanalyzed using higher detection limits. Acetone was detected in all three locations in concentrations ranging from 1,100 micrograms per kilogram (µg/kg) to 250,000 µg/kg at locations PS-FS4-81 and PS-FS4-83, respectively. However, all acetone concentrations in the soil were below the performance standard of 7,800 mg/kg (7,800,000 µg/kg). Table 3 summarizes the analytical results. Appendix D includes copies of the analytical results, chain-of-custody documentation, and sample logs.

6.3 Waste Solvent Tank (Tank #3)

On December 24, 1995, a rinsate sample (Solvent Tank #3) and a rinsate duplicate (Solvent Tank #3 Dup) were collected from the waste solvent tank. The samples were collected from the final rinsate by scooping up the rinsate with a clean plastic jug. The rinsate was poured into one 250-mL plastic bottle for ignitability analysis, into three unpreserved 40-mL clear vials for methanol analyses, and into three 40-mL amber vials preserved with hydrochloric acid for VOA analyses. This procedure was repeated for the duplicate sample. The rinsate was poured into the vials or bottles so that no head space or air bubbles remained when they were capped.

The samples were labeled, sealed with chain-of-custody seals, entered into chain-of-custody documentation, and placed in a chilled cooler for transport to the analytical laboratory. A trip blank provided by the laboratory remained in the sample cooler and was logged into the chain-of-custody documentation.

The samples were analyzed for ignitability using EPA Method 1010/1020, for methanol using EPA Method 8015 (modified), and for VOAs using EPA Method 8260. The final rinsate was not ignitable and contained no detectable concentration of methanol. No VOAs were detected at the method detection limits. Table 4 summarizes the analytical results. Appendix E includes copies of the analytical results and the chain-of-custody and sample logs.

6.4 Waste Solvent Tank Vault (Tank #3)

On December 24, 1995, a rinsate sample (Solvent Vault #3) and a rinsate duplicate (Solvent Vault #3 Dup) were collected from Tank Vault #3. The samples were collected from the final rinsate by scooping up the rinsate with a clean plastic jug. The rinsate was poured into

Table 3
Flammable Storage #4
Summary of Soil Analytical Results for Methanol and Volatile Organic Aromatics

Lab ID: Analyte	PS-FS4-S1 512388-03 Conc./[DL]	PS-FS4-S1-Dup 512388-04 Conc./[DL]	PS-FS4-S2 512388-05 Conc./[DL]	PS-FS4-S3 512388-06 Conc./[DL]	Performance Standard (mg/kg)
Methanol (µg/kg)	ND [5,400]	ND [5,500]	ND [5,400]	ND [5,400]	39,000
Acetone (µg/kg)	3,500 [10] E B	2,600 [10] E B	7,000 [10] E B	35,000 [10] E B	7,800
Benzene (µg/kg)	ND [5]	ND [5]	ND [5]	ND [5]	22
n-Butyl alcohol (1) (µg/kg)	ND [NA]	ND [NA]	ND [NA]	ND [NA]	7,800
Carbon Disulfide (µg/kg)	ND [5]	ND [5]	ND [5]	ND [5]	7,800
Carbon Tetrachloride (µg/kg)	ND [5]	ND [5]	ND [5]	ND [5]	4.9
Chlorobenzene (µg/kg)	ND [5]	ND [5]	ND [5]	ND [5]	1,600
Chloroform (µg/kg)	ND [5]	ND [5]	ND [5]	ND [5]	100
Cyclohexanone (1) (µg/kg)	ND [NA]	ND [NA]	ND [NA]	ND [NA]	390,000
1,1-Dichloroethene (µg/kg)	ND [5]	ND [5]	ND [5]	ND [5]	1.1
1,2-Dichloroethane (µg/kg)	ND [5]	ND [5]	ND [5]	ND [5]	7
Ethyl acetate (µg/kg)	ND [NA]	ND [NA]	ND [NA]	ND [NA]	70,000
Ethyl benzene (µg/kg)	ND [5]	ND [5]	ND [5]	ND [5]	7,800
Ethyl ether (1) (µg/kg)	ND [NA]	ND [NA]	ND [NA]	ND [NA]	16,000
Isobutanol (µg/kg)	ND [NA]	ND [NA]	ND [NA]	ND [NA]	23,000
Methyl ethyl ketone (µg/kg)	ND [10]	ND [10]	ND [10]	ND [10]	47,000
Methyl isobutyl ketone (µg/kg)	ND [10]	ND [10]	ND [10]	ND [10]	6,300
Methylene chloride (µg/kg)	ND [5]	ND [5]	ND [5]	ND [5]	85
Orthodichlorobenzene (µg/kg)	ND [5]	ND [5]	ND [5]	ND [5]	7,000
Tetrachloroethene (µg/kg)	ND [5]	ND [5]	ND [5]	ND [5]	12
Toluene (µg/kg)	ND [5]	ND [5]	ND [5]	ND [5]	16,000
1,1,1-Trichloroethane (µg/kg)	ND [5]	ND [5]	ND [5]	ND [5]	7,000
1,1,2-Trichloro-1,2,2-Trifluoroethane (µg/kg)	ND [5]	ND [5]	ND [5]	ND [5]	1,000,000
1,1,2-Trichloroethane (µg/kg)	ND [5]	ND [5]	ND [5]	ND [5]	11
Trichloroethene (µg/kg)	ND [5]	ND [5]	ND [5]	ND [5]	58
Trichlorofluoromethane (µg/kg)	ND [5]	ND [5]	ND [5]	ND [5]	23,000
Vinyl chloride (µg/kg)	ND [5]	ND [5]	ND [5]	ND [5]	0.34
Xylene (µg/kg)	ND [5]	ND [5]	ND [5]	ND [5]	160,000

Refer to footnotes at end of table.

Table 3 *(Continued)*

Flammable Storage #4
Summary of Soil Analytical Results for Methanol and Volatile Organic Aromatics

Lab ID: / Analyte	PS-FS4-S1 512388-03 Reanalysis Conc./[DL]	PS-FS4-S1-Dup 512388-04 Reanalysis Conc./[DL]	PS-FS4-S2 512388-05 Reanalysis Conc./[DL]	PS-FS4-S3 512388-06 Reanalysis Conc./[DL]	Performance Standard (mg/kg)
Methanol (µg/kg)	ND [5,400]	ND [5,500]	ND [5,400]	ND [5,400]	39,000
Acetone (µg/kg)	1,300 [500]	1,100 [500]	15,000 [5000]	250,000 [50,000]	7,800
Benzene (µg/kg)	ND [250]	ND [250]	ND [2500]	ND [25,000]	22
n-Butyl alcohol (1) (µg/kg)	ND [NA]	ND [NA]	ND [NA]	ND [NA]	7,800
Carbon Disulfide (µg/kg)	ND [250]	ND [250]	ND [2500]	ND [25,000]	7,800
Carbon Tetrachloride (µg/kg)	ND [250]	ND [250]	ND [2500]	ND [25,000]	4.9
Chlorobenzene (µg/kg)	ND [250]	ND [250]	ND [2500]	ND [25,000]	1,600
Chloroform (µg/kg)	ND [250]	ND [250]	ND [2500]	ND [25,000]	100
Cyclohexanone (1) (µg/kg)	ND [NA]	ND [NA]	ND [NA]	ND [NA]	390,000
1,1-Dichloroethene (µg/kg)	ND [250]	ND [250]	ND [2500]	ND [25,000]	1.1
1,2-Dichloroethane (µg/kg)	ND [250]	ND [250]	ND [2500]	ND [25,000]	7
Ethyl acetate (µg/kg)	ND [NA]	ND [NA]	ND [NA]	ND [NA]	70,000
Ethyl benzene (µg/kg)	ND [250]	ND [250]	ND [2500]	ND [25,000]	7,800
Ethyl ether (1) (µg/kg)	ND [NA]	ND [NA]	ND [NA]	ND [NA]	16,000
Isobutanol (µg/kg)	ND [NA]	ND [NA]	ND [NA]	ND [NA]	23,000
Methyl ethyl ketone (µg/kg)	ND [500]	ND [500]	ND [5000]	ND [50,000]	47,000
Methyl isobutyl ketone (µg/kg)	ND [500]	ND [500]	ND [5000]	ND [50,000]	6,300
Methylene chloride (µg/kg)	ND [250]	ND [250]	ND [2500]	ND [25,000]	85
Orthodichlorobenzene (µg/kg)	ND [250]	ND [250]	ND [2500]	ND [25,000]	7,000
Tetrachloroethene (µg/kg)	ND [250]	ND [250]	ND [2500]	ND [25,000]	12
Toluene (µg/kg)	ND [250]	ND [250]	ND [2500]	ND [25,000]	16,000
1,1,1-Trichloroethane (µg/kg)	ND [250]	ND [250]	ND [2500]	ND [25,000]	7,000
1,1,2-Trichloro-1,2,2-Trifluoroethane (µg/kg)	ND [250]	ND [250]	ND [2500]	ND [25,000]	1,000,000
1,1,2-Trichloroethane (µg/kg)	ND [250]	ND [250]	ND [2500]	ND [25,000]	11
Trichloroethene (µg/kg)	ND [250]	ND [250]	ND [2500]	ND [25,000]	58
Trichlorofluoromethane (µg/kg)	ND [250]	ND [250]	ND [2500]	ND [25,000]	23,000
Vinyl chloride (µg/kg)	ND [250]	ND [250]	ND [2500]	ND [25,000]	0.34
Xylene (µg/kg)	ND [250]	ND [250]	ND [2500]	ND [25,000]	160,000

(1) = Estimated value, analyte quantitated as a tentatively identified compound.
B = Analyte found in blank
Conc. = Concentration
DL = Detection limit
E = Exceeds calibration range
NA = Not analyzed or not applicable
ND = Not detected
µg/kg = Micrograms per kilogram
mg/kg = Milligrams per kilogram

Table 4

Solvent Tank #3
Summary of Rinsate Analytical Results for Ignitability, Methanol, and Volatile Organic Aromatics

Analyte / Lab ID:	Solvent Tank 3 512403-04 Conc./[DL]	Solvent Tank 3 DUP 512403-05 Conc./[DL]	Trip Blank 512403-06 Conc./[DL]	Performance Standard (µg/L)
Ignitability	>96.5°C	>96.5°C	NA	>60°C
Methanol (µg/L)	ND [5,000]	ND [5,000]	ND [5,000]	18,000
Acetone (µg/L)	ND [10]	ND [10]	ND [10]	3,700
Benzene (µg/L)	ND [1]	ND [1]	ND [1]	0.36
n-Butyl alcohol (1) (µg/L)	ND [NA]	ND [NA]	ND [NA]	3,700
Carbon Disulfide (µg/L)	ND [5]	ND [5]	ND [5]	21
Carbon Tetrachloride (µg/L)	ND [1]	ND [1]	ND [1]	0.16
Chlorobenzene (µg/L)	ND [5]	ND [5]	ND [5]	39
Chloroform (µg/L)	ND [1]	ND [1]	ND [1]	0.15
Cyclohexanone (1) (µg/L)	ND [NA]	ND [NA]	ND [NA]	30,000
1,1-Dichloroethene (µg/L)	ND [1]	ND [1]	ND [1]	0.044
1,2-Dichloroethane (µg/L)	ND [1]	ND [1]	ND [1]	0.12
Ethyl acetate (1) (µg/L)	ND [NA]	ND [NA]	ND [NA]	33,000
Ethyl benzene (µg/L)	ND [5]	ND [5]	ND [5]	1,300
Ethyl ether (1) (µg/L)	ND [NA]	ND [NA]	ND [NA]	1,200
Isobutanol (1) (µg/L)	ND [NA]	ND [NA]	ND [NA]	1,800
Methyl ethyl ketone (µg/L)	ND [10]	ND [10]	ND [10]	1,900
Methyl isobutyl ketone (µg/L)	ND [10]	ND [10]	ND [10]	2,900
Methylene chloride (µg/L)	ND [4]	ND [4]	ND [4]	4.1
Orthodichlorobenzene (µg/L)	ND [5]	ND [5]	ND [5]	270
Tetrachloroethene (µg/L)	ND [1]	ND [1]	ND [1]	1.1
Toluene (µg/L)	ND [5]	ND [5]	ND [5]	750
1,1,1-Trichloroethane (µg/L)	ND [5]	ND [5]	ND [5]	1,300
1,1,2-Trichloro-1,2,2-Trifluoroethane (µg/L)	ND [5]	ND [5]	ND [5]	59,000
1,1,2-Trichloroethane (µg/L)	ND [1]	ND [1]	ND [1]	0.19
Trichloroethene (µg/L)	ND [1]	ND [1]	ND [1]	1.6
Trichlorofluoromethane (µg/L)	ND [5]	ND [5]	ND [5]	1,300
Vinyl chloride (µg/L)	ND [1]	ND [1]	ND [1]	0.019
Xylene (µg/L)	ND [5]	ND [5]	ND [5]	1,400

(1) = Estimated value, analyte quantitated as a tentatively identified compound
Conc. = Concentration
°C = Degrees centigrade
DL = Detection limit
µg/L = Micrograms per liter
mg/L = Milligrams per liter
NA = Not analyzed or not applicable
ND = Not detected

one 250-mL plastic bottle for ignitability analysis, into three unpreserved 40-mL clear vials for methanol, and into three 40-mL amber vials preserved with hydrochloric acid for VOA analysis. This procedure was repeated for the duplicate sample. The rinsate was poured into the vials or bottles so that no head space or air bubbles remained when they were capped.

The samples were labeled, sealed with chain-of-custody seals, entered into chain-of-custody documentation, and placed in a chilled cooler for transport to the analytical laboratory. A trip blank provided by the laboratory remained in the sample cooler and was logged into the chain-of-custody documentation.

The samples were analyzed for ignitability using EPA Method 1010/1020, for methanol using EPA Method 8015 (modified), and for VOAs using EPA Method 8260. Table 5 summarizes the analytical results. The rinsate was not ignitable and contained no detectable concentration of methanol. Acetone was detected in the VOA analysis. Because the acetone concentrations exceeded the calibration ranges in the initial analyses, the samples were reanalyzed using higher detection limits. The two rinsate samples contained 140 µg/L and 70 µg/L (duplicate) of acetone. Both samples contained acetone concentrations below the performance standard of 3,700 µg/L. Appendix E includes copies of the analytical results and the chain-of-custody and sample logs.

6.5 Buffered-Oxide Etch Waste (Tank #4)

On December 22, 1995, a rinsate sample (Oxide Etch Tank 4) was collected from tank #4. The sample was collected from the final rinsate by scooping up the rinsate with a clean plastic jug. The rinsate was poured into one 125-mL plastic bottle for pH analysis. The sample was labeled, sealed with chain-of-custody seals, entered into chain-of-custody documentation, and placed in a chilled cooler for transport to the analytical laboratory.

Because of the limited holding time for pH, the sample was analyzed on a rush basis for pH using EPA Method 9040. The analytical results indicated the pH was 8.01, which met the performance standard of a pH greater than 5. Table 6 summarizes analytical results. Appendix F includes copies of the analytical results and the chain-of-custody and sample logs.

Table 5

Solvent Vault #3
Summary of Rinsate Analytical Results for Ignitability, Methanol, and Volatile Organic Aromatics

Analyte / Lab ID:	Solvent Vault #3 512403-01 Conc./[DL]	Solvent Vault #3 Reanalysis 512403-01 Conc./[DL]	Solvent Vault #3 DUP 512403-02 Conc./[DL]	Solvent Vault #3 DUP Reanalysis 512403-02 Conc./[DL]	Trip Blank 512403-03 Conc./[DL]	Performance Standard (µg/L)
Ignitability	>96.5°C	NA	>96.5°C	NA	NA	>60°C
Methanol (µg/L)	ND [5,000]	NA	ND [5,000]	NA	ND [5,000]	18,000
Acetone (µg/L)	190 [10] E	140 [100]	47 [10] E	70 [50]	ND [10]	3,700
Benzene (µg/L)	ND [1]	ND [10]	ND [1]	ND [5]	ND [1]	0.36
n-Butyl alcohol (1) (µg/L)	ND [NA]	ND [NA]	ND [NA]	ND [NA]	ND [NA]	3,700
Carbon Disulfide (µg/L)	ND [5]	ND [50]	ND [5]	ND [25]	ND [5]	21
Carbon Tetrachloride (µg/L)	ND [1]	ND [10]	ND [1]	ND [5]	ND [1]	0.16
Chlorobenzene (µg/L)	ND [5]	ND [50]	ND [5]	ND [25]	ND [5]	39
Chloroform (µg/L)	ND [1]	ND [10]	ND [1]	ND [5]	ND [1]	0.15
Cyclohexanone (1) (µg/L)	ND [NA]	ND [NA]	ND [NA]	ND [NA]	ND [NA]	30,000
1,1-Dichloroethene (µg/L)	ND [1]	ND [10]	ND [1]	ND [5]	ND [1]	0.044
1,2-Dichloroethane (µg/L)	ND [1]	ND [10]	ND [1]	ND [5]	ND [1]	0.12
Ethyl acetate (1) (µg/L)	ND [NA]	ND [NA]	ND [NA]	ND [NA]	ND [NA]	33,000
Ethyl benzene (µg/L)	ND [5]	ND [50]	ND [5]	ND [25]	ND [5]	1,300
Ethyl ether (1) (µg/L)	ND [NA]	ND [NA]	ND [NA]	ND [NA]	ND [NA]	1,200
Isobutanol (1) (µg/L)	ND [NA]	ND [NA]	ND [NA]	ND [NA]	ND [NA]	1,800
Methyl ethyl ketone (µg/L)	ND [10]	ND [100]	ND [10]	ND [50]	ND [10]	1,900
Methyl isobutyl ketone (µg/L)	ND [10]	ND [100]	ND [10]	ND [50]	ND [10]	2,900
Methylene chloride (µg/L)	ND [4]	ND [40]	ND [4]	ND [20]	ND [4]	4.1
Orthodichlorobenzene (µg/L)	ND [5]	ND [50]	ND [5]	ND [25]	ND [5]	270
Tetrachloroethene (µg/L)	ND [1]	ND [10]	ND [1]	ND [5]	ND [1]	1.1
Toluene (µg/L)	ND [5]	ND [50]	ND [5]	ND [25]	ND [5]	750
1,1,1-Trichloroethane (µg/L)	ND [5]	ND [50]	ND [5]	ND [25]	ND [5]	1,300
1,1,2-Trichloro-1,2,2-Trifluoroethane (µg/L)	ND [5]	ND [50]	ND [5]	ND [25]	ND [5]	59,000
1,1,2-Trichloroethane (µg/L)	ND [1]	ND [10]	ND [1]	ND [5]	ND [1]	0.19
Trichloroethene (µg/L)	ND [1]	ND [10]	ND [1]	ND [5]	ND [1]	1.6
Trichlorofluoromethane (µg/L)	ND [5]	ND [50]	ND [5]	ND [25]	ND [5]	1,300
Vinyl chloride (µg/L)	ND [1]	ND [10]	ND [1]	ND [5]	ND [1]	0.019
Xylene (µg/L)	ND [5]	ND [50]	ND [5]	ND [25]	ND [5]	1,400

(1) = Estimated value, analyte quantitated as a tentatively identified compound.
Conc. = Concentration
°C = Degrees centigrade
DL = Detection limit
E = Exceeded calibration range
µg/L = Micrograms per liter
mg/L = Milligrams per liter
NA = Not analyzed or not applicable
ND = Not detected

Table 6

Oxide Etch Tank #4 and Hydrofluoric Acid Waste Tank #5
Summary of pH Analytical Results, Aqueous

Sample	pH/Parameter
Oxide Etch Tank #4—Lab ID 512399	8.01
Oxide Etch Vault #4—Lab ID 512399	6.49
HF Tank #5—Lab ID 512399	8.02
HF Vault #5—Lab ID 512399	6.58

6.6 Buffered-Oxide Etch Tank Vault #4

On December 22, 1995, a rinsate sample (Oxide Etch Vault 4) was collected from Tank Vault #4. The sample was collected from the final rinsate by scooping up the rinsate with a clean plastic jug. The rinsate was poured into one 125-mL plastic bottle for pH analysis. The sample was labeled, sealed with chain-of-custody seals, entered into chain-of-custody documentation, and placed in a chilled cooler for transport to the analytical laboratory.

Because of the limited holding time for pH, the sample was analyzed on a rush basis for pH using EPA Method 9040. The analytical results indicated the pH was 6.49, which met the performance standard of a pH greater than 5. Table 6 summarizes analytical results. Appendix F includes copies of the analytical results and the chain-of-custody and sample logs.

6.7 Hydrofluoric Acid Waste (Tank #5)

On December 22, 1995, a rinsate sample (HF Tank #5) was collected from Tank #5. The sample was collected from the final rinsate by scooping up the rinsate with a clean plastic jug. The rinsate was poured into one 125-mL plastic bottle for pH analysis. The sample was labeled, sealed with chain-of-custody seals, entered into chain-of-custody documentation, and placed in a chilled cooler for transport to the analytical laboratory.

Because of the limited holding time for pH, the sample was analyzed on a rush basis for pH using EPA Method 9040. The analytical results indicated the pH was 8.02, which met the performance standard of a pH greater than 5. Table 6 summarizes analytical results. Appendix F includes copies of the analytical results and the chain-of-custody and sample logs.

6.8 Hydrofluoric Acid Waste Tank Vault #5

On December 22, 1995, a rinsate sample (HF Vault #5) was collected from Tank Vault #5. The sample was collected from the final rinsate by scooping up the rinsate with a clean plastic jug. The rinsate was poured into one 125-mL plastic bottle for pH analysis. The sample was labeled, sealed with chain-of-custody seals, entered into chain-of-custody documentation, and placed in a chilled cooler for transport to the analytical laboratory.

Because of the limited holding time for pH, the sample was analyzed on a rush basis for pH using EPA Method 9040. The analytical results indicated the pH was 6.58, which met the performance standard of a pH greater than 5. Table 6 summarizes analytical results. Appendix F includes copies of the analytical results and the chain-of-custody and sample logs.

6.9 Soil Ports

On December 23, 1995, an attempt was made to collect soil samples and one duplicate soil sample from the four soil ports located in the Philips on-site wastewater treatment area (Figure 2). Upon removal of the cap from each port, an organic vapor monitor (OVM) was used to detect any organic vapors that might be present. An oil/water interface probe was used to determine the presence of any possible water or hydrocarbons, and the depth was measured to the bottom of each port. When hand augering was initiated to collect the soil samples from the ports, it was determined that each port had been end-capped at the bottom. The sampling event was postponed pending availability of sampling equipment to penetrate the end caps.

On January 10, 1996, soil port sampling was resumed. Prior to the sampling event, a piece of plastic was laid around each soil port. A hole saw, attached to hand auger poles, cored through each bottom end cap. The soil samples were then brought to the surface with the hole saw. A portion of each soil sample was placed in a ziplock plastic bag, sealed, and then placed in a warm area for a minimum of 15 minutes to allow for volatilization. The OVM provided a reading of the head space, which was then recorded in the sample log along with a description of the soil. Between sampling events and prior to collecting the first sample, the hole saw was washed, rinsed twice, and rinsed a third time with deionized water.

The samples (PS-SP-SW, PS-SP-SW-Duplicate, PS-SP-NW, PS-SP-NE and PS-SP-SE) were labeled according to the locations of the soil ports (e.g., SW for the southwest port). Samples from each soil port were placed in three 4-ounce glass jars for analysis of pH, methanol, and

VOAs. The soil was packed into each jar so that no head space remained in the jars. The jars were labeled, sealed with chain-of-custody seals, entered into chain-of-custody documentation, and placed in a chilled cooler for transport to the analytical laboratory.

An equipment rinsate sample (PS-SP-Equip) was collected after the soil-sampling process was completed. The sample was collected by pouring deionized water over the hole saw after the hole saw had gone through the decontamination process. The rinsate was poured into three 40-mL amber vials preserved with hydrochloric acid for VOA analysis and into three 40-mL clear vials for methanol analysis. A trip blank provided by the laboratory remained in the sample cooler and was logged into the chain-of-custody documentation.

The soil samples were analyzed for pH using EPA Method 9040, for methanol using EPA Method 8015 (modified), and for VOAs using EPA Method 8260. The equipment rinsate sample and trip blank sample were analyzed for methanol using EPA Method 8015 (modified) and for VOAs using EPA Method 8260. All soil samples had a measured pH ranging from 9.18 (PS-SP-NE) to 9.43 (PS-SP-SW-DUP). No concentrations of methanol were detected at the method detection limit. Acetone was detected in all four soil port samples in concentrations ranging from 16 µg/kg (PS-SP-SW) to 24 µg/kg (PS-SP-NE; PS-SP-SE). These concentrations are below the performance standard of 7,800 mg/kg (7,800,000 µg/kg). Tetrachloroethene was detected in each of the soil ports in 2 µg/kg to 3 µg/kg estimated concentrations. All estimated concentrations of tetrachloroethene are below the performance standard of 12 mg/kg (12,000 µg/kg). Table 7 summarizes analytical results for the soil samples.

Table 8 summarizes analytical results for the equipment rinsate and trip blank samples. Appendix G includes copies of the analytical results and the chain-of-custody and sample collection logs.

7.0 Waste Solvent Tank Inspection

On December 26, 1995, IT's subcontractor, Rocky Mountain Engineering Materials Technology (also called EMTEC) performed an external inspection on the waste solvent tank (Tank #5). The inspection included measuring the tank shell thickness and assessing the condition of the welds. Appendix H provides the tank inspection and analysis.

Table 7

Soil Ports
Summary of Soil Analytical Results for pH, Methanol, and Volatile Organic Aromatics

Analyte / Lab ID:	PS-SP-SW 601331-01 Conc./[DL]	PS-SP-SW-DUP 601331-02 Conc./[DL]	PS-SP-NW 601331-03 Conc./[DL]	PS-SP-NE 60133-04 Conc./[DL]	PS-SP-SE 601331-05 Conc./[DL]	Performance Standard (mg/kg)
pH	9.41	9.43	9.27	9.18	9.21	NA
Methanol (µg/kg)	ND [5,400]	ND [5,400]	ND [5,600]	ND [5,700]	ND [5,500]	39,000
Acetone (µg/kg)	16 [10]	ND [10]	21 [10]	24 [10]	24 [10]	7,800
Benzene (µg/kg)	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	22
n-Butyl alcohol (1) (µg/kg)	ND [NA]	ND [NA]	ND [NA]	ND [NA]	ND [NA]	7,800
Carbon Disulfide (µg/kg)	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	7,800
Carbon Tetrachloride (µg/kg)	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	4.9
Chlorobenzene (µg/kg)	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	1,600
Chloroform (µg/kg)	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	100
Cyclohexanone (1) (µg/kg)	ND [NA]	ND [NA]	ND [NA]	ND [NA]	ND [NA]	390,000
1,1-Dichloroethene (µg/kg)	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	1.1
1,2-Dichloroethane (µg/kg)	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	7
Ethyl acetate (µg/kg)	ND [NA]	ND [NA]	ND [NA]	ND [NA]	ND [NA]	70,000
Ethyl benzene (µg/kg)	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	7,800
Ethyl ether (1) (µg/kg)	ND [NA]	ND [NA]	ND [NA]	ND [NA]	ND [NA]	16,000
Isobutanol (µg/kg)	ND [NA]	ND [NA]	ND [NA]	ND [NA]	ND [NA]	23,000
Methyl ethyl ketone (µg/kg)	ND [10]	ND [10]	ND [10]	ND [10]	ND [10]	47,000
Methyl isobutyl ketone (µg/kg)	ND [10]	ND [10]	ND [10]	ND [10]	ND [10]	6,300
Methylene chloride (µg/kg)	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	85
Orthodichlorobenzene (µg/kg)	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	7,000
Tetrachloroethene (µg/kg)	ND [5]	3 [5] J	2 [5] J	2 [5] J	3 [5] J	12
Toluene (µg/kg)	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	16,000
1,1,1-Trichloroethane (µg/kg)	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	7,000
1,1,2-Trichloro-1,2,2-Trifluoroethane (µg/kg)	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	1,000,000
1,1,2-Trichloroethane (µg/kg)	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	11
Trichloroethene (µg/kg)	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	58
Trichlorofluoromethane (µg/kg)	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	23,000
Vinyl chloride (µg/kg)	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	0.34
Xylene (µg/kg)	ND [5]	ND [5]	ND [5]	ND [5]	ND [5]	160,000

(1) = Estimated value, analyte quantitated as a tentatively identified compound.
Conc. = Concentration
DL = Detection limit
J = Estimated value, analyte found below detection limit
NA = Not analyzed or not applicable
ND = Not detected
µg/kg = Micrograms per kilogram
mg/kg = Milligrams per kilogram

Table 8

Soil Ports
Summary of Rinsate Analytical Results for Methanol and Volatile Organic Aromatics

Lab ID: Analyte	PS-SP E-Blank 601330-01 Conc./[DL]	Trip Blank 601330-02 Conc./[DL]	Performance Standard (µ/L)
Methanol (µg/L)	ND [5,000]	ND [5,000]	18,000
Acetone (µg/L)	ND [10]	ND [10]	3,700
Benzene (µg/L)	ND [1]	ND [1]	0.36
n-Butyl alcohol (1) (µg/L)	ND [NA]	ND [NA]	3,700
Carbon Disulfide (µg/L)	ND [5]	ND [5]	21
Carbon Tetrachloride (µg/L)	ND [1]	ND [1]	0.16
Chlorobenzene (µg/L)	ND [5]	ND [5]	39
Chloroform (µg/L)	ND [1]	ND [1]	0.15
Cyclohexanone (1) (µg/L)	ND [NA]	ND [NA]	30,000
1,1-Dichloroethene (µg/L)	ND [1]	ND [1]	0.044
1,2-Dichloroethane (µg/L)	ND [1]	ND [1]	0.12
Ethyl acetate (1) (µg/L)	ND [NA]	ND [NA]	33,000
Ethyl benzene (µg/L)	ND [5]	ND [5]	1,300
Ethyl ether (1) (µg/L)	ND [NA]	ND [NA]	1,200
Isobutanol (1) (µg/L)	ND [NA]	ND [NA]	1,800
Methyl ethyl ketone (µg/L)	ND [10]	ND [10]	1,900
Methyl isobutyl ketone (µg/L)	ND [10]	ND [10]	2,900
Methylene chloride (µg/L)	ND [4]	ND [4]	4.1
Orthodichlorobenzene (µg/L)	ND [5]	ND [5]	270
Tetrachloroethene (µg/L)	ND [1]	ND [1]	1.1
Toluene (µg/L)	ND [5]	ND [5]	750
1,1,1-Trichloroethane (µg/L)	ND [5]	ND [5]	1,300
1,1,2-Trichloro-1,2,2-Trifluoroethane (µg/L)	ND [5]	ND [5]	59,000
1,1,2-Trichloroethane (µg/L)	ND [1]	ND [1]	0.19
Trichloroethene (µg/L)	ND [1]	ND [1]	1.6
Trichlorofluoromethane (µg/L)	ND [5]	ND [5]	1,300
Vinyl chloride (µg/L)	ND [1]	ND [1]	0.019
Xylene (µg/L)	ND [5]	ND [5]	1,400

(1) = Estimated value, analyte quantitated as a tentatively identified compound.
Conc. = Concentration
DL = Detection limit
NA = Not analyzed or not applicable
ND = Not detected
µg/L = Micrograms per liter
mg/L = Milligrams per liter

8.0 References

Philips Semiconductors, November 1995, "RCRA Closure Plan Revision (Revision of Permit Attachment F) Sampling and Analysis Plan," *EPA ID No. NMD00709782*, Philips Semiconductors, Albuquerque, New Mexico.

Philips Semiconductors, October 1995, "RCRA Closure Plan Revision Addendum (Revision of Permit Attachment F) Sampling and Analysis Plan," *EPA ID No. NMD00709782*, Philips Semiconductors, Albuquerque, New Mexico.

APPENDIX A
FIELD ACTIVITY DAILY LOGS

INTERNATIONAL TECHNOLOGY CORPORATION

DAILY LOG			
DATE	12	20	95
NO.			
SHEET 1 OF			

FIELD ACTIVITY DAILY LOG

PROJECT NAME: Philips Semiconductors

PROJECT NO. 765286

FIELD ACTIVITY SUBJECT: Pressure Wash Chem. Storage Areas & Sample

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0500: Crew arrived on site & signed in
0530: Unloaded materials & equipment for operations
0600: Conducted tailgate safety meeting
0700: Set-up equipment & began washing area #4 & monitored area for organic vapors with the O.V.M
0800: Monitored area for vapors - none detected
0840: Took samples of rinsate for VOC's
0905: Completed rinsate samples in area #4
1000: Set up equipment for area #2, ready to start core drilling area #4 set up to pressure wash chemical storage area #2
1100: Coring operations underway in FS. #4, pressure washing underway in C.S. #2
1200: Same operations continued no problems to report, everything on schedule
1300: Completed coring & soil sampling, completed cleaning C.S. #2 and sampling in CS. 2, Shot blast Southwest started shot blasting floor in FS #4
1400: Crew setting up equipment for entry to tank #5 at the water treatment area Shotblast Southwest continues with operations in FS #4
1500: Crew secured tools & equipment & left site, Shot blast crew still working in FS #4
1600: Crew started floor coating in FS #4
1700: Coating operation's continue
1800: Same operations continue
1900: Completed coating FS #4 with epoxy, 1 coat remaining for 12/21 Secured area & left site

VISITORS ON SITE: Melonie & Dave (Philips Paul from ERM

CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS.

None to report

WEATHER CONDITIONS: Am 32°f, clear & cold
PM Low 60's & clear

IMPORTANT TELEPHONE CALLS:

None to report

IT PERSONNEL ON SITE: 5

SIGNATURE: Jerry Rulen

DATE: 12-20-95

327A-7-86

INTERNATIONAL TECHNOLOGY CORPORATION

FIELD ACTIVITY DAILY LOG

DAILY LOG			
DATE	12	21	95
NO.			
SHEET	1	OF	

PROJECT NAME Philips Semiconductors

PROJECT NO. 765286

FIELD ACTIVITY SUBJECT: Remove Bulk Product From HF Tanks #4+5, Set Up For Final Rinse

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS: Confined Space Entry

0600: Arrived onsite + signed in, conducted tailgate safety meeting, held briefing on confined space entry, crew set-up for entry, I performed real time monitoring with the GX-3, OVM, Dreger Multi Pac, Completed Entry permit + inspected operations underway, All conditions ok for entry, also sampled for HF acid, Ammonia & Chlorine using dreger tubes - No vapors are present

0700: Same operations continue, setting up for entry

0800: Same operations continue, Setting up for entry, sampling for O^2, CO, H^2S, L.E.L + Organics vapors continuosly, All readings normal

0900: Entry being performed on Vault + HF Tank #5, removed tank manway + started pumping bulk product from tank - PH=2, No problems to report

1000 Completed pumping off tank contents + started washing & Neutralizing tank

1100 Completed Neutralizing + 1st washdown of Tank #5, setting up for HF Tank #4

1200: Performed entry to vault and HF Tank #4, started pumping off bulk liquid, PH 5 All air test ok

1300: Completed pumping off tank contents + started 1st washdown + Neutralization of HF Tank #4

1400: Completed Neutralization ~~[illegible]~~ and 1st washdown of HF Tank #4, started setting up to flush lines

1515: Plant evacuation, shut down operations for the day, Shot blast crew putting final coat on floor in FS #4

1600: Coating operations continue in Flammable Storage #4, I left site + Jim Stapleton stayed with the crew

VISITORS ON SITE: Melonie, Dave, James (Philips)
Chris + Paul (ERM)

CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS.

None to report

WEATHER CONDITIONS: Clear + Cold in Am
< 32° — Am
Clear how 605 pm

IMPORTANT TELEPHONE CALLS:

None to report

IT PERSONNEL ON SITE: 5

SIGNATURE Jerry Rulon

DATE: 12-21-95

327A-7-86

INTERNATIONAL TECHNOLOGY CORPORATION

DAILY LOG				
	DATE	12	22	95
	NO.			
	SHEET	1	OF	

FIELD ACTIVITY DAILY LOG

PROJECT NAME: Philips Semiconductors

PROJECT NO. 765286

FIELD ACTIVITY SUBJECT: Final Clean Vaults & HF Tanks #4+5, Flush Pipes & Take Soil Samples

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0600: IT crew on site, signed in, conducted safety meeting, held confined space briefing, performed real time air monitoring with the OVM, GX-3 & Dreger Multi Pac, All readings for O_2, LEL, H_2S + CO within acceptable limits, Completed entry permit, Crew setting up for entry into vault & HF Tank #4

0700: Same operations continue; setting up for entry

0800: Same operations continue; "

0900: Entered vault & HF Tank 4, started final pressure wash & pipe flushing

1000: Completed washing tank 4 & collected the rinsate sample, PH 7, started wash-

1100 ing vault, Had to evacuate building until 1045 to 1130

1130 Continued cleaning vault, sampled vault rinsate at 1145

1230 Completed cleaning vault operations & set up for entry of HF Tank 5

1330 Entered Tank #5, preformed real time air monitoring with OVM, GX-3, Dreger Multi Pac & Dreger Tubes

1430 Finale Cleaning & flushing pipes is underway on HF Tank #5 no problems to report

1530 Completed cleaning HF Tank #5 and flushing pipes, collected the rinsate sample from the tank, Started pressure washing the vat

1630 Vault cleaninging still underway - no problems to report real time air monitoring continues for Confined Space Entry Permit

1730 Completed cleaning vault & collected rinsate sample, secured the work area; Some standing water remains in the vaults will have to remove all standing water from vaults 4+5 on 12-23-95

VISITORS ON SITE: Melonie, Dave, James (Philips) Chris & Paul (ERM)

CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS. Concrete Coring company core drilling in vault #5, on 12-23 received a change order to re-clean the vault on 12-23

WEATHER CONDITIONS: Clear, Cold

IMPORTANT TELEPHONE CALLS: None to report

IT PERSONNEL ON SITE: 5

SIGNATURE: Jerry Rulon

DATE: 12-22-95

327A-7-86

INTERNATIONAL TECHNOLOGY CORPORATION

DAILY LOG			
DATE	12	23	95
NO.			
SHEET		OF	

FIELD ACTIVITY DAILY LOG

PROJECT NAME Philips Semiconductors | PROJECT NO. 765286

FIELD ACTIVITY SUBJECT: Re-clean Chemical Storage Area 2

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

09:30 - Sandoval pulled from HF Tank - to set up a new berm in Chem Storage Area, due to Mercury Analytical.
10:00 - Sandoval + Dorado pressure washing floor - Flores setting up on Vault #4
10:45 washing complete - crew vacuuming rinsate
11:00 collect final rinsate sample - remove berm
11:40 crew back to vault #4

VISITORS ON SITE:

CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS.

WEATHER CONDITIONS:

IMPORTANT TELEPHONE CALLS:

IT PERSONNEL ON SITE:

SIGNATURE Jim Stapleton DATE: 12/23/95

327A-7-86

INTERNATIONAL TECHNOLOGY CORPORATION

DAILY LOG	DATE	12	23	95
	NO.			
	SHEET		OF	

FIELD ACTIVITY DAILY LOG

PROJECT NAME Philips Semiconductors | PROJECT NO. 765286

FIELD ACTIVITY SUBJECT: Re-Clean HF Vault #5, Remove Standing Water From HF Vault #4

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS: Clean Solvent Tank & Vault #3, Complete Piping

0600 Crew arrived on site & signed in. Conducted the safety meeting & discussed daily activity's and potential hazards

0700 Crew setting up equipment to perform a confined space entry into HF Vault #5. There is standing water in the bottom of the vault from the cleaning operations. The crew is going to go in & wet vacuum up all the water from the vault

0800 Crew continues setting up. I performed real time air monitoring for O^2, LEL, Organic Vapors, C^O, H_2S and completed a entry permit

0900 Crew performed entry and vacuuming operations underway No problems to report

1000 Completed work on HF Tank & vault #5, crew setting up for work on vault #4 - started fabricating piping for Solvent tank #3 real time air monitoring continues on tank #4

1100 Completed work on HF Vault & Tank #4, crew is setting up for Solvent Tank #3 Vault Entry & fabricating pipiping for Tank #3 - Tried to collect soil samples from monitoring wells #1, 2, 3 & 4 but the wells have been plugged.

1200 Crew continues fabricating piping and making hole through wall of vault for the piping

1300 Same operations continue No problems to report

1400 Crew continues operations

1500 Continue to fabricate piping & jack hammering hole through wall of vault

1800 Completed hole through vault, secured area & left site

VISITORS ON SITE: Melonie + Dave (Philips) Chris + Paul (ERM)

CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS.

None to report

WEATHER CONDITIONS:

Clear & Cold

IMPORTANT TELEPHONE CALLS:

None to report

IT PERSONNEL ON SITE: 5

SIGNATURE Jerry Rulon

DATE: 12-23-95

327A-7-86

INTERNATIONAL TECHNOLOGY CORPORATION

FIELD ACTIVITY DAILY LOG

DAILY LOG			
DATE	12	24	95
NO.			
SHEET		OF	

PROJECT NAME Philips Semiconductors | PROJECT NO. 765286

FIELD ACTIVITY SUBJECT: Clean Solvent Tank & Vault, Fabricate Piping,

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0600 Crew arrives onsite & signs in, Conducted safety meeting & discussed daily activity's & potential hazards. Vacuum truck is onsite but ran out of fuel can't empty solvent tank. Crew setting up equipment to clean solvent tank & vault #3. I performed real time air monitoring with the GK-3, OVM, Dreger Multi Pac on Vault #5 and issued the entry permit. the crew has to go in and re-clean vault #5 because of concrete coring work performed in the vault last night. Their crew not qualified to clean the vault.

0700 Cleaning of vault #5 complete, got vacuum truck going, performed real time air monitoring on Solvent tank & vault #3 and issued a entry permit for the crew to go in and pump all the solvent out of the tank, then clean the tank & the vault.

1000 Same operations continue - crew cleaning the tank & vault No problems to report.

1130 Completed cleaning solvent tank & vault #3, collected rinsate sample continued with piping & crew recleaning Chem Storage Area #2 because of trace amounts of meccury in the analitical taken 12-20

1500 Same operations continue - crew leading up gear to de-mob Continue piping -.

1700 Completed piping, patched concrete around pipe with quick-set all gear loaded up for de-mob - except what is needed for the tank inspection on 12-26-95

1730 Job completed equipment & work area secured - left site

VISITORS ON SITE: (Philips) Melonie

(ERM) Chris & Paul

CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS.
Had a change order to reclean vault #5 because of concrete coring work performed there last night

WEATHER CONDITIONS: Clear & Cold

IMPORTANT TELEPHONE CALLS:

None to report

IT PERSONNEL ON SITE: 5

SIGNATURE Terry Rulan

DATE: 12-24-95

327A-7-86

INTERNATIONAL TECHNOLOGY CORPORATION

FIELD ACTIVITY DAILY LOG

DAILY LOG			
DATE	12	26	95
NO.			
SHEET	1	OF	2

PROJECT NAME: Phillips

PROJECT NO. 765286.03000000

FIELD ACTIVITY SUBJECT: TANK inspection under confined space

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

9:30 AM – meet at warehouse / CHANGE / LOAD Equip.
10:00 leave IT
1030 @ Phillips – Get Entry to area through security
1050 – inspect work site – calibrate Equip / Prepare paperwork.
11:05 – John Schwarzberg / Robbie Gall – meet
set up for pre-lim survey. – Give EARS (Hearing Protection) to Entrant.
11:30 Enter ~~tank~~ vault – coppus Blower working – Gave
EARS to JS + RG – CFS Performed –
11:40 JS/RG in vault
11:43 – Exit vault – Get Equip ready / to re-enter. – Denver leaves.
12:00 JS/RG – Reenter vault –
1230 – leave vault (JS/RG)
1241 – Re-enter vault CFS. – Recalibrate GX-3 to 21% & 0 ppm.
1:20 – Paul Cassday (ERM) on site – TGSM signed. –
1:50 – out of hole – stop CFS @ 1:52 PM
stop coppus Blower – JS/RG – taking Break
2:00 – Re-enter hole. calib GX-3
3:10 – Exit vault – JS/RG relay data to company representatives.
Stop CFS / Coppus Blower – standby – New EARS for Entrants.
3:50 CFS – OK – Restart JS/RG into vault
recalib O2 meter – good shape.
5:00 still in vault working – CFS in Effect.
5:25 Tunnel station done – J. Boyd go to see if
access can be attained.

VISITORS ON SITE:
ERM Representatives
See – TGSM

CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS.

WEATHER CONDITIONS:
inside / cool.

IMPORTANT TELEPHONE CALLS:
CALL 265-5007 to notify Denver.

IT PERSONNEL ON SITE

SIGNATURE: [signature]

DATE: 12/26/95

327A 86

INTERNATIONAL TECHNOLOGY CORPORATION

FIELD ACTIVITY DAILY LOG

DAILY LOG				
	DATE	12	26	95
	NO.			
	SHEET 2 OF 2			

PROJECT NAME Phillips

PROJECT NO. 765286.03.000 000

FIELD ACTIVITY SUBJECT: Tank Inspection

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

5:30 - JS/RG - in vault under Permitted CFS
Mike Brazie on location - relay updated information to him

6:00 - Exit vault - take Break
6:08 - reenter vault - CFS/O2
6:30 recall cont. monitoring. - in vault working
6:50 CFS recalled " " "
7:50 requested copper Blower be turned - did comply & remove Blower due to added danger + effect on Equip.
8:00 - leave vault - check data -
815 - take down Equip / close vault
John S. called Devon.

9:00 - leave site - take Personnel to Hotel
930 return to IT - unload
10:00 stop

VISITORS ON SITE:
Elm -
Phillips -

CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS.

WEATHER CONDITIONS:
inside / cool.

IMPORTANT TELEPHONE CALLS:

IT PERSONNEL ON SITE:

SIGNATURE [signature]

DATE: 12/26/95

327A-7-86

INTERNATIONAL TECHNOLOGY CORPORATION

DAILY LOG			
DATE	1	10	96
NO.			
SHEET		OF	

FIELD ACTIVITY DAILY LOG

PROJECT NAME Philips Semiconductors | PROJECT NO. 765286

FIELD ACTIVITY SUBJECT: Soil Port Sampling

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

07:30 Arrive site w/ North American Drilling - sign in
08:00 Conduct tailgate - setup on Soil Port SWest
09:00 cut hole with hole saw mounted to hand auger poles tried setting up tripod with gas engine + drop hammer sampler couldn't retrieve sample
09:30 North American went to get sand catcher for split spoon
10:15 North American returned.
11:00 Finally collected samples - had trouble due to cut plug from bottom cap interferring. Used hole saw to bring up samples - slow process
11:30 collected sample from NW soil port no problems
12:00 set up on NE soil port - bottom cap spinning hole saw won't work - Dave went to get something else to cut hole in cap.
13:30 collected sample by pounding split spoon + rod through bottom cap used hole saw to collect sample
14:00 bottom cap spinning having same problem
14:15 broke through + was able to retrieve sample
14:30 collected Finsate sample
15:00 left for lab

VISITORS ON SITE:
Dave Paulson - Philips
Dave Tanner - North American
Chris Benavidez North American

CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS.

WEATHER CONDITIONS:

IMPORTANT TELEPHONE CALLS:

IT PERSONNEL ON SITE:

SIGNATURE Jerri Stapleton DATE: 1/10/96

327A-7-86

APPENDIX B

SPECIFICATION FOR FLOOR COATING—FLAMMABLE STORAGE #4

[illegible] decorative coating system for [illegible]dential and light commercial use. [illegible] very effective in disguising substrate [illegible]erfections and soil. Areas exposed to continuous sunlight will require periodic recoating to restore [illegible]ss and optimal cleanability.

[illegible]PICAL USES: Driveways, patios, walks and office areas.

COLOR CHIP FLOORING

[illegible]ESCRIPTION: Multi-colored vinyl chips embedded in pigmented epoxy and sealed with multiple coats [illegible] clear glaze. Interior applications would normally receive one epoxy top coat and two finish coats of [illegible]liphatic polyurethane. Exterior systems are sealed with U.V. stabilized polyurethane or acrylic. System [illegible]ickness is 25-30 mils. [illegible]ished flooring gives a beautiful terrazzo-like appearance. Waxing is not [illegible]quired. "Orange peel" texture provides slip-resistance, and glass beads or quartz may be incorporated [illegible] give extra protection in wet areas.

[illegible]ERFORMANCE EXPECTATIONS: Suitable for commercial and residential applications. Seamless [illegible]urface provides easy maintenance and excellent sanitation. Durable wear coats resist staining, [illegible]brasion and impact. Resistance to a broad range of chemicals is excellent. Lasts indefinitely with periodic re-glazing in heavy traffic areas. Color chip flooring is not intended for heavy use industrial areas.

TYPICAL USES: Used in place of conventional tile or composition flooring. A good system in areas requiring a seamless, durable no-wax surface. Commercial uses include classrooms, offices, store fronts, cafeterias, clean rooms, and bathrooms. Residentially, the product is ideal for patios, walkways, recreation rooms and kitchens.

SELF-LEVELING EPOXY SLURRY

DESCRIPTION: Low viscosity, 100% solids pigmented epoxy resin combined with fine aggregates and fillers. Mixture is applied with a notched trowel and backrolled. A smooth glossy surface results. The resin rich system is extremely durable and wear resistant. Slip-resistance may be achieved by incorporating larger particle silica sand or aluminum oxide into the mixture. An alternate slip resistant surface may be achieved by broadcasting aggregate into the wet slurry and seal coating with epoxy after the slurry cures. System usually installed at 1/16"-1/8" thickness.

PERFORMANCE EXPECTATIONS: This versatile system bridges the performance gap between thin film protective coatings and heavy duty troweled toppings. The aggregate fillers dramatically increase the abrasion and impact resistance, making it suitable for heavier use areas. Resistance to a broad range of chemicals is excellent. This system is ideal for smoothing rough concrete.

(cont'd)

APPLICATION INSTRUCTIONS

Self-Leveling Epoxy Slurry

GENERAL

Self-Leveling Epoxy Slurry Systems consist of low viscosity 100% solids resin and finely graded aggregate fillers. They are normally applied at 60-125 mil thickness in areas that need more protection than is afforded by thin film coatings. The unique filler package incorporated into these systems gives exceptional impact resistance. Systems are usually pigmented and should be applied to a primed surface to prevent bubbling problems caused by substrate gassing. Surface texture is easily varied from perfectly smooth to aggressively slip resistant.

Surface preparation is vital to the long term success of the installation. All surfaces to be coated must be clean, sound and free of mastics or other contaminants which may interfere with bonding. Concrete must be acid etched or shot blasted to achieve a 5-10 mil profile. Wood surfaces must be exterior grade plywood, securely fastened to the subfloor or joists. Wood must be sanded before application. (For detailed preparation information see APF Surface Preparation Bulletin.)

Large holes, cracks and control joints should be filled with Epoxy 300 Flex Paste. A flexible putty knife or trowel works well for this procedure. Patching may be done while the concrete is damp.

Expansion joints should be marked, filled with Epoxy 300 Flex Paste and the slurry system applied. After 24 hours cure, the joint should be sawcut and refilled with a flexible polyurethane sealant.

All drains, floor sinks and floor termination points that do not abut a vertical service must be "keyed in". This is done by making a ¼-½ inch deep cut with a masonry saw or grinding wheel at the point where the flooring system terminates. The slurry material flows into the recessed cut and is protected from edge damage.

PRIMING

After patchwork has cured firm, apply 1 coat of Epoxy 100 or Epoxy 200 at 250-300 sq. ft. per gallon.

APPLICATION OF THE SLURRY

After the primer has become tack free (usually 12-16 hours for Epoxy 100 and 3-5 hours for Epoxy 200), the slurry system may be applied. The following tools and equipment are requiredfor the installation:

1. 1/2 inch electric drill with Jiffy type mixing blade. A mortar type mixer is helpful for larger jobs
2. 1/4 or 3/8 inch notched trowels or squeegees for gauging the amount of material applied
3. 5 gallon, 1 gallon and quart containers for measuring and mixing
4. 9 inch loop texture rollers
5. Porcupine type roller
6. Spiked shoes
7. Shaker can for the application of slip resistant aggregate if required

Set up a mixing station using a plastic tarp or drop cloth. At this station, locate the resin slurry filler, all tools and equipment and cleanup solvent.

The slurry system consists of equal volumes of catalyzed epoxy resin and finely graded aggregate fillers. The prepackaged APF Slurry Filler gives a flowable, self-leveling mixture.

Premix the pigmented Epoxy part A before blending with part B. Mix 2 parts A to 1 part B by volume. Blend well for 1 minute. Add an equal volume of slurry filler and continue mixing for 2 minutes with the Jiffy mixer until the mixture is thoroughly homogenized. A convenient batch consists of 1½ gallons of resin and 1½ gallons of filler, mixed in a 5 gallon pail.

The mixture is then poured onto the primed surface and spread with a notched trowel or squeegee. A ¼ inch notched trowel held at a 45° angle will leave the material approximately 60 mils thick. A 3/8 inch notched trowel held at a 45° angle will leave the material approximately 90 mils thick. The true measurement of system thickness can be computed by how much area is covered per batch. A 3 gallon batch of resin and filler will cover 75 square feet at a 60 mil thickness. (This equates to 50 square feet per gallon of liquid resin.) To achieve a 120 mil system, the 3 gallon batch of resin and filler would be spread to cover 37.5 square feet.

After the material has been spread, a mechanic wearing spiked shoes should walk onto the surface and backroll the area with a looped texture roller to remove trowel marks and obtain an even distribution of the material. After rolling with the loop roller, reroll the area well with a porcupine roller to release air that has been entrained during the mixing process.

A desirable application feature of the slurry system is being able to place additional material in hollows or low spots as they become evident during the application. The mechanic with spiked shoes walks onto the freshly poured surface and places material in those areas that need additional buildup. After pouring the material, roll as before and the material will blend and level with the previously placed material.

