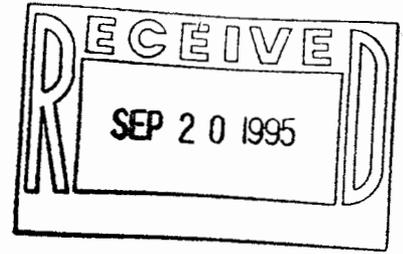


ENTRIBED



*RCRA CLOSURE PLAN REVISION
(REVISION OF PERMIT ATTACHMENT F)*

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

EPA ID No. - NMD000709782

September 1995



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. 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. The closure performance for each closure activity is listed in the following table.

where?
Retested.
Define Results.
Report to NMED
& submit
plan for remediation
for approval.

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

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. 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 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 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 are 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 are 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 of drum storage area

The work involved in decontamination will be supervised and performed by 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 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-gal drums
- 5 sets of clean-up clothing
- Sampling bottles and equipment
- Steam cleaner
- Scrub brushes
- Pump (hand or electric--dependent upon safety requirements for each area)
- 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 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 will be tested for total organic carbon.

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 scabbling 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.

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 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 (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, the 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-2. 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 affect 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-3, Philips-Albuquerque has elected to utilize the Financial Test as a mechanism for assuring closure funds.

ck
ex. I-3

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.

TABLE I-2
COST OF CLOSURE ESTIMATE (1995 BASIS)

Chemical Storage #2

Item	Quantity	Unit	Unit Cost	Item Cost
1. Drum Packing, Labeling, Loading, Manifesting	20	m.h.	\$50	\$1,000
2. Drum Disposal				
- Transport	550	load miles	\$4.00	\$2,200
- Disposal Fee	64	Drums	\$210	\$13,440
3. Pad Washing				
- Labor	20	m.h.	\$50	\$1,000
- Materials	1	lump sum	\$400	\$400
4. Pad Rinsing				
- Labor	20	m.h.	\$50	\$1,000
- Material	1	lump sum	\$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 sum	\$500	\$500
8. Concrete Disposal (Optional) (Transport with other drums)	5	drums	\$210	\$1,050
9. Equipment Decontamination	1	lump sum	\$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-2 (Cont'd.)
COST OF CLOSURE ESTIMATE (1995 BASIS)

Flammable Storage #4

Item	Quantity	Unit	Unit Cost	Item Cost
1. Drum Packing, Labeling, Loading, Manifesting	10	m.h.	\$50	\$500
2. Drum Disposal with Pretreatment by Incineration				
- Transport	550	load miles	\$4.00	\$2,200
- Disposal Fee	36	Drums	\$400	\$14,400
3. Pad Washing				
- Labor	10	m.h.	\$50	\$500
- Materials	1	lump sum	\$200	\$200
4. Pad Rinsing				
- Labor	10	m.h.	\$50	\$500
- Material	1	lump sum	\$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 sum	\$300	\$300
8. Concrete Disposal (Optional) (Transport with other drums)	3	drums	\$400	\$1,200
9. Equipment Decontamination	1	lump sum	\$500	\$500
Subtotal (Rounded)				\$22,000
Independent Professional Engineer				\$4,000
Contingency (20%) of Subtotal (Rounded)				\$4,400
TOTAL COST - FLAMMABLE STORAGE #4				\$30,400

TABLE I-2 (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 sum	\$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 sum	\$400	\$400
5. Rinsate Analysis (pH)	2	samples	\$10	\$20
6. Wash Secondary Containment				
- Labor	20	m.h.	\$50	\$1,000
- Materials	1	lump sum	\$400	\$400
7. Rinse Secondary Containment				
- Labor	10	m.h.	\$50	\$500
- Materials	1	lump sum	\$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 sum	\$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-2 (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 sum	\$100	\$100
4. Analyze Sludge (TOC, Ignitability)	2	samples	\$125	\$250
5. Sludge Disposal (Transport with other drums)	1	drum	\$400	\$400
6. Steam Clean Tanks/Remove Liquids				
- Labor	10	m.h.	\$50	\$500
- Material	1	lump sum	\$200	\$200
7. Rinsate Analysis (TOC, 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 (TOC, 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 Contingency				\$4,000
Contingency (20%) of Subtotal (Rounded)				\$1,400
TOTAL COST - SLUDGE TANK				\$12,400

TABLE I-2 (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

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). (by)

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.

added
deleted

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. 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. The closure performance for each closure activity is listed in the following table.

