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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Encycle/Texas, Inc.
RCRA Compliance Investigation
Corpus Christi, Texas

January 1997

<u>Author's Draft</u>

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CONFIDENTIAL

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PREFACE TO AUTHORS DRAFT REPORT

This draft report was authored by Walt Helmick, Linda Johnson, Richard Ross, and Barrett Benson at the direction of Region VI attorney Terry Sykes. The document contains material taken from the Encycle/Texas, Inc. documents and interviews which were declared "Confidential Business Information" [40 C.F.R. Part 2, Subpart B].

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This draft report is not a draft report for EPA internal review. An internal review draft report will be prepared after the authors have reviewed and made corrections and additions to this draft.

As specified by Region VI, the authors draft report can only be distributed to EPA and DOJ personnel involved with the investigation and potential enforcement action and have been approved by Terry Sykes to receive the draft report.

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The exhibits and attachments listed in the draft report have not been included with the author's draft because you have access to the documents. If you need a particular document(s) to review, call me at (303) 236 3636 X514 or send a message over the EPA GroupWise mail and I will give you Bate Stamp number(s) from the E/TI documents.

If you wish to have a particular subject added, or discussed more fully, them let me know and I will try to include the subject in the internal draft.

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Barrett

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I

INTRODUCTION

BACKGROUND

Encycle/Texas Incorporated (E/TI) owns and operates a metals reclamation facility at 5500 Upriver Road, Corpus Christi, Texas [Latitude 27° 48' 49" and Longitude 97° 27' 57"] since 1988. From 1941 to 1985, the American Smelting and Refining Company (Asarco) owned and operated a zinc electrowinning plant at the site, producing zinc from ore concentrate and other zinc bearing materials.

E/TI and Hydrometrics, Inc., an environmental consulting firm based in Helena, Montana, are subsidiaries of Encycle, Incorporated (Encycle). Encycle is a wholly owned subsidiary of Asarco, an international mining and minerals company. Encycle was formed in the mid-1980s, after Asarco decided that the waste recycling market was viable and feasible. Asarco provided the funding and the technical assistance for the E/TI facility at Corpus Christi.

Asarco ceased zinc production at the Corpus Christi facility between 1985 and 1987. E/TI personnel converted the operations between 1987 and 1989 to hydrometallurgical processes to recover metals from hazardous and industrial solid wastes. E/TI began operations and received the first waste shipment on April 6, 1989. E/TI operates in three shifts, 5 days per week. Most of the processing occurs during the first shift. There are 119 employees at the plant.

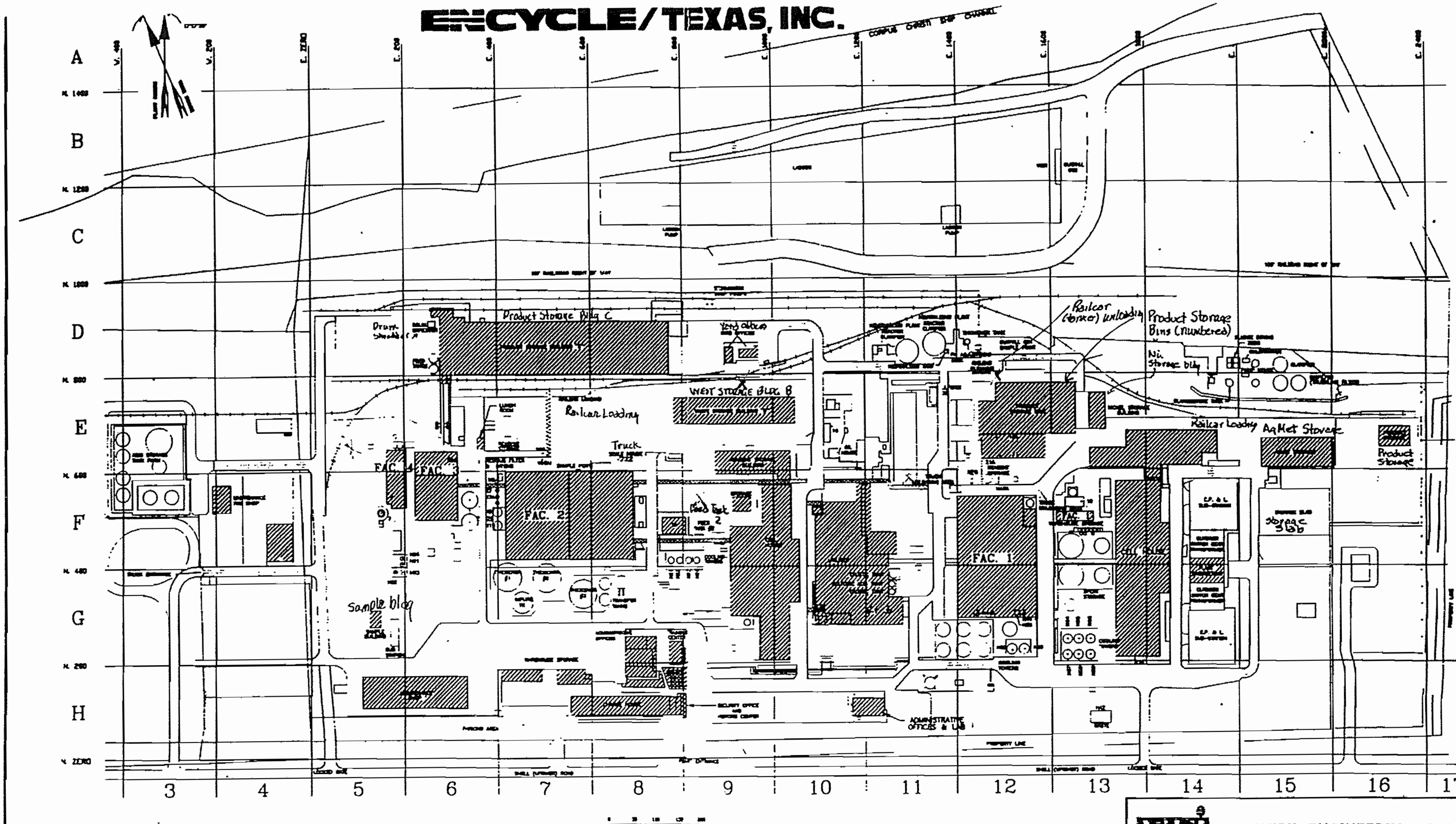
The E/TI facility, approximately 106 acres (18 acres on the south side are leased) is adjacent to the Corpus Christi Inner Harbor [Figure I - 1]. About 18 acres of the tract was used for facility operations and support by

Asarco. Most of the buildings and processes were converted to metals reclamation. The tanks, electrolytic cells, and other unit operations were shutdown in an orderly manner between 1985 and 1987 according to E/TI personnel, but some buildings and equipment were left in place. E/TI has not razed any of the inactive buildings, nor removed stationary equipment that was not used for the E/TI processes. Therefore, there are a number of inactive buildings which receive "custodial care" by E/TI personnel under an agreement with Asarco. In 1993, E/TI personnel conducted a "walk-through inspection" of the inactive buildings. Drums, supersacks, and containers of materials remaining from the Asarco operations were collected and placed in the hazardous waste storage building. The material was characterized by Laidlaw Environmental Services, Inc., LaPorte, Texas, and subsequently transported to Athens, Tennessee for incineration.

Some of the process equipment inside the inactive buildings contains residual product in small quantities, according to E/TI personnel. E/TI has not removed the residual material.

PROCESSES AND SUPPORT OPERATIONS

E/TI receives, stores and treats hazardous and nonhazardous industrial metal bearing wastes. Currently there are between 150 to 200 active waste streams which contain aluminum, cadmium, chromium, copper, iron, lead, nickel, silver, tin, and zinc. E/TI does not accept organic wastes. Initially, there were three hydrometallurgical treatment processes, including slurring



NAISMITH ENGINEERING, INC.
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CORPUS CHRISTI, TEXAS

ENCYCLE/TEXAS, INC.

SITE MAP
FIGURE I-1

of the wastes, oxidation/reduction reactions to precipitate the solids, and filtering and drying the solids. The dried solids, E/TI's "product,"[1] are sold to smelters as feedstock. In September/October 1995, E/TI began operating a fourth facility for lead and copper processing of Glover Matte, a Bevill waste produced by the Asarco Glover, Missouri smelter.

Beginning in October 1988, E/TI requested the Texas Water Commission's (TWC) concurrence that the E/TI "products" were substitutes for commercial products under regulation 40 CFR 261.2(e)(1)(ii) of the Resource Conservation and Recovery Act (RCRA). On September 10, 1991, the TWC concurred and stated that the "products" do not have to be manifested as a hazardous waste. Between October 1988 and September 1991, E/TI met with the TWC and exchanged nine letters. According to E/TI personnel, the nine letters constitute the Product Management Program (PMP) which allows E/TI to process wastes and ship the solids as substitutes for commercial products. There is no written PMP.

The four hydrometallurgical processing areas are located in Facility Nos. 1, 2, 3, and 4. Facility No. 1 is the primary waste liquids processing area, but some solids are also processed. Liquid wastes are placed in one or more batch precipitation tanks. Precipitated metals are dewatered in filters and the filter cake is transferred to product storage bins or to Facility No. 2. Filtrate and wastewaters are sent to the wastewater treatment plant (also known as the neutralization plant).

1

E/TI ships solid materials from processes and blending operations as a substitute for a commercial product. For this report, "product" will be used for the materials shipped off-site. The use of "product" in this report does not constitute EPA's consent that E/TI's material is a substitute for a commercial product.

Facility No. 2 is the primary waste solids processing area, but some liquids are also processed. The solids are placed into one of two feed tanks, slurried with water, and transferred to the process for leaching, precipitation, thickening, and drying. Solids are sent to the product storage bins, or directly loaded into railroad gondola cars or trucks for shipment. Wastewater is sent to the neutralization plant.

Facility No. 3 was a liquid and solids processing area. Initially, wastes containing cyanides were treated in this facility; the cyanides were converted to cyanates and/or carbon dioxide and nitrogen with bleach. The wastes were then transferred to Facility No. 2. E/TI no longer accepts wastes with cyanide concentrations greater than 500 milligrams per liter (mg/L), and Facility No. 3 is now used to process the baghouse dust (Bevill waste) from Asarco's East Helena, Montana smelter. Lead, zinc, and cadmium products are recovered from the baghouse dust.

Facility No. 4 began processing the Glover Matte in September/October 1995; the facility was also designed to process Cottrell dust (electrostatic precipitator dust) from Asarco's El Paso, Texas smelter, but only test processing has occurred due to handling problems. The Cottrell dust is a Bevill waste.

Precipitation runoff is collected in storm sewers and discharged to the lagoon system, located in the north-central portion of the facility. The east and West Lagoons are two contiguous surface impoundments separated by a common berm. The East Lagoon, about 3.5 acres and capacity of 5 million gallons, receives the overflow from the West Lagoon. The West Lagoon, about 0.5 acres and capacity of 900,000 gallons, is used for the retention of the stormwater prior to reuse in the facility processes. Both lagoons have 8- to 9-foot high concrete berms. The bottom of the East Lagoon is clay, and an 80-mil high density polyethylene (HDPE) liner, was constructed over the clay bottom in the West Lagoon. Overflow from the East Lagoon is through a spillway on the east berm to the Inner Harbor (NPDES outfall 002). The stormwater has not overflowed since E/TI became the owner of the site.

According to E/TI personnel, the decision was made not to generate a residue from the processes that required disposal other than through a Clean Water Act (CWA) NPDES permitted outfall. All solids produced in Facility Nos. 1, 2, 3, and 4 are shipped as "product." Waste liquids are either returned to the processes or treated in the neutralization plant. Wastewater is pretreated in Facility No. 1, then discharged to the neutralization plant. The neutralization plant consists of a neutralization tank, a reactor/clarifier, thickener, and pH adjustment tank. The treated effluent is discharged to the Inner Harbor from NPDES outfall 001. Solids from the wastewater treatment are returned to Facility Nos. 1 and 2.

Sanitary wastewater is treated in the trickling filter plant, located on the east side of the facility. This plant served the Asarco zinc refinery, and the trickling filter was being mechanically upgraded during the EPA investigation. The effluent and solids are returned to the processes. The sludge drying beds, used by Asarco, have been removed from service.

The acid tank farm (acid plant) is located on the leased property on the west side of the site. The acid plant is owned by Asarco and operated by E/TI. The acid plant consists of five active storage tanks (there are eight tanks total), which receive 2,500 tons per month of sulfuric acid via railroad tank cars from the Asarco El Paso, Texas and Hayden, Arizona smelters. Some of the acid is used by E/TI, but the majority is sold to Asarco customers. The customer tanker trucks are loaded in the area south of the acid plant; access is via Upriver Road. The customer tankers do not enter the main E/TI facility. The tank farm is fenced and the tanks are contained within individual earthen berms. The tanker truck loading area is not bermed, nor has secondary containment. Spills of acid and stormwater runoff drain to the plant-wide storm sewer system which discharges to the lagoons. Asarco plans to move the acid plant to another location in Corpus Christi within a year.

According to E/TI personnel, the facility does not accept PCB wastes nor are there any PCBs and PCB equipment on site.

ENVIRONMENTAL PERMITS

The ownership of the Corpus Christi facility was transferred from Asarco to E/TI on January 4, 1988. The following environmental permits were transferred to E/TI by the regulatory agencies.

- Texas Department of Natural Resources (TDNR) Solid Waste Registration No. 30003
- Texas Air Control Board (TACB) Clean Air Act Permits C-5221, R-1893, R-2589
- Texas Department Of Natural Resources Wastewater Disposal Permit TDWR 00314
- U.S. Corps of Engineers 404 Dredge or Fill Permit 13853
- US EPA NPDES Permit TX 0003191

Asarco submitted a RCRA Preliminary Notification to EPA and applied for a TDNR Industrial Solid Waste/Storage/Processing/Disposal Facility Permit on August 14, 1980.

E/TI's EPA ID Number is TXD008117186. The state issued a 10-year RCRA permit HW-50221-001 to E/TI on September 27, 1988, which authorized the storage of Class I hazardous and nonhazardous waste. The permit was superseded by a 10-year permit, also numbered HW-50221-001, issued July 23, 1992. EPA has not issued a RCRA permit. The Hazardous and Solid Waste Act Amendment of 1984 (HSWA) was included in the state permit even though Texas was not authorized for HSWA. EPA enforces the HSWA requirements in the permit.

The RCRA permit authorizes the storage of incoming hazardous waste in one tank, two process areas, and two buildings. Cyanide waste is authorized for storage in a 7,190-gallon, fiberglass-reinforced plastic, aboveground tank, No. 3-695035. This tank has not been used since 1991, but has not been closed. Up to 250 55-gallon drums can be stored on the ground floor in Facility Nos. 1 and 3, adjacent to the process units (500 drums total). Most of the incoming hazardous waste is stored in receiving building B. Building C, known both as the product storage building and the alphabet storage building (the individual storage bins are identified with letters) is authorized to store hazardous waste in 18 concrete bins. E/TI personnel stated that building C has never been used to store hazardous waste, but is used to store their "product" prior to shipment. In 1992, E/TI applied for hazardous waste storage in building C as a protective measure, because the market had changed from liquid waste to solid waste receipts, and additional permitted storage areas could be needed. Under the Air Quality Provisions of the permit, E/TI is required to construct the facility in accordance with the Texas Clean Air Act (TCAA). Specific receiving/treatment tanks must be mechanically exhausted to scrubbers which achieve a minimum of 99% efficiency in the control of air contaminants. The rotary kiln drier in Facility No. 2 (emission point N-16) must be exhausted to a scrubber; the emission from the scrubber is limited to 0.01 grain particulate matter per cubic foot. The particulate matter (PM) emissions from the bulk reagent storage bins must be controlled by appropriate baghouse filters, which emit no greater than 0.02 grain particulate matter per standard cubic foot. The facility is also required to minimize fugitive PM emissions which result from vehicular traffic, buildings, conveyors, and other equipment.

Remedial investigation provisions for three industrial waste management units under the HSWA are:

- The 01 Landfill, a Texas Class I nonhazardous industrial waste landfill, received construction debris, gypsum, filter cake, and manganese dioxide sludge from 1941 to late 1985. Suspected contaminants include arsenic, cadmium, copper, lead, nickel, and zinc. The landfill, approximately 5.8 acres located in the northeast corner of the facility, was closed in accordance with a Texas Water Commission (TWC) approved closure plan in the summer and fall of 1986. Monitoring data indicate that the groundwater was not impacted, according to E/TI documents. E/TI discontinued groundwater monitoring on May 29, 1992.

- The East and West Lagoons may have received effluent from the wastewater treatment plant during the Asarco zinc refining period, and the Texas Natural Resources Conservation Commission (TNRCC) compliance inspectors have documented that E/TI personnel have discharged wastewater from the WWTP to the lagoons. Since E/TI processes listed hazardous waste, the wastewater discharged to the lagoons may have contained hazardous constituents.

- The waste pile, approximately 3.9 acres in the southwest corner of the facility and adjacent to Upriver Road, was used in the 1970s and early 1980s to dewater neutralization sludges containing metals.

The residential area adjacent to E/TI and the other industrial facilities is considered to be an Environmental Justice area by EPA. The neighborhood next to E/TI, known as Dona Park, has been contaminated with hazardous constituents including heavy metals. The soils and groundwater are being monitored by the TNRCC and the Health Department. E/TI believes that any condition that may exist in the neighborhood is the result of historical industrial activity and not a result of E/TI's activities. Hydrometrics, Inc., submitted a Residential Corrective Action Plan Dona Park to the TNRCC in August 1995.

Region VI and NEIC personnel conducted an unannounced RCRA investigation of the E/TI facility from February 27 to March 8, 1996. The objectives of the investigation were to:

- Determine compliance with the RCRA regulations
- Evaluate E/TI's sampling and analytical procedures
- Evaluate solid/hazardous waste processes

E/TI personnel were interviewed and provided documents requested by EPA. Attorneys for E/TI were present during the inspection and, in some instances, answered EPA questions asked of E/TI personnel. Most of the documents provided by E/TI were stamped "CONFIDENTIAL."

On March 6, 1996, Region 6 and NEIC personnel collected samples of E/TI's product and incoming waste shipments. The samples were shipped to the NEIC laboratory under chain-of-custody procedures.[1] Samples were split with E/TI.

This report, prepared by Region VI and NEIC, presents the findings of the investigation.

1

NEIC Policies and Procedures Manual, revised August 1991 [EPA -330/9-78-001R]

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II

SUMMARY OF INSPECTION/COMPLIANCE FINDINGS

SUMMARY OF INSPECTION

EPA conducted an unannounced RCRA compliance inspection and evaluation of hazardous waste operations and practices of the Encycle/Texas, Inc. (E/TI) facility, Corpus Christi, TX, February 27 - March 8, 1996. E/TI consented to the inspection. E/TI provided documents and answers to EPA personnel's questions and conducted several tours of the operation and process areas. Samples were collected by EPA and splits provided to E/TI. Attorneys representing E/TI were present for the entire inspection, beginning at 9:40 am, February 17. Only Facility Nos. 1 and 2 were operating during the inspection.

E/TI is authorized to store and process Class I hazardous and non-hazardous wastes under the RCRA permit issued by the Texas Water Commission July 23, 1992. The units included in the permit include the hazardous waste storage building, storage areas in Facility Nos. 1 and 3, and the bins in building C. The bins in the alphabet (building C) and numbered storage buildings [1] were not permitted for the PMP operations under the RCRA permit.

On September 10, 1991, the Texas Water Commission concurred that E/TI's products were substitutes for commercial products and do not have to be manifested as a hazardous waste when shipped to primary or secondary smelters. E/TI does not manifest any of their "product" as a hazardous waste.

The hydrometallurgical processes in Facility Nos. 1 and 2 consist mainly of wooden tanks and thickeners, converted from the units used in Asarco's zinc refinery.Facility Nos. 3 and 4 use steel and fiberglass tanks as the reaction vessels.

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[1] Designated as alphabet and numbered storage buildings because the storage bins are identified with letters and numbers, respectively.

Facility Nos. 3 and 4 use steel and fiberglass tanks as the reaction vessels.

E/TI Operations

E/TI receives hazardous and nonhazardous waste, and wastes excluded from RCRA regulation under the Bevill amendment, from 250 to 300 generators. The wastes are either processed hydrometallurigically through leaching, precipitation, filtering and drying in Facility Nos. 1, 2, 3, and 4, or are blended with other wastes or "products" from Facility Nos. 1 and 2 in bins inside two storage buildings. The blending process, knows as the Product Management Program (PMP), began in 1991. About 60% of the inbound waste is PMPed. The Bevill exempt wastes, Cottrell dust, baghouse dust, and Glover Matte, from Asarco smelters, is known as feedstock. The baghouse dust, from East Helena, MT, is not PMPed with other wastes. Glover Matte, processed in Facility No 2, mixes with other hazardous wastes in the tanks and thickeners. The Glover Matte processed in Facility No. 4 is not PMPed with other wastes. Cottrell dust from El Paso, TX had not been processed in Facility No. 4 as of March 8, 1996.

The "product" from the hydrometallurigical and PMP operations is shipped to Asarco smelters in East Helena and El Paso, and to other commercial metal reclamation facilities in the U.S. and exported to Canada and China. The major "products" are lead concentrate, copper concentrate, zinc concentrate, and nickel concentrate mixed with significant concentrations of other metals. The other "products" are concentrates containing: cadmium, chromium, cobalt-nickel, iron, tin, and liquid bromide.

According to E/TI personnel, the hazardous waste received at the facility loses it's hazardous waste classification and waste codes when it enters E/TI's processes of

E/TI determines that it meets E/TI's "product" specification, prior to or after the PMP process. The determination is made on the analyses of the waste when received or by the generator's knowledge. Based on the data provided for January 1996 and estimates by E/TI, about 1,500 tons of waste is received each month, excluding the three feedstocks. About 75% of the material is hazardous waste. About 60% of the hazardous waste carries the F006 listed waste code. Sixty percent of the inbound waste is PMPed; 72% of the hazardous waste is PMPed.

Copper, lead and nickel "products" are shipped on a monthly basis; the rest is shipped quarterly. Estimates on the quantity shipped provided by E/TI and data from documents for 1995 are as follows:

CONCENTRATE	ESTIMATE (Tons/Month)	1995 (Tons/Month*)
Copper	350	750
Lead	350	595
Nickel and Nickel-Chromium Mixture	150 to 200	70
Zinc	Not provided	110

*From Bill of Lading documents.

COMPLIANCE FINDINGS

Laboratory

Findings

1) Procedures used to perform total cyanide, VOC and TOC at the E/TI laboratory did not in all cases conform to EPA methodology, required by the permit.

2) 40 CFR 264.13(b) requires the owner/operator to follow the written WAP. Of the records examined, there were 32 instances where the required pre-acceptance documents were either incomplete or missing, there were 3955 instances where required testing or determinations were either inadequate or omitted; 20 in acceptance testing and the remainder in pre-acceptance. This tabulation included frequently omitted PCB, TOC, acidity and alkalinity testing. The WAP requires the facility to perform bench scale reactivity and comparability testing. No record was provided to indicate that this was done. Samples collected by E/TI personnel from incoming wastes loads are not always representative.

3) No specific rationale was presented for the parameters specific gravity, physical description, and pH appearing in the WAP. 40 CFR 264.13(b)(1) requires specification of the rationale for selection of parameters for analysis.

4) The test methodology was not specified in the WAP for the parameters specific gravity and physical description. 40 CFR 264.13(b)(2) requires the specification of the test methods to be used for specific waste analyses.

5) Rarely did E/TI update the WCQ, part of the procedure for updating all of the preliminary waste stream information needed to treat and store specific wastes at the site, as required under 40 CFR 264.13 (a)(3).

6) At least one load which exceeded the VOC permit limitation was nevertheless accepted and treated.

Areas of Concern

1) The permit requires the determination of waste constituents present in concentrations greater than one percent. Sulfur species, silicon and several toxic metals were found to be omitted.

2) Although not required by the 1992 regulations, 40 CFR 264.13(c)(3), for off-site facilities receiving containerized hazardous waste, now requires description of the procedure which will be used to determine whether a biodegradable sorbent has been added to the waste in the container. These procedures are not present in the June 1992 WAP.

3) Potential problems were noted in the specific gravity and percent water procedures used by the E/TI laboratory.

4) All of the items mentioned in the section titled "Problems with the Waste Analysis Plan" are areas of concern.

<u>Waste Management Activities</u>

Findings

1) Fifty-three (53) Land Disposal Restriction (LDR) notices were found during the file reviews that did not include the manifest number associated with the shipment of waste. These manifests were for ETI generated wastes which had an associated LDR

notice that did not include the manifest number. 40 CFR 268.7 requires that each LDR notice include the manifest number associated with the shipment of waste.

2) Two plastic drums in the Container Storage Area (Drum Storage Area) in Facility No. 1 were found during an inspection of the area on March 7, 1996, to have bulging lids. The two drums were labeled as containing F006 waste (aqueous copper hydroxide). The generator of the drums is Adflex Solutions, Inc. of Mexico (AZD 983485053). The inventory number of the waste is CC #03775. 40 CFR 264.171 and 264.173 and Permit Section IX.G.3 require that containers that are stored be in good condition and managed so as to prevent leakagé or fugitive emissions.

3) 40 CFR 264.54(c) requires that the Contingency Plan (Permit Section VIII.A) be amended immediately whenever the facility changes in its design so as to change the response necessary in an emergency. The map in the Contingency Plan on file at the facility did not indicate Facility #4 or evacuation routes for and in the area of this facility.

4) Section III.B.7 of the permit requires that inspection forms used by the facility for inspections at units or facility components include "a list of all items to be inspected at each unit and component." This list of items is not on the forms used to inspect the permitted Hazardous Waste Tank in Facility No. 3.

5) Permit Section III.B.8, 40 CFR 264.16(d), and 40 CFR 270.14(b)(12) requires that the facility maintain a written description of the type and amount of both introductory and continuing training that will be given each person filling a position related to hazardous waste management. A written description could not be provided by the facility during the inspection.

6) Permit Section III.B.10 (40 CFR 264.14(c)) requires that the permittee shall post signs in English and Spanish at all main access points for each facility unit and in sufficient number and locations so as to be seen from any approach to active portions of the facility. The signs shall be printed so they may be clearly seen from a distance of at least 25 feet and shall state "Danger - Unauthorized Personnel Keep Out." No such signs were visible to the entrances to the permitted container storage area Building B (Receiving Building). Such warning signs were posted in English but not Spanish at the entrances to three other units: 1) Facility #3 (Hazardous Waste Tank and Container Storage Area); 2) Container Storage Area in Facility #1; and 3) Building C - Container Storage Areas.

7) Permit Section III.B.13 requires that all transfer of waste from off-site transport trucks or railcars into the facility shall take place in areas provided with secondary containment. Off-site trucks were observed unloading waste near the north entrance to Building B (Receiving Building). Portions of this unloading area did not have curbing or other forms of secondary containment. A breech in this containment was immediately adjacent to where unloading occurs.

8) Permit Section IX.E.3 requires that the facility install and maintain a monitoring system to continuously measure and record ambient air concentrations of hydrogen cyanide (HCN) and hydrogen sulfide (H_2S) within Building No. 3. No such system has been installed. Encycle claims not to be accepting wastes which contain these constituents in concentrations high enough to pose a concern.

9) 40 CFR 264.12 requires Encycle to notify the Regional Administrator that it intends receive waste from a foreign source. This TSD notification is a one-time notification and the TSD is also required to supply the information described in this

section. A review of the HAZTRAKS database indicates that six shipments of D008 wastes were sent to Encycle without this required notification. Five of these shipments were from the generator, Partes de Television/Reynosa, on October 24, 1994; March 15, 1994; July 01, 1994; December 17, 1993; December 17, 1995. The U.S. Importer is listed as Zenith Electronics of Texas/McAllen. Another shipment of D008 waste was sent without notification by Encycle on September 12, 1995. This waste was generated by Telson in Agua Prieta, Sonora, Mexico and imported by Zenith Electronics of Texas/McAllen.

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III

INSPECTION PROCEDURE

Region VI and NEIC personnel conducted an on-site RCRA compliance inspection and evaluation of waste management operations and practices of the Encycle/Texas, Inc. facility, Corpus Christi, Texas, on February 27 - March 8, 1996. The inspection was unannounced. E/TI personnel and their attorneys answered questions, provided documents, and accompanied the EPA personnel on the on-site tours. Participants were:

EPA

Traci Fambrough: REGION VI
Walt Helmick: REGION VI
Steve Sisk: NEIC
Jackie Vega: NEIC
Linda Johnson: NEIC
Richard Ross: NEIC
Barrett Benson: NEIC

ENCYCLE/TEXAS INC

John Likarish:	President
Roger Norman:	Regulatory Affairs
Bill Tiddy:	Unit Manager
Beth Payne:	Environmental Manager

ATTORNEYS FOR E/TI

R Keith Hopson:	Brown McCarroll & Oaks Hartline, Austin, TX
Susan Thompson:	Brown McCarroll & Oaks Hartline, Austin, TX
L. Diane Schenke:	Brown McCarroll & Oaks Hartline, Houston, TX
Michael Stuart Lee:	Michael Stuart Lee, P.C., Corpus Christi, TX

Other E/TI personnel were interviewed during the on-site inspection; their names are included in other sections of the report.

E/TI personnel provided a facility organization chart, Figure III - 1.

EPA arrived at the security gatehouse on February 27 at 8:00 am and requested to see the person responsible for environmental compliance. EPA was admitted to the conference room by Mr. Tiddy; Mr. Likarish was out of town. Walt Helmick told Mr. Tiddy that the EPA was conducting an inspection under RCRA Section 3007. Mr. Tiddy said he had to notify specific on-site managers, Mr. Likarish, and the Asarco corporate personnel in New York. He returned about one-half hour later and said that E/TI consented to the inspection.

At 8:30 am, a safety orientation was provided by Mr. Lee Kitchens, the Safety Manager.

Roger Norman and Beth Payne arrived at 8:30 am and 9:10 am respectively. Walt Helmick, in response to Mr. Norman's question, said that EPA was not inspecting the facility because of a complaint. EPA was told that only Facility Nos. 1 and 2 were operating.