This method of application leaves a smooth, glass-like finish. A slip-resistant surface may be achieved by two different methods. In the first method, a mechanic wearing spiked shoes walks onto the surface after the loop rolling has been completed and distributes aluminum oxide or monterey type sand ontothe surface. For a 60 mil slurry system, 8-10 mesh aggregate is recommended. Distribution is done with a shaker can held above the shoulder level. Spacing the particles ¼ inch apart creates a slip-resistant surface that is easily cleaned with a stiff bristled broom. After distributing the aggregate, finish roll with a porcupine roller.

An alternate method for achieving a slip-resistant surface and increasing the system thickness is called the slurry broadcast. In this application, after the initial slurry has self-leveled, broadcast 20 or 30 mesh aggregate into the material to refusal. Allow the epoxy to cure, sweep off the excess aggregate and apply the unfilled epoxy material 100-125 square feet per gallon using a roller or rubber squeegee. 30 mesh aggregate broadcast into a 60 mil slurry will produce a floor 1/8 inch thick.

PRODUCT DATA SHEET

APF ARIZONA POLYMER FLOORING, INC.

7731 North 68th Avenue • Glendale, Arizona 85303 • (602) 435-2277 • (800) 562-4921 • Fax: (602) 435-8585

Industrial Epoxy 100

PRODUCT DESCRIPTION AND USE

Industrial Epoxy 100 is a two component water based epoxy system that combines the performance advantages of conventional epoxy materials with the ease of application and low toxicity of latex type coatings. This material cures to a high gloss finish with excellent resistance to abrasion and chemical attack. Epoxy 100 will cure over a wide range of temperatures and may be applied to damp surfaces. It forms a tenacious bond to a variety of substrates including concrete, wood and metal. This product has the unique ability to bond permanently to freshly poured concrete.

Epoxy 100 is used as a general purpose coating for walls and floors and as a primer under other epoxy finish coat materials, acrylic and polyurethane. Because of its ease of application and low odor, it is ideal for "in house" coating projects and use by plant maintenance personel. As a wall coating over drywall or concrete block, it is many times more durable than latex paint and easier to clean. Epoxy 100 is recommended for warehouse and showroom floors, automotive repair facilities, residential garage floors, light manufacturing areas, lab floors and many other commercial and industrial maintenance applications.

Chemical Composition
Modified Bisophenol A epoxy resin crosslinked with a water soluble amine adduct.

Colors
12 standard colors available plus clear

Limitations
- Applications made below 45° will require a 48 hour cure time before recoating.
- If surface has been prepared by acid etching, do not allow acid solution to dry on concrete. Rinse with ammonia/water solution to neutralize acid residue.
- Pigmented exterior applications will show chalking. Exterior clear applications are not recomended.

TECHNICAL DATA

Physical Properties

Mixing Ratio, by Volume	4-1
Solids Content, by Weight	51%
Solids Content, by Volume	43.5%
Viscosity, cps (77 °)	1000-1500
Pot Life (77°)	6-8 hours
CureTimes (77 °)	
Dry To Touch	2 hours
Recoat	overnight
Light Traffic	24 hours
Full Cure	7 days

Higher temperatures will accelerate dry times and lower temperatures will lengthen cure times.

Performance Properties

Gloss (60°)	high gloss 90-95
Pencil Hardness (ASTM D - 3363)	F-H
Adhesion (ASTM D -3359)	cross hatch 5B - 100% adhesion
Tabor Abrasion - 1000 gm. load	
1000 cycles, CS 17 wheel	60 - 65 mg. loss

WARRANTY INFORMATION

Arizona Polymer Flooring guarantees that this product is free from manufacturing defects and complies with our published specifications. In the event that the buyer proves that the goods received do not conform to these specifications or were defectively manufactured, the buyer's remedies shall be limited to either the return of the goods and repayment of the purchase price or replacement of the defective material at the option of the seller. Arizona Polymer Flooring makes no other warranty, expressed or implied, and all warranties of merchantibility and fitness for a particular purpose are hereby

CHEMICAL RESISTANCE (ASTM D-1308 24 HOUR IMMERSION)

Coffee	no effect
Vegetable Oil	no effect
Mustard	no effect
Whiskey	no effect
Urine	no effect
Trisodium Phosphate, 25% solution	no effect
Gasoline	no effect
Motor Oil	no effect
Brake fluid	no effect
Transmission Fluid	no effect
Mineral Spirits	no effect
10% Sulphuric Acid	no effect
10% Hydrochloric Acid	no effect
10% Acetic Acid	no effect
Xylene	no effect
MEK	not recommended

GENERAL INFORMATION

Surface Preparation

Surface must be clean, structurally sound and free of dirt, chalk, wax, loose paint or curing compounds. Surface may be damp, but standing water should be removed. Concrete should be sandblasted, shot blasted or acid etched. If acid etched, surface must be rinsed and scrubbed with ammonia and water solution (1 pint household ammonia to 5 gallons water) before concrete can dry. Previously coated surfaces must be mechanically cleaned before recoating. Urethane surfaces must be cleaned and sanded lightly with 60-80 grit sandpaper. Epoxy 100 should normally be recoated after an overnight cure period. However, if conditions are very cool and /or damp, 48 hours cure time should be allowed before recoating. If temperatures are very warm and more than 24 hours elapses, the surface should be lightly sanded before recoating.

Mixing Instructions

Mix only that amount of material that can be used in a 6-8 hour period. In very hot weather it is advisable to mix smaller batches to insure good flow and workability. Because color change can occur as mixed material advances in its pot life, when using as a pigmented finish coat, mix only that amount of material that can be used in 1 hour. Premix part A bringing settled pigments up from bottom of container. Combining ratio is 4 parts A to 1 part B. Proportion the amounts carefully and mix for 2 full minutes using a low speed drill or a wooden stir stick, scraping the bottom and sides of the mixing vessel. Water may be added to achieve a good working consistency. Do not overthin.

Application Recommendations

Epoxy 100 is normally applied 200-400 sq. ft. per gallon by brush, roller or airless spray. If using as a primer and trapped air in the substrate creates bubbles, continued rolling will cause them to disappear. When using as a pigmented finish coat, keep a "wet edge" and do not attemp to roll over material that has begun to set as a change in color will result.

Handling Precautions

Use only with adequate ventilation. Appropriate cartridge type respirator must be used during application in confined areas. Avoid contact with skin, wear protective gloves. Read Material Safety Sheet before using.

PRODUCT DATA SHEET

APF ARIZONA POLYMER FLOORING, INC.

7731 North 68th Avenue • Glendale, Arizona 85303 • (602) 435-2277 • (800) 562-4921 • Fax: (602) 435-8585

EPOXY 600

PRODUCT DESCRIPTION AND USE

Epoxy 600 is a solvent-free high performance resin system designed to give improved chemical resistance over standard epoxy materials. It has excellent resistance to most solvents, 50% sulphuric acid and 15% acetic acid. Epoxy 600 is low viscosity, cures blush free and has good resistance to U. V. light. It cures rapidly at room temperature and can be applied as low as 45°F. Epoxy 600 is USDA approved for use in food handling areas.

Epoxy 600 was formulated for use as an aggregate binder or top coat where service conditions are too severe for general purpose epoxies, but the performance of novolac materials is not required. Typical areas of use would include food and beverage processing plants, battery rooms, wineries, breweries and dairies.

Chemical Composition
Modified bisphenal F epoxy resin crosslinked with cycloaliphatic polyamines.

Colors
9 standard colors available, plus clear.

Limitations
Should be applied only with aggregate fillers in flooring applications where impact or mechanical abuse is anticipated.

TECHNICAL DATA

Physical Properties

Solids Content, %	100
Mixing Ratio, by Volume	2-1
Viscosity, cps (77°)	750
Pot Life (77°)	30 minutes
Cure Times (77°)	
Dry to Touch	4 hours
Light Traffic	10 hours
Full Chemical Resistance	7 days

Performance Properties

Tensile Strength, psi (ASTM D-638)	8,590
Ultimate Elongation, % (ASTM D-638)	7
Compressive Yield Strength, psi (ASTM D-695)	13,790
Ultimate Compressive Strength, psi (ASTM D-695)	19,480
Ultimate Flexural Strength, psi (ASTM D-790)	13,945
Hardness, Shore D (ASTM D-790)	86
Bond Strength to Concrete (ACI 503.4-2.3.2.2)	concrete fails before loss of bond

WARRANTY INFORMATION

Arizona Polymer Flooring guarantees that this product is free from manufacturing defects and complies with our published specifications. In the event that the buyer proves that the goods received do not conform to these specifications or were defectively manufactured, the buyer's remedies shall be limited to either the return of the goods and repayment of the purchase price or replacement of the defective material at the option of the seller. Arizona Polymer Flooring makes

Chemical Resistance

The chemical resistance of a coating material is influenced by many factors, including exposure to a mixture of chemicals, service temperature and housekeeping practices. Successful engineering of the coating system must also take into consideration such factors as substrate design, temperature cycling and anticipated thermal and mechanical shock. Users are urged to consult our technical service department for recommendations on the specific project. Whenever possible, a sample should be tested under actual or simulated field conditions before a decision is made on the suitability of a given system.

The following chart is a guide to the resistance properties of Epoxy 600. Testing was conducted at room temperature on samples cured for 7 days.

Key:
1 - Suitable for continuous contact
2 - Suitable for intermittent spills and continuous contact up to 72 hours
3 - Suitable for intermittent spills if followed promptly by water flushing
4 - Not recommended

Acetic Acid, 15%	1
Acetic Acid, 25%	2
Acetic Acid, Glacial	3
Acetone	4
Aluminum Chloride	1
Aluminum Nitrate	1
Aluminum Sulfate	1
Ammonium Hydroxide	1
Ammonium Nitrate	1
Ammonium Sulfate	1
Aniline	3
Barium Chloride	1
Barium Hydroxide	1
Barium Sulfide	1
Beer	1
Benzene	1
Brake Fluid	1
Boric Acid	1
N-Butyric Acid, 50%	3
Calcium Chloride	1
Calcium Hydroxide	1
Calcium Nitrate	1
Calcium Sulfate	1
Chloroform	3
Chromic Acid, 50%	1*
Citric Acid, 50%	1
Cola Syrup	1
Copper Chloride	1
Copper Nitrate	1
Copper Sulfate	1
Diesel Fuel	1
Ethyl Acetate	1
Ethyl Alcohol	1
Formaldehyde	1
Formic Acid, 25%	3
Hydrobromic Acid, 48%	1*
Hydrochloric Acid, 37%	1*
Hydrofluoric Acid, 25%	2
Hydrogen Peroxide, 30%	1
Lactic Acid, 50%	1
Lactic Acid, 85%	2
Jet Fuel	1
Isopropyl Alcohol	1
Maleic Acid, 40%	2
Methanol	2
Methylene Chloride	3
Methyl Ethyl Ketone	4
Nitric Acid, 15%	1*
Oleic Acid	1
Phosphoric Acid, 85%	1
Potassium Chloride	1
Potassium Cyanide	1
Potassium Hydroxide	1
Potassium Nitrate	1
Potassium Sulfate	1
Skydrol	1
Sodium Hydroxide, 50%	1
Sodium Chloride	1
Sulphuric Acid, 50%	1*
Tetrahdyrofuran	3
Toluene	1
Trichlorethylene	3
Trichlorethane	1
Urea	1
Xylene	1

* Coating stains when exposed to this chemical

GENERAL INFORMATION

Surface Preparation

Concrete must be cured 30 days and be clean, structurally sound and dry. All loose paint and curing compounds must be removed. Concrete should be sandblasted or acid etched. If acid etched, machine scrubbing is required. Do not allow etching solution to dry on concrete. Neutralize surface with ammonia and water solution.

EPOXY 600 DATA SHEET cont'd

Mixing Instructions

If using regular cure material, pot life is 30 minutes at 77°. Work times are shortened by higher temperatures. Pouring material on floor immediately after mixing will extend work life. Combining ratio is 2 parts A to 1 part B. Proportion the amounts carefully and mix for 2 ful minutes using a wooden stir stick or low speed drill, scraping the bottom and sides of the mixing vessel.

Application Recommendations

Epoxy 600 must be applied by roller, trowel or squeegee. Epoxy 600 must be applied as an aggregate filled system at a minimum of 60 mils in flooring systems where impact or mechanical abuse is anticipated. It may be applied as a self-leveling slurry, slurry broadcast or resin-rich troweled system. For detailed installation instructions, see APF Applications Manual.

Handling Precautions

Do not breathe vapors. Use appropriate respirator with green band cartridge to protect against methyl amine vapors. Avoid contact with skin; wear protective gloves. Read Material Safety Data Sheet before using.

PRODUCT DATA SHEET

APF ARIZONA POLYMER FLOORING, INC.

7731 North 68th Avenue • Glendale, Arizona 85303 • (602) 435-2277 • (800) 562-4921 • Fax: (602) 435-8585

EPOXY NOVOLAC 800

PRODUCT DESCRIPTION AND USE

Epoxy Novolac 800 is a multifunctional, highly crosslinked epoxy system designed to give outstanding chemical and heat resistance. This material offers excellent resistance to a broad range of aggressive acids and solvents including 98% sulphuric acid and MEK. It is suitable for constant exposure to temperatures up to 225°F and intermittent exposures up to 350°F. Novolac 800 has a lower viscosity than most competitive systems making aggregate filled flooring easier to apply. Self-leveling flooring systems based on this resin and the APF slurry filler give exceptional impact resistance at 60-125 mils. The system cures very rapidly at room temperature and may be applied down to 40°F. Novolac 800 is cured with an aliphatic amine which eliminates the health hazards associated with conventional aromatic amine cured systems. Also, unlike aromatic amine cured systems, this material may be used in light colored applications and as a clear top coat in color quartz systems. Novolac 800 is USDA approved for use in food handling areas.

Novolac 800 was designed for use in a variety of chemical and heat resistant applications where conditions are too severe for conventional epoxy systems. It is used in designated areas of commercial kitchen applications where the combination of high oven temperatures, corrosive food substances and caustic cleaners can cause failure in standard epoxy flooring. Novolac 800 is ideal for use in chemical processing and storage areas, metal plating and circuit board manufacturing, waste treatment plants, and high temperature areas of food and beverage processing plants.

Chemical Composition
Modified epoxy novolac resin crosslinked with aliphatic polyamines.

Colors
Cream, Tan, Silver Gray, Dark Gray, Black, White and Clear.

Limitations

- Material blushes during cure. Exudation may be removed with soap and water if desired.
- Should be applied only with aggregate fillers in flooring applications where impact or mechanical abuse is anticipated.
- Recoating requires thorough cleaning and mechanical abrasion to insure intercoat adhesion.

TECHNICAL DATA

Physical Properties

Solids Content, %	100
Viscosity, cps (77°)	2000
Pot Life (77°)	15 minutes
Cure Times (77°)	
Dry to Touch	2 hours
Light Traffic	4 hours
Full Chemical Resistance	5 days

WARRANTY INFORMATION

Arizona Polymer Flooring guarantees that this product is free from manufacturing defects and complies with our published specifications. In the event that the buyer proves that the goods received do not conform to these specifications or were defectively manufactured, the buyer's remedies shall be limited to either the return of the goods and repayment of the purchase price or replacement of the defective material at the option of the seller. Arizona Polymer Flooring makes

Performance Properties

Tensile Strength, psi (ASTM D-638)	10,500
Ultimate Elongation, % (ASTM D-638)	5
Compressive Yield Strength, psi (ASTM D-695)	14,850
Ultimate Flexural Strength, psi (ASTM D-790)	21,500
Hardness, Shore D (ASTM D-2240)	85

Chemical Resistance

The chemical resistance of a coating material is influenced by many factors, including exposure to a mixture of chemicals, service temperature and housekeeping practices. Successful engineering of the coating system must also take into consideration such factors as substrate design, temperature cycling and anticipated thermal and mechanical shock. Users are urged to consult our technical service department for recommendations on the specific project. Whenever possible, a sample should be tested under actual or simulated field conditions before a decision is made on the suitability of a given system.

The following chart is a guide to the resistance properties of Epoxy Novolac 800. Testing was conducted at room temperature on samples cured for 7 days.

Key:
1 - Suitable for continuous contact
2 - Suitable for intermittent spills and continuous contact up to 72 hours
3 - Suitable for intermittent spills if followed promptly by water flushing
4 - Not recommended

Acetic Acid, 10%	1
Acetic Acid, 25%	2
Acetic Acid, 50%	3
Acetic Acid, Glacial	4
Acetone	1
Aluminum Chloride	1
Aluminum Nitrate	1
Aluminum Sulfate	1
Ammonium Hydroxide	1
Ammonium Nitrate	1
Ammonium Sulfate	1
Aniline	2
Barium Chloride	1
Barium Hydroxide	1
Barium Sulfide	1
Benzene	1
Boric Acid	1
N-Butyric Acid, 50%	3
Calcium Chloride	1
Calcium Hydroxide	1
Calcium Nitrate	1
Calcium Sulfate	1
Chloroform	3**
Chromic Acid, 50%	1*
Citric Acid, 50%	1
Copper Chloride	1
Copper Nitrate	1
Copper Sulfate	1
Diesel Fuel	1
Ethyl Acetate	1
Ethyl Alcohol	1
Formaldehyde	1
Formic Acid, 25%	3
Hydrobromic Acid, 48%	1*
Hydrochloric Acid, 37%	1*
Hydrofluoric Acid, 25%	1
Hydrofluoric Acid, 48%	2
Hydrogen Peroxide, 30%	2
Lactic Acid, 85%	1
Jet Fuel	1
Isopropyl Alcohol	1
Maleic Acid, 40%	2
Methanol	1
Methylene Chloride	3**
Methyl Ethyl Ketone	1
Nitric Acid, 10%	1*
Nitric Acid, 30%	2*
Nitric Acid, 50%	3
Oleic Acid	1
Phosphoric Acid, 85%	1
Potassium Chloride	1
Potassium Cyanide	1
Potassium Hydroxide	1
Potassium Nitrate	1
Potassium Sulfate	1
Skydrol	1
Sodium Hydroxide, 50%	1
Sodium Chloride	1
Sulphuric Acid, 98%	1*
Tetrahdyrofuran	3
Toluene	1
Trichlorethylene	3**
Trichlorethane	1
Urea	1
Xylene	1

* Coating stains when exposed to this chemical

** Constant immersion service for this chemical may be achieved by tarping the area and heating to 150°F for 12 hours after initial cure.

EPOXY NOVOLAC 800 DATA SHEET cont'd

GENERAL INFORMATION

Packaging
Material is packaged in premeasured kits only and is available in ¾ gallon, 1½ gallon and 4 gallon units.

Mixing Instructions
When mixing, add entire contents of part B to part A and mix thoroughly for 2 full minutes using a wooden stir stick or low speed drill, scraping the bottom and sides of the mixing vessel. Do not attempt to mix partial batches. Thorough blending of the 2 components is absolutely essential.

Application Recommendations
Novolac 800 must be applied to a primed surface. Because of the short pot life, always pour the material on the floor immediately after mixing. If applying to a vertical surface, mix small amounts in a 5 gallon pail to slow the reaction.

Because of the blush formed during the curing process and the hardness of the material, recoating can be accomplished only after thorough cleaning and abrading. In flooring applications, Novolac 800 must be applied as an aggregate filled system at a minimum of 60 mils in flooring systems where impact or mechanical abuse is anticipated. It may be applied as a self-leveling slurry, slurry broadcast or resin-rich troweled systems. For detailed installation instructions, see APF Application Manual.

Handling Precautions
Do not breathe vapors. Use appropriate respirator with green band cartridge to protect against methyl amine vapors. Avoid contact with skin; wear protective gloves. Read Material Safety Data Sheet before using.

APPENDIX I
PHOTOGRAPHS

Photo 1 Air compressor—gear truck—pressure washer equipment staging area

Photo 2 Pressure washer

Photo 3 Chemical Storage decontamination

Photo 4 Flammable Storage #4—concrete coring

Photo 5 Collection of equipment rinsate

Photo 6 Shotblast machine

Photo 7 Flammable Storage #4—after concrete coring and shotblasting prior to coating

Photo 8 Flammable Storage #4—crack and joint seal

Photo 9 Flammable Storage #4—first epoxy coat

Photo 10 Flammable Storage #4—first epoxy coat

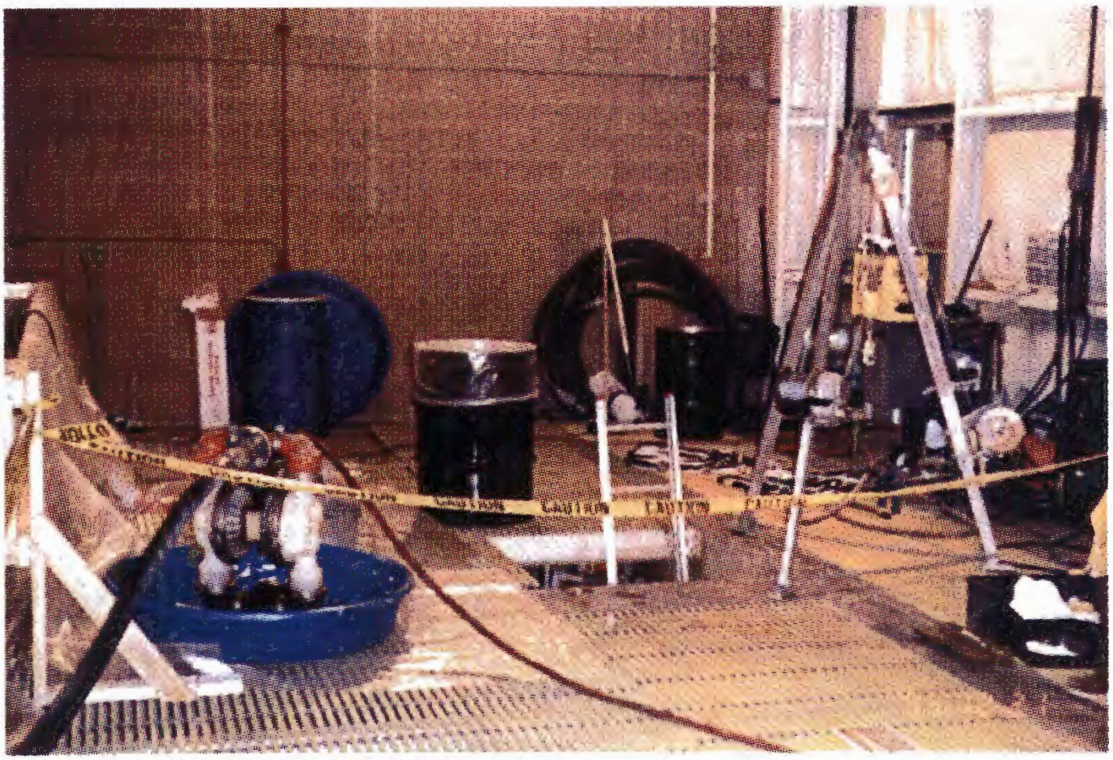

Photo 11 Setup on acid tanks

Photo 12 Setup on acid tanks

Photo 13 Setup on acid tanks

Photo 14 Cleaning tank

Photo 15 Cleaning vault

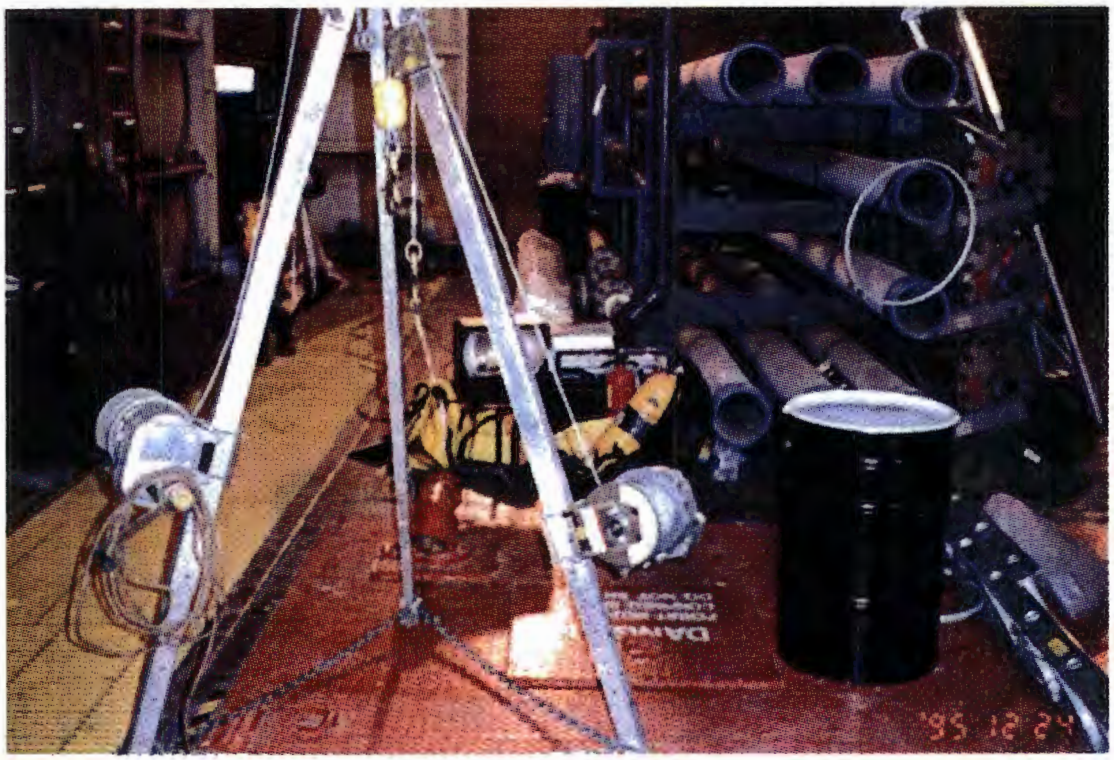

Photo 16 Setup on solvent tank

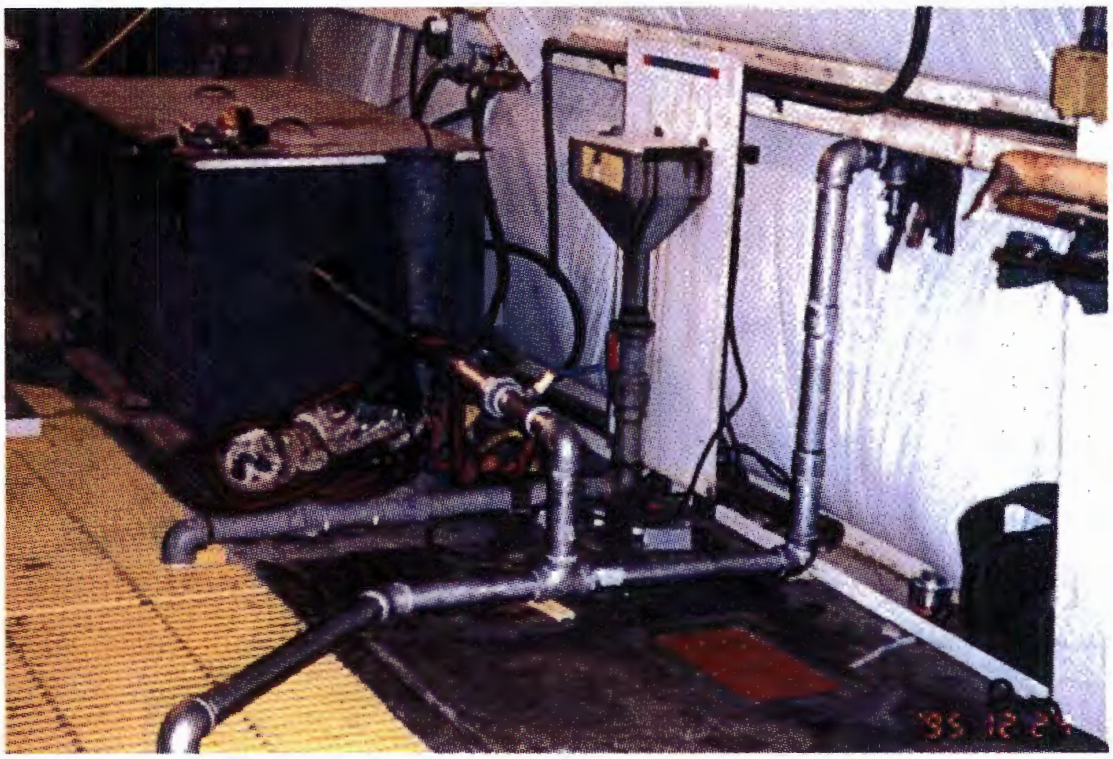

Photo 17 New solvent tank piping

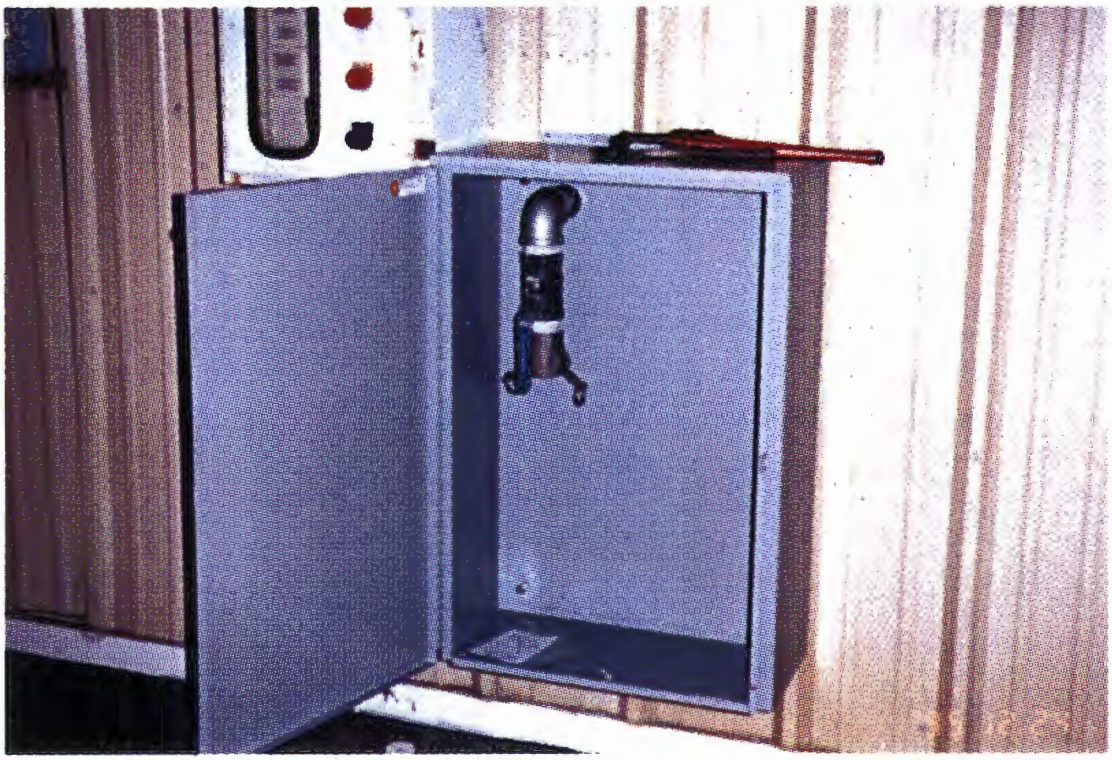

Photo 18 Solvent tank drain—vacuum truck connection

Photo 19 Setup on solvent tank for integrity test

Photo 20 Setup on solvent tank for integrity test

Photo 21 Solvent tank integrity test

Photo 22 Solvent tank integrity test

Photo 23 Solvent tank integrity test

APPENDIX C

LABORATORY CERTIFICATES OF ANALYSES FOR CHEMICAL STORAGE #2

Analytical Technologies, Inc.

2709-D Pan American Freeway, NE Albuquerque, NM 87107
Phone (505) 344-3777 FAX (505) 344-4413

ATI I.D. **512387**

January 2, 1996

IT Corporation
5301 Central Ave NE, Suite 700
Albuquerque, NM 87108

Project Name/Number: PHILIPS 765286

Attention: Jim Stapleton

On **12/20/95**, Analytical Technologies, of New Mexico Inc., (ADHS License No. AZ0015), received a request to analyze **aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

All analyses were performed by Analytical Technologies, Inc., 225 Commerce Drive, Fort Collins, CO.

If you have any questions or comments, please do not hesitate to contact us at (505) 344-3777.

Kimberly D. McNeill
Project Manager

H. Mitchell Rubenstein, Ph.D.
Laboratory Manager

MR:jt

Enclosure

AnalyticalTechnologies,Inc.

CLIENT : IT CORPORATION
PROJECT # : 765286
PROJECT NAME : PHILIPS

DATE RECEIVED: 12/20/95
REPORT DATE : 01/02/96

ATI ID: 512387

	ATI ID #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	512387-01	PS-CS2-RINSATE	AQUEOUS	12/20/95
02	512387-02	PS-CS2-RINSATE DUP	AQUEOUS	12/20/95

---TOTALS---

MATRIX	#SAMPLES
AQUEOUS	2

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

AnalyticalTechnologies,Inc.

TOTAL METALS

Sample ID

PS-CS2-Rinsate

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philips -- 512387
Lab Sample ID: 95-12-132-01

Sample Matrix: Aqueous

Date Collected: 12/20/95
Prep Date: 12/21/95
Date Analyzed: 12/21/95

Analyte	Modified Method	Concentration mg/L	Detection Limit mg/L
Arsenic	6010	0.02	0.01
Mercury *	7470	0.028	0.002

ND = Not Detected
* Detection limit raised. Dilution was required due to analyte concentration.

AnalyticalTechnologies,Inc.

TOTAL METALS

Sample ID

PS-CS2-Rinsate Dup

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philips -- 512387
Lab Sample ID: 95-12-132-02

Sample Matrix: Aqueous

Date Collected: 12/20/95
Prep Date: 12/21/95
Date Analyzed: 12/21/95

Analyte	Modified Method	Concentration mg/L	Detection Limit mg/L
Arsenic	6010	0.02	0.01
Mercury *	7470	0.034	0.002

ND = Not Detected
* Detection limit raised. Dilution was required due to analyte concentration.

AnalyticalTechnologies, Inc.

TOTAL METALS

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philips -- 512387
Lab Sample ID: RB 95-12-132

Sample ID

Reagent Blank

Date Collected: N/A
Prep Date: 12/21/95
Date Analyzed: 12/21/95

Analyte	Modified Method	Concentration mg/L	Detection Limit mg/L
Arsenic	6010	ND	0.01
Mercury	7470	ND	0.0002

ND = Not Detected

AnalyticalTechnologies,Inc.

TOTAL METALS
MATRIX SPIKE

Sample ID

In House

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Lab Sample ID: 95-12-118-01

Prep Date: 12/21/95
Date Analyzed: 12/21/95

Sample Matrix: Aqueous

Analyte	Spike Added mg/L	Sample Conc. mg/L	MS Conc. mg/L	% Rec (limits 80-120%)	Flags
Arsenic	2.0	< 0.01	2.0	100	

Analyte	MSD Conc. mg/L	MSD % Rec (limits 80-120%)	Relative % Difference (limits 0-20%)	Flags
Arsenic	2.0	100	0	

AnalyticalTechnologies,Inc.

TOTAL METALS
MATRIX SPIKE

Sample ID

In House

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Lab Sample ID: 95-12-103-01

Prep Date: 12/21/95

Sample Matrix: Aqueous

Date Analyzed: 12/21/95

Analyte	Spike Added mg/L	Sample Conc. mg/L	MS Conc. mg/L	% Rec (limits 80-120%)	Flags
Mercury	0.0020	< 0.0002	0.0022	110	

Analyte	MSD Conc. mg/L	MSD % Rec (limits 80-120%)	Relative % Difference (limits 0-20%)	Flags
Mercury	0.0022	110	0	

AnalyticalTechnologies of New Mexico, Inc., Albuquerque, NM
San Diego • Phoenix • Seattle • Pensacola • Ft. Collins • Portland • Albuquerque • Anchorage

CHAIN OF CUSTODY

DATE: 12/20/95 PAGE: 1 OF 1

ATI LAB I.D. 512387

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Jim Stapleton
COMPANY: IT Corporation
ADDRESS: 5301 Central Ave NE
PHONE: 505 262 8800
FAX: 505 262 8853

BILL TO: IT Corporation
COMPANY: 5301 Central Ave NE
ADDRESS: Suite 700
Albuquerque NM 87108

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.	Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct/Inject	(M8015) Gas/Purge & Trap	Gasoline/BTEX & MTBE (M8015/8020)	BTXE/MTBE (8020)	BTEX & Chlorinated Aromatics (602/8020)	BTEX/MTBE/EDC & EDB (8020/8010/Short)	Chlorinated Hydrocarbons (601/8010)	504 EDB ☐ / DBCP ☐	Polynuclear Aromatics (610/8310)	Volatile Organics (624/8240) GC/MS	Volatile Organics (8260) GC/MS	Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral/Acid Compounds GC/MS (625/8270)	General Chemistry	Metals - Arsenic - TCLP	Metals - Mercury - TCLP	Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	NUMBER OF CONTAINERS
PS-CS2-Rinsate	12/20/95	11:30	Aqueous	-01																	X	X					1
PS-CS2-Rinsate Dup	12/20/95	11:30	Aqueous	-02																	X	X					1

PROJECT INFORMATION	
PROJ. NO.:	765286
PROJ. NAME:	Philips
P.O. NO.:	
SHIPPED VIA:	

SAMPLE RECEIPT	
NO. CONTAINERS	2
CUSTODY SEALS	Y / N / NA
RECEIVED INTACT	Y
BLUE ICE/ICE	0.1 °C

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☒ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☐ 2 WEEK

CERTIFICATION REQUIRED: ☐ NM ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS:
Rush

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: Jim Stapleton Time: 14:33	Signature: Time:
Printed Name: Jim Stapleton Date: 12/20/95	Printed Name: Date:
Company: IT Corp	Company:

RECEIVED BY: 1.	RECEIVED BY: (LAB) 2.
Signature: Time:	Signature: Andrew Parker Time: 1435
Printed Name: Date:	Printed Name: Andrew Parker Date: 12/20
Company:	Analytical Technologies of New Mexico

Analytical Technologies of New Mexico, Inc.
Albuquerque, New Mexico

Interlab Chain of Custody

95121

DATE: 12/20 PAGE: 1 OF 1

NETWORK PROJECT MANAGER: KIMBERLY D. McNEILL

COMPANY: Analytical Technologies of New Mexico, Inc.
ADDRESS: 2709-D Pan American Freeway, NE
Albuquerque, NM 87107

* Call before log in
Thanks

CLIENT PROJECT MANAGER: Kim McNeill

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Metals - TAL	Metals - PP List	Metals - RCRA	RCRA Metals by TCLP (1311)	Arsenic, Mercury		TOX	TOC	Gen Chemistry			Oil and Grease	BOD	COD	Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral Acid Compounds GC/MS (625/8270)	Volatile Organics GC/MS (624/8240)	Polynuclear Aromatics (610/8310)	8240 (TCLP 1311) ZHE	8270 (TCLP 1311)			TO-14	Gross Alpha/Beta				NUMBER OF CONTAINERS
512387-01	12/20	1130	AQ	01					X	X																							1
-02	12/20	1130	↓	02					X	X																							1

PROJECT INFORMATION	
PROJECT NUMBER:	512387
PROJECT NAME:	Philips
QC LEVEL:	STD IV
QC REQUIRED:	MS MSD BLANK
TAT:	STANDARD RUSH!

SAMPLE RECEIPT	
TOTAL NUMBER OF CONTAINERS	2
CHAIN OF CUSTODY SEALS	Y
INTACT?	Y
RECEIVED GOOD COND./COLD	Y
LAB NUMBER	

IW O# KM 1062

DUE DATE: 12/23
RUSH SURCHARGE: 100%
CLIENT DISCOUNT: NO
SPECIAL CERTIFICATION REQUIRED: ☐YES ☐NO

SAMPLES SENT TO:	
SAN DIEGO	
FT. COLLINS	X
RENTON	
PENSACOLA	
PORTLAND	
PHOENIX	

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: Andrew Parker Time: 1700	Signature: Time:
Printed Name: Andrew Parker Date: 12/20	Printed Name: Date:
Analytical Technologies of New Mexico, Inc. Albuquerque	Company: Fed ex
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature: Time:	Signature: Time: 1000
Printed Name: Date:	Printed Name: DYUT Date: 12/21/95
Company: Fedex	Company: ATI

Analytical Technologies, Inc.

2709-D Pan American Freeway, NE Albuquerque, NM 87107
Phone (505) 344-3777 FAX (505) 344-4413

ATI I.D. **512402**

January 2, 1996

IT Corporation
5301 Central Ave NE, Suite 700
Albuquerque, NM 87108

Project Name/Number: PHILIPS 765286

Attention: Jim Stapleton

On **12/23/95**, Analytical Technologies, of New Mexico Inc., (ADHS License No. AZ0015), received a request to analyze **aqueous** sample(s). The sample(s) were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

All analyses were performed by Analytical Technologies, Inc., 225 Commerce Drive, Fort Collins, CO.

If you have any questions or comments, please do not hesitate to contact us at (505) 344-3777.

Kimberly D. McNeill
Project Manager

H. Mitchell Rubenstein, Ph.D.
Laboratory Manager

MR:jt

Enclosure

AnalyticalTechnologies,Inc.

CLIENT : IT CORPORATION
PROJECT # : 765286
PROJECT NAME : PHILIPS

DATE RECEIVED: 12/23/95
REPORT DATE : 01/02/96

ATI ID: 512402

	ATI ID #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	512402-01	PS-CS2-RINSATE RESAMPLE	AQUEOUS	12/23/95

---TOTALS---

MATRIX	#SAMPLES
AQUEOUS	1

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

TOTAL METALS

AnalyticalTechnologies,Inc.

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philips -- 512402
Lab Sample ID: 95-12-171-01

Sample Matrix: Aqueous

Sample ID

PS-CS2-Rinsate Resample

Date Collected: 12/23/95
Prep Date: 12/26/95
Date Analyzed: 12/27/95

Analyte	Modified Method	Concentration mg/L	Detection Limit mg/L
Mercury ^	7470	0.0017	0.0002

ND = Not Detected
^ Duplicate precision not within control limits.

TOTAL METALS

AnalyticalTechnologies,Inc.

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philips -- 512402
Lab Sample ID: RB 95-12-171

Sample ID

Reagent Blank

Date Collected: N/A
Prep Date: 12/26/95
Date Analyzed: 12/27/95

Analyte	Modified Method	Concentration mg/L	Detection Limit mg/L
Mercury	7470	ND	0.0002

ND = Not Detected

AnalyticalTechnologies,Inc.

TOTAL METALS
MATRIX SPIKE

Sample ID

PS-CS2-Rinsate Resample

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Lab Sample ID: 95-12-171-01

Prep Date: 12/26/95
Date Analyzed: 12/27/95

Sample Matrix: Aqueous

Analyte	Spike Added mg/L	Sample Conc. mg/L	MS Conc. mg/L	% Rec (limits 80-120%)	Flags
Mercury	0.0020	0.0017	0.0035	90	

Analyte	MSD Conc. mg/L	MSD % Rec (limits 80-120%)	Relative % Difference (limits 0-20%)	Flags	
Mercury	0.0045	140	25	N	M

N,M: Matrix spike duplicate recovery and relative percent difference were outside the acceptance limits. The Laboratory Control Sample is included on a separate page to show that the digestion and analysis were in control.

AnalyticalTechnologies, Inc.

TOTAL METALS
LABORATORY CONTROL SAMPLE

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philips -- 512402
Work Order Number: 95-12-171 Date Analyzed: 12/27/95

Analyte	LCS Result mg/L	LCS True Value mg/L	LCS % Recovery	Limits
Mercury	0.0010	0.0010	100	80 - 120%

AnalyticalTechnologies of New Mexico, Inc., Albuquerque, NM
San Diego • Phoenix • Seattle • Pensacola • Ft. Collins • Portland • Albuquerque • Anchorage

CHAIN OF CUSTODY

DATE: 12/23/95 PAGE: 1 OF 1

ATI LAB I.D. 512402

SHADED AREAS ARE FOR LAB USE ONLY

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Jim Stapleton
COMPANY: IT Corporation
ADDRESS: 5301 Central Ave NE
PHONE: 505 262-8800
FAX: 505 262-8855

BILL TO: IT Corporation
COMPANY: 5301 Central Avenue NE
ADDRESS: Suite 700
Albuquerque NM 87108

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.	Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct/Inject	(M8015) Gas/Purge & Trap	Gasoline/BTEX & MTBE (M8015/8020)	BTXE/MTBE (8020)	BTEX & Chlorinated Aromatics (602/8020)	BTEX/MTBE/EDC & EDB (8020/8010/Short)	Chlorinated Hydrocarbons (601/8010)	504 EDB ☐ / DBCP ☐	Polynuclear Aromatics (610/8310)	Volatile Organics (624/8240) GC/MS	Volatile Organics (8260) GC/MS	Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral/Acid Compounds GC/MS (625/8270)	General Chemistry	Mercury	Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	NUMBER OF CONTAINERS
PS-CB2-Resuite-Resample	12/23	11:05	Aqueous	-01																	X					1

PROJECT INFORMATION
PROJ. NO.: 765286
PROJ. NAME: Philips
P.O. NO.:
SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS	1
CUSTODY SEALS	Y / N / NA
RECEIVED INTACT	Y
BLUE ICE/ICE	Y

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☐ 2 WEEK

CERTIFICATION REQUIRED: ☐ NM ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: Rush

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: J Stapleton Time: 13:58	Signature: Time:
Printed Name: Jim Stapleton Date: 12/23	Printed Name: Date:
Company: IT Corp	Company:

RECEIVED BY: 1.	RECEIVED BY: (LAB) 2.
Signature: Time:	Signature: A Mitchell Time: 13:58
Printed Name: Date:	Printed Name: HM Rubenstein Date: 12/23
Company:	Analytical Technologies of New Mexico

AnalyticalTechnologies of New Mexico, Inc.
Albuquerque, New Mexico

Interlab Chain of Custody

DATE: 12/23/95 PAGE: 1 OF 1

NETWORK PROJECT MANAGER: KIMBERLY D. McNEILL

COMPANY: Analytical Technologies of New Mexico, Inc.
ADDRESS: 2709-D Pan American Freeway, NE
Albuquerque, NM 87107

CLIENT PROJECT MANAGER: JIM STAPLETON

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Metals - TAL	Metals - PP List	Metals - RCRA	RCRA Metals by TCLP (1311)	Mercury		TOX	TOC	Gen Chemistry			Oil and Grease	BOD	COD	Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral Acid Compounds GC/MS (625/8270)	Volatile Organics GC/MS (624/8240)	Polynuclear Aromatics (610/8310)	8240 (TCLP 1311) ZHE	8270 (TCLP 1311)			TO-14	Gross Alpha/Beta				NUMBER OF CONTAINERS
S12402-01	12/23	11:05	AQ	01					X																								1

PROJECT INFORMATION	
PROJECT NUMBER:	765 286
PROJECT NAME:	PHILIPS
QC LEVEL:	~~STD~~ IV
QC REQUIRED:	MS MSD BLANK
TAT:	STANDARD (RUSH)
DUE DATE:	12/26
RUSH SURCHARGE:	100%
CLIENT DISCOUNT:	Ø
SPECIAL CERTIFICATION REQUIRED:	☐ YES ☒ NO

SAMPLE RECEIPT	
TOTAL NUMBER OF CONTAINERS	1
CHAIN OF CUSTODY SEALS	Y
INTACT?	Y
RECEIVED GOOD COND./COLD	Y
LAB NUMBER	95-12-171

SAMPLES SENT TO:	
SAN DIEGO	
FT. COLLINS	
RENTON	
PENSACOLA	
PORTLAND	
PHOENIX	

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: [signature] Time: 14:15	Signature: Time:
Printed Name: H M Rubystein Date: 12/23	Printed Name: Date:
Analytical Technologies of New Mexico, Inc. Albuquerque	Company: Danma
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature: Time:	Signature: [signature] Time: 12:15
Printed Name: Date:	Printed Name: L Schell Date: 12-26-95
Company: Danma	Company: ATI

INTERNATIONAL TECHNOLOGY CORPORATION

DATE	12 20 95
TIME	11 30
PAGE ___ OF ___	
PAGE	
PROJECT NO. 765286	

SAMPLE COLLECTION LOG

PROJECT NAME Philips Semiconductors

SAMPLE NO. PS-CS2 Rinsate

SAMPLE LOCATION Chemical Storage Area 2

SAMPLE TYPE rinsate

COMPOSITE ___ YES X NO

COMPOSITE TYPE -

DEPTH OF SAMPLE -

WEATHER

CONTAINERS USED	AMOUNT COLLECTED
plastic bottle	1 - 250ml

COMMENTS: Sample Time 11:30 - One duplicate sample also collected.
The sample was collected after the floor had been cleaned. The sample was collected by using a clean plastic bottle to scoop the rinsate out of the wet/dry vacuum. The rinsate was poured into the 250 ml plastic bottle, ~~labeled~~ the bottle was labeled, custody sealed, entered into COC - & placed in a chilled cooler for transport. The sample is to be analyzed for Mercury & Arsenic on a rush basis

PREPARED BY: Jim Stapleton

COMMENTS:
(Continued)

DATE	
TIME	
PAGE ____ OF ____	
PAGE	
PROJECT NO.	

N/A

PREPARED BY: _____

LEGEND

1. A SAMPLE COLLECTION LOG IS TO BE COMPLETED FOR EACH SAMPLE.
2. ALWAYS COMPLETE BOTH SIDES. IF SECOND SIDE IS NOT USED, DRAW A LINE THROUGH IT AND MARK N/A. FILL IN CONTROL BLOCK AND PREPARED BY.
3. ALL ENTRIES ON LOG ARE TO BE COMPLETED, IF NOT APPLICABLE MARK N/A.
4. DATE: USE MONTH/DAY/YEAR; I.E., 10/30/85
5. TIME: USE 24-HOUR CLOCK; I.E., 1835 FOR 6:35 P.M.
6. PAGE: EACH SAMPLE TEAM SHOULD NUMBER PAGE _____ OF _____ FOR THE DAY'S ACTIVITIES FOR ALL SHEETS PREPARED ON A SINGLE DAY, I.E., IF THERE ARE A TOTAL OF 24 PAGES (INCLUDING FRONT AND BACK) NUMBER 1 OF 24, 2 OF 24, ETC.
7. SAMPLE LOCATION: USE BORING OR MONITORING WELL NUMBER, GRID LOCATION (TRANSECT), SAMPLING STATION I.D., OR COORDINATE TO PHYSICAL FEATURES WITH DISTANCES. INCLUDE SKETCH IN COMMENT SECTION IF NECESSARY.
8. SAMPLE TYPE: USE THE FOLLOWING - SOIL; WATER (SURFACE OR GROUND); AIR (FILTERS, TUBES, AMBIENT, PERSONNEL); SLUDGE; DRUM CONTENTS; OIL; VEGETATION; WIPE; SEDIMENT.
9. COMPOSITE TYPE: I.E., 24-HOUR, LIST SAMPLE NUMBERS IN COMPOSITE, SPATIAL COMPOSITE.
10. DEPTH OF SAMPLE: GIVE UNITS, WRITE OUT UNITS SUCH AS INCHES, FEET. DON'T USE ' OR ".
11. WEATHER: APPROXIMATE TEMPERATURE, SUN AND MOISTURE CONDITIONS.
12. CONTAINERS USED: LIST EACH CONTAINER TYPE AS NUMBER, VOLUME, MATERIAL (E.G., 2 - IL GLASS; 4 - 40 ML GLASS VIAL; 1 - 400 ML PLASTIC; 1 - 3 INCH STEEL TUBE; 1 - 8 OZ. GLASS JAR).
13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

INTERNATIONAL TECHNOLOGY CORPORATION

DATE	12 20 95
TIME	11 30
PAGE ____ OF ____	
PAGE	
PROJECT NO.	765286

SAMPLE COLLECTION LOG

PROJECT NAME Philips Semiconductors

SAMPLE NO. PS-CS2-Rinsate-Dup

SAMPLE LOCATION Chemical Storage Area 2

SAMPLE TYPE rinsate

COMPOSITE ____ YES X NO

COMPOSITE TYPE ____

DEPTH OF SAMPLE —

WEATHER ____

CONTAINERS USED	AMOUNT COLLECTED
plastic bottle	1 - 250 ml

COMMENTS: Sample time 11:30. This is a duplicate of PS-CS2-Rinsate. The sample was collected using the same procedure as PS-CS2-rinsate. This sample is to be analyzed for Arsenic & Mercury

PREPARED BY: Jim Stoplitz

COMMENTS:
(Continued)

DATE						
TIME						
PAGE ____ OF ____						
PAGE						
PROJECT NO.						

