California Environmental Protection Agency
Department of Toxic Substances Control

HAZARDOUS WASTE FACILITY PERMIT
BOILER AND INDUSTRIAL FURNACE PERMIT

Facility Name: The Dow Chemical Company
P.O. Box 1398
901 Loveridge Road
Pittsburg, CA 94565-1398

Owner Name: The Dow Chemical Company
P.O. Box 1398
901 Loveridge Road
Pittsburg, CA 94565-1398

Operator Name: The Dow Chemical Company
P.O. Box 1398
901 Loveridge Road
Pittsburg, CA 94565-1398

Permit Number: 01-NC-08

Facility EPA ID Number: CAD 076528678

Effective Date of Permit: April 28, 2003

Expiration Date of Permit: April 27, 2013

Pursuant to Section 25200 of the California Health and Safety Code, this RCRA-equivalent Hazardous Waste Facility Permit is hereby issued to Dow Chemical Company. This issuance of this Boiler & Industrial Furnace (BIF) Permit is subject to the conditions set forth in Attachment "A" and the approved Part "B" Application. The permit consists of 40 pages including this cover page and Attachment "A".

/signed by/
Mohinder S. Sandhu, P.E., Chief
Standardized Permits and Corrective Action Branch
Department of Toxic Substances Control

Date: March 19, 2003

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ATTACHMENT A

Hazardous Waste Facility BIF Permit

The Dow Chemical Company,
901 Loveridge Road
Pittsburg, CA 94565-1398
EPA ID No. CA 076528678

I. DEFINITIONS

All terms used in this Permit shall have the same meaning as those terms have in the California Health and Safety Code, Division 20, Chapter 6.5, and California Code of Regulations Title 22, Division 4.5, unless expressly provided otherwise by this Permit.

1. **"DTSC"** as used in this Permit means the California Department of Toxic Substances Control.

2. **"Permittee"** as used in this Permit means the Owner and Operator.

3. **"HSC"** as used in this Permit means the Health and Safety Code.

4. **"CCR"** as used in this Permit means the California Code of Regulations.

5. Unless explicitly stated otherwise, all references to items in this Permit shall refer only to items occurring within the same part.

II. DESCRIPTION OF THE FACILITY AND OWNERSHIP

A. OWNER:

The facility owner is The Dow Chemical Company (hereafter "owner").

B. OPERATOR:

The facility operator is The Dow Chemical Company (hereafter "operator").

C. LOCATION:

The facility is located at 901 Loveridge Road in the City of Pittsburg, California on 450 acres of land (Figure 1, latitude 38° 01′ 15″, longitude 121° 51′ 51″). The facility is the property located within the security fence identified by the county parcel numbers 073-220-028 and 073-220-029.

D. FACILITY DESCRIPTION:

The Dow Chemical Co., Pittsburg facility currently operates 24-hours per day, seven days per week. Operations include research and development and the manufacture of products for agricultural operations, pest control services, paper manufacturers, carpet mills, and biocides. During the manufacture of chemical products at the facility, specific liquid and gaseous (vent emission) by-products are produced that are thermally oxidized in two (2) halogen acid furnace (HAF) units. Aqueous hydrochloric acid (HCl) is produced as a result of thermally oxidizing the chlorinated liquids and gas streams in the HAFs. The HCl is sold as a product to various industrial customers and is used for pH control at the Brine/Condensate Plant within the Dow Chemical plant. The HAF units have been in operation for over 20 years. The HAF units are considered an integral part of general production operations since the units are used to manufacture HCl acid product.

E. FACILITY SIZE AND TYPE FOR FEE PURPOSES:

This facility processes approximately 1550 tons per year (130 tons per month). Therefore, this facility is categorized as a medium sized incineration facility for the purpose of assessing fees in accordance with HSC, Section 25205.19.

F. PERMITTING HISTORY:

F.1. Hazardous Waste Storage Permit: DTSC issued a hazardous waste treatment and storage permit to Dow Chemical in 1996 to allow storage and treatment in equipment other than this BIF Permit.

F.2. Boiler and Industrial Furnace Permit: These two HAF units have BIF interim status authorization under DTSC. Interim status was granted 1991 when USEPA's boilers and industrial furnace regulations were implemented. The BIF interim status authorization requires compliance testing every three years, the most recent of which were conducted in 2001. The HAF units have demonstrated compliance since 1992 with all conditions of their BIF interim status.

F.2.1. The Permittee conducted the following compliance burn certifications:

Unit Name	Date of Compliance Certifications
Manufacturing Services and Symtet HAFs	August 1992
Manufacturing Services and Symtet HAFs	August 1995
Manufacturing Services and Symtet HAFs	August 1998
Manufacturing Services HAF	April 2001
Symtet Halogen Acid Furnace	May 2001

F.2.2. The Permittee conducted the following trial burns as part of the permit application for the BIF units:

Unit Name	Date of Trial Burn
Manufacturing Services HAF	October and November 1999
Symtet HAF	February and April 2000

These HAF units currently also operate under their respective BAAQMD permits that contain specific conditions and limitations. There are no known BAAQMD enforcement actions related to these units. Reductions have been achieved by the closure of two significant HAP emitting units (the Chlorine plant and the Chlorinated Solvents plant) and by installing state-of-the-art abatement equipment on existing units (such as the new refrigeration installation at the Dowicil plant, which significantly reduced emissions of methylene chloride).

G. PERMIT MODIFICATION HISTORY:

Modifications to this Permit or the Operation Plan identified in Part III.A.1 of this permit and/or operation plan allowed pursuant to 22 CCR Section 66270.41 or 66270.42 are listed in Appendix 1.

III. GENERAL CONDITIONS

A. PERMIT APPLICATION DOCUMENTS:

A.1. By the issuance of this permit, the Part B Permit Application consisting of the following documents is hereby approved:

- BIF Part A and Part B Permit Application for the Dow Chemical Company Halogen Acid Furnaces, December 2000 Volume 1 of 3: Text
- BIF Part A and Part B Permit Application for the Dow Chemical Company Halogen Acid Furnaces, December 2000 Volume 2 of 3: Appendices
- BIF Part A and Part B Permit Application for the Dow Chemical Company Halogen Acid Furnaces, December 2000 Volume 3 of 3: Drawing
- Health Risk Assessment for the Dow Chemical Company Halogen Acid Furnaces, July 2001
- Seismic Assessment and Evaluation Halogenated Acid Furnace Systems, Volume IV Recommendations, The Dow Chemical Co., Pittsburg, CA, March 6, 2001.
- Trial Burn Report, Dow Chemical Company Manufacturing Services Halogen Acid Furnace, Volume 1 of 5: Text, January 2000
- Trial Burn Report, Dow Chemical Company Manufacturing Services Halogen Acid Furnace, Volumes 2 through 5 of 5: Appendices, January 2000
- Trial Burn Report, Dow Chemical Company Symtet Halogen Acid Furnace, Volume 1 of 4: Text, July 2000
- Trial Burn Report, Dow Chemical Company Symtet Halogen Acid Furnace, Volumes 2 through 4 of 4: Appendices, July 2000
- Trial Burn Plan, Dow Chemical Company Manufacturing Services Halogen Acid Furnace, September 1999
- Trial Burn Plan, Dow Chemical Company Symtet Halogen Acid Furnace, September 1999
- Quality Assurance Project Plan, Dow Chemical Company Manufacturing Services Halogen Acid Furnace, September 1999
- Quality Assurance Project Plan, Dow Chemical Company Symtet Halogen Acid Furnace, September 1999

- Health Risk Assessment Protocol, Dow Chemical Company Halogen Acid Furnaces, February 1999

This Part B Permit Application and any subsequent revisions thereto, that are approved by DTSC pursuant to the permit modification requirements contained in 22 CCR 66270.41 and 66270.42, are by this reference made part of this permit.

A.2. The Permittee shall operate and maintain the facility in accordance with the Part B Permit Application and this Permit.

A.3. In the event of any conflict between this Permit and the Part B Permit Application, the most stringent provisions shall prevail.

A.4. The Part B Permit Application and this Permit shall be maintained at the facility and place of business at all times until closure is completed.

