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FAX COVER SHEET

Date: 10/12/95

To: Stephanie Kruse

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From Melanie McKinley

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Message Revised pages of closure plan + Sampling plan. If these meet with your approval, I will hand deliver the originals + disk tomorrow or Monday. Please get back to me as soon as possible. Thanks!

Total # of Pages Enclosed 27 Including Cover Sheet

If there's any problem regarding receipt of entire fax, please contact Donna Watford (505) 822-7490.

CONFIDENTIAL INFORMATION ATTACHED
FOR ADDRESSEE ONLY

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 2206.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 hazardous wastes will be removed at closure.

Philips-Albuquerque will maintain an onsite copy of the approved closure plan and any 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 for 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.** ~~If there is evidence of a release from the storage facility, soil samples will be collected and analyzed to determine the extent of contamination.~~ 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. **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.

Area	Parameters	Performance Standard
Chemical Storage #2	Arsenic Mercury	0.05 mg/l 0.002 mg/l
Flammable Storage #4	Ignitability Total Organic Carbon **Volatile Organics**	Non-ignitable 0.10 mg/l **N/A**
Acid Tanks	pH	Greater than 5
Solvent Tank	Ignitability Total Organic Carbon **Volatile Organics**	Non-ignitable 0.10 mg/l **N/A**

Note: N/A = Not Applicable

The following sections discuss in detail efforts to be made at Philips-Albuquerque to satisfy the closure performance standard.

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.

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; **however, soil sampling will be performed beneath the flammable storage area and beneath the tank storage area.** Soil contamination is avoided because the wastes are stored in tanks situated within coated concrete vaults to provide primary and secondary containment. 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 broom
1-2 brooms
Dust pan
3 mil thick plastic bags
40 55-gl drums
5 sets of clean-up clothing
Sampling bottles and equipment

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

The hazardous waste-containing drums will be properly labeled, marked, manifested and shipped to a permitted 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 from which they are obtained, 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 ~~these areas~~ **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 waste characteristics to determine the appropriate disposal method.

Sludge will be removed from the tanks by scraping the tank bottom with long-handled shovels and squeegees 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, but contains hydrocarbon compounds. Therefore, TOC will be used as the closure performance standard for the rinsate and sludge.~~ **waste stream does not include any TCLP material, however, as many solvents are used for cleaning purposes, it is possible that over the life of the tank insoluble TCLP materials may be partitioned and concentrate as a sludge on the bottom of the tank. Therefore, TOC and TCLP organics 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 be sampled and tested for the closure standards, and be 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 TOC 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

DRAFT

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

Prepared for:

PHILIPS SEMICONDUCTORS
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Albuquerque, New Mexico

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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 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 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.

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 were 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).

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, total organic carbon (TOC), and target list volatile organic compounds. 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. 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. 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 waster; 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.

TABLE 1 - ANALYTICAL PARAMETERS

Area	Rinsate Parameters	Soil Parameters	Performance Standard
Chemical Storage #2	Arsenic	N/A	0.05 mg/l
	Mercury	N/A	0.002 mg/l
Flammable Storage #4	Ignitability	N/A	Non-ignitable
	Total Organic Carbon	N/A	0.10 mg/l
	Volatile Organics	Volatile Organics	N/A
Acid Tanks	pH	pH	Greater than 5
Solvent Tank	Ignitability	N/A	Non-ignitable
	Total Organic Carbon	N/A	0.10 mg/l
	Volatile Organics	Volatile Organics	N/A

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
Total Organic Carbon	9060	250 ml Amber glass	4°C, H_2SO_4 to pH <2	28 days
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