N/A

PREPARED BY: Jim Stapleton

LEGEND

1. A SAMPLE COLLECTION LOG IS TO BE COMPLETED FOR EACH SAMPLE.
2. ALWAYS COMPLETE BOTH SIDES. IF SECOND SIDE IS NOT USED, DRAW A LINE THROUGH IT AND MARK N/A. FILL IN CONTROL BLOCK AND PREPARED BY.
3. ALL ENTRIES ON LOG ARE TO BE COMPLETED, IF NOT APPLICABLE MARK N/A.
4. DATE: USE MONTH/DAY/YEAR; I.E., 10/30/85
5. TIME: USE 24-HOUR CLOCK; I.E., 1835 FOR 6:35 P.M.
6. PAGE: EACH SAMPLE TEAM SHOULD NUMBER PAGE _____ OF _____ FOR THE DAY'S ACTIVITIES FOR ALL SHEETS PREPARED ON A SINGLE DAY, I.E., IF THERE ARE A TOTAL OF 24 PAGES (INCLUDING FRONT AND BACK) NUMBER 1 OF 24, 2 OF 24, ETC.
7. SAMPLE LOCATION: USE BORING OR MONITORING WELL NUMBER, GRID LOCATION (TRANSECT), SAMPLING STATION I.D., OR COORDINATE TO PHYSICAL FEATURES WITH DISTANCES. INCLUDE SKETCH IN COMMENT SECTION IF NECESSARY.
8. SAMPLE TYPE: USE THE FOLLOWING - SOIL; WATER (SURFACE OR GROUND); AIR (FILTERS, TUBES, AMBIENT, PERSONNEL); SLUDGE; DRUM CONTENTS; OIL; VEGETATION; WIPE; SEDIMENT.
9. COMPOSITE TYPE: I.E., 24-HOUR, LIST SAMPLE NUMBERS IN COMPOSITE, SPATIAL COMPOSITE.
10. DEPTH OF SAMPLE: GIVE UNITS, WRITE OUT UNITS SUCH AS INCHES, FEET. DON'T USE ' OR ".
11. WEATHER: APPROXIMATE TEMPERATURE, SUN AND MOISTURE CONDITIONS.
12. CONTAINERS USED: LIST EACH CONTAINER TYPE AS NUMBER, VOLUME, MATERIAL (E.G., 2 - IL GLASS; 4 - 40 ML GLASS VIAL; 1 - 400 ML PLASTIC; 1 - 3 INCH STEEL TUBE; 1 - 8 OZ. GLASS JAR).
13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

INTERNATIONAL TECHNOLOGY CORPORATION

DATE	12 23 95
TIME	11 05
PAGE ___ OF ___	
PAGE	
PROJECT NO.	765286

SAMPLE COLLECTION LOG

PROJECT NAME: Philips Semiconductors

SAMPLE NO.: PS-CSB-Rinsate-Resample

SAMPLE LOCATION: Chemical Storage Area 2

SAMPLE TYPE: rinsate

COMPOSITE: ___ YES X NO

COMPOSITE TYPE: –

DEPTH OF SAMPLE: –

WEATHER:

CONTAINERS USED	AMOUNT COLLECTED
plastic bottle	1 - 250 ml

COMMENTS: Sample Collection Time 11:05
The sample was collected after this area was rewashed due to mercury concentrations from previous sampling. The sample was collected using a clean plastic scoop & collecting the rinsate directly from the floor. The rinsate was placed in the 250 ml bottle, the bottle was labeled, custody sealed, entered into COC & placed in a chilled cooler for transport to the lab.
The sample is to analyzed for mercury

PREPARED BY: Juan Atapilco

COMMENTS:
(Continued)

DATE	
TIME	
PAGE ____ OF ____	
PAGE	
PROJECT NO.	

N/A

PREPARED BY:

LEGEND

1. A SAMPLE COLLECTION LOG IS TO BE COMPLETED FOR EACH SAMPLE.
2. ALWAYS COMPLETE BOTH SIDES. IF SECOND SIDE IS NOT USED, DRAW A LINE THROUGH IT AND MARK N/A. FILL IN CONTROL BLOCK AND PREPARED BY.
3. ALL ENTRIES ON LOG ARE TO BE COMPLETED, IF NOT APPLICABLE MARK N/A.
4. DATE: USE MONTH/DAY/YEAR; I.E., 10/30/85
5. TIME: USE 24-HOUR CLOCK; I.E., 1835 FOR 6:35 P.M.
6. PAGE: EACH SAMPLE TEAM SHOULD NUMBER PAGE _____ OF _____ FOR THE DAY'S ACTIVITIES FOR ALL SHEETS PREPARED ON A SINGLE DAY, I.E., IF THERE ARE A TOTAL OF 24 PAGES (INCLUDING FRONT AND BACK) NUMBER 1 OF 24, 2 OF 24, ETC.
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8. SAMPLE TYPE: USE THE FOLLOWING - SOIL; WATER (SURFACE OR GROUND); AIR (FILTERS, TUBES, AMBIENT, PERSONNEL); SLUDGE; DRUM CONTENTS; OIL; VEGETATION; WIPE; SEDIMENT.
9. COMPOSITE TYPE: I.E., 24-HOUR, LIST SAMPLE NUMBERS IN COMPOSITE, SPATIAL COMPOSITE.
10. DEPTH OF SAMPLE: GIVE UNITS, WRITE OUT UNITS SUCH AS INCHES, FEET. DON'T USE ' OR ".
11. WEATHER: APPROXIMATE TEMPERATURE, SUN AND MOISTURE CONDITIONS.
12. CONTAINERS USED: LIST EACH CONTAINER TYPE AS NUMBER, VOLUME, MATERIAL (E.G., 2 - IL GLASS; 4 - 40 ML GLASS VIAL; 1 - 400 ML PLASTIC; 1 - 3 INCH STEEL TUBE; 1 - 8 OZ. GLASS JAR).
13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

APPENDIX D

LABORATORY CERTIFICATES OF ANALYSES FOR FLAMMABLE STORAGE #4

Analytical Technologies, Inc.

2709-D Pan American Freeway, NE Albuquerque, NM 87107
Phone (505) 344-3777 FAX (505) 344-4413

ATI I.D. **512388**

January 18, 1996

IT Corporation
5301 Central Ave NE
Suite 700
Albuquerque, NM 87108

Project Name/Number: PHILIPS 765286

Attention: Jim Stapleton

On **12/20/95**, Analytical Technologies, of New Mexico Inc., (ADHS License No. AZ0015), received a request to analyze **aqueous and non-aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

This report has been revised and reissued to clarify sampling points at the client's request.

EPA method 8015M for Methanol analyses were performed by Analytical Technologies, Inc., 11 East Olive Road, Pensacola, FL.

All other analyses were performed by Analytical Technologies, Inc., 225 Commerce Drive, Fort Collins, CO.

If you have any questions or comments, please do not hesitate to contact us at (505) 344-3777.

Kimberly D. McNeill
Project Manager

H. Mitchell Rubenstein, Ph.D.
Laboratory Manager

MR:jt

Enclosure

AnalyticalTechnologies,Inc.

CLIENT : IT CORPORATION
PROJECT # : 765286
PROJECT NAME : PHILIPS

DATE RECEIVED : 12/20/95
REPORT DATE : 01/04/96

ATI ID: 512388

	ATI ID #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	512388-01	PS-FS4-RINSATE	AQUEOUS	12/20/95
02	512388-02	PS-FS4-RINSATE DUP	AQUEOUS	12/20/95
03	512388-03	PS-FS4-S1	NON-AQ	12/20/95
04	512388-04	PS-FS4-S1 DUP	NON-AQ	12/20/95
05	512388-05	PS-FS4-S2	NON-AQ	12/20/95
06	512388-06	PS-FS4-S3	NON-AQ	12/20/95
07	512388-07	PS-FS4-EQUIP	AQUEOUS	12/20/95
08	512388-08	TRIP BLANK	AQUEOUS	12/19/95

---TOTALS---

MATRIX	#SAMPLES
AQUEOUS	4
NON-AQ	4

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

AnalyticalTechnologies,Inc.

IGNITABILITY
Method 1010

Lab Name: Analytical Technologies, Inc.

Date Collected: 12/20/95

Client Name: IT Corporation

Date Analyzed: 12/21/95

Client Project ID: Philips--512388

Sample Matrix: Aqueous

Lab Workorder Number: 95-12-135

Sample ID	Lab Sample ID	Ignitable At (deg C)	Non-ignitable Below (deg C)
PS-FS4-Rinsate	95-12-135-01	>96.5	96.5
PS-FS4-Rinsate Dup.	95-12-135-02	>96.5	96.5

AnalyticalTechnologies,Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession:	512566
Client:	ANALYTICAL TECHNOLOGIES, INC.
Project Number:	512388
Project Name:	PHILIPS
Project Location:	N/S
Test:	METHANOL
Analysis Method:	ATI SOP 641
Extraction Method:	N/A
Matrix:	WATER
QC Level:	II

Lab Id:	001	Sample Date/Time:	20-DEC-95 0840
Client Sample Id:	PS-FS4-RINSATE	Received Date:	21-DEC-95
Batch: GEW122		Extraction Date:	N/A
Blank: A	Dry Weight %: N/A	Analysis Date:	26-DEC-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
METHANOL	MG/L	ND	5.0	
ANALYST	INITIALS	DWB		

Comments:

AnalyticalTechnologies,Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession:	512566
Client:	ANALYTICAL TECHNOLOGIES, INC.
Project Number:	512388
Project Name:	PHILIPS
Project Location:	N/S
Test:	METHANOL
Analysis Method:	ATI SOP 641
Extraction Method:	N/A
Matrix:	WATER
QC Level:	II

Lab Id:	002	Sample Date/Time:	20-DEC-95 0844
Client Sample Id:	PS-FS4-RINSATE DUP	Received Date:	21-DEC-95
Batch: GEW122		Extraction Date:	N/A
Blank: A	Dry Weight %: N/A	Analysis Date:	26-DEC-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
METHANOL	MG/L	ND	5.0	
ANALYST	INITIALS	DWB		

Comments:

AnalyticalTechnologies,Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession:	512566
Client:	ANALYTICAL TECHNOLOGIES, INC.
Project Number:	512388
Project Name:	PHILIPS
Project Location:	N/S
Test:	METHANOL
Analysis Method:	ATI SOP 641
Extraction Method:	ATI SOP 641
Matrix:	SOLID
QC Level:	II

Lab Id:	003	Sample Date/Time:	20-DEC-95 1245
Client Sample Id:	PS-FS4-S1	Received Date:	21-DEC-95
Batch: GES121		Extraction Date:	26-DEC-95
Blank: A	Dry Weight %: 93	Analysis Date:	26-DEC-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
METHANOL	MG/KG	ND	5.4	
ANALYST	INITIALS	DWB		

Comments:

AnalyticalTechnologies,Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession:	512566
Client:	ANALYTICAL TECHNOLOGIES, INC.
Project Number:	512388
Project Name:	PHILIPS
Project Location:	N/S
Test:	METHANOL
Analysis Method:	ATI SOP 641
Extraction Method:	ATI SOP 641
Matrix:	SOLID
QC Level:	II

Lab Id:	004	Sample Date/Time:	20-DEC-95 1245
Client Sample Id:	PS-FS4-S1 DUP	Received Date:	21-DEC-95
Batch: GES121		Extraction Date:	26-DEC-95
Blank: A	Dry Weight %: 91	Analysis Date:	26-DEC-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
METHANOL	MG/KG	ND	5.5	
ANALYST	INITIALS	DWB		

Comments:

AnalyticalTechnologies,Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession:	512566
Client:	ANALYTICAL TECHNOLOGIES, INC.
Project Number:	512388
Project Name:	PHILIPS
Project Location:	N/S
Test:	METHANOL
Analysis Method:	ATI SOP 641
Extraction Method:	ATI SOP 641
Matrix:	SOLID
QC Level:	II

Lab Id:	005	Sample Date/Time:	20-DEC-95 1250
Client Sample Id:	PS-FS4-S2	Received Date:	21-DEC-95
Batch: GES121		Extraction Date:	26-DEC-95
Blank: A	Dry Weight %: 93	Analysis Date:	26-DEC-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
METHANOL	MG/KG	ND	5.4	
ANALYST	INITIALS	DWB		

Comments:

AnalyticalTechnologies,Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession:	512566
Client:	ANALYTICAL TECHNOLOGIES, INC.
Project Number:	512388
Project Name:	PHILIPS
Project Location:	N/S
Test:	METHANOL
Analysis Method:	ATI SOP 641
Extraction Method:	ATI SOP 641
Matrix:	SOLID
QC Level:	II

Lab Id:	006	Sample Date/Time:	20-DEC-95 1254
Client Sample Id:	PS-FS4-S3	Received Date:	21-DEC-95
Batch: GES121		Extraction Date:	26-DEC-95
Blank: A	Dry Weight %: 93	Analysis Date:	26-DEC-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
METHANOL	MG/KG	ND	5.4	
ANALYST	INITIALS	DWB		

Comments:

AnalyticalTechnologies,Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession:	512566
Client:	ANALYTICAL TECHNOLOGIES, INC.
Project Number:	512388
Project Name:	PHILIPS
Project Location:	N/S
Test:	METHANOL
Analysis Method:	ATI SOP 641
Extraction Method:	N/A
Matrix:	WATER
QC Level:	II

Lab Id:	007	Sample Date/Time:	20-DEC-95 1300
Client Sample Id:	PS-FS4-EQUIP	Received Date:	21-DEC-95
Batch: GEW122		Extraction Date:	N/A
Blank: A	Dry Weight %: N/A	Analysis Date:	26-DEC-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
METHANOL	MG/L	ND	5.0	
ANALYST	INITIALS	DWB		

Comments:

AnalyticalTechnologies,Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession:	512566
Client:	ANALYTICAL TECHNOLOGIES, INC.
Project Number:	512388
Project Name:	PHILIPS
Project Location:	N/S
Test:	METHANOL
Analysis Method:	ATI SOP 641
Extraction Method:	N/A
Matrix:	WATER
QC Level:	II

Lab Id:	008	Sample Date/Time:	19-DEC-95 1130
Client Sample Id:	TRIP BLANK	Received Date:	21-DEC-95
Batch: GEW122		Extraction Date:	N/A
Blank: A	Dry Weight %: N/A	Analysis Date:	26-DEC-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
METHANOL	MG/L	ND	5.0	
ANALYST	INITIALS	DWB		

Comments:

AnalyticalTechnologies,Inc.

"QC Report"

Title: Water Blank
Batch: GEW122
Analysis Method: ATI SOP 641
Extraction Method: N/A

Blank Id: A Date Analyzed: 26-DEC-95 Date Extracted: N/A

Parameters:	Units:	Results:	Reporting Limits:
METHANOL	MG/L	ND	5.0

Comments:
ANALYST: DWB

AnalyticalTechnologies,Inc.

"QC Report"

Title: Soil Blank
Batch: GES121
Analysis Method: ATI SOP 641
Extraction Method: ATI SOP 641

Blank Id: A Date Analyzed: 26-DEC-95 Date Extracted: 26-DEC-95

Parameters:	Units:	Results:	Reporting Limits:
METHANOL	MG/KG	ND	5.0

Comments:
ANALYST: DWB

AnalyticalTechnologies,Inc.

"QC Report"

Title: Water Reagent
Batch: GEW122
Analysis Method: ATI SOP 641
Extraction Method: N/A

RS Date Analyzed: 26-DEC-95
RSD Date Analyzed: 26-DEC-95

RS Date Extracted: N/A
RSD Date Extracted: N/A

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	RSD Conc	RSD %Rec	RPD	RPD Lmts	Rec Lmts
METHANOL	25	<5.0	26	104	29	116	11	50	50-150

Surrogates:

Comments:

Notes:
MG/L = PARTS PER MILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCE FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCE METHOD.
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT

AnalyticalTechnologies,Inc.

"QC Report"

Title: Soil Reagent
Batch: GES121
Analysis Method: ATI SOP 641
Extraction Method: ATI SOP 641

RS Date Analyzed: 26-DEC-95
RSD Date Analyzed: 26-DEC-95

RS Date Extracted: 26-DEC-95
RSD Date Extracted: 26-DEC-95

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	RSD Conc	RSD %Rec	RPD	RPD Lmts	Rec Lmts
METHANOL	25	<5.0	26	104	29	116	11	50	50-150

Surrogates:

Comments:

Notes:
MG/KG = PARTS PER MILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCE FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCE METHOD.
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT

AnalyticalTechnologies,Inc.

"QC Report"

Title: Water Matrix
Batch: GEW122
Analysis Method: ATI SOP 641
Extraction Method: N/A

Dry Weight %: N/A
Sample Spiked: 512566-1

MS Date Analyzed: 26-DEC-95
MSD Date Analyzed: 26-DEC-95

MS Date Extracted: N/A
MSD Date Extracted: N/A

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	RPD Lmts	Rec Lmts
METHANOL	50	<5.0	45	90	51	102	12	50	50-150

Surrogates:

Comments:

Notes:
MG/L = PARTS PER MILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCE FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCE METHOD.
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT

AnalyticalTechnologies,Inc.

"QC Report"

Title: Soil Matrix
Batch: GES121
Analysis Method: ATI SOP 641
Extraction Method: ATI SOP 641

Dry Weight %: 93
Sample Spiked: 512566-3

MS Date Analyzed: 26-DEC-95
MSD Date Analyzed: 26-DEC-95

MS Date Extracted: 26-DEC-95
MSD Date Extracted: 26-DEC-95

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	RPD Lmts	Rec Lmts
METHANOL	54	<5.0	51	94	47	87	8	50	50-150

Surrogates:

Comments:

Notes:
MG/KG = PARTS PER MILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCE FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCE METHOD.
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT

Common notation for Organic reporting

AnalyticalTechnologies,Inc.

N/S = NOT SUBMITTED
N/A = NOT APPLICABLE
D = DILUTED OUT
UG = MICROGRAMS
UG/L = PARTS PER BILLION.
UG/KG = PARTS PER BILLION.
MG/M3 = MILLIGRAM PER CUBIC METER.
PPMV = PART PER MILLION BY VOLUME.
MG/KG = PARTS PER MILLION.
MG/L = PARTS PER MILLION.
< = LESS THAN DETECTION LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS

SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

ORGANIC SOILS ARE REPORTED ON A DRYWEIGHT BASIS.

ND = NOT DETECTED ABOVE REPORTING LIMIT.

RPT LIMIT = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.

RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

ATI/GC/FID
ATI GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH FLAME IONIZATION DETECTOR (FID).

ATI/GC/FIX
ATI GAS CHROMATOGRAPHIC METHOD FOR ANALYSIS OF FIXED GASES EMPLOYING DIRECT INJECTION ON COLUMN WITH THERMAL CONDUCTIVITY DETECTOR (TCD) AND FLAME IONIZATION DETECTOR (FID).

ATI/GC/FPD
ATI GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH FLAME PHOTOMETRIC DETECTOR (FPD) IN SULFUR-SPECIFIC MODE.

ATI/GC/PID
ATI GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH PHOTOIONIZATION DETECTOR (PID).

ATI/GC/TCD
ATI GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH THERMAL CONDUCTIVITY DETECTOR (TCD).

LJT = LISA THOMASON
SW = STEVE WILHITE
KW = KAREN WADSWORTH
PL = PAUL LESCHENSKY
RW = ROBERT WOLFE
BV = BEN VAUGHN
KS = KENDALL SMITH
KK = KERRY KUST
DWB = DAVID W. BOWERS
RP = ROB PEREZ

AnalyticalTechnologies,Inc.

VOLATILE ORGANICS
Method 8260

Sample ID

Reagent Blank

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philips -- 512388
Lab Sample ID: SRB1 12-21-95

Date Collected: N/A
Date Analyzed: 12/21/95

Sample Matrix: Soil
Sample Weight: 5 g

Analyte	Results (ug/kg)	Detection Limit (ug/kg)
Acetone	8 J	10
Benzene	ND	5
n-Butyl alcohol (1)	ND	N/A
Carbon Disulfide	ND	5
Carbon Tetrachloride	ND	5
Chlorobenzene	ND	5
Chloroform	ND	5
Cyclohexanone (1)	ND	N/A
1,1-Dichloroethene	ND	5
1,2-Dichloroethane	ND	5
Ethyl acetate (1)	ND	N/A
Ethyl benzene	ND	5
Ethyl ether (1)	ND	N/A
Isobutanol (1)	ND	N/A
Methyl ethyl ketone	ND	10
Methyl isobutyl ketone	ND	10
Methylene chloride	ND	5
Orthodichlorobenzene	ND	5
Tetrachloroethene	ND	5
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	5
1,1,2-Trichloroethane	ND	5
Trichloroethene	ND	5
Trichlorofluoromethane	ND	5
Vinyl chloride	ND	5
Xylene	ND	5

SURROGATE RECOVERIES

Analyte	% Recovery	%Rec Limits
Dibromofluoromethane	106	80 - 120
Toluene-d8	105	81 - 117
Bromofluorobenzene	83	74 - 121

ND = Not Detected
(1) = Estimated value, analyte quantitated as a TIC
N/A = Non Applicable
J = Estimated value, analyte found below detection limit

AnalyticalTechnologies,Inc.

VOLATILE ORGANICS
Method 8260

Sample ID
MEOH Reagent Blank

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philips -- 512388
Lab Sample ID: SRB2 12-26-95

Date Collected: N/A
Date Analyzed: 12/26/95

Sample Matrix: Soil
Sample Weight: 0.1 g

Analyte	Results (ug/kg)	Detection Limit (ug/kg)
Acetone	ND	500
Benzene	ND	250
n-Butyl alcohol (1)	ND	N/A
Carbon Disulfide	ND	250
Carbon Tetrachloride	ND	250
Chlorobenzene	ND	250
Chloroform	ND	250
Cyclohexanone (1)	ND	N/A
1,1-Dichloroethene	ND	250
1,2-Dichloroethane	ND	250
Ethyl acetate (1)	ND	N/A
Ethyl benzene	ND	250
Ethyl ether (1)	ND	N/A
Isobutanol (1)	ND	N/A
Methyl ethyl ketone	ND	500
Methyl isobutyl ketone	ND	500
Methylene chloride	ND	250
Orthodichlorobenzene	ND	250
Tetrachloroethene	ND	250
Toluene	ND	250
1,1,1-Trichloroethane	ND	250
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	250
1,1,2-Trichloroethane	ND	250
Trichloroethene	ND	250
Trichlorofluoromethane	ND	250
Vinyl chloride	ND	250
Xylene	ND	250

SURROGATE RECOVERIES

Analyte	% Recovery	%Rec Limits
Dibromofluoromethane	107	80 - 120
Toluene-d8	104	81 - 117
Bromofluorobenzene	83	74 - 121

ND = Not Detected
(1) = Estimated value, analyte quantitated as a TIC
N/A = Non Applicable

AnalyticalTechnologies,Inc.

VOLATILE ORGANICS
Method 8260

Sample ID
MEOH Reagent Blank

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philips -- 512388
Lab Sample ID: SRB2 12-27-95

Date Collected: N/A
Date Analyzed: 12/27/95

Sample Matrix: Soil
Sample Weight: 0.1 g

Analyte	Results (ug/kg)	Detection Limit (ug/kg)
Acetone	ND	500
Benzene	ND	250
n-Butyl alcohol (1)	ND	N/A
Carbon Disulfide	ND	250
Carbon Tetrachloride	ND	250
Chlorobenzene	ND	250
Chloroform	ND	250
Cyclohexanone (1)	ND	N/A
1,1-Dichloroethene	ND	250
1,2-Dichloroethane	ND	250
Ethyl acetate (1)	ND	N/A
Ethyl benzene	ND	250
Ethyl ether (1)	ND	N/A
Isobutanol (1)	ND	N/A
Methyl ethyl ketone	ND	500
Methyl isobutyl ketone	ND	500
Methylene chloride	ND	250
Orthodichlorobenzene	ND	250
Tetrachloroethene	ND	250
Toluene	ND	250
1,1,1-Trichloroethane	ND	250
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	250
1,1,2-Trichloroethane	ND	250
Trichloroethene	ND	250
Trichlorofluoromethane	ND	250
Vinyl chloride	ND	250
Xylene	ND	250

SURROGATE RECOVERIES

Analyte	% Recovery	%Rec Limits
Dibromofluoromethane	105	80 - 120
Toluene-d8	107	81 - 117
Bromofluorobenzene	83	74 - 121

ND = Not Detected
(1) = Estimated value, analyte quantitated as a TIC
N/A = Non Applicable

AnalyticalTechnologies,Inc.

VOLATILE ORGANICS
Method 8260

Sample ID

PS-FS4-S1

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philips -- 512388
Lab Sample ID: 95-12-135-03

Date Collected: 12/20/95
Date Analyzed: 12/21/95

Sample Matrix: Soil
Sample Weight: 5 g
Results are reported on a wet weight basis.

Analyte	Results (ug/kg)	Detection Limit (ug/kg)
Acetone	3500 E B	10
Benzene	ND	5
n-Butyl alcohol (1)	ND	N/A
Carbon Disulfide	ND	5
Carbon Tetrachloride	ND	5
Chlorobenzene	ND	5
Chloroform	ND	5
Cyclohexanone (1)	ND	N/A
1,1-Dichloroethene	ND	5
1,2-Dichloroethane	ND	5
Ethyl acetate (1)	ND	N/A
Ethyl benzene	ND	5
Ethyl ether (1)	ND	N/A
Isobutanol (1)	ND	N/A
Methyl ethyl ketone	ND	10
Methyl isobutyl ketone	ND	10
Methylene chloride	ND	5
Orthodichlorobenzene	ND	5
Tetrachloroethene	ND	5
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	5
1,1,2-Trichloroethane	ND	5
Trichloroethene	ND	5
Trichlorofluoromethane	ND	5
Vinyl chloride	ND	5
Xylene	ND	5

SURROGATE RECOVERIES

Analyte	% Recovery	%Rec Limits
Dibromofluoromethane	106	80 - 120
Toluene-d8	105	81 - 117
Bromofluorobenzene	83	74 - 121

ND = Not Detected
(1) = Estimated value, analyte quantitated as a TIC
N/A = Non Applicable
E = Exceeds calibration range, see dilution
B = Analyte found in Blank

AnalyticalTechnologies,Inc.

VOLATILE ORGANICS
Method 8260

Sample ID

PS-FS4-S1

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philips -- 512388
Lab Sample ID: 95-12-135-03 DL

Date Collected: 12/20/95
Date Analyzed: 12/26/95

Sample Matrix: Soil
Sample Weight: 0.1 g
Results are reported on a wet weight basis.

Analyte	Results (ug/kg)	Detection Limit (ug/kg)
Acetone	1300	500
Benzene	ND	250
n-Butyl alcohol (1)	ND	N/A
Carbon Disulfide	ND	250
Carbon Tetrachloride	ND	250
Chlorobenzene	ND	250
Chloroform	ND	250
Cyclohexanone (1)	ND	N/A
1,1-Dichloroethene	ND	250
1,2-Dichloroethane	ND	250
Ethyl acetate (1)	ND	N/A
Ethyl benzene	ND	250
Ethyl ether (1)	ND	N/A
Isobutanol (1)	ND	N/A
Methyl ethyl ketone	ND	500
Methyl isobutyl ketone	ND	500
Methylene chloride	ND	250
Orthodichlorobenzene	ND	250
Tetrachloroethene	ND	250
Toluene	ND	250
1,1,1-Trichloroethane	ND	250
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	250
1,1,2-Trichloroethane	ND	250
Trichloroethene	ND	250
Trichlorofluoromethane	ND	250
Vinyl chloride	ND	250
Xylene	ND	250

SURROGATE RECOVERIES

Analyte	% Recovery	%Rec Limits
Dibromofluoromethane	106	80 - 120
Toluene-d8	107	81 - 117
Bromofluorobenzene	81	74 - 121

ND = Not Detected
(1) = Estimated value, analyte quantitated as a TIC
N/A = Non Applicable
DL = Dilution

AnalyticalTechnologies,Inc.

VOLATILE ORGANICS
Method 8260

Sample ID

PS-SF4-S1-Dup

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philips -- 512388
Lab Sample ID: 95-12-135-04

Date Collected: 12/20/95
Date Analyzed: 12/21/95

Sample Matrix: Soil
Sample Weight: 5 g
Results are reported on a wet weight basis.

Analyte	Results (ug/kg)	Detection Limit (ug/kg)
Acetone	2600 E B	10
Benzene	ND	5
n-Butyl alcohol (1)	ND	N/A
Carbon Disulfide	ND	5
Carbon Tetrachloride	ND	5
Chlorobenzene	ND	5
Chloroform	ND	5
Cyclohexanone (1)	ND	N/A
1,1-Dichloroethene	ND	5
1,2-Dichloroethane	ND	5
Ethyl acetate (1)	ND	N/A
Ethyl benzene	ND	5
Ethyl ether (1)	ND	N/A
Isobutanol (1)	ND	N/A
Methyl ethyl ketone	ND	10
Methyl isobutyl ketone	ND	10
Methylene chloride	ND	5
Orthodichlorobenzene	ND	5
Tetrachloroethene	ND	5
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	5
1,1,2-Trichloroethane	ND	5
Trichloroethene	ND	5
Trichlorofluoromethane	ND	5
Vinyl chloride	ND	5
Xylene	ND	5

SURROGATE RECOVERIES

Analyte	% Recovery	%Rec Limits
Dibromofluoromethane	106	80 - 120
Toluene-d8	106	81 - 117
Bromofluorobenzene	87	74 - 121

ND = Not Detected
(1) = Estimated value, analyte quantitated as a TIC
N/A = Non Applicable
E = Exceeds calibration range, see dilution
B = Analyte found in Blank

AnalyticalTechnologies,Inc.

VOLATILE ORGANICS
Method 8260

Sample ID

PS-SF4-S1-Dup

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philips -- 512388
Lab Sample ID: 95-12-135-04 DL

Date Collected: 12/20/95
Date Analyzed: 12/26/95

Sample Matrix: Soil
Sample Weight: 0.1 g
Results are reported on a wet weight basis.

Analyte	Results (ug/kg)	Detection Limit (ug/kg)
Acetone	1100	500
Benzene	ND	250
n-Butyl alcohol (1)	ND	N/A
Carbon Disulfide	ND	250
Carbon Tetrachloride	ND	250
Chlorobenzene	ND	250
Chloroform	ND	250
Cyclohexanone (1)	ND	N/A
1,1-Dichloroethene	ND	250
1,2-Dichloroethane	ND	250
Ethyl acetate (1)	ND	N/A
Ethyl benzene	ND	250
Ethyl ether (1)	ND	N/A
Isobutanol (1)	ND	N/A
Methyl ethyl ketone	ND	500
Methyl isobutyl ketone	ND	500
Methylene chloride	ND	250
Orthodichlorobenzene	ND	250
Tetrachloroethene	ND	250
Toluene	ND	250
1,1,1-Trichloroethane	ND	250
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	250
1,1,2-Trichloroethane	ND	250
Trichloroethene	ND	250
Trichlorofluoromethane	ND	250
Vinyl chloride	ND	250
Xylene	ND	250

SURROGATE RECOVERIES

Analyte	% Recovery	%Rec Limits
Dibromofluoromethane	105	80 - 120
Toluene-d8	107	81 - 117
Bromofluorobenzene	82	74 - 121

ND = Not Detected
(1) = Estimated value, analyte quantitated as a TIC
N/A = Non Applicable
DL = Dilution

AnalyticalTechnologies,Inc.

VOLATILE ORGANICS
Method 8260

Sample ID

PS-SF4-S2

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philips -- 512388
Lab Sample ID: 95-12-135-05

Date Collected: 12/20/95
Date Analyzed: 12/21/95

Sample Matrix: Soil
Sample Weight: 5 g
Results are reported on a wet weight basis.

Analyte	Results (ug/kg)	Detection Limit (ug/kg)
Acetone	7000 E B	10
Benzene	ND	5
n-Butyl alcohol (1)	ND	N/A
Carbon Disulfide	ND	5
Carbon Tetrachloride	ND	5
Chlorobenzene	ND	5
Chloroform	ND	5
Cyclohexanone (1)	ND	N/A
1,1-Dichloroethene	ND	5
1,2-Dichloroethane	ND	5
Ethyl acetate (1)	ND	N/A
Ethyl benzene	ND	5
Ethyl ether (1)	ND	N/A
Isobutanol (1)	ND	N/A
Methyl ethyl ketone	ND	10
Methyl isobutyl ketone	ND	10
Methylene chloride	ND	5
Orthodichlorobenzene	ND	5
Tetrachloroethene	ND	5
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	5
1,1,2-Trichloroethane	ND	5
Trichloroethene	ND	5
Trichlorofluoromethane	ND	5
Vinyl chloride	ND	5
Xylene	ND	5

SURROGATE RECOVERIES

Analyte	% Recovery	%Rec Limits
Dibromofluoromethane	102	80 - 120
Toluene-d8	106	81 - 117
Bromofluorobenzene	83	74 - 121

ND = Not Detected
(1) = Estimated value, analyte quantitated as a TIC
N/A = Non Applicable
E = Exceeds calibration range, see dilution
B = Analyte found in Blank

Analytical Technologies, Inc.

VOLATILE ORGANICS
Method 8260

Sample ID

PS-SF4-S2

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philips -- 512388
Lab Sample ID: 95-12-135-05 DL

Date Collected: 12/20/95
Date Analyzed: 12/27/95

Sample Matrix: Soil
Sample Weight: 0.01 g
Results are reported on a wet weight basis.

Analyte	Results (ug/kg)	Detection Limit (ug/kg)
Acetone	15000	5000
Benzene	ND	2500
n-Butyl alcohol (1)	ND	N/A
Carbon Disulfide	ND	2500
Carbon Tetrachloride	ND	2500
Chlorobenzene	ND	2500
Chloroform	ND	2500
Cyclohexanone (1)	ND	N/A
1,1-Dichloroethene	ND	2500
1,2-Dichloroethane	ND	2500
Ethyl acetate (1)	ND	N/A
Ethyl benzene	ND	2500
Ethyl ether (1)	ND	N/A
Isobutanol (1)	ND	N/A
Methyl ethyl ketone	ND	5000
Methyl isobutyl ketone	ND	5000
Methylene chloride	ND	2500
Orthodichlorobenzene	ND	2500
Tetrachloroethene	ND	2500
Toluene	ND	2500
1,1,1-Trichloroethane	ND	2500
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	2500
1,1,2-Trichloroethane	ND	2500
Trichloroethene	ND	2500
Trichlorofluoromethane	ND	2500
Vinyl chloride	ND	2500
Xylene	ND	2500

SURROGATE RECOVERIES

Analyte	% Recovery	%Rec Limits.
Dibromofluoromethane	107	80 - 120
Toluene-d8	108	81 - 117
Bromofluorobenzene	83	74 - 121

ND = Not Detected
(1) = Estimated value, analyte quantitated as a TIC
N/A = Non Applicable
DL = Dilution

AnalyticalTechnologies,Inc.

VOLATILE ORGANICS
Method 8260

Sample ID

PS-SF4-S3

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philips -- 512388
Lab Sample ID: 95-12-135-06

Date Collected: 12/20/95
Date Analyzed: 12/21/95

Sample Matrix: Soil
Sample Weight: 5 g
Results are reported on a wet weight basis.

Analyte	Results (ug/kg)	Detection Limit (ug/kg)
Acetone	35000 E B	10
Benzene	ND	5
n-Butyl alcohol (1)	ND	N/A
Carbon Disulfide	ND	5
Carbon Tetrachloride	ND	5
Chlorobenzene	ND	5
Chloroform	ND	5
Cyclohexanone (1)	ND	N/A
1,1-Dichloroethene	ND	5
1,2-Dichloroethane	ND	5
Ethyl acetate (1)	ND	N/A
Ethyl benzene	ND	5
Ethyl ether (1)	ND	N/A
Isobutanol (1)	ND	N/A
Methyl ethyl ketone	ND	10
Methyl isobutyl ketone	ND	10
Methylene chloride	ND	5
Orthodichlorobenzene	ND	5
Tetrachloroethene	ND	5
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	5
1,1,2-Trichloroethane	ND	5
Trichloroethene	ND	5
Trichlorofluoromethane	ND	5
Vinyl chloride	ND	5
Xylene	ND	5

SURROGATE RECOVERIES

Analyte	% Recovery	%Rec Limits
Dibromofluoromethane	109	80 - 120
Toluene-d8	105	81 - 117
Bromofluorobenzene	85	74 - 121

ND = Not Detected
(1) = Estimated value, analyte quantitated as a TIC
N/A = Non Applicable
E = Exceeds calibration range, see dilution
B = Analyte found in Blank

AnalyticalTechnologies,Inc.

VOLATILE ORGANICS
Method 8260

Sample ID

PS-SF4-S3

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philips -- 512388
Lab Sample ID: 95-12-135-06 DL

Date Collected: 12/20/95
Date Analyzed: 12/27/95

Sample Matrix: Soil
Sample Weight: 0.001 g
Results are reported on a wet weight basis.

Analyte	Results (ug/kg)	Detection Limit (ug/kg)
Acetone	250000	50000
Benzene	ND	25000
n-Butyl alcohol (1)	ND	N/A
Carbon Disulfide	ND	25000
Carbon Tetrachloride	ND	25000
Chlorobenzene	ND	25000
Chloroform	ND	25000
Cyclohexanone (1)	ND	N/A
1,1-Dichloroethene	ND	25000
1,2-Dichloroethane	ND	25000
Ethyl acetate (1)	ND	N/A
Ethyl benzene	ND	25000
Ethyl ether (1)	ND	N/A
Isobutanol (1)	ND	N/A
Methyl ethyl ketone	ND	50000
Methyl isobutyl ketone	ND	50000
Methylene chloride	ND	25000
Orthodichlorobenzene	ND	25000
Tetrachloroethene	ND	25000
Toluene	ND	25000
1,1,1-Trichloroethane	ND	25000
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	25000
1,1,2-Trichloroethane	ND	25000
Trichloroethene	ND	25000
Trichlorofluoromethane	ND	25000
Vinyl chloride	ND	25000
Xylene	ND	25000

SURROGATE RECOVERIES

Analyte	% Recovery	%Rec Limits
Dibromofluoromethane	109	80 - 120
Toluene-d8	106	81 - 117
Bromofluorobenzene	91	74 - 121

ND = Not Detected
(1) = Estimated value, analyte quantitated as a TIC
N/A = Non Applicable
DL = Dilution

AnalyticalTechnologies,Inc.

VOLATILE MATRIX SPIKE RECOVERY

Method 8260

Sample ID

PS-FS4-S1

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philips -- 512388
Lab Sample ID: 95-12-135-03
Sample Matrix: Soil
Sample Weight: 5 g

Date Collected: 12/20/95
Date Analyzed: 12/21/95

Results are reported on a wet weight basis.

Analyte	Spike Added (ug/kg)	Sample Concentration (ug/kg)	MS Concentration (ug/kg)	MS % Rec	QC Limit Recovery
1,1-Dichloroethene	50.0	ND	50.3	101	59-172
Trichloroethene	50.0	ND	57.4	115	62-137
Benzene	50.0	ND	50.7	101	60-133
Toluene	50.0	ND	50.8	102	59-139
Chlorobenzene	50.0	ND	50.4	101	66-142

Analyte	Spike Added (ug/kg)	MSD Concentration (ug/kg)	MSD % Recovery	% RPD	QC Limits RPD	QC Limits Rec
1,1-Dichloroethene	50.0	46.6	93	8	22	59-172
Trichloroethene	50.0	58.1	116	1	24	62-137
Benzene	50.0	47.9	96	6	21	60-133
Toluene	50.0	47.9	96	6	21	59-139
Chlorobenzene	50.0	47.4	95	6	21	66-142

SURROGATE RECOVERIES MS/MSD

Analyte	%Rec (MS)	%Rec (MSD)	% Rec Limits
Dibromofluorobenzene	102	97	80 - 120
Toluene-d8	101	100	81 - 117
Bromofluorobenzene	93	92	74 - 121

ND = Not Detected

AnalyticalTechnologies,Inc.

VOLATILE ORGANICS
Method 8260

Sample ID

Reagent Blank

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philips -- 512388
Lab Sample ID: WRB1 12-21-95

Date Collected: N/A
Date Analyzed: 12/21/95

Sample Matrix: Water
Sample Volume: 25 mL

Analyte	Conc. (ug/L)	Detection Limit (ug/L)
Acetone	ND	10
Benzene	ND	1
n-Butyl alcohol (1)	ND	N/A
Carbon Disulfide	ND	5
Carbon Tetrachloride	ND	1
Chlorobenzene	ND	5
Chloroform	ND	1
Cyclohexanone (1)	ND	N/A
1,1-Dichloroethene	ND	1
1,2-Dichloroethane	ND	1
Ethyl acetate (1)	ND	N/A
Ethyl benzene	ND	5
Ethyl ether (1)	ND	N/A
Isobutanol (1)	ND	N/A
Methyl ethyl ketone	ND	10
Methyl isobutyl ketone	ND	10
Methylene chloride	ND	4
Orthodichlorobenzene	ND	5
Tetrachloroethene	ND	1
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	5
1,1,2-Trichloroethane	ND	1
Trichloroethene	ND	1
Trichlorofluoromethane	ND	5
Vinyl chloride	ND	1
Xylene	ND	5

SURROGATE RECOVERIES

Analyte	% Recovery	%Rec Limits
Dibromofluoromethane	96	86 - 118
Toluene-d8	98	88 - 110
Bromofluorobenzene	99	86 - 115

ND = Not Detected
(1) = Estimated value, analyte quantitated as a TIC
N/A = Non Applicable

AnalyticalTechnologies,Inc.

VOLATILE ORGANICS

Method 8260

Sample ID

PS-FS4-Rinsate

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philips -- 512388
Lab Sample ID: 95-12-135-01

Date Collected: 12/20/95
Date Analyzed: 12/21/95

Sample Matrix: Water
Sample Volume: 25 mL

Analyte	Results (ug/L)	Detection Limit (ug/L)
Acetone	22	10
Benzene	ND	1
n-Butyl alcohol (1)	ND	N/A
Carbon Disulfide	ND	5
Carbon Tetrachloride	ND	1
Chlorobenzene	ND	5
Chloroform	ND	1
Cyclohexanone (1)	ND	N/A
1,1-Dichloroethene	ND	1
1,2-Dichloroethane	ND	1
Ethyl acetate (1)	ND	N/A
Ethyl benzene	ND	5
Ethyl ether (1)	ND	N/A
Isobutanol (1)	ND	N/A
Methyl ethyl ketone	ND	10
Methyl isobutyl ketone	ND	10
Methylene chloride	ND	4
Orthodichlorobenzene	ND	5
Tetrachloroethene	ND	1
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	5
1,1,2-Trichloroethane	ND	1
Trichloroethene	ND	1
Trichlorofluoromethane	ND	5
Vinyl chloride	ND	1
Xylene	ND	5

SURROGATE RECOVERIES

Analyte	% Recovery	%Rec Limits
Dibromofluoromethane	99	86 - 118
Toluene-d8	102	88 - 110
Bromofluorobenzene	99	86 - 115

ND = Not Detected

AnalyticalTechnologies,Inc.

VOLATILE ORGANICS
Method 8260

Sample ID

PS-FS4-Rinsate Dup.

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philips – 512388
Lab Sample ID: 95-12-135-02

Date Collected: 12/20/95
Date Analyzed: 12/21/95

Sample Matrix: Water
Sample Volume: 25 mL

Analyte	Results (ug/L)	Detection Limit (ug/L)
Acetone	26	10
Benzene	ND	1
n-Butyl alcohol (1)	ND	N/A
Carbon Disulfide	ND	5
Carbon Tetrachloride	ND	1
Chlorobenzene	ND	5
Chloroform	ND	1
Cyclohexanone (1)	ND	N/A
1,1-Dichloroethene	ND	1
1,2-Dichloroethane	ND	1
Ethyl acetate (1)	ND	N/A
Ethyl benzene	ND	5
Ethyl ether (1)	ND	N/A
Isobutanol (1)	ND	N/A
Methyl ethyl ketone	ND	10
Methyl isobutyl ketone	ND	10
Methylene chloride	ND	4
Orthodichlorobenzene	ND	5
Tetrachloroethene	ND	1
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	5
1,1,2-Trichloroethane	ND	1
Trichloroethene	ND	1
Trichlorofluoromethane	ND	5
Vinyl chloride	ND	1
Xylene	ND	5

SURROGATE RECOVERIES

Analyte	% Recovery	%Rec Limits
Dibromofluoromethane	105	86 - 118
Toluene-d8	101	88 - 110
Bromofluorobenzene	97	86 - 115

ND = Not Detected

AnalyticalTechnologies,Inc.

VOLATILE ORGANICS
Method 8260

Sample ID

PS-FS-Equip.

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philips -- 512388
Lab Sample ID: 95-12-135-07

Date Collected: 12/20/95
Date Analyzed: 12/21/95

Sample Matrix: Water
Sample Volume: 25 mL

Analyte	Results (ug/L)	Detection Limit (ug/L)
Acetone	ND	10
Benzene	ND	1
n-Butyl alcohol (1)	ND	N/A
Carbon Disulfide	ND	5
Carbon Tetrachloride	ND	1
Chlorobenzene	ND	5
Chloroform	ND	1
Cyclohexanone (1)	ND	N/A
1,1-Dichloroethene	ND	1
1,2-Dichloroethane	ND	1
Ethyl acetate (1)	ND	N/A
Ethyl benzene	ND	5
Ethyl ether (1)	ND	N/A
Isobutanol (1)	ND	N/A
Methyl ethyl ketone	ND	10
Methyl isobutyl ketone	ND	10
Methylene chloride	ND	4
Orthodichlorobenzene	ND	5
Tetrachloroethene	ND	1
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	5
1,1,2-Trichloroethane	ND	1
Trichloroethene	ND	1
Trichlorofluoromethane	ND	5
Vinyl chloride	ND	1
Xylene	ND	5

SURROGATE RECOVERIES

Analyte	% Recovery	%Rec Limits
Dibromofluoromethane	107	86 - 118
Toluene-d8	103	88 - 110
Bromofluorobenzene	99	86 - 115

ND = Not Detected

AnalyticalTechnologies,Inc.

VOLATILE ORGANICS

Method 8260

Sample ID

Trip Blank

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philips -- 512388
Lab Sample ID: 95-12-135-08

Date Collected: 12/21/95
Date Analyzed: 12/21/95

Sample Matrix: Water
Sample Volume: 25 mL

Analyte	Results (ug/L)	Detection Limit (ug/L)
Acetone	ND	10
Benzene	ND	1
n-Butyl alcohol (1)	ND	N/A
Carbon Disulfide	ND	5
Carbon Tetrachloride	ND	1
Chlorobenzene	ND	5
Chloroform	ND	1
Cyclohexanone (1)	ND	N/A
1,1-Dichloroethene	ND	1
1,2-Dichloroethane	ND	1
Ethyl acetate (1)	ND	N/A
Ethyl benzene	ND	5
Ethyl ether (1)	ND	N/A
Isobutanol (1)	ND	N/A
Methyl ethyl ketone	ND	10
Methyl isobutyl ketone	ND	10
Methylene chloride	ND	4
Orthodichlorobenzene	ND	5
Tetrachloroethene	ND	1
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	5
1,1,2-Trichloroethane	ND	1
Trichloroethene	ND	1
Trichlorofluoromethane	ND	5
Vinyl chloride	ND	1
Xylene	ND	5

SURROGATE RECOVERIES

Analyte	% Recovery	%Rec Limits
Dibromofluoromethane	107	86 - 118
Toluene-d8	102	88 - 110
Bromofluorobenzene	98	86 - 115

ND = Not Detected

AnalyticalTechnologies,Inc.

VOLATILE MATRIX SPIKE RECOVERY
Method 8260

Sample ID

PS-FS4-Rinsate

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philips -- 512388
Lab Sample ID: 95-12-135-01
Sample Matrix: Water
Sample Volume: 25 mL

Date Collected: 12/20/95
Date Analyzed: 12/21/95

Analyte	Spike Added (ug/L)	Sample Concentration (ug/L)	MS Concentration (ug/L)	MS % Rec	QC Limit Recovery
1,1-Dichloroethene	10.0	ND	10.1	101	61-145
Trichloroethene	10.0	ND	10.7	107	71-120
Benzene	10.0	ND	10.5	105	76-127
Toluene	10.0	ND	10.8	108	76-125
Chlorobenzene	10.0	ND	10.6	106	75-130

Analyte	Spike Added (ug/L)	MSD Concentration (ug/L)	MSD % Recovery	% RPD	QC Limits RPD Rec
1,1-Dichloroethene	10.0	10.8	108	6	14 | 61-145
Trichloroethene	10.0	11.2	112	4	14 | 71-120
Benzene	10.0	10.6	106	1	11 | 76-127
Toluene	10.0	11.1	111	3	13 | 76-125
Chlorobenzene	10.0	10.9	109	3	13 | 75-130

SURROGATE RECOVERIES MS/MSD

Analyte	%Rec (MS)	%Rec (MSD)	% Rec Limits
Dibromofluorobenzene	109	102	86 - 118
Toluene-d8	101	101	88 - 110
Bromofluorobenzene	95	98	86 - 115

ND = Not Detected

Analytical Technologies of New Mexico, Inc.
Albuquerque, New Mexico

Interlab Chain of Custody

DATE: 12/20 PAGE: 1 OF 1

NETWORK PROJECT MANAGER: KIMBERLY D. McNEILL

COMPANY: Analytical Technologies of New Mexico, Inc.
ADDRESS: 2709-D Pan American Freeway, NE
Albuquerque, NM 87107

CLIENT PROJECT MANAGER: Kim McNeill

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Metals - TAL	Metals - PP List	Metals - RCRA	RCRA Metals by TCLP (1311)			TOX	TOC	Gen Chemistry: Ignitability	8260 (AQ)	8260 (NAQ)	Oil and Grease	BOD	COD	Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral Acid Compounds GC/MS (625/8270)	Volatile Organics GC/MS (624/8240)	Polynuclear Aromatics (610/8310)	8240 (TCLP 1311) ZHE	8270 (TCLP 1311)			TO-14	Gross Alpha/Beta				NUMBER OF CONTAINERS
512388-01	12/20	0840	AQ	01									X	X																			4
-02		0844	AQ	02									X	X																			4
-03		1245	NAQ	03											X																		1
-04		1245	NAQ	04											X																		1
-05		1250	NAQ	05											X																		1
-06		1254	NAQ	06											X																		1
-07		1300	AQ	07										X																			3
-08 (Trip Blank)	12/19	1130	AQ	08										X																			1

PROJECT INFORMATION	
PROJECT NUMBER:	512388
PROJECT NAME:	Philips
QC LEVEL:	STD IV
QC REQUIRED:	MS MSD BLANK
TAT:	STANDARD RUSH! Ignitability ONLY
DUE DATE:	12/23 ; 1/8
RUSH SURCHARGE:	~~100%~~ 100% Ignitability ONLY
CLIENT DISCOUNT:	Quote
SPECIAL CERTIFICATION REQUIRED:	☐ YES ☐ NO

SAMPLE RECEIPT	
TOTAL NUMBER OF CONTAINERS	16
CHAIN OF CUSTODY SEALS	Y
INTACT?	Y
RECEIVED GOOD COND./COLD	Y
LAB NUMBER	

SAMPLES SENT TO:	
SAN DIEGO	
FT. COLLINS	X
RENTON	
PENSACOLA	
PORTLAND	
PHOENIX	

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: Andrew Parker Time: 1700	Signature: Time:
Printed Name: Andrew Parker Date: 12/20	Printed Name: Date:
Analytical Technologies of New Mexico, Inc. Albuquerque	Company: Fedex
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature: Time:	Signature: Time: 1000
Printed Name: Date:	Printed Name: D. Hull Date: 12/21/95
Company: Fedex	Company: ATI-LD

Analytical**Technologies** of New Mexico, Inc.
Albuquerque, New Mexico

Interlab Chain of Custody

DATE: 12/20 PAGE: 1 OF 1

NETWORK PROJECT MANAGER: KIMBERLY D. McNEILL

COMPANY: Analytical Technologies of New Mexico, Inc.
ADDRESS: 2709-D Pan American Freeway, NE
Albuquerque, NM 87107

CLIENT PROJECT MANAGER: Kim McNeill

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Metals - TAL	Metals - PP List	Metals - RCRA	RCRA Metals by TCLP (1311)	Methanol (AQ)	Methanol (NAQ)	~~TOX~~	TOC	Gen Chemistry			Oil and Grease	BOD	COD	Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral Acid Compounds GC/MS (625/8270)	Volatile Organics GC/MS (624/8240)	Polynuclear Aromatics (610/8310)	8240 (TCLP 1311) ZHE	8270 (TCLP 1311)			TO-14	Gross Alpha/Beta				NUMBER OF CONTAINERS
512388-01	12/20	0840	AQ	1					X																								
-02		0844	AQ	2					X																								
-03		1245	NAQ	3							X																						
-04		1245	NAQ	4							X																						
-05		1250	NAQ	5							X																						
-06		1254	NAQ	6							X																						
-07		1300	AQ	7					X																								
-08 (Trip Blank)	12/19	1130	AQ	8					X																								

PROJECT INFORMATION		SAMPLE RECEIPT	
PROJECT NUMBER:	512388	TOTAL NUMBER OF CONTAINERS	
PROJECT NAME:	Philips	CHAIN OF CUSTODY SEALS	
QC LEVEL:	STD IV	INTACT?	
QC REQUIRED:	MS MSD BLANK	RECEIVED GOOD COND./COLD	
TAT:	STANDARD RUSHI	LAB NUMBER	
		IWO# KM1058	

DUE DATE: 1/8
RUSH SURCHARGE: NO
CLIENT DISCOUNT: Quote
SPECIAL CERTIFICATION REQUIRED: ☐ YES ☐ NO

SAMPLES SENT TO:	
SAN DIEGO	
FT. COLLINS	
RENTON	
PENSACOLA	X
PORTLAND	
PHOENIX	

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: Andrew Parker Time: 1700	Signature: Time:
Printed Name: Andrew Parker Date: 12/20	Printed Name: Date:
Analytical Technologies of New Mexico, Inc. Albuquerque	Company:
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature: Time:	Signature: Time: 0506
Printed Name: Date:	Printed Name: Suzanne Rfox Date: 12/21/95
Company:	Company: ATI-Pensacola

AnalyticalTechnologies of New Mexico, Inc., Albuquerque, NM
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CHAIN OF CUSTODY

DATE: 12/20/95 PAGE: 1 OF 1

ATI LAB I.D. 512388

SHADED AREAS ARE FOR LAB USE ONLY

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Jim Stapleton
COMPANY: IT Corporation
ADDRESS: 5301 Central Ave NE Ste 700
PHONE: 505 262 8800
FAX: 505 262 8855

BILL TO: IT Corporation
COMPANY: 5301 Central Ave NE
ADDRESS: Suite 700 Albuquerque NM 87108

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.	Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct/Inject	8015(m) Methanol	(M8015) Gas/Purge & Trap	Gasoline/BTEX & MTBE (M8015/8020)	BTXE/MTBE (8020)	BTEX & Chlorinated Aromatics (602/8020)	BTEX/MTBE/EDC & EDB (8020/8010/Short)	Chlorinated Hydrocarbons (601/8010)	Ignitability - 1010/1020	504 EDB☐ / DBCP☐	Polynuclear Aromatics (610/8310)	Volatile Organics (624/8240) GC/MS	Volatile Organics (8260) GC/MS	Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral/Acid Compounds GC/MS (625/8270)	General Chemistry	Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	MATRIX SPIKE/MATRIX SPIKE DUPLICATE	NUMBER OF CONTAINERS
PS-FS4-Rinsate	12/20/95	08:40	Aqueous	-01			X							X				X									X	7
PS-FS4-Rinsate Dup	12/20/95	08:45	Aqueous	-02			X							X				X										7
PS-FS4-S1	12/20/95	12:45	Soil	-03			X											X										2
PS-FS4-S1-Dup	12/20/95	12:45	Soil	-04			X											X										2
PS-FS4-S2	12/20/95	12:50	Soil	-05			X											X										2
PS-FS4-S3	12/20/95	12:54	Soil	-06			X											X										2
PS-FS4-Equip	12/20/95	13:00	Aqueous	-07			X											X										6
Trip Blank	12/18/95	11:30	Aqueous	-08			X											X										2

PROJECT INFORMATION	
PROJ. NO.:	765281
PROJ. NAME:	Philips
P.O. NO.:	
SHIPPED VIA:	
SAMPLE RECEIPT	
NO. CONTAINERS	30
CUSTODY SEALS	Y / N / NA
RECEIVED INTACT	Y
BLUE ICE/ICE	Y

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☒ 2 WEEK

CERTIFICATION REQUIRED: ☐ NM ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS:
Rush on Ignitability
normal on other analysis

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: Jim Stapleton Time: 14:33	Signature: Time:
Printed Name: Jim Stapleton Date: 12/20/95	Printed Name: Date:
Company: IT Corp	Company:
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature: Time:	Signature: Andrew Parker Time: 1447
Printed Name: Date:	Printed Name: Andrew Parker Date: 12/20
Company:	Analytical Technologies of New Mexico

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San Diego • Phoenix • Seattle • Pensacola • Ft. Collins • Portland • Albuquerque • Anchorage

CHAIN OF CUSTODY

DATE: 12/20/95 PAGE: 1 OF 1

ATI LAB I.D. 512388

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Jim Stapleton
COMPANY: IT Corporation
ADDRESS: 5301 Central Ave NE Ste 700
PHONE: 505 262 8800
FAX: 505 262 8855

BILL TO: IT Corporation
COMPANY: 5301 Central Ave NE
ADDRESS: Suite 700 Albuquerque NM 87108

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.	Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct/Inject	8015(m) methanol	(M8015) Gas/Purge & Trap	Gasoline/BTEX & MTBE (M8015/8020)	BTXE/MTBE (8020)	BTEX & Chlorinated Aromatics (602/8020)	BTEX/MTBE/EDC & EDB (8020/8010/Short)	Chlorinated Hydrocarbons (601/8010)	Ignitability 1010/Ignitar	504 EDB ☐ / DBCP ☐	Polynuclear Aromatics (610/8310)	Volatile Organics (624/8240) GC/MS	Volatile Organics (8260) GC/MS		Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral/Acid Compounds GC/MS (625/8270)		General Chemistry			Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)		MATRIX SPIKE/MATRIX SPIKE DUPLICATE	NUMBER OF CONTAINERS
PS-FS4-Rinsate	12/20/95	08:05	Aqueous	-01			X							X				X														X	7
PS-FS4-Rinsate Dup	12/20/95	08:54	Aqueous	-02			X							X				X															7
PS-FS4-S1	12/20/95	12:45	Soil	-03			X											X															2
PS FS4-S1-Dup	12/20/95	12:45	Soil	-04			X											X															2
PS FS4-S2	12/20/95	12:50	Soil	-05			X											X															2
PS FS4-S3	12/20/95	12:54	Soil	-06			X											X															2
PS FS4-Equip	12/20/95	13:00	Aqueous	-07			X											X															6
Trip Blank	12/19/95	11:30	Aqueous	-08			X											X															2

PROJECT INFORMATION	
PROJ. NO.:	765286
PROJ. NAME:	Philips
P.O. NO.:	
SHIPPED VIA:	
SAMPLE RECEIPT	
NO. CONTAINERS	30
CUSTODY SEALS	Y N/NA
RECEIVED INTACT	Y
BLUE ICE/ICE	16.2

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☒ 2 WEEK

CERTIFICATION REQUIRED: ☐ NM ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS:
Rush on Ignitability
normal on other analysis

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: Jim Stapleton Time: 14:33	Signature: Time:
Printed Name: Jim Stapleton Date: 12/20/95	Printed Name: Date:
Company: IT Corp	Company:
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature: Time:	Signature: Andrew Parker Time: 1447
Printed Name: Date:	Printed Name: Andrew Parker Date: 12/20
Company:	Analytical Technologies of New Mexico

1 ATI L an Die) 458- Phoeni 496-4 Seattle 28-833 Pensacola 474-1001 • Portland (503) 684-0447 • Albuquerque (505) 344-3777 DISTRIBUTION: White, Canary - ATI Pink - ORIGINATOR

INTERNATIONAL TECHNOLOGY CORPORATION

DATE	12 20 95
TIME	0840
PAGE 1 OF 1	
PAGE	
PROJECT NO.	765286

SAMPLE COLLECTION LOG

PROJECT NAME Philips Semiconductors

SAMPLE NO. PS - FS4 - Rinsate

SAMPLE LOCATION Flammable Storage Area 4

SAMPLE TYPE Rinsate

COMPOSITE ____ YES X NO

COMPOSITE TYPE -

DEPTH OF SAMPLE -

WEATHER

CONTAINERS USED	AMOUNT COLLECTED
Amber Vials	3 - 40 ml
Clear Vials	3 - 40 ml
Plastic Bottle	1 - 250 ml

COMMENTS: Sample collected from a period of 08:40 to 09:05
A duplicate sample was also collected
The sample was collected by inserting an 8 ounce sterile glass jar in the floor drain & capturing the rinsate. The rinsate was poured from the glass jar into the 40 ml vials & plastic bottle in such a manner that no head space or air bubbles remained.
The sample was labeled, sealed with a Chain of Custody seal, entered in Chain of Custody documentation & placed in a chilled cooler for transport to the analytical lab.
The sample is to be analyzed for Ignitability, Methanol & Volatile Organic Aromatics

PREPARED BY: Jim Stapleton

COMMENTS:
(Continued)

DATE	
TIME	
PAGE ____ OF ____	
PAGE	
PROJECT NO.	