B. EFFECT OF PERMIT:

B.1. The Permittee shall comply with the provisions of the California Health and Safety Code, and Division 4.5 of Title 22, CCR. The issuance of this Permit by DTSC does not release the Permittee from any liability or duty imposed by federal or state statutes or regulations or local ordinances, except the obligation to obtain this Permit. The Permittee shall obtain the permits required by other governmental agencies, including but not limited to, the applicable land use planning, zoning, hazardous waste, air quality, water quality, and solid waste management laws for the construction and/or operation of the Facility.

B.2. The Permittee is permitted to treat and store hazardous wastes in accordance with conditions of this Permit. Any treatment or storage of hazardous waste not specifically authorized in this Permit is strictly prohibited.

B.3. Compliance with the terms of this Permit does not constitute a defense to any action brought under any other law governing protection of public health or the environment, including, but not limited to, one brought for any imminent and substantial endangerment to human health or the environment.

B.4. DTSC's issuance of this Permit does not prevent DTSC from adopting or amending regulations that impose additional or more stringent requirements than those in existence at the time this Permit is issued and does not prevent the enforcement of these requirements against the Permittee.

B.5. Failure to comply with any terms or conditions set forth in the Permit in the time or manner specified herein will subject the Permittee to possible enforcement action including but not limited to penalties pursuant to HSC Section 25187.

B.6. In addition, failure to submit any information required in connection with the Permit, or falsification and/or misrepresentation of any submitted information, is ground for revocation of this Permit (22 CCR 66270.43).

B.7. In case of conflicts between the Operation Plan and the Permit the Permit condition takes precedence.

B.8. The Permit includes and incorporates by reference any conditions of waste discharge requirements issued by the State Water Resources Control Board or any of the California Regional Water Quality Control Boards and any other conditions imposed pursuant to section 13227 of the Water Code.

C. COMPLIANCE WITH THE CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA):

DTSC has prepared an Initial Study and a Negative Declaration, dated October 26, 2001, in accordance with the requirements of Public Resources Code Section 21000 et seq. and the CEQA Guidelines, Section 15070 et seq. of Title 14, California Code of Regulations.

D. WASTE MINIMIZATION CERTIFICATION:

Pursuant to HSC, Section 25209 the Permittee shall certify annually, by March 1 for the previous year ending December 31, that:

D.1. The facility has a program in place to reduce the volume and toxicity of all hazardous wastes listed in Table 1 of this permit to the degree, determined by the Permittee, to be economically practicable.

D.2. The method of storage, treatment, or disposal is the only practicable method or combination of methods currently available to the facility, which minimizes the present and future threat to human health and the environment.

The Permittee shall make this certification, in accordance with 22 CCR 66270.11. The Permittee shall submit three copies of the certification to Chief, Standardized Permits and Corrective Action Branch, 700 Heinz Avenue, Berkeley, CA 94710 and shall record and maintain such certification in the facility Operating Record.

E. WASTE MINIMIZATION CONDITIONS:

The Permittee shall comply with the Hazardous Waste Source Reduction and Management Review Act (SB 14) requirements that are specified in the HSC, sections 25244.19, 25244.20 and 25244.21, and any subsequent applicable statutes or regulations promulgated thereunder.

This would include submittal of SB 14 documents to DTSC upon request.

DTSC may require the Permittee to submit a more detailed status report explaining any deviation from, or changes to, the approved waste minimization plan.

IV. PERMITTED UNITS AND ACTIVITIES

This permit authorizes operation only of the hazardous waste units and activities listed below. The Permittee shall not treat or store hazardous waste in any units other than those specified in this Section. Any modifications to a unit or activity authorized by this Permit require the written approval of DTSC in accordance with the permit modification procedures set forth in 22 CCR 66270.40-66270.42.

A. IDENTIFICATION OF PERMITTED WASTE STREAMS:

A.1. Table 1 of this permit lists the waste streams generated onsite that are allowed to be managed in permitted HAF units. The Permittee shall not receive any offsite waste for treatment, storage, or disposal, unless otherwise approved by DTSC.

A.2. The Permittee shall only treat the hazardous wastes listed in Table 1 of this permit.

A.3. The Permittee is prohibited from storing any waste that is not identified in Table 1 of this Permit in tanks T-501B, T-502A and T-12.

A.4. The HAF units are permitted to handle each waste stream in variable amounts provided the hazardous waste feed rate, and chloride production rate does not exceed the compliance feed rate limits specified in Table 4 and Table 6.

TABLE 1: Waste Streams Description

Waste Stream	Description	HW Code No.	Estimated Annual Quantities
1	Dowicil Waste Solvent	F002 Cal. Waste #741	210 tons
2	Spent Solvents from Dow Pittsburg processes	F002 Cal. Waste #741	78 tons
3	Discarded Commercial Product - methylene chloride	U080 Cal. Waste #741	1 ton
4	Discarded Commercial Product, 1,3-dichloropropene	U084 Cal. Waste #741	1 ton
5	Discarded Commercial Product, tetrachloroethylene	U210 Cal. Waste #741	1 ton
6	Discarded Commercial Product, carbon tetrachloride	U211 Cal. Waste #741	1 ton

Waste Stream	Description	HW Code No.	Estimated Annual Quantities
7	Discarded Commercial Product, methyl chloroform	U226 Cal. Waste #741	1 ton
8	Discarded Commercial Product, trichloroethylene	U228 Cal. Waste #741	1 ton
9	Mixture of Discarded Commercial Products (methylene chloride including 1,3-dichloro-1-propene, tetrachloroethylene, tetrachloro-methane, methyl chloroform, trichloroethylene)	U080, U084, U210, U211, U226, U228 Cal. Waste #741	1 ton
10	Symtet Tars (chlorinated pyridines, ferric chloride, hexachlorobenzene, carbon tetrachloride, and chromium)	D004, D005, D006, D007, D008, D009, D010, D019, D032 Cal. Waste #751	1200 tons
11	Symtet Liquids (liquid chlorinated pyridines) (arsenic including barium, D006, chromium, lead, mercury, selenium, carbon tetrachloride, hexachlorobenzene, hexachloroethane, tetrachloroethylene)	D004, D005, D006, D007, D008, D009, D010, D019, D032, D033, D034, D039 Cal. Waste #741	50 tons
12	Process Water Organic Liquid (carbon tetrachloride including chloroform, 1,2-dichloroethane, hexachlorobenzene, hexachlorobutadiene, hexachloroethane, tetrachloroethylene, trichloroethylene)	D019, D022, D028, D032, D033, D034, D039, D040 Cal. Waste #741	3 tons
13	Groundwater Organic Liquid (carbon tetrachloride including chloroform, 1,2-dichloroethane, hexachlorobenzene,	D019, D022, D028, D032, D033, D034, D039, D040	3 tons

Waste Stream	Description	HW Code No.	Estimated Annual Quantities
	hexachlorobutadiene, hexachloroethane, tetrachloroethylene, trichloroethylene)	Cal. Waste #741	
14	MS Distillation System Liquid (arsenic including cadmium, chromium, lead, mercury, selenium, carbon tetrachloride, chloroform, hexachlorobenzene, hexachlorobutadiene, hexachloroethane, tetrachloroethylene), 500 tons,	D004, D006, D007, D008, D009, D010, D019, D022, D032, D033, D034, D039 Cal. Waste #741	500 tons
15	Dow Pittsburg Process Drum Wastes (arsenic including cadmium, chromium, lead, mercury, selenium, carbon tetrachloride, chloroform, 1,2-dichloroethane, hexachlorobenzene, hexachlorobutadiene, hexachloroethane, tetrachloroethylene)	D004, D006, D007, D008, D009, D010, D019, D022, D028, D032, D033, D034, D039 Cal. Waste #741	5 tons
16	Symtet Liquid Organics (carbon tetrachloride including chloroform, tetrachloroethylene)	D019, D022, D032, D033, D034, D039, D040 Cal. Waste #741	34 tons
17	Carbon Tetrachloride Utility Fluid (carbon tetrachloride including chloroform, tetrachloroethylene)	D019, D022, D039 Cal. Waste #741	34 tons
19	Chlorinated Hydrocarbon Liquid (carbon tetrachloride including chloroform, hexachlorobenzene, hexachlorobutadiene, hexachloroethane, tetrachloroethylene, trichloroethylene)	D019, D022, D032, D033, D034, D039, D040 Cal. Waste #741	3 tons

Waste Stream	Description	HW Code No.	Estimated Annual Quantities
20	Tetrachloroethylene Utility Fluid (carbon tetrachloride including hexachloroethane, tetrachloroethylene)	D019, D034, D039 Cal. Waste #741	51 tons

* CWC = California Waste Code

A.5. Process Vents: All vents listed in Table 2 of this permit are treated by the permitted BIF units. These gaseous process vents are non-hazardous.