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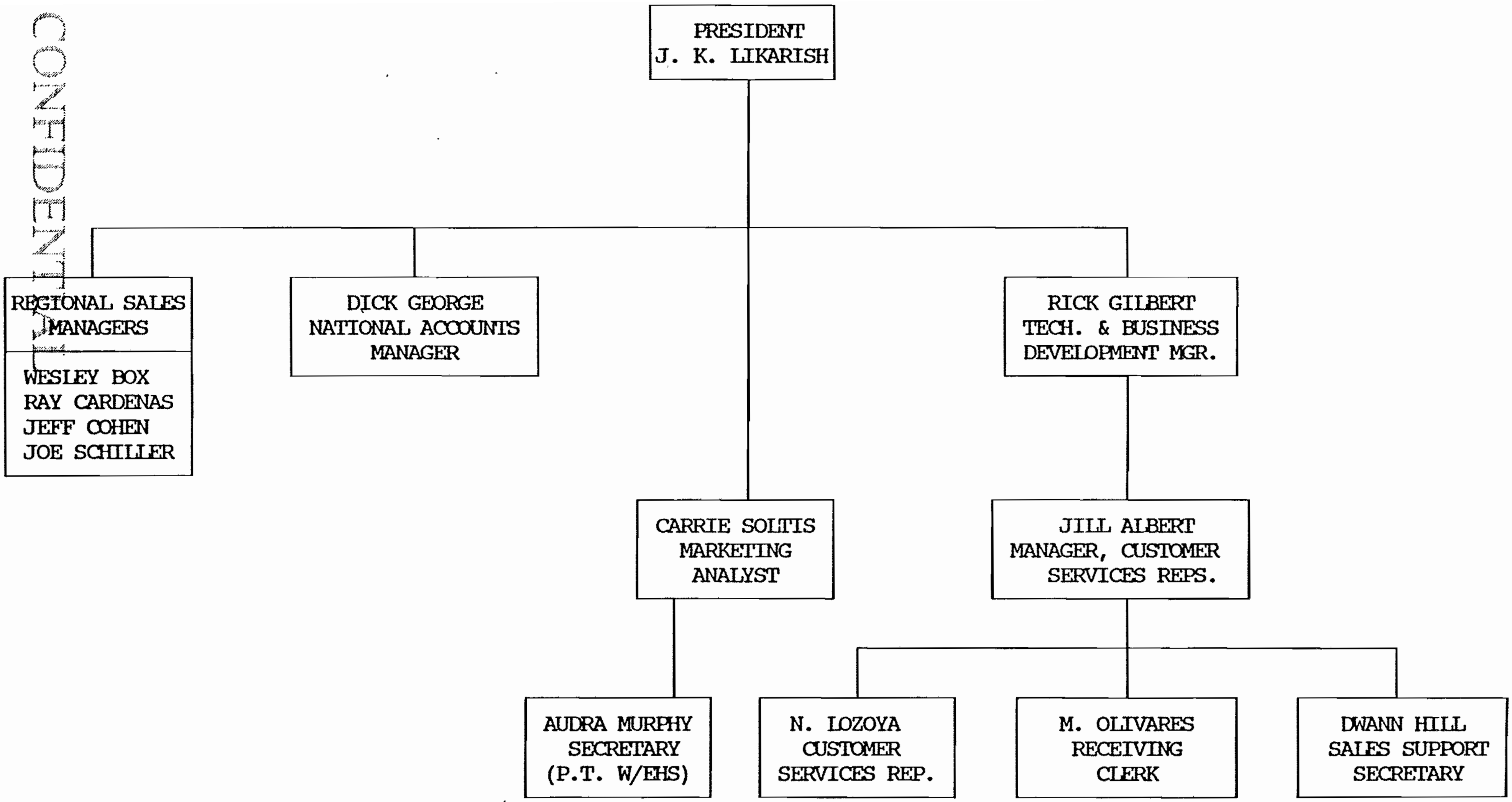

FIGURE III - 1

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ENCYCLE/TEXAS, INC.

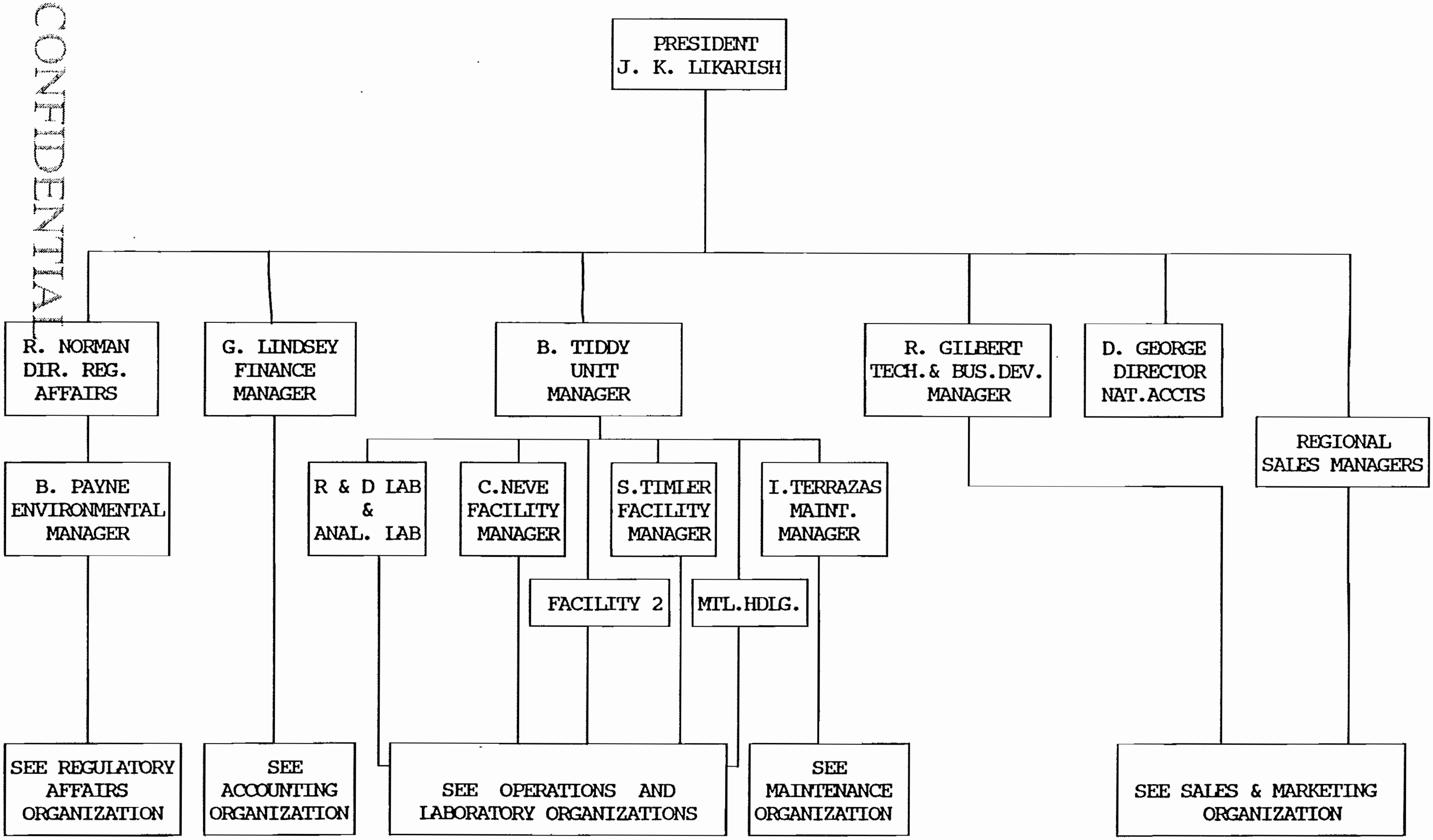

FIGURE III - 1

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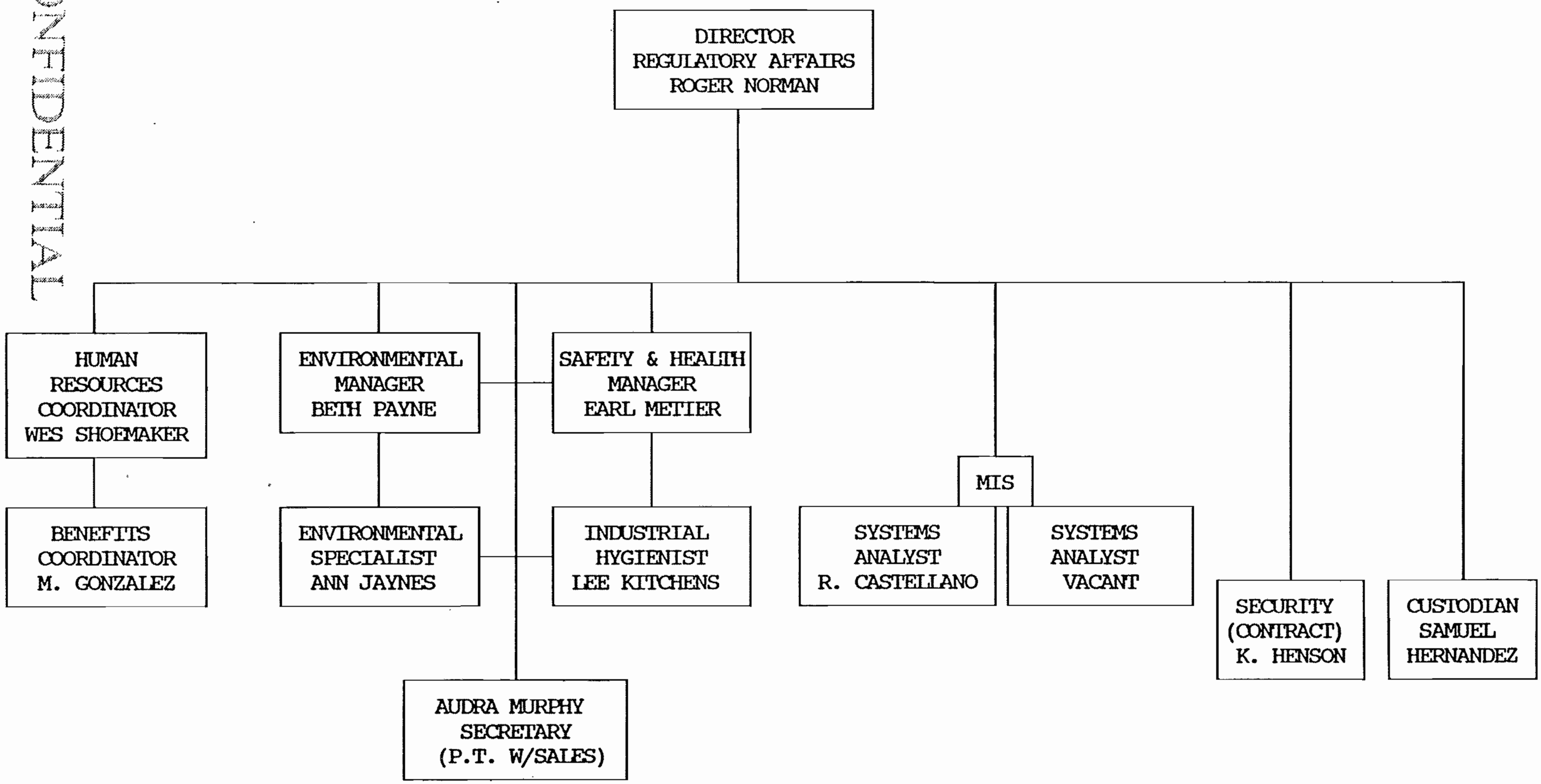

Regulatory Affairs
1/96

FIGURE III- 1

EN12793

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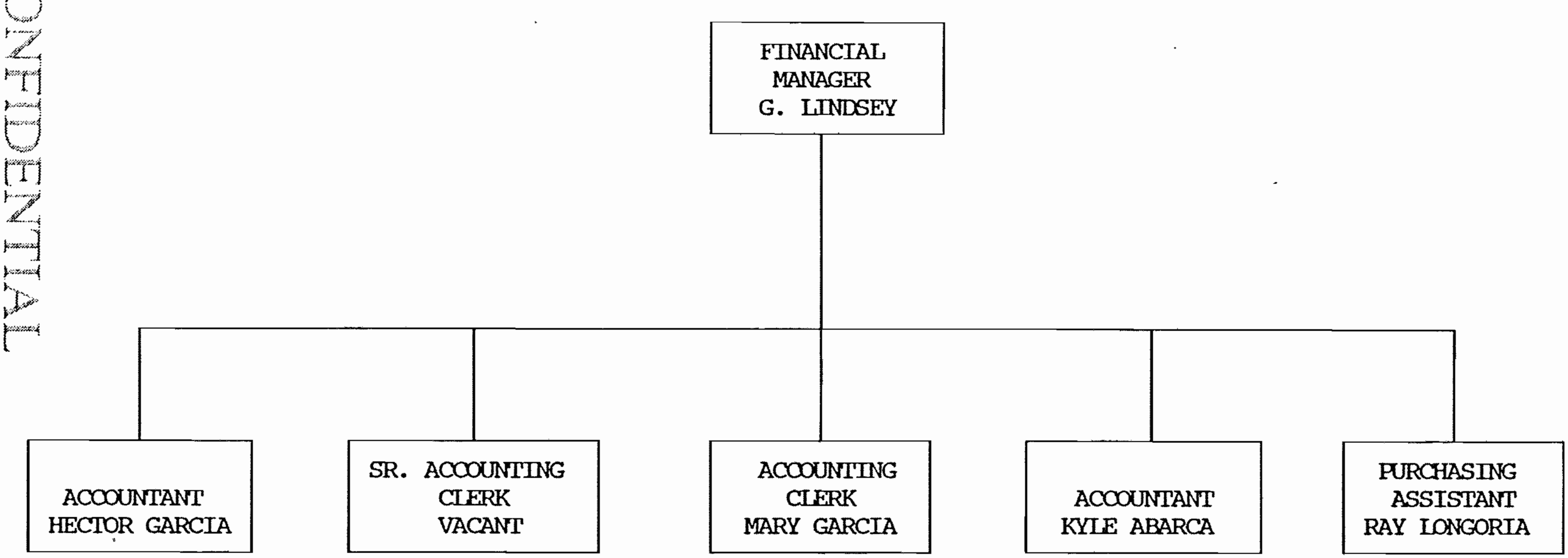

FIGURE III-1

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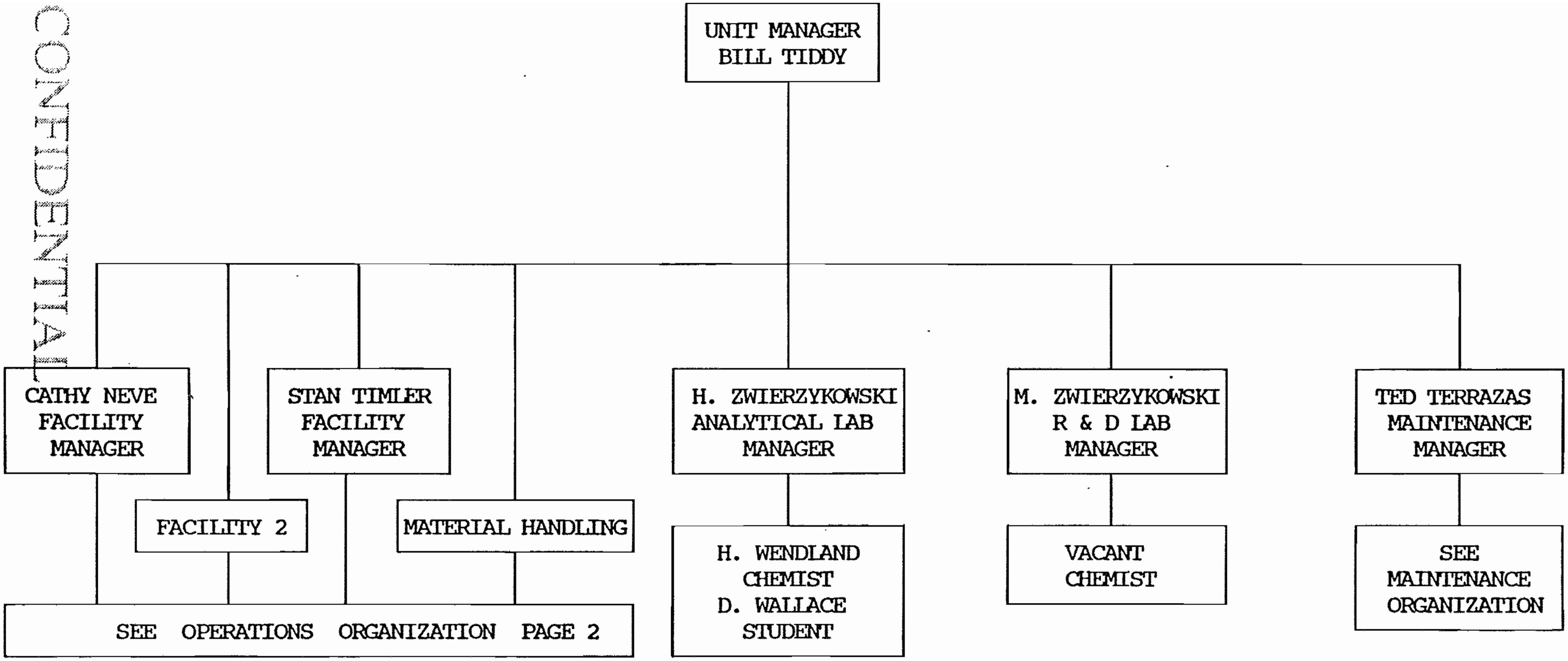

FIGURE III - 1

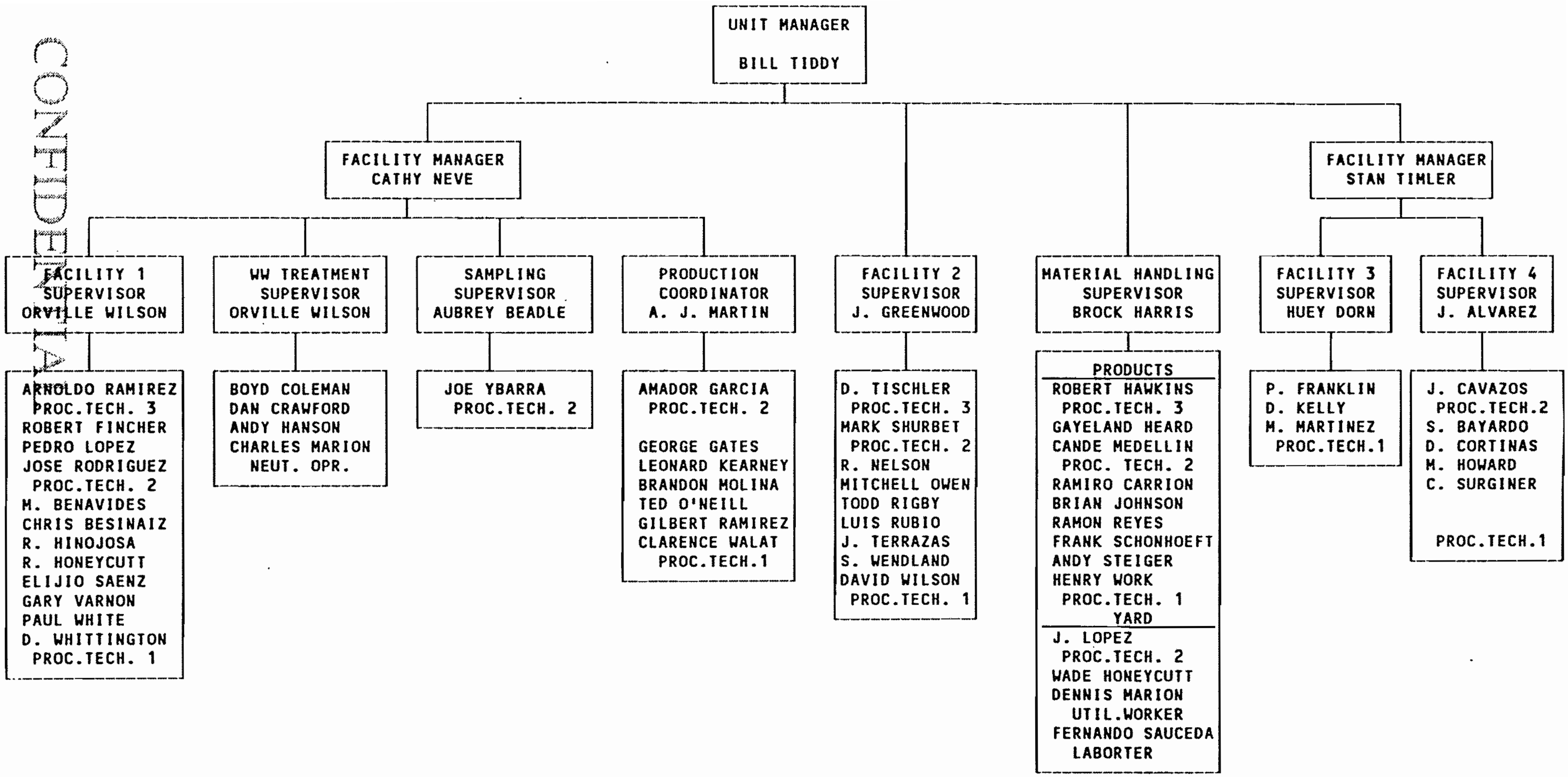

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FIGURE III - 1

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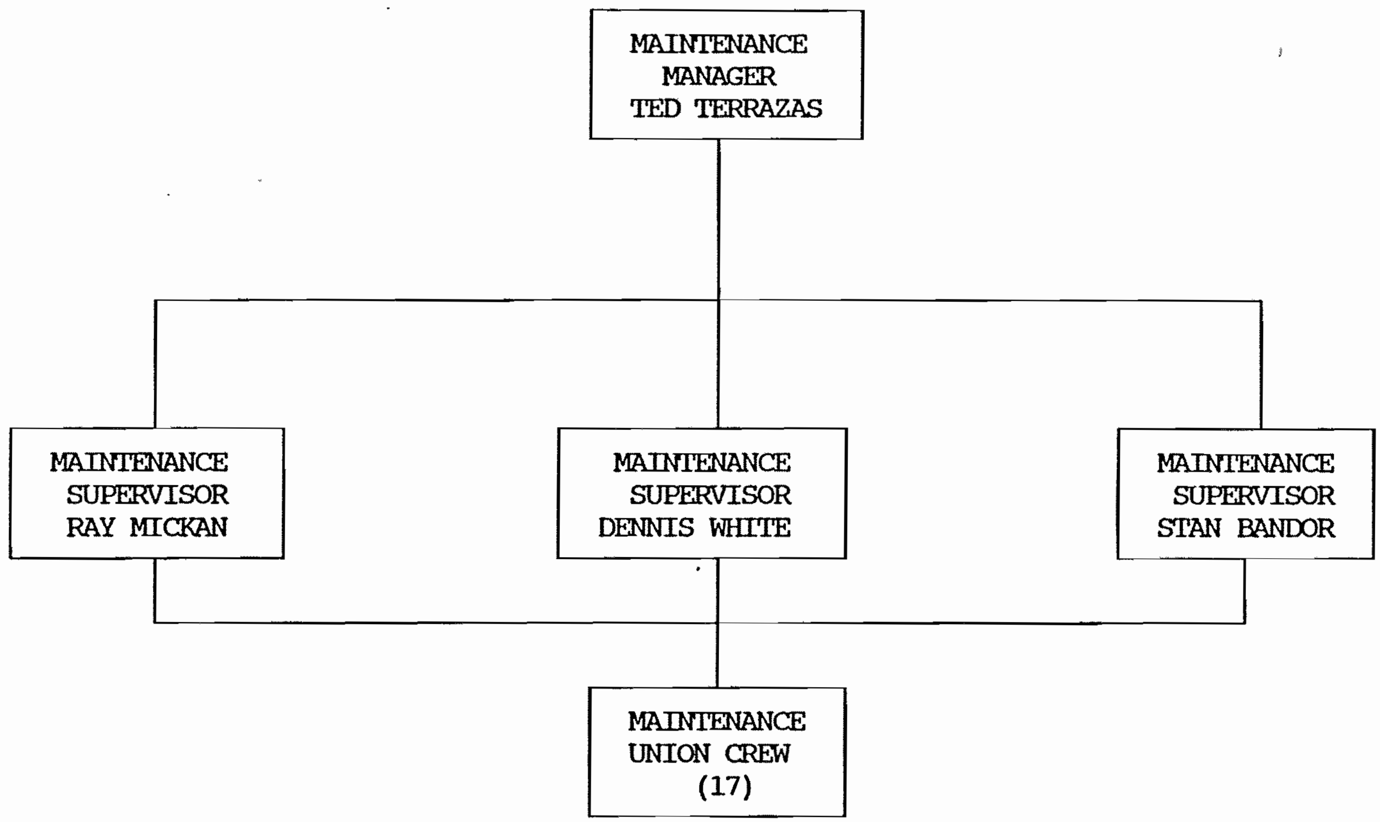

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DOCUMENTS (PRE-INSPECTION)

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DOCUMENTS (INSPECTION)

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E/TI provided documents and answers to questions over the 9-day inspection. On Friday, March 8, EPA gave handwritten requests to E/TI for additional information and documents. The requests were identified as EN-1, EN-2, EN-3, and EN-4 (typed copies are included as Attachment III - B) The four requests were for documents reviewed during the inspection and for information and supporting documents not covered because of time constraints.

During the closing conference on March 8, E/TI recorded additional information verbally requested by EPA. The document was identified as EN-5. A copy was sent to EPA after the inspection. (Attachment III - C).

Encycle/Texas, Inc. Responses

Through their attorney, Mr. Hopson, E/TI provided written responses and documents to the EPA requests on the following dates:

March 8, 1996	(Provided at the closing conference)
March 22, 1996	(Via Federal Express)
April 1, 1996	(Via Federal Express)
April 12, 1996	(Via Federal Express)

On April 23, 1996, Mr. Hopson called and asked if E/TI could submit a list of generators whose wastes were blended under the PMP process in lieu of all the documents requested under EN-1, items #15 and #16. EPA could then select specific generators and loads from the list and E/TI would provide the requested documents. Mr. Hopson made the request because of the quantity of documents required to respond to the request. EPA agreed, with the provision that additional generators could be selected and E/TI would provide the documents. The generator list for materials PMPed from July 1, 1995 to December 31, 1995 was faxed (and mailed) to EPA on April 26, 1996.

DOCUMENTS (POST INSPECTION)

On August 28, 1996, EPA Region VI sent a Request for Information letter under Section 3007 of RCRA to Mr. John Likarish. (Attachment III - D). The information requested the documents for PMPed material for generators selected from the April 26, 1996 list and clarification of documents and information submitted previously. The 3007 document also requested resubmission of selected documents which had previously been submitted, but were illegible, and documents which were listed by E/TI as having been submitted in March and April, but were not in the documents received by EPA.

E/TI submitted the documents to EPA on September 30, 1996. Two sets of documents were provided. One set was complete and marked Confidential. The second set contained the same documents as the first set, but was redacted of all confidential data.

E/TI DOCUMENT IDENTIFICATION

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Beginning with the April 12, 1996 response, E/TI referenced the document numbers to the EPA question numbers. The submissions prior to the April 12 submissions were also referenced.

PRIVILEGED: ATTORNEY WORK PRODUCT

III

INSPECTION PROCEDURE

Region VI and NEIC personnel conducted an on-site RCRA compliance inspection and evaluation of waste management operations and practices of the Encycle/Texas, Inc. facility, Corpus Christi, Texas, on February 27 - March 8, 1996. The inspection was unannounced. E/TI personnel and their attorneys answered questions, provided documents, and accompanied the EPA personnel on the on-site tours. Participants were:

<u>EPA</u>

Traci Fambrough: REGION VI
Walt Helmick: REGION VI
Steve Sisk: NEIC
Jackie Vega: NEIC
Linda Johnson: NEIC
Richard Ross: NEIC
Barrett Benson: NEIC

<u>ENCYCLE/TEXAS INC</u>

John Likarish:	President
Roger Norman:	Regulatory Affairs
Bill Tiddy:	Unit Manager
Beth Payne:	Environmental Manager

<u>ATTORNEYS FOR E/TI</u>

R Keith Hopson:	Brown McCarroll & Oaks Hartline, Austin, TX
Susan Thompson:	Brown McCarroll & Oaks Hartline, Austin, TX
L. Diane Schenke:	Brown McCarroll & Oaks Hartline, Houston, TX
Michael Stuart Lee:	Michael Stuart Lee, P.C., Corpus Christi, TX

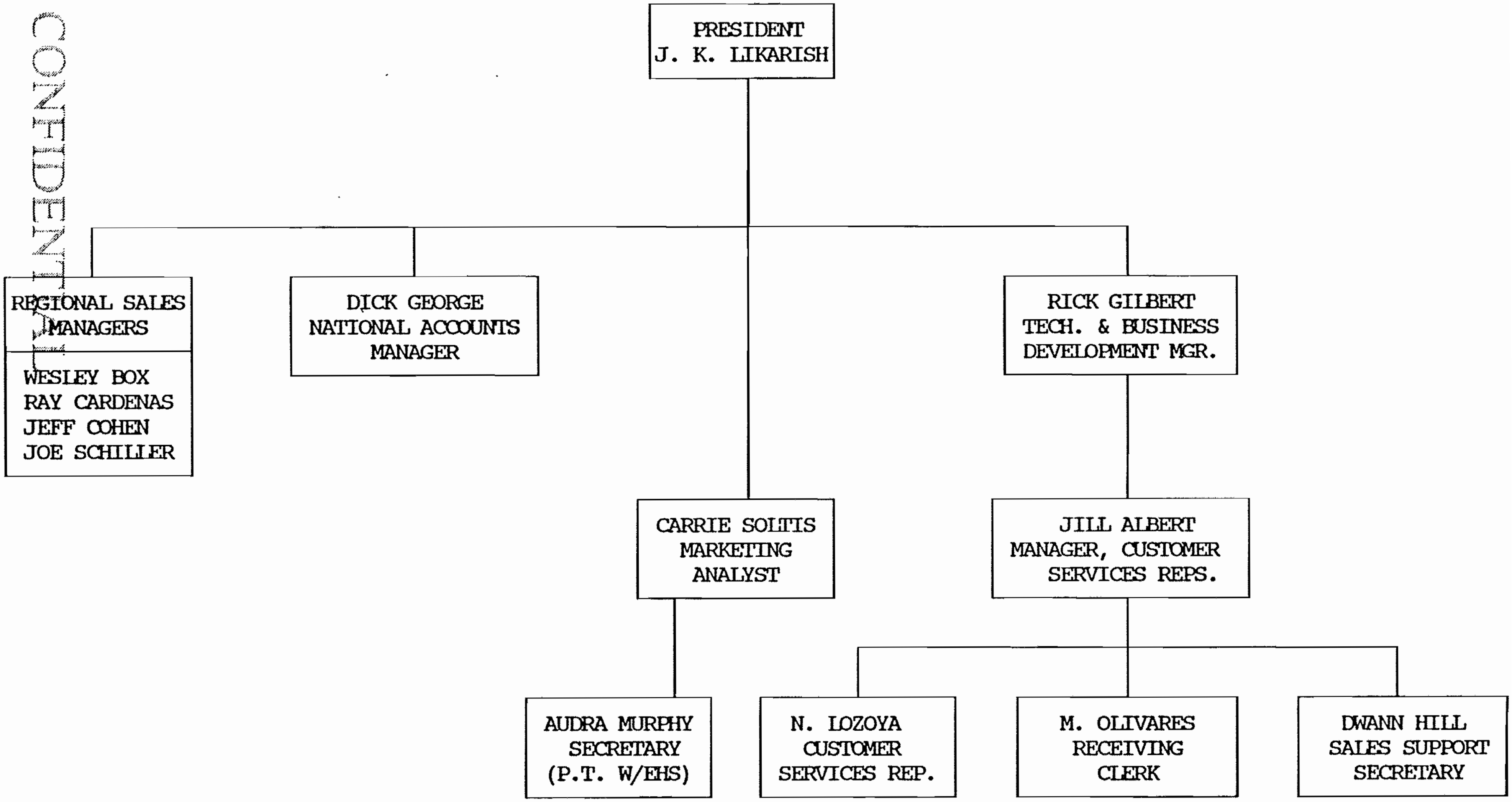
Other E/TI personnel were interviewed during the on-site inspection; their names are included in other sections of the report.