N/A

PREPARED BY: J Stapleton

LEGEND

1. A SAMPLE COLLECTION LOG IS TO BE COMPLETED FOR EACH SAMPLE.
2. ALWAYS COMPLETE BOTH SIDES. IF SECOND SIDE IS NOT USED, DRAW A LINE THROUGH IT AND MARK N/A. FILL IN CONTROL BLOCK AND PREPARED BY.
3. ALL ENTRIES ON LOG ARE TO BE COMPLETED, IF NOT APPLICABLE MARK N/A.
4. DATE: USE MONTH/DAY/YEAR; I.E., 10/30/85
5. TIME: USE 24-HOUR CLOCK; I.E., 1835 FOR 6:35 P.M.
6. PAGE: EACH SAMPLE TEAM SHOULD NUMBER PAGE _____ OF _____ FOR THE DAY'S ACTIVITIES FOR ALL SHEETS PREPARED ON A SINGLE DAY, I.E., IF THERE ARE A TOTAL OF 24 PAGES (INCLUDING FRONT AND BACK) NUMBER 1 OF 24, 2 OF 24, ETC.
7. SAMPLE LOCATION: USE BORING OR MONITORING WELL NUMBER, GRID LOCATION (TRANSECT), SAMPLING STATION I.D., OR COORDINATE TO PHYSICAL FEATURES WITH DISTANCES. INCLUDE SKETCH IN COMMENT SECTION IF NECESSARY.
8. SAMPLE TYPE: USE THE FOLLOWING - SOIL; WATER (SURFACE OR GROUND); AIR (FILTERS, TUBES, AMBIENT, PERSONNEL); SLUDGE; DRUM CONTENTS; OIL; VEGETATION; WIPE; SEDIMENT.
9. COMPOSITE TYPE: I.E., 24-HOUR, LIST SAMPLE NUMBERS IN COMPOSITE, SPATIAL COMPOSITE.
10. DEPTH OF SAMPLE: GIVE UNITS, WRITE OUT UNITS SUCH AS INCHES, FEET. DON'T USE ' OR ".
11. WEATHER: APPROXIMATE TEMPERATURE, SUN AND MOISTURE CONDITIONS.
12. CONTAINERS USED: LIST EACH CONTAINER TYPE AS NUMBER, VOLUME, MATERIAL (E.G., 2 - IL GLASS; 4 - 40 ML GLASS VIAL; 1 - 400 ML PLASTIC; 1 - 3 INCH STEEL TUBE; 1 - 8 OZ. GLASS JAR).
13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

INTERNATIONAL TECHNOLOGY CORPORATION

DATE	1 2 2 0 9 5
TIME	0 8 4 0
PAGE ___ OF ___	
PAGE	
PROJECT NO. 765286	

SAMPLE COLLECTION LOG

PROJECT NAME Philips Semiconductors

SAMPLE NO. PS-FS4-Rinsate-Dup

SAMPLE LOCATION Flammable Storage Area 4

SAMPLE TYPE Rinsate

COMPOSITE ___ YES X NO

COMPOSITE TYPE -

DEPTH OF SAMPLE -

WEATHER

CONTAINERS USED	AMOUNT COLLECTED
Amber Vials	3-40 ml
clear Vials	3-40 ml
plastic bottle	1-250 ml

COMMENTS: Sample collected from a period of 08:40-0905

The sample is a duplicate of PS-FS4-Rinsate.

The sample was collected by inserting an 8 ounce sterile glass jar in the flow chain & capturing the rinsate. The rinsate was poured from the glass jar into the 40 ml vials & the plastic bottle in such a manner that no head space or air bubbles remained.

The sample was labelled, sealed with a Chain of Custody seal, entered into Chain of Custody documentation & placed in a chilled cooler for transport to the lab.

The sample is to be analyzed for cyanitability, Methanol & Volatile Organic Aromatics

JS

PREPARED BY: Jim Hopkins

COMMENTS:
(Continued)

DATE						
TIME						
PAGE ____ OF ____						
PAGE						
PROJECT NO.						

N/A

PREPARED BY: J Stapleton

LEGEND

1. A SAMPLE COLLECTION LOG IS TO BE COMPLETED FOR EACH SAMPLE.
2. ALWAYS COMPLETE BOTH SIDES. IF SECOND SIDE IS NOT USED, DRAW A LINE THROUGH IT AND MARK N/A. FILL IN CONTROL BLOCK AND PREPARED BY.
3. ALL ENTRIES ON LOG ARE TO BE COMPLETED, IF NOT APPLICABLE MARK N/A.
4. DATE: USE MONTH/DAY/YEAR; I.E., 10/30/85
5. TIME: USE 24-HOUR CLOCK; I.E., 1835 FOR 6:35 P.M.
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10. DEPTH OF SAMPLE: GIVE UNITS, WRITE OUT UNITS SUCH AS INCHES, FEET. DON'T USE ' OR ".
11. WEATHER: APPROXIMATE TEMPERATURE, SUN AND MOISTURE CONDITIONS.
12. CONTAINERS USED: LIST EACH CONTAINER TYPE AS NUMBER, VOLUME, MATERIAL (E.G., 2 - IL GLASS; 4 - 40 ML GLASS VIAL; 1 - 400 ML PLASTIC; 1 - 3 INCH STEEL TUBE; 1 - 8 OZ. GLASS JAR).
13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

INTERNATIONAL TECHNOLOGY CORPORATION

DATE	12 20 95
TIME	12 45
PAGE ___ OF ___	
PAGE	
PROJECT NO.	765286

SAMPLE COLLECTION LOG

PROJECT NAME: Philips Semiconductors

SAMPLE NO.: (Flammable Storage area 4)

SAMPLE LOCATION: PS-FS4-S1-Dup

SAMPLE TYPE: Soil

COMPOSITE: ___ YES X NO

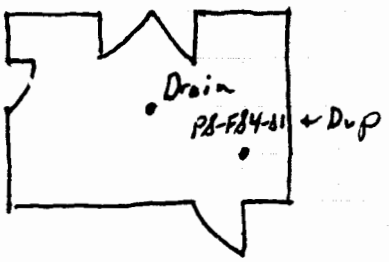
COMPOSITE TYPE: -

DEPTH OF SAMPLE: 0" to 6"

WEATHER: ___

CONTAINERS USED	AMOUNT COLLECTED
glass jars	2-4oz

COMMENTS: Sample collected at 12:45
This is a duplicate sample of PS-FS4-S1.
See PS-FS4-S1 for sampling description.
The soil was placed in jars with no head space remaining.
The jars were labeled, custody sealed, ~~tabe~~ entered in COC & placed in a cooler for transport to lab. Soil was a brown gravelly sand.
The sample to be analyzed for Metals & VOAs



PREPARED BY: Jim Stapleton

COMMENTS:
(Continued)

DATE						
TIME						
PAGE ____ OF ____						
PAGE						
PROJECT NO.						

N/A

PREPARED BY: J Stapleton

LEGEND

1. A SAMPLE COLLECTION LOG IS TO BE COMPLETED FOR EACH SAMPLE.
2. ALWAYS COMPLETE BOTH SIDES. IF SECOND SIDE IS NOT USED, DRAW A LINE THROUGH IT AND MARK N/A. FILL IN CONTROL BLOCK AND PREPARED BY.
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11. WEATHER: APPROXIMATE TEMPERATURE, SUN AND MOISTURE CONDITIONS.
12. CONTAINERS USED: LIST EACH CONTAINER TYPE AS NUMBER, VOLUME, MATERIAL (E.G., 2 - 1L GLASS; 4 - 40 ML GLASS VIAL; 1 - 400 ML PLASTIC; 1 - 3 INCH STEEL TUBE; 1 - 8 OZ. GLASS JAR).
13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

INTERNATIONAL TECHNOLOGY CORPORATION

DATE	12 20 95
TIME	12 45
PAGE	1 OF 1
PAGE	
PROJECT NO.	765286

SAMPLE COLLECTION LOG

PROJECT NAME Philips Semiconductors

SAMPLE NO. PS-FS4-S1

SAMPLE LOCATION Flammable Storage Area 4

SAMPLE TYPE soil

COMPOSITE ___ YES X NO

COMPOSITE TYPE -

DEPTH OF SAMPLE 0" to 6" below concrete

WEATHER

CONTAINERS USED	AMOUNT COLLECTED
glass jar	2 - 4oz

COMMENTS: sample collected at 12:45

A concrete core machined was used to core through the concrete. A soil sample was collected by using a stainless steel spoon. Prior to sampling the spoon was decontaminated with a solution of Alconox & water triple rinsed & then final rinsed with DI water. A piece of plastic was placed around the hole. The soil was scooped & placed in 2 glass jars with no head space remaining. The jars were labeled, custody sealed, entered into C-OC & placed in a cooler for transport to the lab. No head space readings were taken because the soil was wet from the coring. The samples are to be analyzed for methanol & VOAs. Soil was a brown gravelly sand No odor

PREPARED BY: Juni Hagelton

COMMENTS:
(Continued)

DATE						
TIME						
PAGE ____ OF ____						
PAGE						
PROJECT NO.						

N/A

PREPARED BY: _____

LEGEND

1. A SAMPLE COLLECTION LOG IS TO BE COMPLETED FOR EACH SAMPLE.
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12. CONTAINERS USED: LIST EACH CONTAINER TYPE AS NUMBER, VOLUME, MATERIAL (E.G., 2 - IL GLASS; 4 - 40 ML GLASS VIAL; 1 - 400 ML PLASTIC; 1 - 3 INCH STEEL TUBE; 1 - 8 OZ. GLASS JAR).
13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

INTERNATIONAL TECHNOLOGY CORPORATION

DATE	12 20 95
TIME	12 50
PAGE ___ OF ___	
PAGE	
PROJECT NO.	765286

SAMPLE COLLECTION LOG

PROJECT NAME Philips Semiconductors

SAMPLE NO. PS-FS4-S2

SAMPLE LOCATION Flammable Storage Area 4

SAMPLE TYPE soil

COMPOSITE ___ YES X NO

COMPOSITE TYPE —

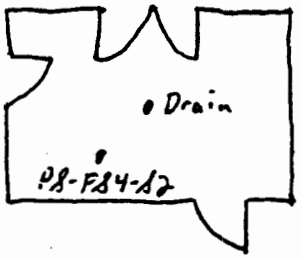
DEPTH OF SAMPLE 0" to 6"

WEATHER

CONTAINERS USED	AMOUNT COLLECTED
glass jars	2 - 4oz

COMMENTS: Sample time 12:50

The sample was collected using the same technique as PS-FS4-S1, except a new stainless steel spoon was used & cleaned prior to usage.
The soil was placed in the glass jars with no head space remaining. Labeled, custody sealed, entered into COC & placed in a chilled cooler for transport to the lab.
No head space reading due to moisture content from coring. No duplicate collected
Brown gravelly sand. No odor
The sample is to be analyzed for methanol & VOA.



PREPARED BY: Jim Stapleton

COMMENTS:
(Continued)

DATE	
TIME	
PAGE ____ OF ____	
PAGE	
PROJECT NO.	

N/A

PREPARED BY: _____

LEGEND

1. A SAMPLE COLLECTION LOG IS TO BE COMPLETED FOR EACH SAMPLE.
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13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

INTERNATIONAL TECHNOLOGY CORPORATION

DATE	122095
TIME	1254
PAGE ___ OF ___	
PAGE	
PROJECT NO.	765286

SAMPLE COLLECTION LOG

PROJECT NAME: Philips Semiconductors

SAMPLE NO.: PS-FS4-S3

SAMPLE LOCATION: Flammable Storage Area 4

SAMPLE TYPE: Soil

COMPOSITE: ___ YES X NO

COMPOSITE TYPE: -

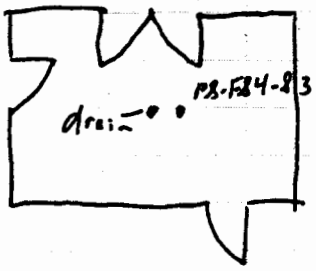
DEPTH OF SAMPLE: 0" to 6"

WEATHER:

CONTAINERS USED	AMOUNT COLLECTED
glass jars	2-4oz

COMMENTS: Sample Time 12:54

The sample was collected using the same technique as PS-FS4-S1 except with a new stainless steel spoon which was decontaminated prior to usage. The soil was placed in the glass jars with no head space, labeled, custody sealed, entered into COC, placed in a chilled cooler for transport to the lab. No head space reading due to moisture content from coring. No duplicate sample. Brown gravelly sand. No odor. The sample is to be analyzed for methanol & VOA.



PREPARED BY: Jim Stapleton

COMMENTS:
(Continued)

DATE	
TIME	
PAGE ____ OF ____	
PAGE	
PROJECT NO.	

N/A

PREPARED BY: _____

LEGEND

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13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

INTERNATIONAL TECHNOLOGY CORPORATION

DATE	122095
TIME	1300
PAGE ____ OF ____	
PAGE	
PROJECT NO.	765286

SAMPLE COLLECTION LOG

PROJECT NAME Philips Semiconductors

SAMPLE NO. PS-FS4-Equip

SAMPLE LOCATION Flammable Storage Area 4

SAMPLE TYPE rinsate

COMPOSITE ____ YES X NO

COMPOSITE TYPE –

DEPTH OF SAMPLE –

WEATHER

CONTAINERS USED	AMOUNT COLLECTED
Amber vials	3-40 ml
clear vials	3-40 ml

COMMENTS: The sample was collected at 13:00
An equipment rinsate sample was collected by decontaminating the stainless steel spoon used to collect soil sample PS-FS4-S2. The spoon was washed in water & Alconox triple rinsed & then DI water poured over the spoon & collected in the vials with no head space as air bubbles remaining. The vials were labeled custody sealed entered into COC, placed in the chilled coolers with the rinsate & soil samples for transport to the lab. No duplicate collected. Analysis is to be for methanol & VOA's

PREPARED BY: Jim Stapleton

COMMENTS:
(Continued)

DATE	
TIME	
PAGE ____ OF ____	
PAGE	
PROJECT NO.	

N/A

PREPARED BY: _____

LEGEND

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13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

APPENDIX E

LABORATORY CERTIFICATES OF ANALYSES FOR SOLVENT TANK #3

Analytical **Technologies,** Inc.

2709-D Pan American Freeway NE Albuquerque NM 87107
Phone (505) 344-3777 FAX (505) 344-4413

ATI I.D. **512403**

January 18, 1996

IT Corporation
5301 Central Ave NE, Suite 700
Albuquerque, NM 87108

Project Name/Number: PHILIPS 765286

Attention: Jim Stapleton

On **12/24/95**, Analytical Technologies, of New Mexico Inc., (ADHS License No. AZ0015), received a request to analyze **aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

This report has been revised and reissued to clarify sampling points at the client's request.

The following compounds were searched for by ion and not quantitated: n-Butyl alcohol, cyclohexane, ethyl acetate, ethyl ether, and isobutanol. These compounds were flagged as TIC's (tentatively identified compounds) and none found in the samples.

EPA method 8015 for methanol analyses were performed by Analytical Technologies, Inc., 11 East Olive Road, Pensacola, FL.

All other analyses were performed by Analytical Technologies, Inc., 225 Commerce Drive, Fort Collins, CO.

If you have any questions or comments, please do not hesitate to contact us at (505) 344-3777.

Kimberly D. McNeill
Project Manager

H. Mitchell Rubenstein, Ph.D.
Laboratory Manager

MR:jt

Enclosure

AnalyticalTechnologies,Inc.

CLIENT : IT CORPORATION
PROJECT # : 765286
PROJECT NAME : PHILIPS

DATE RECEIVED : 12/24/95
REPORT DATE : 01/05/96

ATI ID: 512403

	ATI ID #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	512403-01	SOLVENT VAULT #3	AQUEOUS	12/24/95
02	512403-02	SOLVENT VAULT #3 DUP	AQUEOUS	12/24/95
03	512403-03	TRIP BLANK	AQUEOUS	12/19/95
04	512403-04	SOLVENT TANK 3	AQUEOUS	12/24/95
05	512403-05	SOLVENT TANK 3 DUP	AQUEOUS	12/24/95
06	512403-06	TRIP BLANK	AQUEOUS	12/19/95

---TOTALS---

MATRIX	#SAMPLES
AQUEOUS	6

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

AnalyticalTechnologies,Inc.

IGNITABILITY
Method 1010

Lab Name: Analytical Technologies, Inc.

Date Collected: 12/24/95

Client Name: ATI-NM

Date Analyzed: 12/26/95

Client Project ID: Philips -- 512403

Sample Matrix: Aqueous

Lab Workorder Number: 95-12-170

Sample ID	Lab Sample ID	Ignitable At (deg C)	Non-ignitable Below (deg C)
Solvent Vault #3	95-12-170-01	>96.5	96.5
Solvent Vault #3 Dup	95-12-170-02	>96.5	96.5
Solvent Tank #3	95-12-170-03	>96.5	96.5
Solvent Tank #3 Dup	95-12-170-04	>96.5	96.5

AnalyticalTechnologies,Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession:	512650
Client:	ANALYTICAL TECHNOLOGIES, INC.
Project Number:	512403
Project Name:	IT
Project Location:	PHILIPS
Test:	METHANOL
Analysis Method:	ATI SOP 641
Extraction Method:	N/A
Matrix:	WATER
QC Level:	II

Lab Id:	001	Sample Date/Time:	24-DEC-95 1130
Client Sample Id:	SOLVENT VAULT #3	Received Date:	27-DEC-95
Batch: GEW122		Extraction Date:	N/A
Blank: B	Dry Weight %: N/A	Analysis Date:	28-DEC-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
METHANOL	MG/L	ND	5.0	
ANALYST	INITIALS	DWB		

Comments:

AnalyticalTechnologies,Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession:	512650
Client:	ANALYTICAL TECHNOLOGIES, INC.
Project Number:	512403
Project Name:	IT
Project Location:	PHILIPS
Test:	METHANOL
Analysis Method:	ATI SOP 641
Extraction Method:	N/A
Matrix:	WATER
QC Level:	II

Lab Id:	002	Sample Date/Time:	24-DEC-95 1135
Client Sample Id:	SOLVENT VAULT #3 DUP	Received Date:	27-DEC-95
Batch: GEW122		Extraction Date:	N/A
Blank: B	Dry Weight %: N/A	Analysis Date:	28-DEC-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
METHANOL	MG/L	ND	5.0	
ANALYST	INITIALS	DWB		

Comments:

AnalyticalTechnologies,Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession:	512650
Client:	ANALYTICAL TECHNOLOGIES, INC.
Project Number:	512403
Project Name:	IT
Project Location:	PHILIPS
Test:	METHANOL
Analysis Method:	ATI SOP 641
Extraction Method:	N/A
Matrix:	WATER
QC Level:	II

Lab Id:	003	Sample Date/Time:	19-DEC-95 1140
Client Sample Id:	TRIP BLANK	Received Date:	27-DEC-95
Batch: GEW122		Extraction Date:	N/A
Blank: B	Dry Weight %: N/A	Analysis Date:	28-DEC-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
METHANOL	MG/L	ND	5.0	
ANALYST	INITIALS	DWB		

Comments:

AnalyticalTechnologies,Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession:	512650
Client:	ANALYTICAL TECHNOLOGIES, INC.
Project Number:	512403
Project Name:	IT
Project Location:	PHILIPS
Test:	METHANOL
Analysis Method:	ATI SOP 641
Extraction Method:	N/A
Matrix:	WATER
QC Level:	II

Lab Id:	004	Sample Date/Time:	24-DEC-95 0930
Client Sample Id:	SOLVENT TANK 3	Received Date:	27-DEC-95
Batch: GEW122		Extraction Date:	N/A
Blank: B	Dry Weight %: N/A	Analysis Date:	28-DEC-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
METHANOL	MG/L	ND	5.0	
ANALYST	INITIALS	DWB		

Comments:

AnalyticalTechnologies,Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession:	512650
Client:	ANALYTICAL TECHNOLOGIES, INC.
Project Number:	512403
Project Name:	IT
Project Location:	PHILIPS
Test:	METHANOL
Analysis Method:	ATI SOP 641
Extraction Method:	N/A
Matrix:	WATER
QC Level:	II

Lab Id:	005	Sample Date/Time:	24-DEC-95 0935
Client Sample Id:	SOLVENT TANK 3 DUP	Received Date:	27-DEC-95
Batch: GEW122		Extraction Date:	N/A
Blank: B	Dry Weight %: N/A	Analysis Date:	28-DEC-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
METHANOL	MG/L	ND	5.0	
ANALYST	INITIALS	DWB		

Comments:

AnalyticalTechnologies,Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession:	512650
Client:	ANALYTICAL TECHNOLOGIES, INC.
Project Number:	512403
Project Name:	IT
Project Location:	PHILIPS
Test:	METHANOL
Analysis Method:	ATI SOP 641
Extraction Method:	N/A
Matrix:	WATER
QC Level:	II

Lab Id:	006	Sample Date/Time:	19-DEC-95 1200
Client Sample Id:	TRIP BLANK	Received Date:	27-DEC-95
Batch: GEW122		Extraction Date:	N/A
Blank: B	Dry Weight %: N/A	Analysis Date:	28-DEC-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
METHANOL	MG/L	ND	5.0	
ANALYST	INITIALS	DWB		

Comments:

AnalyticalTechnologies, Inc.

"QC Report"

Title: Water Blank
Batch: GEW122
Analysis Method: ATI SOP 641
Extraction Method: N/A

Blank Id: B Date Analyzed: 28-DEC-95 Date Extracted: N/A

Parameters:	Units:	Results:	Reporting Limits:
METHANOL	MG/L	ND	5

Comments:
ANALYST: DWB

AnalyticalTechnologies,Inc.

"QC Report"

Title: Water Reagent
Batch: GEW122
Analysis Method: ATI SOP 641
Extraction Method: N/A

RS Date Analyzed: 26-DEC-95
RSD Date Analyzed: 26-DEC-95

RS Date Extracted: N/A
RSD Date Extracted: N/A

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	RSD Conc	RSD %Rec	RPD	RPD Lmts	Rec Lmts
METHANOL	25	<5.0	26	104	29	116	11	50	50-150

Surrogates:

Comments:

Notes:
MG/L = PARTS PER MILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCE FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCE METHOD.
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT

AnalyticalTechnologies,Inc.

"QC Report"

Title: Water Matrix
Batch: GEW122
Analysis Method: ATI SOP 641
Extraction Method: N/A

Dry Weight %: N/A
Sample Spiked: 512650-1

MS Date Analyzed: 28-DEC-95
MSD Date Analyzed: 28-DEC-95

MS Date Extracted: N/A
MSD Date Extracted: N/A

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	RPD Lmts	Rec Lmts
METHANOL	50	<5	58	116	49	98	17	50	50-150

Surrogates:

Comments:

Notes:
MG/L = PARTS PER MILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCE FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCE METHOD.
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT

Common notation for Organic reporting

N/S = NOT SUBMITTED
N/A = NOT APPLICABLE
D = DILUTED OUT
UG = MICROGRAMS
UG/L = PARTS PER BILLION.
UG/KG = PARTS PER BILLION.
MG/M3 = MILLIGRAM PER CUBIC METER.
PPMV = PART PER MILLION BY VOLUME.
MG/KG = PARTS PER MILLION.
MG/L = PARTS PER MILLION.
< = LESS THAN DETECTION LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS

SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

ORGANIC SOILS ARE REPORTED ON A DRYWEIGHT BASIS.

ND = NOT DETECTED ABOVE REPORTING LIMIT.

RPT LIMIT = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.

RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

ATI/GC/FID
ATI GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH FLAME IONIZATION DETECTOR (FID).

ATI/GC/FIX
ATI GAS CHROMATOGRAPHIC METHOD FOR ANALYSIS OF FIXED GASES EMPLOYING DIRECT INJECTION ON COLUMN WITH THERMAL CONDUCTIVITY DETECTOR (TCD) AND FLAME IONIZATION DETECTOR (FID).

ATI/GC/FPD
ATI GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH FLAME PHOTOMETRIC DETECTOR (FPD) IN SULFUR-SPECIFIC MODE.

ATI/GC/PID
ATI GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH PHOTOIONIZATION DETECTOR (PID).

ATI/GC/TCD
ATI GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH THERMAL CONDUCTIVITY DETECTOR (TCD).

LJT = LISA THOMASON
SW = STEVE WILHITE
KW = KAREN WADSWORTH
PL = PAUL LESCHENSKY
RW = ROBERT WOLFE
BV = BEN VAUGHN
KS = KENDALL SMITH
KK = KERRY KUST
DWB = DAVID W. BOWERS
RP = ROB PEREZ

AnalyticalTechnologies,Inc.

VOLATILE ORGANICS
Method 8260

Sample ID

Solvent Vault #3

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philip -- 512403
Lab Sample ID: 95-12-173-01

Date Collected: 12/24/95
Date Analyzed: 12/27/95

Sample Matrix: Water
Sample Volume: 25 mL

Analyte	Results (ug/L)	Detection Limit (ug/L)
Acetone	190 E	10
Benzene	ND	1
n-Butyl alcohol (1)	ND	N/A
Carbon Disulfide	ND	5
Carbon Tetrachloride	ND	1
Chlorobenzene	ND	5
Chloroform	ND	1
Cyclohexanone (1)	ND	N/A
1,1-Dichloroethene	ND	1
1,2-Dichloroethane	ND	1
Ethyl acetate (1)	ND	N/A
Ethyl benzene	ND	5
Ethyl ether (1)	ND	N/A
Isobutanol (1)	ND	N/A
Methyl ethyl ketone	ND	10
Methyl isobutyl ketone	ND	10
Methylene chloride	ND	4
Orthodichlorobenzene	ND	5
Tetrachloroethene	ND	1
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	5
1,1,2-Trichloroethane	ND	1
Trichloroethene	ND	1
Trichlorofluoromethane	ND	5
Vinyl chloride	ND	1
Xylene	ND	5

SURROGATE RECOVERIES

Analyte	% Recovery	%Rec Limits
Dibromofluoromethane	106	86 - 118
Toluene-d8	101	88 - 110
Bromofluorobenzene	99	86 - 115

ND = Not Detected
(1) = Estimated value, analyte quantitated as a TIC
N/A = Non Applicable
E = Exceeds calibration range, see dilution

AnalyticalTechnologies,Inc.

VOLATILE ORGANICS

Method 8260

Sample ID

Solvent Vault #3

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philip -- 512403
Lab Sample ID: 95-12-173-01 DL

Date Collected: 12/24/95
Date Analyzed: 01/02/96

Sample Matrix: Water
Sample Volume: 2.5 mL

Analyte	Results (ug/L)	Detection Limit (ug/L)
Acetone	140	100
Benzene	ND	10
n-Butyl alcohol (1)	ND	N/A
Carbon Disulfide	ND	50
Carbon Tetrachloride	ND	10
Chlorobenzene	ND	50
Chloroform	ND	10
Cyclohexanone (1)	ND	N/A
1,1-Dichloroethene	ND	10
1,2-Dichloroethane	ND	10
Ethyl acetate (1)	ND	N/A
Ethyl benzene	ND	50
Ethyl ether (1)	ND	N/A
Isobutanol (1)	ND	N/A
Methyl ethyl ketone	ND	100
Methyl isobutyl ketone	ND	100
Methylene chloride	ND	40
Orthodichlorobenzene	ND	50
Tetrachloroethene	ND	10
Toluene	ND	50
1,1,1-Trichloroethane	ND	50
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	50
1,1,2-Trichloroethane	ND	10
Trichloroethene	ND	10
Trichlorofluoromethane	ND	50
Vinyl chloride	ND	10
Xylene	ND	50

SURROGATE RECOVERIES

Analyte	% Recovery	%Rec Limits
Dibromofluoromethane	100	86 - 118
Toluene-d8	99	88 - 110
Bromofluorobenzene	102	86 - 115

ND = Not Detected
(1) = Estimated value, analyte quantitated as a TIC
N/A = Non Applicable
DL = Dilution

AnalyticalTechnologies,Inc.

VOLATILE ORGANICS
Method 8260

Sample ID

Solvent Vault #3 Dup

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philip -- 512403
Lab Sample ID: 95-12-173-02

Date Collected: 12/24/95
Date Analyzed: 12/27/95

Sample Matrix: Water
Sample Volume: 25 mL

Analyte	Results (ug/L)	Detection Limit (ug/L)
Acetone	47 E	10
Benzene	ND	1
n-Butyl alcohol (1)	ND	N/A
Carbon Disulfide	ND	5
Carbon Tetrachloride	ND	1
Chlorobenzene	ND	5
Chloroform	ND	1
Cyclohexanone (1)	ND	N/A
1,1-Dichloroethene	ND	1
1,2-Dichloroethane	ND	1
Ethyl acetate (1)	ND	N/A
Ethyl benzene	ND	5
Ethyl ether (1)	ND	N/A
Isobutanol (1)	ND	N/A
Methyl ethyl ketone	ND	10
Methyl isobutyl ketone	ND	10
Methylene chloride	ND	4
Orthodichlorobenzene	ND	5
Tetrachloroethene	ND	1
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	5
1,1,2-Trichloroethane	ND	1
Trichloroethene	ND	1
Trichlorofluoromethane	ND	5
Vinyl chloride	ND	1
Xylene	ND	5

SURROGATE RECOVERIES

Analyte	% Recovery	%Rec Limits
Dibromofluoromethane	90	86 - 118
Toluene-d8	100	88 - 110
Bromofluorobenzene	98	86 - 115

ND = Not Detected
(1) = Estimated value, analyte quantitated as a TIC
N/A = Non Applicable
E = Exceeds calibration range, see dilution

AnalyticalTechnologies,Inc.

VOLATILE ORGANICS
Method 8260

Sample ID

Solvent Vault #3 Dup

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philip -- 512403
Lab Sample ID: 95-12-173-02 DL

Date Collected: 12/24/95
Date Analyzed: 01/02/96

Sample Matrix: Water
Sample Volume: 5 mL

Analyte	Results (ug/L)	Detection Limit (ug/L)
Acetone	70	50
Benzene	ND	5
n-Butyl alcohol (1)	ND	N/A
Carbon Disulfide	ND	25
Carbon Tetrachloride	ND	5
Chlorobenzene	ND	25
Chloroform	ND	5
Cyclohexanone (1)	ND	N/A
1,1-Dichloroethene	ND	5
1,2-Dichloroethane	ND	5
Ethyl acetate (1)	ND	N/A
Ethyl benzene	ND	25
Ethyl ether (1)	ND	N/A
Isobutanol (1)	ND	N/A
Methyl ethyl ketone	ND	50
Methyl isobutyl ketone	ND	50
Methylene chloride	ND	20
Orthodichlorobenzene	ND	25
Tetrachloroethene	ND	5
Toluene	ND	25
1,1,1-Trichloroethane	ND	25
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	25
1,1,2-Trichloroethane	ND	5
Trichloroethene	ND	5
Trichlorofluoromethane	ND	25
Vinyl chloride	ND	5
Xylene	ND	25

SURROGATE RECOVERIES

Analyte	% Recovery	%Rec Limits
Dibromofluoromethane	102	86 - 118
Toluene-d8	100	88 - 110
Bromofluorobenzene	102	86 - 115

ND = Not Detected
(1) = Estimated value, analyte quantitated as a TIC
N/A = Non Applicable
DL = Dilution

AnalyticalTechnologies,Inc.

VOLATILE ORGANICS
Method 8260

Sample ID

Trip Blank

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philip -- 512403
Lab Sample ID: 95-12-173-03

Date Collected: 12/19/95
Date Analyzed: 12/27/95

Sample Matrix: Water
Sample Volume: 25 mL

Analyte	Results (ug/L)	Detection Limit (ug/L)
Acetone	ND	10
Benzene	ND	1
n-Butyl alcohol (1)	ND	N/A
Carbon Disulfide	ND	5
Carbon Tetrachloride	ND	1
Chlorobenzene	ND	5
Chloroform	ND	1
Cyclohexanone (1)	ND	N/A
1,1-Dichloroethene	ND	1
1,2-Dichloroethane	ND	1
Ethyl acetate (1)	ND	N/A
Ethyl benzene	ND	5
Ethyl ether (1)	ND	N/A
Isobutanol (1)	ND	N/A
Methyl ethyl ketone	ND	10
Methyl isobutyl ketone	ND	10
Methylene chloride	ND	4
Orthodichlorobenzene	ND	5
Tetrachloroethene	ND	1
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	5
1,1,2-Trichloroethane	ND	1
Trichloroethene	ND	1
Trichlorofluoromethane	ND	5
Vinyl chloride	ND	1
Xylene	ND	5

SURROGATE RECOVERIES

Analyte	% Recovery	%Rec Limits
Dibromofluoromethane	99	86 - 118
Toluene-d8	100	88 - 110
Bromofluorobenzene	101	86 - 115

ND = Not Detected
(1) = Estimated value, analyte quantitated as a TIC
N/A = Non Applicable

AnalyticalTechnologies,Inc.

VOLATILE ORGANICS
Method 8260

Sample ID

Solvent Tank #3

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philip -- 512403
Lab Sample ID: 95-12-173-04

Date Collected: 12/24/95
Date Analyzed: 12/27/95

Sample Matrix: Water
Sample Volume: 25 mL

Analyte	Results (ug/L)	Detection Limit (ug/L)
Acetone	ND	10
Benzene	ND	1
n-Butyl alcohol (1)	ND	N/A
Carbon Disulfide	ND	5
Carbon Tetrachloride	ND	1
Chlorobenzene	ND	5
Chloroform	ND	1
Cyclohexanone (1)	ND	N/A
1,1-Dichloroethene	ND	1
1,2-Dichloroethane	ND	1
Ethyl acetate (1)	ND	N/A
Ethyl benzene	ND	5
Ethyl ether (1)	ND	N/A
Isobutanol (1)	ND	N/A
Methyl ethyl ketone	ND	10
Methyl isobutyl ketone	ND	10
Methylene chloride	ND	4
Orthodichlorobenzene	ND	5
Tetrachloroethene	ND	1
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	5
1,1,2-Trichloroethane	ND	1
Trichloroethene	ND	1
Trichlorofluoromethane	ND	5
Vinyl chloride	ND	1
Xylene	ND	5

SURROGATE RECOVERIES

Analyte	% Recovery	%Rec Limits
Dibromofluoromethane	105	86 - 118
Toluene-d8	101	88 - 110
Bromofluorobenzene	100	86 - 115

ND = Not Detected
(1) = Estimated value, analyte quantitated as a TIC
N/A = Non Applicable

AnalyticalTechnologies,Inc.

VOLATILE ORGANICS
Method 8260

Sample ID

Solvent Tank #3 Dup

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philip -- 512403
Lab Sample ID: 95-12-173-05

Date Collected: 12/24/95
Date Analyzed: 12/27/95

Sample Matrix: Water
Sample Volume: 25 mL

Analyte	Results (ug/L)	Detection Limit (ug/L)
Acetone	ND	10
Benzene	ND	1
n-Butyl alcohol (1)	ND	N/A
Carbon Disulfide	ND	5
Carbon Tetrachloride	ND	1
Chlorobenzene	ND	5
Chloroform	ND	1
Cyclohexanone (1)	ND	N/A
1,1-Dichloroethene	ND	1
1,2-Dichloroethane	ND	1
Ethyl acetate (1)	ND	N/A
Ethyl benzene	ND	5
Ethyl ether (1)	ND	N/A
Isobutanol (1)	ND	N/A
Methyl ethyl ketone	ND	10
Methyl isobutyl ketone	ND	10
Methylene chloride	ND	4
Orthodichlorobenzene	ND	5
Tetrachloroethene	ND	1
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	5
1,1,2-Trichloroethane	ND	1
Trichloroethene	ND	1
Trichlorofluoromethane	ND	5
Vinyl chloride	ND	1
Xylene	ND	5

SURROGATE RECOVERIES

Analyte	% Recovery	%Rec Limits
Dibromofluoromethane	105	86 - 118
Toluene-d8	102	88 - 110
Bromofluorobenzene	99	86 - 115

ND = Not Detected
(1) = Estimated value, analyte quantitated as a TIC
N/A = Non Applicable

AnalyticalTechnologies, Inc.

VOLATILE ORGANICS
Method 8260

Sample ID

Trip Blank

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philip -- 512403
Lab Sample ID: 95-12-173-06

Date Collected: 12/19/95
Date Analyzed: 12/27/95

Sample Matrix: Water
Sample Volume: 25 mL

Analyte	Results (ug/L)	Detection Limit (ug/L)
Acetone	ND	10
Benzene	ND	1
n-Butyl alcohol (1)	ND	N/A
Carbon Disulfide	ND	5
Carbon Tetrachloride	ND	1
Chlorobenzene	ND	5
Chloroform	ND	1
Cyclohexanone (1)	ND	N/A
1,1-Dichloroethene	ND	1
1,2-Dichloroethane	ND	1
Ethyl acetate (1)	ND	N/A
Ethyl benzene	ND	5
Ethyl ether (1)	ND	N/A
Isobutanol (1)	ND	N/A
Methyl ethyl ketone	ND	10
Methyl isobutyl ketone	ND	10
Methylene chloride	ND	4
Orthodichlorobenzene	ND	5
Tetrachloroethene	ND	1
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	5
1,1,2-Trichloroethane	ND	1
Trichloroethene	ND	1
Trichlorofluoromethane	ND	5
Vinyl chloride	ND	1
Xylene	ND	5

SURROGATE RECOVERIES

Analyte	% Recovery	%Rec Limits
Dibromofluoromethane	107	86 - 118
Toluene-d8	102	88 - 110
Bromofluorobenzene	101	86 - 115

ND = Not Detected
(1) = Estimated value, analyte quantitated as a TIC
N/A = Non Applicable

AnalyticalTechnologies,Inc.

VOLATILE ORGANICS
Method 8260

Sample ID

Reagent Blank

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philip – 512403
Lab Sample ID: WRB2 12/27/95

Date Collected: N/A
Date Analyzed: 12/27/95

Sample Matrix: Water
Sample Volume: 25 mL

Analyte	Conc. (ug/L)	Detection Limit (ug/L)
Acetone	ND	10
Benzene	ND	1
n-Butyl alcohol (1)	ND	N/A
Carbon Disulfide	ND	5
Carbon Tetrachloride	ND	1
Chlorobenzene	ND	5
Chloroform	ND	1
Cyclohexanone (1)	ND	N/A
1,1-Dichloroethene	ND	1
1,2-Dichloroethane	ND	1
Ethyl acetate (1)	ND	N/A
Ethyl benzene	ND	5
Ethyl ether (1)	ND	N/A
Isobutanol (1)	ND	N/A
Methyl ethyl ketone	ND	10
Methyl isobutyl ketone	ND	10
Methylene chloride	3 J	4
Orthodichlorobenzene	ND	5
Tetrachloroethene	ND	1
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	5
1,1,2-Trichloroethane	ND	1
Trichloroethene	ND	1
Trichlorofluoromethane	ND	5
Vinyl chloride	ND	1
Xylene	ND	5

SURROGATE RECOVERIES

Analyte	% Recovery	%Rec Limits
Dibromofluoromethane	92	86 - 118
Toluene-d8	100	88 - 110
Bromofluorobenzene	101	86 - 115

ND = Not Detected
(1) = Estimated value, analyte quantitated as a TIC
N/A = Non Applicable
J = Estimated value, analyte found below detection limit

AnalyticalTechnologies,Inc.

VOLATILE ORGANICS
Method 8260

Sample ID

Reagent Blank

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philip -- 512403
Lab Sample ID: WRB1 01/02/96

Date Collected: N/A
Date Analyzed: 01/02/96

Sample Matrix: Water
Sample Volume: 25 mL

Analyte	Results (ug/L)	Detection Limit (ug/L)
Acetone	ND	10
Benzene	ND	1
n-Butyl alcohol (1)	ND	N/A
Carbon Disulfide	ND	5
Carbon Tetrachloride	ND	1
Chlorobenzene	ND	5
Chloroform	ND	1
Cyclohexanone (1)	ND	N/A
1,1-Dichloroethene	ND	1
1,2-Dichloroethane	ND	1
Ethyl acetate (1)	ND	N/A
Ethyl benzene	ND	5
Ethyl ether (1)	ND	N/A
Isobutanol (1)	ND	N/A
Methyl ethyl ketone	ND	10
Methyl isobutyl ketone	ND	10
Methylene chloride	2 J	4
Orthodichlorobenzene	ND	5
Tetrachloroethene	ND	1
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	5
1,1,2-Trichloroethane	ND	1
Trichloroethene	ND	1
Trichlorofluoromethane	ND	5
Vinyl chloride	ND	1
Xylene	ND	5

SURROGATE RECOVERIES

Analyte	% Recovery	%Rec Limits
Dibromofluoromethane	102	86 - 118
Toluene-d8	101	88 - 110
Bromofluorobenzene	104	86 - 115

ND = Not Detected
(1) = Estimated value, analyte quantitated as a TIC
N/A = Non Applicable
J = Estimated value, analyte found below detection limit

AnalyticalTechnologies,Inc.

VOLATILE MATRIX SPIKE RECOVERY

Method 8260

Sample ID

Solvent Vault #3 Dup

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philip -- 512403
Lab Sample ID: 95-12-173-02
Sample Matrix: Water
Sample Volume: 25 mL

Date Collected: 12/24/95
Date Analyzed: 12/27/95

Analyte	Spike Added (ug/L)	Sample Concentration (ug/L)	MS Concentration (ug/L)	MS % Rec	QC Limit Recovery
1,1-Dichloroethene	10.0	ND	10.7	107	61-145
Trichloroethene	10.0	ND	10.7	107	71-120
Benzene	10.0	ND	10.2	102	76-127
Toluene	10.0	ND	10.8	108	76-125
Chlorobenzene	10.0	ND	10.9	109	75-130

Analyte	Spike Added (ug/L)	MSD Concentration (ug/L)	MSD % Recovery	% RPD	QC Limits RPD Rec
1,1-Dichloroethene	10.0	10.4	104	3	14 | 61-145
Trichloroethene	10.0	10.6	106	1	14 | 71-120
Benzene	10.0	10.5	105	2	11 | 76-127
Toluene	10.0	10.9	109	0	13 | 76-125
Chlorobenzene	10.0	10.8	108	0	13 | 75-130

SURROGATE RECOVERIES MS/MSD

Analyte	%Rec (MS)	%Rec (MSD)	% Rec Limits
Dibromofluorobenzene	103	109	86 - 118
Toluene-d8	101	102	88 - 110
Bromofluorobenzene	103	98	86 - 115

ND = Not Detected

AnalyticalTechnologies of New Mexico, Inc., Albuquerque, NM
San Diego • Phoenix • Seattle • Pensacola • Ft. Collins • Portland • Albuquerque • Anchorage

CHAIN OF CUSTODY

DATE: 12/21/95 PAGE: 1 OF 1

LAB: 512403

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Jim Stapleton
COMPANY: IT Corporation
ADDRESS: 5301 Central Ave NE
PHONE: (505) 262-8800
FAX: (505) 262-8855

BILL TO: IT Corporation
COMPANY: 5301 Central Ave NE
ADDRESS: Suite 700
Albuquerque NM 87108

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.	Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct/Inject	Methanol (8015M)	(M8015) Gas/Purge & Trap	Gasoline/BTEX & MTBE (M8015/8020)	BTXE/MTBE (8020)	BTEX & Chlorinated Aromatics (602/8020)	BTEX/MTBE/EDC & EDB (8020/8010/Short)	Chlorinated Hydrocarbons (601/8010)	Ignitability	504 / EDB ☐ / DBCP ☐	Polynuclear Aromatics (610/8310)	Volatile Organics (624/8240) GC/MS	Volatile Organics (8260) GC/MS		Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral/Acid Compounds GC/MS (625/8270)		General Chemistry			Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)			NUMBER OF CONTAINERS
Solvent Vault 3	12/24/95	11:30	Aqueous	-01			X							X				X															7
Solvent Vault 3 Dup	12/24/95	11:35	Aqueous	-02			X							X				X															7
Trip Blank	12/19/95	11:40	Aqueous	-03			X											X															2

PROJECT INFORMATION	
PROJ. NO.:	765284
PROJ. NAME:	Philips
P.O. NO.:	
SHIPPED VIA:	
SAMPLE RECEIPT	
NO. CONTAINERS	16
CUSTODY SEALS	(Y) N / NA
RECEIVED INTACT	Y
BLUE ICE/ICE	Y

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☐ 2 WEEK

CERTIFICATION REQUIRED: ☐ NM ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS:
Rush - Ignitability

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: [signature] Time: 12:55	Signature: Time:
Printed Name: Jim Stapleton Date: 12/24/95	Printed Name: Date:
Company: IT Corp	Company:
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature: Time:	Signature: [signature] Time: 12 55
Printed Name: Date:	Printed Name: HM Rubenstein Date: 12/24/95
Company:	Analytical Technologies of New Mexico

AnalyticalTechnologies of New Mexico, Inc., Albuquerque, NM
San Diego • Phoenix • Seattle • Pensacola • Ft. Collins • Portland • Albuquerque • Anchorage

CHAIN OF CUSTODY

DATE: 12/24/95 PAGE: 2 OF 2

ATI LAB I.D. 512403

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Jim Stapleton
COMPANY: IT Corporation
ADDRESS: 5301 Central Ave NE
PHONE: (505) 262-8800
FAX: (505) 262-8855
BILL TO: IT Corporation
COMPANY: 5301 Central Ave NE
ADDRESS: Suite 700
Albuquerque NM 87108

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.	Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct/Inject	Methanol 8015(m)	(M8015) Gas/Purge & Trap	Gasoline/BTEX & MTBE (M8015/8020)	BTXE/MTBE (8020)	BTEX & Chlorinated Aromatics (602/8020)	BTEX/MTBE/EDC & EDB (8020/8010/Short)	Chlorinated Hydrocarbons (601/8010)	Ignitability	504 EDB □ / DBCP □	Polynuclear Aromatics (610/8310)	Volatile Organics (624/8240) GC/MS	Volatile Organics (8260) GC/MS	Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral/Acid Compounds GC/MS (625/8270)	General Chemistry			Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)			NUMBER OF CONTAINERS
Solvent Tank 3	12/24	09:30	Aqueous	-04			X							X				X													7
Solvent Tank 3 Dup	12/24	09:35	Aqueous	-05			X							X				X													7
Trip Blank	12/19	12:00	Aqueous	-06			X											X													2

PROJECT INFORMATION	
PROJ. NO.:	765286
PROJ. NAME:	Philips
P.O. NO.:	
SHIPPED VIA:	
SAMPLE RECEIPT	
NO. CONTAINERS	16
CUSTODY SEALS	Y N/NA
RECEIVED INTACT	Y
BLUE ICE/ICE	Y

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) [ ]24hr [ ]48hr [ ]72hr [ ]1 WEEK (NORMAL) [ ]2 WEEK

CERTIFICATION REQUIRED: [ ]NM [ ]OTHER

METHANOL PRESERVATION [ ]

COMMENTS:

Rush - Ignitability
Normal - on VOA + methanol

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: [signature] Time: 12:55	Signature: Time:
Printed Name: Jim Stapleton Date: 12/24/95	Printed Name: Date:
Company: IT Corp	Company:
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature: Time:	Signature: [signature] Time: 12 55
Printed Name: Date:	Printed Name: A M Rubinstein Date: 12/24/95
Company:	Analytical Technologies of New Mexico

Analytical Technologies of New Mexico, Inc.
Albuquerque, New Mexico

Interlab Chain of Custody

95-12 Fr 3-01/12/95

DATE: 12/26 PAGE: 1 OF 1

NETWORK PROJECT MANAGER: KIMBERLY D. McNEILL

COMPANY: Analytical Technologies of New Mexico, Inc.
ADDRESS: 2709-D Pan American Freeway, NE
Albuquerque, NM 87107

CLIENT PROJECT MANAGER: Kim McNeill

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Metals - TAL	Metals - PP List	Metals - RCRA	RCRA Metals by TCLP (1311)			TOX	TOC	Gen Chemistry			Oil and Grease	BOD	COD	Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral Acid Compounds GC/MS (625/8270)	Volatile Organics GC/MS (624/8240)	Polynuclear Aromatics (610/8310)	8240 (TCLP 1311) ZHE	8270 (TCLP 1311)	8260		TO-14	Gross Alpha/Beta				NUMBER OF CONTAINERS
512403-01	12/24	1130	AQ	01																						X							3
-02	12/24	1135		02																						X							3
-03 (Trip Blank)	12/19	1140		03																						X							1
-04	12/24	0930		04																						X							3
-05	12/24	0935		05																						X							3
-06 (Trip Blank)	12/19	1200		06																						X							1

PROJECT INFORMATION	
PROJECT NUMBER:	512403
PROJECT NAME:	Philip
QC LEVEL:	(STD) IV
QC REQUIRED:	MS MSD BLANK
TAT:	(STANDARD) RUSH!