TABLE 2: Process Vents Description

Waste Stream Number	Description	Approximate Flow Rates
21	Symtet Process Vent (hydrogen chloride, chlorine, nitrogen, carbon tetrachloride), approximately	300 lb/hr
22	Dowicil Process Vent (methylene chloride, nitrogen)	25-62 lb/hr
23	Tar Tank Vent (nitrogen, chlorinated pyridines)	5 lb/hr
24	600/700 Block Tank Vent (MS HAF Backup Vent), (nitrogen, carbon tetrachloride, methylene chloride, tetrachloroethylene)	30 scfm (standard cubic feet per minute)
25	MS HAF Water Plant Backup Vent (nitrogen, carbon tetrachloride, tetrachloroethylene, 1,2-dichloroethene, methylene chloride)	50 scfm
26	Latex Process Vent (MS HAF Backup Vent) (nitrogen, butadiene, styrene, methane)	15 scfm
27	Distillation Vent (carbon tetrachloride, chlorine, hydrogen chloride)	200 lb/hr
28	HCl Vent (hydrogen chloride, nitrogen)	
29	Chlorine Vent (chlorine) [removed from service]	Not available
30	600/700 Block Tank and Carbon Tetrachloride	30 scfm

Waste Stream Number	Description	Approximate Flow Rates
	Tank Truck/Tank Car Loading Vent (nitrogen, carbon tetrachloride, methylene chloride, tetrachloroethylene)	
31	400/520 Block Process Vent (nitrogen, carbon tetrachloride, tetrachloroethylene, 1,2-dichloroethene, methylene chloride	50 scfm
32	600 Block Process Vent	80 scfm
33	Catacid Process and HCl Tank Car/Tank Truck Loading Vent	30 scfm
34	Latex Process Vent	15 scfm
35	Membranes Process Vent [removed from service]	Not available
36	Groundwater (B-250) Air Stripper Process Vent	250 scfm
37	Catacid Process Vent	135 scfm
38	Dowicil Process Vent (ST HAF Backup Vent), (methylene chloride, nitrogen)	25-62 lb/hr

B. IDENTIFICATION OF PERMITTED TREATMENT AND STORAGE UNITS:

The following are the regulated hazardous waste treatment units and storage units that are being authorized for continued operations under this permit issued by DTSC.

B.1. Symtet Halogen Acid Furnace (ST HAF Unit):

The unit consists of a thermal reactor. The thermal reactor is a refractory-lined vertical steel vessel with a down-fired burner. It has an inside diameter of 31 inches. The length of the reactor is 17.2 feet. This unit is located in Block 660 of the facility (See Figure 2). Figure 3 is a process flow diagram for ST HAF unit. Figure 4 shows this HAF unit.

Activity Type: Treatment of liquid and gaseous process vent feed streams.

Activity Description: The ST HAF thermally treats chlorinated liquid and gaseous process vent feed streams, recovering the chloride as a hydrochloric acid product.

Liquid wastes: Symtet tars, Symtet liquids

Process vents: Symtet process vent, Dowicil process vent, Tar tank vent, 600/700 Block tank vents (MS HAF backup vent), MS HAF water plant backup vent, Latex process vent (MS HAF backup vent),

RCRA Hazardous Waste Codes: D004, D005, D006, D007, D008, D009, D010, D019, D032, D033, D034, D039

California Hazardous Waste Codes: CA 741, CA 751

Maximum Throughput: 584 pounds of hazardous waste per hour

Maximum Production Rate: 749 pounds of HCl measured as chloride per hour

B.2. Manufacturing Services Halogen Acid Furnace (MS HAF):

The unit consists of a thermal reactor. The thermal reactor is a refractory-lined horizontal steel vessel with two burners. It has an inside diameter of 31 inches. The length of the reactor is 16.7 feet. This unit is located in Block 520 of the facility (See Figure 2). Figure 5 is a process flow diagram for MS HAF unit. Figure 6 shows this HAF unit.

Activity Type: Treatment of liquid and gaseous process vent feed streams.

Activity Description: The MS HAF thermally treats chlorinated liquid and gaseous process vent feeds, recovering the chloride as product hydrochloric acid.

Liquid wastes: Dowicil waste solvent, spent solvents from Dow Pittsburg process, discarded commercial products-(methylene chloride, 1,3-dichloropropene, tetrachloroethylene, carbon tetrachloride, methyl chloroform, trichloroethylene), process water organic liquid, groundwater organic liquid, MS distillation liquid, Dow Pittsburg process drum wastes, Symtet liquid organics, carbon tetrachloride utility fluid, chlorinated hydrocarbon liquid, tetrachloroethylene utility fluid.

Process vent streams: Distillation vent, HCl vent, 600/700 Block Tank and Carbon Tetrachloride Tank Truck/Tank Car Loading Vent, 400/520 Block Process Vent, 600 Block Process Vent, Catacid Process and HCl Tank Car/Tank Truck Loading Vent, Latex Process Vent, Groundwater (B-250) Air Stripper Process Vent, Catacid Process Vent, and Dowicil Process Vent (ST HAF backup vent).

RCRA Hazardous Waste Codes: D004, D006, D007, D008, D009, D010, D019, D022, D028, D032, D033, D034, D039, D040, F002, U080, U084, U210, U211, U226, U228

California Hazardous Waste Codes: CA 741

Maximum Throughput: 461 pounds of hazardous waste per hour

Maximum Production Rate: 1423 pounds of HCl measured as chloride per hour.

B.3. Storage Tanks T-501B AND T-502A:

Tar tanks T-501B and T-502A are located in Symtet Halogen Acid Furnace area. These vertical tanks are 144-inches diameter by 16 feet 3 inches long, ASME Code Section VIII, Division 1 pressure vessels that were fabricated in 1988. Figure 7 shows hazardous waste storage tanks T-501B and T-501A.

Activity Type: Storage of liquid hazardous waste.

Activity Description: Two tanks, T-501B and T-502A, store liquid hazardous waste feed material in the ST HAF tank farm area. The two tanks are heated by external heat exchangers to keep the contents liquid.

Maximum Storage Capacity: 15,000 gallons (T-501B) and 15,000 gallons (T-502A)

Waste Types: Symtet tars, Symtet liquids

RCRA Hazardous Waste Codes: D004, D005, D006, D007, D008, D009, D010, D019, D032, D033, D034, D039

California Hazardous Waste Codes: CA 741, CA 751

B.4. Storage Tank T-12:

Waste storage tank (T-12) is located in MS Halogen Acid Furnace area. This vertical tank is a 96-inches diameter by 96-inches long ASME Code, Section VIII, division 1 pressure vessel. Figure 8 hazardous waste storage tank T-12.

Activity Type: Storage of liquid hazardous waste.

Activity Description: Tank T-12 stores liquid hazardous waste in MS HAF area.
Maximum Storage Capacity: 3,750 gallons

Waste Types: Dowicil waste solvent, spent solvents from Dow Pittsburg process, discarded commercial products-(methylene chloride, 1,3-dichloropropene, tetrachloroethylene, carbon tetrachloride, methyl chloroform, trichloroethylene), process water organic liquid, groundwater organic liquid, MS distillation liquid, Dow Pittsburg process drum wastes, Symtet liquid organics, carbon tetrachloride utility fluid, chlorinated hydrocarbon liquid, tetrachloroethylene utility fluid.