E/TI personnel provided a facility organization chart, Figure III - 1.

EPA arrived at the security gatehouse on February 27 at 8:00 am and requested to see the person responsible for environmental compliance. EPA was admitted to the conference room by Mr. Tiddy; Mr. Likarish was out of town. Walt Helmick told Mr. Tiddy that the EPA was conducting an inspection under RCRA Section 3007. Mr. Tiddy said he had to notify specific on-site managers, Mr. Likarish, and the Asarco corporate personnel in New York. He returned about one-half hour later and said that E/TI consented to the inspection.

At 8:30 am, a safety orientation was provided by Mr. Lee Kitchens, the Safety Manager.

Roger Norman and Beth Payne arrived at 8:30 am and 9:10 am respectively. Walt Helmick, in response to Mr. Norman's question, said that EPA was not inspecting the facility because of a complaint. EPA was told that only Facility Nos. 1 and 2 were operating.



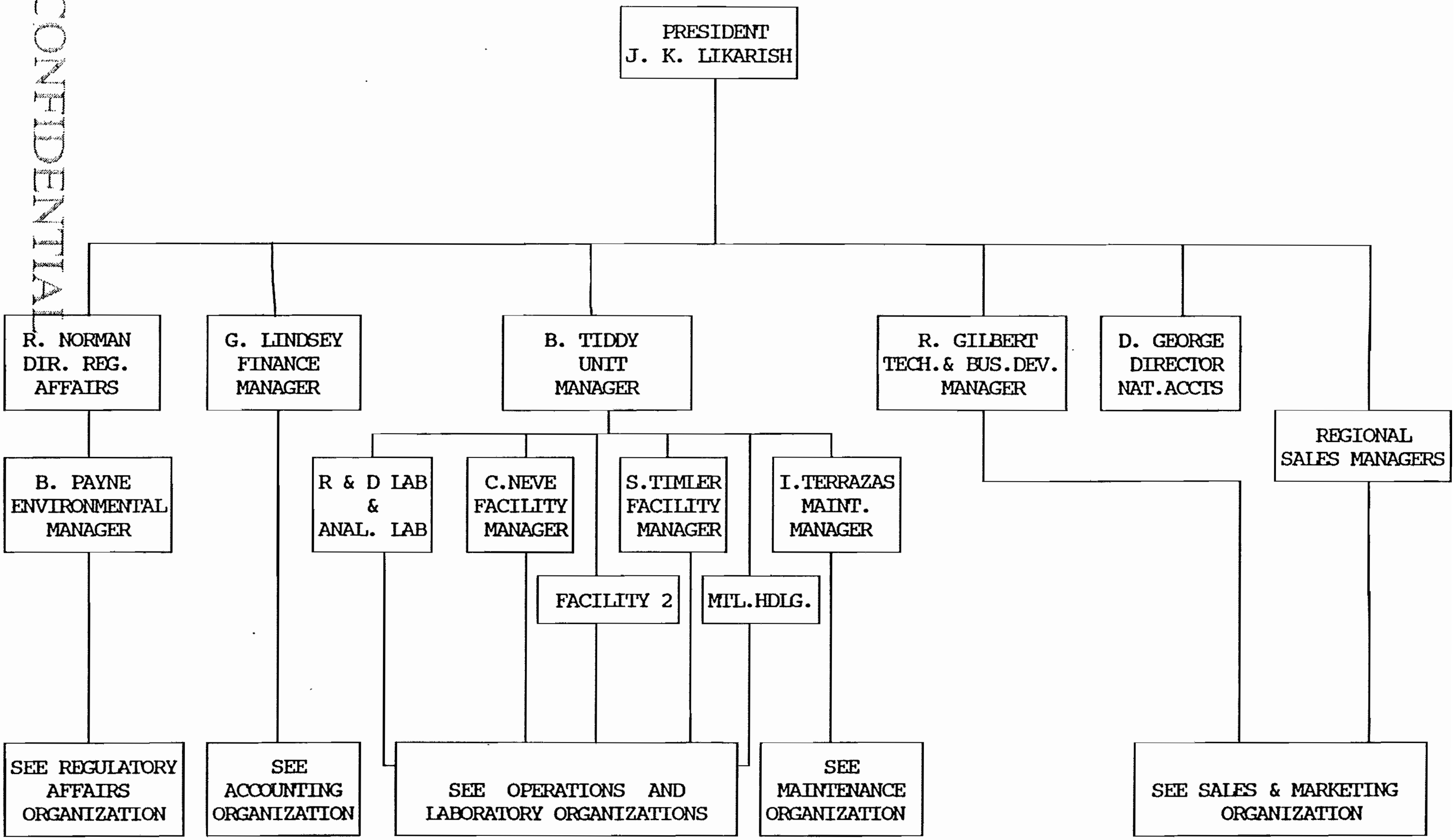
CONFIDENTIAL

Sales & Marketing
1/96

FIGURE III - 1

EN12796

ENCYCLE/1



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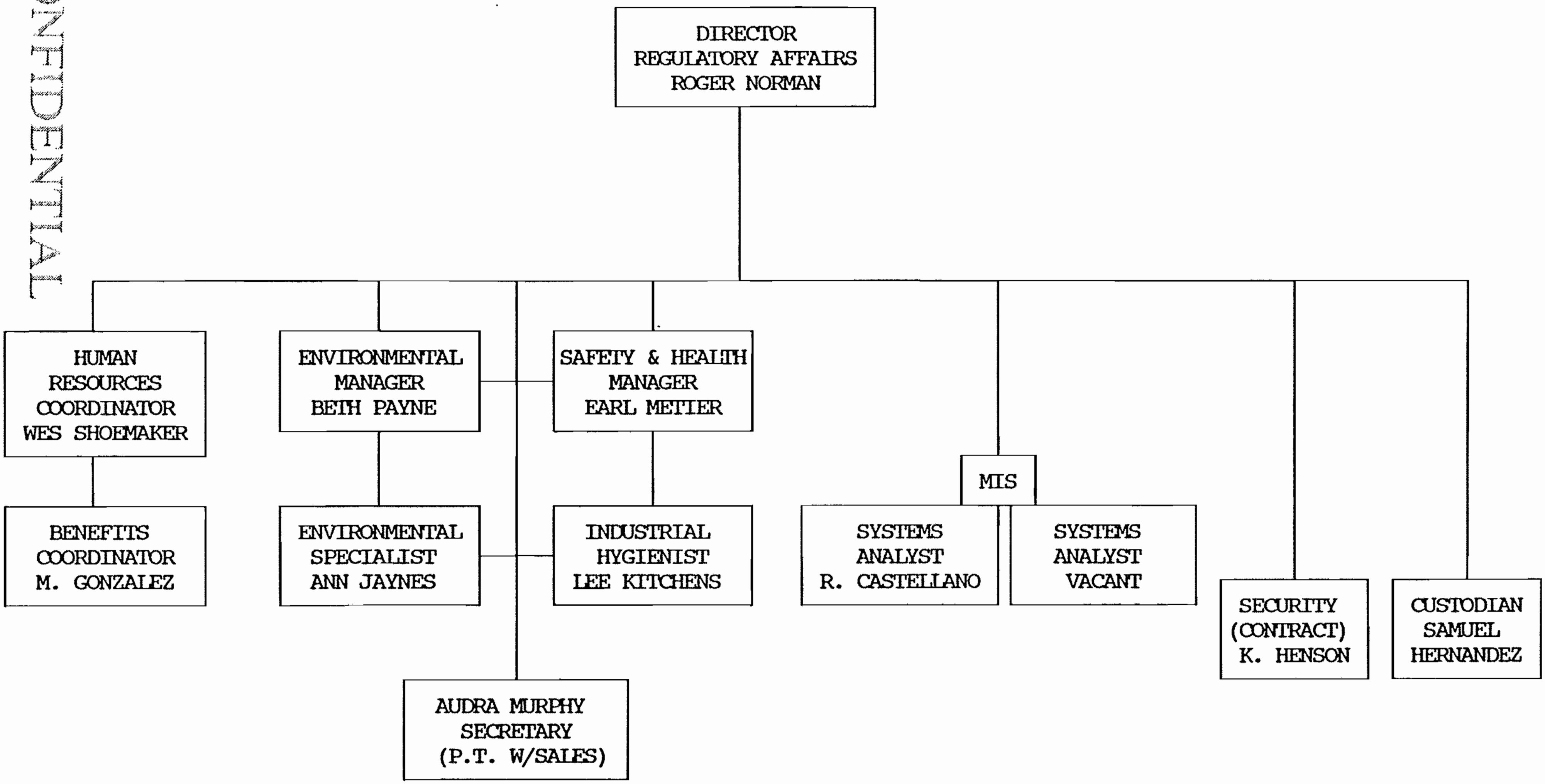

Regulatory Affairs
1/96

FIGURE III- 1

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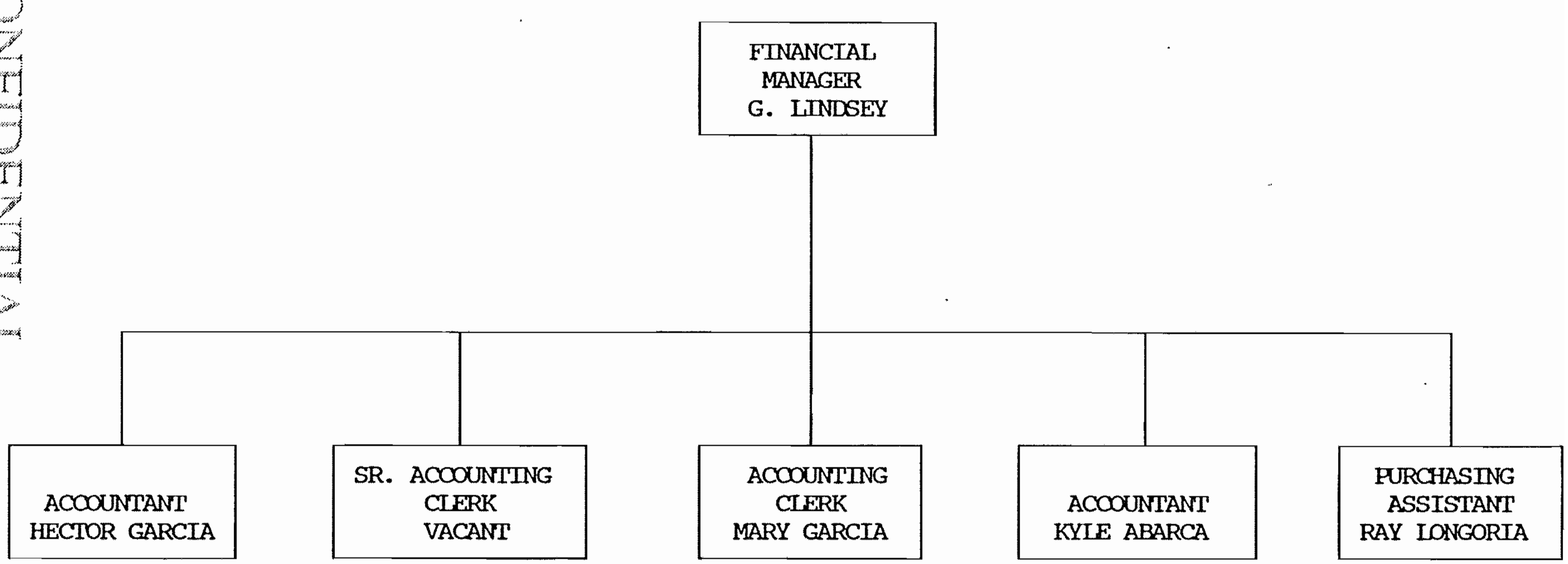

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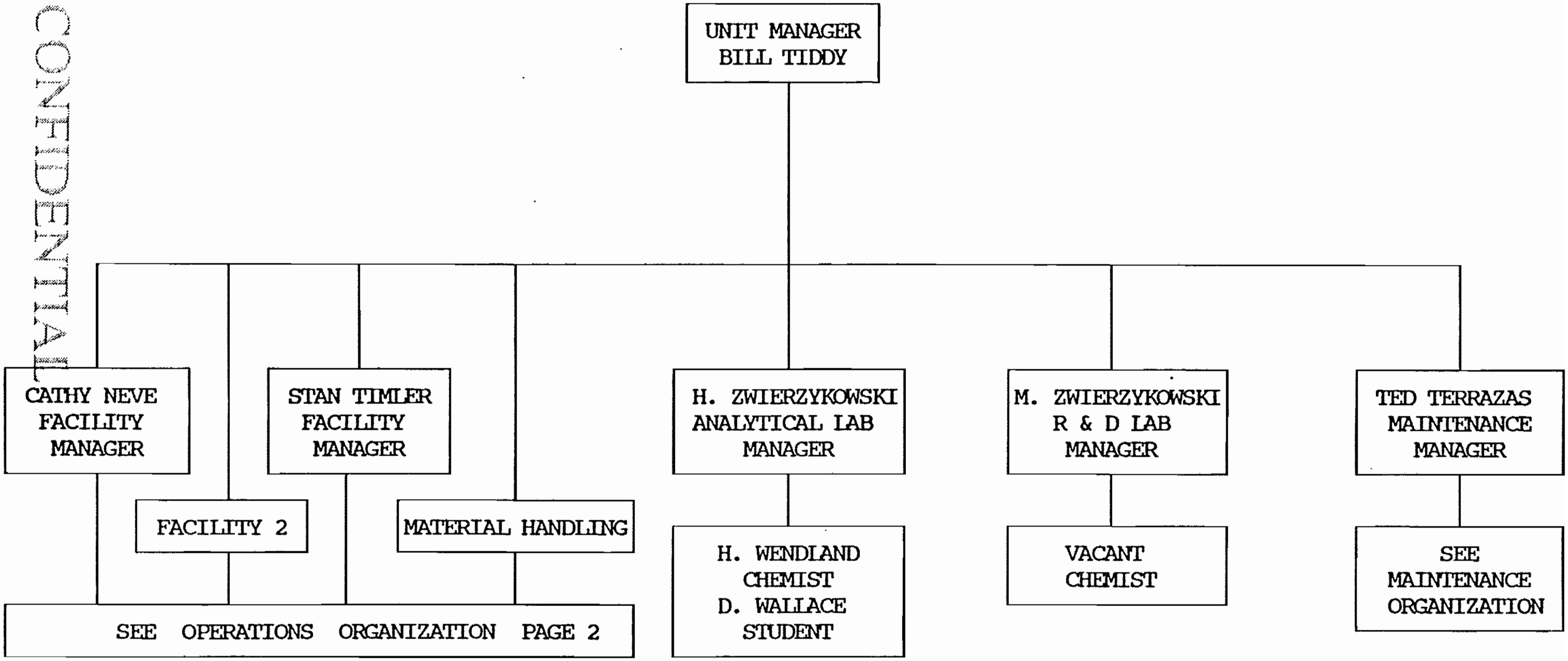

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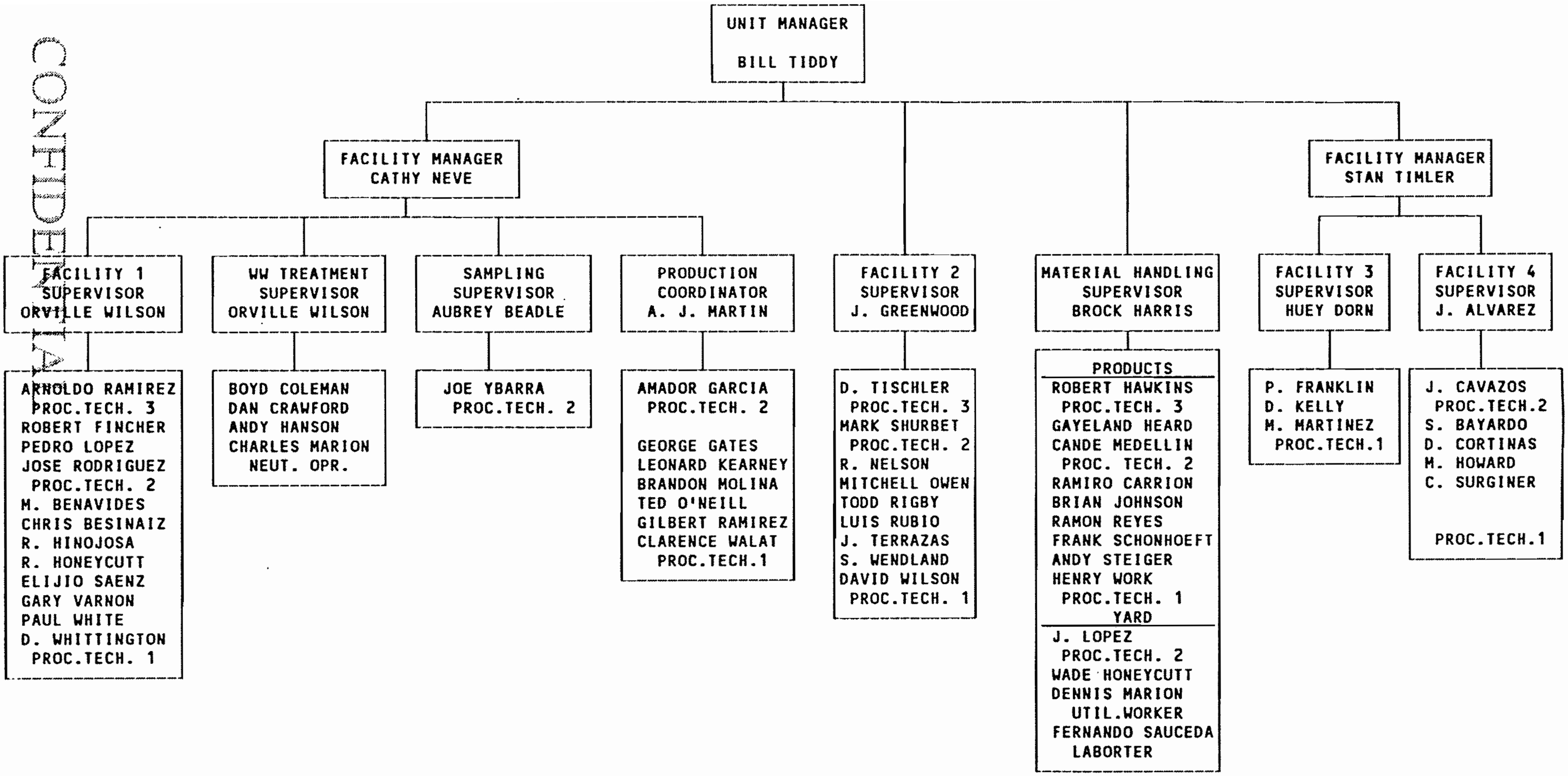

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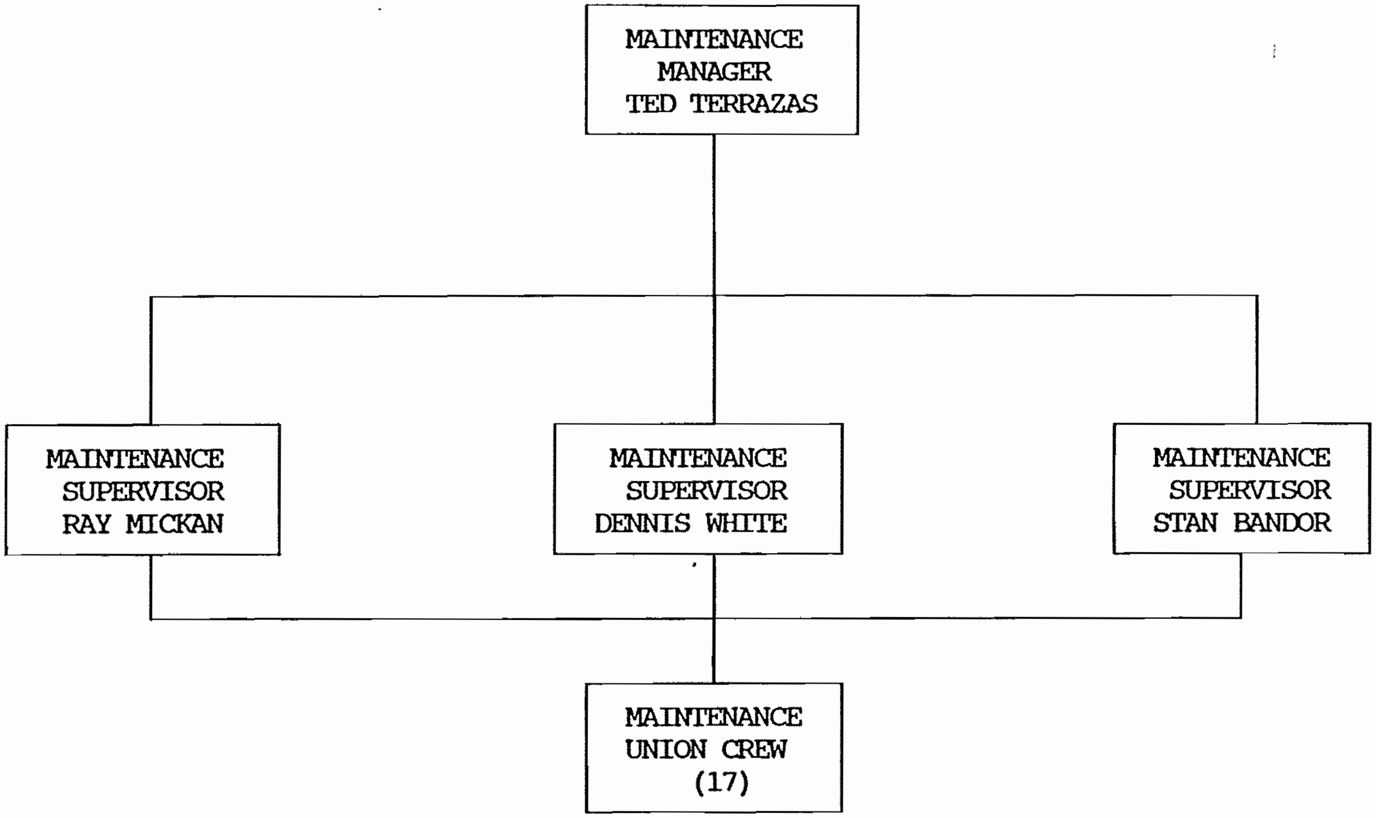

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IV

SUMMARY OF OPERATIONS

This section summarizes E/TI's operations during the February-March 1996 EPA on-site inspection. The detailed process description is in Chapter V: "Process Descriptions." E/TI receives and hydrometallurigically treats and blends RCRA listed and characteristic hazardous waste, waste excluded from RCRA under the Federal Mining Exclusion section of Subpart C, and industrial wastes. E/TI's Unit Manager and the Director, Regulatory Affairs stated that hazardous waste is not generated from the processes except ancillary items such as spent respirator cartridges, drums (which are triple rinsed and shredded), containers, container liners, personnel protection equipment and clothing, rags, etc. These items are shipped off-site for incineration or disposal at permitted TSDFs. All wastes received at E/TI are shipped to smelters or other commercial facilities as "product." Wastewater, generated from the treatment of the wastes, is treated at the on-site wastewater treatment facility and discharged from NPDES outfall 001. Solids removed in wastewater treatment are recirculated back to the treatment processes in Facility Nos. 1 or 2.

RCRA PERMITS

History

ASARCO submitted a RCRA Part A Application for waste storage, processing, treatment, and disposal on August 14,1980 for the zinc refining facility. ASARCO closed the zinc refinery in the mid-1980s. Subsequent to the closure, E/TI, a subsidiary of Asarco, was formed to process hazardous and industrial wastes. On December 17, 1987, E/TI notified the Texas Water Commission that the transfer of ownership and permits, permit applications, and solid waste registration was scheduled to be transferred on January 4, 1988. On January 1, 1988, the ownership of the zinc refinery was changed from ASARCO to E/TI. The following documents were transferred to E/TI.

- Solid Waste Registration No. 3003
- Wastewater Discharge Permit No. 00314
- Application for Amendment to Permit No. 00314, filed August 1986
- Application for Proposed RCRA Permit No. HW-50221-001, filed April 1987

E/TI's notification to the TWC stated that the wastes generated would be the same as those generated by ASARCO. The on-site waste management facilities would be the same as those used by ASARCO, and the wastes generated and waste management facilities would remain unchanged until the issuance of permits necessary for commercial treatment of solid and liquid industrial waste.

The Texas Water Commission requires written notification for changes or additions to waste management methods under the Texas Administrative Code Section 355. ASARCO submitted the original registration on April 28, 1976, and transferred it to E/TI. The Notice of Registration (NOR) showed E/TI as the owner of the facility on January 8, 1988. E/TI was listed as a generator of hazardous waste. The waste management units included one inactive landfill, three active and one inactive waste piles, and two active and one inactive container storage areas. Changes to the facility Registration Type (RT) Hazardous Waste Status (HWS) and waste management units (WMU) are summarized in Table IV - 1.

In 1988, E/TI was registered as a generator and recycler. In 1985, E/TI was registered as a generator, receiver, and transfer facility.

Table IV - 1

SUMMARY OF SOLID WASTE REGISTRATION NOTICES
CHANGES TO NOTICE OF REGISTRATION
REGISTRATION NO. 30003
Encycle/Texas, Inc.

			Waste Management Units				
				Waste Piles		Container Storage Areas	
Date	Registration Type	HW Status	Inactive Landfill	Active	Inactive	Active	Inactive
01/88/88 Initial E/TI Registration	Generator	Generator	1	3	1	2	1
04/22/88	Generator and transporter	Generator and transporter					
09/02/88	Generator and recycler						
03/23/90	Generator	Generator		0	4		
08/06/91						3	1
03/10/93		Large quantity generator				11 plus tank	
07/18/95	Generator, receiver, and transfer facility					12 plus tank	20

PRIVILEGED: ATTORNEY WORK PRODUCT

1988 Permit

On September 27, 1988, the state issued E/TI RCRA Permit No. HW-50221-001 for 10 years. The site was classified as a Class I hazardous and nonhazardous waste storage-commercial facility, authorized to receive and store wastes. Some provisions in the permit stem from both state and federal authorization.

E/TI was authorized to store wastes from off-site sources and also prohibited from accepting certain wastes, as follows:

Authorized Waste Groups	Prohibited Waste
Toxic (T) Corrosive (C) Acute hazardous waste (H) EP toxic (E) Reactive (R)	Ignitable waste (I) Polychlorinated biphenyls Explosive material Radioactive waste Infectious materials Putrescible wastes

E/TI was authorized to operate the three following hazardous waste storage units.

Unit	Capacity	Waste Authorized
Tank No. 3-695035	7,190 gallons	Waste cyanide and waste sulfide solutions
Facility 1	250 55-gal drums	All containerized wastes
Facility 3	250 55-gal drums	Cyanide and sulfide wastes

Under the Air Quality Provisions, E/TI was authorized to operate gas-fired rotary dryer 1 (emissions point 16) in Facility No. 2. The permitted allowable emission rate was 0.12 lbs./hr., and 0.5 tons/yr. E/TI maintained that there was a typographical error in the permit because the emission rate in lbs./hr., was inconsistent with the tons/yr. value. On August 14, 1994, the TNRCC corrected the emission rate to 0.47 lbs/hr. The dryer is required to exhaust to a wet scrubber and operate at an emission rate no greater than 0.01 gram particulate matter per cubic foot.

The permit required E/TI to control fugitive emissions from vehicular traffic and roadways.

The permit also incorporated regulatory requirements administered by the state and EPA. The 40 CFR Part 264 provisions were:

Subpart B:	General Facility Standards
Subpart C:	Preparedness and Prevention
Subpart D:	Contingency Plan and Emergency Procedures
Subpart E:	Manifest System, Recordkeeping, and Reporting
Subpart G:	Closure and Post-closure
Subpart H:	Financial Requirements
Subpart I:	Use and Management of Containers
Subpart J:	Tanks

The permit required remedial investigations to determine the extent of releases of hazardous constituents for the following industrial solid waste management units.

- 01 Landfill
- 02A Waste pile
- Lagoon

1992 Permit

E/TI submitted a Class III Permit Modification on March 25, 1991 to the TWC. On July 23, 1992, the state issued the current 10-year permit under the same number. In addition to authorizing the storage of wastes, the permit also authorized the processing of wastes. Twenty-three storage areas [Table IV - 2], including the first three storage areas, were authorized; one additional waste stream could be received, and dioxin was added to the prohibited wastes. The total capacity of storage is 1,064,052 gallons.

The 20 additional storage areas are located in buildings B and C. Building B currently is used for hazardous waste storage. Building C is known as the "alphabet storage building," because each bin or storage area is identified with letters. Building C is also used to store E/TI's "product." According to Bill Tiddy and Roger Norman, hazardous wastes have not been stored in building C. E/TI's Class III Permit Modification listed the 16 storage bins as hazardous waste storage areas, as a protective measure in the event that additional storage space is needed. Roger Norman stated that tank 3-695035 has not been used since 1991.