SAMPLE RECEIPT	
TOTAL NUMBER OF CONTAINERS	15
CHAIN OF CUSTODY SEALS	Y
INTACT?	Y
RECEIVED GOOD COND/COLD	Y
LAB NUMBER	IWO# KM 1072

DUE DATE: 1/9/96
RUSH SURCHARGE: NO
CLIENT DISCOUNT: Quote
SPECIAL CERTIFICATION REQUIRED: ☐ YES ☐ NO

SAMPLES SENT TO:	
SAN DIEGO	
FT. COLLINS	X
RENTON	
PENSACOLA	
PORTLAND	
PHOENIX	

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: Andrew Parker Time: 1700	Signature: Time:
Printed Name: Andrew Parker Date: 12/26	Printed Name: Date:
Analytical Technologies of New Mexico, Inc. Albuquerque	Company: Fedex
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature: Time:	Signature: Time: 900
Printed Name: Date:	Printed Name: Bixwell Date: 12/27/95
Company: Fedex	Company: ATI CO

AnalyticalTechnologies of New Mexico, Inc.
Albuquerque, New Mexico

Interlab Chain of Custody

DATE: 12/26 PAGE: 1 OF 1

NETWORK PROJECT MANAGER: KIMBERLY D. McNEILL

COMPANY: Analytical Technologies of New Mexico, Inc.
ADDRESS: 2709-D Pan American Freeway, NE
Albuquerque, NM 87107

CLIENT PROJECT MANAGER: Kim McNeill

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Metals - TAL	Metals - PP List	Metals - RCRA	RCRA Metals by TCLP (1311)			TOX	TOC	Gen Chemistry	Methanol M8015		Oil and Grease	BOD	COD	Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral Acid Compounds GC/MS (625/8270)	Volatile Organics GC/MS (624/8240)	Polynuclear Aromatics (610/8310)	8240 (TCLP 1311) ZHE	8270 (TCLP 1311)	8260 AP		TO-14	Gross Alpha/Beta				NUMBER OF CONTAINERS
512403-01	12/24	1130	AQ	1										X												X							
-02	12/24	1135		2										X												X							
-03 (Trip Blank)	12/19	1140		3										X												X							
-04	12/24	0930		4										X												X							
-05	12/24	0935		5										X												X							
-06 (Trip Blank)	12/19	1200		6										X												X							

PROJECT INFORMATION	SAMPLE RECEIPT
PROJECT NUMBER: 512403	TOTAL NUMBER OF CONTAINERS
PROJECT NAME: Philips :IT	CHAIN OF CUSTODY SEALS
QC LEVEL: (STD) IV	INTACT?
QC REQUIRED: MS MSD BLANK	RECEIVED GOOD COND./COLD
TAT: (STANDARD) RUSH!	LAB NUMBER 512650
	IWO# KM1071

DUE DATE: 1/9
RUSH SURCHARGE: NO
CLIENT DISCOUNT: Quote
SPECIAL CERTIFICATION REQUIRED: ☐ YES ☐ NO

SAMPLES SENT TO:	
SAN DIEGO	
FT. COLLINS	
RENTON	
PENSACOLA	X
PORTLAND	
PHOENIX	

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: Andrew Parker Time: 1200	Signature: Time:
Printed Name: Andrew Parker Date: 12/26	Printed Name: Date:
Analytical Technologies of New Mexico, Inc. Albuquerque	Company:
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature: Time:	Signature: Bob Elsperman Time: 0929
Printed Name: Date:	Printed Name: R. ELSPERMAN Date: 12/27/95
Company:	Company: ATI-FL

INTERNATIONAL TECHNOLOGY CORPORATION

DATE	1 2 2 4 9 5
TIME	0 9 3 0
PAGE ____ OF ____	
PAGE	
PROJECT NO. 765286	

SAMPLE COLLECTION LOG

PROJECT NAME Philips Semiconductors

SAMPLE NO. Solvent Tank 3

SAMPLE LOCATION Waste Solvent Tank 3

SAMPLE TYPE rinsate

COMPOSITE ____ YES X NO

COMPOSITE TYPE —

DEPTH OF SAMPLE —

WEATHER

CONTAINERS USED	AMOUNT COLLECTED
Amber vials	3 - 40 ml
clear vials	3 - 40 ml
plastic bottles	1 - 250 ml

COMMENTS: Sample Time 09:30 Collected a rinsate sample using a clean plastic scoop. The rinsate was poured into the vials & bottle so that no head space or air bubbles remained. The sample was labelled, quickly sealed, entered into COC, & placed in a chilled cooler for transport to the lab. A duplicate sample was also collected. Sample to be analyzed for method VOA & ignitability. ~~Ing~~ ignitability on 1a rush basis.

PREPARED BY: Jim Stoplitz

COMMENTS:
(Continued)

DATE						
TIME						
PAGE ____ OF ____						
PAGE						
PROJECT NO.						

N/A

PREPARED BY: J Stapleton

LEGEND

1. A SAMPLE COLLECTION LOG IS TO BE COMPLETED FOR EACH SAMPLE.
2. ALWAYS COMPLETE BOTH SIDES. IF SECOND SIDE IS NOT USED, DRAW A LINE THROUGH IT AND MARK N/A. FILL IN CONTROL BLOCK AND PREPARED BY.
3. ALL ENTRIES ON LOG ARE TO BE COMPLETED, IF NOT APPLICABLE MARK N/A.
4. DATE: USE MONTH/DAY/YEAR; I.E., 10/30/85
5. TIME: USE 24-HOUR CLOCK; I.E., 1835 FOR 6:35 P.M.
6. PAGE: EACH SAMPLE TEAM SHOULD NUMBER PAGE _____ OF _____ FOR THE DAY'S ACTIVITIES FOR ALL SHEETS PREPARED ON A SINGLE DAY, I.E., IF THERE ARE A TOTAL OF 24 PAGES (INCLUDING FRONT AND BACK) NUMBER 1 OF 24, 2 OF 24, ETC.
7. SAMPLE LOCATION: USE BORING OR MONITORING WELL NUMBER, GRID LOCATION (TRANSECT), SAMPLING STATION I.D., OR COORDINATE TO PHYSICAL FEATURES WITH DISTANCES. INCLUDE SKETCH IN COMMENT SECTION IF NECESSARY.
8. SAMPLE TYPE: USE THE FOLLOWING - SOIL; WATER (SURFACE OR GROUND); AIR (FILTERS, TUBES, AMBIENT, PERSONNEL); SLUDGE; DRUM CONTENTS; OIL; VEGETATION; WIPE; SEDIMENT.
9. COMPOSITE TYPE: I.E., 24-HOUR, LIST SAMPLE NUMBERS IN COMPOSITE, SPATIAL COMPOSITE.
10. DEPTH OF SAMPLE: GIVE UNITS, WRITE OUT UNITS SUCH AS INCHES, FEET. DON'T USE ' OR ".
11. WEATHER: APPROXIMATE TEMPERATURE, SUN AND MOISTURE CONDITIONS.
12. CONTAINERS USED: LIST EACH CONTAINER TYPE AS NUMBER, VOLUME, MATERIAL (E.G., 2 - IL GLASS; 4 - 40 ML GLASS VIAL; 1 - 400 ML PLASTIC; 1 - 3 INCH STEEL TUBE; 1 - 8 OZ. GLASS JAR).
13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

INTERNATIONAL TECHNOLOGY CORPORATION

DATE	12/4/96
TIME	0935
PAGE ___ OF ___	
PAGE	
PROJECT NO.	762786

SAMPLE COLLECTION LOG

PROJECT NAME: Phillips

SAMPLE NO.: Solvent Tank 3 Dup

SAMPLE LOCATION: Waste Solvent Tank 3

SAMPLE TYPE: rinsate

COMPOSITE: ___ YES X NO

COMPOSITE TYPE: –

DEPTH OF SAMPLE: –

WEATHER:

CONTAINERS USED	AMOUNT COLLECTED
Amber vials	3-40ml
clear vials	3-40ml
plastic bottle	1-250ml

COMMENTS: Sample Time 09:35 This is a duplicate of Solvent Tank 3. The sample was collected in the same manner as Solvent Tank 3 sample. + analyzed for the same parameter

PREPARED BY: Jim Stapleton

COMMENTS:
(Continued)

DATE	
TIME	
PAGE ____ OF ____	
PAGE	
PROJECT NO.	

N/A

PREPARED BY: J Stapleton

LEGEND

1. A SAMPLE COLLECTION LOG IS TO BE COMPLETED FOR EACH SAMPLE.
2. ALWAYS COMPLETE BOTH SIDES. IF SECOND SIDE IS NOT USED, DRAW A LINE THROUGH IT AND MARK N/A. FILL IN CONTROL BLOCK AND PREPARED BY.
3. ALL ENTRIES ON LOG ARE TO BE COMPLETED, IF NOT APPLICABLE MARK N/A.
4. DATE: USE MONTH/DAY/YEAR; I.E., 10/30/85
5. TIME: USE 24-HOUR CLOCK; I.E., 1835 FOR 6:35 P.M.
6. PAGE: EACH SAMPLE TEAM SHOULD NUMBER PAGE _____ OF _____ FOR THE DAY'S ACTIVITIES FOR ALL SHEETS PREPARED ON A SINGLE DAY, I.E., IF THERE ARE A TOTAL OF 24 PAGES (INCLUDING FRONT AND BACK) NUMBER 1 OF 24, 2 OF 24, ETC.
7. SAMPLE LOCATION: USE BORING OR MONITORING WELL NUMBER, GRID LOCATION (TRANSECT), SAMPLING STATION I.D., OR COORDINATE TO PHYSICAL FEATURES WITH DISTANCES. INCLUDE SKETCH IN COMMENT SECTION IF NECESSARY.
8. SAMPLE TYPE: USE THE FOLLOWING - SOIL; WATER (SURFACE OR GROUND); AIR (FILTERS, TUBES, AMBIENT, PERSONNEL); SLUDGE; DRUM CONTENTS; OIL; VEGETATION; WIPE; SEDIMENT.
9. COMPOSITE TYPE: I.E., 24-HOUR, LIST SAMPLE NUMBERS IN COMPOSITE, SPATIAL COMPOSITE.
10. DEPTH OF SAMPLE: GIVE UNITS, WRITE OUT UNITS SUCH AS INCHES, FEET. DON'T USE ' OR ".
11. WEATHER: APPROXIMATE TEMPERATURE, SUN AND MOISTURE CONDITIONS.
12. CONTAINERS USED: LIST EACH CONTAINER TYPE AS NUMBER, VOLUME, MATERIAL (E.G., 2 - IL GLASS; 4 - 40 ML GLASS VIAL; 1 - 400 ML PLASTIC; 1 - 3 INCH STEEL TUBE; 1 - 8 OZ. GLASS JAR).
13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

INTERNATIONAL TECHNOLOGY CORPORATION

DATE	122495
TIME	1130
PAGE ___ OF ___	
PAGE	
PROJECT NO.	765286

SAMPLE COLLECTION LOG

PROJECT NAME: P.Philips

SAMPLE NO.: Solvent Vault 3

SAMPLE LOCATION: Waste Solvent Tank Vault 3

SAMPLE TYPE: rinsate

COMPOSITE: ___ YES X NO

COMPOSITE TYPE: -

DEPTH OF SAMPLE: -

WEATHER:

CONTAINERS USED	AMOUNT COLLECTED
Amber vials	3-40ml
clear vials	3-40ml
plastic bottle	1-250ml

COMMENTS: Sample Time 11:30 A duplicate was also collected. The sample was collected in the same manner a Solvent Tank 3 sample + is to be analyzed for the same parameter.

PREPARED BY: Jim Stapleton

COMMENTS: (Continued)

DATE	
TIME	
PAGE ____ OF ____	
PAGE	
PROJECT NO.	

PREPARED BY: _____

LEGEND

1. A SAMPLE COLLECTION LOG IS TO BE COMPLETED FOR EACH SAMPLE.
2. ALWAYS COMPLETE BOTH SIDES. IF SECOND SIDE IS NOT USED, DRAW A LINE THROUGH IT AND MARK N/A. FILL IN CONTROL BLOCK AND PREPARED BY.
3. ALL ENTRIES ON LOG ARE TO BE COMPLETED, IF NOT APPLICABLE MARK N/A.
4. DATE: USE MONTH/DAY/YEAR; I.E., 10/30/85
5. TIME: USE 24-HOUR CLOCK; I.E., 1835 FOR 6:35 P.M.
6. PAGE: EACH SAMPLE TEAM SHOULD NUMBER PAGE _____ OF _____ FOR THE DAY'S ACTIVITIES FOR ALL SHEETS PREPARED ON A SINGLE DAY. I.E., IF THERE ARE A TOTAL OF 24 PAGES (INCLUDING FRONT AND BACK) NUMBER 1 OF 24, 2 OF 24, ETC.
7. SAMPLE LOCATION: USE BORING OR MONITORING WELL NUMBER, GRID LOCATION (TRANSECT), SAMPLING STATION I.D., OR COORDINATE TO PHYSICAL FEATURES WITH DISTANCES. INCLUDE SKETCH IN COMMENT SECTION IF NECESSARY.
8. SAMPLE TYPE: USE THE FOLLOWING - SOIL; WATER (SURFACE OR GROUND); AIR (FILTERS, TUBES, AMBIENT, PERSONNEL); SLUDGE; DRUM CONTENTS; OIL; VEGETATION; WIPE; SEDIMENT.
9. COMPOSITE TYPE: I.E., 24-HOUR, LIST SAMPLE NUMBERS IN COMPOSITE, SPATIAL COMPOSITE.
10. DEPTH OF SAMPLE: GIVE UNITS, WRITE OUT UNITS SUCH AS INCHES, FEET. DON'T USE ' OR ".
11. WEATHER: APPROXIMATE TEMPERATURE, SUN AND MOISTURE CONDITIONS.
12. CONTAINERS USED: LIST EACH CONTAINER TYPE AS NUMBER, VOLUME, MATERIAL (E.G., 2 - IL GLASS; 4 - 40 ML GLASS VIAL; 1 - 400 ML PLASTIC; 1 - 3 INCH STEEL TUBE; 1 - 8 OZ. GLASS JAR).
13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

INTERNATIONAL TECHNOLOGY CORPORATION

DATE	12/24/95
TIME	1135
PAGE ___ OF ___	
PAGE	
PROJECT NO.	765286

SAMPLE COLLECTION LOG

PROJECT NAME: Philips Semiconductor

SAMPLE NO.: Solvent Vault 3 Dup

SAMPLE LOCATION: Waste Solvent Tank 3 Vault 3

SAMPLE TYPE: sinsat

COMPOSITE: ___ YES ✓ NO

COMPOSITE TYPE: –

DEPTH OF SAMPLE: –

WEATHER: –

CONTAINERS USED	AMOUNT COLLECTED
amber vials	3-40ml
clear vials	3-40ml
plastic bottle	1-250ml

COMMENTS: Sample time 11:35. This is a duplicate of sample Solvent Vault 3. - Collected in the same manner as Solvent Tank 3 sample. Analysis to be for Methanol VOA & dissolved

PREPARED BY: Jim Stapleton

COMMENTS: (Continued)

DATE	
TIME	
PAGE ____ OF ____	
PAGE	
PROJECT NO.	

PREPARED BY: _____

LEGEND

1. A SAMPLE COLLECTION LOG IS TO BE COMPLETED FOR EACH SAMPLE.
2. ALWAYS COMPLETE BOTH SIDES. IF SECOND SIDE IS NOT USED, DRAW A LINE THROUGH IT AND MARK N/A. FILL IN CONTROL BLOCK AND PREPARED BY.
3. ALL ENTRIES ON LOG ARE TO BE COMPLETED, IF NOT APPLICABLE MARK N/A.
4. DATE: USE MONTH/DAY/YEAR; I.E., 10/30/85
5. TIME: USE 24-HOUR CLOCK; I.E., 1835 FOR 6:35 P.M.
6. PAGE: EACH SAMPLE TEAM SHOULD NUMBER PAGE _____ OF _____ FOR THE DAY'S ACTIVITIES FOR ALL SHEETS PREPARED ON A SINGLE DAY, I.E., IF THERE ARE A TOTAL OF 24 PAGES (INCLUDING FRONT AND BACK) NUMBER 1 OF 24, 2 OF 24, ETC.
7. SAMPLE LOCATION: USE BORING OR MONITORING WELL NUMBER, GRID LOCATION (TRANSECT), SAMPLING STATION I.D., OR COORDINATE TO PHYSICAL FEATURES WITH DISTANCES. INCLUDE SKETCH IN COMMENT SECTION IF NECESSARY.
8. SAMPLE TYPE: USE THE FOLLOWING - SOIL; WATER (SURFACE OR GROUND); AIR (FILTERS, TUBES, AMBIENT, PERSONNEL); SLUDGE; DRUM CONTENTS; OIL; VEGETATION; WIPE; SEDIMENT.
9. COMPOSITE TYPE: I.E., 24-HOUR, LIST SAMPLE NUMBERS IN COMPOSITE, SPATIAL COMPOSITE.
10. DEPTH OF SAMPLE: GIVE UNITS, WRITE OUT UNITS SUCH AS INCHES, FEET. DON'T USE ' OR ".
11. WEATHER: APPROXIMATE TEMPERATURE, SUN AND MOISTURE CONDITIONS.
12. CONTAINERS USED: LIST EACH CONTAINER TYPE AS NUMBER, VOLUME, MATERIAL (E.G., 2 - IL GLASS; 4 - 40 ML GLASS VIAL; 1 - 400 ML PLASTIC; 1 - 3 INCH STEEL TUBE; 1 - 8 OZ. GLASS JAR).
13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

APPENDIX F

LABORATORY CERTIFICATES OF ANALYSES FOR HYDROFLUORIC TANK #5 AND OXIDE ETCH TANK #4

Analytical Technologies, Inc.

2709-D Pan American Freeway NE Albuquerque NM 87107
Phone (505) 344-3777 FAX (505) 344-4413

ATI I.D. **512399**

January 18, 1995

IT Corporation
5301 Central Ave NE
Suite 700
Albuquerque, NM 87108

Project Name/Number: PHILIPS 765286

Attention: Jim Stapleton

On **12/22/95**, Analytical Technologies, Inc., (ADHS License No. AZ0015), received a request to analyze **aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

This report is being revised and reissued to clarify sampling points at the client's request.

If you have any questions or comments, please do not hesitate to contact us at (505) 344-3777.

Kimberly D. McNeill
Project Manager

H. Mitchell Rubenstein, Ph.D.
Laboratory Manager

MR:jt

Enclosure

AnalyticalTechnologies,Inc.

CLIENT	: IT CORPORATION	DATE RECEIVED	: 12/22/95
PROJECT #	: 765286		
PROJECT NAME	: PHILIPS	REPORT DATE	: 12/26/95

ATI ID: 512399

ATI #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	HF TANK 5	AQUEOUS	12/22/95
02	HF VAULT 5	AQUEOUS	12/22/95
03	OXIDE ETCH TANK 4	AQUEOUS	12/22/95
04	OXIDE ETCH VAULT 4	AQUEOUS	12/22/95

---TOTALS---

MATRIX	#SAMPLES
AQUEOUS	4

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

AnalyticalTechnologies,Inc.

GENERAL CHEMISTRY RESULTS

CLIENT	: IT CORPORATION	ATI I.D.	: 512399
PROJECT #	: 765286	DATE RECEIVED	: 12/22/95
PROJECT NAME	: PHILIPS	DATE ANALYZED	: 12/22/95

PARAMETER	UNITS	HF TANK 5	HF VAULT 5
PH (150.1)	UNITS	8.02	6.58

AnalyticalTechnologies,Inc.

GENERAL CHEMISTRY RESULTS

CLIENT	: IT CORPORATION	ATI I.D.	: 512399
PROJECT #	: 765286	DATE RECEIVED	: 12/22/95
PROJECT NAME	: PHILIPS	DATE ANALYZED	: 12/22/95

PARAMETER	UNITS	OXIDE ETCH TANK 4	OXIDE ETCH VAULT 4
PH (150.1)	UNITS	8.01	6.49

AnalyticalTechnologies,Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : IT CORPORATION
PROJECT # : 765286
PROJECT NAME : PHILIPS

ATI I.D. : 512399
SAMPLE MATRIX : AQUEOUS

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC.	% REC
PH	UNITS	51239901	8.02	8.03	0.12	NA	NA	NA

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

Analytical Technologies of New Mexico, Inc. Albuquerque
San Diego • Phoenix • Seattle • Pensacola • Ft. Collins • Portland • Albuquerque • Anchorage

DATE: 12/22/95 PAGE: 1 OF 1 516577

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Jim Stapleton
COMPANY: IT Corporation
ADDRESS: 5301 Central Ave NE
PHONE: ~~320~~ 505 262-8800
FAX: 505 262 8855
BILL TO: IT Corporation
COMPANY: 5301 Central Avenue NE
ADDRESS: Suite 700
Albuquerque NM 87108

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.	Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct/Inject	(M8015) Gas/Purge & Trap	Gasoline/BTEX & MTBE (M8015/8020)	BTXE/MTBE (8020)	BTEX & Chlorinated Aromatics (602/8020)	BTEX/MTBE/EDC & EDB (8020/8010/Short)	Chlorinated Hydrocarbons (601/8010)	504 EDB ☐ / DBCP ☐	Polynuclear Aromatics (610/8310)	Volatile Organics (624/8240) GC/MS	Volatile Organics (8260) GC/MS	Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral/Acid Compounds GC/MS (625/8270)	General Chemistry	pH	Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	NUMBER OF CONTAINERS
HF Tank 5	12/22/95	13:15	Aqueous	-01																	X					
HF Vault 5	12/22/95	14:30	Aqueous	-02																	X					
Oxide Etch Tank 4	12/22/95	09:25	Aqueous	-03																	X					
Oxide Etch Vault 4	12/22/95	11:45	Aqueous	-04																	X					

PROJECT INFORMATION	
PROJ. NO.:	765286
PROJ. NAME:	Philips
P.O. NO.:	
SHIPPED VIA:	

SAMPLE RECEIPT	
NO. CONTAINERS	4
CUSTODY SEALS	Y N/NA
RECEIVED INTACT	Y
BLUE ICE/ICE	12.3

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☒ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☐ 2 WEEK

CERTIFICATION REQUIRED: ☐ NM ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS:
Rush -

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: Jim Stapleton Time: 14:51	Signature: Time:
Printed Name: Jim Stapleton Date: 12/22/95	Printed Name: Date:
Company: IT Corp	Company:
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature: Time:	Signature: Andrew Parker Time: 12/22
Printed Name: Date:	Printed Name: Andrew Parker Date: 1455
Company:	Analytical Technologies of New Mexico

10/30/95 ATI Labs: San Diego (619) 458-9141 • Phoenix (602) 496-4400 • Seattle (206) 228-8335 • Pensacola (904) 474-1001 • Portland (503) 684-0447 • Albuquerque (505) 344-3777 DISTRIBUTION: White, Canary - ATI Pink - ORIGINAT

INTERNATIONAL TECHNOLOGY CORPORATION

DATE	12 22 95
TIME	09 25
PAGE ____ OF ____	
PAGE	
PROJECT NO.	765286

SAMPLE COLLECTION LOG

PROJECT NAME Philips Semiconductors

SAMPLE NO. Oxide Etch Tank 4

SAMPLE LOCATION Oxid Etch Tank

SAMPLE TYPE rinsate

COMPOSITE ____ YES X NO

COMPOSITE TYPE –

DEPTH OF SAMPLE –

WEATHER

CONTAINERS USED	AMOUNT COLLECTED
plastic bottle	1-250 ml

COMMENTS: Sample Time 09:25 Field pH test of rinsate with pH paper 7.0. Collected a rinsate sample using a clean plastic scoop to collect the rinsate. The rinsate was poured into the 250 ml bottle. The bottle was labeled, custody sealed, entered into COC & placed in a chilled cooler for transport to the lab.
Analysis is to be for pH

PREPARED BY: Jim Hoffman

COMMENTS:
(Continued)

DATE	
TIME	
PAGE ____ OF ____	
PAGE	
PROJECT NO.	

N/A

PREPARED BY: J Stapleton

LEGEND

1. A SAMPLE COLLECTION LOG IS TO BE COMPLETED FOR EACH SAMPLE.
2. ALWAYS COMPLETE BOTH SIDES. IF SECOND SIDE IS NOT USED, DRAW A LINE THROUGH IT AND MARK N/A. FILL IN CONTROL BLOCK AND PREPARED BY.
3. ALL ENTRIES ON LOG ARE TO BE COMPLETED, IF NOT APPLICABLE MARK N/A.
4. DATE: USE MONTH/DAY/YEAR; I.E., 10/30/85
5. TIME: USE 24-HOUR CLOCK; I.E., 1835 FOR 6:35 P.M.
6. PAGE: EACH SAMPLE TEAM SHOULD NUMBER PAGE _____ OF _____ FOR THE DAY'S ACTIVITIES FOR ALL SHEETS PREPARED ON A SINGLE DAY, I.E., IF THERE ARE A TOTAL OF 24 PAGES (INCLUDING FRONT AND BACK) NUMBER 1 OF 24, 2 OF 24, ETC.
7. SAMPLE LOCATION: USE BORING OR MONITORING WELL NUMBER, GRID LOCATION (TRANSECT), SAMPLING STATION I.D., OR COORDINATE TO PHYSICAL FEATURES WITH DISTANCES. INCLUDE SKETCH IN COMMENT SECTION IF NECESSARY.
8. SAMPLE TYPE: USE THE FOLLOWING - SOIL; WATER (SURFACE OR GROUND); AIR (FILTERS, TUBES, AMBIENT, PERSONNEL); SLUDGE; DRUM CONTENTS; OIL; VEGETATION; WIPE; SEDIMENT.
9. COMPOSITE TYPE: I.E., 24-HOUR, LIST SAMPLE NUMBERS IN COMPOSITE, SPATIAL COMPOSITE.
10. DEPTH OF SAMPLE: GIVE UNITS, WRITE OUT UNITS SUCH AS INCHES, FEET. DON'T USE ' OR ".
11. WEATHER: APPROXIMATE TEMPERATURE, SUN AND MOISTURE CONDITIONS.
12. CONTAINERS USED: LIST EACH CONTAINER TYPE AS NUMBER, VOLUME, MATERIAL (E.G., 2 - IL GLASS; 4 - 40 ML GLASS VIAL; 1 - 400 ML PLASTIC; 1 - 3 INCH STEEL TUBE; 1 - 8 OZ. GLASS ...
13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

INTERNATIONAL TECHNOLOGY CORPORATION

DATE	1 2 2 2 9 5
TIME	1 1 4 5
PAGE ___ OF ___	
PAGE	
PROJECT NO.	765086

SAMPLE COLLECTION LOG

PROJECT NAME Philips Semiconductors

SAMPLE NO. ~~PS~~ Oxide Etch Vault 4

SAMPLE LOCATION Tank Vault 4

SAMPLE TYPE rinsate

COMPOSITE ___ YES X NO

COMPOSITE TYPE –

DEPTH OF SAMPLE –

WEATHER –

CONTAINERS USED	AMOUNT COLLECTED
plastic bottle	1 – 250 ml

COMMENTS: Sample time 11:45 Field pH of 7.0. Sample collected in the same manner as Oxide Etch Tank 4. Analysis is to be for pH

PREPARED BY: Jim Hoffle

COMMENTS:
(Continued)

DATE						
TIME						
PAGE ____ OF ____						
PAGE						
PROJECT NO.						

N/A

PREPARED BY

LEGEND

1. A SAMPLE COLLECTION LOG IS TO BE COMPLETED FOR EACH SAMPLE.
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13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

INTERNATIONAL TECHNOLOGY CORPORATION

DATE	122295
TIME	1315
PAGE ____ OF ____	
PAGE	
PROJECT NO.	765286

SAMPLE COLLECTION LOG

PROJECT NAME Philips Semiconductors

SAMPLE NO. HF Tank 5

SAMPLE LOCATION HF Tank 5

SAMPLE TYPE rinsate

COMPOSITE ____ YES X NO

COMPOSITE TYPE –

DEPTH OF SAMPLE –

WEATHER

CONTAINERS USED	AMOUNT COLLECTED
Plastic bottle	1-250ml

COMMENTS: Sample collected at 13:15 Field pH of 7.0
Sample collected in the same manner as Oxide Etch Tank 4.
Analysis is to be for pH

PREPARED BY: Jim Stoplitto

COMMENTS:
(Continued)

DATE	
TIME	
PAGE ____ OF ____	
PAGE	
PROJECT NO.	

N/A

PREPARED BY: J Stapleton

LEGEND

1. A SAMPLE COLLECTION LOG IS TO BE COMPLETED FOR EACH SAMPLE.
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12. CONTAINERS USED: LIST EACH CONTAINER TYPE AS NUMBER, VOLUME, MATERIAL (E.G., 2 - IL GLASS; 4 - 40 ML GLASS VIAL; 1 - 400 ML PLASTIC; 1 - 3 INCH STEEL TUBE; 1 - 8 OZ. GLASS JAR).
13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

INTERNATIONAL TECHNOLOGY CORPORATION

DATE	1 2 2 2 9 5
TIME	1 4 3 0
PAGE ___ OF ___	
PAGE	
PROJECT NO.	765286

SAMPLE COLLECTION LOG

PROJECT NAME Philips Semiconductors

SAMPLE NO. HF Vault 5

SAMPLE LOCATION Tank Vault 5

SAMPLE TYPE ~~sinsate~~

COMPOSITE ___ YES X NO

COMPOSITE TYPE –

DEPTH OF SAMPLE –

WEATHER

CONTAINERS USED	AMOUNT COLLECTED
plastic bottle	1-250 ml

COMMENTS: Sample Time 14:30 Field pH of 7.0
Sample collected in the same manner as
Oxide Etch Tank 4.
Analysis to be for pH

PREPARED BY: Jim Stapleton

COMMENTS:
(Continued)

DATE	
TIME	
PAGE ____ OF ____	
PAGE	
PROJECT NO.	

N/A

PREPARED BY: J Stoplis

LEGEND

1. A SAMPLE COLLECTION LOG IS TO BE COMPLETED FOR EACH SAMPLE.
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12. CONTAINERS USED: LIST EACH CONTAINER TYPE AS NUMBER, VOLUME, MATERIAL (E.G., 2 - IL GLASS; 4 - 40 ML GLASS VIAL; 1 - 400 ML PLASTIC; 1 - 3 INCH STEEL TUBE; 1 - 8 OZ. GLASS JAR).
13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

APPENDIX G

LABORATORY CERTIFICATES OF ANALYSES FOR SOIL PORT SAMPLING

Analytical Technologies, Inc.

2709-D Pan American Freeway, NE Albuquerque NM 87107
Phone (505) 344-3777 FAX (505) 344-4413

ATI I.D. **601331**

January 23, 1996

IT Corporation
5301 Central Ave NE
Suite 700
Albuquerque, NM 87108

Project Name/Number: PHILIPS SEMICONDUCTOR 765286

Attention: Jim Stapleton

On **01/10/96**, Analytical Technologies, of New Mexico Inc., (ADHS License No. AZ0015), received a request to analyze **non-aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

The following compounds were searched for by ion and not quantitated: n-Butyl alcohol, cyclohexane, ethyl acetate, ethyl ether, and isobutanol. These compounds were flagged at TIC's and none were found in the samples.

EPA method 150.1 analyses were performed by Analytical Technologies, Inc., Albuquerque, NM.

EPA method 8260 analyses were performed by Analytical Technologies, Inc., 225 Commerce Drive, Fort Collins, CO.

All other analyses were performed by Analytical Technologies, Inc., 11 East Olive Road, Pensacola, FL.

If you have any questions or comments, please do not hesitate to contact us at (505) 344-3777.

Kimberly D. McNeill
Project Manager

H. Mitchell Rubenstein, Ph.D.
Laboratory Manager

MR:jt

Enclosure

AnalyticalTechnologies,Inc.

CLIENT : IT CORPORATION
PROJECT # : 765286
PROJECT NAME : PHILIPS SEMICONDUCTOR

DATE RECEIVED : 01/10/96
REPORT DATE : 01/23/96

ATI ID: 601331

	ATI ID #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	601331-01	PS-SP-SW	NON-AQ	01/10/96
02	601331-02	PS-SP-SW-DUP	NON-AQ	01/10/96
03	601331-03	PS-SP-NW	NON-AQ	01/10/96
04	601331-04	PS-SP-NE	NON-AQ	01/10/96
05	601331-05	PS-SP-SE	NON-AQ	01/10/96

---TOTALS---

MATRIX	#SAMPLES
NON-AQ	5

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

AnalyticalTechnologies,Inc.

GENERAL CHEMISTRY RESULTS

CLIENT	: IT CORPORATION	ATI I.D.	: 601331
PROJECT #	: 765286	DATE RECEIVED	: 01/10/96
PROJECT NAME	: PHILIPS SEMICONDUCTOR	DATE ANALYZED	: 01/11/96

PARAMETER	UNITS	PS-SP-SW	PS-SP-SW DUP
PH (150.1)	UNITS	9.41	9.43

AnalyticalTechnologies,Inc.

GENERAL CHEMISTRY RESULTS

CLIENT	: IT CORPORATION	ATI I.D.	: 601331
PROJECT #	: 765286	DATE RECEIVED	: 01/10/96
PROJECT NAME	: PHILIPS SEMICONDUCTOR	DATE ANALYZED	: 01/11/96

PARAMETER	UNITS	PS-SP-NW	PS-SP-NE
PH (150.1)	UNITS	9.27	9.18

AnalyticalTechnologies,Inc.

GENERAL CHEMISTRY RESULTS

CLIENT	: IT CORPORATION	ATI I.D.	: 601331
PROJECT #	: 765286	DATE RECEIVED	: 01/10/96
PROJECT NAME	: PHILIPS SEMICONDUCTOR	DATE ANALYZED	: 01/11/96

PARAMETER	UNITS	PS-SP-SE
PH (150.1)	UNITS	9.21

AnalyticalTechnologies,Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : IT CORPORATION
PROJECT # : 765286
PROJECT NAME : PHILIPS SEMICONDUCTOR

ATI I.D. : 601331
SAMPLE MATRIX : AQUEOUS

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC.	% REC
PH	UNITS	60133101	9.41	9.34	0.75	NA	NA	NA

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

AnalyticalTechnologies,Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession:	601177
Client:	ANALYTICAL TECHNOLOGIES, INC.
Project Number:	601331
Project Name:	IT
Project Location:	PHILIPS
Test:	METHANOL
Analysis Method:	ATI SOP 641
Extraction Method:	ATI SOP 641
Matrix:	SOIL
QC Level:	II

Lab Id:	001	Sample Date/Time:	10-JAN-96 1045
Client Sample Id:	PS-SP-SW	Received Date:	12-JAN-96
Batch: GES004		Extraction Date:	16-JAN-96
Blank: A	Dry Weight %: 93	Analysis Date:	17-JAN-96

Parameter:	Units:	Results:	Rpt Lmts:	Q:
METHANOL	MG/KG	ND	5.4	
ANALYST	INITIALS	KS		

Comments:

AnalyticalTechnologies,Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession:	601177
Client:	ANALYTICAL TECHNOLOGIES, INC.
Project Number:	601331
Project Name:	IT
Project Location:	PHILIPS
Test:	METHANOL
Analysis Method:	ATI SOP 641
Extraction Method:	ATI SOP 641
Matrix:	SOIL
QC Level:	II

Lab Id:	002	Sample Date/Time:	10-JAN-96 1100
Client Sample Id:	PS-SP-SW-DUP	Received Date:	12-JAN-96
Batch: GES004		Extraction Date:	16-JAN-96
Blank: A	Dry Weight %: 93	Analysis Date:	17-JAN-96

Parameter:	Units:	Results:	Rpt Lmts:	Q:
METHANOL	MG/KG	ND	5.4	
ANALYST	INITIALS	KS		

Comments:

AnalyticalTechnologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession:	601177
Client:	ANALYTICAL TECHNOLOGIES, INC.
Project Number:	601331
Project Name:	IT
Project Location:	PHILIPS
Test:	METHANOL
Analysis Method:	ATI SOP 641
Extraction Method:	ATI SOP 641
Matrix:	SOIL
QC Level:	II

Lab Id:	003	Sample Date/Time:	10-JAN-96 1130
Client Sample Id:	PS-SP-NW	Received Date:	12-JAN-96
Batch: GES004		Extraction Date:	16-JAN-96
Blank: A	Dry Weight %: 90	Analysis Date:	17-JAN-96

Parameter:	Units:	Results:	Rpt Lmts:	Q:
METHANOL	MG/KG	ND	5.6	
ANALYST	INITIALS	KS		

Comments:

AnalyticalTechnologies,Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession:	601177
Client:	ANALYTICAL TECHNOLOGIES, INC.
Project Number:	601331
Project Name:	IT
Project Location:	PHILIPS
Test:	METHANOL
Analysis Method:	ATI SOP 641
Extraction Method:	ATI SOP 641
Matrix:	SOIL
QC Level:	II

Lab Id:	004	Sample Date/Time:	10-JAN-96 1325
Client Sample Id:	PS-SP-NE	Received Date:	12-JAN-96
Batch: GES004		Extraction Date:	16-JAN-96
Blank: A	Dry Weight %: 88	Analysis Date:	17-JAN-96

Parameter:	Units:	Results:	Rpt Lmts:	Q:
METHANOL	MG/KG	ND	5.7	
ANALYST	INITIALS	KS		

Comments:

AnalyticalTechnologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession:	601177
Client:	ANALYTICAL TECHNOLOGIES, INC.
Project Number:	601331
Project Name:	IT
Project Location:	PHILIPS
Test:	METHANOL
Analysis Method:	ATI SOP 641
Extraction Method:	ATI SOP 641
Matrix:	SOIL
QC Level:	II

Lab Id:	005	Sample Date/Time:	10-JAN-96 1410
Client Sample Id:	PS-SP-SE	Received Date:	12-JAN-96
Batch: GES004		Extraction Date:	16-JAN-96
Blank: A	Dry Weight %: 91	Analysis Date:	17-JAN-96

Parameter:	Units:	Results:	Rpt Lmts:	Q:
METHANOL	MG/KG	ND	5.5	
ANALYST	INITIALS	KS		

Comments:

AnalyticalTechnologies,Inc.

"QC Report"

Title: Soil Blank
Batch: GES004
Analysis Method: ATI SOP 641
Extraction Method: ATI SOP 641

Blank Id: A Date Analyzed: 17-JAN-96 Date Extracted: 16-JAN-96

Parameters:	Units:	Results:	Reporting Limits:
METHANOL	MG/KG	ND	5.0

Comments:
ANALYST: KS

AnalyticalTechnologies,Inc.

"QC Report"

Title: Soil Reagent
Batch: GES004
Analysis Method: ATI SOP 641
Extraction Method: ATI SOP 641

RS Date Analyzed: 17-JAN-96
RSD Date Analyzed: 17-JAN-96

RS Date Extracted: 16-JAN-96
RSD Date Extracted: 16-JAN-96

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	RSD Conc	RSD %Rec	RPD	RPD Lmts	Rec Lmts
METHANOL	100	<5.0	109	109	115	115	5	50	50-150

Surrogates:

Comments:

Notes:
MG/KG = PARTS PER MILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCE FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCE METHOD.
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT

AnalyticalTechnologies,Inc.

"QC Report"

Title: Soil Matrix
Batch: GES004
Analysis Method: ATI SOP 641
Extraction Method: ATI SOP 641

Dry Weight %: 91
Sample Spiked: 601177-5

MS Date Analyzed: 17-JAN-96
MSD Date Analyzed: 17-JAN-96

MS Date Extracted: 16-JAN-96
MSD Date Extracted: 16-JAN-96

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	RPD Lmts	Rec Lmts
METHANOL	110	<5.5	110	100	110	100	0	50	50-150

Surrogates:

Comments:

Notes:
MG/KG = PARTS PER MILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCE FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCE METHOD.
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT

AnalyticalTechnologies,Inc.

Common notation for Organic reporting

N/S = NOT SUBMITTED
N/A = NOT APPLICABLE
D = DILUTED OUT
UG = MICROGRAMS
UG/L = PARTS PER BILLION.
UG/KG = PARTS PER BILLION.
MG/M3 = MILLIGRAM PER CUBIC METER.
PPMV = PART PER MILLION BY VOLUME.
MG/KG = PARTS PER MILLION.
MG/L = PARTS PER MILLION.
< = LESS THAN DETECTION LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS

SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

ORGANIC SOILS ARE REPORTED ON A DRYWEIGHT BASIS.

ND = NOT DETECTED ABOVE REPORTING LIMIT.

RPT LIMIT = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.

RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

ATI/GC/FID
ATI GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH FLAME IONIZATION DETECTOR (FID).

ATI/GC/FIX
ATI GAS CHROMATOGRAPHIC METHOD FOR ANALYSIS OF FIXED GASES EMPLOYING DIRECT INJECTION ON COLUMN WITH THERMAL CONDUCTIVITY DETECTOR (TCD) AND FLAME IONIZATION DETECTOR (FID).

ATI/GC/FPD
ATI GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH FLAME PHOTOMETRIC DETECTOR (FPD) IN SULFUR-SPECIFIC MODE.

ATI/GC/PID
ATI GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH PHOTOIONIZATION DETECTOR (PID).

ATI/GC/TCD
ATI GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH THERMAL CONDUCTIVITY DETECTOR (TCD).

LJT = LISA THOMASON
SW = STEVE WILHITE
KW = KAREN WADSWORTH
PL = PAUL LESCHENSKY
RW = ROBERT WOLFE
BV = BEN VAUGHN
KS = KENDALL SMITH
KK = KERRY KUST
DWB = DAVID W. BOWERS
RP = ROB PEREZ

AnalyticalTechnologies,Inc.

VOLATILE ORGANICS
Method 8260

Sample ID

PS-SP-SW

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philips - 601331
Lab Sample ID: 96-01-040-01

Date Collected: 01/10/96
Date Analyzed: 01/16/96

Sample Matrix: Soil
Sample Weight: 5 g
Results are reported on a wet weight basis.

Analyte	Results (ug/kg)	Detection Limit (ug/kg)
Acetone	16	10
Benzene	ND	5
n-Butyl alcohol (1)	ND	N/A
Carbon Disulfide	ND	5
Carbon Tetrachloride	ND	5
Chlorobenzene	ND	5
Chloroform	ND	5
Cyclohexanone (1)	ND	N/A
1,1-Dichloroethene	ND	5
1,2-Dichloroethane	ND	5
Ethyl acetate (1)	ND	N/A
Ethyl benzene	ND	5
Ethyl ether (1)	ND	N/A
Isobutanol (1)	ND	N/A
Methyl ethyl ketone	ND	10
Methyl isobutyl ketone	ND	10
Methylene chloride	ND	5
Orthodichlorobenzene	ND	5
Tetrachloroethene	3 J	5
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	5
1,1,2-Trichloroethane	ND	5
Trichloroethene	ND	5
Trichlorofluoromethane	ND	5
Vinyl chloride	ND	5
Xylene	ND	5

SURROGATE RECOVERIES

Analyte	% Recovery	%Rec Limits
Dibromofluoromethane	95	80 - 120
Toluene-d8	100	81 - 117
Bromofluorobenzene	106	74 - 121

ND = Not Detected
(1) = Estimated value, analyte quantitated as a TIC
N/A = Non Applicable
J = Estimated value, analyte found below detection limit

AnalyticalTechnologies,Inc.

VOLATILE ORGANICS
Method 8260

Sample ID

PS-SP-SW-Dup

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philips - 601331
Lab Sample ID: 96-01-040-02

Date Collected: 01/10/96
Date Analyzed: 01/16/96

Sample Matrix: Soil
Sample Weight: 5 g
Results are reported on a wet weight basis.

Analyte	Results (ug/kg)	Detection Limit (ug/kg)
Acetone	ND	10
Benzene	ND	5
n-Butyl alcohol (1)	ND	N/A
Carbon Disulfide	ND	5
Carbon Tetrachloride	ND	5
Chlorobenzene	ND	5
Chloroform	ND	5
Cyclohexanone (1)	ND	N/A
1,1-Dichloroethene	ND	5
1,2-Dichloroethane	ND	5
Ethyl acetate (1)	ND	N/A
Ethyl benzene	ND	5
Ethyl ether (1)	ND	N/A
Isobutanol (1)	ND	N/A
Methyl ethyl ketone	ND	10
Methyl isobutyl ketone	ND	10
Methylene chloride	ND	5
Orthodichlorobenzene	ND	5
Tetrachloroethene	3 J	5
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	5
1,1,2-Trichloroethane	ND	5
Trichloroethene	ND	5
Trichlorofluoromethane	ND	5
Vinyl chloride	ND	5
Xylene	ND	5

SURROGATE RECOVERIES

Analyte	% Recovery	%Rec Limits
Dibromofluoromethane	97	80 - 120
Toluene-d8	99	81 - 117
Bromofluorobenzene	109	74 - 121

ND = Not Detected
(1) = Estimated value, analyte quantitated as a TIC
N/A = Non Applicable
J = Estimated value, analyte found below detection limit

AnalyticalTechnologies,Inc.

VOLATILE ORGANICS
Method 8260

Sample ID

PS-SP-NW

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philips - 601331
Lab Sample ID: 96-01-040-03

Date Collected: 01/10/96
Date Analyzed: 01/16/96

Sample Matrix: Soil
Sample Weight: 5 g
Results are reported on a wet weight basis.

Analyte	Results (ug/kg)	Detection Limit (ug/kg)
Acetone	21	10
Benzene	ND	5
n-Butyl alcohol (1)	ND	N/A
Carbon Disulfide	ND	5
Carbon Tetrachloride	ND	5
Chlorobenzene	ND	5
Chloroform	ND	5
Cyclohexanone (1)	ND	N/A
1,1-Dichloroethene	ND	5
1,2-Dichloroethane	ND	5
Ethyl acetate (1)	ND	N/A
Ethyl benzene	ND	5
Ethyl ether (1)	ND	N/A
Isobutanol (1)	ND	N/A
Methyl ethyl ketone	ND	10
Methyl isobutyl ketone	ND	10
Methylene chloride	ND	5
Orthodichlorobenzene	ND	5
Tetrachloroethene	2 J	5
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	5
1,1,2-Trichloroethane	ND	5
Trichloroethene	ND	5
Trichlorofluoromethane	ND	5
Vinyl chloride	ND	5
Xylene	ND	5

SURROGATE RECOVERIES

Analyte	% Recovery	%Rec Limits
Dibromofluoromethane	95	80 - 120
Toluene-d8	100	81 - 117
Bromofluorobenzene	105	74 - 121

ND = Not Detected
(1) = Estimated value, analyte quantitated as a TIC
N/A = Non Applicable
J = Estimated value, analyte found below detection limit

AnalyticalTechnologies,Inc.

VOLATILE ORGANICS
Method 8260

Sample ID

PS-SP-NE

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philips - 601331
Lab Sample ID: 96-01-040-04

Date Collected: 01/10/96
Date Analyzed: 01/16/96

Sample Matrix: Soil
Sample Weight: 5 g
Results are reported on a wet weight basis.

Analyte	Results (ug/kg)	Detection Limit (ug/kg)
Acetone	24	10
Benzene	ND	5
n-Butyl alcohol (1)	ND	N/A
Carbon Disulfide	ND	5
Carbon Tetrachloride	ND	5
Chlorobenzene	ND	5
Chloroform	ND	5
Cyclohexanone (1)	ND	N/A
1,1-Dichloroethene	ND	5
1,2-Dichloroethane	ND	5
Ethyl acetate (1)	ND	N/A
Ethyl benzene	ND	5
Ethyl ether (1)	ND	N/A
Isobutanol (1)	ND	N/A
Methyl ethyl ketone	ND	10
Methyl isobutyl ketone	ND	10
Methylene chloride	ND	5
Orthodichlorobenzene	ND	5
Tetrachloroethene	2 J	5
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	5
1,1,2-Trichloroethane	ND	5
Trichloroethene	ND	5
Trichlorofluoromethane	ND	5
Vinyl chloride	ND	5
Xylene	ND	5

SURROGATE RECOVERIES

Analyte	% Recovery	%Rec Limits
Dibromofluoromethane	95	80 - 120
Toluene-d8	98	81 - 117
Bromofluorobenzene	106	74 - 121

ND = Not Detected
(1) = Estimated value, analyte quantitated as a TIC
N/A = Non Applicable
J = Estimated value, analyte found below detection limit

AnalyticalTechnologies,Inc.

VOLATILE ORGANICS
Method 8260

Sample ID

PS-SP-SE

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philips - 601331
Lab Sample ID: 96-01-040-05

Date Collected: 01/10/96
Date Analyzed: 01/16/96

Sample Matrix: Soil
Sample Weight: 5 g
Results are reported on a wet weight basis.

Analyte	Results (ug/kg)	Detection Limit (ug/kg)
Acetone	24	10
Benzene	ND	5
n-Butyl alcohol (1)	ND	N/A
Carbon Disulfide	ND	5
Carbon Tetrachloride	ND	5
Chlorobenzene	ND	5
Chloroform	ND	5
Cyclohexanone (1)	ND	N/A
1,1-Dichloroethene	ND	5
1,2-Dichloroethane	ND	5
Ethyl acetate (1)	ND	N/A
Ethyl benzene	ND	5
Ethyl ether (1)	ND	N/A
Isobutanol (1)	ND	N/A
Methyl ethyl ketone	ND	10
Methyl isobutyl ketone	ND	10
Methylene chloride	ND	5
Orthodichlorobenzene	ND	5
Tetrachloroethene	3 J	5
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	5
1,1,2-Trichloroethane	ND	5
Trichloroethene	ND	5
Trichlorofluoromethane	ND	5
Vinyl chloride	ND	5
Xylene	ND	5

SURROGATE RECOVERIES

Analyte	% Recovery	%Rec Limits
Dibromofluoromethane	101	80 - 120
Toluene-d8	96	81 - 117
Bromofluorobenzene	107	74 - 121

ND = Not Detected
(1) = Estimated value, analyte quantitated as a TIC
N/A = Non Applicable
J = Estimated value, analyte found below detection limit

AnalyticalTechnologies,Inc.

VOLATILE ORGANICS
Method 8260

Sample ID

Reagent Blank

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philips - 601331
Lab Sample ID: SRB1 01/16/96

Date Collected: N/A
Date Analyzed: 01/16/96

Sample Matrix: Soil
Sample Weight: 5 g

Analyte	Results (ug/kg)	Detection Limit (ug/kg)
Acetone	ND	10
Benzene	ND	5
n-Butyl alcohol (1)	ND	N/A
Carbon Disulfide	ND	5
Carbon Tetrachloride	ND	5
Chlorobenzene	ND	5
Chloroform	ND	5
Cyclohexanone (1)	ND	N/A
1,1-Dichloroethene	ND	5
1,2-Dichloroethane	ND	5
Ethyl acetate (1)	ND	N/A
Ethyl benzene	ND	5
Ethyl ether (1)	ND	N/A
Isobutanol (1)	ND	N/A
Methyl ethyl ketone	ND	10
Methyl isobutyl ketone	ND	10
Methylene chloride	ND	5
Orthodichlorobenzene	ND	5
Tetrachloroethene	ND	5
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	5
1,1,2-Trichloroethane	ND	5
Trichloroethene	ND	5
Trichlorofluoromethane	ND	5
Vinyl chloride	ND	5
Xylene	ND	5

SURROGATE RECOVERIES

Analyte	% Recovery	%Rec Limits
Dibromofluoromethane	94	80 - 120
Toluene-d8	101	81 - 117
Bromofluorobenzene	99	74 - 121

ND = Not Detected
(1) = Estimated value, analyte quantitated as a TIC
N/A = Non Applicable

AnalyticalTechnologies,Inc.

VOLATILE MATRIX SPIKE RECOVERY

Method 8260

Sample ID

In House

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philips - 601331
Lab Sample ID: 96-01-079-01
Sample Matrix: Soil
Sample Weight: 5 g

Date Collected: 01/12/96
Date Analyzed: 01/17/96

Results are reported on a wet weight basis.