RCRA Hazardous Waste Codes: D004, D006, D007, D008, D009, D010, D019, D022, D028, D032, D033, D034, D039, D040, F002, U080, U084, U210, U211, U226, U228

California Hazardous Waste Codes: CA 741

V. SPECIAL CONDITIONS

A. CONDITIONS SPECIFIC TO TANKS T-501B, T-502A, and TANK T-12:

A.1. Assessment of Existing Tanks System's Integrity (Section 66264.191):

Tanks shall have sufficient shell strength and pressure controls to prevent their collapse or failure during normal operating conditions.

The tank integrity assessment can be accomplished by either physically entering the tank or by conducting ultrasonic testing (UT) from the exterior. If UT testing is performed it should be conducted over 100% of the head and shell surface area which is not covered by heating coils.

Tanks T-501B and T-502A should be internally inspected or ultrasonic testing conducted from the exterior every ten years from the date of last inspection. Last inspection of Tank 501-B was conducted on November 24, 1999. Last inspection of T-502 A was conducted on January 19, 1999. A minimum overall shell thickness of 0.316" shall be maintained at all times to ensure sufficient shell strength. For corrosion in localized areas, minimum thickness is 0.158" per criteria set by National Board Inspection Code (NBIC) and American Petroleum Institute (API) codes.

Tank T-12 should be internally inspected or ultrasonic testing conducted from the exterior every two years from the date of last inspection. A new tank T-12 was installed on September 2, 1999. The last inspection was conducted on August 29, 2001. A minimum overall shell thickness of 0.158" shall be maintained at all times to ensure sufficient shell strength. For corrosion in localized areas, minimum thickness is 0.08" per criteria set by NBIC and API codes.

Depending upon the findings from future inspections these recommended frequencies may be changed upon approval by DTSC.

B. CONDITIONS SPECIFIC TO THE MANUFACTURING SERVICES HALOGEN ACID FURNACE TREATMENT UNIT (MS HAF unit):

B.1. For the MS HAF unit, the automatic waste feed cutoff values for various process monitors, based on trial burns, are specified in Table 3.

Table 3: Manufacturing Services HAF Process Monitors Tied to the AWFCO System

Parameter	Computer Input	Type of Monitor	Location of Monitor	AWFCO Value
Total hazardous waste feed rate	AC(1039)	Mass flow meter	Feed line to HAF unit	≥ 461 lb/hr hra

Parameter	Computer Input	Type of Monitor	Location of Monitor	AWFCO Value
Total Cl feed rate	AC(666)	Computer calculation	Not applicable	≥ 1423 lb/hr hra
Maximum combustion chamber temperature	AC(736)	Thermocouple	Combustion chamber	≥ 1258 °C instantaneous
Minimum combustion chamber temperature	AC(1531)	Thermocouple	Combustion chamber	≤ 986 °C instantaneous
Scrubber pH	AC(876)	pH probe	Scrubber recirculation line	≤ 7.6 hra
Scrubber blowdown rate	AC(487)	DP flow meter	Make-up water line to B-16	≤ 728 lb/hr hra
CO concentration, corrected to 7% O_2 (low range)	AC(1317)	CO analyzer	Stack	≥ 100 ppmv hra
CO concentration, corrected to 7% O_2 (high range)	AC(1223)	CO analyzer	Stack	≥ 100 ppmv hra
Scrubber L/G ratio	AC(806)	Computer calculation	Not applicable	≤ 29.3 gpm/1,000 scfm hra
Atomizing air pressure	AC(560)	Pressure transmitter	Liquid feed gun	≤ 50 psig instantaneous
Stack gas flow rate	AC(519)	DP flow meter	Stack	≥ 1230 scfm instantaneous

B.2. MS HAF shall be operated at or below the compliance limits specified in Table 4.

Table 4: Permit Conditions Specific to MS HAF

Parameter	Compliance Limit
Maximum liquid feed rate	≤ 461 lb/hr hra
Maximum ash feed rate	≤ 1104 g/hr hra
Maximum arsenic feed rate	≤ 0.85 g/hr hra
Maximum cadmium feed rate	≤ 0.086 g/hr hra
Maximum chromium feed rate	≤ 3.99 g/hr hra
Maximum total Cl feed rate	≤ 1423 lb/hr hra
Maximum stack gas flow rate	≤ 1230 scfm instantaneous
Maximum combustion temperature	≤ 1258 °C instantaneous

Parameter	Compliance Limit
Minimum combustion temperature	≥ 986 °C instantaneous
Minimum NaOH scrubber pH	≥ 7.6 hra
Minimum NaOH scrubber L/G	≥ 29.3 gpm/1,000 scfm hra
Minimum NaOH scrubber blowdown	≥ 728 lb/hr hra
Atomizing air pressure	≥ 50 psig (min)
CO concentration, corrected to 7% O_2 (low range)	≤ 100 ppmv hra
CO concentration, corrected to 7% O_2 (high range)	≤ 100 ppmv hra

C. CONDITIONS SPECIFIC TO THE SYMTET HALOGEN ACID FURNACE TREATMENT UNIT (ST HAF unit):

C.1. For the ST HAF unit, the automatic waste feed cutoff values for various process monitors based on trial burns, are specified in Table 5.

Table 5: Symtet HAF Process Monitors tied to the AWFCO System

Parameter	Computer Input	Type of Monitor	Location of Monitor	AWFCO Value
Total hazardous waste feed rate	AC(1072)	Coriolis mass flow meter	Feed line to HAF unit	≥ 584 lb/hr hra
Total Cl feed rate	AC(1496)	Computer calculation	Not applicable	≥ 749 lb/hr total Cl hra
Maximum reactor temperature	AC(1167)	Thermocouple	Combustion chamber	≥ 1354 °C hra
Minimum reactor temperature	AC(117)	Thermocouple	Combustion chamber	≤ 1021 °C instantaneous
Scrubber pH	AC(1706)	pH probe	Scrubber recirculation line	≤ 7.35 hra
Scrubber L/G ratio	AC(1566)	Computer calculation	Not applicable	≤ 57 gpm/1000 scfm hra
Scrubber blowdown rate	AC(1636)	Magnetic flow meter	Make-up water line to B-502	≤ 32 lb/hr hra
Flue gas inlet temperature to particulate scrubber	AC(1776)	Temperature transmitter	C-502 discharge	≥ 60 °C hra
Particulate removal blowdown rate	AC(1300)	Magnetic flow meter	Line from P-505 to B-501	≤ 196 lb/hr hra
Particulate removal	AC(768)	Computer	Not applicable	≤ 20.5

Parameter	Computer Input	Type of Monitor	Location of Monitor	AWFCO Value
L/G ratio		calculation		gpm/1000 scfm hra
CO concentration, corrected to 7% O_2 (low range)	AC(919)	CO analyzer	Stack	≥ 100 ppmv hra
CO concentration, corrected to 7% O_2 (high range)	AC(999)	CO analyzer	Stack	≥ 100 ppmv hra
Atomizing air pressure	AC(818)	Pressure transmitter	Liquid feed gun	≤ 51.5 psig hra
Stack gas flow rate	AC(819)	Annubar flow meter	Stack	≥ 511 scfm hra

C.2. STHAF shall be operated at or below the compliance limits given in Table 6.

Table 6: Permit Conditions Specific to Symtet HAF

Parameter	Compliance Limit
Maximum liquid feed rate	≤ 584 lb/hr hra
Maximum ash feed rate	≤ 28366 g/hr hra
Maximum arsenic feed rate	≤ 0.59 g/hr hra
Maximum cadmium feed rate	≤ 7.48 g/hr hra
Maximum chromium feed rate	≤ 75.1 g/hr hra
Maximum total Cl feed rate	≤ 749 lb/hr hra
Maximum stack gas flow rate	≤ 511 scfm hra
Maximum combustion temperature	≤ 1354 °C hra
Minimum combustion temperature	≥ 1021 °C instantaneous
Minimum NaOH scrubber pH	≥ 7.35 hra
Minimum NaOH scrubber L/G	≥ 57 gpm/1,000 scfm hra
Minimum PM scrubber L/G	≥ 20.5 gpm/1,000 scfm hra
Minimum NaOH scrubber blowdown	≥ 363 lb/hr hra
Minimum PM scrubber blowdown	≥ 196 lb/hr hra
Atomizing air pressure	≥ 51.5 psig hra
CO concentration, corrected to 7% O_2 (low range)	≤ 100 ppmv hra
CO concentration, corrected to 7% O_2 (high range)	≤ 100 ppmv hra

D. SEISMIC ANALYSIS:

D.1. The facility has provided seismic analysis and certification. DTSC reserves the right to provide comments at a future date on the seismic analysis section of the Part B Application, specifically the structural analysis section.