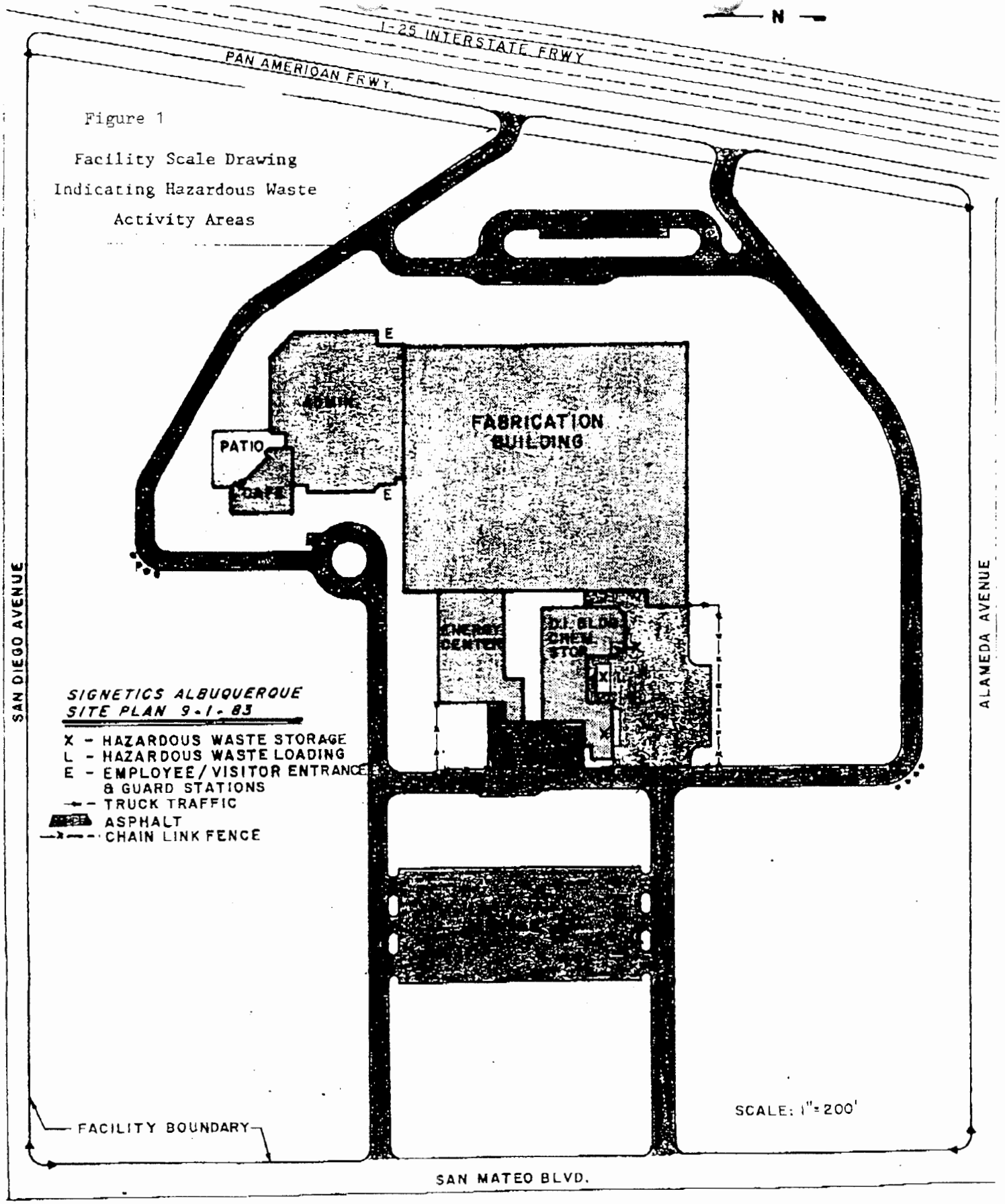
* Test methods for Evaluating Solid Waste, Physical/Chemical Methods U.S. EPA SW-846, 3rd Edition, 1986.

