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GOVERNOR

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DEPUTY SECRETARY

November 22, 1995

Mr. Keith Hampe, Vice President
Albuquerque Operations
Philips Semiconductors
9201 Pan American Freeway
Albuquerque, New Mexico 87113

RE: RCRA Permit No. NMD00709782: Modifications

Dear Mr. Hampe:

This letter is inform you that your requested Class I modifications to the RCRA Permit for storage of hazardous waste have been approved. The US Environmental Protection Agency has reviewed the proposed changes and concurs with this action. Minor changes have been made in your submittal for clarity and in response to EPA comments.

The purpose of these modifications is to change the date of closure under the permit for the hazardous waste storage units at Philips Semiconductors facility in Albuquerque. The facility will continue to store waste under the 90-day-storage requirements of 20 NMAC 4.1, Subpart III, 40 CFR 262.34. Module IV of this permit, the HWSA portion, is not affected by these actions.

The modifications are effective as of this date. The expiration date for Modules I-III of the permit (the RCRA portion) continues to be April 1, 1996.

Enclosed please find:

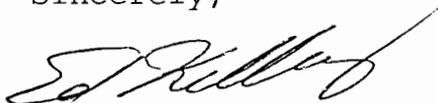
a copy of the closure plan and sampling and analysis plan addendum which shows all additions in redline and all deletions in ~~strikeout~~; and

a final copy, as modified, of the closure plan and sampling and analysis plan addendum.

Mr. Keith Hampe
November 22, 1995
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Please contact Stephanie Kruse of the Hazardous and Radioactive
Bureau at 827-1561 if you have any questions or comments.

Sincerely,



Ed Kelley, Ph.D., Director
Water and Waste Management Division

Enclosures

xc: Teri Davis, NMED
Melanie McKinley, Philips
Nancy Morlock, EPA
Philips red file - 95
Reading file

***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	0.05 mg/l
	Mercury	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 Neutracid 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 scrubbing 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)				<u>\$9,400</u>
Independent Professional Engineer				\$4,000
Contingency (20%) of Subtotal) (Rounded)				\$1,900
TOTAL COST - ACID TANKS (2)				<u>\$15,300</u>

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
(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 Section is submitted 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. This plan identifies all steps that will be necessary to partially close the facility at any point during its intended operating life and to completely close the facility at the end of its intended operating life. A post-closure plan is not required because this is not a disposal facility and all wastes will be removed at closure.

Signeties 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 Director of EID Secretary of the New Mexico Environment Department. Signeties Philips-Albuquerque will notify has notified the Director Secretary at least 180 days prior to beginning final closure. The closure date for the entire facility will be AD 2050. 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, we will submit to the EID a certification by both Signeties Philips-Albuquerque and by 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. If there is evidence of any spills or leaks, samples will be taken and analyzed to determine the extent of contamination in the soil and, if necessary, in groundwater. Any contaminated soil will be excavated, removed, and disposed of at a proper disposal facility. Any contaminated groundwater will be remedied. Based upon the results of soil samples collected, a determination will be made concerning potential impact to ground water from the waste storage unit. 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 Signetics 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. Partial and Final Closure Activities (HWMR 206.D.2.c.(a)):

At the time of this writing, no partial closures are planned. However, the clean-up procedures are outlined by area so that the appropriate sections of the final closure plan may be used for partial closure. In the event of a partial closure, the closure plan will be rewritten to reflect the change. At a maximum, we expect the operation to consist of storage of 100 drums and 3 x 5,000 gallon tanks during the life of the facility. The closure date for the entire facility is scheduled to be AD 2050. 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 Signeties Philips-Albuquerque.

1 x 5,000 gal 4,700 gal	Waste Hydrofluoric Acid
1 x 5,000 gal 4,700 gal	Waste Buffered Oxide Etch (Hydrofluoric Acid/Ammonium Fluoride)
1 x 5,000 gal 4,700 gal	Waste Solvent I
36 x 55 gal	Waste Solvent II (Flammable Storage #4)
64 x 55 gal	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) Signeties 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 ~~hazardous waste drain pipes piping~~
 - 3) Disposal of tank contents

- 4) Decontamination of tanks
- 5) Decontamination of containment vaults
- ~~6) Disposal of tanks~~
- 7) ~~6)~~ Disposal of drum inventory
- 8) ~~7)~~ Clean up drum storage area

The work involved in decontamination will be supervised and performed by qualified Signeties 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 Neutracid 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.