1993 Class I Permit Modification Request

On December 14, 1993, E/TI submitted a Class I Permit Modification Request to the TNRCC as a protective filing for the management of newly identified waste. E/TI had detected cadmium in the water stored in the two storm lagoons. E/TI believed that the cadmium bearing residues were a result of zinc electro-twinning operations from the 1940s to the 1970s. The TNRCC responded that, while E/TI was prudent with the protective filing, enough information was not submitted for the TNRCC to make a timely and complete evaluation.

Table IV - 2

AUTHORIZED HAZARDOUS WASTE STORAGE AREAS
Encycle/Texas, Inc.

Unit/Location	Description	Capacity
Tank 3-695035	Fiberglass - reinforced plastic tank	7,190 gallons
Facility 1	Container storage area for all waste	250 55-gallon drums or 13,750 gallons
Facility 2	Container storage area for cyanide and all compatible waste	250 55-gallon drums or 13,750 gallons
Building B, Section A	Container storage area for all compatible waste	88,862 gallons
Building B, Section B	Container storage area for all compatible waste	153,490 gallons
Building C, Sections A, B, C, D, E, F, H, I, J, K, L, M, N, P, R, and S	Sixteen container storage areas for all compatible wastes	48,470 gallons each
building C, Sections G and GG	Two container storage areas for all compatible wastes	5,745 gallons each

No additional information was found in the TNRCC files concerning this modification.

1995 Class I Permit Modification

On June 26, 1995, E/TI submitted a Class I Permit Modification Request to TNRCC to add a wastewater treatment sludge from Robins Air Force Base (RAFB), which E/TI said was similar to electroplating sludges and wastewater treatment sludges from the chemical conversion coating of aluminum. E/TI listed 567 hazardous waste codes associated with the RAFB sludge. The TNRCC responded on September 8, 1995, stating that the RAFB sludge carried six hazardous waste codes and requested that E/TI explain why the additional waste codes were listed in the request.

Correspondence and documents were not found in the TNRCC files concerning E/TI's response.

WASTE ACCEPTANCE PROCEDURES

E/TI has four regional sales representatives in the United States (Atlanta, Georgia; Austin, Texas; Minneapolis, Minnesota; and Los Angeles, California) who secure the waste materials. The sales representatives screen the wastes to eliminate those materials/constituents not authorized in the RCRA Permit, provide the forms required by E/TI for information on the waste characteristics and processes generating the wastes, and provide the sample containers for each waste stream. The forms include the Waste Characterization Questionnaire (WCQ) and the Sample Information form.

Once the forms and samples are received at the E/TI on-site laboratory, the waste stream is assigned a waste profile number, designated as a "CC" number. The CC number is used to track all documents and waste shipments for a specific waste stream. The CC number is unique to each waste stream. If there are no deficiencies found in the documents or the waste sample, the laboratory opens a file in the Waste Decision program in the computer system. A Customer Service Representative (CSR) creates a file for the generator under the CC number. If the generator has multiple waste streams, the file includes documents for each waste stream, each with a unique CC number.

The laboratory personnel analyze the sample for various constituents depending on the waste description. All initial waste samples are analyzed for metals and radioactivity. Results are recorded in the Laboratory Analysis Report and forwarded to the CSR. If the waste is determined to be appropriate for processing, the waste sample undergoes bench scale treatability studies to determine the treatment processes and appropriate costs. The treatability study data are reported in the Laboratory Analysis Report. The laboratory personnel initiate the Waste Decision program for review by operations and the regulatory affairs departments.

Operations reviews the data to determine if treatment is feasible and consults with the finance representative to prepare a cost estimate. Concurrence or non-concurrence, and comments are entered into the Waste Decision program.

The Regulatory Affairs personnel review the data and determine if the waste constituents and treatment process are within the facility's RCRA and CWA permit authorities, complies with the environmental regulations, and meets the corporate polices. Concurrence or non-concurrence and comments are entered into the waste decision program.

If the laboratory, operations or regulatory affairs personnel do not concur that the waste should be accepted and processed, the decision is reviewed by the E/TI president, and additional data and information may be requested. If the waste decision is changed, the reasons for the decision are included in the waste decision program. All data are forwarded to customer service for appropriate action.

Waste Acceptance

The CSR notifies the generator that the waste can be accepted at E/TI, transmits a contract to the generator, and enters a history file of the waste stream including the acceptance in the waste decision program and the Sample Information system. After the contract or blanket purchase order has been accepted by E/TI, the CSR schedules the waste shipment.

The WCQ is on file for every accepted waste, containing the information necessary to schedule a shipment to E/TI. The CSR schedules the shipment via the telephone and assigns a waste load number to the waste, used to track the specific waste load through the treatment process to its final disposition. A waste order is completed by the CSR from the information provided by the generator.

E/TI does not have its own transporters to serve customers. A Transportation Profile is prepared for each transporter; each transporter arriving at the E/TI facility must be approved by the regulatory affairs department. The waste order is placed in the holding file until the day prior to the scheduled receipt of the waste. The CSR prepares the daily receiving report and distributes it and the work orders to the appropriate departments, including security, for the following day's arrivals.

Waste Receiving

Waste material is received in railroad tank cars, railroad gondola cars, railroad box cars, roll-off containers, tanker trucks, and blower trucks, vans, and other over the road trucks. Containers include supersacks (bags), drums, Entotes (plastic tote containers), Tuffie totes, boxes, and other Department Of Transportation (DOT) approved containers. Personnel from the receiving department, sampling department, and security department are responsible for the preliminary actions of managing the wastes on-site prior to chemical analysis and processing. Over-the-road vehicles arrive at the west gate, south of the acid storage tanks; rail cars are admitted into the facility through gate 8.

For incoming railroad shipments, upon arrival at the facility, the security officer contacts the receiving department personnel, opens the railroad gate to provide access to the railroad switch crew, notifies the CSR and the weighmaster, and sends the waste order, hazardous waste manifest, and land disposal restriction (LDR) form to the railroad scale.

When an over-the-road vehicle arrives with a waste shipment, the security officer opens the gate and directs the vehicle to the staging area, conducts a cursory inspection of the vehicle for leaks, collects the hazardous waste manifest, LDR form, and the bill of lading (BOL), verifies the waste order number, CC number, date and time with the daily receiving report, completes the liability release log, issues a visitor entry permit and visitor badge, instructs the driver in the E/TI rules, and notifies the receiving department personnel of the arrival. The driver is given the hazardous waste manifest, LDR form, BOL and the waste order and is sent to the sampling and scale area.

The rail cars and vehicles are weighed at their respective scales. The weigh master collects the hazardous waste manifest, LDR form, BOL and waste order. The weight is recorded on the work order and, for vehicles, the weight is also entered on the computerized weekly truck log.

The vehicle or rail car is sampled either by the receiving department or the sampling department personnel at the designated sampling area. The representative sample of the material, the Waste Order, hazardous waste manifest, LDR form, and BOL (trucks only) are taken to the laboratory by the sampler. The sample is logged into the laboratory and the fingerprint analysis is performed, based on the original preacceptance analysis. Parameters for all samples include pH, cyanide, total metals, and volatile organic carbon (VOC). Results of the fingerprint analysis are recorded on a shipment form. The sample will also be analyzed for treatability. If major discrepancies are found, customer service is notified and the waste may be rejected. The truck is staged in a designated area, and the rail car is held until the nonconformity is resolved.

When the nonconformity is resolved, or the waste conforms to the approved specification, the laboratory notifies receiving or operations personnel to have the truck escorted to the designated facility for off-loading. Waste material is unloaded in one of the following seven areas. Each area reportedly has secondary containment.

- Feed tank 1 at Facility No. 2
- Feed tank 2 at Facility No. 1
- Hazardous waste storage building (building B)
- West side of Facility No. 4 (Glover Matte)
- Product storage building C
- East of building C (railroad gondola cars)
- Railroad tank car area, north of Facility No. 1

After unloading, the receiving department or sampling department personnel sign the hazardous waste manifest and BOL, and return them to the vehicle driver. The driver is either directed to the scale for exit weighing, or to the security gate. Only bulk truck shipments are weighed. The exit weight is recorded on the waste order. When the vehicle arrives at the security gate for exiting, the security officer retains the documents, returns the transporter copies of the hazardous waste manifest and BOL, has the driver sign out, and delivers the completed documents to customer service.

For the rail cars, the receiving personnel notify the weighmaster when the rail car is off-loaded and washed when necessary, and the rail car is moved to the scale for weigh-out. The weight is recorded on the work order. All documents are forwarded to security for delivery to customer service. The CSR notifies the railroad to switch the car out of E/TI.

In the event any nonconformity is discovered in weighing, sampling, analysis, or off-loading of the waste, the CSR advises the generator by phone and a follow up rejection letter.

Originals or copies of all the records of each waste load are kept by customer service, regulatory affairs, laboratory, and operations. The original hazardous waste manifest is signed and returned to the generator; the original LDR form is retained, and a photocopy is returned to the generator.

According to facility personnel, most of the hazardous and nonhazardous waste arrives in supersacks, totes, drums, and boxes. Solid bulk waste arrives in roll-off containers and liquid bulk wastes in railroad tank cars and truck tankers. The three feedstock materials, which are exempt under the Federal Bevill exclusion (Cottrell dust, Glover Matte, and East Helena baghouse dust) arrive in railroad gondola cars. As required by the RCRA permit, all arriving waste materials are sampled and analyzed for confirmation. The feedstocks are not sampled under the provisions of the WAP, but are sampled by E/TI to determine the metal values. Feedstocks are also assigned a CC number.

E/TI has no formal Sampling and Analysis Plan (SAP) to confirm that the waste shipments which arrive at the facility are the same as described in the initial documents and sample. E/TI stated, in it's April 26, 1996 letter to EPA, that procedures are in place to ensure that the permit and waste analysis plan requirements are satisfied. E/TI developed a draft SAP after EPA's on-site inspection, and submitted it to EPA, Region 6, on April 1, 1996. The draft SAP will be the basis for a RCRA permit modification.

E/TI yard and receiving personnel were responsible for sampling the incoming waste loads until the new sample laboratory building was completed on August 2, 1994. At that time, the yard and receiving personnel were transferred to the sampling department, and continue collecting the samples for the incoming shipments.

E/TI personnel sample railroad gondola and tank cars, roll-off boxes, supersacks, or bags, totes, drums, Tuffie totes, and bulk loaded trucks. The personnel collect the samples to determine the characteristics and metal values of incoming feedstocks, and assay their outbound product. For the outbound product, the samples may be collected from the material in the bins in the storage buildings, from the loaded railroad car, or during the loading of the railroad car or product container. The sampling procedures sent to EPA are summarized below.

Rail car Sampling

Some of the railroad cars are sampled when feedstock is unloaded or loaded with product. Samples are collected from the bucket of the front end loader using a 3-foot or

5-foot sample probe. Every bucket load or every other bucket load is sampled, depending on the material. The individual probe samples are placed in a 13-inch by 18-inch plastic bag and sent to the sampling department building.

Some of the samples are collected from the material in the rail car before it is unloaded or after it is loaded, using a 70-hole pattern. The surface area is divided into grids, 5 wide by 14 long, and 70 core samples collected with a 5-foot long sample probe. The core sample from the probe is transferred to two 13-inch by 18-inch plastic sample bags. The two bags are sent to the sampling department building where they are blended into one composite sample.

Some outbound rail cars containing product are sampled using a 3-foot by 3-foot pattern instead of the 70 hole pattern. Core samples are collected with a foot long sampler every 3 feet across and every 3 feet along the length. Between 20 and 30 core samples are placed in the 13-inch by 18-inch plastic bag, and sent to the sampling department building.

"Product" Bin Sampling

The "working face" of a "product" bin is sampled using either a 3-foot or 5-foot probe. Between 20 to 30 core samples are collected at random across the face and placed in a 13-inch by 18-inch plastic bag and sent to the sampling department building.

Roll-off Box Sampling

According to E/TI's draft sampling procedure, roll-off boxes are sampled by four different methods described below; the draft procedure does not specify what procedure is to be used.

1. Some roll-off boxes are unloaded directly into a "product" bin. Samples are collected with a 3-foot or 5-foot long sample probe. Between 10 and 12 core samples are collected, and placed into a 13-inch by 18-inch plastic bag. The plastic bag is sent to the sampling department building. The minimum spacing between the core samples is 3 feet.

2. Roll-off boxes containing a uniform material throughout are sampled with six shovel scoops at different areas as they are emptied directly into a "product" bin. The samples are placed into a 13-inch by 18-inch plastic bag and sent to the sample department building.

3. Some roll-off boxes are sampled prior to unloading, using either a 3-foot or 5-foot long probe. Approximately 24 core samples are collected from either a 4-foot by 6-foot pattern, or a 3-foot by 8-pattern from the material. The core samples are placed into a 13-inch by 18-inch plastic bag and sent to the sampling department building.

4. Some roll-offs are sampled with a shovel by the receiving department personnel just before the material is unloaded into a feed tank. (The number of individual samples were not given). The "shovel of material" is placed into a 13-inch by 18-inch plastic bag and sent to the laboratory for analysis.

Outbound Bags Sampling

Each supersack in a lot is sampled using a 3-foot long probe. One core sample is collected from each side of a bag (two samples/bag), and placed into a 13-inch by 18-inch plastic bag, and sent to the sampling department building.

Inbound Bags and Totes Sampling

For some loads, a core sample is collected from every bag or tote; however, since August 23, 1995, for most loads, at least one-half the bags or totes are sampled. Samples are collected with either a 3-foot or 5-foot long probe, using the tables in Attachment IV-A. For those loads where each bag or tote is sampled, all the core samples are placed in a 13-inch by 18-inch plastic bag, and sent to the sampling department building. Where only part of each load is sampled, the cores samples are placed in an 8-inch by 10-inch plastic bag, and sent to the laboratory.

Inbound Bulk Truck Sampling

Trucks with bulk liquids are sampled at the scales by the receiving department personnel. The sample is collected with a "dip stick" (not defined in the E/TI document) at least halfway into the depth of a tanker. The sample is emptied into a 1-liter cubitainer and sent to the laboratory.

Bulk blower trucks containing solid material are sampled at the scales by the receiving department personnel. A sample is collected with a 5-foot long probe through the top hatch of the truck. Approximately two core samples are collected and placed in an 8-inch by 10-inch plastic bag and sent to the laboratory.

Inbound Drum And Tote Box Sampling

If the container appears to be under pressure, the attendant (person not defined) slowly releases the pressure using proper safety procedures (not described). The container is checked for volatile organic carbon (procedure not described).

Samples from drums containing solid material are collected with a 3-foot long probe and placed in an 8-inch by 10-inch plastic bag and sent to the laboratory. Samples from drums or Tuffie totes, containing liquids, are collected with a plastic tube and emptied into a cubitainer, and sent to the laboratory. The number of samples collected is based on the quantity of containers in each waste load or shipment, according to the tables in Attachment IV-B.

Sample Preparation by Sampling Department Personnel

A Sample Request form [Attachment IV-C] is completed by the sampler for every sample collected. For samples sent to the sampling department, additional sample preparation is done prior to the sample being sent to the laboratory. The sample is shaken vigorously, and about 2,000 grams of the sample is used to determine the moisture content of the entire sample. Moisture is determined by drying for 24 hours at 105 °C. The remaining portion of the sample in the plastic bag is stored at the sampling department building for a minimum of 1 week. If a sample appears to be 60% or greater in moisture, or is wet and muddy, the entire sample is compressed in the original bag to break up chunks, and the entire contents are dried on a glass pan for 24 hours at 105 °C. Glover Matte inbound samples and Facility No. 4 samples are run through a Sigma blade mixer to break up large chunks after drying. Dried samples are ground in a hammer mill. Glover Matte and Facility No. 4 samples from the hammer mill are blended in a cone blender with the oversize particles that did not pass through the hammer mill as needed.

After the samples have been prepared, each sample is split in 3-inch by 5-inch plastic bags, each holding about 100 grams. One split sample is brought to the laboratory with a copy of the Sample Request form. The other split sample is stored at the sampling department building for 1 year. Leftover sample materials are discarded into a satellite container. For outbound lead samples, three splits are bagged; one split sample is sent to the laboratory and two split samples are stored for 1 year.

WASTE ANALYSIS

E/TI/ has an on-site laboratory for analyzing wastes and material shipped to their customers. The discussion of the laboratory and the waste analysis process is in Section VII: Compliance Evaluation.

WASTE STORAGE

The RCRA permit authorizes E/TI to store hazardous waste for greater than 90 days prior to processing. E/TI tries to process the stored hazardous waste within 60 days of receipt, but due to the quantity required to process a specific waste stream, the waste may remain in storage for a longer period, up to the 1-year limitation (speculative accumulation) under the LDR regulations. Roger Norman said that E/TI may have up to 20 tons of hazardous waste in storage up to 1 year at any time, and have occasionally exceeded the 1-year storage regulation. Mr. Norman said he informed Bill Tiddy to process the wastes immediately. Mr. Norman did not identify the waste streams, or describe how the wastes were processed (i.e., hydrometallurgically or blending). He said the wastes were not shipped off-site for disposal. Mr. Norman also stated that E/TI does not place wastes in storage bins just to get rid of it, as the 1-year time limit approaches, because their customers (smelters) may not accept the "product" due to unwanted constituents.

The computerized "on-hand" inventories of all waste materials includes the dates the wastes were received, the CC number, load number, waste code, manifest number, and generator. The inventory record was developed for accounting purposes.

The five permitted hazardous waste storage areas and locations are as follows:

Area	Waste Storage	Figure I-1 Location Coordinates
Building B	Drums	E-9
Facility No. 1	Drums	F-12
Facility No. 3	Drums	F-7
Building C (bins)*	Bulk solids	D-6, 7, 8
Tank 3-695035	Waste cyanide solutions: 7,190 gallons	E-6

* *Wastes not stored in bins during or prior to EPA inspection.*

The plot plans for the container storage areas are in Attachment IV - D. All the storage areas have secondary containment and are inspected, as required by the RCRA permit.

PROCESS SUMMARY

E/TI began railcar cleaning and waste processing operations in 1989. The first shipment of hazardous waste arrived on April 6, 1989. The cleaning operation was authorized for empty commodity railcars which contained chemicals and other materials such as peanut oil, corn oil, corn syrup, etc. [Attachment IV - E]. Most of the railroad cars cleaned contained sulfuric acid and caustic soda. The wastewater from cleaning was routed to Facility No. 1, and treated in the neutralization plant prior to discharge to the Inner Harbor. E/TI personnel interviewed on-site during the EPA inspection were not familiar with the operation; they were not employed by E/TI until 1991 or later.

Both hazardous and nonhazardous waste are received from off-site sources. The major metal "products", sold on the open market, include:

Silver (Ag)	Copper (Cu)	Lead (Pb)
Cadmium (Cd)	Nickel (Ni)	Zinc (Zn)
Chromium (Cr)		

The metal "product" is in the form of concentrates, such as lead sulfide, lead carbonate, lead hydroxide, etc. The actual metal is reclaimed from the concentrates at primary smelters or other commercial facilities. Additional treatment, such as sintering, is done at the smelter before the concentrate can be smelted to recover the metal.

The site is divided into four operating areas, designated as Facility Nos. 1 through 4, where hydrometallurgical processing is conducted. Blending of wastes and "product," a process initiated in late 1991, known as the Product Management Program (PMP), occurs in bins inside the numbered and the alphabet (building C) storage buildings. Wastes are processed based on the metal values in the material. Facilities have multiple processes, known as circuits, to produce a specific "product" (i.e., copper circuit, lead circuit, etc.). During the EPA on-site inspection, only Facility Nos. 1 and 2, and the wastewater treatment plant, also knows as the neutralization plant, were operating. A brief summary of the processes follow; the detailed process descriptions and schematics are in Section V: Process Descriptions.

Facility No. 1

Facility No. 1 is the primary waste liquids processing area. Process units are located both inside and outside the building. Liquid wastes are placed in one or more batch precipitation tanks. Water is added to ensure correct equilibrium for chemical precipitation. The pH is adjusted with caustic, lime, or acid to maintain optimum conditions for metal precipitations. Sludges from the batch precipitation tanks are filtered to remove the water. The filter cake is transferred to the "product" storage bins, and the water is pretreated to remove ammonia, reduce hexavalent chromium, and recover additional solids. The pretreated water is sent to the wastewater treatment plant (neutralization plant) for pH adjustment and solids removal. The solids are returned to the process operations and the effluent is discharged to the Inner Harbor.

Facility No. 2

Facility No. 2 is the primary waste solids processing area; liquid wastes are processed also. Solid wastes, in bulk and from bags (supersacks), boxes, drums, and totes are placed in the process tanks. Water is added to slurry the solids which are sent to one or more leach tanks for reagent addition. The pH is adjusted to optimize precipitation. The leach tank slurry is sent to the appropriate thickener(s) for solids separation. Water is added to the thickeners to wash sodium, sulfates, and chlorides from the solids. The thickener sludge is dewatered on rotary drum filters, dried in the rotary kiln dryer, and transferred to the storage bins. The decant water and filtrate are transferred to the Facility No. 1 pretreatment process.

Facility No.3

Facility No. 3 was used to process wastes containing cyanides. The cyanides were converted to cyanates and/or to carbon dioxide and nitrogen with bleach. The wastes were then transferred to Facility No. 2 for processing. ET/I no longer accepts wastes containing high cyanide levels and, in 1992, Facility No. 3 was converted to process baghouse dust from Asarco's lead smelter in East Helena, Montana.

The baghouse dust, exempt from RCRA regulations, arrives in railroad gondola cars, and is off-loaded to the bins in storage building C. The baghouse dust from the bins is placed in a feeder system inside storage building C, slurried with water, and conveyed to the top floor of Facility No. 3. There are two circuits in Facility No. 3, but only one can be used at a time because they each use some of the same process units. Both circuits produce lead sulfate concentrate in the first processing stage. The baghouse dust slurry is leached, the sludge dewatered on the east drum filter, and the lead sulfate "product" transferred to storage building C.

After precipitating the lead sulfate from the slurry, the solution remaining is processed either in the cadmium sponge-zinc slurry circuit, or in the zinc carbonate-cadmium carbonate mixture circuit. E/TI prefers to use the cadmium sponge-zinc slurry circuit because the cadmium sponge and zinc slurry are two separate "products," which have a higher value than the cadmium-zinc mixture. However, as of March 8, 1996, the TNRCC had not granted an exemption (required before circuit can be operated) for the cadmium sponge-zinc slurry circuit under section 118 of the Texas Air Act. Therefore, E/TI could only use the cadmium-zinc mixture circuit to process the baghouse dust.

In the cadmium sponge-zinc slurry circuit, after the lead sulfate is precipitated and transferred to the filter, cadmium sludge is precipitated from the solution, and dewatered in a bag filter unit. The "product", known as cadmium sponge, is stored in drums. After the cadmium is precipitated, the solution is decanted to another tank, and caustic added to form a zinc hydroxide slurry, which is sent to Facility No. 2 for processing in the zinc circuit.

In the precipitation of cadmium sludge, zinc dust is added to replace the cadmium. Under certain conditions, the chemical reaction produces arsine, a toxic gas. In 1994, two employees were exposed to the gas and suffered adverse effects.

In the cadmium zinc mixture circuit, the tank used to precipitate the cadmium sludge is not used. After the lead sulfate has been precipitated and transferred to the east filter, the solution is decanted to another tank, soda ash is added, forming the cadmium-zinc carbonate sludge. The sludge is dewatered in the west drum filter, and the cadmium-zinc mixture is stored in supersacks prior to export to China.

The filtrates from the east and west drum filters are sent to Facility No. 2 for processing.

Facility No. 4

Facility No. 4 was designed to process two wastes from two Asarco smelters; both wastes are exempt from RCRA regulation. Glover Matte from the lead smelter in Glover, Missouri and Cottrell dust (dust collected by electrostatic precipitators) from El Paso, Texas arrive in railroad cars and are off-loaded at storage building C. At the time of the EPA inspection, Facility No. 4 had not been included in the Contingency Plan, nor its location indicated on the site map. E/TI added the facility to the Contingency Plan and site map prior to March 8, 1996. Facility No. 4 began operating in September 1995.

Glover Matte is processed in Facility Nos. 2 and 4. The Glover Matte is conveyed to the top of Facility No. 4 after screening in a vibrating machine to remove particles 3 inches or larger. These particles are hauled to storage building C, and crushed on the concrete floor using the bucket on a front-end loader. The crushed particles are returned to the vibrating machine.

The Glover Matte drops off the conveyor into either the north or south mixer tanks. Water is added to remove sodium slats. The mixture is discharged to a screened conveyor; the oversized material retained on the conveyor drop into an Aurora Hopper and are transferred to bins in the numbered storage building. The solids and solution passing through the screen conveyer are collected in two holding tanks and then pumped to two tanks in Facility No. 2, designated as the RMA tanks (Rocky Mountain Arsenal). The solution could also be pumped to Facility No. 3 for processing. The Glover Matte is also added to the leach surge tank in Facility No. 2 via a skip hoist.

The Cottrell dust circuit had not been used as of the EPA on-site inspection. The Cottrell dust was described as being received at E/TI "bone dry." Transferring the dry dust to the process units caused fugitive emissions. Wetting the dust with water made the dust slippery, and the front-end loader could not maneuver due to the wetted dust on the concrete floor.

E/TI plans to pneumatically unload the Cottrell dust from the railroad car to a baghouse, slurry the dust with water as it exits the baghouse, and place the material in a receiving tank. The slurry will be mixed with sodium sulfide or sodium hydroxide, and discharge the slurry to a belt extractor. The dewatered solids containing lead sulfide, will be stored as a lead concentrate. The filtrate from the belt extractor will be sent to Facility No. 2. Once the Cottrell circuit is operational, the Glover Matte filtrate will be added to the Cottrell dust circuit at the feed tank to the belt extractor.

The "products" from the processes are lead sulfate, lead sulfide, and copper sulfate concentrated, which are returned to Asarco's East Helena, Montana and El Paso, Texas smelters.

Blending Process (PMP)

E/TI began blending inbound wastes with "product" and with other inbound wastes in late 1991 under the Product Management Program. The material, after blending, is shipped as an E/TI "product." According to E/TI personnel, John Likarish and Roger Norman, the inbound hazardous waste loses the hazardous waste classification and waste code once it enters the E/TI processor or is determined by E/TI personnel to meet "product" specifications. Only solids are blended; if blended, the material is noted in E/TI records as being PMPed.

Blending is done in the "product" bins in the alphabet and numbered storage building. Waste is mixed in the bins with a front-end loader and an excavator. Blending is based on E/TI's analysis of the bins' contents and the inbound waste. According to Mr.Likarish, about 60% of the inbound waste is PMPed. E/TI personnel said that the three feedstocks, Glover Matte, East Helena baghouse dust, and the Cottrell dust, and the Nickel - Ash are not PMPed. The "product" from processing the baghouse dust is not blended with other material.

WASTES RECEIVED

The three feedstocks (Glover Matte, Cottrell dust, and East Helena baghouse dust), nonhazardous and RCRA hazardous waste steams are received for processing and/or blending at E/TI. Each waste stream, except the Agmet waste stream from DuPont-Sabine River, are assigned a unique code number (CC#) for identification and tracking purposes. The Agmet waste stream is identified as AMI-PA. Each waste load arriving on-site is scheduled by the E/TI Custom Source Department, and each waste load is assigned a unique number (Load Number) to track the shipment, whether the load is one waste stream or multiple waste streams. A waste load has one load number, but may have multiple CC numbers. Each bulk railroad car, roll-off container, tanker, and truck with drums, supersacks, totes, etc. is assigned the waste load number. A "White Sticker" with the generator's name, EPA ID number, CC number, load number, and date received identifies each container or drum, bulk roll-off container, etc. A White Sticker is attached to each tote, drum, supersack, roll-off container, etc., and the information on the White Sticker is entered into E/TI's computer. The White Sticker is not attached/applied to the railroad cars; the railcar number is referenced on the White Sticker. The White Sticker is generated from the Waste Order, the initial tracking document, and is printed when the shipment arrives. The Waste Order is updated in the computer as the waste streams move through E/TI's processing system. The Waste Order is numbered sequentially. A Waste Order is for a CC number, and not for multiple waste streams or multiple generators.

Each inbound waste stream is assigned a Material Movement Ticket (MMT) known as the batch sheet. The batch sheets, initiated by the Operations Manager, Production Manager, and other key personnel, are in the computer. The batch sheet provides the instructions for moving material on-site or removing the material from storage to processing. The batch sheet, generated after the load arrives and is unloaded, contains the CC number, load number, generator name, quantity of containers, the type of container (unit), tons of waste received, and the location where the material is either stored or placed in the process. For bulk loads unloaded directly into Feed Tanks #1 or #2, the batch sheets are "by-passed" in the computer and then are created after the fact.

PRIVILEGED: ATTORNEY WORK PRODUCT

The batch sheet lists the process, destination in the process, and the batch number. Examples, as shown on the batch sheets, of wastes processed in Facility Nos. 1 or 2, and PMPed are as follows:

PROCESS	DESTINATION	BATCH#
Other	Leach Tank #4 Facility #2	10491
PMP	BIN M Facility #9	10465

The Facility #9 designation indicates that the material is to be PMPed, i.e. blended with other material, either directly or through the receiving process.

Each waste stream is sampled and analyzed. The analytical data for specific constituents are included on the batch sheet. All results, except for gold, silver and mercury are reported as percent concentrations to the 100ths of a percent (e.g. 10.46%). Gold and silver are reported in ounces to the 1,000ths, and mercury in parts per million (ppm). The total cyanide concentration in ppm and total pounds of total organic carbon are included with the data. The 23 specific constituents in the order they appear on the batch sheet, are:

Lead (Pb)	Iron (Fe)	Manganese (Mn)
Copper (Cu)	Cadmium (Cd)	Sodium (Na)
Zinc (Zn)	Calcium (Ca)	Phosphorus (P)
Nickel (Ni)	Magnesium (Mg)	Selenium (Se)
Chromium (Cr)	Aluminum (Al)	Silica (Si)
Silver (Ag)	Arsenic (As)	Tin (Sn)
Gold (Au)	Barium (Ba)	Vanadium (V)
Mercury (Hg)	Cobalt (Co)	

The batch sheets are not numbered. The date the batch sheet is generated is recorded on the upper right corner. The date and time the waste stream is processed is on the bottom of the batch sheet, along with name of the person completing the batch sheet. The time and person's name are not always recorded on the batch sheet. The processing date, time, and name are hand-written on the sheet; the rest of the information is computer generated. Some batch sheets have "COMPLETED" stamped on the page.

Evaluation of the specific constituent data on the batch sheets indicates that the results can either be the actual concentrations for the particular waste load received or can be archival concentrations from past shipments or pre-acceptance records.