Any contaminated GW will be remediated.
in soils, if necessary, in GW.

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

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. 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 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 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 are 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 are 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 of drum storage area
- Disposal of tanks*

The work involved in decontamination will be supervised and performed by 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 Neutrakit 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 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
- Steam cleaner
- Scrub brushes
- Pump (hand or electric--dependent upon safety requirements for each area)
- 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 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~~ will be tested for total organic carbon.

Flam Stor # 4

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 scabbling 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.

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 (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, the 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-2. 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 affect 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-3, 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.

**TABLE I-2
COST OF CLOSURE ESTIMATE (1995 BASIS)**

Chemical Storage #2

Item	Quantity	Unit	Unit Cost	Item Cost
1. Drum Packing, Labeling, Loading, Manifesting	20	m.h.	\$50	\$1,000
2. Drum Disposal				
- Transport	550	load miles	\$4.00	\$2,200
- Disposal Fee	64	Drums	\$210	\$13,440
3. Pad Washing				
- Labor	20	m.h.	\$50	\$1,000
- Materials	1	lump sum	\$400	\$400
4. Pad Rinsing				
- Labor	20	m.h.	\$50	\$1,000
- Material	1	lump sum	\$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 sum	\$500	\$500
8. Concrete Disposal (Optional) (Transport with other drums)	5	drums	\$210	\$1,050
9. Equipment Decontamination	1	lump sum	\$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-2 (Cont'd.)
COST OF CLOSURE ESTIMATE (1995 BASIS)

Flammable Storage #4

Item	Quantity	Unit	Unit Cost	Item Cost
1. Drum Packing, Labeling, Loading, Manifesting	10	m.h.	\$50	\$500
2. Drum Disposal with Pretreatment by Incineration				
- Transport	550	load miles	\$4.00	\$2,200
- Disposal Fee	36	Drums	\$400	\$14,400
3. Pad Washing				
- Labor	10	m.h.	\$50	\$500
- Materials	1	lump sum	\$200	\$200
4. Pad Rinsing				
- Labor	10	m.h.	\$50	\$500
- Material	1	lump sum	\$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 sum	\$300	\$300
8. Concrete Disposal (Optional) (Transport with other drums)	3	drums	\$400	\$1,200
9. Equipment Decontamination	1	lump sum	\$500	\$500
Subtotal (Rounded)				\$22,000
Independent Professional Engineer				\$4,000
Contingency (20%) of Subtotal (Rounded)				\$4,400
TOTAL COST - FLAMMABLE STORAGE #4				\$30,400

**TABLE I-2 (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 sum	\$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 sum	\$400	\$400
5. Rinsate Analysis (pH)	2	samples	\$10	\$20
6. Wash Secondary Containment				
- Labor	20	m.h.	\$50	\$1,000
- Materials	1	lump sum	\$400	\$400
7. Rinse Secondary Containment				
- Labor	10	m.h.	\$50	\$500
- Materials	1	lump sum	\$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 sum	\$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-2 (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 sum	\$100	\$100
4. Analyze Sludge (TOC, Ignitability)	2	samples	\$125	\$250
5. Sludge Disposal (Transport with other drums)	1	drum	\$400	\$400
6. Steam Clean Tanks/Remove Liquids				
- Labor	10	m.h.	\$50	\$500
- Material	1	lump sum	\$200	\$200
7. Rinsate Analysis (TOC, 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 (TOC, 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 Contingency				\$4,000
Contingency (20%) of Subtotal (Rounded)				\$1,400
TOTAL COST - SLUDGE TANK				\$12,400

TABLE I-2 (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

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). (copy?)

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.