~~The s~~ Soil is not expected to be contaminated by waste storage at Signeties Philips-Albuquerque. Soil contamination is ~~avoided 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. ~~Any Past spills in the past will have been~~

decontaminated at the time of the incident, as specified in the Container Management Plan and Contingency Plan. This closure plan will be revised should contamination or leaks be detected during the operating life of the facility.

The following is a suggested 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-gal 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 last of the hazardous waste-containing drums will be properly labeled, marked, manifested and shipped by a permitted transporter to a disposal facility. (e.g., IF Corporation, Chemical Waste Management). If spills or leaks remain, the storage area will be cleaned by scraping or absorbing with Neutrasorb. The Any residuals will be drummed and analyzed, (if necessary) and shipped to a TSD as above 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 scrubbing 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

~~After manufacturing shutdown,~~ 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 ~~and filled~~ with 5,000 gallons of 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 EP TCLP toxicity to determine the appropriate disposal method.

~~Sludge which is non-hazardous will be left alone.~~ Sludge with hazardous characteristics 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 EP TCLP toxic material; however, as many solvents are used for cleaning purposes, it is possible that over the life of the tank insoluble EP 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 for total organic carbon (TOC) and tested for the closure standards, and be pumped into 55-gallon drums to be stored until the final waste pick-up. Waste water discharge which will meet the POTW waste water discharge requirements will be directed into the waste water treatment system. 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 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 decontaminated tanks will be disconnected from the pipes and the tie-down straps and then be removed from the concrete vault by crane. The tanks will either be sold for scrap or transferred to another Signetia site. All hazardous waste pipes will be dismantled and collected for disposal at Class I facilities. 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.):

Exhibit I-1 is the anticipated closure schedule. Closure is planned to occur between December 20, 1995 and January 15, 1996. The Director Secretary will be 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 Signetia 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, ~~we do not require an~~ 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 ~~Signeties 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 ~~\$80,000~~ \$90,200 (~~June 1985~~ August 1995 cost estimate) will be needed to close the ~~Signeties 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 ~~Signeties Philips~~ facility. It will be revised ~~whenever a change in~~ if the closure ~~plan~~ construction bids affects the cost of closure. It will be ~~adjusted annually (from the date of its original development) to reflect changes in closure cost brought about by inflation. The Department of Commerce's Annual Implicit Price Deflator for Gross National Product will be used to make this adjustment.~~

~~* Department of Commerce, Survey of Current Business.~~

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, ~~Signeties Philips-Albuquerque~~ has elected to utilize the Financial Test as a mechanism for assuring closure funds. ~~This document will be updated within 90 days after the close of each succeeding fiscal year.~~

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)):

~~Signeties~~ 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 ~~Director~~ 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)):

~~Signeties~~ 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)):

~~Signeties~~ 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)):

~~Signeties~~ Philips-Albuquerque will not request the ~~Director~~ Secretary for a reduction of liability amounts.

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

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

TABLE I-1
COST-OF CLOSURE ESTIMATE

A. <u>Tanks</u>	
a) Chemicals for neutralization of rinsate	\$ 1,000
b) Disposal Cost of 20,000 gallons of contents and rinsate	26,000
c) Disposal Cost of 20 drums of contaminated liquids from vaults @ \$100/drum	2,000
d) Disposal of contaminated scraps, plumbing	5,000
e) Crane rental 8 hours @ \$100/hour	800
f) Steam cleaner rental 2 days @ \$100/day	200
g) Laboratory analyses of sludges and residuals	2,000
h) Plant labor 96 hours @ \$10/hour	960
i) Supervision 50 hours @ \$30/hour	1,500
Sub-total	\$ 39,460
B. <u>Other Containers</u>	
a) Disposal cost of 100 drums @ \$100/drum	\$ 10,000
b) Plant labor 16 hours at \$10/hour	160
c) Lab analyses of various drums	5,000
Sub-total	\$ 15,160
C. <u>General</u>	
a) Safety clothing and equipment @ \$100/worker	\$ 500
b) Certification	
1) Philips Albuquerque supervisor 24 hours @ \$30/hour	720
2) New Mexico Professional Engineer 60 hours @ \$60/hour	3,600
c) Solid wastes left from clean-up 10 drums @ \$100/drum	1,000
Sub-total	\$ 5,820
D. <u>Total of Sub-totals</u>	
a) Tanks	\$ 39,460
b) Other Containers	15,160
c) General	5,820
Sub-total	\$ 60,440
E. <u>Peripheral</u>	
a) 15% Administrative	\$ 9,426
b) 15% Contingencies	9,426
Total Closure Cost (1985 Dollars)	<u>\$ 79,292</u>

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)				
- Labor	20	m.h.	\$50	\$1,000
- Materials	1	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	\$500
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)

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