The generators pay E/TI to accept their wastes. E/TI sells the "products" to smelters and other commercial processors. The Agmet material from DuPont is a tolling type of contract where E/TI is paid to process the material (nickel ash or nickel-A) for Agmet.

John Likarish verbally provided the following estimate of the amount of waste processed by E/TI in 1995, based on an average of 3,500 tons per month on a wet weight basis:

PROCESS	Amount (tons/month)
Acid and water precipitation	1,920
Drying	100
Blending (PMP)	1,000

The 100 ton/month of material dried (rotary kiln dryer) is part of the 1,920 tons/month processed in Facility Nos. 1 and 2; inbound material sent to the bins in the alphabet and numbered storage buildings for PMP processing is not dried in the rotary kiln dryer prior to blending.

Mr. Likarish said approximately 3,000 tons/month of "product" results from the 3,500 tons/month received in 1995. Mr. Likarish estimated the following processing percentages for 1996:

Process	Percentage
Acid leach	5%
Acid leach (Facility No. 3)	10%
Water Leach	25%
PMP (Blending)	60%

E/TI submitted the Material Movement Tickets for waste received in January, 1996 and processed in Facility Nos. 1 and 2 or blended in the storage bins; Facility Nos. 3 and 4 were not operating in January and February, 1996. The data from the MMT's is summarized in Table IV - 3.

E/TI also submitted a computer generated list of the loads received in January, 1996 by CC number, load number, arrival date, and generator. The MMT documents submitted should match the January load list, however MMTs for 28 waste loads from 11 generators were not received by EPA. Eight of the loads were from Asarco and may have been stored until they could be processed in Facility Nos. 3 or 4. The status of the other waste streams is not known by EPA.

Table IV - 4 summarizes the data in Table IV - 3. The data show that 199 waste loads were received and processed; there were 123 individual waste streams (i.e. 123 CC numbers). In January, 1996, 1464 tons of waste were received, 77% hazardous waste, and 46% carrying the listed waste code F006 (wastewater treatment sludges from electroplating operations). Sixty percent of the hazardous waste received was designated as F006. F006 is a toxic listed waste due to the cadmium, hexavalent chromium, nickel,

Table IV - 3

WASTES RECEIVED AND PROCESSED
JANUARY 1996
Encycle/Texas, Inc.

Generator	CC#	Number of Loads	Waste Codes	Quantity (tons)	Process Destination [1]	PMP Location [2] (Bin)	Process Date	Principal Metals (% Average) [3]	Other Metals (%) [4]
Agmet [5]	AMI-PA	33	NHW [6]	270.8	1		01/05 to 02/27	NA	
Advanced Quick Circuit	03818	2	F006	31.8	9	V	01/08 01/29	Cu: 12.9	
Alltrista Zinc Product	00407-89	2	F006	42.3	9	V	01/19 02/02	Cu: 39.3	
Amana Refrigeration	01185-90	1	NHW	19.9	9	R	01/19	Zn: 8.2	
Amana Refrigeration	01186-90	1	NHW	1.7	9	M	01/19	Zn: 27.5	Pb: 0.02
American Nickeloid Co	04242	1	NHW	3.9	9	V	01/18	Cu: 15.2	Pb: 0.45 Zn: 3.6
American Nickeloid Co	04243	1	F006	2.0	9	V	01/17	Cu: 40.9	Pb: 0.15
American Nickeloid Co	04244	1	F019	0.6	9	V	01/18	Cr: 11.5	Cu: 0.45
Apogee Engineering	02352-91	1	F006	13.4	2		01/15	Cu: 10.8	Pb: 0.53 Ni: 1.29 Sn: 4.41
Appleton Electric	00659-90	1	F006	19.7	9	M	01/15	Zn: 18.9	Pb: 0.02 Cu: 0.12 Cr: 0.89
Artistic Plating	02644-91	1	F006	13.4	2		01/15	Cu: 10.8	Pb: 0.53 Ni: 1.29 Sn: 4.41
ASI-Cadence	01019-90	1	D002	3.7	1		01/03	Cu: 11.9	Pb: 0.01
Associated Plating	02366-91	1	F006	2.4	9	XI	01/16	Cu: 1.64	Zn: 0.3 Ni: 0.88 Sn: 2.27
Automation Plating	00185-89	2	F006	15.0	9	M	01/03 01/25	Zn: 27.8	Pb: 0.01 Cu: 0.16 Cr: 3.21 Cd: 1.25
Bartlett Mfg.	04591	1	F006	7.9	2		01/31	Cu: 18.1	Pb: 2.67 Sn: 5.74
Briggs & Stratton	03012-91	1	F006 D007	11.9	9	M	01/22	Ni: 21.1	Cu: 0.65 Zn: 21.14 Cr: 2.80
Cedko Electronics	04920	1	F006	3.6	9	V	01/16	Cu: 22.2	Sn: 0.40
Chem-Lab Circuits	03272	1	F006	0.7	9	V	01/22	Pb: 6.4	Cu: 3.53 Zn: 0.25 Sn: 6.66
Circle Circuits	04654	1	F006 D008	1.3	9	V	01/15	Cu: 7.7	Pb: 1.61 Ni: 0.24 Sn: 1.45

PRIVILEGED - ATTORNEY WORK PRODUCT

Table IV - 3 (continued)

Generator	CC#	Number of Loads	Waste Codes	Quantity (tons)	Process Destination [1]	PMP Location [2] (Bin)	Process Date	Principal Metals (% Average) [3]	Other Metals (%) [4]
Circuit Concepts	03822	1	F006	1.3	9	V	01/31	Cu: 25.8	Pb: 0.45 Sn: 0.91
Circuit Engineering	04275	1	F006	3.3	2		01/15	Cu: 10.8	Pb: 0.53 Zn: 0.43 Ni: 1.29 Al: 3 Si: 0.01 Sn: 4.41
Compeq International	02555-91	1	F006	10.8	2		01/26	Cu: 18.8	Pb: 0.43 Zn: 0.77 Ni: 2.12 Cr: 1.92 Al: 0.49 Si: 0.04 Sn: 2.09
Compuroute, Inc.	03865	1	D008	2.8	9	V	01/29	Cu: 15.4	Pb: 1.24 Ni: 0.44 Al: 11.67 Sn: 1.54
Consolidated Metal	01384	1	F006	1.9	9	M	01/29	Zn: 20.3	Pb: 0.14 Cu: 0.25 Ni: 0.29 Cr: 1.59 Al: 11.41
Continental Brass Co.	03395	1	F006	3.2	9	V	01/11	Zn: 6.5	Cu: 4.86 Al: 0.33
Cozinco, Inc.	01690-90	2	D008	44.0	9	R	01/11 01/25	Zn: 15.3	Pb: 15.16 Cu: 1.84 Ni: 0.02 Cr: 0.06 Cd: 0.01 Al: 3.60 Si: 0.09 Sn: 0.45
Crest Products	01979	1	F006	9.1	9	M	01/29	Zn: 44.5	Cr: 0.72 Sn: 0.69
Crown Plating	02208-91	1	D007 F006	1.2	9	M	01/11	Zn: 28.9	Ni: 2.79 Cr: 2.10 Al: 1.15
Crown Plating	02878-91	1	F006	1	9	E	01/24	Ni: 38.0	Pb: 0.14 Zn: 0.40
Cuplex, Inc.	00989-90	2	F006	7.9	2		02/01	Cu: 18.1	Pb: 2.67 Zn: 0.04 Sn: 5.74
D.S. Mfg.	00901-90	1	F006	8.3	9	V	01/17	Cr: 4.5	Ni: 2.07
Denver Metal Finishing	04503	1	F006	4.1	9	M	01/29	Zn: 21.9	Ni: 0.92 Cr: 0.89 Al: 0.54
Dixie Electro Plating	04838	1	F006 D007	4.4	9	G	01/17	Cr: 13.9	Pb: 0.17 Cu: 0.90 Zn: 2.64 Ni: 1.25 Al: 0.70
DuPont Electronics	02920-91	4	D002	2.7	1		01/30 02/04	Cu: 13.2	Pb: 0.01 Zn: 0.04
Dynatex International	03408	1	F006	0.8	9	E	01/24	Ni: 21.3	Pb: 0.13 Cu: 0.05 Zn: 0.62 Cr: 0.13
E.I. DuPont	03108-92	6	D007 D008	91.1	2		01/05 02/02	Ni: 15.4	Pb: 0.03 Cu: 0.37 Cr: 0.01 Si: 0.02

PRIVILEGED - ATTORNEY WORK PRODUCT

Table IV - 3 (continued)

Generator	CC#	Number of Loads	Waste Codes	Quantity (tons)	Process Destination [1]	PMP Location [2] (Bin)	Process Date	Principal Metals (% Average) [3]	Other Metals (%) [4]
E-Fab, Inc.	00602-90	1	F006	0.9	9	V	01/15	Cu: 4.3	Sn: 1.23
Eagle Electronics	03594	1	F006	8.1	9	V	01/16	Cu: 11.4	Pb: 2.24 Sn: 5.54
East Side Plating	01856-90	2	F006 D006 D007	12.0	9	M	01/18 01/29	Zn: 22.4	Pb: 0.11 Cu: 5.45 Ni: 2.19 Cd: 1.17
East Side Plating	01866-90	2	F006 D006 D007	17.9	9	M	01/17 01/26	Zn: 23.6	Cu: 1.58 Ni: 6.06 Cr: 2.96 Sn: 0.56
East Side Plating	02733-91	1	F006 D007	4.8	9	E	01/05	Ni: 18.0	Cu: 0.18 Cr: 2.18 Al: 0.68
Eaton Corp.	00756-90	3	D002 D007 D008	4.2	1		01/01 02/07 02/20	Cr: 11.0	
EEEA, Inc.	03555	1	NHW	0.6	9	V	01/03	Cu: 3.9	Al: 2.36 Sn: 0.06
Faith Plating	04790	1	D002	2.9	9	II	01/18	Ni: 11.1	Cu: 9.94 Zn: 0.76 Al: 0.21
Fisher Controls	01176-90	1	F006 F019	5.2	9	V	01/19	Zn: 0.5	Ni: 0.36 Cr: 0.23 Al: 0.15
Furnas Electric	01442-90	1	D007	0.5	9	V	01/17	Zn: 7.7	Cu: 1.43 Cr: 2.61 Al: 0.14
Future Technology	04297	1	F006	13.4	2		01/15	Cu: 10.8	Pb: 0.53 Zn: 0.43 Ni: 1.29 Si: 0.01 Sn: 4.41
Gene's Plating Works	04935	2	F006	38.4	9	E	01/03	Cu: 12.5	Pb: 0.17 Zn: 0.89 Ni: 11.4 Cr: 6.42 Al: 1.36
General Electric Comm.	02197-91	3	NHW	0.8	1		01/25	Ni: 0.8	
General Technology	02987-91	1	F006	0.8	9	V	01/24	Cu: 7.8	Pb: 2.22 Ni: 2.21 Sn: 3.19
Gold Bug	04389	1	D007	0.2	1		02/12	Cr: 0.0	Au: 2.27 oz.
H&L Electronics	04504	1	F006	0.9	9	V	01/05	Cu: 21.7	Pb: 0.53 Zn: 0.14 Ni: 0.11 Al: 1.19 Sn: 3.97
H-R Industries	01110-90	1	F006	7.4	9	V	01/29	Cu: 16.0	Pb: 0.19 Zn: 0.11 Al: 0.14 Sn: 4.12

Table IV - 3 (continued)

Generator	CC#	Number of Loads	Waste Codes	Quantity (tons)	Process Destination [1]	PMP Location [2] (Bin)	Process Date	Principal Metals (% Average) [3]	Other Metals (%) [4]
H-R Industries	01973-90	1	D002 D008	0.5	1		01/29	Cu: 4.9	Zn: 0.01
Hutchinson Tech.	00839-90	1	D007 D008	15.3	9	V	01/11	Cr: 2.2	Pb: 0.01 Cu: 1.25 Zn: 0.02 Ni: 1.08 Al: 0.15 Si: 0.17 Sn: 0.01
Intergraph Corp.	02504-91	1	F006	12.3	9	V	01/29	Cu: 15.8	Pb: 0.06 Zn: 0.06 Cr: 0.07 Sn: 4.58
Ito Industries	04865	1	F006	3.4	9	V	01/29	Cu: 12.5	Pb: 1.36 Al: 2.01 Sn: 7.79
Jackson Plating	00456-90	1	F006	2.1	9	V	01/30	Zn: 6.4	Cu: 1.19 Ni: 3.23 Cr: 1.47 Al: 3.90 Sn: 1.98
KCA Electronics	03606	1	F006	1.3	9	V	01/23	Cu: 67.2	Pb: 0.28 Zn: 0.26 Al: 0.28 Sn: 0.18
Kwikset Corp.	00547-90	1	F006	2.8	9	V	01/29	Zn: 11.9	Cu: 1.62 Ni: 3.00 Cr: 11.46 Al: 0.81
Kwikset Corp.	00547-90	8	F006	20.1	9	V	01/12 to 01/23	Cr: 11.8	Pb: 0.12 Cu: 1.84 Zn: 10.00 Ni: 2.28 Al: 0.69
Laidlaw Environmental	03877	1	F006	1.7	2		01/15	Cu: 9.5	Zn: 0.60 Ni: 0.83 Cr: 2.12 Al: 4.43 Sn: 2.24
Laidlaw Environmental	03877	1	F006	3.3	9	V	01/11	Cu: 20.8	Pb: 0.25 Zn: 3.93 Ni: 5.47 Cr: 13.90 Al: 5.08 Sn: 0.57
Laidlaw Environmental	03936	1	D008	3.4	9	V	01/11	Cu: 3.7	Zn: 1.81 Al: 0.12
Laidlaw Environmental	03937	1	D008	1.7	2		01/26	Cu: 18.9	Pb: 0.43 Zn: 0.77 Ni: 2.12 Cr: 1.92 Al: 0.49 Si: 0.04 Sn: 2.09
Lincoln Plating	04446	1	F006 D007	4.7	9	G	01/16	Cr: 22.5	Pb: 0.17 Cu: 1.13 Zn: 6.59 Ni: 0.27 Cd: 2.77 Al: 0.30 Sn: 0.06
Mahle Cylinders	01523-90	2	F006	16.8	9	E	01/16 02/05	Ni: 17.9	Cu: 0.35 Zn: 1.15 Al: 7.27 Si: 0.10
Marcel Electronics	02690-91	1	F006	0.9	2		01/15	Cu: 10.8	Pb: 0.53 Zn: 0.43 Ni: 1.29 Al: 3.0 Si: 0.01 Sn: 4.41

Table IV - 3 (continued)

Generator	CC#	Number of Loads	Waste Codes	Quantity (tons)	Process Destination [1]	PMP Location [2] (Bin)	Process Date	Principal Metals (% Average) [3]	Other Metals (%) [4]
Marlow Industries	02153-91	1	F006	0.9	9	V	02/13	Zn: 1.6	Pb: 0.20 Cu: 0.85 Ni: 0.46 Al: 13.07 Sn: 6.36
Martex Circuits	04065	1	F006	3.9	9	V	01/18	Cu: 15.2	Pb: 0.45 Zn: 3.58 Al: 1.34 Sn: 0.63
Master Lock Co.	04032	1	F006	22.9	9	V	01/24	Zn: 3.4	Pb: 0.03 Cu: 3.08 Ni: 2.09 Cr: 0.78 Al: 0.21
Master Lock Co.	03560	1	D008	22.9	9	V	01/24	Zn: 3.4	Pb: 0.03 Cu: 3.08 Ni: 2.09 Cr: 0.78 Al: 0.21
McCurdy Circuits	02301-91	1	F006	3.2	9	V	01/23	Cu: 36.6	Pb: 0.11 Zn: 0.16 Sn: 3.20
MCN, Inc.	04164	1	[7]	20.4	9	V	01/03	Cu: 50.4	Pb: 0.51 Zn: 7.44 Ni: 0.23 Al: 0.52 Sn: 0.17
Mid-America Plating	00347-89	1	F006	1.3	9	V	01/29	Zn: 13.2	Ni: 0.19 Cr: 1.18
Mineral Research	00807-90	1	D005 D006 D008	19.9	9	M	01/11	Zn: 26.2	Pb: 0.58 Al: 1.13
Mirror Industries	00502-90	1	F006	1.4	9	G	01/22	Cr: 24.3	Pb: 3.40 Cu: 0.40 Sn: 0.11
Mobile Process Tech	02164-91	1	D007	2.8	9	V	01/24	Cr: 3.2	Pb: 0.20 Cu: 1.88 Zn: 0.39 Ni: 0.73 Cd: 0.40 Al: 0.94 Sn: 0.22
Moen, Inc.	04745	1	D006 D008	2.9	9	V	01/17	Cu: 35.6	Zn: 17.9
Modine Mfg.	02406-91	1	[7]	5.5	9	R	01/08	Zn: 35.3	Pb: 6.73 Sn: 3.33
Moly Corp	04866	6	D008	107.8	9	R	01/05 01/10 01/11	Pb: 21.4	Zn: 0.59 Al: 1.08
NASA/LBJ Space Center	00055-90	3	D007 D011	68.7	1		01/10 01/24 02/22	Cu: 0.0 Cr: 0.0	Ag: 61.2 oz.
NASA/LBJ Space Center	00314-89	2	D007 D008	19.0	1		01/25 02/22	Cr: 0.22	

Table IV - 3 (continued)

Generator	CC#	Number of Loads	Waste Codes	Quantity (tons)	Process Destination [1]	PMP Location [2] (Bin)	Process Date	Principal Metals (% Average) [3]	Other Metals (%) [4]
Nashville Wire APACH	04016	1	F006	12.3	9	V	01/31	Cu: 15.5	Zn: 0.16 Ni: 4.53
Network Circuits	00457-90	1	F006 D008	1.4	9	V	01/29	Cu: 24.7	Pb: 0.24 Zn: 0.14 Al: 5.90 Sn: 1.16
Newton Enterprises	04252	1	F006	0.3	9	V	01/30	Cu: 34.3	Pb: 0.31 Zn: 0.10 Sn: 0.57
Noble Industries	03105-92	1	F006	6.0	9	R	01/29	Zn: 13.5	Cu: 0.13 Ni: 1.45 Cr: 2.91 Cd: 1.29 Al: 0.10
Olin Brass	01831-90	1	K046 F006	19.7	9	R	01/30	Pb: 20.8	Cu: 6.02 Zn: 0.22 Cr: 0.03 Al: 4.88 Si: 0.03 Sn: 0.03
Omni Circuits	03901	1	F006 D003	4.3	9	V	01/29	Cu: 21.2	Pb: 0.58 Zn: 0.11 Ni: 0.25 Al: 0.14 Sn: 0.48
Plateronics	04410	1	F006	1.5	9	V	01/26	Ni: 3.0	Cu: 0.87 Zn: 1.78 Cr: 0.78 Cd: 0.17 Al: 6.01 Sn: 0.62
Plato Products	02318-90	1	F006	0.4	9	V	01/16	Cu: 1.0	Pb: 0.51 Zn: 0.28 Ni: 0.83 Cr. 0.13
Power Circuits	03076-92	1	F006	14.1	2		01/15	Cu: 9.5	Pb: 0.03 Zn: 0.60 Ni: 0.83 Cr: 2.12 Al: 4.43 Sn: 2.44
Precis Metals	01739-90	1	F006 D007	4	9	M	01/22	Zn: 48.5	Cr: 1.71 Al: 2.51
Precis Metals	01739-90	1	F006 D007	2.2	9	R	02/05	Zn: 13.8	Cr: 0.43 Al: 1.05
Precise Hard Chrome	03543	1	D007	4.9	1		01/11	Cr: 1.8	Cu: 0.03 Ag: 0.196 oz. Au: 0.256 oz.
Quality Processing	00718-90	1	F006	13.3	9	R	01/24	Zn: 1.2	Al: 5.19
Rayovac Corp.	04052	1	D002	7.0	9	M	01/16	Zn: 76.0	Pb: 0.02
Reliable Machine	03095-92	1	D007 D008	0.3	1		01/24	Pb: 1.5	Cr: 0.63
Rogers Corp.	02760-91	1	F006	0.2	9	V	01/24	Cu: 7.8	Pb: 0.94 Al: 3.77 Sn: 1.75

PRIVILEGED - ATTORNEY WORK PRODUCT

Table IV - 3 (continued)

Generator	CC#	Number of Loads	Waste Codes	Quantity (tons)	Process Destination [1]	PMP Location [2] (Bin)	Process Date	Principal Metals (% Average) [3]	Other Metals (%) [4]
S&S Plating	00785-90	1	F006	4.5	9	R	01/22	Zn: 3.8	Cu: 0.27 Ni: 1.13 Cr: 0.25 Cd: 0.64 Al: 9.23 Sn: 0.12
Schumacher	04839	1	F006 D002	4.6	9	G	01/17	Cr: 21.3	Pb: 1.00 Cu: 0.91 Ni: 2.07
Sheldahl, Inc.	00478-90	1	F006 D008	7.5	9	III (Sn)	01/05	Pb: 21.6	Cu: 7.14 Sn: 29.62
Sky-Tracker	02615-91	1	F006	0.4	9	E	01/29	Ni: 14.9	
Southern Jewelry Mfg.	03096-92	1	D007	15.6	2		01/26	Cu: 18.6	Pb: 0.43 Zn: 0.77 Ni: 2.12 Cr: 1.92 Al: 0.49 Sn: 2.09
Sprig Circuits	04031	1	F006	1.5	9	V	01/16	Cu: 10.6	Pb: 1.13 Zn: 0.08 Ni: 0.01 Al: 6.80 Sn: 2.65
Sumco, Inc.	03774	1	F006	16.1	9	III (Sn)	01/05	Cu: 10.7	Pb: 0.03 Zn: 0.15 Ni: 3.20 Al: 0.01 Sn: 31.16 Au: 0.075 oz.
Sun Glo Plating	01396-90	1	F006	10.8	9	M	01/09	Zn: 18.3	Pb: 0.12 Cu: 0.44 Ni: 6.09 Cr: 2.15 Cd: 0.13 Al: 0.81 Sn: 0.45
Syndicate Store Fixt	02915-91	1	F006	2.1	9	E	01/17	Ni: 14.4	Pb: 0.46 Cu: 0.26 Zn: 0.10 Cr: 1.90 Al: 0.61
TCFO	04925	2	[7]	5.9	1		02/28	Ni: 3.6	
Texas Instruments	00297-89	1	F006	17.0	2		01/31	Cu: 24.5	Pb: 0.26 Zn: 0.21 Ni: 0.05 Cr: 0.01 Al: 0.24 Si: 0.11 Sn: 0.24
Texas Instruments	00744-90	1	D002	0.3	1		02/28	Ni: 0.13	
Texas Instruments	01204-90	1	D008	0.6	1		02/28	Cu: 1.4	
The Calvert Co.	02343-91	2	D011 D002	2.9	1		01/18 01/24	Cu: 0.16	Ni: 0.04 Al: 0.01 Sn: 0.03 Ag: 1.25 oz.
The Ensign Bickford	03452	1	NHW	0.4	9	R	01/09	None	
The Torrington Co.	01100-90	1	F006	14.7	9	V	01/29	Cu: 16.1	Al: 3.70 Si: 0..09

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Table IV - 3 (continued)

Generator	CC#	Number of Loads	Waste Codes	Quantity (tons)	Process Destination [1]	PMP Location [2] (Bin)	Process Date	Principal Metals (% Average) [3]	Other Metals (%) [4]
The W.E. Bassett Co.	02608-91	1	D002 D007	1.2	1		02/06	Ni: 1.5	Cu: 0.18
Tri-Electronics	02049-91	1	F006	1.9	9	V	01/24	Cu: 13.7	Pb: 0.56 Al: 6.02 Sn: 2.44
Tri-Mark Corp	01181-90	1	F006	0.6	9	E	01/05	Cr: 14.2	Pb: 0.57 Cu: 2.67 Zn: 3.76 Al: 0.27 Si: 0.24 Sn: 0.02
Tri-Mark Corp	01181-90	1	F006	0.7	9	E	01/29	Ni: 21.8	Pb: 0.39 Cu: 2.91 Zn: 2.03 Al: 2.02
Tri-Star Engineered	04043	1	F006	0.7	9	V	01/23	Cu: 6.2	Pb: 0.83 Al: 0.96 Sn: 1.59
Type III, Inc.	04490	1	F006	0.8	9	E	03/04	Ni: 28.1	
United Building	04767	1	NHW	1.6	9	XI	01/17	Zn: 0.2	Cu: 0.09
Virco Mfg.	01670-90	2	F006	11.1 17.7	9	II	1/23 01/29	Ni: 10.8	Pb: 0.34 Cu: 0.08 Zn: 0.11 Cr: 5.25 Cd: 0.01 Al: 0.28 Si: 0.05 Sn: 0.01
Virsan S.A. De C.V.	00999-90	2	F006	36.8	9	V	01/15 01/29	Ni: 14.9	Pb: 0.07 Cu: 0.10 Zn: 0.06 Cr: 2.64 Al: 0.01 Si: 0.48 Sn: 0.01
Warner Robins AFB	04516	1	F006 F019 D007	15.8	9	IV	01/02	Cr: 0.7	Pb: 0.04 Zn: 0.16 Ni: 0.01 Al: 0.49 Ba: 0.41
Winonics (Brea)	04543	1	F006	4.8	9	V	01/22	Cu: 24.8	Pb: 3.57 Zn: 0.12 Ni: 1.52 Al: 2.36 Sn: 3.71
Winonics, Inc.	03601	1	F006	8.6	9	V	01/22	Cu: 14.3	Pb: 0.20 Zn: 0.04 Ni: 0.14 Al: 1.45 Sn: 4.71

1 *Facility No. 1 or 2 for hydrometallurgical processing. Facility No. 9 means material was PMPed (blended).*
2 *PMP location is bin designation in alphabet storage building or numbered storage building (Roman Numerals).*
3 *Principal metal is designated for process circuit or bin for blending. Average is for more than one load received.*
4 *Other metals contained in material, but not the principal metal. Value not indicated if less than 0.01%.*
5 *Agmet wastes are managed separately under tolling agreement.*
6 *NHW: Nonhazardous waste*
7 *Waste code information not in documents received by EPA.*

TABLE IV - 4
SUMMARY OF TABLE IV - 3
WASTE RECEIVED
JANUARY 1996
ENCYCLE/TEXAS, INC.

	NHW[1] CODE	UNSPECIFIED[2] CODES	ALL HW CODES	FOO6 CODE	TOTAL
Wastes Received					
Number Of Streams	8	3	112	87	123
Number Of Loads	42	4	153	104	199
Tons Received[3]	300	32	1133	682	1464
Fac #1 or #2 Process					
Number Of Loads	36	2	42	12	80
Tons Processed[3]	272	6	321	103	599
PMPed In Bins					
Number Of Loads	6	2	111	98	119
Tons[3]	28	26	812	579	866
% Of Waste PMPed	9	81	72	85	60

1: NHW = Nonhazardous waste
2: Waste code information for three generators not in documents received by EPA.
MCN: CC# 04164 MODINE MFG: CC# 02406-91 TCFO: CC# O4925
Waste not assumed to be non hazardous or hazardous
3: Numbers rounded up

and complexed cyanide constituents. Sixty percent of the waste received in January, 1996 was PMPed, which correlates to the percentages estimated by Mr. Likarish.

The wastes which were PMPed were blended in the alphabet storage building bins E, G, M, and R, and in the numbered storage building bins II, III (Sn), IV, V and XI. Tables IV - 5 through IV - 13 summarize the principal metals blended for each load and bin, by date, and when available, the time of day. Based on the documents submitted to EPA, it was not possible to determine if or when E/TI's "product" was removed prior to blending a waste load with a different principal metal constituent present.

PMPed Wastes-Alphabet Storage Building

Bin E [Principal: Nickel] [Table IV - 5] Copper, chromium, and nickel were the principal metals blended. On January 5, 1996 both nickel and chromium were PMPed, however the time of day was not recorded on the MMTs for the two loads. Approximately 5 tons of F006 + D007 waste containing 18% nickel, from East Side Plating was PMPed and 0.6 tons of F006 waste, containing 12.5% chromium, from Tri-Mark Corp. were placed in bin E. According to the MMTs, the Tri-Mark Corp. waste did not contain significant concentrations of nickel. The East Side Plating waste contained 2.18% chromium. After January 5, the principal metal blended was nickel. On January 3, two loads, 38.4 tons, of F006 wastes containing about 19% copper was placed in bin E. The Nickel concentration was 11.4% and the chromium 6.42%.

Bin G [Principal Metal: Chromium] [Table IV - 6] Four loads from 4 generators, with concentrations of chromium ranging from 13.9% to 24.3%, were placed in the bin between January 16-22. If the wastes were blended, the chromium weighted average concentration would have been 19.8%. Blending would significantly reduce the concentrations of other metals present in the waste streams. The lead in The Schumacher

(1%) and Mirror Industries (3.4%) would have been diluted to 0.7% while the 2.77% cadmium concentration in the Lincoln Plating waste would have been about 0.9% in the mixture.

The "product" from the batch chromium circuit in Facility No. 1 is placed in bin G. The chromium concentrate "product" is exported to Dalian, China.

It would appear that the waste load from Tri-Mark Corp., containing 14.2% chromium and little or no nickel should have been blended in bin G instead of bin E.

Bin M [Principal Metal: Zinc] Table IV - 7] Sixteen loads of hazardous waste and one load of nonhazardous waste were PMPed from January 3 through January 29. The principal metal was zinc for 16 loads, ranging in concentration from 18.3% to 76%. One load from Briggs and Stratton identified the principal metal as nickel. The waste contained 21% nickel and 21% zinc. Two waste streams from East Side Plating and one each from Sun Glo Plating and Crown Plating had nickel concentrations between 2% and 7%; the remaining waste streams contained less than 1% nickel.

Bin R [Principal Metals: Lead and Zinc] [Table IV - 8] Sixteen waste streams were PMPed from January 5 through February 5, 1996. Eight waste streams had the principal metal of zinc, seven had lead, and one nonhazardous waste stream (The Ensign Bickford) had no principal metal recorded. The analytical data for The Ensign Bickford waste stream did not show a concentration for any constituent. The load, about 800 pounds, did not have any flux agent listed in the analytical data. The waste does not appear to have any value to the PMPed wastes.

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Table IV - 5

MATERIAL PMPED
BIN E
JANUARY - MARCH 1996
Encycle/Texas, Inc.