D.2. The Permittee shall submit additional technical information to DTSC to corroborate the finding that the subsurface soils below all regulated units are not prone to liquefaction within 90 days of the effective date of this Permit. If the additional technical information does not corroborate the finding of non-liquefaction, the Permittee will submit to DTSC an upgrading/retrofitting plan within 180 days of effective date of this Permit.

VI. CORRECTIVE ACTION FOR SOLID WASTE MANAGEMENT UNITS (SWMUs)

A. CORRECTIVE ACTION SUMMARY FOR EXISTING SWMUs:

A.1. RFA Findings/Results:

In 1986, the United States Environmental Protection Agency (EPA) prepared a Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA) that identified 25 Solid Waste Management Units (SWMUs) at the Dow Pittsburg facility. Sitewide RCRA corrective action cleanup at the Dow Pittsburg facility is currently being regulated by the San Francisco Regional Water Quality Control Board. In June 1987, the San Francisco Regional Water Quality Control Board issued Waste Discharge Requirements (WDR) Order No. 87-0064 that addressed the SWMUs that required further action. The WDR required that Dow submit and implement a plan to characterize all identified areas of potential concern for water quality and, if necessary, evaluate alternatives for remediation of these areas. An updated Order (Order No. 98-059) was issued in 1998.

A.1.1. SOLID WASTE MANAGEMENT UNITS: These units are listed in Table 7 and shown in Figure 2.

Table 7 Solid Waste Management Units and Their Current Status

RFA Unit No.	Description	Current Status	Comments
4.1	AST T-408	Closed	No further action required (NFA)
4.2	AST T-102	Closed	NFA
4.3	AST T-15	Closed	NFA
4.4	AST T-156	Closed	NFA
4.5	AST T-6	Closed	NFA
4.6	AST 506-A and 506-B	Closed	NFA.
4.7	AST T-21	Closed	NFA.
4.8	Storm Sewer System	Maintaining and retrofitting	Study completed. No evidence of releases. NFA. Ongoing retrofitting of old pipelines to prevent infiltration of groundwater contaminants into sewer system.
4.9	Solar Evaporation	Post Closure	(Work Area 1) Closed between

RFA Unit No.	Description	Current Status	Comments
	Ponds (Class I)	Maintenance	1988 and 1990. Ponds E and F were clean-closed. Ponds A, B, C, and D involved solidification of residual liquids and sludges, construction of a crib lock wall and RCRA cap, and construction of hydraulic containment system.
4.10	Central Landfill (Class II)	Closed	(Work Area 1). Closure approved by DTSC (non-RCRA).
4.11	Northeastern Landfill (Class III)	Post Closure Maintenance	(Work Area 6). Active Landfill. Report of Waste Discharge concluded that impacts to the environment from historical landfill operations are insignificant. Operation of hydraulic containment (french drain) pending resolution of NPDES issue. Closed between 1988 and 1990. Capped with low-permeability clay.
4.12	Byproduct Waste Disposal Trench, Inactive Hazardous Waste Landfill	Site-wide containment	Migration study completed. Impermeable cover has been installed. Closure to be part of site-wide containment (non-RCRA).
4.13	Inactive Waste Landfill (Class I), Chem Research Disposal Trench	Site-wide containment	(Work Area 4, Work Area 5) Covered with asphalt or roadbase. Closure to be part of site-wide containment (non-RCRA).
4.14	Inactive Municipal Landfill (Northwestern and Northcentral Landfills)	Site-wide containment	(Work Area 2, Work Area 3) Closure to be part of site-wide containment. Will be hydraulically contained by extraction well system.
4.15	Brine Ponds	Closed	(Work Area 7) Sediments were removed, the ponds were backfilled with clean soil, and a concrete slab was constructed over the ponds. NFA
4.16	Latex Coagulation	Closed	(Work Area 4) Sludge and

RFA Unit No.	Description	Current Status	Comments
	Surface Impoundments		contaminated soil were excavated and the ponds were backfilled with clean soil. NFA
4.17	Latex Recycle Fire Water Reservoir	Closed	Monitoring is performed as part of the site-wide program (non-RCRA).
4.18	Storm and Fire Water Receiving Impoundment	Closed	(Work Area 5) Monitoring is performed as part of the site-wide program.
4.19	Former Outfall Pond Neutralization System (Discharge to Pond E-001	Closed	(Work Area 8) Pond capped and closed (non-RCRA). NFA
4.20	Shock Pond, adjacent to Pond E-001	Closed	(Work Area 3) Pond capped and closed (non-RCRA). NFA.
4.21	Solvent and Drum Storage Area	Closed	(Work Area 4) No evidence of releases. NFA
4.22	E-002 Pond	Closed	No evidence of leakage. No further action required.
4.23	Inactive Ethyl Corporation	Site-wide containment	(Work Area 9) Closure to be part of site-wide containment. Groundwater extraction wells have been installed to contain an isolated VOC plume.
4.24	Pioneer Rubber plant	Closed	Non-RCRA. No further action required.
4.25	Railcar Wash Area	Closed	(Work Area 4) Investigation report prepared. No evidence of releases. No further action required.

All existing SWMUs at the Dow site either do not require any further action, or are undergoing the RWQCB site-wide cleanup program.

A.2.2. AREAS OF CONCERN: These areas are listed in Table 8.

Table 8: Areas of Concern and Their Current Status

No.	Description	Current Status	Comments
AOC-1	Chloropicrin plant	Site-wide containment	Site of Vikane plant. NFA
AOC-2	Xanthate plant (located in Section 490 of the plant.	Site-wide containment	Closed in 1976. NFA
AOC-3	Z-200 plant	Site-wide containment	Located near the old xanthate plant. NFA
AOC-4	Liquefaction plant	Site-wide containment	Located in Section 210. NFA

All AOCs are undergoing the RWQCB site-wide cleanup program.

A.2. RCRA FACILITY INVESTIGATION:

Dow has submitted various reports addressing RWQCB requirements for SWMU investigations. Much of the site investigation work is summarized in a twelve-volume Remedial Investigation and Corrective Action Program report submitted in December 1988. In August 1990, U.E. EPA partially approved Dow's 1988 RFI Report. Additional work was required to complete Corrective Measures requirements.

A.3. REGULATORY FRAMEWORK:

In 1989, the EPA issued a 3008(h) Administrative Order under RCRA authority requiring Dow to 1) determine the nature and extent of any releases of hazardous wastes or hazardous constituents from the facility, and 2) to identify and evaluate alternatives for corrective action necessary to prevent or mitigate any migration of hazardous wastes or hazardous constituents from the facility. In August 1997, EPA issued written notice that it terminated the 3008(h) Administrative Order and that the requirements of the Order had been incorporated into the Hazardous Waste Facility Permit issued by DTSC in August 1996. The Hazardous Waste Facility Permit in turn references Section 25204.6 of the California Health and Safety Code which grants the lead authority to the RWQCB to implement and enforce the corrective action requirements of Article 6, Chapter 14, Division 4.5, Title 22 of the California Code of Regulations. Currently the RWQCB, with oversight by DTSC, is the lead agency overseeing sitewide corrective action at the Dow Pittsburg facility.

A.4. CORRECTIVE MEASURES STUDY FOR EXISTING SWMUs:

The "Corrective Measures Study Report", March 8, 1995, prepared by Dow, discussed various alternatives for remediation of contamination at the site. The proposed remedy for the Dow site will include monitoring and maintenance requirements for the six closed "Solar Evaporation Ponds". The six ponds are identified as A through F. Ponds E and F were clean-closed, and all residual wastes are held in ponds A, B, C, and D.