Analyte	Spike Added (ug/kg)	Sample Concentration (ug/kg)	MS Concentration (ug/kg)	MS % Rec	QC Limit Recovery
1,1-Dichloroethene	50.0	ND	48.5	97	59-172
Trichloroethene	50.0	ND	53.3	107	62-137
Benzene	50.0	ND	46.6	93	60-133
Toluene	50.0	ND	47.9	96	59-139
Chlorobenzene	50.0	ND	47.0	94	66-142

Analyte	Spike Added (ug/kg)	MSD Concentration (ug/kg)	MSD % Recovery	% RPD	QC Limits RPD Rec
1,1-Dichloroethene	50.0	50.8	102	5	22 | 59-172
Trichloroethene	50.0	57.1	114	7	24 | 62-137
Benzene	50.0	49.7	99	6	21 | 60-133
Toluene	50.0	51.7	103	8	21 | 59-139
Chlorobenzene	50.0	51.1	102	8	21 | 66-142

SURROGATE RECOVERIES MS/MSD

Analyte	%Rec (MS)	%Rec (MSD)	% Rec Limits
Dibromofluorobenzene	100	97	80 - 120
Toluene-d8	101	103	81 - 117
Bromofluorobenzene	99	98	74 - 121

ND = Not Detected

AnalyticalTechnologies of New Mexico, Inc., Albuquerque, NM
San Diego • Phoenix • Seattle • Pensacola • Ft. Collins • Portland • Albuquerque • Anchorage

CHAIN OF CUSTODY

DATE: 1/10/96 PAGE: 1 OF 1

ATI LAB I.D.: 601331

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Jim Stapleton
COMPANY: IT Corporation
ADDRESS: 5301 Central Ave NE
PHONE: 505 262-8800
FAX: 505 262-8855
BILL TO: IT Corporation
COMPANY: 5301 Central Avenue NE
ADDRESS: Albuquerque NM 87108

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.	Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct/Inject	Acid Soils - Methanol	(M8015) Gas/Purge & Trap	Gasoline/BTEX & MTBE (M8015/8020)	BTXE/MTBE (8020)	BTEX & Chlorinated Aromatics (602/8020)	BTEX/MTBE/EDC & EDB (8020/8010/Short)	Chlorinated Hydrocarbons (601/8010)	pH	504 EDB ☐ / DBCP ☐	Polynuclear Aromatics (610/8310)	Volatile Organics (624/8240) GC/MS	Volatile Organics (8260) GC/MS		Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral/Acid Compounds GC/MS (625/8270)		General Chemistry			Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)			NUMBER OF CONTAINERS
PS-SP-SW	1/10/96	10:45	soil	-01			X							X				X															3
PS-SP-SW-Dup	1/10/96	11:00	soil	-02			X							X				X															3
PS-SP-NW	1/10/96	11:30	soil	-03			X							X				X															3
PS-SP-NE	1/10/96	13:25	soil	-04			X							X				X															3
PS-SP-SE	1/10/96	14:10	soil	-05			X							X				X															3

PROJECT INFORMATION	
PROJ. NO.: 765786	
PROJ. NAME: Philips Semiconductors	
P.O. NO.:	
SHIPPED VIA:	
SAMPLE RECEIPT	
NO. CONTAINERS	15
CUSTODY SEALS	(Y) N / NA
RECEIVED INTACT	Y
BLUE ICE/ICE	8°C

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☒ 2 WEEK

CERTIFICATION REQUIRED: ☐ NM ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS:

pH - rush
other Analysis normal

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: Jim Stapleton Time: 15:15	Signature: Time:
Printed Name: James Stapleton Date: 1/10/96	Printed Name: Date:
Company: IT Corp	Company:
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature: Time:	Signature: Andrew Parker Time: 1520
Printed Name: Date:	Printed Name: Andrew Parker Date: 1/10
Company:	Analytical Technologies of New Mexico

AnalyticalTechnologies of New Mexico, Inc.
Albuquerque, New Mexico

Interlab Chain of Custody

DATE: 1/10 PAGE: 1 OF 1

NETWORK PROJECT MANAGER: KIMBERLY D. McNEILL

COMPANY: Analytical Technologies of New Mexico, Inc.
ADDRESS: 2709-D Pan American Freeway, NE
Albuquerque, NM 87107

CLIENT PROJECT MANAGER: Kim McNeill

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Metals - TAL	Metals - PP List	Metals - RCRA	RCRA Metals by TCLP (1311)		Mod 8015 Methanol *	TOX	TOC	Gen Chemistry			Oil and Grease	BOD	COD	Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral Acid Compounds GC/MS (625/8270)	Volatile Organics GC/MS (624/8240)	Polynuclear Aromatics (610/8310)	8240 (TCLP 1311) ZHE	8270 (TCLP 1311)			TO-14	Gross Alpha/Beta				NUMBER OF CONTAINERS
601331-01	1/10	1045	NAQ	1						X																							
-02	↓	1100	↓	2						X																							
-03	↓	1130	↓	3						X																							
-04	↓	1325	↓	4						X																							
-05	↓	1410	↓	5						X																							

PROJECT INFORMATION	SAMPLE RECEIPT
PROJECT NUMBER: 601331	TOTAL NUMBER OF CONTAINERS
PROJECT NAME: philips	CHAIN OF CUSTODY SEALS
QC LEVEL: STD IV	INTACT?
QC REQUIRED: MS MSD BLANK	RECEIVED GOOD COND./COLD
TAT: STANDARD RUSH!	LAB NUMBER 601177
	IWO #KM 1084

DUE DATE: 1/23
RUSH SURCHARGE: NO
CLIENT DISCOUNT: Quote
SPECIAL CERTIFICATION REQUIRED: ☐YES ☐NO

* See attached detection limits

SAMPLES SENT TO:	
SAN DIEGO	
FT. COLLINS	
RENTON	
PENSACOLA	X
PORTLAND	
PHOENIX	

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: Andrew Parker Time: 1700	Signature: Time:
Printed Name: Andrew Parker Date: 1/10	Printed Name: Date:
Analytical Technologies of New Mexico, Inc. Albuquerque	Company:
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature: Rob J Elsperman Time: 1002	Signature: Time:
Printed Name: R. ELSPERMAN Date: 1/11/96	Printed Name: Date:
Company: ATI-FL	Company:

Analytical Technologies of New Mexico, Inc.
Albuquerque, New Mexico

Analytical Chain Of Custody

DATE: 1/10 PAGE: 1 OF 1

NETWORK PROJECT MANAGER: KIMBERLY D. McNEILL

COMPANY: Analytical Technologies of New Mexico, Inc.
ADDRESS: 2709-D Pan American Freeway, NE
Albuquerque, NM 87107

CLIENT PROJECT MANAGER: Kim McNeill

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Metals - TAL	Metals - PP List	Metals - RCRA	RCRA Metals by TCLP (1311)			TOX	TOC	Gen Chemistry			Oil and Grease	BOD	COD	Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral Acid Compounds GC/MS (625/8270)	Volatile Organics GC/MS (624/8240)	Polynuclear Aromatics (610/8310)	8240 (TCLP 1311) ZHE	8270 (TCLP 1311)	8260 (See attached Detection Limits)		TO-14	Gross Alpha/Beta				NUMBER OF CONTAINERS
60133I-01	1/10	1045	NAQ	01																						X							1
-02	↓	1100	↓	02																						X							1
-03		1130		03																						X							1
-04		1325		04																						X							1
-05	↓	1410	↓	05																						X							1

PROJECT INFORMATION		SAMPLE RECEIPT	
PROJECT NUMBER:	60133I	TOTAL NUMBER OF CONTAINERS	5
PROJECT NAME:	Philips	CHAIN OF CUSTODY SEALS	✓
QC LEVEL:	(STD.) IV	INTACT?	✓
QC REQUIRED:	MS MSD BLANK	RECEIVED GOOD COND (COLD)	✓
TAT:	(STANDARD) RUSH!	LAB NUMBER	

IWO# KM 1087

DUE DATE: 1/23
RUSH SURCHARGE: NO
CLIENT DISCOUNT: Quote
SPECIAL CERTIFICATION REQUIRED: ☐YES ☐NO

SAMPLES SENT TO:	
SAN DIEGO	
FT. COLLINS	X
RENTON	
PENSACOLA	
PORTLAND	
PHOENIX	

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: Andrew Parker Time: 1700	Signature: Time:
Printed Name: Andrew Parker Date: 1/10	Printed Name: Date:
Analytical Technologies of New Mexico, Inc. Albuquerque	Company: Fed Ex
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature: Time:	Signature: Time: 900
Printed Name: Date:	Printed Name: Date: 1/11/11
Company: Fed Ex	Company: AFEO

INTERNATIONAL TECHNOLOGY CORPORATION

DATE	01/10/96
TIME	1425
PAGE ____ OF ____	
PAGE	
PROJECT NO.	765786

SAMPLE COLLECTION LOG

PROJECT NAME Philips Semiconductor

SAMPLE NO. PS-SPI-equip rinsate

SAMPLE LOCATION Soil Port - equipment rinsate

SAMPLE TYPE rinsate

COMPOSITE ____ YES X NO

COMPOSITE TYPE -

DEPTH OF SAMPLE -

WEATHER

CONTAINERS USED	AMOUNT COLLECTED
Amber vials	3-40ml
clear vials	3-40ml

COMMENTS: Sample time 14:25 Sample was collected after the hole saw had been cleaned & rinsed with a solution of water & Alconox. The hole saw was triple rinsed & then had DI water poured over it. The DI water was poured over the hole saw & collected in the vials in such a manner that no head space or air bubbles remained. The vials were label, custody seaded, entered into COC, & placed in a cooler for transport to the lab.
The samples are to be analyzed for Methanol & VOA. No duplicate collected.

PREPARED BY: Jim Stapleton

COMMENTS: (Continued)

DATE	
TIME	
PAGE ____ OF ____	
PAGE	
PROJECT NO.	

PREPARED BY: _____

LEGEND

1. A SAMPLE COLLECTION LOG IS TO BE COMPLETED FOR EACH SAMPLE.
2. ALWAYS COMPLETE BOTH SIDES. IF SECOND SIDE IS NOT USED, DRAW A LINE THROUGH IT AND MARK N/A. FILL IN CONTROL BLOCK AND PREPARED BY.
3. ALL ENTRIES ON LOG ARE TO BE COMPLETED, IF NOT APPLICABLE MARK N/A.
4. DATE: USE MONTH/DAY/YEAR; I.E., 10/30/85
5. TIME: USE 24-HOUR CLOCK; I.E., 1835 FOR 6:35 P.M.
6. PAGE: EACH SAMPLE TEAM SHOULD NUMBER PAGE _____ OF _____ FOR THE DAY'S ACTIVITIES FOR ALL SHEETS PREPARED ON A SINGLE DAY, I.E., IF THERE ARE A TOTAL OF 24 PAGES (INCLUDING FRONT AND BACK) NUMBER 1 OF 24, 2 OF 24, ETC.
7. SAMPLE LOCATION: USE BORING OR MONITORING WELL NUMBER, GRID LOCATION (TRANSECT), SAMPLING STATION I.D., OR COORDINATE TO PHYSICAL FEATURES WITH DISTANCES. INCLUDE SKETCH IN COMMENT SECTION IF NECESSARY.
8. SAMPLE TYPE: USE THE FOLLOWING - SOIL; WATER (SURFACE OR GROUND); AIR (FILTERS, TUBES, AMBIENT, PERSONNEL); SLUDGE; DRUM CONTENTS; OIL; VEGETATION; WIPE; SEDIMENT.
9. COMPOSITE TYPE: I.E., 24-HOUR, LIST SAMPLE NUMBERS IN COMPOSITE, SPATIAL COMPOSITE.
10. DEPTH OF SAMPLE: GIVE UNITS, WRITE OUT UNITS SUCH AS INCHES, FEET. DON'T USE ' OR ".
11. WEATHER: APPROXIMATE TEMPERATURE, SUN AND MOISTURE CONDITIONS.
12. CONTAINERS USED: LIST EACH CONTAINER TYPE AS NUMBER, VOLUME, MATERIAL (E.G., 2 - IL GLASS; 4 - 40 ML GLASS VIAL; 1 - 400 ML PLASTIC; 1 - 3 INCH STEEL TUBE; 1 - 8 OZ. GLASS JAR).
13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

INTERNATIONAL TECHNOLOGY CORPORATION

DATE	01 10 96
TIME	11 30
PAGE ___ OF ___	
PAGE	
PROJECT NO.	765286

SAMPLE COLLECTION LOG

PROJECT NAME Philips

SAMPLE NO. PS-SP-NW

SAMPLE LOCATION NW soil port

SAMPLE TYPE soil

COMPOSITE ___ YES X NO

COMPOSITE TYPE –

DEPTH OF SAMPLE –

WEATHER

CONTAINERS USED	AMOUNT COLLECTED
glass jar	3 - 4oz

COMMENTS: Sample Time 11:30 Depth of casing 13.1' no water OVM - 0 ppm - head space. sample collected in same manner as PS-SP-SW. No duplicate collected. See daily field log. Analysis pH methanol VOA

PREPARED BY: J Stapleton

COMMENTS:
(Continued)

DATE	
TIME	
PAGE ____ OF ____	
PAGE	
PROJECT NO.	

N/A

PREPARED BY: _____

LEGEND

1. A SAMPLE COLLECTION LOG IS TO BE COMPLETED FOR EACH SAMPLE.
2. ALWAYS COMPLETE BOTH SIDES. IF SECOND SIDE IS NOT USED, DRAW A LINE THROUGH IT AND MARK N/A. FILL IN CONTROL BLOCK AND PREPARED BY.
3. ALL ENTRIES ON LOG ARE TO BE COMPLETED, IF NOT APPLICABLE MARK N/A.
4. DATE: USE MONTH/DAY/YEAR; I.E., 10/30/85
5. TIME: USE 24-HOUR CLOCK; I.E., 1835 FOR 6:35 P.M.
6. PAGE: EACH SAMPLE TEAM SHOULD NUMBER PAGE _____ OF _____ FOR THE DAY'S ACTIVITIES FOR ALL SHEETS PREPARED ON A SINGLE DAY, I.E., IF THERE ARE A TOTAL OF 24 PAGES (INCLUDING FRONT AND BACK) NUMBER 1 OF 24, 2 OF 24, ETC.
7. SAMPLE LOCATION: USE BORING OR MONITORING WELL NUMBER, GRID LOCATION (TRANSECT), SAMPLING STATION I.D., OR COORDINATE TO PHYSICAL FEATURES WITH DISTANCES. INCLUDE SKETCH IN COMMENT SECTION IF NECESSARY.
8. SAMPLE TYPE: USE THE FOLLOWING - SOIL; WATER (SURFACE OR GROUND); AIR (FILTERS, TUBES, AMBIENT, PERSONNEL); SLUDGE; DRUM CONTENTS; OIL; VEGETATION; WIPE; SEDIMENT.
9. COMPOSITE TYPE: I.E., 24-HOUR, LIST SAMPLE NUMBERS IN COMPOSITE, SPATIAL COMPOSITE.
10. DEPTH OF SAMPLE: GIVE UNITS, WRITE OUT UNITS SUCH AS INCHES, FEET. DON'T USE ' OR ".
11. WEATHER: APPROXIMATE TEMPERATURE, SUN AND MOISTURE CONDITIONS.
12. CONTAINERS USED: LIST EACH CONTAINER TYPE AS NUMBER, VOLUME, MATERIAL (E.G., 2 - IL GLASS; 4 - 40 ML GLASS VIAL; 1 - 400 ML PLASTIC; 1 - 3 INCH STEEL TUBE; 1 - 6 OZ. GLASS JAR).
13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

INTERNATIONAL TECHNOLOGY CORPORATION

DATE	0	1	1	0	9	6
TIME	1	3	2	5		
PAGE ____ OF ____						
PAGE						
PROJECT NO. 765289						

SAMPLE COLLECTION LOG

PROJECT NAME Philips

SAMPLE NO. PS-SP-NE

SAMPLE LOCATION NE Soil Port

SAMPLE TYPE soil

COMPOSITE ____ YES — NO

COMPOSITE TYPE —

DEPTH OF SAMPLE —

WEATHER

CONTAINERS USED	AMOUNT COLLECTED
glass jars	3 - 4 oz

COMMENTS: Sample Time 13:25 casing depth 14.1 no water OVM head space 0 ppm. Sample collected in same manner as PS-SP-SW no duplicate. See field log. Analysis pH methanol VOA

PREPARED BY: Jim Hoyt

INTERNATIONAL TECHNOLOGY CORPORATION

DATE	0	1	1	0	9	6
TIME	1	4	1	1	0	
PAGE ____ OF ____						
PAGE						
PROJECT NO. 765286						

SAMPLE COLLECTION LOG

PROJECT NAME: Philips

SAMPLE NO.: PS-SP-SE

SAMPLE LOCATION: SE Spill Port

SAMPLE TYPE: soil

COMPOSITE: ____ YES — NO

COMPOSITE TYPE: —

DEPTH OF SAMPLE: —

WEATHER: ____

CONTAINERS USED	AMOUNT COLLECTED
glass jar	3 - 4oz

COMMENTS: Sample time 14:10 casing depth 17.1 no water OVM Headspace 0 ppm sample collected in same manner as PS-SP-SW see field activity log no dup collected Analysis - methanol pH VOA

PREPARED BY: Jim Stapleton

Analytical Technologies, Inc.

2709-D Pan American Freeway, NE Albuquerque, NM 87107
Phone (505) 344-3777 FAX (505) 344-4413

ATI I.D. **601330**

January 24, 1996

IT Corporation
5301 Central Ave NE
Suite 700
Albuquerque, NM 87108

Project Name/Number: PHILIPS 765286

Attention: Jim Stapleton

On **01/10/96**, Analytical Technologies, of New Mexico Inc., (ADHS License No. AZ0015), received a request to analyze **aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

All surrogate recoveries were within acceptable limits with the following exceptions:

SAMPLE	**SURROGATE**
TRIP BLANK	DIBROMOFLUOROMETHANE

The following compounds were searched for by ion and not quantitated: n-Butyl alcohol, cyclohexane, ethyl acetate, ethyl ether, and isobutanol. These compounds were flagged as TIC's and none found in the samples.

EPA method 8015 analyses were performed by Analytical Technologies, Inc., 11 East Olive Road, Pensacola, FL.

All other analyses were performed by Analytical Technologies, Inc., 11 East Olive Road, Pensacola, FL.

If you have any questions or comments, please do not hesitate to contact us at (505) 344-3777.

Kimberly D. McNeill
Project Manager

H. Mitchell Rubenstein, Ph.D.
Laboratory Manager

MR:jt

Enclosure

AnalyticalTechnologies,Inc.

CLIENT : IT CORPORATION
PROJECT # : 765286
PROJECT NAME : PHILIPS

DATE RECEIVED: 01/10/96
REPORT DATE : 01/24/96

ATI ID: 601330

	ATI ID #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	601330-01	PS-SP-EQUIP-RINSATE	AQUEOUS	01/10/96
02	601330-02	TRIP BLANK	AQUEOUS	01/08/96

---TOTALS---

MATRIX	#SAMPLES
AQUEOUS	2

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

AnalyticalTechnologies,Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession:	601176
Client:	ANALYTICAL TECHNOLOGIES, INC.
Project Number:	601330
Project Name:	IT
Project Location:	PHILIPS
Test:	METHANOL
Analysis Method:	ATI SOP 641
Extraction Method:	N/A
Matrix:	WATER
QC Level:	II

Lab Id:	001	Sample Date/Time:	10-JAN-96 1405
Client Sample Id:	PS-SP-EQUIP-RINSATE	Received Date:	12-JAN-96
Batch: GEW005		Extraction Date:	N/A
Blank: A	Dry Weight %: N/A	Analysis Date:	17-JAN-96

Parameter:	Units:	Results:	Rpt Lmts:	Q:
METHANOL	MG/L	ND	5.0	
ANALYST	INITIALS	KS		

Comments:

AnalyticalTechnologies,Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession:	601176
Client:	ANALYTICAL TECHNOLOGIES, INC.
Project Number:	601330
Project Name:	IT
Project Location:	PHILIPS
Test:	METHANOL
Analysis Method:	ATI SOP 641
Extraction Method:	N/A
Matrix:	WATER
QC Level:	II

Lab Id:	002	Sample Date/Time:	08-JAN-96 1430
Client Sample Id:	TRIP BLANK	Received Date:	12-JAN-96
Batch: GEW005		Extraction Date:	N/A
Blank: A	Dry Weight %: N/A	Analysis Date:	17-JAN-96

Parameter:	Units:	Results:	Rpt Lmts:	Q:
METHANOL	MG/L	ND	5.0	
ANALYST	INITIALS	KS		

Comments:

AnalyticalTechnologies,Inc.

"QC Report"

Title: Water Blank
Batch: GEW005
Analysis Method: ATI SOP 641
Extraction Method: N/A

Blank Id: A Date Analyzed: 17-JAN-96 Date Extracted: N/A

Parameters:	Units:	Results:	Reporting Limits:
METHANOL	MG/L	ND	5.0

Comments:
ANALYST: KS

AnalyticalTechnologies,Inc.

"QC Report"

Title: Water Reagent
Batch: GEW005
Analysis Method: ATI SOP 641
Extraction Method: N/A

RS Date Analyzed: 17-JAN-96
RSD Date Analyzed: 17-JAN-96

RS Date Extracted: N/A
RSD Date Extracted: N/A

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	RSD Conc	RSD %Rec	RPD	RPD Lmts	Rec Lmts
METHANOL	100	<5.0	109	109	115	115	5	50	50-150

Surrogates:

Comments:

Notes:
MG/L = PARTS PER MILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCE FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCE METHOD.
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT

AnalyticalTechnologies,Inc.

"QC Report"

Title: Water Matrix
Batch: GEW005
Analysis Method: ATI SOP 641
Extraction Method: N/A

Dry Weight %: N/A
Sample Spiked: 601176-1

MS Date Analyzed: 17-JAN-96
MSD Date Analyzed: 17-JAN-96

MS Date Extracted: 16-JAN-96
MSD Date Extracted: 16-JAN-96

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	RPD Lmts	Rec Lmts
METHANOL	100	<5.0	113	113	118	118	4	50	50-150

Surrogates:

Comments:

Notes:
MG/L = PARTS PER MILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCE FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCE METHOD.
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT

AnalyticalTechnologies,Inc. Common notation for Organic reporting

N/S = NOT SUBMITTED
N/A = NOT APPLICABLE
D = DILUTED OUT
UG = MICROGRAMS
UG/L = PARTS PER BILLION.
UG/KG = PARTS PER BILLION.
MG/M3 = MILLIGRAM PER CUBIC METER.
PPMV = PART PER MILLION BY VOLUME.
MG/KG = PARTS PER MILLION.
MG/L = PARTS PER MILLION.
< = LESS THAN DETECTION LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS

SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

ORGANIC SOILS ARE REPORTED ON A DRYWEIGHT BASIS.

ND = NOT DETECTED ABOVE REPORTING LIMIT.

RPT LIMIT = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.

RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

ATI/GC/FID
ATI GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH FLAME IONIZATION DETECTOR (FID).

ATI/GC/FIX
ATI GAS CHROMATOGRAPHIC METHOD FOR ANALYSIS OF FIXED GASES EMPLOYING DIRECT INJECTION ON COLUMN WITH THERMAL CONDUCTIVITY DETECTOR (TCD) AND FLAME IONIZATION DETECTOR (FID).

ATI/GC/FPD
ATI GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH FLAME PHOTOMETRIC DETECTOR (FPD) IN SULFUR-SPECIFIC MODE.

ATI/GC/PID
ATI GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH PHOTOIONIZATION DETECTOR (PID).

ATI/GC/TCD
ATI GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH THERMAL CONDUCTIVITY DETECTOR (TCD).

LJT = LISA THOMASON
SW = STEVE WILHITE
KW = KAREN WADSWORTH
PL = PAUL LESCHENSKY
RW = ROBERT WOLFE
BV = BEN VAUGHN
KS = KENDALL SMITH
KK = KERRY KUST
DWB = DAVID W. BOWERS
RP = ROB PEREZ

AnalyticalTechnologies,Inc.

VOLATILE ORGANICS
Method 8260

Sample ID

PS-SP-Equip. Rinsate

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philip -- 601330
Lab Sample ID: 96-01-039-01

Date Collected: 01/10/96
Date Analyzed: 01/13/96

Sample Matrix: Water
Sample Volume: 25 mL

Analyte	Results (ug/L)	Detection Limit (ug/L)
Acetone	ND	10
Benzene	ND	1
n-Butyl alcohol (1)	ND	N/A
Carbon Disulfide	ND	5
Carbon Tetrachloride	ND	1
Chlorobenzene	ND	5
Chloroform	ND	1
Cyclohexanone (1)	ND	N/A
1,1-Dichloroethene	ND	1
1,2-Dichloroethane	ND	1
Ethyl acetate (1)	ND	N/A
Ethyl benzene	ND	5
Ethyl ether (1)	ND	N/A
Isobutanol (1)	ND	N/A
Methyl ethyl ketone	ND	10
Methyl isobutyl ketone	ND	10
Methylene chloride	ND	4
Orthodichlorobenzene	ND	5
Tetrachloroethene	ND	1
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	5
1,1,2-Trichloroethane	ND	1
Trichloroethene	ND	1
Trichlorofluoromethane	ND	5
Vinyl chloride	ND	1
Xylene	ND	5

SURROGATE RECOVERIES

Analyte	% Recovery	%Rec Limits
Dibromofluoromethane	96	86 - 118
Toluene-d8	99	88 - 110
Bromofluorobenzene	103	86 - 115

ND = Not Detected
(1) = Estimated value, analyte quantitated as a TIC
N/A = Non Applicable

AnalyticalTechnologies,Inc.

VOLATILE ORGANICS
Method 8260

Sample ID

Trip Blank

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philip -- 601330
Lab Sample ID: 96-01-039-02

Date Collected: 01/08/96
Date Analyzed: 01/13/96

Sample Matrix: Water
Sample Volume: 25 mL

Analyte	Results (ug/L)	Detection Limit (ug/L)
Acetone	ND	10
Benzene	ND	1
n-Butyl alcohol (1)	ND	N/A
Carbon Disulfide	ND	5
Carbon Tetrachloride	ND	1
Chlorobenzene	ND	5
Chloroform	ND	1
Cyclohexanone (1)	ND	N/A
1,1-Dichloroethene	ND	1
1,2-Dichloroethane	ND	1
Ethyl acetate (1)	ND	N/A
Ethyl benzene	ND	5
Ethyl ether (1)	ND	N/A
Isobutanol (1)	ND	N/A
Methyl ethyl ketone	ND	10
Methyl isobutyl ketone	ND	10
Methylene chloride	ND	4
Orthodichlorobenzene	ND	5
Tetrachloroethene	ND	1
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	5
1,1,2-Trichloroethane	ND	1
Trichloroethene	ND	1
Trichlorofluoromethane	ND	5
Vinyl chloride	ND	1
Xylene	ND	5

SURROGATE RECOVERIES

Analyte	% Recovery	%Rec Limits
Dibromofluoromethane	85 *	86 - 118
Toluene-d8	98	88 - 110
Bromofluorobenzene	107	86 - 115

ND = Not Detected
(1) = Estimated value, analyte quantitated as a TIC
N/A = Non Applicable
* = Out of Limits

AnalyticalTechnologies,Inc.

VOLATILE ORGANICS
Method 8260

Sample ID

Reagent Blank

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philip -- 601330
Lab Sample ID: WRB1 01/13/96

Date Collected: N/A
Date Analyzed: 01/13/96

Sample Matrix: Water
Sample Volume: 25 mL

Analyte	Conc. (ug/L)	Detection Limit (ug/L)
Acetone	ND	10
Benzene	ND	1
n-Butyl alcohol (1)	ND	N/A
Carbon Disulfide	ND	5
Carbon Tetrachloride	ND	1
Chlorobenzene	ND	5
Chloroform	ND	1
Cyclohexanone (1)	ND	N/A
1,1-Dichloroethene	ND	1
1,2-Dichloroethane	ND	1
Ethyl acetate (1)	ND	N/A
Ethyl benzene	ND	5
Ethyl ether (1)	ND	N/A
Isobutanol (1)	ND	N/A
Methyl ethyl ketone	ND	10
Methyl isobutyl ketone	ND	10
Methylene chloride	ND	4
Orthodichlorobenzene	ND	5
Tetrachloroethene	ND	1
Toluene	ND	5
1,1,1-Trichloroethane	ND	5
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	5
1,1,2-Trichloroethane	ND	1
Trichloroethene	ND	1
Trichlorofluoromethane	ND	5
Vinyl chloride	ND	1
Xylene	ND	5

SURROGATE RECOVERIES

Analyte	% Recovery	%Rec Limits
Dibromofluoromethane	103	86 - 118
Toluene-d8	97	88 - 110
Bromofluorobenzene	98	86 - 115

ND = Not Detected
(1) = Estimated value, analyte quantitated as a TIC
N/A = Non Applicable

AnalyticalTechnologies,Inc.

VOLATILE MATRIX SPIKE RECOVERY

Method 8260

Sample ID

PS-SP-Equip. Rinsate

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philip -- 601330
Lab Sample ID: 96-01-039-01
Sample Matrix: Water
Sample Volume: 25 mL

Date Collected: 01/10/96
Date Analyzed: 01/13/96

Analyte	Spike Added (ug/L)	Sample Concentration (ug/L)	MS Concentration (ug/L)	MS % Rec	QC Limit Recovery
1,1-Dichloroethene	10.0	ND	10.3	103	61-145
Trichloroethene	10.0	ND	10.6	106	71-120
Benzene	10.0	ND	10.3	103	76-127
Toluene	10.0	ND	10.8	108	76-125
Chlorobenzene	10.0	ND	10.9	109	75-130

Analyte	Spike Added (ug/L)	MSD Concentration (ug/L)	MSD % Recovery	% RPD	QC Limits RPD Rec
1,1-Dichloroethene	10.0	10.7	107	4	14 | 61-145
Trichloroethene	10.0	11.2	112	5	14 | 71-120
Benzene	10.0	10.8	108	5	11 | 76-127
Toluene	10.0	11.3	113	5	13 | 76-125
Chlorobenzene	10.0	11.4	114	5	13 | 75-130

SURROGATE RECOVERIES MS/MSD

Analyte	%Rec (MS)	%Rec (MSD)	% Rec Limits
Dibromofluorobenzene	107	108	86 - 118
Toluene-d8	98	101	88 - 110
Bromofluorobenzene	101	103	86 - 115

ND = Not Detected

AnalyticalTechnologies,Inc.

VOLATILE BLANK SPIKE RECOVERY

Method 8260

Sample ID

Blank Spike

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI-NM
Client Project ID: Philip -- 601330
Lab Sample ID: BS1,2 01/13/96
Sample Matrix: Water
Sample Volume: 25 mL

Date Collected: N/A
Date Analyzed: 01/13/96

Analyte	Spike Added (ug/L)	Sample Concentration (ug/L)	BS Concentration (ug/L)	BS % Rec	QC Limit Recovery
1,1-Dichloroethene	10.0	N/A	9.3	93	61-145
Trichloroethene	10.0	N/A	10.0	100	71-120
Benzene	10.0	N/A	10.0	100	76-127
Toluene	10.0	N/A	10.3	103	76-125
Chlorobenzene	10.0	N/A	10.3	103	75-130

Analyte	Spike Added (ug/L)	BSD Concentration (ug/L)	BSD % Recovery	% RPD	QC Limits RPD Rec
1,1-Dichloroethene	10.0	9.7	97	4	14 | 61-145
Trichloroethene	10.0	10.2	102	1	14 | 71-120
Benzene	10.0	10.0	100	0	11 | 76-127
Toluene	10.0	10.4	104	1	13 | 76-125
Chlorobenzene	10.0	10.5	105	1	13 | 75-130

SURROGATE RECOVERIES BS/BSD

Analyte	%Rec (BS)	%Rec (BSD)	% Rec Limits
Dibromofluorobenzene	110	108	86 - 118
Toluene-d8	100	100	88 - 110
Bromofluorobenzene	102	102	86 - 115

N/A = Not Applicable

AnalyticalTechnologies of New Mexico, Inc., Albuquerque, NM
San Diego • Phoenix • Seattle • Pensacola • Ft. Collins • Portland • Albuquerque • Anchorage

CHAIN OF CUSTODY

DATE: 1/10/96 PAGE: 1 OF 1

LAB: 601330

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Jim Stapleton
COMPANY: IT Corporation
ADDRESS: 5301 Central Ave NE
PHONE: 505 262-8800
FAX: 505 262-8855

BILL TO: IT Corp
COMPANY: 5301 Central Ave NE
ADDRESS: Albuquerque NM 87108

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.	Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct/Inject	(M8015) Gas/Purge & Trap	Gasoline/BTEX & MTBE (M8015/8020)	BTXE/MTBE (8020)	BTEX & Chlorinated Aromatics (602/8020)	BTEX/MTBE/EDC & EDB (8020/8010/Short)	Chlorinated Hydrocarbons (601/8010)	504 EDB ☐ / DBCP ☐	Polynuclear Aromatics (610/8310)	Volatile Organics (624/8240) GC/MS	Volatile Organics (8260) GC/MS	Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral/Acid Compounds GC/MS (625/8270)	General Chemistry	Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	NUMBER OF CONTAINERS
PB-SP-equip-rinsate	1/10/96	14:35	Aqueous	-01			X (M 8015) Methanol									X									6
Trip Blank	1/8/96	14:30	Aqueous	-02			X									X									2

PROJECT INFORMATION	
PROJ. NO.: 765786	
PROJ. NAME: Philips	
P.O. NO.:	
SHIPPED VIA:	

SAMPLE RECEIPT	
NO. CONTAINERS	8
CUSTODY SEALS	Y/N/NA
RECEIVED INTACT	Y
BLUE ICE/ICE	II

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☒ 2 WEEK

CERTIFICATION REQUIRED: ☐ NM ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS:

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: Jim Stapleton Time: 15:15	Signature: Time:
Printed Name: Jim Stapleton Date: 1/10/96	Printed Name: Date:
Company: IT Corp	Company:
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature: Time:	Signature: Andrew Parker Time: 1520
Printed Name: Date:	Printed Name: Andrew Parker Date: 1/10
Company:	Analytical Technologies of New Mexico

AnalyticalTechnologies of New Mexico, Inc.
Albuquerque, New Mexico

Interlab Chain of Custody

DATE: 1/10 PAGE: 1 OF 1

NETWORK PROJECT MANAGER: KIMBERLY D. McNEILL

COMPANY: Analytical Technologies of New Mexico, Inc.
ADDRESS: 2709-D Pan American Freeway, NE
Albuquerque, NM 87107

CLIENT PROJECT MANAGER: Kim McNeill

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Metals - TAL	Metals - PP List	Metals - RCRA	RCRA Metals by TCLP (1311)		Mod 8015 Methanol * See Comment	TOX	TOC	Gen Chemistry			Oil and Grease	BOD	COD	Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral Acid Compounds GC/MS (625/8270)	Volatile Organics GC/MS (624/8240)	Polynuclear Aromatics (610/8310)	8240 (TCLP 1311) ZHE	8270 (TCLP 1311)			TO-14	Gross Alpha/Beta				NUMBER OF CONTAINERS
601330-01	1/10	1405	AQ	1						X																								
-02(TB)	1/8	1430	AQ	2						X																								

PROJECT INFORMATION	SAMPLE RECEIPT	
PROJECT NUMBER:	TOTAL NUMBER OF CONTAINERS	
PROJECT NAME:	CHAIN OF CUSTODY SEALS	Y
QC LEVEL: STD. IV	INTACT?	Y
QC REQUIRED: MS MSD BLANK	RECEIVED GOOD COND./COLD	Y
TAT: STANDARD RUSH!	LAB NUMBER 601176	
	IWO# KM1083	

DUE DATE: 1/23
RUSH SURCHARGE: NO
CLIENT DISCOUNT: Quote
SPECIAL CERTIFICATION REQUIRED: ☐YES ☐NO

* See attached list for detection Limits

SAMPLES SENT TO:	
SAN DIEGO	
FT. COLLINS	
RENTON	
PENSACOLA	X
PORTLAND	
PHOENIX	

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: Andrew Parker Time: 1200	Signature: Time:
Printed Name: Andrew Parker Date: 1/10	Printed Name: Date:
Analytical Technologies of New Mexico, Inc. Albuquerque	Company:
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature: Time: 1002	Signature: Time:
Printed Name: R. ELSPERMAN Date: 1/11/96	Printed Name: Date:
Company: ATI-FL	Company:

Analytical Technologies of New Mexico, Inc.
Albuquerque, New Mexico

Interlab Chain of Custody

96C,D3

DATE: 1/10 PAGE: 1 OF 1

NETWORK PROJECT MANAGER: KIMBERLY D. McNEILL

COMPANY: Analytical Technologies of New Mexico, Inc.
ADDRESS: 2709-D Pan American Freeway, NE
Albuquerque, NM 87107

CLIENT PROJECT MANAGER: Kim McNeill

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Metals - TAL	Metals - PP List	Metals - RCRA	RCRA Metals by TCLP (1311)			TOX	TOC	Gen Chemistry			Oil and Grease	BOD	COD	Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral Acid Compounds GC/MS (625/8270)	Volatile Organics GC/MS (624/8240)	Polynuclear Aromatics (610/8310)	8240 (TCLP 1311) ZHE	8270 (TCLP 1311)	8260 (see attached list detection Limits)		TO-14	Gross Alpha/Beta				NUMBER OF CONTAINERS
601330-01	1/10	1405	AQ	01																						X							3
-02 (TB)	1/8/96	1430	AQ	02																						X							1

PROJECT INFORMATION		SAMPLE RECEIPT	
PROJECT NUMBER:	601330	TOTAL NUMBER OF CONTAINERS	4
PROJECT NAME:	Philips	CHAIN OF CUSTODY SEALS	Y
QC LEVEL:	STD IV	INTACT?	Y
QC REQUIRED:	MS MSD BLANK	RECEIVED GOOD COND./COLD	Y
TAT:	STANDARD RUSH!	LAB NUMBER	

IWO # KM1088

DUE DATE: 1/23
RUSH SURCHARGE: NO
CLIENT DISCOUNT: Quote
SPECIAL CERTIFICATION REQUIRED: ☐YES ☐NO

SAMPLES SENT TO:	
SAN DIEGO	
FT. COLLINS	X
RENTON	
PENSACOLA	
PORTLAND	
PHOENIX	

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: Andrew Parker Time: 1700	Signature: Time:
Printed Name: Andrew Parker Date: 1/10	Printed Name: Date:
Analytical Technologies of New Mexico, Inc. Albuquerque	Company: Fed Ex
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature: Time:	Signature: Time: 900
Printed Name: Date:	Printed Name: Date: 1/11/96
Company: Fed Ex	Company: ATI

APPENDIX H

ROCKY MOUNTAIN EMTEC, INC., TANK INSPECTION AND ANALYSIS REPORT

Rocky Mountain Engineering and Materials Technology, Inc.
An Engineering Consulting Firm
1325 South Colorado Boulevard, Suite 304
Denver, Colorado 80222
(303) 692-0660

MIXED SOLVENT WASTE TANK INSPECTION AND ANALYSIS

January 22, 1996

Produced for:
DEVON JERCINOVIC
IT CORPORATION
Albuquerque, New Mexico

Prepared by:

John N. Schwartzberg
Metallurgical Engineer
Rocky Mountain EMTEC, Inc.

File No. 512203

BACKGROUND

A welded steel mixed waste solvent tank, designated as Tank TA3, was inspected by Rocky Mountain EMTEC, Inc. on Tuesday, December 26, 1995. The tank was located at the Philips Semiconductor plant at 9201 Pan American Freeway NE in Albuquerque, NM. The inspection team was led by John N. Schwartzberg, Rocky Mountain EMTEC, Inc. Metallurgical Engineer. Rob J. Gall of NDE Services, Inc. provided additional support.

The tank is of vertical construction, approximately ten feet in diameter and about eight feet tall, and is located in a below grade concrete vault approximately 11.5 feet square and 15 feet deep. The tank top was fabricated from two plates of steel welded together with rolled skirts. The tank walls consist of two courses of rolled steel plate. Each course was fabricated from two plates of steel and contains two vertical welds. The top of the tank is attached to the upper course by a circumferential weld. The tank bottom is attached to the lower course in a similar fashion. The two courses are attached via a third circumferential weld.

According to information provided by Philips Semiconductors after the inspection was performed, the tank was specified to conform with the requirements of UL 58 -76, Standard for Safety for Steel Underground Tanks for Flammable and Combustible Liquids. The procurement specification for the tank provided by Philips Semiconductors, appended to this report, specifies double butt welding of shell joints, as specified in API Specification 12F, Specification for Shop Welded Tanks for Storage of Production Liquids.

Correspondence from the tank manufacturer, Kohlhaas Corporation of Albuquerque, New Mexico, shows that the tank was pressure tested according to their internal procedures and according to UL 142, Standard for Safety for Steel Aboveground Tanks for Flammable and Combustible Liquids requirements.

The inspection was performed completely from the exterior of the tank. The tank bottom was not inspected, and access to some portions of the tank shell was limited by its proximity to vault walls. These areas are detailed in the inspection results section of this report.

Inspection consisted of ultrasonic thickness measurements of the tank shell, and inspection of the tank shell weldments by angle beam ultrasonic testing, magnetic particle testing, and visual examination. A Panametrics Model 2002 Ultrasonic Tester was used for the angle beam ultrasonic inspection and for the ultrasonic thickness measurements. A 2.25 MHz, 0.75 inch, 70 degree angle transducer was used for the weld inspections. A 15 MHz, 0.25 inch straight transducer was used for the thickness measurements. The angle beam calibration was performed using a standard DSC block as described in the American Welding Society Structural Steel Welding Code (ANSI/AWS D1.1.) Thickness calibration was performed using a step wedge block. Additional details are provided on the Ultrasonic Certification Reports appended to this report.

All welds were inspected ultrasonically, with the exception of the tank bottom and two one-

foot sections

A Parker DA-200 yoke with yellow powder was used for magnetic particle inspection. The inspection was performed in accordance with ASTM specification E-709, using the dry - continuous method.

In the absence of any applicable specifications or standards provided by IT Corporation or by Philips Semiconductor, AWS D1.1 Section 6 was used as guidance for the angle beam ultrasonic inspection. NDE Services, Inc. internal procedures, based on good engineering practice, was used as guidance for the thickness testing.

INSPECTION RESULTS

Ultrasonic Thickness Testing

The minimum and maximum thicknesses measured on the tank top are 0.219 and 0.245 inches, respectively. The minimum and maximum thicknesses measured in the tank shell are 0.243 and 0.262 inches, respectively. The detailed thickness map for the tank top is presented in Figure 1, and the thickness map for the tank shell is presented in Figure 2.

The thickness measurements generally agree with those reported during the previous inspection by Canyon State Inspection on November 29, 1993. Minor variation are within accepted limits.

Ultrasonic Weld Inspection

The upper and lower circumferential welds appear to be automated or semi-automated machine welds done by turning the components on a roller past a fixed torch. The center circumferential joint appears to be stick welded by hand, probably in the field. A map of the major defect indications is presented in Figure 3.

A 2 inch length of the top circumferential weld containing slag, inclusions, and possibly lack of fusion was detected between points AA and Z. The defects are classified as minor. No other indications were found of defects in this weld.

The lower circumferential weld was found to be free of defects. The fit-up between the lower course rings and the bottom skirt is poor in the southeast quadrant of the tank, between points S and W on the tank diagram. The poor fit-up between work pieces resulted in a planar mismatch at the weld in which only part of the thickness of the lower course butts against the thickness of the bottom skirts. A vertical repair weld extends vertically up from the lower circumferential weld in this area, but was free from detectable defects.

The middle circumferential weld contains slag, inclusions, porosity and other defects around the entire circumference. The quality of welding appears to be poor based on the inspection indications that are far too numerous to itemize. The most severe indications are discussed herein and indicated on the defect map.

A 4 inch length of large slag inclusions was detected between points H and I on the middle circumferential weld. Incomplete penetration approximately 2 to 3 inches long was found at point I. A deep, crack-like defect approximately 3 feet long was detected in the northeast quadrant. The defect is most likely incomplete penetration or incomplete fusion. An area approximately a foot long containing severe slag, inclusions, and porosity was detected between points U and W. Another 1 foot length of slag, inclusions, and porosity was detected between points BB and A.

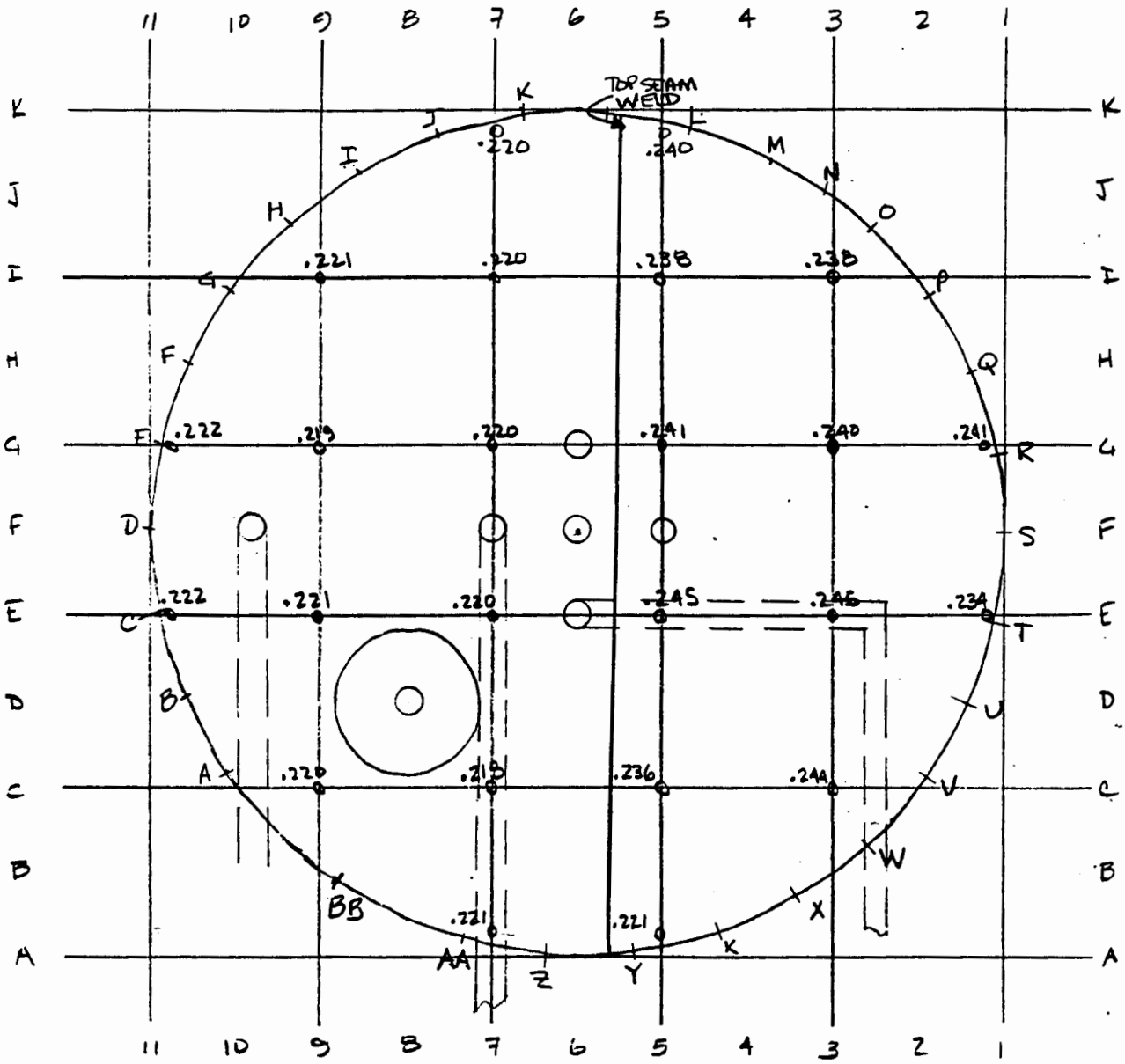


Figure 1 Map of Ultrasonic Thickness Measurements on Tank Top

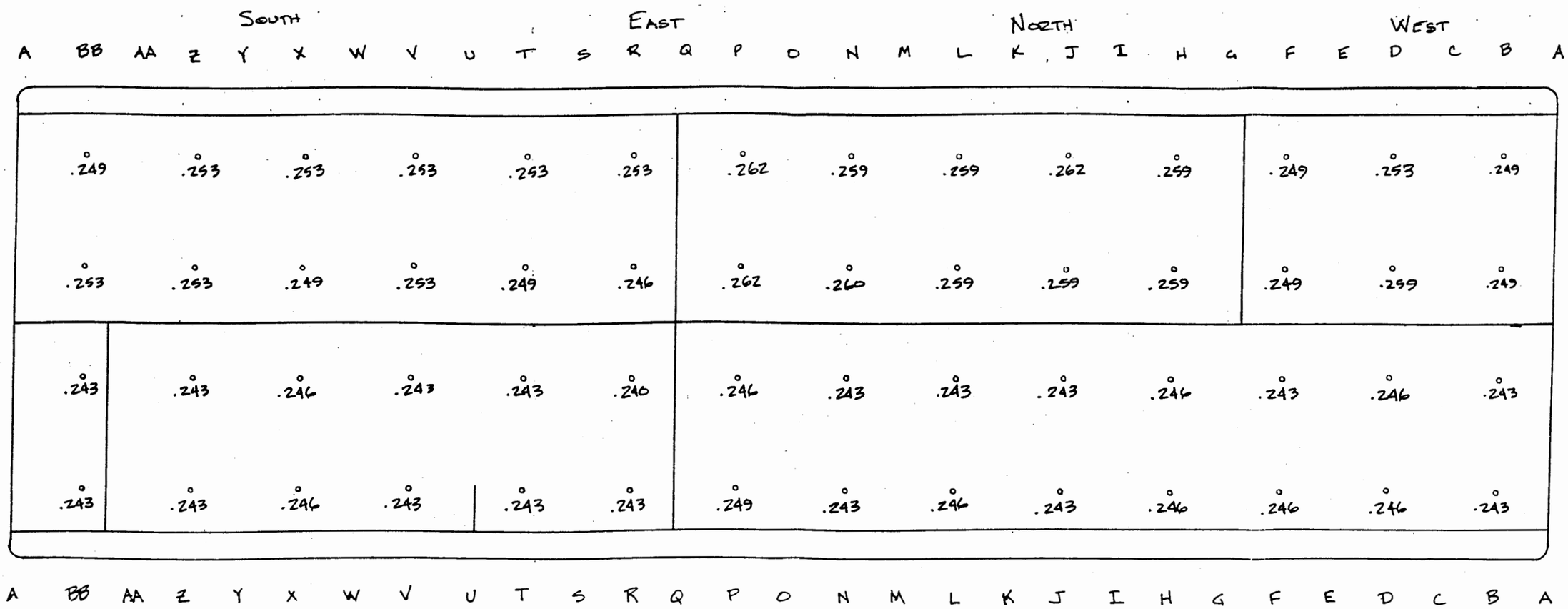


Figure 2 Map of Ultrasonic Thickness Measurements of Tank Shell

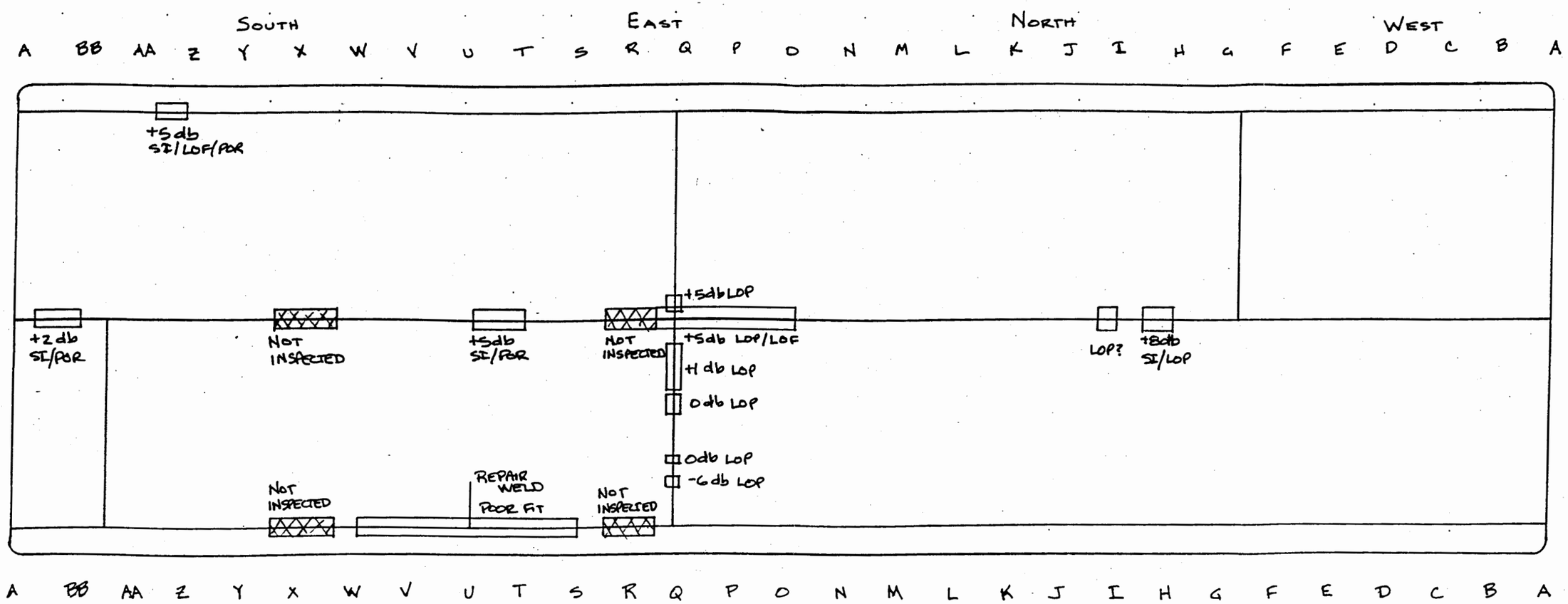


Figure 3 Map of Weld Defect Indications on Tank Shell

Several crack-like defects ranging in size from 1.5 to 10.5 inches were found in the vertical welds in the upper and lower courses at point Q. The most severe is approximately 10.5 inches long, and the ultrasonic indications suggest that the defect is severe lack of penetration. The defect protrudes from the inner wall toward the outer wall, with the remaining ligament estimated to be less than half of the nominal wall thickness. This defect starts approximately 28 inches up from the lower circumferential weld. Similarly severe incomplete penetration defects in the lower course vertical weld range in length from 1.5 to 3.5 inches. A 4 inch length of severe incomplete penetration was detected about two inches above the middle circumferential weld in the upper course vertical weld at point Q.