Generator	Process Date	Waste Code	Quantity (tons)	Principal Metal (%)	Time [1]
Gene's Plating	1-3	F006	18.8	Cu:12.5	NN
Gene's Plating	1-3	F006	19.6	Cu:12.5	NN
East Side (02733)	1-5	F006 D006	4.8	Ni:18.0	NN
TRI-MARK	1-5	F006	0.6	Cr:14.2	NN
MAHLE	1-16	F006	8.3	Ni:17.9	03:00p
Syndicate Store	1-17	F006	2.1	Ni:14.4	03:30
Crown Plating (02878)	1-24	F006	1.0	Ni:38.0	03:45p
DYNATEX	1-24	F006	0.8	Ni:21.8	06:00
TRI-MARK	1-29	F006	0.7	Ni:18.0	06:00
MAHLE	2-5	F006	8.4	Ni:18.0	06:00
TYPE III	3-4	F006	0.8	Ni:28.1	11:00a

1 *When a.m./p.m. not noted, not specified on E/TI's Material Movement Ticket.*
NN: Not noted on MMT

Table IV - 6

MATERIAL PMPED
BIN G
JANUARY - FEBRUARY 1996
Encycle/Texas, Inc.

Generator	Process Date	Waste Code	Quantity (tons)	Principal Metal (%)	Time [1]
Lincoln Plating	1-16	F006 D007	4.7	Cr:22.5	03:00
Dixie Electro	1-17	F006 D007	4.4	Cr:13.9	03:30
Schumacher	1-17	F006 DOO2	4.6	Cr:21.3	02:00
Mirror Ind	1-22	F006	1.4	Cr:24.3	03:00p

1 *When a.m./p.m. not noted, not specified on E/TI's Material Movement Ticket.*

Table IV - 7

MATERIAL PMPED
BIN M
JANUARY 1996
Encycle/Texas, Inc.

Generator	Process Date	Waste Code	Quantity (tons)	Principal Metal (%)	Time [1]
Automation Plating	1-3	F006	14.2	Zn: 27.8	NN
Appleton Electric	1-5	F006	19.7	Zn: 18.9	NN
Sunglo Plating	1-9	F006	10.8	Zn: 18.3	06:00a
Crown Plating	1-11	D007 F006	1.2	Zn: 28.9	02:00p
Mineral Research	1-11	D005 D006 D008	19.9	Zn: 26.2	02:00p
RAYOVAC	1-16	D002	7.0	Zn: 76.0	06:00a
East Side (01866)	1-17	F006 D006 D007	14.9	Zn: 23.5	06:00a
East Side (01865)	1-18	F006 D006 D007	9.4	Zn: 19.4	06:30p
Amana (01186)	1-19	NHW[2]	1.7	Zn: 27.5	03:00p
Briggs & Stratton	1-22	F006 D007	11.9	Nc: 21.1	NN
Precis Metals	1-22	F006 D007	4.0	Zn: 48.5	03:30p
Automation Plating	1-25	F006	15.8	Zn: 27.8	NN
East Side (01866)	1-26	F006 D006 D007	3.0	Zn: 23.7	NN
Consolidated Metal	1-29	F006	1.9	Zn: 20.3	09:00a
Crest Products	1-29	F006	9.1	Zn: 44.5	06:00p
Denver Metal	1-29	F006	4.1	Zn: 21.9	06:00
East Side (01865)	1-29	F006 D006 D007	2.7	Zn: 25.4	06:00a

1 *When a.m./p.m. not noted, not specified on E/TI's Material Movement Ticket.*
NN: Not noted on MMT
2 *NHW: Nonhazardous waste*

Table IV - 8

MATERIAL PMPED
BIN R
JANUARY - FEBRUARY 1996
Encycle/Texas, Inc.

Generator	Process Date	Waste Code	Quantity (tons)	Principal Metal (%)	Time [1]
MOLY CORP	1-5	D008	18.1	Pb: 24.1	NN
MOLY CORP	1-5	D008	16.4	Pb: 23.4	NN
MODINE	1-8	2	5.5	Zn: 35.3	NN
The Ensign	1-9	NHW [3]	0.4	None	NN
MOLY CORP	1-10	D008	17.4	Pb: 24.1	NN
COZINCO	1-11	D008	22.0	Zn: 15.3	09:00a
MOLY CORP	1-11	D008	18.5	Pb: 15.6	NN
MOLY CORP	1-11	D008	18.8	Pb: 21.4	NN
MOLY CORP	1-11	D008	18.8	Pb: 20.0	NN
AMANA (01185)	1-19	NHW	19.9	Zn: 8.2	03:00p
S&S Plating	1-22	F006	4.5	Zn: 3.8	02:00p
Quality Processing	1-24	F006	13.3	Zn: 1.2	03:45p
COZINCO	1-25	D008	22.0	Zn: 15.3	11:00a
NOBEL	1-29	F006	6.0	Zn: 13.5	06:00
Olin Brass	1-30	K046 F006	19.7	Pb: 20.8	NN
Precis Metals (01739)	2-5	F006 D007	2.2	Zn: 13.8	06:00a

1 *When a.m./p.m. not noted, not specified on E/TI's Material Movement Ticket.*
NN: Not noted on MMT

2 *Waste code information not in documents received by EPA*

3 *NHW: Nonhazardous waste*

Table IV - 9

MATERIAL PMPED
BIN II
JANUARY 1996
Encycle/Texas, Inc.

Generator	Process Date	Waste Code	Quantity (tons)	Principal Metal (%)	Time [1]
Faith Plating	1-18	D002	2.9	Ni:11.1	09:00a
VIRCO MFG	1-23	F006	6.6	Ni:9.2	01:00p
VIRCO MFG	1-29	F006	11.1	Ni.12.4	06:00

1 When a.m./p.m. not noted, not specified on E/TI's Material Movement Ticket.

Table IV - 10

MATERIAL PMPED
BIN III (Sn)
JANUARY 1996
Encycle/Texas, Inc.

Generator	Process Date	Waste Code	Quantity (tons)	Principal Metal (%)	Time [1]
Sheldahl	1-5	F006 D008	7.5	Pb: 21.6	02:00p
SUMCO	1-5	F006	16.1	Cu: 10.7	NN

1 NN: Not noted on MMT

Table IV - 11

MATERIAL PMPED
BIN IV
JANUARY 1996
Encycle/Texas, Inc.

Generator	Process Date	Waste Code	Quantity (tons)	Principal Metal (%)	Time [1]
WARNER ROBBINS AFB	1-02	F006 F019 DOO7	15.8	Cr: 0.7	NN

1 *NN: Not noted on Material Movement Ticket*

PRIVILEGED - ATTORNEY WORK PRODUCT

Table IV - 12

MATERIAL PMPED
BIN V
JANUARY - FEBRUARY 1996
Encycle/Texas, Inc.

Generator	Process Date	Waste Code	Quantity (tons)	Principal Metal (%)	Time [1]
EEEA	01/03	NHW [2]	0.6	Cu: 3.9	NN [3]
MCN	01/03	[4]	20.4	Cu: 50.4	NN
H&L Electronics	01/05	F006	0.9	Cu: 21.7	NN
Advanced Quick	01/08	F006	18.4	Cu: 14.0	02:00p
Continental Brass	01/11	F006	3.2	Zn: 6.5	01:30p
Hutchinson Tech	01/11	D007 D008	15.3	Cr: 2.2	10:00a
Laidlaw Environmental (03877) [5]	01/11	F006	3.3	Cu: 20.8	02:00p
Laidlaw Environmental (03936)	01/11	D008	3.4	Cu: 3.7	02:30p
Kwikset	01/12	F006	1.9	Cr: 12.6	04:00p
Circle Circuits	01/15	F006 D008	1.3	Cu: 7.7	01:00p
E-FAB	01/15	F006	0.9	Cu: 4.3	01:00p
Kwikset	01/15	F006	2.9	Cr: 11.8	01:00p
Virsan S.A.	01/15	F006	16.7	Ni: 14.9	NN
Cedko	01/16	F006	3.6	Cu: 22.2	03:00p
Eagle Electronics	01/16	F006	8.1	Cu: 11.4	01:00p
Kwikset	01/16	F006	2.9	Cr: 11.8	09:00a
Plato	01/16	F006	0.4	Cu: 1.0	03:00p
Sprig Circuits	01/16	F006	1.5	Cu: 10.6	03:00p
American Nickeloid (04243)	01/17	F006	2.0	Cu: 40.9	03:30p
D.S. Mfg.	01/17	F006	8.3	Cr: 4.5	03:30p
Furnas Electric	01/17	D007	0.5	Zn: 7.7	03:30p
Moen	01/17	D006 D008	2.9	Cu: 35.6	NN

PRIVILEGED - ATTORNEY WORK PRODUCT

Table _ (continued)

IV-12

Generator	Process Date	Waste Code	Quantity (tons)	Principal Metal (%)	Time [1]
American Nickeloid (04242)	01/18	NHW	3.9	Cu: 15.2	NN
American Nickeloid (04244)	01/18	F019	0.6	Cr: 11.5	09:00a
Martex	01/18	F006	3.9	Cu: 15.2	NN
Alltrista	01/19	F006	20.9	Cu: 39.2	02:00p
Fischer	01/19	F006 F019	5.2	Zn: 0.5	02:00p
Chem Lab	01/22	F006	0.7	Pb: 6.4	03:30p
Kwikset	01/22	F006	2.9	Cr: 11.8	09:00a
Winonics (Brea)	01/22	F006	4.8	Cu:24.8	09:00a
Winonics, Inc.	01/22	F006	8.6	Cu: 14.3	09:00a
KCA Elect	01/23	F006	1.3	Cu: 67.2	01:00p
Kwikset	01/23	F006	2.9	Cu: 11.8	01:00p
McCurdy	01/23	F006	3.2	Cu: 36.6	01:30p
Tri-Star	01/23	F006	0.7	Cu: 6.2	01:00p
General Tech	01/24	F006	0.8	Cu: 7.8	03:45p
Kwikset	01/24	F006	2.9	Cr: 11.8	03:45p
Master Lock (04032)	01/24	F006	22.9	Zn: 3.4	03:45p
Master Lock (03560)	01/24	D008	22.9	Zn: 3.4	03:45p
Mobile Proc	01/24	D007	2.8	Cr: 3.2	NN
Rogers	01/24	F006	0.2	Cu: 7.8	03:45p
Tri-Elect	01/24	F006	1.9	Cu: 13.7	03:45p
Kwikset	01/25	F006	1.0	Cr: 11.8	09:00a
Plateronics	01/26	F006 D003	4.3	Cu: 21.2	03:45p
Advanced Quick	01/29	F006	13.4	Cu: 11.8	06:00p
Compuroute	01/29	D008	2.8	Cu: 15.8	09:00a
H-R Industries (01110)	01/29	F006	7.4	Cu: 16.0	09:00a
Intergraph	01/29	F006	12.3	Cu: 15.8	06:00p

PRIVILEGED - ATTORNEY WORK PRODUCT

Table _ (continued)

IV-12

Generator	Process Date	Waste Code	Quantity (tons)	Principal Metal (%)	Time [1]
Ito Industries	01/29	F006	3.4	Cu: 12.5	06:00p
Kwikset (00547)	01/29	F006	2.8	Zn: 16.9	09:00a
Mid-America	01/29	F006	1.3	Zn: 13.2	06:00p
Network	01/29	F006 D008	1.4	Cu: 24.7	09:00a
Omni	01/29	F006 D003	4.3	Cu: 21.2	09:00a
The Torrington	01/29	F006	14.7	Cu: 16.1	NN
Virsan S.A.	01/29	F006	20.2	Ni: 14.9	NN
Jackson	0130	F006	2.1	Zn: 6.4	03:00p
Newton	01/30	F006	0.3	Cu: 34.3	07:30a
Circuit Concepts	01/31	FOO6	1.3	Cu: 25.8	07:00a
Nashville	01/31	F006	12.3	Cu: 15.5	08:00a
Alltrista	02/02	F006	21.5	Cu: 39.4	03:45p
Marlow	02/13	F006	0.9	Zn: 1.6	03:00p

1 When a.m./p.m. not noted, not specified on E/TI's Material Movement Ticket.
2 NHW = Nonhazardous Waste
3 NN = Not Noted on MMT
4 Waste code information not in document received by EPA
5 CC Number

Table IV - 13

MATERIAL PMPED
BIN XI
JANUARY - FEBRUARY 1996
Encycle/Texas, Inc.

Generator	Process Date	Waste Code	Quantity (tons)	Principal Metal (%)	Time
Associated Plating	1-16	D002	3.7	Cu: 11.9	03:00p
United Building	1-17	NHW[1]	1.6	Zn: 0.2	03:30p

1 NHW: Nonhazardous waste

Six loads of Moly Corp. waste, coded D008 for lead, was PMPed in the bin, but contained about 0.6% zinc. Since the waste is a characteristic hazardous waste, it is not the same waste stream Moly Corp. sends to E/TI as lead sulfide (glass that is "sized" and shipped). According to John Likarish, the glass waste is not a hazardous waste.

The zinc bearing wastes, with the exception of the Cozinco and Modine Mfg. waste streams contain little if no lead. Cozinco and Modine Mfg. Lead concentrations were 15% and 6.7% respectively. The two lead bearing waste streams, Moly Corp. and Olin Brass had 0.5% or less of zinc.

PMPed Wastes - Numbered Storage Building

Bin II [Principal Metal: Nickel] [Table IV -9] Two waste streams containing nickel were PMPed; the Faith Plating waste stream, a corrosive waste, contained 9.9% copper and the Virco Mfg. waste stream contained 5% chromium. The nickel concentrations in the waste streams were about 5% less than those PMPed in bin E.

This bin receives "product" from the nickel circuit in Facility No. 1, and is identified as Nickel-B.

Bin III (Sn) [Principal Metals: Lead and Copper] [Table IV - 10] This bin was described as the tin process circuit by blending tin bearing wastes. Two waste streams were PMPed on January 5, both had high concentrations of tin, lead, and copper. The MMT forms listed principal metals as copper (Sumco) and lead (Sheldahl), but the tin concentrations were much greater. Sumco's and Sheldahl's waste stream tin concentrations were approximately 31% and 30% respectively.

Bin IV [Principal Metal: Chromium] [Table IV - 11]. One load from Warner Robins AFB was placed in the bin on January 2. The aluminum, chromium, lead, nickel and zinc concentrations were all less than 1%. This is a low metal value waste stream, but carries three hazardous waste codes.

Bin V [Principal Metals: Copper, Zinc, Chromium, Nickel] Table IV - 12]. This bin receives wastes with a large variation in concentrations of metal values. Sixty-one waste loads, including two nonhazardous waste loads, were placed in the bin between January 3 and February 13, 1996. Copper "product" from Facility No. 1 batch process is also placed in bin V. The material in the bin was PMPed with zinc, chromium, and copper bearing waste streams on January 11; copper, chromium and nickel on January 15; copper, chromium and zinc on January 17 and 24; copper, lead, and chromium on January 22; and copper, zinc and nickel on January 29. According to Bill Tiddy, the copper concentrate "product" is shipped to Asarco's El Paso, TX. Copper smelter.

Four generators had chromium identified as the principal metal; the chromium and copper concentration in the waste streams were:

Generator	Chromium (%)	Copper %
American Nickeloid Co.	11.5	0.45
D.S. Mfg.	4.5	none
Hutchinson Tech	2.2	1.25
Kwikset	11.8	1.84

The waste streams had minor concentration of other constituents. Kwikset's zinc concentration was 10%. None of the waste streams had significant copper concentrations.

The Virsan S.A. De C.V. waste stream contained 15% nickel, 0.10% copper, and 2% chromium. The waste stream nickel concentration and other constituents were similar to the nickel waste streams PMPed in bin II.

Eight generators had zinc identified as the principal metal in their waste streams; the zinc and copper concentration in the waste streams were:

Generator	Zinc (%)	Copper (%)
Continental Brass	6.5	4.9
Fischer Controls	0.5	None Reported
Furnas Electric	7.7	1.4
Jackson Plating	6.4	1.2
Kwikset	16.9	1.6
Marlow Industries	1.6	0.9
Master Lock Co.	3.4	3.1
Mid-America Plating	13.2	None Reported

The Kwikset waste stream had 11% chromium and Mid-America Plating 1.1% chromium. The Fischer Controls had no metals of significant concentrations reported on the MMTs.

Bin V appears to be used to PMP waste streams with low or no copper values with waste streams with high copper concentrations. Chromium, which is not recovered by copper smelting as a metal, is PMPed in the bin. Chromium is exported to China; if "product" shipments are not scheduled from bin G, bin V appears to receive the waste stream.

Bin XI [Principal Metals: Copper and Zinc] [Table IV - 13]. One hazardous waste load (Associated Plating) and one nonhazardous waste load (United Building) were PMPed January 16 and 17. Neither material had high metal values. The tin concentration (2.3%) in the Associated Plating waste stream was greater than the copper concentration (1.6%).

"PRODUCT" SHIPMENTS

Mr. Likarish stated that the E/TI "products" are sold to smelters and exported to Canada and China. The smelters purchase both high grade and low grade material. E/TI competes in the open market to sell their "product". Contract for E/TI's "products" are based on the constituents in the material; the contracts specify percent concentration ranges for the constituents.

There are three components which affect the sale of the "product":

1) Traffic component:	Costs include transportation, insurance, and other associated charges.
2) Metal Value:	The concentrate is sold on the metal content in the "product". The London Metal Exchange prices are used to determine the price.
3) Smelting or Treatment fee:	Smelters charge for smelting and refining the metal; charge for treatment of the materials prior to smelting, such as sintering, penalize for deleterious components which affect smelting, such as antimony tin, moisture and chlorides which require additional processing, and adjust the price based on regional availability of material.

Mr. Likarish stated that E/Ti tries to build a "product" for smelters that not only has the metal constituents, but also slagging qualities. Slagging components include silica, zinc, iron, lime, alumina, and manganese. Smelters look for the following slag percentages:

Silica:	22%
Lime:	22%
Iron:	24%
Zinc:	17%
Others:	alumina, manganese, magnesium, [percentages not provided]

The smelters may purchase a concentrate containing slagging components in addition to the target metals. The slag constituents are the same for copper and lead smelting, but the percentages are different.

Copper and lead smelters require arsenic in the material to separate the metals after smelting in the blast furnace. Arsenic is carried along with the copper and is needed to separate the metals in the reverbatory furnaces.

Mr. Likarish stated that E/TI's major "products" are copper concentrates, lead concentrates, nickel concentrates, and zinc concentrates. Concentrates containing high levels of lead and copper can be smelted either at copper or lead smelters. The copper and lead are separated in the processes, and the copper matte from a lead smelter will be sent to a copper smelter for processing. Similarly, lead matte from a copper smelter is sent to a lead smelter. Lead concentrations greater than 45% are processed in a high scale lead smelter, such as Asarco's Glover, MO. Smelter.

PRIVILEGED: ATTORNEY WORK PRODUCT

The following customers were identified by Mr. Likarish for the "product" concentrates:

CONCENTRATE	CUSTOMER
Copper	Asarco: El Paso, TX
Lead	Asarco: East Helena, MT
Nickel	Falcon Bridge: Sudbury, Canada
Zinc	Zinc Corporation of America (ZCA): Monaco, PA
	Big River Zinc: Sauget, IL
Chromium	Exported to Dalian, China
Iron	Asarco: East Helena, MT
Silica	Asarco: East Helena, MT
Cadmium	Big River Zinc: Sauget, IL
	Exported to Dalian, China
Cadmium Zinc Mixture	Exported to Dalian, China
Nickel Ash (Ni-A)	Agmet Metals, Inc.: Bedford, OH (Toll)
Nickel Chromium Mixture	Falcon Bridge: Sudbury, Canada
	Agmet Metals, Inc.: Bedford, OH
	Cominco: Canada
Cobalt	Falcon Bridge: Sudbury, Canada
Cobalt Nickel Mixture	Falcon Bridge: Sudbury, Canada
Cobalt Manganese Mixture	Agmet Metals, Inc.: Bedford, OH
Liquid Bromide	Great Lakes Chemical: El Dorado, AK
Tin	Cometco: Hartford, IL
Glass (CRTs)	Asarco: East Helena, MT
Sand from on-site construction	Asarco: East Helena, MT
	Noranda: Canada
Gold and Silver in concentrate	Asarco: East Helena, MT

Mr. Likarish stated that E/TI ships on a monthly basis for the following concentrates. The remainder of the material is shipped quarterly, usually in truck load quantities, normally in supersacks.

CONCENTRATE	CUSTOMER	AMOUNT (Tons/Month)
Copper	Asarco, El Paso	350
Lead	Asarco, East Helena	350
Nickel and Nickel-Chromium Mixture	Falcon Bridge, Canada	150 to 200 (total)
Cobalt-Manganese Mixture	Agmet, Bedford	40

Most of the material shipped contains 35% to 40% moisture. If the moisture content is too low, the material starts "to dust"; too much moisture incurs a higher transportation charge.

Bulk shipments to smelters are in railroad gondola cars. A gondola car's capacity is approximately 100 tons. The gondola cars are loaded with a front-end loader, or by the conveyor from Facility No. 2. Roll-off containers (20-ton capacity) and trucks are also loaded with "product" by the conveyor.

All outbound loads are sampled and analyzed for metal values, The sampling is of railcars and roll-off containers done with a grid pattern (discussed previously); samples are retained for one year.

PRIVILEGED: ATTORNEY WORK PRODUCT

The E/TI "products" lead sulfide concentrate, iron concentrate, silica sand, and crushed Cathode Ray Tubes (CRTs) are shipped to the Asarco, East Helena, MT smelter. The shipments from January 1995 to March 1996 are summarized in Table IV - 14; the baghouse dust processed in Facility No. 3 and the Glover Matte processed in Facility No. 4 are not included in Table IV - 14. Silica sand from the plant grounds and the crushed CRTs were shipped to the Asarco East Helena smelter as flux agents. The sand was described as "Red/Tan" on the BOLs.

Various mixtures of cadmium are exported to Dalian, China. Market Access International, Inc., Aurora, CO, brokers the shipments. The documents provided by E/TI do not indicate the company(s) in China which receive the mixtures. The Cadmium Sponge is E/TI's "product" from Facility No. 3. The Cadmium Sponge is also shipped to Big River Zinc, but there were no Bills of Lading (BOL)s in the documents for January 1995 to March 1996. The export of the cadmium "products" are summarized in Table IV - 15. The copper, zinc, and tin concentrates shipped between January 1995-March 1996 to Asarco: El Paso, TX, Zinc Corporation of America: Monaca, PA, and Chemetco: Hartford, IL are summarized in Table IV - 16. The copper and the zinc concentrates also contain lead sulfide. The tin "product", which is a PMP material from the numbered storage building bin III, was shipped to Cometco as two mixtures. The tin concentrate shipped in July 1995 contained copper according to the BOL. The copper was not listed on the BOL for the other shipments.

In addition to the Nickel-Ash (Ni-A) material shipped to Agmet Metals, Inc. In Bedford, OH, on a tolling contract, Nickel-B (Ni-B) concentrates from Facility No. 1 batch processes and PMPed material were shipped (Table IV - 17). The BOLs did not include shipments to Falcon Bridge, Sudbury, Canada, from January 1995 through March 1996. The shipped materials contained cyanide and lead sulfide.

PRIVILEGED: ATTORNEY WORK PRODUCT

TABLE IV - 14

MATERIAL SHIPMENTS [TONS]
ASARCO, EAST HELENA, MT.
JANUARY 1995 - MARCH 1996
ENCYCLE, TEXAS, INC.

MONTH	LEAD SULFIDE CONCENTRATE	IRON CONCENTRATE[1]	SILICA SAND [Red/Tan]	CRTs [Crushed]
JAN 1995	393			
FEB 1995				
MAR 1995				
APR 1995	369		95	
MAY 1995	663		275	
JUN 1995	747		442	
JUL 1995	540		376	53
AUG 1995	1,361	303	327	
SEP 1995	750		98	113
OCT 1995	1,018			
NOV 1995	361			
DEC 1995	933	85		
JAN 1996	819[2]			
FEB 1996	1,262[3]			
MAR 1996	283[4]			

1: Fe (iron) contains recoverable lead
2: Includes 633 tons from Bin R and 186 tons from Bin VI
3: Includes 613 tons from Bin R and 649 tons from Bin VI
4: 283 tons from Bin VI

PRIVILEGED: ATTORNEY WORK PRODUCT

TABLE IV - 15

MATERIAL SHIPMENTS [TONS]
DALIAN, CHINA[1]
JANUARY 1995 - MARCH 1996
ENCYCLE, TEXAS, INC.

MONTH	Cd SPONGE[2]	Cd CONCENTRATE	Cr-Cd-Pb MIXTURE [Bin G]	Zn/Cd CONCENTRATE
JAN 1995	61			
FEB 1995				
MAR 1995				
APR 1995	62			84
MAY 1995			18	
JUN 1995				
JUL 1995				
AUG 1995				
SEP 1995				
OCT 1995			121	
NOV 1995				
DEC 1995				
JAN 1996		94[3]		
FEB 1996		39		
MAR 1996				

1: Broker: Market Access International, Inc. Aurora, Colorado
2: Cadmium Sponge (Cd: 70% - 85%; Zn: 10% - 15%; Pb: less than 1%)
3: From Bin G (Alphabet Storage Building)

PRIVILEGED: ATTORNEY WORK PRODUCT

TABLE IV - 16

MATERIAL SHIPMENTS [TONS]
COPPER, ZINC AND TIN CONCENTRATES
JANUARY 1995- MARCH 1996
ENCYCLE, TEXAS, INC.

MONTH	COPPER[1] [Asarco: El Paso, TX]	ZINC[2] [ZCA[3]: Monaca, PA]	TIN [Chemetco: Hartford IL]
JAN 1995	1,037	57	
FEB 1995	729	126	
MAR 1995	443	171	
APR 1995	566	78	
MAY 1995	930		
JUN 1995	698		
JUL 1995	941	151	21[4]
AUG 1995	1225	270	
SEP 1995	678		45
OCT 1995	586		48
NOV 1995	410	396	67
DEC 1995	725	77	
JAN 1996	676		
FEB 1996	1,005	133	22
MAR 1996	66[5]		65

1: Copper concentrate with lead sulfide
2: Zinc concentrate with lead sulfide
3: Zinc Corporation Of America
4: Tin and copper mixture
5: One shipment as of March 14, 1996

PRIVILEGED: ATTORNEY WORK PRODUCT

TABLE IV - 17

MATERIAL SHIPMENTS [TONS]
AGMET METALS, INC. BEDFORD, OH
JANUARY 1995 - MARCH 1996
ENCYCLE/TEXAS, INC.

MONTH	NICKEL PRODUCT[1]	NICKEL PRODUCT[2]
JAN 1995	136	
FEB 1995	153	
MAR 1995		
APR 1995		
MAY 1995	164	
JUN 1995	127	
JUL 1995	123	62
AUG 1995		
SEP 1995		
OCT 1995		
NOV 1995		
DEC 1995		80
JAN 1996		252
FEB 1996		117
MAR 1996		89

1: Nickel product: Cyanide compounds and nickel hydroxide
2: Nickel product: Contains lead sulfide

According to Roger Norman, contaminated soil/sand from the plant grounds from the construction of Facility No. 4 contained lead, zinc, and cadmium in varying concentrations. The soil/sand were analyzed (TCLP) prior to shipment to determine if the materials exhibited the characteristics of hazardous waste for metals. The contaminated soil/sand was sent to Asarco, East Helena if the silica concentration was greater than 50%. If the silica content was less than 50% and exhibited hazardous characteristics D004-D011, the materials was manifested to the TECO (Texas Ecologist Company), Robbs Town, TX hazardous waste landfill for disposal. If the soil/sand was not hazardous, it was shipped to ECDC in Utah for disposal. Contaminated soil shipments to ECDC for 1995 through January 1996 are summarized in Table IV - 18.

According to Mr. Norman, the contaminated soils were shipped in roll-off containers. A roll-off container capacity if about 20 tons. The shipments were as follows:

DESTINATION	No. Of ROLL-OFF CONTAINERS	QUANTITY(tons)
Asarco, East Helena	50	1,000
ECDC (NHW)	40	800
TECO (HW)	54	1,080

ACID STORAGE TANKS

E/TI operates the "Acid Plant" or terminal for Asarco. There were 5 active sulfuric acid storage tanks on the west side of the property; the property is leased by E/TI. The tanks are within the security fence around the plant grounds, however access to the truck loading location is not fenced or controlled. The loading area is south of the acid tank farm and west of the E/TI access gate, coordinates F,3 (Figure I - 1).

PRIVILEGED: ATTORNEY WORK PRODUCT

TABLE IV - 18

CONTAMINATED SOIL SHIPMENTS
ECDC ENVIRONMENTAL L.C.
EAST CARBON CITY, UT.
NOVEMBER 1994 - JANUARY 1995
ENCYCLE/TEXAS, INC.

MONTH	QUANTITY [TONS]
NOVEMBER 1995	195
DECEMBER 1995	826
JANUARY 1996	1,215

E/TI receives 2,500 tons of sulfuric acid each month from 25 railcar tankers from Asarco facilities. Asarco customers pick up the acid in tanker trucks. The drivers contact E/TI personnel who load the tanker trucks at the loading area.

The loading area does not have secondary containment. Yellow stains on the loading pad were observed by EPA. Spills in the tank farm drain to the plant storm sewers and discharge into the two storm water lagoons. The sewers are constructed of concrete which are not acid resistant.

According to E/TI, the acid tank operation was to be moved to another location in Corpus Christi. No date was provided. E/TI personnel did not know Asarco's plans for the existing tank farm.

V

PROCESS DESCRIPTIONS

According to John Likarish, the Asarco zinc refinery went into an idle mode in 1985, and the operating areas were shutdown in an orderly manner. However, the operating equipment, vessels, tanks, etc., were not "moth balled." As a result, several inches of residue were left in tanks, cells, and other vessels; additionally, drums and other containers remained in the processing areas. When E/TI took over the facility, decisions were made on buildings, process units, and equipment to be used and to be abandoned. As a result, abandoned buildings, process units such as electrolytic cells, cooling towers, tanks, etc., are still on-site. E/TI has an agreement with Asarco to perform custodial functions for the inactive buildings. For one week, in 1991, E/TI went through all the buildings and removed drums and sacks of materials (resins, chemicals, flocculents, etc.), and placed them in the hazardous waste storage building. Laidlaw Environmental did a profile on the material, and then shipped the material to an incinerator in Athens, Tennessee.

When E/TI began operation, three processing areas were used to treat the wastes and pretreat the process wastewater, designated as Facility Nos. 1, 2, and 3. The wastewater pretreatment area was in Facility No. 1. The three facilities used the existing Asarco thickeners, tanks, piping, filters, and rotary kiln dryer, and support equipment. The areas not used for processing and support were left in the "abandoned state"; no renovation, demolition, or conversion of buildings and equipment had been done as of the EPA inspection. E/TI does not allow material to be placed in abandoned buildings. Most of the equipment is old, having been used by Asarco for refining zinc. Thickeners are constructed of wood; tanks are metal, wood, and fiberglass. Pipes between process units are aboveground. Process wastewater is not discharged to the facility's storm or sanitary sewers.