There are only two SWMUs that are currently under investigations under RWQCB WDR Order 98-059.

HEXACHLOROBENZENE DISPOSAL TRENCH (SWMU 4.12): This Trench was closed and a final cover was installed in late 1998. The final cover includes 40-mil high-density polyethylene (HDPE) geomembrane beneath 9 inches of soil and a 4-inch asphalt cap. Ongoing maintenance and monitoring is performed.

FORMER OUTFALL POND (SWMU 4.19): The Former Outfall Pond (FOP) was closed and capped in October 2000. The final cover included a mesh geogrid covered by a 1-foot sand layer, a geosynthetic clay liner, and a vegetated soil layer. Ongoing maintenance and monitoring is performed by the facility.

B. NEW IDENTIFIED RELEASES:

In the event the Permittee identifies an immediate or potential threat to human health and/or the environment, discovers new releases of hazardous waste and/or hazardous constituents, or discovers new Solid Waste Management Units (SWMUs) not previously identified, the Permittee shall notify DTSC orally with 24 hours of discovery and notify DTSC in writing within 10 days of such discovery summarizing the findings including the immediacy and magnitude of any potential threat to human health and/or the environment.

DTSC may require the Permittee to investigate, mitigate and/or take other applicable action to address any immediate or potential threats to human health and/or the environment and newly identified releases of hazardous waste and/or hazardous constituents. For newly identified SWMUs, the Permittee is required to conduct corrective action. Corrective action will be carried out either under a Corrective Action Consent Agreement or a Unilateral Corrective Action Order pursuant to Health and Safety Code, Section 25187.

APPENDIX 1: HISTORY OF MODIFICATIONS

Interim Status Modifications: The following modifications were made to Dow Chemical's Interim Status Document prior to the issuance of this BIF permit. The following is provided to serve as a chronology of these ISD modifications.

A. February 28, 1997: Modification of Dowicil â Antimicrobials Process Vent to ST HAF

Re-routed the existing process vent piping from the Dowicil® Plant to the ST HAF as a result of upgrading the Plant's solvent recovery system. Upgraded the solvent recovery system that increased the chloride content of the process vent stream from 10 lb/hr to 27 lb/hr.

B. February 28, 1997: Process Vent Stream from the Groundwater Plant Air stripper to the MS HAF

A process vent stream from the groundwater plant air stripper was added to the MS HAF. The air stripper was installed at the request of the RWQCB.

C. May 23, 1997: Modification of Heating System on ST HAF Tar Storage Tanks

The heating system for the storage tanks was upgraded by installing an external heat exchanger on both tanks. The upgraded heating system provided the ability to maintain the chlorinated pyridines at a consistent temperature that essentially eliminated plugging in the feed system due to solidification of the chlorinated pyridines.

D. June 3, 1998: Modification of Precompliance Certification Form (PC-5)

Updated Pre-compliance Certification Form (PC-5) that documents feed rate limits for ash, metals, and chlorine during pre-compliance period.

E. July 2, 1999: The following changes were approved under this modification:

1. Replacement of MS HAF Waste Feed Tank T-12
2. Replacement of MS HAF Waste Feed Tank Circulation/Feed Pump, P-38
3. Process Vent Stream Modification to MS HAF
4. Removal of the Chlorine Vent Gas to the MS HAF
5. ST HAF as Backup Abatement Device for the Latex Process Vent
6. Thermal Conductive Flow Meter Removed from Dowicil Process Vent Stream to ST HAF.

F. July 27, 1999: Changes to ST HAF Thermal Reactor

G. August 27, 1999: Replacement of MS HAF Combustion Air Blower

H. September 27, 1999: Repair Work on ST HAF Thermal Reactor

I. September 27, 2000: Changes to Manufacturing Services Halogen Acid Furnace

1. Replacement of MS HAF Liquid Waste Feed Line
2. Replacement of MS HAF Quench Column, B-13
3. Replacement of continuous emission monitoring (CEM) units at the MS HAF and ST HAF

J. June 1, 2001: The following changes were approved under this modification:

1. Replacement of the Liquid Feed Flow Meter at the ST-HAF: The manufacturer of the existing liquid mass flow meter to the ST HAF informed Dow it is discontinuing the model. Dow plans to replace the existing flow meter with the equivalent, more current mass flow meter made and recommended by the same manufacturer.

2. Distillation System Process Tank T-404 Vent Line Moved from Burner X-2 to Burner X-3: T-404 vent line was re-piped to vent to the MS HAF via burner X-3. This was due to a feed tank, T-4, in the carbon tetrachloride distillation system being removed from service. T-4 used to vent to the MS HAF via burner X-3. The changes made in the carbon tetrachloride distillation system resulted in the reduction of one process tank vent stream to the MS HAF.

3. Latex Process Vent Line Modification: This modification upgraded the existing Latex process vent line to the MS HAF by rerouting the vent line to eliminate an existing low spot in the line. Also, the existing differential pressure (dp) flow rate meter was replaced with a vortex flow rate meter.

K. July 27, 2001 MS HAF Backup Abatement Device for Dowicil Process Vent.

Dowicil needed a backup abatement device during maintenance shutdowns due to a new Clean Air Act ruling.