No defects were detected in the other two vertical welds.

Severe incomplete penetration was detected along the entire length of the weld seam in the tank top. The gap between plates is complete and continuous, with only a ligament of the weld reinforcement holding the plates together.

Magnetic Particle Inspection

Magnetic particle inspection of the upper circumferential weld revealed no defect indications. Inspection of the circumferential weld between the tank top and the manway throat also revealed no defect indications. Magnetic particle inspection of the seam weld on the tank top revealed faint indications of lack of penetration and a gap between plates, but no surface defects were detected.

Discussion of Inspection Results

As no specifications or codes providing inspection procedures or requirements were provided, the American Welding Society Structural Welding Code for Steel (ANSI/AWS D1.1) was used for guidance. The specification provides details on inspection and calibration procedures, as well as guidelines for acceptance-rejection criteria for defects detected in statically loaded structures. The acceptance-rejection criteria are presented in a rating of decibels, with more severe defects resulting in greater attenuation and lower decibel rating levels. These guidelines are shown in Table 1.

Table 1
Defect Severity Ratings and Acceptance-Rejection Criteria

Discontinuity Severity Class	db
Class A	+5 or less
Class B	+6
Class C	+7
Class D	+8 or more

Rejection Criteria

- Any Class A defect indication shall be rejected regardless of size
- Class B defect indications larger than 0.75 inch shall be rejected
- Class C defect indications larger than 2.0 inches shall be rejected
- No Class D defect indications shall be rejected regardless of size or location

All of the defects in the vertical welds at point Q would be considered rejectable based on this standard, since they all meet or exceed the +5 db rating. Several indications on the middle circumferential weld would also be considered rejectable. The db ratings are indicated on the defect map presented in Figure 3.

ENGINEERING ANALYSIS

An engineering analysis was undertaken to determine the criticality of defects that were detected in the context of the operating conditions of the tank. The purpose of the analysis is to determine the conditions under which the tank's safety may be compromised and to determine the factors that may lead to failure.

A fracture mechanics approach to calculating the severity of the detected defects was used in the analysis. Fracture mechanics is a statistical approach to assessing the combined effects of the size, geometry, and orientation of a defect on the integrity of a structure. The approach allows also the determination of the failure mode, and takes into consideration the strength of the material and its ability to resist propagation of sharp defects.

Several assumptions were made during the analysis. The first assumption is that the tank was fabricated from the specified ASTM A-36 structural steel, which has a minimum yield strength of 36,000 psi. The nominal shell thickness was taken as 0.250 inches, and the minimum wall thickness as 0.235 inches. The minimum thickness was selected from the lowest value reported in the two known inspections. The specific gravity of the tank contents was that of water (1.0), taken from information supplied by Philips Semiconductors personnel that the estimated specific gravity of the waste solvent mixture is 1.01. The analysis also assumes that the 2.0 inch atmospheric vent will keep the internal pressure from increasing beyond atmospheric pressure.

The calculated hoop stress in the tank shell due to the hydrostatic pressure head is negligible at approximately 1,000 psi. Stresses due to the weight of the shell are also negligible. Residual stresses left from welding may be present, and were taken to be a third of the yield strength of the material.

The hoop stress acts in the circumferential direction, and perpendicularly to the vertical welds in the upper and lower courses. The longitudinal stress in the tank, which acts perpendicular to the circumferential welds, is approximately half of the hoop stress. The longitudinal stress consists of components of stress from the hydrostatic pressure head of the tank contents and from the weight of the tank, but is small compared to the hoop stress.

The fracture toughness of ASTM A-36 at room temperature is typically greater than 200 ksi$\sqrt{\text{inches}}$ for very thick plates. The toughness, which represents the amount of energy a material can absorb before cracking, increases as the plate thickness decreases. The toughness of perfect welds can approach that of the parent metal, but decreases in many welds due to the metallurgical structure that results from welding. These effects were conservatively assumed to cancel each other out in the fracture mechanics analysis, and the fracture toughness of the weld metal was assumed to be 200 ksi$\sqrt{\text{inches}}$.

The defect models used for the analysis were patterned after those detected by inspection, and were assumed to be long, deep crack-like defects. Those detected in the tank are likely less

severe than those used in the analysis, since the weld defects detected by inspection probably do not have sharp tips as do cracks.

The fracture mechanics analysis, which is included in the appendix to this report, shows that the tank will leak before it ruptures catastrophically. This is a desirable scenario, since leaks are detectable by a variety of means. The analysis further indicates that a crack that extends through the thickness of the shell must propagate to a length in excess of 6 feet before rupture occurs.

DISCUSSION

The tank does not meet the procurement specification provided by Philips Semiconductors. The joints do not appear to be double butt welds per API 12F, but are welded from the outside only. The defect indications show that some of the welds were not fabricated to be full penetration welds, required by API 12F and good engineering practice.

Underwriters' Laboratories Specification 58 does not include requirements for weld inspection or acceptance-rejection criteria for weld defects. The requirements of AWS D1.1, the Structural Welding Code for Steel, offer guidance, but with conservative acceptance-rejection criteria.

The inspection performed does not indicate whether the defects that have existed since fabrication have propagated. The fracture mechanics analysis indicates that propagation due to normal operational stresses is unlikely, since the stresses are very low.

The tank is vented to the atmosphere through approximately 25 feet of 3 inch diameter line followed by about 25 feet of 2 inch line. This venting system is adequate for the tank capacity, as specified in UL 58 - 76, and is likely to maintain atmospheric pressure in the tank under all but the most severe conditions.

The ultrasonic thickness inspection results indicate that thinning of the tank shell due to general corrosion is unlikely. Localized accelerated corrosion is likely, though, especially in association with the defect indications detected. The large, long areas of incomplete penetration may be particularly prone to localized corrosive attack, and pose the greatest threat to the tank's integrity.

The general corrosion rate of the steel due to the mixed solvent contents is difficult to estimate, but is not thought to be significantly greater than that of industrial water. The accelerated corrosion rate is also difficult to predict, but is likely to be significantly higher than the general corrosion rate. Localized accelerated corrosion is probably due to the crevice that is formed by the incomplete penetration.

Localized corrosion of the weldments may result in leaks. As the fracture mechanics analysis indicates, a large defect stemming from a leak can be endured without catastrophic failure of the tank.

CONCLUSIONS

The results of the inspection show the tank welds contain sizable and severe defects resulting from poor fabrication. The results of the fracture mechanics analysis indicate that the tank is in little danger of catastrophic failure due to the defects because the combined operating stresses and estimated residual stresses are so low. The risk posed by general corrosion is low, as evidenced by the results of the ultrasonic shell thickness inspection. The greatest threat to the tank's integrity is posed by localized corrosion in the area of the weld defects. The localized accelerated attack could result in leaks through the thin weld metal in the areas of incomplete penetration. Even in the presence of a leak, the likelihood of catastrophic failure is very low unless the leak is allowed to become very large.

RECOMMENDATIONS

Good engineering practice dictates that the tank should be replaced. Continued safe operation of the tank is possible, though, for a finite period of time under certain conditions. We recommend that the tank be replaced within 18 months if operated in accordance with the following recommendations.

It is recommended that the tank be visually inspected, by entry into the vault, for leaks in the vertical welds at an interval of not less than once per month. Visual examination must be performed using adequate light and from positions in the vault sufficient to allow a reasonable view of the vertical welds. The circumferential welds should also be inspected in a similar fashion. Leaks should be relatively easy to detect if inspected carefully, as product dripping down the outside of the tank wall is expected to be plainly visible.

Instrumented leak detectors located on the vault floor are not sensitive enough to detect leakage until it becomes severe. As such, visual inspection will detect a leak long before an instrumented leak detector, and should be the primary method of leak detection. Instrumented detectors may be helpful for redundancy or in the event of an unforeseen catastrophic failure.

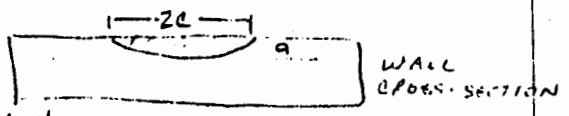
A detailed ultrasonic inspection of the welds, similar to that reported herein, should be performed in 6 to 9 months, depending upon the estimated date of replacement of the tank. The ultrasonic weld inspection may show propagation of defects due to stress or localized corrosion, and will allow comparison with the results of this inspection as guidance for further operation.

Limiting the fill height of the contents in the tank is not likely to result in any significant benefit, since the stress caused by the hydrostatic pressure head is low. Because the areas of severe lack of penetration in the lower course vertical welds are near the bottom of the tank, restricting the fill height to a level below the defect indications is impractical. It is therefore imperative to safe operation of the tank that visual inspections be carried out regularly.

The tank must be removed from service immediately should a leak be detected or corrosive failure thought to be imminent.

APPENDIX

CRITICAL FLAW SIZE CALCULATION



ASSUME : SURFACE FLAW
$a/2c \approx 0.025$
LONG CRACK, MORE THAN 1/2 t DEEP
$\sigma = 13$ ksi
$K_{Ic} = 200$ ksi $\sqrt{in}$

$$K_{Ic} = 1.12\,\sigma\sqrt{\frac{\pi a_c}{Q}}\cdot M_K$$

M_K, THE BACK FACE CORRECTION FACTOR, FOR CRACKS DEEPER THAN 1/2 t IS ASSUMED TO BE 1.5.

$$M_K = 1.0 + 1.2(a/t - 0.5)$$

$M_K \approx 1.0$ FOR $a \approx 0.5t$; $M_K = 1.6$ FOR $a = t$
THUS, M_K CONSERVATIVELY TAKEN AS 1.5 FOR A DEEP CRACK.

REARRANGING,

$$a_c = \left(\frac{K_{Ic}}{1.12\,\sigma M_K}\right)^2 \frac{Q}{\pi}$$ CRITICAL FLAW SIZE (DEPTH)

FOR $a/2c = 0.025$ AND $\sigma/\sigma_Y = 0.33$, $Q \approx 1.0$

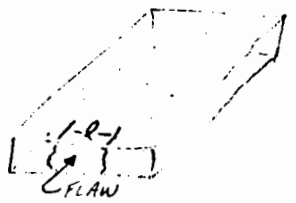
$$a_c = \left(\frac{200\text{ ksi}\sqrt{in}}{1.12(13\text{ ksi})(1.5)}\right)^2 \frac{1}{\pi} = 26.7\text{ in}$$

$\frac{a}{2c} = 0.025 = \frac{26.7}{2c}$; $2c = 1068$ in CRITICAL CRACK LENGTH.

$a_c > t$: THE CRITICAL FLAW SIZE (DEPTH) EXCEEDS THE WALL THICKNESS OF THE TANK, INDICATING THAT THE TANK WILL LEAK BEFORE IT BREAKS.

THROUGH THICKNESS CRACK CALCULATION

ASSUME : THROUGH THICKNESS FLAW
$K_{Ic} = 200$ ksi $\sqrt{in}$



$$K_{Ic} = \sigma\sqrt{\pi l}$$

$$l = \left(\frac{K_{Ic}}{\sigma}\right)^2\cdot\frac{1}{\pi} = \left(\frac{200\text{ ksi}\sqrt{in}}{13\text{ ksi}}\right)^2\cdot\frac{1}{\pi} = 75.4\text{ in } (6.3\text{ ft})$$ CRITICAL CRACK LENGTH

THIS IS THE CRITICAL THROUGH CRACK LENGTH BEFORE RUPTURE

FRACTURE MECHANICS ANALYSIS

SHELL: ASTM A-36 STEEL SPECIFIED
MIN YIELD STRENGTH: $\sigma_{YS} = 36{,}000$ psi
NOM. WALL THICKNESS: 0.250 in
MIN. WALL THICKNESS: 0.235 in (CCSI - 11/29/93)

DIA = 10 ft
HT: 8.5 ft

SPECIFIC GRAVITY OF CONTENTS 1.01 PER PHILIPS PERSONNEL

FOR WATER (S.G. = 1.0), 0.433 psi/ft PRESSURE HEAD. THE HYDROSTATIC HEAD PRESSURE FOR A FULL TANK IS:

$$0.433 \text{ psi/ft} \times 8.5 \text{ ft} = 3.68 \text{ psi}$$

THE STRESS IN THE TANK SHELL DUE TO THE HEAD PRESSURE OF THE CONTENTS IS GIVEN BY:

$$\sigma_{HOOP} = \frac{Pr}{t} \qquad \sigma_{LONG} = \frac{Pr}{2t}$$

THE HOOP STRESS ACTS ON THE VERTICAL WELDS, WITH THE MAXIMUM STRESS AT 90° TO THE LONGITUDINAL AXIS OF THE WELD. THE LONGITUDINAL STRESS ACTS AT 90° TO THE CIRCUMFERENTIAL WELDS, AND IS HALF THE MAGNITUDE OF THE HOOP STRESS.

$$\sigma_{HOOP} = \frac{3.68 \text{ psi}(5 \text{ ft})(12 \text{ in/ft})}{0.235 \text{ in}} = 940 \text{ psi} = 0.940 \text{ ksi}$$

RESIDUAL STRESSES DUE TO WELDING ALSO MAY ACT IN THE WELDS. MAGNITUDES OF RESIDUAL STRESSES UP TO 1/3 OF THE YIELD STRENGTH ARE NOT UNCOMMON AND ARE USED AS A CONSERVATIVE ESTIMATE.

$$\sigma_{RES} = 1/3\,\sigma_{YS} = 1/3\,(36{,}000 \text{ psi}) = 12{,}000 \text{ psi} = 12.0 \text{ ksi}$$

$$\sigma_{TOTAL} = \sigma_{HOOP} + \sigma_{RES} = 12.94 \text{ ksi} \approx 13. \text{ ksi}$$

THE ROOM TEMPERATURE FRACTURE TOUGHNESS OF A-36 STEEL IS TYPICALLY > 200 ksi$\sqrt{\text{in}}$ IN PLATES THICK ENOUGH TO PRODUCE PLANE STRAIN CONDITIONS. THE ROOM TEMPERATURE PLAIN STRESS FRACTURE TOUGHNESS FOR 0.250 in THICK PLATE CAN BE EXPECTED TO BE EVEN HIGHER. THE FRACTURE TOUGHNESS OF WELDMENTS IS TYPICALLY LESS THAN THAT OF PARENT METAL. THE EFFECTS OF THE WELD METAL AND THE 0.250 in PLATE ARE CONSERVATIVELY ASSUMED TO BALANCE, AND THE WELD FRACTURE TOUGHNESS IS TAKEN AS 200 ksi$\sqrt{\text{in}}$

$$K_{Ic} = 200 \text{ ksi}\sqrt{\text{in}}.$$

KOHLHAAS

CORPORATION

May 2, 1990

Signetics Company
9201 Pan American Fwy.
POB 10272
Albuquerque, NM 87184

Attn: Richard Timmons

Dear Richard:

Per your request for information regarding pressure testing of the 5000 gallon waste solvent tank, on your purchase order #159879KC.

In accordance with Kohlhaas Corporation testing procedure as well as UL142 guide lines, this tank was tested in the following manner:

1. Applying internal air pressure to the test pressure level of not less than 5 nor more than 7 psig.

2. Using soap suds at all welded connections to detect leaks for repair.

3. Defects are repaired and tank is then re-tested.

Should there by any need of further assistance in this matter, please do not hesitate in contacting us.

Sincerely,

Charles A. Kohlhaas, P.E.

CHARLES A. KOHLHAAS
NEW MEXICO
10560
REGISTERED PROFESSIONAL ENGINEER

MANUFACTURERS OF TANKS AND PRESSURE VESSELS ▸ SPECIAL STEEL FABRICATION ▸ FUELING AND LUBRICATION EQUIPMENT
ASPHALT HEATERS, PLANT EQUIPMENT AND PARTS
2212 First Street NW Albuquerque, New Mexico 87102 Post Office Box 25723 Albuquerque, New Mexico 87125
(505) 243-3266 - (800) 776-[illegible]

SPECIFICATION FOR WASTE SOLVENT TANK REPLACEMENT

DATE: 10/26/89

Signetics Company, located at 9201 Pan American Freeway, Albuquerque, NM will be replacing it's existing waste solvent storage tank with a new tank of identical construction and deminsion. The following criteria is specified for the constuction and delivery of teh tank:

1. The tank shall be made of mild steel with a wall thickness of 3/16".

2. The tank shall have the capacity of 5000 gallons and deminsions of 10'0" in diameter and 8'6" in height.

3. The tank shall comply with UL58-76 (steel underground tank for flammable and combustible liquids) and ASTM A36 tank design criteria.

4. The seams shall be double welded butt, API 12F.

5. The tank shall be manufactured with all opening and falnges as indicated on the attached drawing, M-27-D-0754.

6. The tank shall be delivered to Signetics - Albuquerque Plant site no later than December 18, 1989.

NDE SERVICES, INC.

PROFESSIONAL NON-DESTRUCTIVE TESTING

ULTRASONIC CERTIFICATION REPORT

CUSTOMER	CUSTOMER PO	JOB NUMBER	DATE
ROCKY MOUNTAIN EMTEC	512203-1	95-772	12/26/95

LOCATION	PROCEDURE	ACCEPTANCE STANDARD
PHILIPS - ALBUQUERQUE, N.M.	AWS D1.1 SECTION 6	AWS D1.1 SECTION 8

EQUIPMENT	CALIBRATION SETTINGS
PAN 2002	GAIN 54 db SUP. MIN B.W. NORM MATL. VALUE 5" FLAW GATE NA %

TRANSDUCER	
S/N A1736 FREQ. 2.25MHz SIZE 75" ANGLE 70	[x] CONTACT [ ] IMMERSION

MATERIAL	CALIBRATION INFORMATION
CARBON STEEL	PER AWS D1.1 - DSC BLOCK

ITEM DESCRIPTION	ITEM IDENTIFICATION	ACCEPT	REJECT	REMARKS
WASTE SOLVENT STORAGE TANK	TA-3		X	SEE NOTE BELOW
NOTE: REFER TO ATTACHED DWG FOR				
INDICATION LOCATIONS & EXTENT OF TESTING				

Robbi Abell — TECHNICIANS SIGNATURE

II — LEVEL

12/26/95 — DATE

NDE SERVICES, INC. - 8775 E. ORCHARD RD - SUITE 809 - ENGLEWOOD, CO 80111 - (303) 741-0518

NDE SERVICES, INC.
PROFESSIONAL NON-DESTRUCTIVE TESTING

MAGNETIC PARTICLE CERTIFICATION

FAA REPAIR STATION NO. FS6R546N

CUSTOMER	CUSTOMER P.O.	JOB NUMBER	DATE
ROCKY MOUNTAIN EMTEC	512203-1	95-772	12/26/95

LOCATION	EQUIPMENT	METHOD
PHILIPS - ALBUQUERQUE, N.M.	PARKER DA-200	DRY - CONTINUOUS

PROCEDURE	ACCEPTANCE STANDARD
ASTM E-709	NOTE ALL INDICATIONS

ITEM DESCRIPTION	ITEM IDENTIFICATION	ACCEPT	REJECT	REMARKS
WASTE SOLVENT STORAGE TANK	TA-3	X		SEE NOTE BELOW
NOTE: MT INSPECTION OF UPPER CIRCUMFERENTIAL				
WELDMENT & MAN-WAY TO SHELL WELDMENT				

Robbie J. Ball — TECHNICIANS SIGNATURE

II — LEVEL

12/26/95 — DATE

NDE SERVICES, INC. - 8775 E. ORCHARD RD - SUITE 809 - ENGLEWOOD, CO 80111 - (303) 741-0518

NDE SERVICES, INC.

PROFESSIONAL NON-DESTRUCTIVE TESTING

ULTRASONIC CERTIFICATION REPORT

CUSTOMER	CUSTOMER PO	JOB NUMBER	DATE
ROCKY MOUNTAIN EMTEC	512203-1	95-772	12/26/95

LOCATION	PROCEDURE	ACCEPTANCE STANDARD
PHILIPS - ALBUQUERQUE, N.M.	UTM-1	WALL THICKNESS MEASUREMENT

EQUIPMENT: PAN 2002

CALIBRATION SETTINGS: GAIN 48 db SUP. MIN B.W. NORM MATL. VALUE 1.25" FLAW GATE 25 %

TRANSDUCER: S/N 1295068 FREQ. 15 MHz SIZE 25" ANGLE STRAIGHT

[x] CONTACT
[ ] IMMERSION

MATERIAL: CARBON STEEL

CALIBRATION INFORMATION: STEP WEDGE S/N 10203

ITEM DESCRIPTION	ITEM IDENTIFICATION	ACCEPT	REJECT	REMARKS
WASTE SOLVENT STORAGE TANK	TA-3			SEE NOTE BELOW
NOTE: REFER TO ATTACHED DWG FOR				
TEST LOCATIONS & MEASUREMENTS				

Robbie J. Ball — TECHNICIANS SIGNATURE

II — LEVEL

12/26/95 — DATE

NDE SERVICES, INC. - 8775 E. ORCHARD RD - SUITE 809 - ENGLEWOOD, CO 80111 - (303) 741-0518

STATE OF ARKANSAS
Department of Pollution Control and Ecology
P. O. Box 8913 Little Rock, Arkansas 72219-8913
Telephone 501-562-7444

1

Please print or type. *(Form designed for use on elite (12-pitch) typewriter.)*

Form Approved. OMB No. 2050-0039. Expires 9-30-94

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. N M D 0 0 0 7 0 9 7 8 2 9 Manifest Document No. 5 0 3 9

2. Page 1 of 2

Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Philips Semiconductors
9201 Pan American Frwy NE
Albuquerque, NM 87113

4. Generator's Phone (505 822-7000

A. State Manifest Document Number
AR-684707

B. State Generator's ID

5. Transporter 1 Company Name
Rinchem Company

6. US EPA ID Number N M D 0 0 2 2 0 8 6 2 7

C. State Transporter's ID PC 1272 H 523

D. Transporter's Phone (505) 345-3655

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID PC ____ H ___

F. Transporter's Phone

9. Designated Facility Name and Site Address
ENSCO
American Oil Road
El Dorado, AR 71[redacted]

10. US EPA ID Number A R D 0 6 9 7 4 8 1 9 2

G. State Facility's ID

H. Facility's Phone (501) 863-7173

RECEIVED JAN 16 1996

11. US DOT Description *(Including Proper Shipping Name, Hazard Class, and ID Number)*	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. RQ, Waste flammable liquid, N.O.S., 3, UN1993, PG II (Acetone) (N-Butyl acetate)	006	DM	ESTIMATE 0 0 3 0 0	G	D001/F003
b. RQ, Waste mercury contained in manufactured articules 8, UN2809, PG I (Mercury)	001	DM	ESTIMATE 0 0 1 5 0	P	D009
c. Hazardous waste solid, N.O.S., 9, NA3077, PG III (Acetone) (Methanol)	002	CF	ESTIMATE 0 2 0 0 0	P	F003
d. Hazardous ~~waste~~ waste solid, N.O.S., 9, NA3077, PG III (Acetone) (Methanol)	004	DM	ESTIMATE 0 0 5 5 0	P	F003

J. Additional Descriptions for Materials Listed Above
11.a. WMDS #624706 11.b. WMDS #276961 11.a. ERG #27
11.b. ERG #60
11.c. WMDS #142370 11.d. WMDS #142370 11.c. ERG# 31
11.d. ERG #31
If no alternate TSDF, return to generator

K. Handling Codes for Wastes Listed Above
EMERGENCY RESPONSE INFORMATION:
Philips Semiconductors
(505) 822-7171
Contact chemical support

15. Special Handling Instructions and Additional Information
WW 95-338 95-331 Mercury M-273 Filter 95-344 HMDS 95-316 Resist 95-333 95-334 95-336 95-339 95-340 95-343 Solid Solvent 95-237* 95-346 95-335 95-345
*237 30 GAL DR.

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations and Arkansas state regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volumn and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford. On behalf of Philips Semiconductors:

Printed/Typed Name	Signature	Month Day Year
Robert Sanchez	Robert Sanchez	12 26 95

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year
ROBBIE MEIS	Robbie Meis	12 26 95

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month Day Year
Renese Smith	Renese Smith	01 05 96

GENERATOR
TRANSPORTER
FACILITY

AR-8-93

EPA Form 8700-22 (Rev. 9-88) Previous edition is obsolete.

NOT LESS THAN TWO (2) COPIES MUST MOVE WITH THE HAZARDOUS WASTE SHIPMENT. ONCE DELIVERED, THE TREAT-

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039. Expires 9-30-94

UNIFORM HAZARDOUS WASTE MANIFEST
(Continuation Sheet)

21. Generator's US EPA ID No.: NMD000709782

Manifest Document No.: AR-684707 95039

22. Page 2 of 2

Information in the shaded areas is not required by Federal law.

23. Generator's Name: Philips Semiconductors
9201 Pan American Frwy NE
Albuquerque, NM 87113
(505) 822-7000

L. State Manifest Document Number

M. State Generator's ID

24. Transporter ___ Company Name: Rinchem Company

25. US EPA ID Number: NMD002208627

N. State Transporter's ID: PC 1272 H 523

O. Transporter's Phone: (505) 345-3655

26. Transporter ___ Company Name

27. US EPA ID Number

P. State Transporter's ID

Q. Transporter's Phone

	28. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	HM	29. Containers No.	Type	30. Total Quantity	31. Unit Wt/Vol	R. Waste No.
a.	Waste flammable liquid, corrosive, N.O.S., 3 UN2924, PG II (Hexamethyldisilanzane)	X	001	D M	5	g	D001/D003
b.							
c.							
d.							
e.							
f.							
g.							
h.							
i.							

RECEIVED JAN 16 1996

S. Additional Descriptions for Materials Listed Above
11.a. WMDS #651360

T. Handling Codes for Wastes Listed Above
11.a. ERG #29
Philips Semiconductors
(505) 822-7171
Contact chemical support

32. Special Handling Instructions and Additional Information
HMDS Dr. #95316

TRANSPORTER

33. Transporter ___ Acknowledgement of Receipt of Materials ~~Rinchem Company~~ Philips Semiconductors

Printed/Typed Name: ROBBIE MEIS

Signature: Robbie Meis

Date: Month 12 Day 26 Year 95

34. Transporter ___ Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Date: Month Day Year

FACILITY

35. Discrepancy Indication Space

STATE OF ARKANSAS
Department of Pollution Control and Ecology
P. O. Box 8913 Little Rock, Arkansas 72219-8913
Telephone 501-562-7444

1

Please print or type. *(Form designed for use on elite (12-pitch) typewriter.)*

Form Approved. OMB No. 2050-0039. EXPIRES 9-30-96

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. N M D 0 0 0 7 0 9 7 8 2 9 5 0 3 8 — Manifest Document No.

2. Page 1 of 1

Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
PHILIPS SEMICONDUCTORS
9201 PAN AMERICAN FREEWAY MS/07
ALBUQUERQUE,, NM 87113
ATTN: ~~Dave Hightower~~ Robert Sanchez RS
(505) 822-7886

4. Generator's Phone (505) 822-7158

A. State Manifest Document Number: AR- 789295

B. State Generator's ID

5. Transporter 1 Company Name: TRIAD TRANSPORT
6. US EPA ID Number: O K D 9 8 1 5 8 8 7 9 1

C. State Transporter's ID: PC 1063 H 377

D. Transporter's Phone: (918)426-4751

7. Transporter 2 Company Name
8. US EPA ID Number

E. State Transporter's ID: PC ____ H ___

F. Transporter's Phone: ( ) -

9. Designated Facility Name and Site Address
Ensco El Dorado Facility
American Oil Road
El Dorado, AR 71731-957
10. US EPA ID Number: A R D 0 6 9 7 4 8 1 9 2

G. State Facility's ID

H. Facility's Phone: (501)863-7173

11. US DOT Description *(Including Proper Shipping Name, Hazard Class, and ID Number)*	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. RQ Waste FLAMMABLE LIQUIDS, N.O.S., 3, UN1993, PG II (D001, ACETONE) (pf: 276960),(),(erg: 27)	001	~~CF~~ TT RS	EST. MATE 025000	G R	D001,F003
b.					
c.					
d.					

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J. Additional Descriptions for Materials Listed Above
~~Reline: 276960~~
11.a. WMDS #276960 11.a. ERG #27
Load # 96587

If no alternate TSDF, return to generator WT Rec'd 14,520 #RS

K. Handling Codes for Wastes Listed Above

EMERGENCY RESPONSE INFORMATION:
Philips (505) 822-7171
Contact chem support

15. Special Handling Instructions and Additional Information
LOAD# 96587

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations and Arkansas state regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volumn and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford. On behalf of Philips Semiconductors:

Printed/Typed Name: Robert Sanchez — Signature: [signature] — Month Day Year: 12 24 95

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: J. T. BOATRIGHT — Signature: [signature] — Month Day Year: 12 24 95

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name — Signature — Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name: Nancie Witherspoon — Signature: [signature] — Month Day Year: 12 26 95

GENERATOR — TRANSPORTER — FACILITY

EPA Form 8700-22 (Rev. 9-88) Previous edition is obsolete.

NOTICE: THE ORIGINAL AND NOT LESS THAN TWO (2) COPIES MUST MOVE WITH THE HAZARDOUS WASTE SHIPMENT. ONCE DELIVERED, THE TREATMENT/STORAGE/DISPOSAL FACILITY MUST RETURN THIS ORIGINAL COPY TO THE GENERATOR.

DRUM #	DESCRIPTION OF CONTENTS	ACCUMULATION DATE
95-320	Lam Filters	12-8-95 ASH
95-321	Sog waste / IPA	12-9-95 ASH
95-322	Waste Resist / EBR	12-10-95 ASH
95323	Waste Resist / EBR	12/11/95
95-324	WASTE RESIST / EBR	12-11-95 BM.
95-325	Filters	12-13-95 ASH
95-326	waste Resist / EBR	12-12-95 KH
95-327	Waste Resist / EBR	12-15-95 ASH
95-328	Waste Resist / EBR	12-15-95 ABT
95-329	Waste Resist / EBR	12-16-95 ASH
95-330	Sog waste / IPA *	12-16-95 ASH
95-331	Waste Wrangler / Solvent Solid Waste	12/16/95
95-332	WASTE RESIST / EBR	12-17-95 BM
95-333	WASTE RESIST / EBR	12-19-95 KH
95-334	WASTE RESIST / EBR	12-20-95 KH
95-335	Waste From Closure / Solvent Solid Waste	12-20-95 ABT
95-336	Waste Resist / EBR	12-20-95 KH
95-337	Waste From Closure / Solvent Contaminated Debris	12-21-95 ABT
95-338	~~LOG~~ Solid Solvent waste	12-22-95 ASH
95-339	waste Resist / EBR	12-22-95 ASH
95-340	Waste Resist / EBR	12-22-95 ABT
95-341	HMDS - 5 gallon *	12-22-95 ABT
95-342	Waste wrangler / Solvent Solid waste *	12-23-95 KE
95-343	Waste Resist / EBR	12-23-95 ABT
95-344	Filters	12-23-95 ABT
95-345	Waste From Closure / Solvent Solid Waste	12-26-95 ABT
95-346	Waste From Closure / Solvent Solid Waste	12-26-95 ABT
~~95-347~~	~~Solid Solvents from closure~~ 30 Gallon Drum	~~12-24-95 RS~~ *
NOT USED	contents combined into W wrangler 95-342	

* 95-341 - still open at year end on new log sheet

* 95-342 - still open at year end on new log sheet

* 95-347 - Contents came from Closure

FORM B

SIGNETICS DRUM LOG

DRUM NO. 95-335 EPA NO. NMD000709782 UN NO. 3077

DATE	MANIFEST NO.	GENERATOR DEPT.	DESCRIPTION	VOLUME	CUM.	INITIALS
12/20			Waste from Closure	55	55	RBT

☐ CONTINUED

The container was sealed by Russell B. Thomas Date: 12-20-95

1 Copy Chem Support Operations 1 Copy ENVT Lab

FORM B

SIGNETICS DRUM LOG

DRUM NO. 95-337 EPA NO. NM0000 709782 UN NO. 3077

DATE	MANIFEST NO.	GENERATOR DEPT.	DESCRIPTION	VOLUME	CUM.	INITIALS
12/21			Waste from closure Solvent Contaminated Debris	40	40	RBT

☐ CONTINUED

The container was sealed by Russell E. Thomas Date: 12-21-95

1 Copy Chem Support Operations 1 Copy ENVT Lab

FORM B

SIGNETICS DRUM LOG

DRUM NO. 95-345 EPA NO. NMD000709782 UN NO. 3077

DATE	MANIFEST NO.	GENERATOR DEPT.	DESCRIPTION	VOLUME	CUM.	INITIALS
12/26			Waste From Closure	55	55	RBT

☐ CONTINUED

The container was sealed by Russell B. Thorson Date: 12-26-95

1 Copy Chem Support Operations 1 Copy ENVT Lab

FORM B

SIGNETICS DRUM LOG

DRUM NO. 95-346 EPA NO. NMD000707782 UN NO. 3077

DATE '95	MANIFEST NO.	GENERATOR DEPT.	DESCRIPTION	VOLUME	CUM.	INITIALS
12-26			Waste From Closure	55	55	RBT

☐ CONTINUED

The container was sealed by Russell B. Thomas Date: 12-26-95

1 Copy Chem Support Operations 1 Copy ENVT Lab

Not USED
Contents combined with
W Wrangler 95-342

FORM B

SIGNETICS DRUM LOG

DRUM NO. 95-347 EPA NO. _____ UN NO. _____

DATE	MANIFEST NO.	GENERATOR DEPT.	DESCRIPTION	VOLUME	CUM.	INITIALS

☐ CONTINUED

The container was sealed by _____ Date: _____

1 Copy Chem Support Operations 1 Copy ENVT Lab

Waste Wrangler

FORM B

SIGNETICS DRUM LOG

DRUM NO. 95-342 EPA NO. NMD000209782 UN NO. 3077

DATE 95	MANIFEST NO.	GENERATOR DEPT.	DESCRIPTION	VOLUME	CUM.	INITIALS
12-27		6201	Solid Solvent Waste	125	125	KPT
12-27		6301	Solid Solvent Waste	75	200	KPT
12/29		6301	Solid Solvent Waste	5	205	J.S.
12/29		6342	Solid Solvent Waste	17	222	
12/29		6301	Solid Solvent Waste	12	234	
12/29		6301	Solid Solvent Waste	8	242	
12/29		6301	Solid Solvent Waste	18	260	
12/29		6301	Solid Solvent Waste	20	280	
12/29		6301	Solid Solvent Waste	15	295	
12/29		6301	Solid Solvent Waste	15	310	
12/29		6301	Solid Solvent Waste	15	325	
12/29		6301	Solid Solvent Waste	25	350	
12-31		6301	Solid Solvent waste	13	363	
12-31		6301	Solid Solvent waste	20	383	
12-31		6301/6201	Waste from closure	30	413	RS

☐ CONTINUED

The container was sealed by Aaron J. Howard Date: 12-31-95

1 Copy Chem Support Operations 1 Copy ENVT Lab

PHILIPS

Philips Semiconductors

Philips Semiconductors
a North American Philips Company

9201 Pan American Freeway, NE
Albuquerque, New Mexico 87113
(505) 822-7000

Closure Certification

This certification is submitted in accordance with 40 CFR 264.115 and page 74 of the Philips Semiconductors Closure Plan dated November 1995.

"I certify under penalty of law that based upon my inquiry of the person or persons who managed the project, or those directly responsible for gathering the information, that the information submitted is, to the best of my knowledge and belief, true, accurate, and complete and that closure was performed according to the Closure Plan. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Keith Hampe
Vice President, Albuquerque Operations

2/28/96
Date

EPA ID No. - NMD000709782
RCRA WASTE STORAGE FACILITY
CLOSURE REPORT

PHILIPS SEMICONDUCTORS
9201 Pan American Freeway NE
Albuquerque, New Mexico 87113

February 28, 1996

Mike E. Brazie, P.E.
Office Manager

Alan MacGregor, P.E.
Principal

ERM-Rocky Mountain, Inc.
2201 Buena Vista NE
Suite 205
Albuquerque, New Mexico 87106
(505) 243-3330

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SOIL SAMPLING 7
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APPENDICES

APPENDIX A **Field Notes**

EXECUTIVE SUMMARY

ERM-Rocky Mountain, Inc. provided technical oversight and observation of the closure activities for the waste solvent tank, acid tanks, Chemical Storage #2, and Flammable Storage # 4 at the Philips Semiconductors facility at 9201 Pan American Freeway, Albuquerque, New Mexico. Closure specifications were provided in an approved closure plan, dated October 1995, and a sampling program specified in a Sampling and Analysis Plan dated November 1995. An ERM inspector was present during the closure activities, which were performed by third parties under direct contract to Philips Semiconductors. The ERM oversight was performed under the direct supervision of a New Mexico registered Professional Engineer, who performed spot inspections and was present during the critical closure activities and confirmation sampling. All closure activities specified in the closure plan have been completed as specified.

The closure performance standards for the waste solvent tank were: 1) non-ignitable; 2) volatile organic compounds (VOCs) below Risk-Based Concentrations (RBCs); and 3) minimum shell thickness of 0.125 inches. Analytical results from the confirmation samples have shown the the contents after tank cleaning to be non-ignitable and below the respective Risk-Based Concentrations for the specified VOCs. A tank inspection and ultrasonic testing measurements have shown the minimum shell thickness to be more than the specified 0.125 inches.

The closure performance standard for the acid tanks was pH greater than 5. Testing for pH was performed during the tank cleaning by the use of pH strips, which were observed to be greater than pH of 7 at the conclusion of the tank cleaning. This was confirmed by off-site analyses, which confirmed the pH was above 5 in these tanks and the tank vaults after cleaning.

The closure performance standard for Chemical Storage #2 was arsenic concentration below 0.05 mg/l and mercury concentration below 0.002 mg/l in final floor rinsates. Confirmation samples taken after final cleaning of this area showed the arsenic and mercury concentrations to be below the respective performance standards for closure.

The closure performance standard for Flammable Storage #4 was non-ignitable and VOC concentrations below RBCs. Confirmation samples taken after cleaning of this area showed that these performance standards had been attained.

Based on the observed closure activities and the results of the confirmation sampling, ERM-Rocky Mountain, Inc. certifies that closure has been performed in compliance with the requirements of the closure plan, and that the performance standards for closure have been demonstrated.

INTRODUCTION

During the period between December 20, 1995 and January 10, 1996, Philips Semiconductors performed closure of four RCRA waste storage facilities at their plant located at 9201 Pan American Freeway NE, Albuqueruque, New Mexico. The closure followed the activities specified in the closure plan dated October 1995. The waste storage areas were for wastes generated soley from the manufacturing operations of Philips Semiconductors. The closure was the final closure of two containerized waste storage areas (Chemical Storage #2 and Flammable Storage #4), two 5,000-gallon waste acid tanks, and one 5,000-gallon waste solvent tank.

The actual decomissioning, decontamination, and confirmation sampling and testing were performed by International Technology Corporation (IT), who was the closure contractor for Philips Semiconductors. ERM-Rocky Mountain, Inc. (ERM) observed the work performed by IT and its subcontractors, documented closure activities in a field log, observed the confirmation sampling, and reviewed the analytical results and final reports prepared by IT and its subcontractors. ERM provided this oversight service to Philips Semiconductors to ensure that the closure activites were performed in a manner consistent with the the requirements of the closure plan and to confirm that the closure performance standards were attained.

The following sections of this closure report discuss each of the four RCRA storage facilities, the closure activities performed at each area, and the results of the confirmation sampling relative to the performance standards for each area.

CHEMICAL STORAGE AREA #2

Description

Chemical Storage Area #2 (CS-2) was a taped area within the System Center at the plant, and was used for container storage of D004 and D009 hazardous wastes. The wastes were solid materials containing arsenic and mercury, which were stored in 55-gallon drums. The floor of this storage area was a coated concrete floor.

Closure Activities

Philips Semiconductors decommissioned CS-2 by removing all drums and equipment prior to initiation of decontamination, which began on December 20, 1995. A small berm was constructed on the floor to contain the wash and rinsate from the floor cleaning. The floor was pressure washed with a steam pressure washer and Alconox detergent. The wash water and rinsate were collected by vacuum, and drummed for disposal by Philips Semiconductors. Upon completion of the decomissioning activities, the rinsate was sampled and analyzed for mercury and arsenic.

Performance Standards

The closure performance standards and results of the confirmation sampling are shown on Table 1. Because the decontamination was performed in a manner consistent with the requirements of the closure plan, and the analytical results of the confirmation sampling show the mercury and arsenic concentrations to be below the performance standards, ERM considers CS-2 to have been closed in accordance with the requirements of the closure plan.

Table 1
Closure Results - Chemical Storage Area #2

Parameter	Performance Standard	Sampling Results
Arsenic	0.05 mg/l	0.02 mg/l
Mercury	0.002 mg/l	0.0017 mg/l

FLAMMABLE STORAGE #4

Description

Flammable Storage #4 (FS-4) was located in a room in the Systems Center, and was used to store containerized D001 and D003 hazardous wastes. These wastes were liquid solvent II, which consisted of a variety of proprietary positive photoresists, and solid wastes that contained solvent II. These materials were stored in 55-gallon drums. The floor of FS-4 was a coated concrete floor that sloped to drain into the waste solvent tank.

Closure Activities

Philips Semiconductors decommissioned FS-4 prior to initiation of decontamination activities which began on December 20, 1995, by removing all drums and equipment from the area. The floor was pressure washed with a steam pressure washer and Alconox detergent. The wash water and rinsate were drained into the waste solvent tank through the floor drain. After completion of the decontamination activities, a sample of the rinsate was collected for confirmation analysis.

Performance Standards

The closure performance standards and results of the confirmation sampling are shown on Table 2. Because the decontamination was performed in a manner consistent with the requirements of the closure plan, and the analytical results of the confirmation sampling show that the performance standards were satisfied, ERM considers FS-4 to have been closed in accordance with the requirements of the closure plan.

Table 2
Closure Results - Flammable Storage #4

Parameter	Sampling Results	Performance Standard
Ignitability	>96.5 °C	>60 ° C
Methanol (mg/L)	ND	18,000
Acetone (ug/L)	22	3,700
Benzene (ug/L)	ND	0.36
n-Butyl alcohol (1) (ug/L)	ND	0.36
Carbon Disulfide (ug/L)	ND	21
Carbon Tetrachloride (ug/L)	ND	0.16
Chlorobenzene (ug/L)	ND	39
Chloroform (ug/L)	ND	0.15
Cyclohexanone (1) (ug/L)	ND	30,000
1,1-Dichloroethene (ug/L)	ND	0.044
1,2-Dichloroethane (ug/L)	ND	0.12
Ethyl acetate (1) (ug/L)	ND	33,000
Ethyl benzene (ug/L)	ND	1,300
Ethyl ether (ug/L)	ND	1,200
Isobutanol (1)	ND	1,800
Methyl ethyl ketone (ug/L)	ND	1,900
Methyl isobutyl ketone (ug/L)	ND	2,900
Methylene chloride (ug/L)	ND	4.1
Orthodichlorobenzene (ug/L)	ND	270
Tetrachloroethene (ug/L)	ND	1.1
Toluene (ug/L)	ND	750
1,1,1-Trichloroethane (ug/L)	ND	1,300
1,1,2-Trichloro-1,2,2-Trifluoroethane (ug/L)	ND	59,000
1,1,2-Trichloroethane (ug/L)	ND	0.19
Trichloroethene (ug/L)	ND	1.6
Trichlorofluoromethane (ug/L)	ND	1,300
Vinyl chloride (ug/L)	ND	0.019
Xylene (ug/L)	ND	1,400

ACID TANKS

Description

The facility had two 5,000-gallon waste acid tanks in a concrete tank vault. Both tanks were fiberglass-wrapped poly tanks. The Oxide Etch tank was used to store waste-buffered oxide etch,

classified as D002 waste, which primarily was dilute hydrofluoric acid (HF) and ammonium fluoride. The "HF" tank was used to store waste hydrofluoric acid, classified as D002 waste.

Closure Activities

On December 21, 1995, the remaining waste from both tanks was pumped out of the tanks and into the on-site wastewater treatment system. The pH of the product was tested using pH paper, and the tanks were neutralized by spraying a mild citric acid solution into the tanks. After completion of the neutralization, the tanks and process lines were washed using a pressure washer and Alconox detergent. After completion of the tank and line cleaning, the rinsate was sampled and analyzed to confirm the performance standards had been satisfied.

Performance Standards

The performance standard for the acid tanks was a pH greater than 5. Table 3 shows the standards and analytical results for the two tanks and the concrete tank vault. Because the decontamination was performed in a manner consistent with the requirements of the closure plan, and the analytical results of the confirmation sampling show that the performance standards were satisfied, ERM considers FS-4 to have been closed in accordance with the requirements of the closure plan.

Table 3
Closure Results - Acid Tanks

Area	Performance Standard (pH)	Sampling Results (pH)
Oxide Etch Tank (pH)	Greater than 5.0	8.01
Oxide Etch Vault (pH)	Greater than 5.0	6.49
HF Tank (pH)	Greater than 5.0	8.02
HF Vault (pH)	Greater than 5.0	6.58

SOLVENT TANK

Description

The facility had one 5,000-gallon waste solvent tank in a concrete tank vault. The tank was a carbon steel tank which contained photolithic cleaning waste, classified as F002, F003, and D001 waste.

Closure Activities

Prior to the decontamination, all of the process lines leading into the tank were flushed into the tank. On December 24, 1995, the bulk product in the tank was pumped out and into a vacuum tank. The tank was then pressure washed with a steam pressure washer and Alconox detergent. After completion of the tank and line cleaning, the rinsate was sampled and analyzed to confirm the performance standards had been satisfied. The tank was inspected and shell thickness was measured using an ultrasonic test. The testing included all sections of the tank and all of the welds, except for the tank bottom and two one-foot sections which could not be reached by the inspectors.

Performance Standards

The performance standard for the waste solvent tank, along with the results of the confirmation sampling and the shell thickness testing, are shown on Table 4. Because the decontamination was performed in a manner consistent with the requirements of the closure plan, and the analytical results of the confirmation sampling show that the performance standards were satisfied, ERM considers the waste solvent tank to have been closed in accordance with the requirements of the closure plan.

Table 4
Closure Results - Solvent Tank

Parameter	Sampling Results	Performance Standard (ug/L)
Ignitability	>96.5 °C	>60 ° C
Methanol (mg/L)	ND	18,000
Acetone (ug/L)	ND	3,700
Benzene (ug/L)	ND	0.36
n-Butyl alcohol (1) (ug/L)	ND	0.36
Carbon Disulfide (ug/L)	ND	21
Carbon Tetrachloride (ug/L)	ND	0.16
Chlorobenzene (ug/L)	ND	39
Chloroform (ug/L)	ND	0.15
Cyclohexanone (1) (ug/L)	ND	30,000
1,1-Dichloroethene (ug/L)	ND	0.044
1,2-Dichloroethane (ug/L)	ND	0.12
Ethyl acetate (1) (ug/L)	ND	33,000
Ethyl benzene (ug/L)	ND	1,300
Ethyl ether (ug/L)	ND	1,200
Isobutanol (1)	ND	1,800
Methyl ethyl ketone (ug/L)	ND	1,900

Methyl isobutyl ketone (ug/L)	ND	2,900
Methylene chloride (ug/L)	ND	4.1
Orthodichlorobenzene (ug/L)	ND	270
Tetrachloroethene (ug/L)	ND	1.1
Toluene (ug/L)	ND	750
1,1,1-Trichloroethane (ug/L)	ND	1,300
1,1,2-Trichloro-1,2,2-Trifluoroethane (ug/L)	ND	59,000
1,1,2-Trichloroethane (ug/L)	ND	0.19
Trichloroethene (ug/L)	ND	1.6
Trichlorofluoromethane (ug/L)	ND	1,300
Vinyl chloride (ug/L)	ND	0.019
Xylene (ug/L)	ND	1,400
Shell Thickness	0.243 in	$\geq$ 0.125 in
Top Thickness	0.219 in	NA

SOIL SAMPLING

Description

The closure plan included a soil sampling plan for collecting and analyzing soil samples from beneath the concrete floor of FS-4 and the soil sampling ports within the wastewater neutralization area. Soil samples were collected from three locations in FS-4 by using a concrete coring machine and stainless steel soil sampling spoons. Soil samples were collected from four sampling ports within the wastewater neutralization area by driving a soil sampler into the soil at the bottom of each port.

Soil Sampling Results

The only compound detected in the soil samples from FS-4 was acetone, which was present in all three samples at concentrations ranging from 1.1 mg/kg to 250 mg/kg, all of which are below the acetone performance standard of 7,800 mg/kg. The samples from the wastewater neutralization area all had a pH above the performance standard of 5.0. All other constituents detected were below the performance standards.

CONCLUSION

All closure activities have been completed in compliance with the requirements of the RCRA closure plan. All requiremements for facility closure as specified in the closure plan have been addressed. Based on the confirmation sampling results, the decontamination has resulted in removal of all hazardous wastes to concentrations below the performance standards established in the closure plan. Based on the soil sampling results, no contaminants have been released from

these facilities at concentrations above the performance standards, and no evidence of any hazardous waste release was discovered during the facility closure. Based on the results of the tank inspection and shell thickness testing, the solvent tank satisfies the shell thickness requirement specified in the closure plan.

Based on all of the above, ERM considers this facility to have been closed in accordance with all requirements of the closure plan.

REFERENCES

International Technology Corporation, February 1996, "Closure Report Hazardous Waste Storage Areas Philips Semiconductors Albuquerque, New Mexico."

Rocky Mountain Engineering and Materials Technology, Inc., January 22, 1996, "Mixed Solvent Waste Tank Inspection and Analysis."

Phlips Semiconductors, November 1995, "RCRA Closure Plan Revision (Revision of Permit Attachment F) Sampling and Analysis Plan," EPA ID No. NMD00709782.

Philips Semiconductors, October 1995, "RCRA Closure Plan Addendum (Revision of Permit Attachment F)," EPA ID No. NMD00709782.

12-20-95 N51003.0 (1)

0500 — ARRIVE AT PHILIPS — PAUL CASSEDAY REPRESENTING ERM-KM ON SITE OVERSITE OF RCRA TANK CLOSURE. JIM STAPLETON, TERRY RULON, AND 3 WORKMEN FROM IT CORP. MELANIE McKINLEY FROM PHILIPS — SIGN IN, HEAD TO FS4

0515 - WORKMEN SUIT UP (MODIFIED LEVEL D) TO POWER WASH FS4 FLOOR. TERRY PREPARES H&S FORMS.

0530 - H&S MEETING - WORK CREW SIGNS IN.

0545 - CREW CONTINUES PREPPING FS4 VISQUEENE PUT UP AS SPLASH GUARD ON WALLS

0600 - JIM STAPLETON OFFSITE

0630 - VISQUEENE PLACEMENT COMPLETE.

0650 - POWER WASHER IN FS4, PIG MAT PLACED OUTSIDE DOORS TO CATCH WATER. 2 WORKMEN DRESSED IN RAINSUITS, BOOTS, GLOVES, SPLASH SHIELDS PREPARE TO START POWER WASH

0710 - CHECKED CS-2 AND TANKS 3, 4, 5 — WHILE PRESSURE WASH OCCURS, THESE AREAS WILL BE PREPPED FOR CONTINUED WORK

RPC

(2) N51005.0 12-20-95

0735- IT HAVING PROBLEMS W/ PRESSURE WASH - NO WATER -- MELANIE M. (PHILLIPS) APPEARS SOMEWHAT ANNOYED W/ SLOW PROGRESS.

0740 - AFTER SWITCHING SPRAYERS, POWER WASH BEGINS.

0800 - PRESSURE WASH ~ ½ DONE - 2ND CREWMAN FOLLOWS, SCRUBBING FLOOR.

0815- 2ND SPRAY WASHER OPERATING.
↳ STEAM CLEANER.

0835- SMOKE DETECTOR SET OFF IN FS4 BY STEAM CLEANER - WILL CALL LYLE (2723) WHEN WORK IS COMPLETED TO RESET.

0840 - IT COLLECTS ~~RINSATE~~ RINSE WATER SAMPLES FOR FS4 3 AMBER GLASS VOAs 8240/8260, 1 IGNITABILITY, ALSO COLLECTS DUPLICATES.
- RINSE WATER COLLECTED NEXT TO DRAIN, IN FS4 - APPROPRIATE SAMPLE BOTTLES FILLED.

0935- POWER WASH IN FS4 COMPLETED 1 WORKMEN ALREADY SETTING UP AT CS2 FOR WASH DOWN.