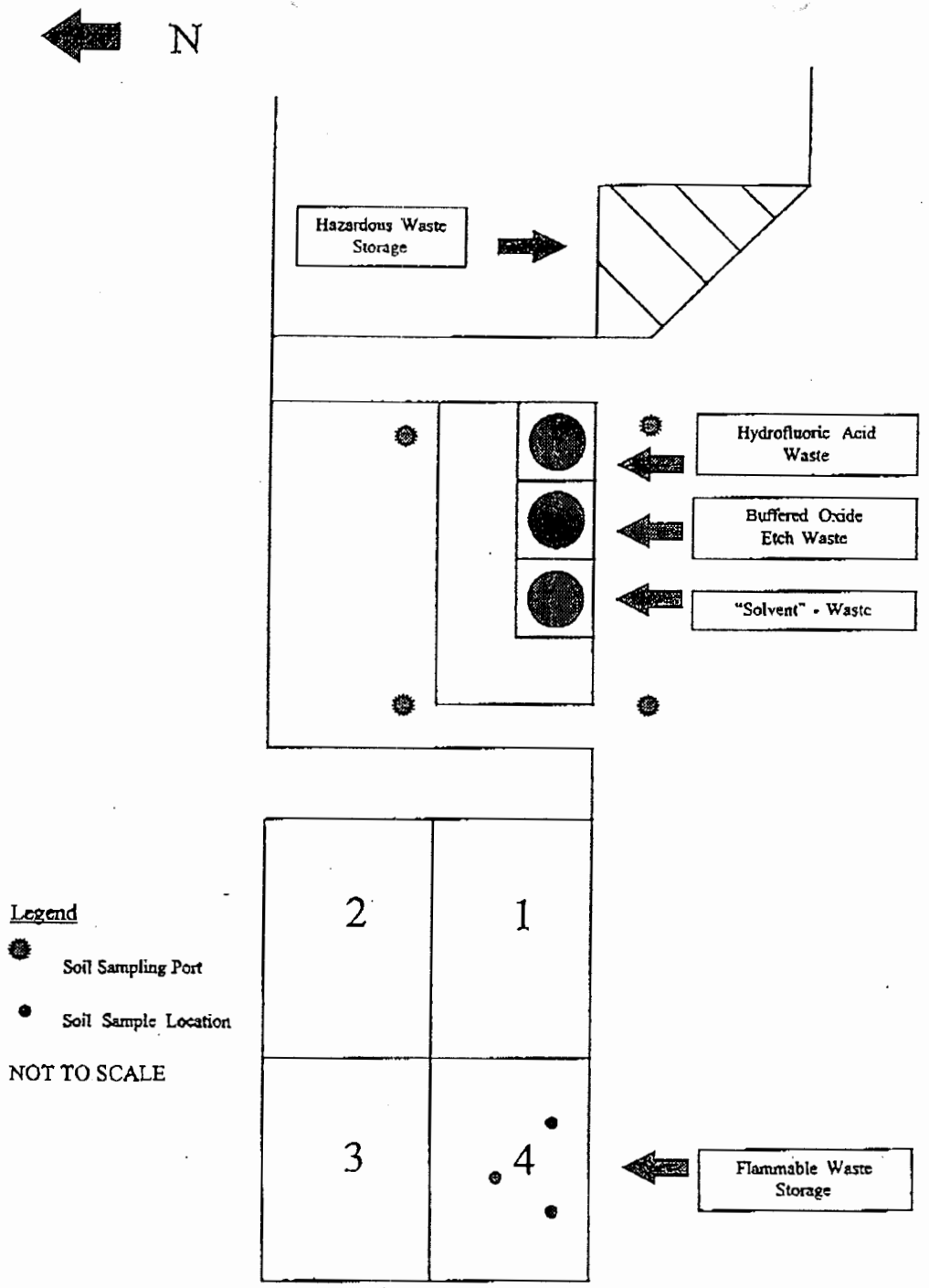
TABLE 3 - VOLATILE ORGANIC PARAMETERS -- FLAMMABLE STORAGE AREA #4 AND TANK STORAGE AREA

Acetone
Benzene
n-Butyl alcohol
Carbon disulfide
Carbon Tetrachloride
Chlorobenzene
Chloroform
Cyclohexanone
1,1-Dichloroethene
1,2-Dichloroethane
Ethyl acetate
Ethyl benzene
Ethyl ether
Isobutanol
Methanol
Methyl ethyl ketone
Methyl isobutyl ketone
Methylene chloride
Orthodichlorobenzene
Tetrachloroethene
Toluene
1,1,1-Trichloroethane
1,1,2-Trichloro-1,2,2-trifluoroethane
1,1,2-Trichloroethane
Trichloroethene
Trichlorofluoromethane
Vinyl Chloride
Xylene

Figure 1

Facility Scale Drawing
Indicating Hazardous Waste
Activity Areas





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