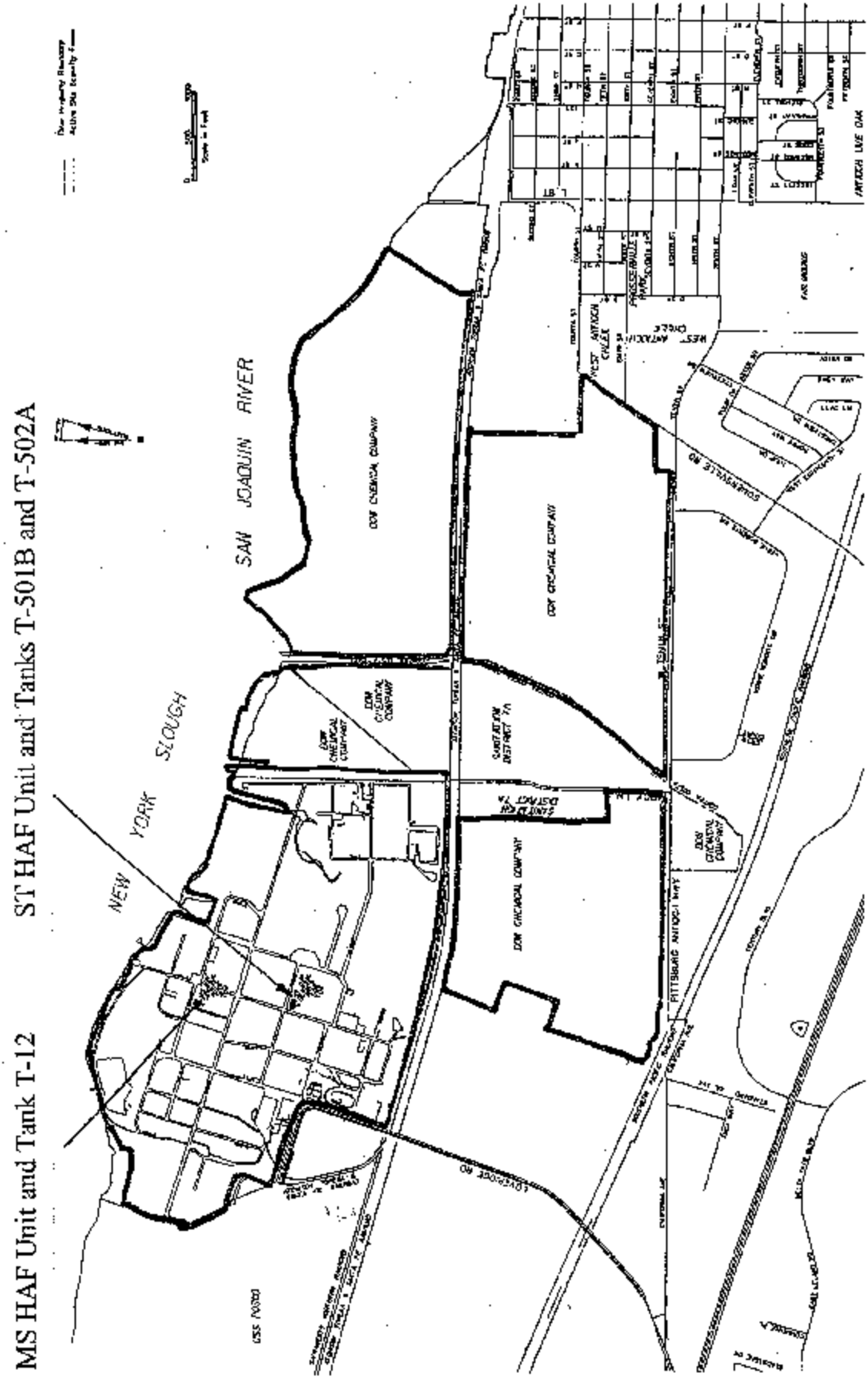

Figure 1. Dow Chemical Company Facility Layout Drawing

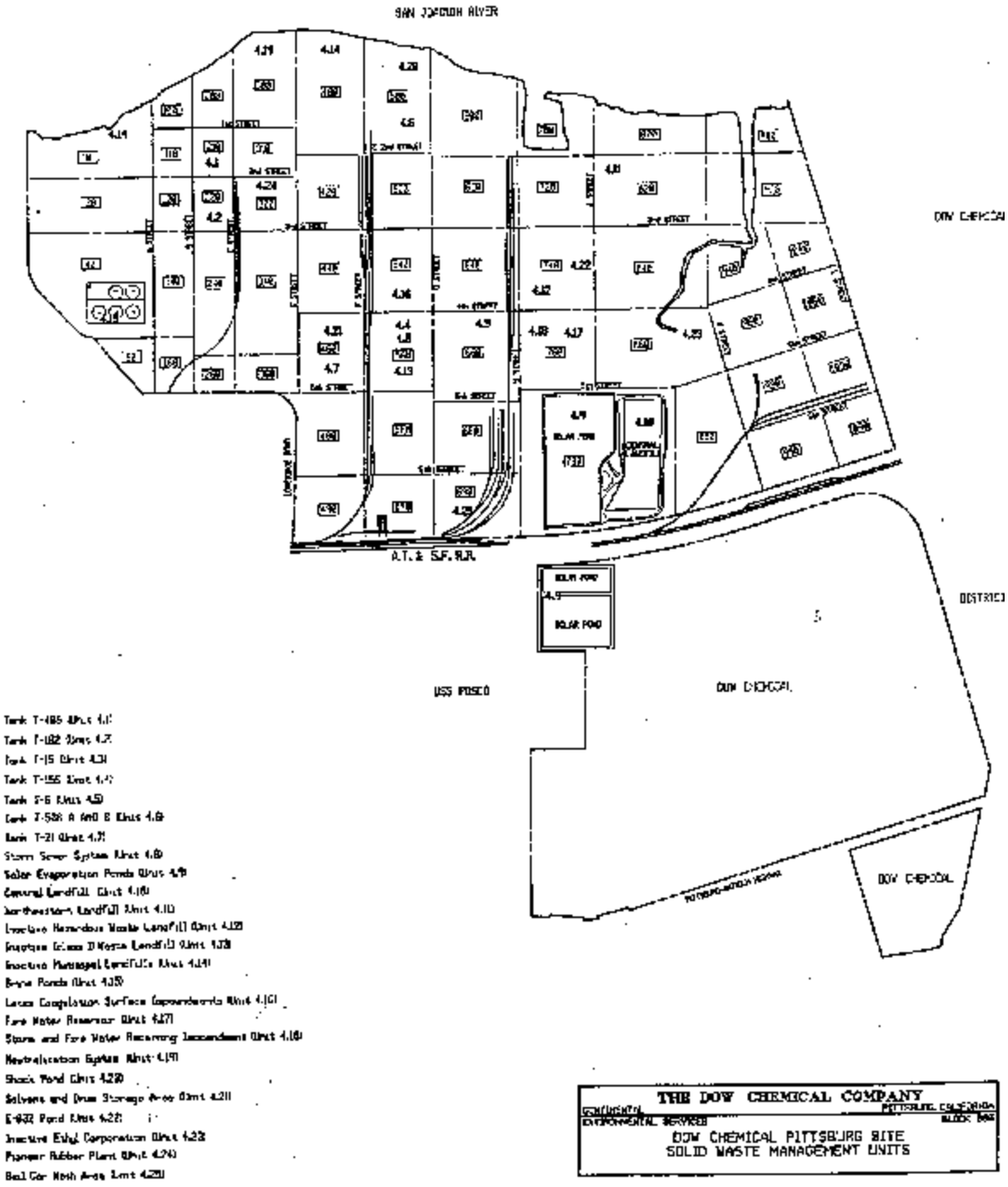

Figure 2. Location of Solid Waste Management Units.