RPC

12-20-95 N51008.0 (3)

0950- WASH CREW CONTINUES SETTING UP AT CS2. TERRY & HELPER RETURN TO FS4 TO CONDUCT CORING AND SOIL SAMPLING.
- DISCUSSED SAMPLE CONTAINERS W/ TERRY. IGNITABILITY CONTAINERS ARE PLASTIC, NOT AMBER GLASS -- ~~THE~~ AFC TERRY TELLS ME THESE ARE THE DESIGNATED CONTAINERS SUPPLIED BY THE LAB - ATI.

1000 - CALL MELANIE - NO CORING UNTIL WE FIND OUT WHERE ELECTRICAL CONDUITS IN FS4 LEAD.

1030 - JIM STAPLETON RETURNS - 2 PHILLIPS WORKMEN CHECKING ELECTRICAL CONDUITS.

1050 - ELECTRICITY OFF IN FS4 CORING BEGINS -- CLEANING WORK CONTINUES IN CS-2

1115 - CALL OFFICE - SPEAK W/ CHRIS BAUM - UPDATE HER ON PROGRESS.

1120 - 1ST CORE COMPLETE - CORE REMOVED - NOT ENOUGH RECOVERY - CORE BROKE OFF

1130 - CORE CHUNK REMOVED - CONTINUE IN SAME SPOT

RPC

N51003.0 12-20-95

1130- RINSE WATER SAMPLES COLLECTED AT CS-2 - WET VAC WAS USED TO REMOVE RINSE WATER FROM FLOOR -- WATER WAS EMPTIED INTO POLYETHYLENE DRUM- RINSE WATER SAMPLE WAS TAKEN FROM LAST WET VAC WATER COLLECTED. LACK OF SLOPE OR DRAIN AREA PREVENTED SAMPLES FROM BEING COLLECTED ANY OTHER WAY.
SAMPLES COLLECTED FOR ARSENIC, MERCURY.

1135- CORER GOES THROUGH CONDUIT, COMPLETES 1ST CORE -- HAND AUGER TOO LARGE TO FIT DOWN HOLE. JIM STAPLETON OFF-SITE TO FIND RIGHT SIZE EQUIPMENT.

1140- CORING CONTINUES IN SECOND LOCATION

1150- 2ND CORE LOCATION COMPLETE - BEGINS CORING AT THIRD LOCATION - NEXT TO DRAIN (FS4). SHOTBLAST REP. IS ON SITE - ENTERS FS4, BEGINS PREP WORK FOR SHOTBLASTING FS4 FLOOR.

1210 CORING COMPLETE - STILL WAITING FOR SAMPLER. IT BREAKS DOWN CORING EQUIP. SHOT BLAST CREW CONTINUES PREPPING FLOOR.

1215- IT (TERRY) CONDUCTS H&S MEETING

RPC

12-20-95 N53001.E

WITH SHOTBLAST.

1225- JIM RETURNS W/ STAINLESS STEEL SPOONS FOR SOIL SAMPLING.

1235- SOIL SAMPLES COLLECTED AT FS4 SAMPLE WAS COLLECTED USING A CLEAN STAINLESS STEEL SPOON. THE SOIL WAS PACKED INTO 4 OZ. CLEAR GLASS JARS. ANALYSIS WAS FOR: VOLATILE ORGANICS. SHOT BLAST CREW BEGINS SETTING UP OUTSIDE FS-4.

1300- RINSATE SAMPLE COLLECTED BY IT.
3 VOAS (AMBER) 8240/8260
2 VOAS (CLEAR) METHANOL

1315- JIM OFF SITE TO DELIVER SAMPLES TO ATI.

1325- SHOTBLASTING BEGINS. IT CREW CLEANING UP EQUIPMENT AROUND FS-4, BEGIN SETTING UP AT TANK #4.

1335- CALL CHRIS AT OFFICE - UPDATE PROGRESS AND TELL HER THAT SHE WILL NOT BE NEEDED ON-SITE TODAY

1340- TALKED WITH TERRY RULAN (IT) ABOUT SCHEDULE FOR 12-21 - THE PLAN IS TO TRACE THE LINES TO FIND OUT IF TANKS 4 & 5 ARE INTERCONNECTED. IF THEY

RPC

(6) N51003.0 12-20-95

ARE, BOTH WILL BE CLEANED SIMULTANEOUSLY
- PLAN ON CHECKING CONTENTS OF EACH TANK
TO DETERMINE IF THEY CAN BE PUMPED
OR NOT, PROCEED FROM THERE. SOLVENT
TANK (#3) IS SCHEDULED TO BEGIN ON
SATURDAY 12-23. SOIL SAMPLING WILL
OCCUR DURING THE TANK CLEANING STAGE,
BUT NO DEFINITE TIME HAS BEEN SET.

1350 - IT ALMOST SET UP AT TANK #4.

1405 SHOTBLAST FINISHED, BEGIN BREAKING
DOWN EQUIPMENT, 1 WORKMAN HAND
GRINDS EDGES & CORNERS OF FLOOR
WHERE SHOT BLAST COULD NOT REACH.

1420 - SET UP AT TANKS COMPLETED BY IT.
IT WORK CREW OFF-SITE. SHOTBLAST
CONTINUES FINISHING WORK IN PS-4.

1430 ERM OFF SITE. TERRY RULON (IT) REMAINS
AT PHILIPS UNTIL SHOTBLAST IS FINISHED

RPC

RPC

(7) N51003.0 12-21-95

0600 CHRIS BYNUM (ERM) ON-SITE AT
PHILIPS SEMICONDUCTORS
IT CREW ALSO ONSITE (JIM SINGLETON,
TERRY RULON, AND 3-MAN CREW.)

0605 DAVE PAULSON (PHILIPS) ARRIVES
MOVE DOWN TO TANK AREA.

0610 IT COMMENCES HEALTH & SAFETY
MEETING - PREP FOR LEVEL B
CONFINED SPACE ENTRY OF HF TANK.
ATTENDEES SIGN-OFF ON H&S MEETING
FORM.

0630 IT CREW BEGINS TO MOBILIZE
EQUIPMENT / CALIBRATING H&S
EQUIPMENT.

0640 TERRY RULON TESTING EXTERIOR
TANK ENCLOSURE ATMOSPHERE FOR
O_2, etc. Ø COMBUSTIBLES / 21% O_2
SET-UP CONT. REDUCTION ZONE (WASH
BASINS - SET-UP ON TANK GRATING)
TESTED 3 ATMOSPHERIC LOCATIONS.

0645 OTHER WORKERS IN ADJACENT AREA
PREPARING TO DO CONCRETE WORK
UNRELATED TO CLOSURE.
IT CREW - RUNNING LINES FOR
SUPPLIED AIR.

CDB

(8) CDB ~~NJFS~~ N51003.0 12-21-95

0648 TERRY RULON TESTING EXTERIOR ATMOSPHERE AT 3 LOCATIONS, Ø ppm w/ OVM. WILL LEAVE OVM RUNNING ABOVE GRATING FOR CONTINUOUS MONITORING PREPARING DRAEGER TUBES (HF)

0715 MEET W/ CONCRETE CONTRACTORS TO MAKE THEM AWARE OF POTENTIAL SAFETY HAZARDS. TERRY RULON EXPLAINS AIR MONITORING ISSUES, LOCATION OF HOSES.

0730 CONCRETE CONTRACTORS SIGN OFF ON H&S BRIEFING.

0735 IT RUNNING HOSE INTO VAULT CONNECTED TO WASTE NEUTRALIZATION SYSTEM.

0745 IT HAS FINAL MEETING PREPARING FOR CONFINED SPACE ENTRY.

0752 IT BEGINS SUITING-UP

0800 OPEN GRATING - ORGANIZING TRIPOD, TETHER LINE & LADDER INTO VAULT.

0810 TERRY RULON USING DRAEGER MULTI-GAS TO TEST ATMOSPHERE IN VAULT. PICKING UP CO READINGS; ALSO READING ON OVM (Ø.3 ppm).

CDB

(9) N51003.0 12-21-95

DAVE PAULSEN PROCEEDS TO CLOSE LOADING DOCK DOORS TO ELIMINATE FUMES FROM VEHICLES OUTSIDE.

0815 TERRY RULON COMPLETES CONFINED SPACE ENTRY PERMIT.
IT CREW BEGINS PREPPING TOP OF TANK -- DISCONNECTING PVC PIPING THAT PASSES THROUGH MANWAY.

0830 DAVE PAULSON REVIEWS & SIGNS CONFINED SPACE ENTRY PERMIT.

0832 CALL MIKE BRAZIE (EXM) AT OFFICE TO UPDATE

0840 OPENING MANWAY TO TANK #4
TESTING ATMOS. W/ DRAEGER TUBE THROUGH OPENING IN MANWAY.
READING Ø ppm ACID
Ø ppm AMMONIA

0900 MANWAY OPEN - TAKE SET OF DRAEGER TUBE READINGS, TEST O_2

0915 BEGIN PUMPING PRODUCT

0925 TERRY RULON REPORTS NO SOLIDS IN TANK, TANK LOOKS "CLEAN". CONTINUE PUMPING

CDB

0945 IT TESTS pH of FLUID REMAINING IN TANK. RESULTS = 2 to 3

0950 FINISHED pumping - MELANIE McKINLEY ON-SITE TO CHECK PROGRESS.

0955 IT SUITING-UP FOR LEVEL B. PERSON GOING INTO TANK TO SQUEEGEE SIDES AND BOTTOM IS IN LEVEL B. PERSON TO REMAIN IN TANK VAULT IS IN "MODIFIED" LEVEL C. (I.E. SAME BODY PROTECTION [TRIPLE BOOTIES + GLOVES, TAPED WRISTS + BOOTIES - FULL BODY SUITE (DOUBLE) w/ HOOD] BUT WEARING FULL FACE RESPIRATOR INSTEAD OF SUPPLIED AIR.

1015- PAUL CASSEDAY ON-SITE TO CONTINUE OVERSITE.

1040- CHRIS BYRUM OFF-SITE - CLEANING (SQUEEGEE) OF TANK #4 CONTINUES. DIFFICULT TO SEE WHAT IS GOING ON IN TANK, EVEN AT EDGE OF CONTROL ZONE.

1045- TERRY RULON CHECKING MONITORING POINT #1 FOR ORGANIC VAPORS, FLUID (WATER, OIL) DOWN PIPE. OVM = 0.6-0.9 ppm.

RPC

1050 - CHECKING pH OF VENTILATION HOSE (FLUID FROM TANK ON IT) pH = 7

TANK CLEANER (SUPPLIED AIR) OUT OF TANK 4. BEGIN REMOVAL OF PERSONAL PROTECTIVE EQUIP.

- IT TESTS pH OF REMAINING WATER IN TANK pH = 7
- PERSON IN TANK VAULT SEALS MANWAY, BEGINS BRINGING UP EQUIPMENT FROM VAULT
- NO ORGANIC VAPORS DETECTED
- NO COMBUSTIBLES DETECTED
- AMMONIA & CHLORINE MEASURED 0.
- O_2 = 21.8%

1100 - IT BEGINS BREAKING DOWN MATERIAL AT TANK 4, BEGIN SET UP TO CLEAN TANK 5.

1110- GRATING OPEN, TRIPOD ~~BR~~ SITUATED OVER OPENING - 2 CREWMEN DOWN LADDER TO TOP OF TANK. THEY WILL WORK TO OPEN MANWAY AND PREP FOR INTERNAL CLEANING. REMOVE PIPING THAT PASSES THROUGH MANWAY.

1120 - TERRY RULON PREPS MONITORING EQUIPMENT TO TEST AIR IN TANK.

PJC

1125- DRAGER TUBES USED TO CHECK AIR THROUGH MANWAY. TEST FOR CHLORINE, ACID, H_2S, AMMONIA = 0.
pH OF FLUID IN TANK MEASURED pH = 5.
O_2 = 21.6%, MANWAY OPENED.
CO = 30 ppm - HIGH LEVEL DUE TO FUMES FROM OTHER WORK GOING ON IN TANK AREA - STILL BELOW ACTION LEVEL. LEL = 0
ACCORDING TO TERRY RULON (IT)

1130 - BEGIN PUMPING REMAINING FLUID FROM TANK 5

1145- SHUT DOWN PUMP - MATERIAL FROM TANKS 4 & 5 HAS LOWERED pH OF EFFLUENT BELOW PERMITTED LIMIT. NEED TIME FOR PHILIPS TO STABILIZE pH BEFORE IT CAN RESUME PUMPING TANK 5.

1155- PUMPING RESUMES. JIM STAPLETON (IT) ON SITE - HE AN TERRY RULON CHECK MONITORING POINT 1 FOR FLUIDS. NO WATER OR OIL DETECTED IN MONITORING POINT 1.

1200- IT CREW BEGINS READYING TO RRC.

ENTER TANK. DAVE PAULSON ON SITE - CONCERNED ABOUT CONFINED SPACE TRAINING OF IT CLEANING CREW (ONE CREW MEMBER WAS ON TOP OF TANK WITHOUT SAFETY LINE WHEN HE ARRIVED). TERRY RULON GETS WORKER OUT, HAS CREW HARNESS UP BEFORE CONTINUING WORK UNDER GRATE.

1230- IT CREW READY TO ENTER TANK. - SAME SET-UP AS PREVIOUS WORK.
PERSON GOING INTO TANK IN LEVEL (B)
PERSON ON TOP OF TANK IN TANK VAULT IN LEVEL (C) MODIFIED - SAME AS B, BUT USING FULL FACE RESPIRATOR

1235- TANK CLEANING BEGINS.

1245- PROBLEMS WITH THE PUMP USED TO REMOVE LIQUID FROM THE TANK - SECOND PUMP BROUGHT IN TO REPLACE IT.

1300- PROBLEMS GETTING 2ND PUMP OPERATING

1310- WORKERS EXIT TANK VAULT -- PUMP STILL RUNNING TO PICK UP LAST ~2" OF FLUID IN TANK BOTTOM.
TERRY RULON TAKES pH OF TANK FLUID pH = 5.

1320- TERRY RULON TELLS ME THAT THE WORKERS WILL BE CLEANING UP THE SITE ABOVE

RPC.

THE VAULT. THEY WILL THEN MOVE THE PUMP CLOSER TO THE TANK SO THAT IT WILL HAVE A STRONG ENOUGH VACUUM TO PULL THE REMAINING FLUID FROM THE TANK. AFTER THAT, THEY WILL RETURN TO THE TANK VAULT AND CLEAN THE TANK INTERIOR.

1330 - MIKE BRAZIE, MELANIE McKINLEY ON-SITE CHECKING PROGRESS. MIKE WANTS ME TO CALL AND LEAVE A MESSAGE WHEN I KNOW:
- SOIL SAMPLING SCHEDULE
- TANK RINSE SAMPLING SCHEDULE
- SAMPLING SCHEDULE FOR WASTE SOLVENT TANK.

ALSO NEED TO CALL WHEN I FIND OUT ANY SAMPLING RESULTS.

1340 - PUMP RELOCATED TO THE TOP OF TANK 5 - WORKERS REENTER TANK VAULT

1345 - PUMP RESTARTED. NEW LOCATION WORKING.

1355 - TANK CLEANING BEGINS.

1405 - WORKERS EXIT TANK VAULT. BEGIN REMOVING P.P.E.

1410 - TERRY RULON TESTS pH OF RINSE WATER pH:

RRC

1415 - TERRY RULON HAS IT CREW MOVE TO EAST SIDE OF WASTEWATER TREATMENT ROOM - PREPARE TO FLUSH AND RINSE TANK LINES.

1430 - 1ST PIPE FITTING REMOVED.

1445 - WORK CREW CHANGES INTO NEW PPE LEVEL B, PREPARE TO RINSE LINE. & LEVEL C (AS BEFORE)

1500 - TERRY RULON EXPLAINS THAT ONE LINE WILL BE FLUSHED BY PUSHING THE HOSE ALL THE WAY THROUGH IT AND BACK (LIKE RUNNING A 'MOLE' LINE). A FITTING WILL BE ATTACHED TO THE 2ND LINE AND THE HOSE WILL BE ATTACHED AND THE LINE FLUSHED.

TERRY ALSO TELLS ME THAT THE PLAN FOR SAMPLING 12-22 IS TO CONDUCT EVERYTHING (SOIL & WATER) AFTER NOON.

1510 - 2 WORKERS ENTER TANK VAULT.

1515 - BUILDING EVACUATION ALARM. ALL WORKERS EVACUATED FROM PREMISES

1540 - ALL CLEAR GIVEN - ALLOW WORKERS TO REENTER. TERRY DECIDES TO WAIT FOR LINE RINSING AND TANK

RR

(16) N51003.0 12-~~22~~ 21-95 RPC

RINSING UNTIL 12-22. IT CREW BEGINS CLEAN UP AND SHUT DOWN IN TANK VAULT AREA.

1600- ERM - OFFSITE

RPC

RPC

12-22-95 N51003.0 (17)

0630 - ARRIVE AT PHILIPS SEMICONDUCTORS - R. PAUL CASSEDAY ON-SITE TO CONTINUE OVERSITE OF RCRA CLOSURE.

IT WORK CREW SETTING UP EQUIPMENT AROUND TANK VAULT - PREPARING TO CONTINUE LINE RINSE THAT WAS POSTPONED 12-21. JIM STAPLETON, TERRY RULON (IT) ALSO ON-SITE.

0645- H&S MEETING ALREADY CONDUCTED BY IT -- WORK CREW SETS UP AND CALIBRATES H&S EQUIPMENT.

0700 - DECON AREA SET UP (PLASTIC SHEETING, STORAGE DRUM, WASH BASINS, ETC) CREW WILL AGAIN BE IN MODIFIED LEVEL C AND LEVEL B FOR CONFINED SPACE ENTRY.

0720 - PHILIPS EMPLOYEE ENTERS EXCLUSION ZONE, READS AND SIGNS OFF ON CONFINED SPACE PERMIT. HE IS WITH PHILIPS EMER. RESPONSE TEAM

0740- TERRY RULON BEGINS MONITORING TANK VAULT FOR O_2, LEL, ETC.

WORK CREW BEGINS DONNING P.P.E. FOR CONFINED SPACE ENTRY.

SET UP FOR LINE FLUSH WILL

RPC

HAVE 1 CREWMAN FLUSHING LINES, 1 ON TOP OF TANK, AND 1 IN TANK. TERRY RULON WILL PROVIDE SURFACE WATCH.

0805- MELANIE McKINLEY ON SITE - DROPS OFF FORMS TO RECORD AIR MONITORING IN CONFINED SPACE - INFORMATION IS FOR EMERGENCY RESPONSE TEAM AT PHILIPS

0815- Jim STAPLETON (IT) PREPARES SAMPLE LABELS AND CofC's FOR RINSE WATER AND SOIL SAMPLING THAT WILL COMMENCE LATER IN THE DAY.

0835- LEVEL B CREW MAN ENTERS TANK VAULT.

0840- WORKMAN IN LEVEL C ENTERS TANK VAULT.

0850- TERRY DISCUSSED WITH Jim A POTENTIAL CO PROBLEM IN TANK VAULT, DUE TO OPERATION OF CONCRETE CORE Co. IN SAME AREA. VENTILATION IS CONDUCTED IN TANK VAULT - IF CO LEVEL DOES NOT DROP WITHIN 1 HOUR, TERRY WILL SHUT DOWN CONCRETE CORING ACTIVITY.

0910- WORKMEN CONTINUE RINSING OUT

RPC

LINE AND CLEANING TANK 4.

0920- pH MEASURED IN RINSE WATER. pH = 7.

0925- Jim STAPLETON & TERRY RULON DECIDE TO SAMPLE RINSE WATER FROM ~~BPC~~ RPC. TANK 4 - SAMPLE COLLECTED FOR pH MEASUREMENT. TAKEN FROM WATER IN BOTT OF TANK.

0930- CALL OFFICE TO REPORT ON PROGRESS. TALKED w/ CHRIS BYNUM & MIKE BRAZIE, MIKE WILL BE ON-SITE ~1130 OR 1200

0940- WORKMEN CONTINUE REMOVING CLEANING WATER FROM INSIDE OF TANK.

0955- TANK CLEANING COMPLETE, WORK CREW BEGINS PREPARING TO CLEAN TANK VAULT. Jim STAPLETON (IT) OFF SITE.

1010- BUILDING ALARM - AREA EVACUATED UNTIL ALL CLEAR GIVEN.

1025- ALL CLEAR -- RETURN TO WASTEWATER TREATMENT AREA. CREW RESUMES PREPARATION FOR CLEANING TANK VAULT.

1030- MELANIE McKINLEY ON SITE - CHECKING PROGRESS, TERRY RULON MOVES MONITORING EQUIPMENT TO CHECK ATMOSPHERE IN TANK VAULT.

1045- 2 WORKMEN INSIDE VAULT, SWEEPING

RPC

LOOSE DIRT AND DEBRIS UP.

1055 - DAVE PAULSON ON SITE - DISCUSSING STATUS OF TANK CLEANING WITH TERRY RULON.

1120 MIKE BRAZIE ON-SITE TO OBSERVE PROGRESS

1130 - DRY SWEEPING COMPLETE IN TANK VAULT -- PREPARE TO POWER WASH

1132 - POWER WASH OF TANK VAULT BEGINS. 1 MEMBER OF CREW IN VAULT WITH SPRAYER. PUMP IS STARTED TO REMOVE RINSE/WASH WATER TO EFFLUENT DISCHARGE AREA.

1145 - FINISH POWER WASHING TANK VAULT - pH OF RINSE WATER TAKEN = 7 USING LITMUS PAPER. PREPARING TO TAKE SAMPLE OF RINSE WATER

1148 SAMPLE COLLECTED FROM TANK VAULT RINSE WATER 250 mL plastic TO BE ANALYZED FOR pH.

1150 - CREW BEGINS CLEAN UP AROUND TANK VAULT - PREPARE TO REPEAT PROCEDURES ON HYDROFLUORIC ACID TANK

RPC

1155 pH samples LABELLED AND PLACED INTO COOLER WITH BLUE ICE. EQUIPMENT CONTINUED TO BE REMOVED FROM OXIDE ETCH TANK VAULT

1205 - WORK IN OXIDE ETCH TANK COMPLETE - LAST TOOLS REMOVED, WORKERS EXIT, GRATING PLACED BACK OVER VAULT. HYDROFLUORIC ACID TANK VAULT OPENED, CREW BEGINS PREP WORK FOR FINAL CLEANING OF INSIDE TANK AND TANK VAULT.

1210 - MIKE BRAZIE OFF-SITE. I WILL CALL HIM WHEN I KNOW ANYTHING ABOUT THE SOIL SAMPLING SCHEDULE. TERRY RULON BEGINS MONITORING HF TANK VAULT FOR O_2, CO, etc.

1230 - 1 CREW MAN IS IN LEVEL B, ~~BRC~~ HE ENTERS HF TANK WITH SUPPORT FROM ANOTHER IN LEVEL C. PREPARE TO FLUSH LINES AND CLEAN INSIDE OF HF TANK.

1245 - CALL CHRIS AT OFFICE - SHE WILL BE COMING OUT TO RELEEVE ME WITHIN ~½ HOUR. IT CREW HAS ENTERED HF TANK AND BEGUN FLUSHING LINES

RPC

(22) N51003.0 12-22-95

1255- POWER WASH TURNED ON - HF TANK BEING CLEANED PROBLEMS WITH THE PUMP AGAIN - NOT PULLING STRONG ENOUGH TO REMOVE COLLECTED FLUID IN HF TANK CLEANING STOPPED TO MOVE PUMP INTO TANK VAULT.

1305- PUMP INSIDE HF VAULT, HOSES ADJUSTED, PUMP STARTED. TANK CLEANING RESUMES.

1315- TANK "CLEAN". CREW READY TO MEASURE pH w/ LITMUS PAPER AND COLLECT pH SAMPLE. pH (LITMUS) = 7.

1320- WATER SAMPLE COLLECTED FROM RINSE WATER IN HF TANK - ANALYZE FOR pH. JIM STAPLETON RETURNS TO SITE.

1325- WORK CREW BEGINS ~~SWEEPING UP~~ RPC ~~DRY DIRT AND~~ RPC DEBRIS ACCUMULATED IN ~~HF TANK~~ RPC ~~VAULT~~. MOPPING UP EXCESS FLUID IN TANK - NEEDS TO BE DRY.

1330- LEVEL B WORKER EXITS VAULT. BEGINS REMOVAL OF PPE. 2ND WORKER STAYS IN TANK VAULT. BEGINS SWEEPING UP DRY DIRT AND DEBRIS FROM TANK VAULT

1345- 2ND WORKMAN ENTERS TANK VAULT.

1346 PAUL CASSEDAY OFF-SITE, CHRIS BYNUM ON-SITE FOR CRM.

CDB

(23) N51003.0 12-22-95

1350 CREW STILL SWEEPING VAULT

1406 CREW EXITS VAULT WITH CONTAINERIZED DEBRIS.

1410 IT WORKER ENTERS VAULT IN LEVEL D WITH SPRAYER, BEGINS WASHING VAULT SIDES FROM LADDER, THEN MOVES TO TOP OF TANK.

1425 TESTING pH of RINSEWATER, pH = 7. COLLECTING SAMPLE INTO 250 ML PLASTIC BOTTLE, from ~~of~~ CDB VAULT BOTTOM, NORTHWEST CORNER. COLLECTED SAMPLE INTO PLASTIC CONTAINER AND TRANSFERRED INTO BOTTLE. TALKED TO JIM STAPLETON CONCERNING SAMPLE ID SYSTEM. HAS ID'D SAMPLES BY NAME OF TANK. CREW MOPPING-UP VAULT.

1430 JIM STAPLETON OF IT INDICATES SOIL SAMPLING WILL NOT BE DONE TODAY. 3" AUGER WILL NOT FIT DOWN PORTS. A 2" AUGER IS BEING SHIPPED IN OVERNIGHT. SHOULD ARRIVE BY 10 AM SATURDAY.

1435 CALLED MIKE BRAZIE TO GIVE HIM SOIL SAMPLING SCHEDULE.

CDB

(24) N53001.0 12-22-95

1440 CREW WIPING DOWN VAULT OF HF TANK

1445 CREW OUT OF VAULT - CLEANING UP WORK AREA. REPLACING GRATE ON HF TANK VAULT.

1510 CREW RE-ASSEMBLING PIPE, CONTINUING TO CLEAN-UP AREA.

1515 MELANIE MCKINLEY & DAVID PAULSON ON-SITE, CONCERNED ABOUT SMALL AMOUNT OF WATER REMAINING IN VAULTS. IT WILL VAC WATER OUT FIRST THING SATURDAY MORNING. (12/23), OR MAY USE FAN TO DRY VAULT.

1530 MELANIE MCKINLEY & DAVID PAULSON OFF-SITE.
TERRY RULON INDICATED THAT WORK SHOULD BE COMPLETED THIS EVENING WITHIN 30 MINUTES, OR SO.
CREW FINISHING UP

1545 IT CREW OFF-SITE.
ERM OFF-SITE

CDB

12-23-95 . N51003.0 (25)

0610 - ARRIVE AT PHILIPS WASTEWATER TREATMENT AREA - R. PAUL CASSIDAY ON-SITE FOR RCRA CLOSURE OVERSITE
TERRY RULON (IT) CONDUCTING H&S MEETING W/ WORK CREW AND RUNNING DOWN ACTIVITIES TO BE DONE TODAY.
- EXCESS WATER AROUND OXIDE ETCH AND HF TANKS WILL BE WET VACUUMED.
- BEGIN WORK ON SOLVENT WASTE TANK
- TAKE SOIL SAMPLES

0620 - SPOKE WITH DAVE PAULSON - HE HAD SOME LAB RESULTS FROM ATI IGNITABILITY IN FS4 >95.6 °C
- HE ALSO TOLD ME THAT MERCURY IN CS2 RINSE WATER SAMPLE WERE SLIGHTLY HIGH -- IT WILL RE-CLEAN THE FLOOR SOMETIME TODAY. I AM TRYING TO GET COPIES OF LAB RESULTS FOR MIKE.

0630 - TERRY RULON COMPLETES CONFINED SPACE ENTRY PERMIT - WORKERS SIGN PERMIT AFTER TERRY GOES OVER DETAILS OF PERMIT.

0635 - DAVE PAULSON REVIEWS AND SIGNS-OFF ON CONFINED SPACE ENTRY PERMIT

RPC

0640 - IT CREW PREPARES TO ENTER HF TANK TO WET VAC. TANK VAULT. TERRY RULON TESTS TANK VAULT ATMOSPHERE IN SEVERAL LOCATIONS FOR LEL, O_2, H_2S, etc.

0645 - DAVE PAULSON TAKES CONFINED SPACE PERMIT TO GET CLARIFICATION ON A POINT.

0650 - IT HOOKS UP BLOWER FOR USE IN TANK VAULT.

0655 - DAVE RETURNS w/PERMIT. CREW READY TO ENTER VAULT. 2 IT PERSONNEL ENTER VAULT. DRESSED OUT IN TRIPLE BOOTIES, RAINSUITS, DOUBLE GLOVES, HARD HATS w/FACESHIELDS, AND SAFETY GLASSES. COMMENCE TO WET VACCING HF TANK VAULT.

0705 - TALKED WITH TERRY RULON & JIM STAPLETON ABOUT CS2 SAMPLES

Hg	.028, .036	DETECTION LIMIT .002
As	.02, .02	.01

CS2 SAMPLES

0710 - COMPLETE WET VACUUM OF HF TANK VAULT - EQUIPMENT & CREW EXITS TANK VAULT.

RRC

0715 - CREW BEGINS SETTING UP TO WET VAC OXIDE ETCH TANK -- TERRY COMPLETES CONFINED SPACE PERMITS FOR OXIDE ETCH AND WASTE SOLVENT TANK - DAVE PAULSON REVIEWS AND SIGNS.

0720 - TERRY MOVES MONITORING EQUIP TO OXIDE ETCH TANK VAULT. 2 IT CREWMEN ENTERS OXIDE ETCH VAULT TO WET VAC EXCESS WATER FROM FLOOR AND TANK (OUTSIDE).

0750 - VACUUMING OF OXIDE ETCH TANK VAULT CONTINUES - SEVERAL BUCKETS OF WATER HAVE ALREADY BEEN REMOVED FROM VAULT.

0755 - 2 MORE BUCKETS OF WATER REMOVED FROM VAULT.

0800 - GO TO MAKE PHONE CALL - NO PHONE SERVICE.

0820 - VACUUMING OF OXIDE ETCH TANK COMPLETE CREW MOVES EQUIPMENT OUT OF VAULT, BEGINS SETTING UP AROUND WASTE SOLVENT TANK VAULT. JIM STAPLETON OFF-SITE

0830 - ASK ABOUT PHONES - BACK IN SERVICE. IT CREW SETTING UP DECON AREA, MOBILIZING EQUIPMENT

RRC

0900- ALMOST ALL OF IT'S EQUIPMENT RELOCATED TO SW SIDE OF WASTE WATER TREATMENT AREA.

0915- IT BEGINS MOVING CLEANING EQUIP. TO CS2 TO POWER WASH FLOOR AND RESAMPLE.

0930- VISQUENE PUT UP ALONG WALLS AND OVER CHEMICAL BOXES IN CS2.

0945- IT CREW SPRAYS FLOOR W/SOAP SOLUTION AND SCRUBS FLOOR. ABSORBANT BARRIER POURED ON FLOOR ALONG NORTH SIDE OF AREA TO BE CLEANED, TO HOLD POWER WASH SPRAY.

0955- SOAP SOLUTION IS WET VACUUMED FROM FLOOR AFTER A BRIEF RINSE

1010- POWER WASHER IS HOOKED UP, AND WORKMEN PREPARE TO POWER WASH FLOOR IN CS2 A SECOND TIME. TERRY ALLEN AND 3RD CREW MAN PREP WALL IN WASTE WATER TREATMENT ROOM. A HOLE WILL BE CUT AND PIPING WILL BE EXTENDED INTO THE TREATMENT ROOM TO THE ~~[illegible]~~ WASTE SOLVENT TANK

1020- ICE IS CLOGGING LINES IN THE POWER WASHER. IT WORKERS TRYING TO UNCLOG.

RPC

1040- STILL THAWING POWER WASH. JIM STAPLETON ON-SITE W/ 1 OTHER PERSON, POSSIBLY FROM ENSCO, THE COMPANY THAT WILL PUMP THE SOLVENT TANK ON 12-24.

1045- POWER WASH WORKING. IT BEGINS RE-WASHING FLOOR IN CS2.

1100- RINSE WATER IN CS2 IS RESAMPLED. 1 IT WORKER JET WASHES FLOOR, WHILE A SECOND COLLECTS WATER IN A CLEAN PLASTIC CONTAINER FROM AN AREA OF THE FLOOR WHERE WATER HAS PUDDLED. THE WATER IS THEN TRANSFERRED TO THE APPROPRIATE CONTAINERS -- SAMPLES WILL BE ANALYZED FOR MERCURY AND ARSENIC.

1110 MIKE BRAZIE ON-SITE - WORKERS CLEANING UP AT CS2, SWEEPING UP DRYING AGENT, TAKING DOWN VISQUENE. - SPOKE BRIEFLY W/ JIM STAPLETON, HE SAID THAT THEY NOW HAVE RIGHT SIZED AUGER. SOIL SAMPLING OF PORTS IN WASTEWATER TREATMENT AREA WILL COMMENCE SOON

1115- RETURN TO WASTEWATER TREATMENT AREA. CREW WORKING ON EFFLUENT

RPC

TREATMENT SYSTEM WANTS TO DRILL A HOLE THROUGH THE CONCRETE NEXT TO HF TANK VAULT, ABOVE WATER. DAVE PAULSON STATED THERE WOULD NOT BE ANY OTHER CONTAMINANTS INTRODUCED INTO TANK VAULT. MIKE BRAZIE FELT THAT AS LONG AS NO OTHER FLUIDS WOULD ENTER THE TANK VAULT, THEN A SECOND TEST OF pH IN THE VAULT WHEN THEY FINISH WILL BE SIGNIFICANT ENOUGH FOR CLOSURE. I NEED TO CHECK WITH DAVE PAULSON ABOUT WHY THEY WANT TO DRILL THIS HOLE INTO THE TANK VAULT.

1135- HOLES TO BE DRILLED ARE TO ADD A PIPE FLANGE AS PART OF EFFLUENT TREATMENT SYSTEM. IT HAS BEEN AGREED THAT THE HOLES WILL BE DRILLED, THEN IT WILL RE-ENTER HF TANK VAULT, RECLEAN THE VAULT AND RESAMPLE FOR pH.

1140- JIM STAPLETON AND 2 OF IT CREW BEGIN SET UP TO CONDUCT SOIL SAMPLING OF 4 PIPE LOCATIONS IN WW TREATMENT ROOM.

1150- JIM MEASURES ORGANIC VAPORS DOWN SW PORT. CHECKS FOR FLUID - NONE

RPC

1155- AUGER LOWERED DOWN SW PORT - APPROX. 17 FEET DEEP. 1ST ATTEMPT YIELDS NO RECOVERY

1200- REPEAT AT SW USING A DIFFERENT SAMPLER.

1205- 2ND ATTEMPT - IT WORKERS SAY IT FEELS LIKE CONCRETE IN THE BOTTOM OF THE PIPE.

1210- IT DECIDES TO TRY THE SE PORT - OVM MEASUREMENT MADE. CRS PROBE PUT DOWN WELL ~17 FT DEEP. AUGER PUT DOWN HOLE - NO RECOVERY - IT APPEARS THAT A PVC PLUG IS IN BOTTOM OF WELL. DAVE PAULSON STATED THAT THE WELLPOINTS WERE MEANT TO DETECT LIQUIDS, SO THERE IS PROBABLY A SCREEN W/ PLUGGED PVC PIPE. IT IS CHECKING NE AND ~~SE~~ NW PORTS TO SEE IF IT IS THE SAME IN THOSE LOCATIONS.

1225- NW PORT IS CHECKED ~13 FT DEEP. MIKE TELLS ME THEY WILL PROBABLY DRILL THROUGH THE BOTTOM AND SAMPLE NEXT WEEK.

1230- TRIED TO USE AN AUGER TO CHECK AREA AROUND WELL -- IT, TOO IS CONCRETE - NO SOIL SAMPLES COLLECTED.

1235- IT BEGINS MONITORING WASTE SOLVENT TANK VAULT. TERRY RULON PREPARES CONFINED

RPC

(32) N51003.0 12-23-95

SPACE ENTRY PERMIT. DAVE PAULSON REVIEWS AND SIGNS OFF ON PERMIT

1245 - IT PREPARES TO LAY PIPING FOR SOLVENT TANK - MELANIE McKINLEY INFORMS ME THAT THIS ACTIVITY HAS NOTHING TO DO WITH CLOSURE MATTERS, AND I AM FREE TO LEAVE.

1250 - ERM - OFF-SITE

RPC

RPC

12-24-95 N51003.0 (33)

0745 - ERM - PAU - CASSEDAY ARRIVE AT PHILIPS SEMICONDUCTORS TO CONTINUE OVERSITE OF RCRA CLOSURE ACTIVITIES.
- AFTER SIGNING IN, HEAD TO WASTEWATER TREATMENT AREA - POWER OFF IN FACILITY

0755 - IT CONTINUING PUMPING OUT CONTENTS OF WASTE SOLVENT TANK. MANWAY OPEN.

0800 - IT CREW BEGINS CLEANING LINES OF POWER WASH - ANTICIPATING MOVING INTO WASTE SOLVENT TANK VAULT SOON.

0810 - IT CREW SUITS UP IN LEVEL B AND MODIFIED LEVEL C, ENTERS WASTE SOLVENT TANK VAULT. 1 WORKER USES POWER WASH TO SPRAY DOWN INSIDE TANK WALLS.

0815 - TERRY RULON MEASURES AIR INSIDE TANK FOR LEL, CO, AND H_2S. 2ND WORKER ENTERS TANK VAULT. MANWAY REMOVED COMPLETELY FROM TANK OPENING.

0820 - LEVEL B WORKER ENTERS TANK, VACUUM PUMP SHUT DOWN. TANK SIDES WILL BE WASHED DOWN BEFORE PUMPING OF TANK MATERIAL IS RESUMED.

0830 - DAVE PAULSON ON-SITE TO OBSERVE TANK CLEANING

RPC

0845 - TANK CLEANING CONTINUES. A HOT WATER AND SOAP SOLUTION (ALCONOX) IS BEING USED TO CLEAN THE INSIDE OF THE TANK.

0850 - SOAP SHUT OFF, CONTINUE RINSING INSIDE OF TANK.

0900 - SHUT OFF WATER TO POWER WASH, BEGINS SQUEEGEEING(SIC) SIDES OF TANK.

0905 - CLEAN PLASTIC BOTTLE LOWERED INTO TANK TO COLLECT RINSE WATER FOR SAMPLING.

0910 - PLASTIC BOTTLE FILLED, BROUGHT OUT OF TANK VAULT - WATER IS USED TO FILL SAMPLE CONTAINERS FOR ANALYSIS JIM STAPLETON (IT) ON-SITE

0915 - AFTER DETERMINING HOW MUCH SOLIDS ARE IN THE BOTTOM OF THE TANK, A TAPE MEASURE IS USED TO DETERMINE HOW LONG TO MAKE THE "STINGER".

0920 - WATER FOR SAMPLING IS TOO DIRTY, THEY WILL RE CLEAN INSIDE OF TANK. WORKER IN TANK STATES THAT THE WATER IS DIRTY BECAUSE A LOT OF RUST HAS BULT UP ON THE TANK WALLS.

0925 - BEGIN 2ND WASH OF TANK WALLS.

RPC

0930 - 2ND RINSE SAMPLE BROUGHT TO SURFACE - MUCH CLEANER THAN THE FIRST. JIM STAPLETON BEGINS FILLING SAMPLE BOTTLES FOR ANALYSIS. SAMPLES TO BE ANALYZED FOR IGNITABILITY AND VOLATILE ORGANICS. ALSO COLLECTED FOR METHANOL. DUPLICATE SAMPLES ALSO COLLECTED
- VAPORS COULD BE SEEN COMING OFF OF VOA VIALS - REACTION W/HCL PRESERVATIVE. JIM STAPLETON LABELS SAMPLES, PLACES IN COOLER W/BLUE ICE.

0935 - STINGER PIPE PLACED IN TANK. PIPING WILL ALLOW FUTURE PUMPING OF TANK TO BE DONE WITHOUT ENTERING TANK VAULT. DAVE PAULSON OFF-SITE

0940 - WORK COMPLETED INSIDE WASTE SOLVENT TANK. CREW EXITS TANK VAULT. TAKE SHORT BREAK BEFORE CLEANING TANK VAULT.

0955 - WORK RESUMES. 2 WORKERS PUT ON PPE, PREPARE TO ENTER TANK VAULT.

1000 - 2 WORKERS ENTER VAULT, BEGIN SWEEPING UP DRY DIRT AND DEBRIS FROM TANK VAULT. BEGIN BY REPLACING MANWAY COVER AND BOLTING CLOSED.

1025 - MANWAY SECURED - CREW BEGINS SWEEPING

RPC

TANK VAULT.

1050 - DRY SWEEPING OF TANK VAULT COMPLETE WORKERS EXIT VAULT. 3RD CREWMAN DONS PPE, PREPARES TO ENTER TANK VAULT FOR POWER WASH.

1100 - POWER WASH OF TANK VAULT BEGINS.

1110 - 2ND WORKER ENTERS TANK VAULT TO ASSIST WITH COLLECTING RINSE WATER SAMPLE FROM TANK VAULT

1115 - RINSE WATER COLLECTED IN CLEAN PLASTIC BOTTLE - BROUGHT OUT OF VAULT - LOOKS CLOUDY - TERRY RUCON TELLS CREW TO CLEAN VAULT A SECOND TIME.

1125 - JIM STAPLETON GIVES ME COPIES OF SAMPLE RESULTS RECEIVED TO DATE CREW PREPARES TO TAKE SECOND RINSE WATER SAMPLE.

1130 - JIM BEGINS FILLING SAMPLE BOTTLES WITH RINSE WATER FROM TANK VAULT BOTTLES FILLED FOR VOLATILE ORGANICS, IGNITABILITY, AND METHANOL ANALYSIS.

1135 - TANK VAULT WASH COMPLETE, BEGIN BRINGING EQUIPMENT AND TOOLS OUT OF TANK VAULT. ALSO BEGIN VACUUMING WATER OUT OF VAULT.

RPC

1135 JIM COMPLETES FILLING SAMPLE BOTTLES, PUTS ON LABELS AND STORES IN COOLER W/ BLUE ICE.

1140 - WORKERS EXIT TANK VAULT. MELANIE McKINNEY DAVE PAULSON ON SITE. WORKERS BEGIN GATHERING EQUIPMENT. VACUUM TRUCK OPERATOR BREAKS DOWN HOSES AND LOADS TRUCK. TERRY RUCON PROVIDES MELANIE AND DAVE W/ SAMPLE RESULTS RECEIVED SO FAR.

1145 - SPOKE W/ MELANIE AND JIM ABOUT SCHEDULE FOR 12-26 - SHE STATED THAT TANK TESTING WILL NOT START UNTIL ~1100 am, SO ERM WILL NOT NEED TO BE ON SITE UNTIL THEN.

1200 - IT CONTINUES BREAKING DOWN EQUIPMENT CLOSURE ACTIVITIES FINISHED FOR THE DAY.

1205 - ERM OFF SITE.

RPC

RPC

N5100.0 12-26-95

1100 ERM - Mike Brazie arrive at Plant, sign in, escorted by Dave Paulson to tank room to observe tank inspection.

1115 [illegible] floor & area wash Dave Paulson and IT (Devon Jerrier). CSA was waxed, told by Dave Paulson that the second rinsate samples showed Hg concentrations were below the action level and the floor had been cleaned. FS4 area floor was also coated and work was done, although a pipe outside the room was dripping condensate which was running under the door to the drain (floor drain) within the room. Dave said he is getting that fixed.

1130 Given tailgate safety

MEB

12-26-95 N5100.0

briefing by IT. Tank inspectors set up.

1135 - Tank inspectors enter solvent tank vault for steel tank inspection, welds & ultrasonic shell thickness determination. Rocky Mountain Emtek, IT's subcontractor.

1150 - Inspectors indicated a problem with some of the measurements due to the small size of the vaults. 2 of the 3 welds look OK, but they may not be able to reach the 3rd due to limited access, which may also limit shell measurements. Discussed it with IT & agreed they will do as much as they can without removing the tank. Everything will be documented and provided to ERM for the closure certification.

MEB

12-26-95 N51003.0

1200 - Called RPC, Given the schedule and activities, MEB decided, in discussion with Dave Paulsen, to have RPC provide oversight, with MEB returning in late pm.

1210 - Observed pipe & flange in HF Tank vault and discussed with Dave Paulsen. He said the cutting did not make much of a mess, and IT got it cleaned up.

1230 Workers left vault for tools & equipment, after marking tank inspection locations. Began instrument calibration.

1240 Instruments calibrated, workers re-enter tank vault, and began ultrasonic measurements.

1320 - RPC arrives on site and gets IT safety briefing.

MEB

12-26-95 N51003.0

1325 - MIKE GIVES BRIEFING OVER ACTIVITIES CONDUCTED SO FAR.

1330 MIKE BRAZIE OFF-SITE - TO RETURN AT 1630-1700.

1345 - DAVE BISWELL (IT) CONTINUES MONITORING TANK VAULT FOR O_2 AND LEL -- MEASUREMENTS ARE RECORDED ON CONFINED SPACE ENTRY PERMIT EVERY HALF HOUR.

1350 - WORKMEN EXIT TANK VAULT. TAKE A SHORT BREAK TO STRETCH, GET A DRINK, ETC. INSPECTION OF TANK WELDS COMPLETE, EXCEPT FOR THAT AREA WHERE THIS WAS NOT ENOUGH ROOM TO MAKE MEASUREMENTS

1405 - TANK INSPECTION ABOUT TO RESUME. DAVE BISWELL CHECKS INSTRUMENTS AND BLOWER. WORKERS REHARNESSED, RE-ENTER TANK VAULT. INSPECTION RESUMES IN THE NW CORNER OF THE TANK VAULT.

1430 - INSPECTION HAS MOVED TO SW CORNER OF TANK VAULT. LEL AND O_2 MEASUREMENTS STILL GOOD.

1455 - MELANIE McKINLEY ON-SITE - CHECKING TANK INSPECTION PROGRESS.

1450 - DAVE RECORDS LEL AND O_2 MONITORING ON CONFINED SPACE PERMIT.

RPC

1500 INSPECTORS EXIT TANK VAULT. MELANIE McKINLEY, DEVON JERCINOVIC (IT), DAVE PAULSON, AND INSPECTORS FROM ROCKY MTN EMTEK DISCUSS INSPECTION SO FAR. EMTEK REP. STATES THAT SOME DEFECTS HAVE BEEN FOUND IN THE TANK. THESE DEFECTS ~~WERE~~ HAVE EXISTED SINCE THE TANK WAS CONSTRUCTED. EMTEK WOULD LIKE TO SEE TANK SPECS TO FULLY EVALUATE SITUATION MELANIE M. SAYS SHE WILL LOCATE SPECS.

1520 - EMTEK TAKES SHORT BREAK
MELANIE ASKS ME TO HAVE MIKE PAGE HER ~ 1/2 HR BEFORE INSPECTION IS COMPLETE, SO SHE CAN COVER RESULTS OF INSPECTION W/EMTEK.
- MAIN DEFECTS FOUND SO FAR ARE ALONG WELD - EMTEK SAYS THAT THESE DEFECTS, SO FAR, SHOULD NOT BE A PROBLEM, SINCE TANK IS AN ATMOSPHERIC TANK, AND NOT A PRESSURE VESSEL.

1530 - EMTEK RETURNS FROM BREAK - MONITORING EQUIPMENT CHECKED. WORKER PREPARE TO REENTER TANK VAULT.

SR

1555 - CREW RE-ENTERS TANK, TAKES A CAMERA TO SNAP SEVERAL PICTURES OF INSPECTION WORK.

1600 - PHOTOGRAPHS FINISHED, EMTEK RESUMES TANK INSPECTION. DEVON JERCINOVIC OFF-SITE.

1625 - INSPECTION CONTINUES, CREW HAS SPLIT UP, WORKING IN NW AND NE CORNERS OF TANK VAULT IN ORDER TO SPEED UP TANK INSPECTION.

1640 - ONE OF EMTEK CREW APPEARS TO BE HAVING A MINOR PROBLEM WITH A PIECE OF EQUIPMENT.

1655 - INSPECTION CONTINUES -- BOTH INSPECTORS IN NE CORNER OF TANK VAULT - ONE ON TOP OF THE TANK, AND THE OTHER AT THE BOTTOM OF THE TANK.

1715 - MIKE BRAZIE ON SITE.

1720 - MEB arrived at Plant at 1645 & waited for security clearance.

1725 - Dave (IT) said inspectors reported they found a crack near the top of the tank based on instrument readings.

MEB

but did not see it visually, so they will re-check it later to confirm. At this time it is preliminary finding and unconfirmed.

1730 - One inspector out to replace instrument batteries.

1740 - Inspector re-enter vault.

1800 - ~~Dave~~ Both inspectors out for break. One of them told MES the lateral weld and vert. weld on east side near the wall looked "ugly", but that doesn't mean much and he knows the specs for which they were installed.

1807 - Inspectors re-entered the vault.

1830 - Dave (IT) took vault atmosphere readings.

1850 - Dave (IT) took vault atmosphere readings, inspectors moved to SE corner of the vault.

MES

1920 - Inspectors moved to SW corner, and re-calibrated the instrument. Dave (IT) took another atmosphere reading.

1955 - Inspectors reported they were less than 1 hr from completion. MES paged Melanie McKinley @ 857-8721 and left no. 522-7035.

1995 - Inspectors changed tools, taken vault atmosphere readings, and shut off air into vault, which was blowing the powder and interfering with the work.

2000 - Inspectors exited vault with tools & equipment. They began reviewing their notes before leaving the site. Left earlier prior to departure.

2005 - Inspectors concluded they had everything they needed and were finished with inspection.

MES

(46) N51005.0 12-26-95

2015 - Found some manufacturing defects, some welds may not meet strict specs, but not pressure vessel. Top weld is just cap pass, not full; mid circ weld has slag & porosity, other circs much better; vert weld in NE corner pretty bad. Shell thickness looks OK, no indication of pitting or corrosion. Will have to check against specs to answer integrity issue.

2030 - All left plant.

12-27-95 N51003.0 (47)

0900 - MKB met Melanie at Plant, Frank Sanchez at NMED reviewed the closure plan.

0930 - Toured areas with Frank & Philips, incl Melanie, Jim & Dave.

0950 - Met briefly again with Frank & Philips, Schoen last goes back on line tonight at 1:00 pm. Analytical results will be available Jan. 11

Signed conference to MS.

1010 - Conference ended.

MKB

0750 - MEB arrived at plant & signed in.
0800 - Dave Paulson escorted MEB to work area. IT setting up on SW well: put plastic around opening, etc. Present: Jim Stapleton (IT); Dave Tanner (North American Drilling); & Chris Benevidez (NAD).
0805 - Started hand augering through SW Well.
0825 - NAD pulled out of hole with cutting bit and deconed the sampler & brass liners.
0830 - Entered hole with drive stem.
0840 - Hydraulics not holding on tripod-mounted drive hammer.
0850 - Set up and driving.
0855 - Pulled out of hole but there was no sample. Drillers broke to get sand catch.
0930 - Returned to work area, but drillers not yet back.
1000 - Drillers returned with equipment.
1005 - Obtained headspace soil sample from cutting bit: c.g. sd, dk brn,

MEB

nut & washer from drill stem, which drillers had dropped.
1010 - Tried and failed to obtain drive sample, decided to sample using cutting bit. Jim removed pieces of PVC and bagged soil for headspace.
1015 - Collected pH sample (soil) from bit.
1020 - No sample from auger, went back to drives, still with no luck. Drillers believe they may have unscrewed the bottom cap without removing it from the hole.
1055 - Finally brought up cut section from bottom PVC cap.
1100 - Completed sampling of SW well & pulled off. Jim assured me he had been watching & there is no PVC in any of these samples. Set up on NW Well.
1105 - Jim took headspace reading - 4 ppm.
1115 - Discussed NE well access with Dave Paulson - between WWT pit

MEB

~~be~~ & WWT caustic tank with insufficient access for work. Agreed to move to the well several ft. west of NW well.

1125 - Removed bottom cap plug from NW well, along with soil for h.s. sample. Jim put in pH bottle, and then into h.s. bag for possibility of PVC in the sample.

1130 - All 3 bottles filled and moved off hole. (6 bottles incl. dups filled at SW well). Moved to new NE well. Augers were deconed between wells, samples stored on blue ice in ATI coolers.

1145 - Melanie McKinley on site for few mins. Said she will get me the analytical results as soon as she gets them. Jim said he got the last of them yesterday, and all parameters are below action levels.

1150 - h.s. reading on sample from

NW well Ø ppm.

1155 - Drillers pulled auger to straighten saw bit & re-entered.

1210 - Drillers broke for lunch and to get another cutting bit.

1240 - Drillers returned and tried again on NE well.

1245 - Decided bit was just turning the cap and not cutting, so moved to SE well.

1255 - Drillers came to same conclusion on SE well, although bit came up muddy.

1305 - Driller broke through bottom cap on NE well & began sampling. First sample with PVC pieces & cuttings. Jim removed PVC and bagged soil as before. Looked like cap broke into pieces. Can't say samples do not contain PVC, although Jim was careful to remove all lg. fragments. Likelihood of PVC probably low, but not Ø.

1315 - Finished NE well & moved to SE

MEB

(52) N51003.0 1-10-96

with new bit.

1355- Collected soil from SE well.

1405- Finished sampling and pulled of SE well. Deconed equipment and packed up. Jim sampled decon water and poured in to WWT pit. Washed in soil from SE well.

1425- Final h.s. reading Ø ppm.

1430- Left work area, Dave Paulson took bagged waste materials to FS-4.

1500- Left plant.

MEB