Facility No. 3 was originally used to treat/remove cyanide from wastes. Since E/TI no longer receives waste with high concentrations of cyanide, Facility No. 3 was converted to process baghouse dust from Asarco's East Helena, Montana smelter.

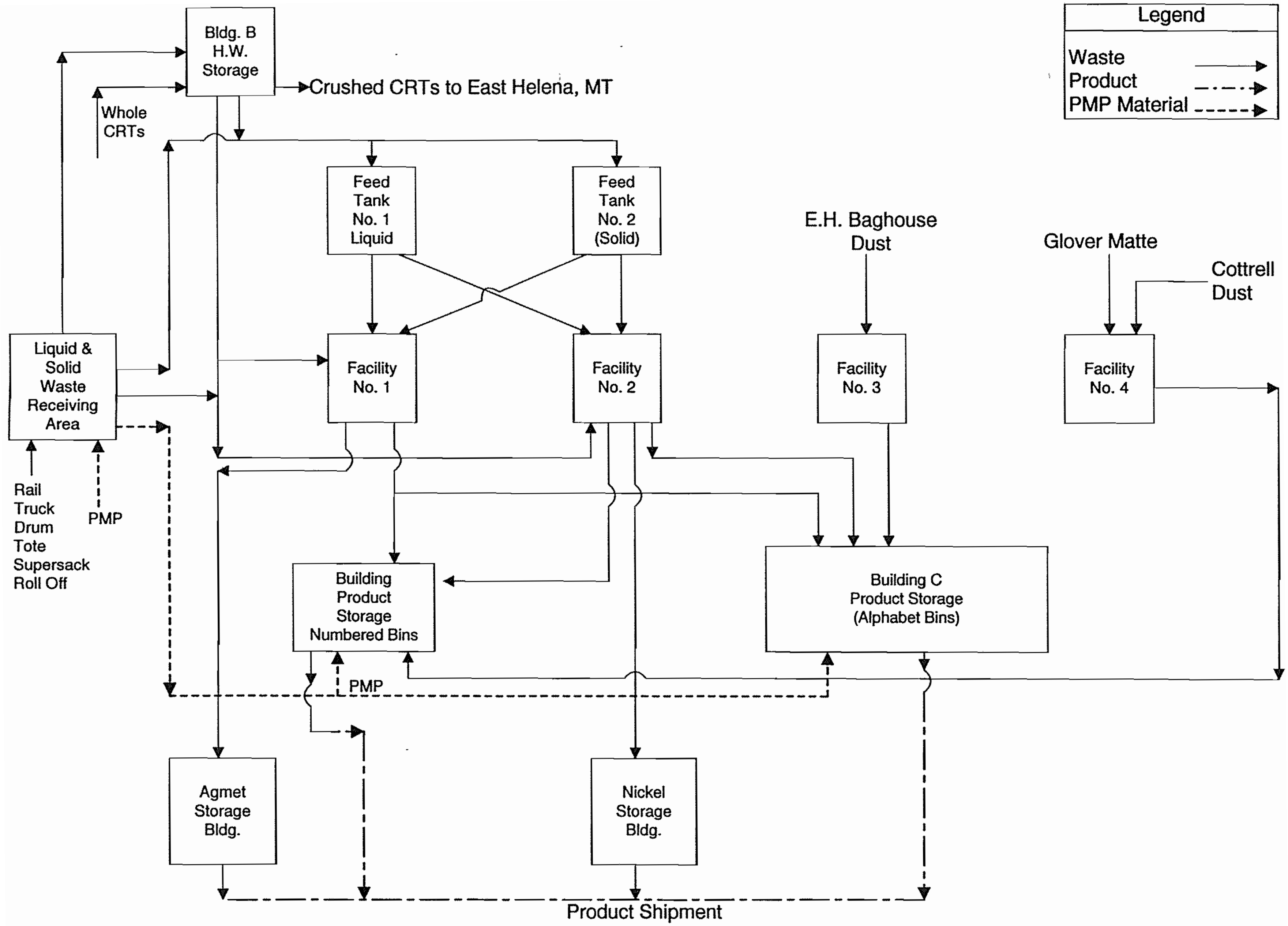
Facility No. 4 became operational in December 1995. Glover Matte, from Asarco's Glover, Missouri, and dust from Asarco's El Paso, Texas smelter electrostatic precipitators, known as Cottrell dust, are processed in Facility No. 4.

Processed material, or "product," is stored in buildings throughout the facility, or loaded directly from the process operations into trucks or railroad gondola cars. Some wastes are not processed through Facility Nos. 1, 2, 3, or 4. These wastes are designated as PMP wastes (Product Management Program), and are blended and shipped as "product."

Containerized liquid and solid hazardous and nonhazardous wastes are received in totes (ENTOTES), drums, supersacks, and boxes. Bulk shipments are received in roll-off containers, and railroad gondola and tank cars. The wastes, after acceptance testing, are either off-loaded to the process operations or placed into storage for later processing or blending. The waste and product flows are shown in Figure V - 1.

Bill Tiddy stated that the vessels and tanks in Facility Nos. 1 and 2 are used interchangeably. Processes are described as circuits, that is, cadmium is produced via the cadmium circuit, zinc via the zinc circuit, etc. The wastes used to produce a lead, cadmium, copper, etc., "product" may go through the same vessels, thickeners, tanks, filters, etc., but still belong to a specific circuit.

This chapter includes detailed descriptions of each facility and process circuit.



Products Include PMP Material Blended with Processed Material

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Figure V-1
ENCYCLE/TEXAS, INC.
Waste and Product Flow

Prepared by NEIC
Not to Scale

Mr. Tiddy provided general process schematics for each facility and described each process circuit. Because thickeners, tanks, filters, etc., are interchangeable in Facility Nos. 1 and 2 for most of the process circuits, and because the process schematics did not differentiate between circuits and vessels, NEIC prepared the individual process diagrams in this report from the E/TI schematics and information provided by Mr. Tiddy. All variations in the processes are not included in this report since they are dependent on vessel availability, waste constituents, combinations of waste mixtures, the solids recirculated from both wastewater pretreatment and treatment processes and the target metal values in the "product."

FACILITY NO. 1

Facility No. 1, located in coordinates F, G-12 [Figure I-1], is the primary waste liquids processing area. The three major functions performed in Facility No. 1 are:

1. Bromide and cobalt-manganese treatment
2. Batch treatment of liquids in six reaction vessels
3. Wastewater pretreatment

Glover Matte solids from Facility No. 2 are also filtered in Facility No. 1 prior to storage as a "product".

The process tank descriptions and specifications, provided by E/TI documents and discussions are listed in Table V - 1.

Liquids and solids enter Facility No. 1 via feed tank 1, via pipes from Facility No. 2, wastewater pretreatment, and wastewater treatment, or are charged directly from containers into vessels.

Table V - 1

FACILITY NO. 1 PROCESS TANKS [1]
Encycle/Texas, Inc.

Tank No.	Capacity (gallons)	Material of Construction	Type of Construction	Age [2]	Waste Stored	Use	Average Volume (gallons)	Level Alarm or Indicator	Emission Control
5001	1,600		Closed top (agitated)		Glover Matte solids	Mixing			None
5050	40,000		Closed top		Agmet brine decant	Holding tank			None
5060 5070	7,100 each	Fiberglass reinforced plastic with propylene lining	Closed top	1980	Inorganic aqueous	Batch ppt [3]	6,040 each	High level	Acid scrubber
5100	8,530	Fiberglass reinforced plastic with propylene lining	Closed top	1980	Inorganic aqueous	Batch ppt	7,460	High level	Caustic scrubber
5110 (out of service)	8,530	Fiberglass reinforced plastic with propylene lining	Closed top	1980	Inorganic aqueous	Batch ppt	7,464	High level	Wet scrubber
5140	5,875	316 L stainless steel	Closed top (agitated)	1980	All but low pH and chloride waste	Batch ppt	4,990	High level	Water scrubber
5150	40,000					NH3 removal			
5160	6,070	316 L stainless steel	Closed top	1980	All but low pH and chloride waste	Batch ppt	5,185	High level	Caustic scrubber
5250	20,000		Closed top		DuPont precipitator ash	Mixing			
5260	20,000		Closed top		Solids from 5250	Feed to 36" filter presses			
5320 (out of service)	5,875	316 L stainless steel	Closed top	1980	All except low pH and chloride waste	Batch ppt	4,990	High level	Wet scrubber
5632	40,000		Open top		Filtrate from DuPont electrostatic precipitator ash	Holding tank			
5633 5634	40,000 each		Open top		Solids from Glover Matte leach surge tank, fac. 2	Holding tank; feeds tank 5001			
Feed tank 1	40,000	Wood	Covered, not sealed		All aqueous	Receiving tank, agitated			

1 *Blank space in column indicates the information was not provided.*
2 *Age reported from 1980; tanks may be older.* 3 *ppt: precipitation*

Bromide and Cobalt-Manganese Circuits [Figure V - 2]

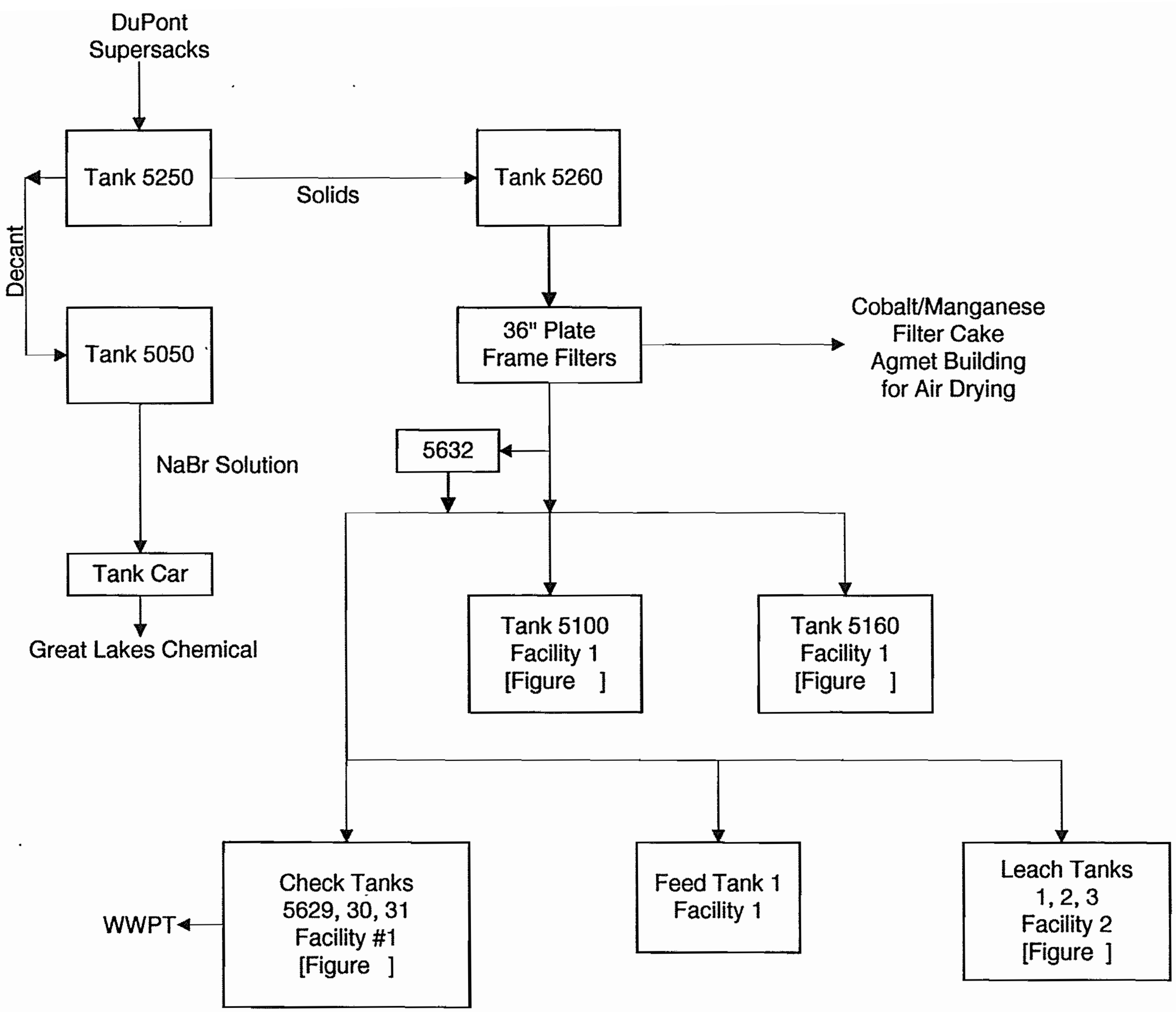
Agmet Metals, Inc. (Agmet) is a major customer of E/TI. The bromide and cobalt-manganese circuits are two of the processes used for material obtained by Agmet for processing.

Electrostatic precipitator ash, a nonhazardous waste, is received in 1-cubic yard supersacks from DuPont facilities in South Carolina and Tennessee. The supersacks are stored beneath the abandoned cooling towers on the south side of Facility No. 1 until processed.

A sodium bromide solution and a cobalt-manganese filter cake are produced by a batch process through leaching and/or washing by decanting, filtering and drying of the precipitator ash. The ash is emptied into tank 5250 and mixed with water. After mixing, approximately 8,000 gallons of the sodium bromide solution are decanted to tank 5250 for storage prior to shipment via railroad tank car to Great Lakes Chemical in El Dorado, Arkansas.

The 9,000 to 12,000 gallons of solids slurry remaining in tank 5050 are pumped to tank 5260, and stored until there is sufficient quantity to make a continuous filter run through the 36-inch plate frame filters. The cobalt-manganese filter cake, ranging in moisture content from 35 to 50%, is placed in Aurora bins and taken to the Agmet building east of Facility No. 1. The filter cake is placed on the floor for air drying to a moisture content of 18 to 20% for 1 to 2 months. The filter cake is shipped to Agmet in Ohio.

The filtrate from the plate filter presses may be further processed in Facility Nos. 1 or 2, or be sent to check tanks 5629, 5630, and 5631 prior to the wastewater



Products: Cobalt Manganese
For Agmet (Toll)
Sodium Bromide

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Figure V-2
ENCYCLE/TEXAS, INC.
Facility No. 1
Bromide Circuit
Cobalt/Manganese Circuit

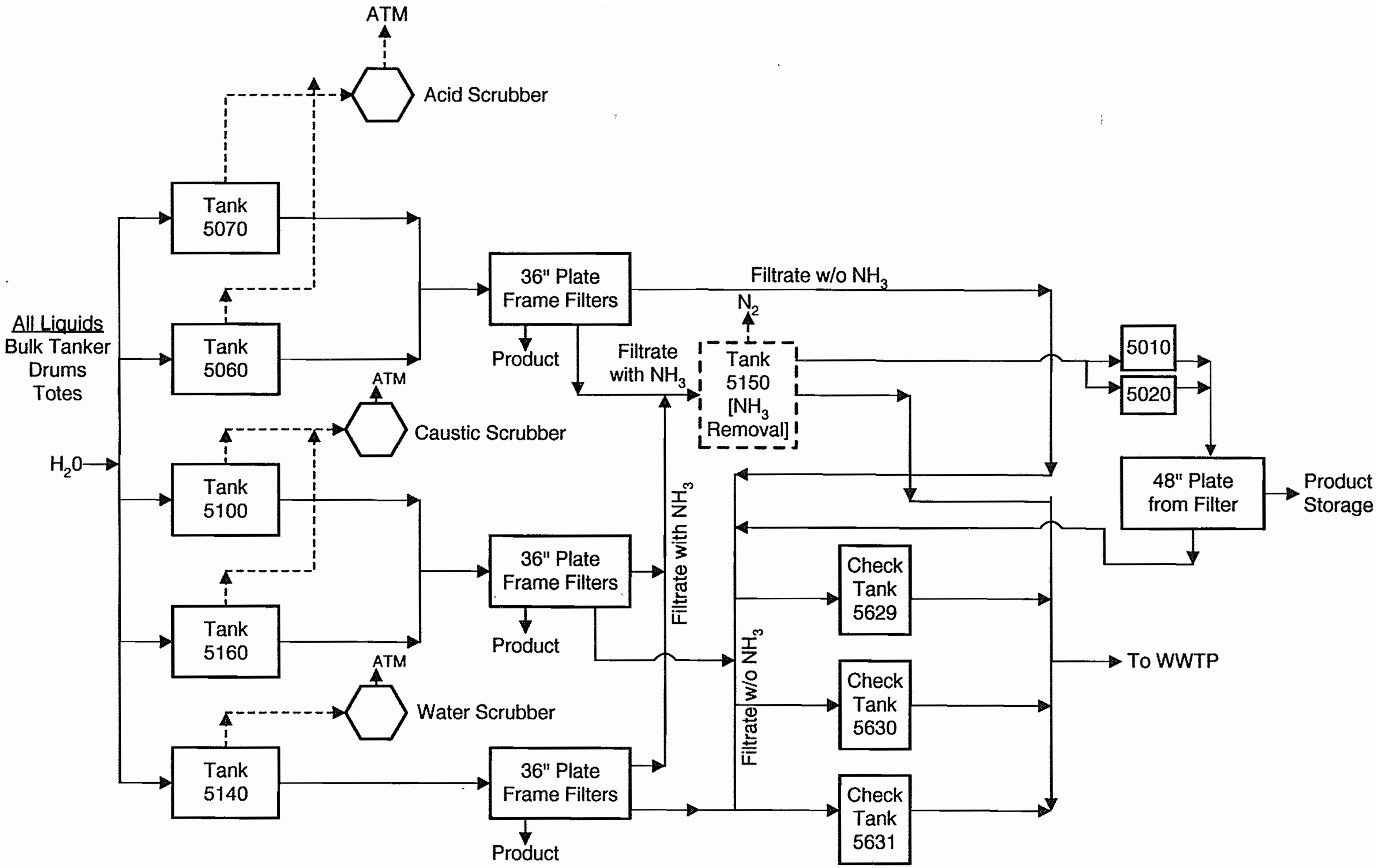
Prepared by NEIC
Not to Scale

pretreatment system. If further treatment to remove carbonate is required, the filtrate is sent to leach tanks 1, 2, and 3 in Facility No. 2. The filtrate may be returned to feed tank 1, or sent to tank 5100 in Facility No. 1 or tank 5160 in Facility No. 2.

Batch Precipitation: Copper, Nickel, and Chromium [Figure V - 3]

Liquid wastes, mostly plating solutions, in bulk or on containers, are batch treated and filtered to produce copper, nickel-B, and chromium filter cake, currently using five tanks in Facility No. 1. The liquids are added along with water to the respective tank, based on the metal values in the wastes. Chromium is removed first. Hexavalent chromium is converted to trivalent chromium with sulfuric acid and sodium metabisulfite. Lime or sodium hydroxide is added to increase the pH range from 9.5 to 10 to precipitate chromium. Tanks 5100 and 5160, vented to the caustic scrubber, are used to precipitate metals in an acid solution. Nickel-B and copper are removed in similar fashion. The batch tanks are selected on the basis of the metal values, pH of the solutions, and the scrubbers for the tanks. All tanks are covered and vented to packed tower scrubbers (sulfuric acid, sodium hydroxide, and water scrubbing media). The scrubbing solutions bleed-off is sent to feed tank 1 directly, or is collected in a scrubber tank on the first floor of Facility No. 1 prior to discharge to feed tank 1.

The slurries from the precipitation tanks are sent to the 36-inch plate frame filters. The slurry is analyzed to determine if ammonia is present. If present, the filtrate from the presses is sent to tank 5150 where the ammonia is removed by "break-point" chlorination. Nitrogen gas liberated from the treatment is vented uncontrolled to the atmosphere. The treated filtrate in tank 5150 is piped to tanks 5010 and 5020 prior to additional filtration in the 48-inch plate filters, or recirculated back to the 36-inch plate frame filters. The filtrates from the 36- and 48-inch filters are sent to the check tanks



Products from Frame Filters
Cr to Bin G [China]
NI to Bin II [Agmet/Falconbridge]
Cu to Bin V [El Paso]

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Figure V-3
ENCYCLE/TEXAS, INC.
Facility No. 1
Batch Precipitation
Copper, Nickel, Chromium

Prepared by NEIC
Not to Scale

5629, 5630, and 5631 prior to wastewater pretreatment. The filter cake is sent to "product" storage.

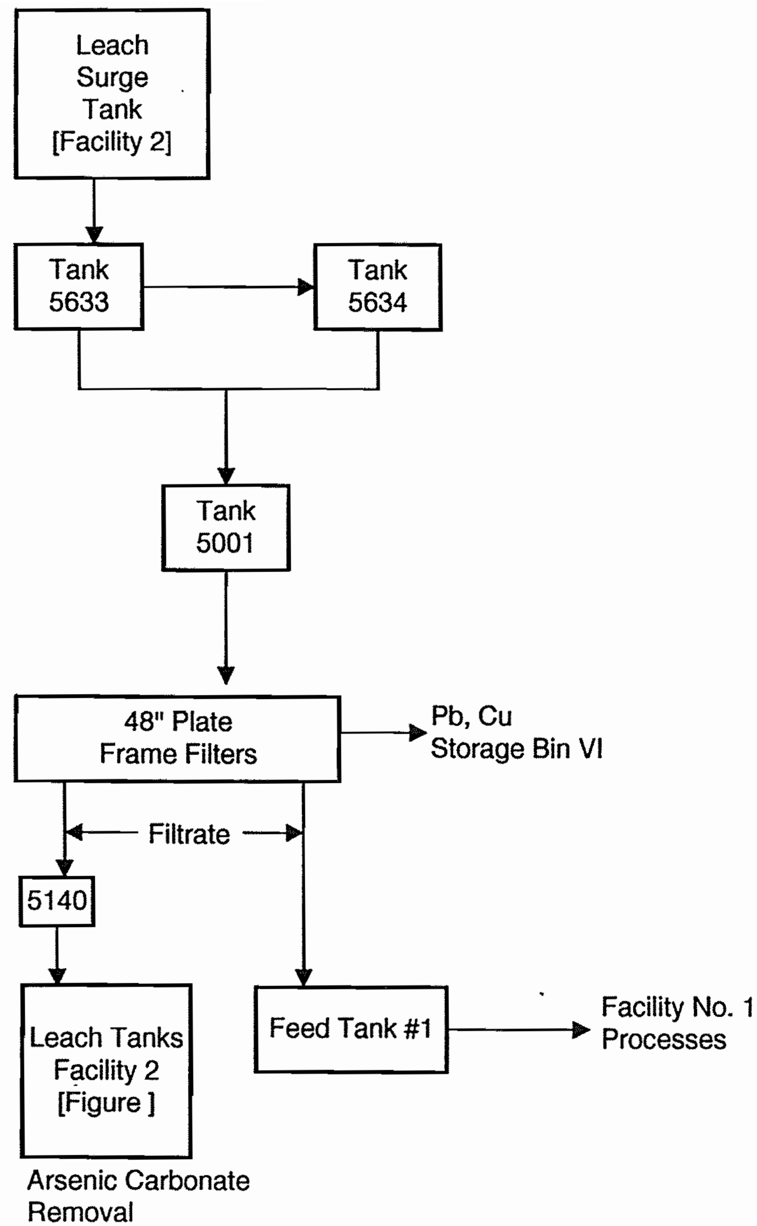
If the analysis shows ammonia is not present, the filtrate from the 36-inch presses is sent to the check tanks.

The filter cakes from the 36- and 48-inch filter presses are placed in the following "product" storage areas:

Metal	Storage Area	Customer(s)
Copper	Numbered storage bldg: bin V	Asarco, El Paso, Texas
Nickel-B	Numbered storage bldg: bin II	Agmet or Falconbridge (Canada)
Chromium	Alphabet storage bldg: bin G	China

<u>Glover Matte Leaching [Figure V - 4]</u>

Glover Matte solids not processed in Facility No. 4 are placed in Facility No. 2 leach surge tank. The slurry is piped to Facility No. 1 to tanks 5633 and 5634, each 40,000 gallons capacity. The two tanks serve as storage prior to discharge to tank 5001, a small tank referred to by E/TI as a "baby" tank. Tank 5001 feeds the 48-inch plate frame filters. The filtrate from the filter presses is returned to tank 5100 or to tank 5140 if treatment for arsenic carbonate is required. The filtrate is piped from tank 5140 to leach tanks 1, 2, or 3 in Facility No. 2. As an alternative, the filtrate containing arsenic carbonate can be piped to feed tank 1 instead of tank 5140 because feed tank 1 also feeds leach tanks 1, 2, and 3.



Products: Lead, Copper

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Figure V-4
ENCYCLE/TEXAS, INC.
Facility No. 1
Glover Matte Circuit

Prepared by NEIC
Not to Scale

The filtering process is continuous until the slurries in tanks 5633 and 5634 are emptied. The filter cake, containing copper and lead, is sent to the numbered storage building, bin VI. The "product" from bin VI is sent to Asarco's smelter in East Helena, Montana, where it is further treated prior to smelting.

Wastewater Pretreatment [Figure V - 5]

All wastewater generated in Facility Nos. 1, 2, and 3 are pretreated in Facility No. 1 prior to discharge to the wastewater treatment system. Wastewater from Facility No. 4 is discharged to the 10,000-gallon effluent tank on the west side of Facility No. 4, and then pumped to feed tank 2 or the RMA tanks in Facility No. 2. Stormwater runoff, collected in the two stormwater lagoons is pumped to two demineralizer tanks. The stormwater in the demineralizer tanks, used as process water, may also be discharged directly to the pretreatment facility.

Pretreatment consists of filtering the wastewater, recovering the filter cake as "product", and treating the filtrate prior to discharge to the neutralization plant (i.e., the wastewater treatment plant). The tank capacities provided by Bill Tiddy in discussions on the pretreatment process, are listed in Table V - 2.

All wastewater is collected in three check tanks: 5629, 5630, and 5631, prior to pretreatment. The tanks, 40,000 gallons each, can be operated in series or parallel. The wastewater is pumped from the check tanks to one of six U.S. Filters (pressure leaf filters). Only one filter is used at one time. Under pressure, the wastewater is forced through the filter media from the outside of the media and collected in the inside piping in the filter equipment. A solids slurry and filtrate are produced; the filtrate is treated in four agitated tanks prior to discharge to the wastewater treatment plant, also known as the neutralization plant. The solids slurry is also treated to produce a filter cake.

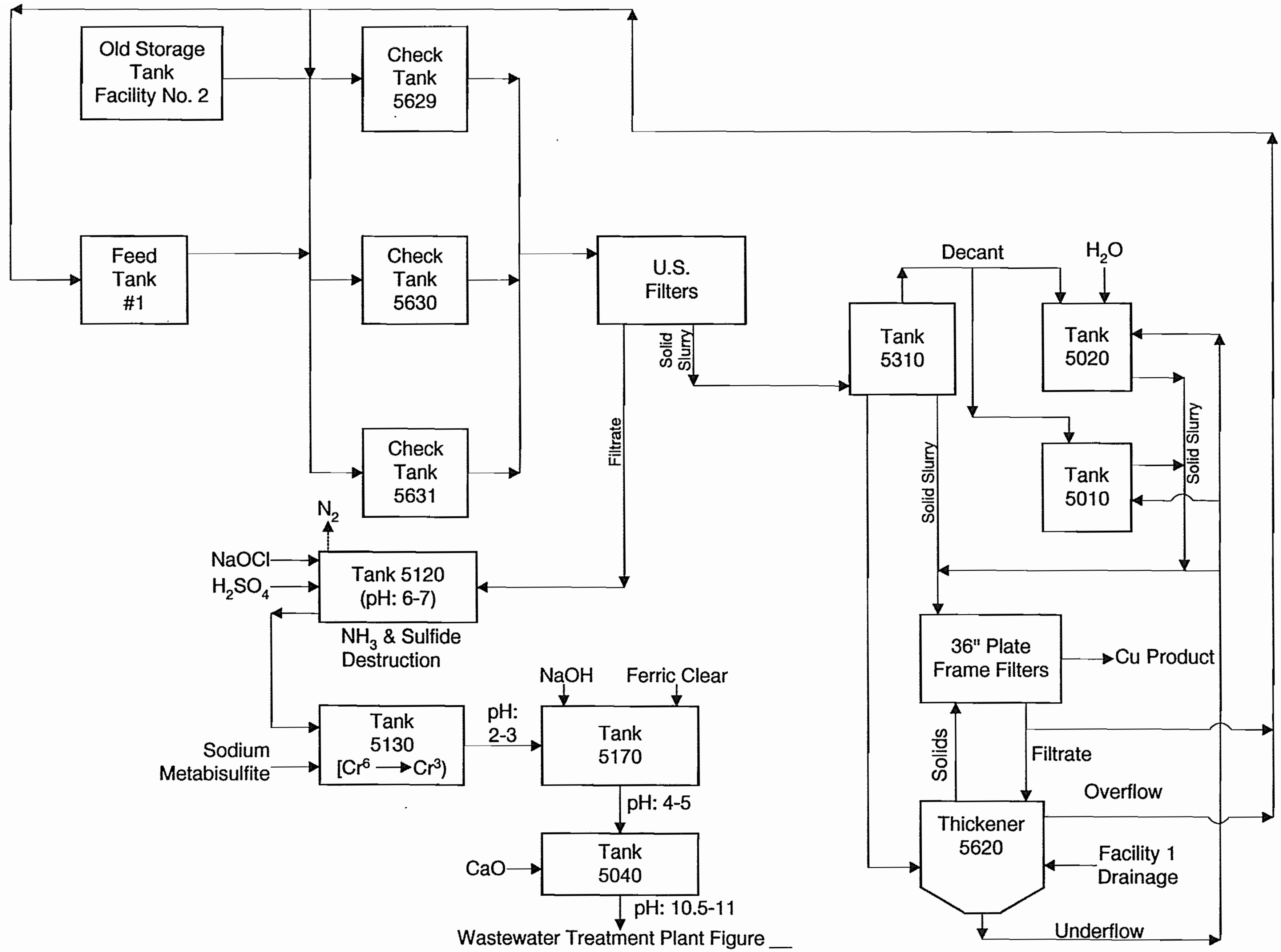

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Figure V-5
ENCYCLE/TEXAS, INC.
Facility No. 1
Wastewater Pretreatment

Prepared by NEIC
Not to Scale

Table V - 2

WASTEWATER PRETREATMENT TANK CAPACITIES
Encycle/Texas, Inc.