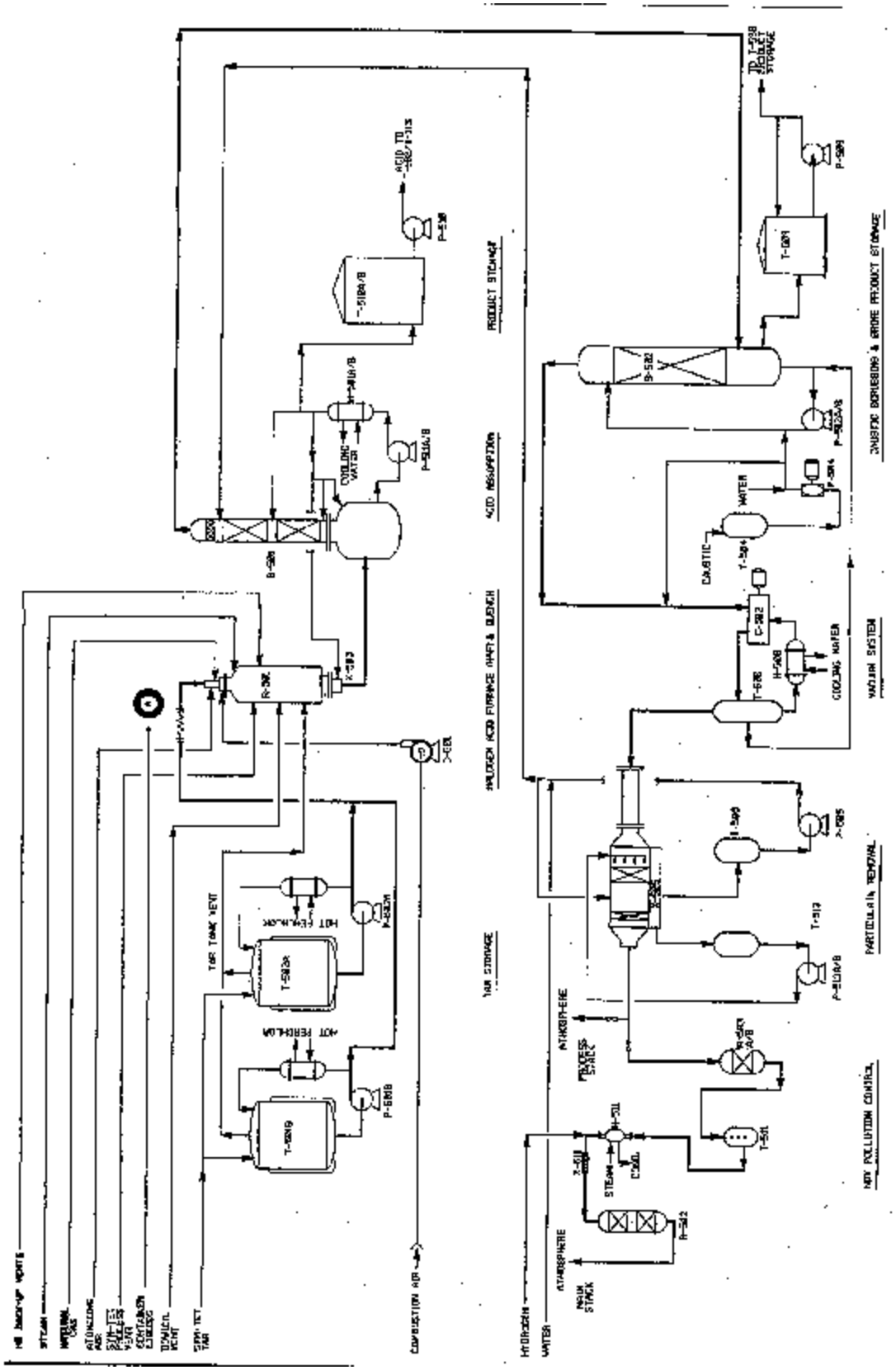

Figure 3. Symtet Halogen Acid Furnace Process Flow Sheet

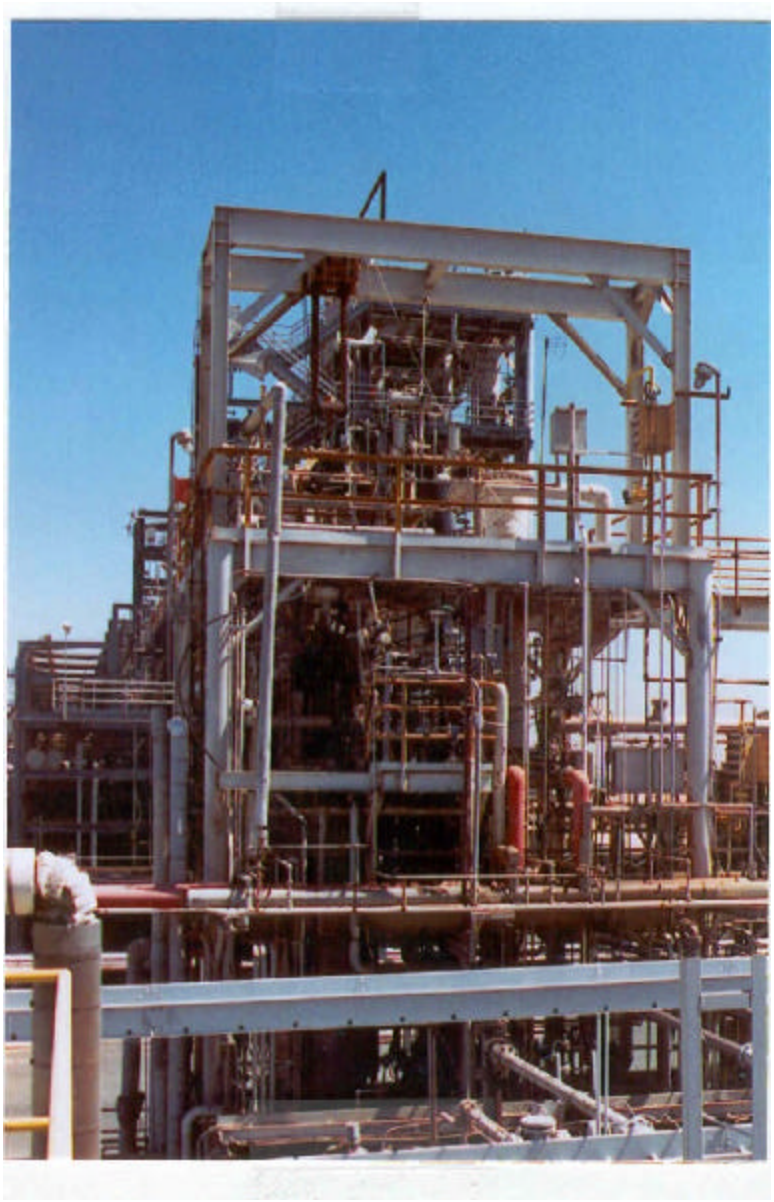

Figure 4. Permitted Unit 1 - Symtet Halogen Acid Furnace Unit

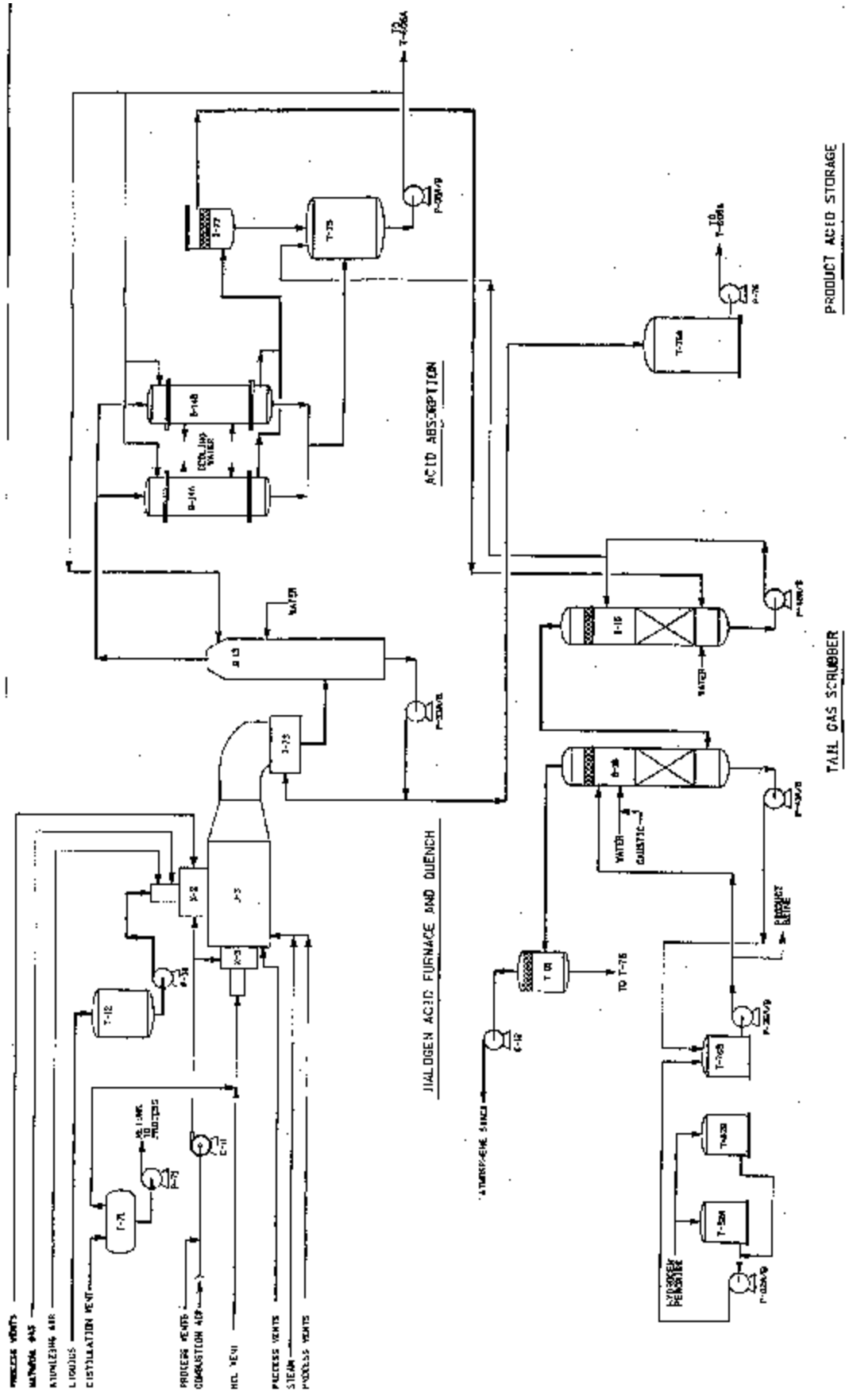

Figure 5. Manufacturing Services Halogen Acid Furnace Process Flow Sheet

Figure 6. Permitted Unit 2 - Manufacturing Services Halogen Acid Furnace

Figure 7. Permitted Unit 3 - Hazardous Waste Storage Tanks T-501B and T-502A

Figure 8. Permitted Unit 4 - Hazardous Waste Storage Tank T-12