Tank No.	Capacity (gallons)	Comment
5010	20,000	
5020	20,000	
5040	40,000	Agitated
5120	40,000	Agitated
5130	40,000	Agitated
5170	40,000	Agitated
5310	40,000	
5620	20,000	Thickener, wood construction
5629	40,000	Check tank
5630	40,000	Check tank
5631	40,000	Check tank
Feed tank 1	40,000	Wood construct., agitated, outside Facility No. 1

Filtrate treatment in the four tanks consists of ammonia and sulfide removal, chromium reduction, and pH adjustment. There is no solids sedimentation or recovery in the four tanks. The filtrate from the U.S. Filters is collected in tank 5120. Sulfuric acid is added to maintain the pH between 6 and 7. A commercial bleach is added for ammonia and sulfide destruction by break-point chlorination. Nitrogen gas, released from the ammonia, is vented through a roof vent, uncontrolled.

The filtrate flows from tank 5120 to 5130 where sodium metabisulfite is added to reduce chromium from the hexavalent form to the trivalent form. The pH of the filtrate after treatment is between 2 and 3. Sodium hydroxide is added to tank 5170 to raise the pH to 4 or 5. A coagulant-flocculent agent, ferric clear [$FE_2(SO_4)_3$] is mixed with the filtrate in tank 5170 prior to pumping to tank 5040. Lime is mixed with the filtrate in tank 5040 to raise the pH to between 10.5 and 11. The filtrate in tank 5040 is sent to the neutralization tank at the wastewater treatment plant.

The solids from the U.S. Filters are slurried with water to holding tank 5310 and allowed to settle. The "clearest" water on top of tank 5310 is decanted and sent to thickener 5620. After the "clearest" water is decanted, the remaining water on top of the solids is decanted to tanks 5010 and 5020.

Solids from tanks 5310, 5010, and 5020 are slurried to the four 36-inch plate frame filter presses. The filter cake is sent to the numbered storage building, bin V, as copper "product." The "product" is sent to Asarco's smelter in El Paso, Texas. The filtrate from the 36-inch presses is returned to the check tanks, or to thickener 5620.

Thickener 5620 is on the far east side of the check tank area. In addition to receiving the filtrate from the 36-inch presses and the "clearest' decant water from 5310, thickener 5620 also receives all drainage/sump waters from Facility No. 1. The thickener overflow is returned to the check tanks. The underflow is returned to tanks 5010 and 5020, or to feed tank 1.

FACILITY NO. 2

Facility No. 2, the primary solids processing area, is located in coordinates F,G-7,8 [Figure I - 1]. Basically, there is one circuit for processing wastes; however, by using variations within the circuit and using vessels and tanks interchangeably, four "product" circuits can be defined. Tanks and vessels are used to treat the solids followed by filtration, drying, shipment, or storage of "products." Solutions from Facility Nos. 1 and 4 are also treated in Facility No. 2. Some tanks and vessels are dedicated to a specific "product" or customer. According to Bill Tiddy, Facility No. 2's processes include:

- Glover Matte (lead and copper) circuit
- Nickel circuit
- Zinc circuit

Liquids from the processes are treated in Facility No. 1 processes and wastewater pretreatment units. Process tank descriptions and specifications, provided by E/TI documents and in discussions are all listed in Table V - 3.

Glover Matte Circuit [Figure V - 6]

Glover Matte, from Asarco's Glover, Missouri smelter containing copper, lead, and sodium, is processed in Facility Nos. 2 and 4. Facility No. 4 started operating in December 1995. A Glover Matte solution, produced in Facility No. 4, is treated in Facility No. 2. The solution, collected in two holding tanks in Facility No. 4, consists of water used to wash the sodium salts and other constituents from the Glover Matte. The solution is piped to the Rocky Mountain Arsenal (RMA) tanks at Facility No. 2. In

Tabl

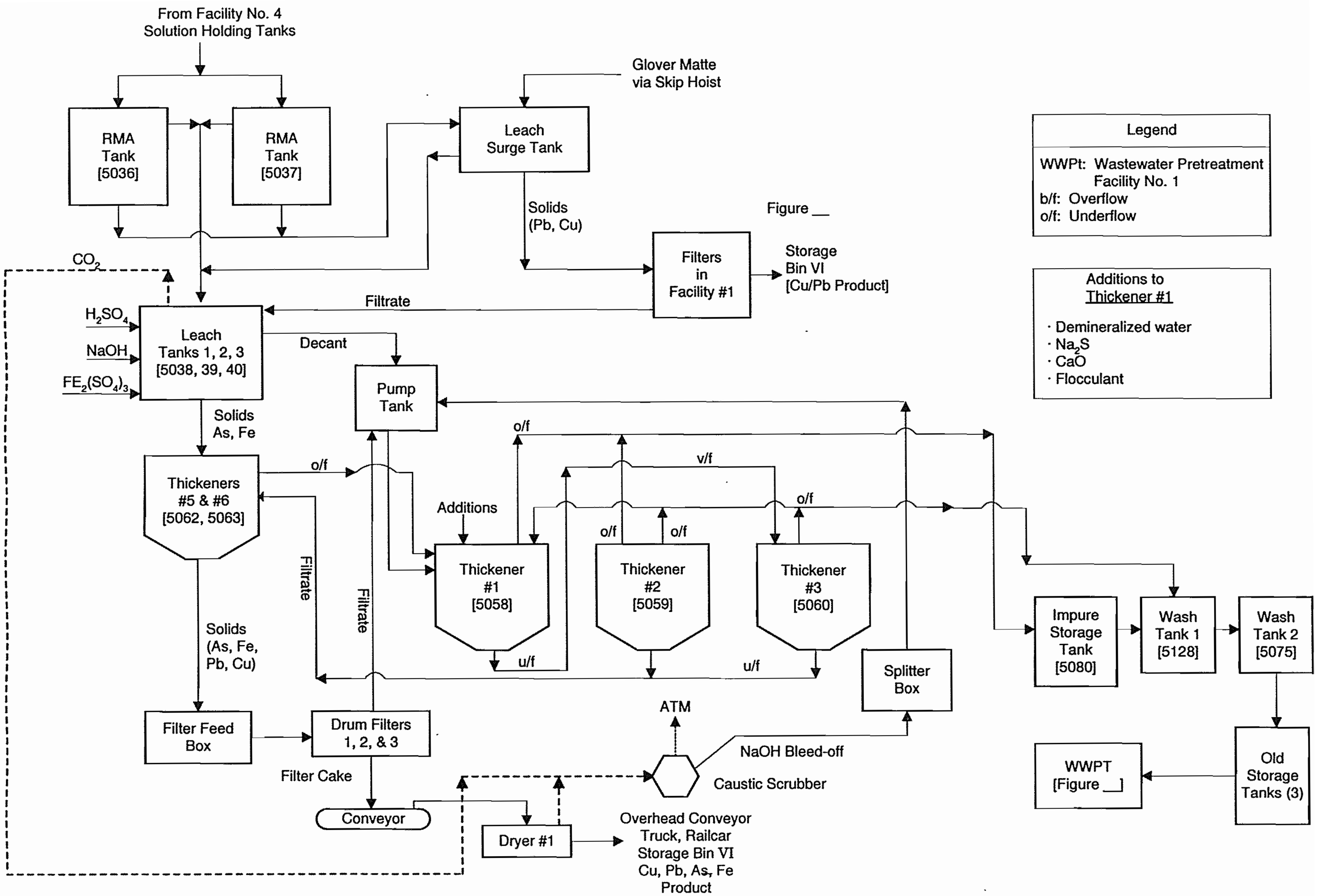
FACILITY NO. 2 PROCESS TANKS [1]
Encycle/Texas, Inc.

Tank No.	Capacity (gallons)	Material of Construction	Type of Construction	Age [2]	Waste Stored	Use	Average Volume (gallons)	Level Alarm or Indicator	Emission Control
5016 5018	10,185 each	Fiberglass reinforced plastic with propylene lining	Closed top	1980	All wastes	Inorganic aqueous	8,755 each	High level	Wet scrubber
5036 5037 (RMA tanks)	20,000 each	Wood	Closed top		Glover Matte solution	Holding, mixing (agitated)			Caustic scrubber
5038 (leach tank 1) 0539 (leach tank 2) 5040 (leach tank 3)	55,490 each	Carbon steel shell, lined with acid brick over elasticid	Closed top	1980	All wastes	Leaching, washing	51,610 each	High level	Caustic scrubber
5041 (leach tank 4)	55,490	Carbon steel shell, lined with acid brick over elasticid	Closed top	1980	Nickel wastes	Washing	51,610	High level	Caustic scrubber
5046	48,360	Wood, lined with acid brick over elasticid	Open top with wooden lid	1980	All wastes	Leaching, washing	41,455	High level	Wet scrubber
5058 (thickener 1)	230,000	Wood	Open top	1980	All wastes	Solids separation			None
5059 (thickener 2) 5060 (thickener 3)	230,000 each	Wood	Covered, not sealed	1980	All wastes	Solids separation			None
5061 (thickener 4)	136,000	Wood	Open top	1980	Zinc wastes	Solids separation			None
5062 (thickener 5)	146,000	Wood	Open top	1980	All wastes	Solids separation			None
5063 (thickener 6)	147,000	Wood	Open top	1980	All wastes	Solids separation			None
5075 (wash tank 2)	40,000	Wood	Open tank	1980	All wastes	Holding			None
5080 (impure storage tank)	121,000	Wood	Open top	1980	All wastes	Holding			None

Table _ (continued)
V-3

Tank No.	Capacity (gallons)	Material of Construction	Type of Construction	Age[2]	Waste Stored	Use	Average Volume (gallons)	Level Alarm or Indicator	Emission Control
5128 (wash tank 1)	40,000	Wood	Open top	1980	All wastes	Holding			None
Leach surge tank	40,000	Wood	Closed top	1980	Glover Matte material	Holding			Wet scrubber
Pump tank	2,000	wood	Open Top				1,800		None
Old storage tanks 1, 2, 3	40,000 each	Wood	Open top	1980	All wastes	Holding			None
Feed tank 2	40,000	Wood	Covered, not sealed		All wastes	Receiving tank, agitated			None
Filter feed box			Open top		All wastes				None

1 *Blank space in column indicates the information was not provided.*
2 *Age reported from 1980; tanks may be older.*



Product: Cu/Pb/Fe
Copper Arsenate

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Figure V-6
ENCYCLE/TEXAS, INC.
Facility No. 2
Glover Matte Circuit

Prepared by NEIC
Not to Scale

Facility No. 2, the Glover Matte feedstock is added to the leach surge tank located on the top floor via a skip hoist on the west side of the building.

The Glover Matte solution is added to each of the RMA tanks (tanks 5036 and 5037) where the solids settle. This is a batch operation; one tank is filled at a time. The separated liquid is decanted with a "trash" pump from the RMA tanks to leach tanks 1, 2, and 3 (tanks 5038, 5039, and 5040, respectively) (leach tank 4 is dedicated to the nickel circuit). Operators observe the discharge of the decant solution into the leach tanks to determine when solids are present. When solids appear, the pump is turned off. The decant solution is pumped through a dedicated line. Each of the three leach tanks have a minimum of two inlet pipes; the leach tanks can be used interchangeably. At the time of the EPA on-site inspection, leach tank 1 was out of service. TNRCC ordered E/TI to install a filler pipe in each tank for the purpose of adding material below the liquid surface, near the bottom of the tank. The filler pipe had been installed in leach tank 3 and the installation was scheduled for leach tank 2 after installation had been completed in leach tank 1.

From 15 to 17 tons of Glover Matte feedstock is placed in the leach surge tank via the skip hoist. Solids from the RMA tanks are piped to the leach surge tank after the liquid is decanted to the leach tanks. Municipal water is added to the leach surge tank and mixed with the solid materials with an agitator to leach salts and other constituents from the Glover Matte. The Glover Matte is leached for 24 hours. The liquid is pumped from the leach surge tank to leach tanks 1, 2, or 3 by the same procedure used for the RMA tanks.

The solids, containing lead and copper, are pumped to Facility No. 1 check tanks. According to Bill Tiddy, there are six check tanks in Facility No. 1, but the Glover Matte solids are pumped to only two check tanks, 5633 and 5634. The solids are filtered in the

48-inch plate frame filters. The filter cake is placed in bin VI in the numbered storage building. The filtrate is returned to leach tanks 1, 2, or 3 or to feed tank 1. The "product" is a copper and lead mixture.

The mixture in the leach tank is analyzed for arsenic and carbonates. If both constituents are present, the carbonates are treated first by reducing the pH to 2.5 with sulfuric acid. The carbon dioxide released is vented to a caustic scrubber. The batch carbonate reaction time ranges from 6 to 24 hours. After carbonate treatment, sodium hydroxide is added to raise the pH to between 4.5 and 5; ferric clear is also added, and the tank contents are mixed from 6 to 24 hours. If the arsenic level is greater than 5 ppm, more ferric clear is added and contents mixed for another 6 to 24 hours. The purpose of the treatment is to tie up the iron and arsenic as hydroxides, and remove the metals by sedimentation. The mixture is sampled, filtered, and analyzed. If the arsenic is below 5 ppm the solids are settled to obtain an "arsenic and iron free" solution. If the arsenic exceeds 5 ppm, the process is repeated until the arsenic level is less than 5 ppm.

The sulfuric acid, sodium hydroxide, and ferric clear are piped to the leach tanks from 8,500-gallon storage tanks, located outside Facility No. 3.

The "arsenic and iron free" solution is pumped from the leach tanks to the pump tank, and then to thickener 1. The solids, containing the iron and arsenic, are pumped from the leach tanks to thickeners 5 or 6 (5 is the primary thickener used). Copper solutions from feed tank 2 are added to thickeners 5 or 6 when necessary to tie up additional arsenic as copper arsenide. Feed tank 2 can also feed the copper solutions to leach tanks 1, 2, and 3; the ferric clear would not be used under this flow scheme.

The solids in thickeners 5 or 6 contain copper, lead, arsenic, and iron. The solids are removed from the thickeners 5 or 6, after the liquid is decanted, once per week to the filter feed box. If necessary, thickener 5 solids can be pumped to thickener 6 for another "washing" at any time during the week. This is a mechanical operation procedure to protect the thickener rakes. If the torque of the rakes is too high, the drive motor automatically shuts off to prevent damage to the rake mechanism. The torque readings are monitored by the operators who make the decision to transfer the solids from thickener 5 to 6.

The filter feed box functions a as flow regulator directing the solids flow to any of the three rotary drum filters. Vacuum receivers are used to provide the force for the filters to remove the liquid from the solids. The filtrate and the seal water from the vacuum receivers is returned to the pump tanks.

The filter cake from the rotary drum filters drops onto an extractor-conveyor; filtrate from the extractor-conveyor is returned to the pump tank. The filter cake drops off the extractor-conveyor into a rotary kiln dryer, fired by natural gas (dryer 1). A second rotary kiln dryer, located next to dryer 1, is out of service, and has not been operated since E/TI assumed ownership. The dryer is vented to a caustic scrubber (emission point N-16). Caustic scrubbing solution bleed-off is discharged from the scrubber to the pump tank via the splitter box. The dried solids exit the rotary kiln dryer onto a conveyor. The conveyor delivers the dried solids to a railroad gondola car or to a truck. The solids can also be sent to storage building C, as a copper + lead "product" or a lead + copper "product," depending on the concentrations of the two metals. The copper + lead "product" is shipped to Asarco's smelter in El Paso, Texas and the lead + copper "product" to Asarco's smelter in East Helena, Montana. Both "products" also contain zinc and iron.

Thickener 1 receives solutions, stormwater from the demineralizer storage tanks, and process waters from other Facility No. 2 circuits as well as all wastewaters from

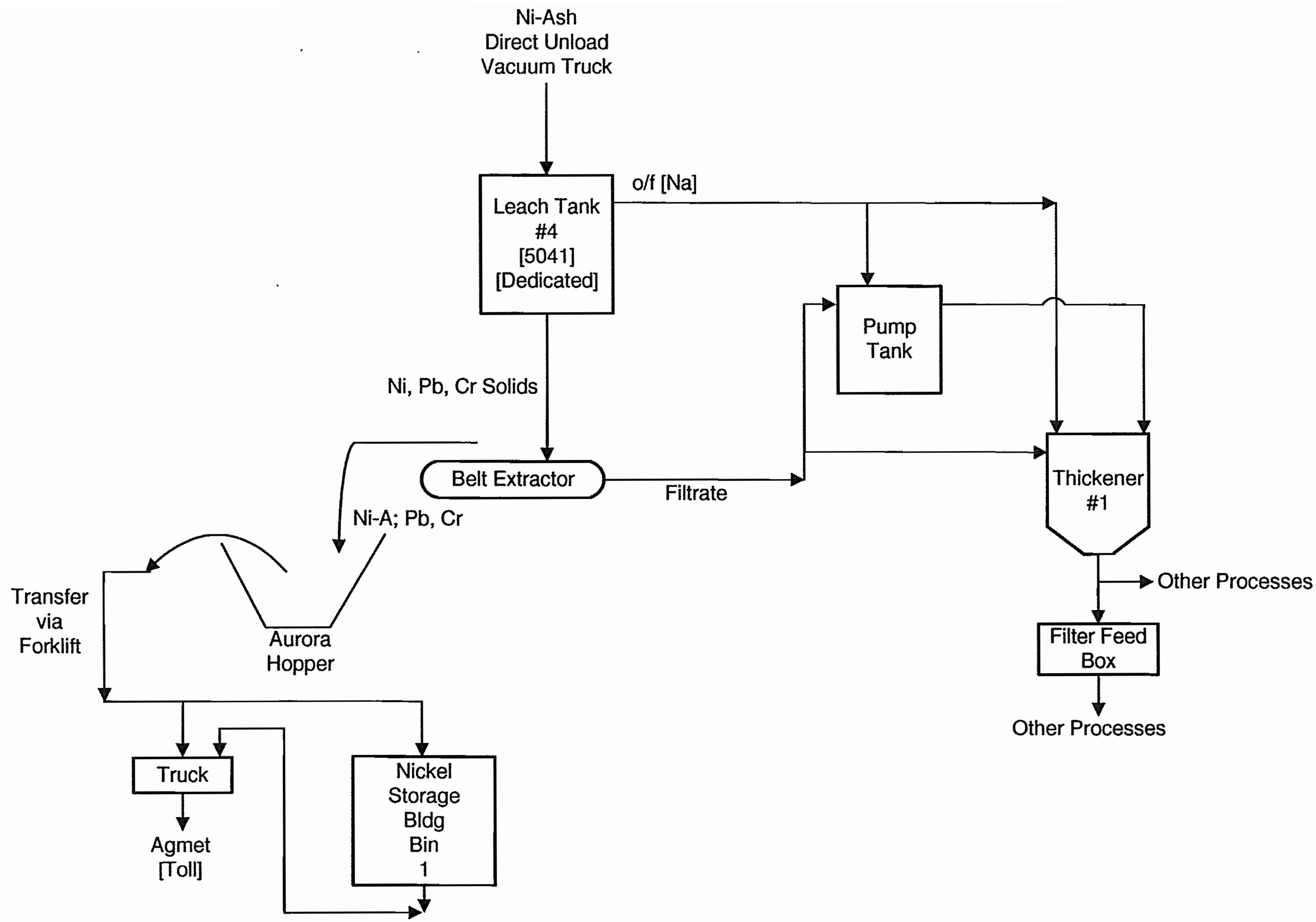
Facility Nos. 2, 3, and 4, which will eventually be treated in the wastewater pretreatment system. Sodium sulfide (Na_2S), lime, and an anionic flocculent 611, are continuously added to thickener 1 when it is operating. The chemicals are added from a 500-gallon tank known as the old splitter box. The sodium sulfide is added to react with residual copper, lead, zinc, or nickel remaining in solution.

The solids (underflow) are pumped to thickener 3; solids from thickener 3 are pumped to thickeners 5 or 6. The overflow from thickener 3 is returned to thickener 1. At the time of the EPA on-site inspection, thickener 2 was out of service. The underflow from thickener 1 can also be sent to thickener 2; the solids from thickener 2 would be pumped to thickeners 5 or 6, and the overflow returned to thickener 1. If all thickeners were operating, the flow sequence used could be thickener 1 to thickener 2 to thickener 3 to thickener 5 to thickener 6 (thickener 4 is dedicated to the zinc circuit).

The overflow from thickener 1 flows by gravity to the impure storage tank; the overflow from thickener 2 and 3 can also be sent to the impure storage tank if it is not returned to thickener 1. The impure storage tank receives a continuous flow. Flow from the impure storage tank is pumped to wash tanks 1 and 2, operated in series. Overflow from thickener 3 can be sent to wash tank 1 (wash tank south) if not returned to thickener 1. Thickener 3 overflow is not set up to go to the impure storage tank. The wash tanks (term used when Asarco used the tanks to produce a homogenous material) are holding tanks in the E/TI circuit. Water is pumped from wash tank 2 to the three old storage tanks. The wastewater is pumped from the old storage tanks to the Facility No. 1 check tanks prior to wastewater pretreatment.

Nickel Circuit [Figure V - 7]

The nickel circuit consists of dedicated leach tank 4, a belt extractor and air drying of a nickel ash material, termed Nickel-A by E/TI, from the DuPont, Sabine Pass, Texas



Product: Nickel - A
Also Contains
Lead and
Chromium Solids

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Figure V-7
ENCYCLE/TEXAS, INC.
Facility No. 2
Nickel Circuit
Batch Process

Prepared by NEIC
Not to Scale

facility. Agmet is the broker for the material; the "product," Nickel-A, is transported to the Agmet facility in Cleveland, Ohio. According to Bill Tiddy, the Nickel-A is calcined at Agmet facilities in Ohio and Tennessee. The process is a tolling operation.

The waste material, manifested from DuPont to E/TI as hazardous waste D007 (chromium) and D008 (lead) as a solid, arrives in a vacuum truck and is off-loaded directly to leach tank 4. The waste is stored in leach tank 4 until there is sufficient quantity to process. The incoming shipments are not scheduled until there is sufficient capacity in leach tank 4. Each truck brings in from 8 to 15 tons of waste.

Water is added to leach tank 4 to remove sodium from the waste; the contents are agitated from 16 to 24 hours, followed by sedimentation from 16 to 96 hours. After settling, the overflow from leach tank 4, containing the sodium, is decanted either to the pump tank or to thickener 1. The solids from the leach tank are removed on a continuous basis until the process is complete.

The solids are placed onto a belt-extractor where the liquids are removed and sent either to the pump tank or thickener 1. The filtered solids fall off the end of the belt-extractor into an Aurora Hopper outside the building on the east side. The Aurora Hopper is taken to the nickel staging building (old sulfate building), and emptied onto the floor. The filtered solids are air dried in the building under natural conditions and through "stacking and mixing." After drying, the filtered solids are taken via dump truck to bin I in the numbered storage building, or shipped directly by truck. The "product," Nickel-A, also contains chromium and lead and other water insoluble constituents.

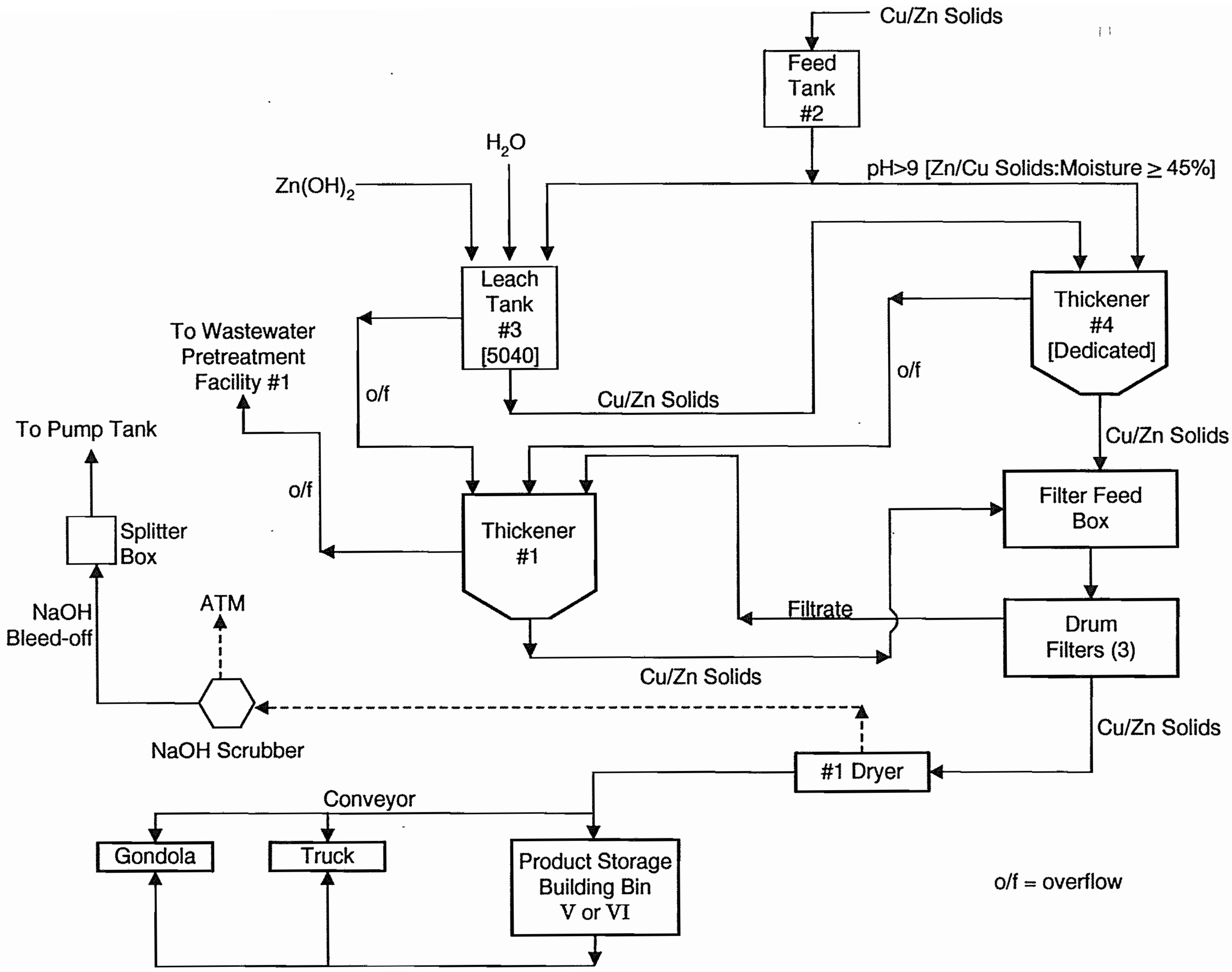
Zinc Circuit [Figure V - 8]

The zinc circuit consists of leaching, filtering, and drying to produce a copper/zinc solid. The material processed includes both hazardous and nonhazardous wastes. Thickener 4 is dedicated to the zinc circuit. The "product" is shipped to Zinc Corporation of America (ZCA).

Zinc hydroxide waste is placed directly into leach tank 3 when the zinc circuit is being operated; leach tank 3 is used in the Glover Matte circuit when the zinc process in not operated. Copper/zinc solids are emptied into feed tank 2. If the pH of the solids is greater than 9, and the moisture content greater than 45%, the solids are transferred to thickener 4, otherwise they are transferred to leach tank 3.

Water is added to leach tank 3 to remove sodium. Copper and/or lead could be leached with sulfuric acid in leach tank 3, but this has not been done since Bill Tiddy arrived in May 1994. The decant water, containing sodium and other water soluble constituents, is sent to thickener 1. The solids from leach tank 3 are transferred to thickener 4.

The overflow from thickener 1 is sent to wastewater pretreatment in Facility No. 1. The solids, or underflow, from thickener 1, and from thickener 4, follow the same path as described previously under the Glover Matte circuit. The solids are sent to the rotary drum filters via the filter feed box, dried in rotary kiln dryer 1, and either loaded onto a truck or gondola railroad car, or placed in the numbered storage building. The "product" from thickener 4 is a copper/zinc mixture while the "product" from thickener 1 includes copper, lead, arsenic, iron, and some zinc. The copper/zinc mixture is stored in bins V or VI. The 'product" is in the forms of zinc oxide, zinc hydroxide, and zinc carbonate.



Product: Zinc and Copper Solids

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Figure V-8
ENCYCLE/TEXAS, INC.
Facility No. 2
Zinc Circuit

Prepared by NEIC
Not to Scale

The "products" in bins V and VI are blended individually and together with a front-end loader.

FACILITY NO. 3

When processing began in 1989, wastes containing cyanide were treated in Facility No. 3, prior to processing in Facility No. 2. Facility No. 3 was converted to process baghouse dust from Asarco's smelter in East Helena, Montana after E/TI ceased receiving wastes with high cyanide concentrations in 1992. Facility No. 3 is located west of Facility Nos. 1 and 2, coordinates E, F-6 [Figure I - 1].

The baghouse dust from the East Helena smelter is the only waste processed in Facility No. 3. The baghouse dust is exempt from RCRA regulations under the Federal Mining Exclusion section of Subpart C (Bevill waste). The East Helena smelter recirculates the baghouse dust to enrich the cadmium, lead, zinc, gold, and silver concentrations prior to shipment to E/TI. Asarco pays E/TI to process the baghouse dust. The lead "product" is returned to the smelter as lead sulfate on a tolling basis. The cadmium and zinc are not tolled, and E/TI sells the "products" to other customers. John Likarish stated that E/TI is the only outlet for the baghouse dust from East Helena.

Facility No. 3 was not operating during the EPA on-site inspection. According to Bill Tiddy, the facility carbonate mixture circuit was last operated in December 1995 for a short time, because E/TI had not received approval from the TNRCC under Section 118 of the Texas Air Regulations to operate. An exemption request under Section 118 was submitted by E/TI in 1995.

Lead sulfate filter cake is produced by leaching, precipitation, and filtration as the first step in the treatment of the baghouse dust. Then one of two circuits is used for the cadmium and zinc. The circuits cannot be operated simultaneously because some of the same units are used in both circuits. One circuit produces a zinc slurry and a cadmium sponge; the second circuit results in a zinc carbonate-cadmium carbonate mixture.

E/TI prefers to use the circuit which processes cadmium and zinc separately, because the market price is greater than the price for the mixture. However the cadmium sponge circuit had not been operated for more than 1 year due to the release of arsine (AsN_3), a poisonous gas, from tank 5017 on October 3, 1994, injuring a facility employee. The cadmium sponge circuit cannot be operated until E/TI receives approval from the TNRCC and is granted an exemption under Section 118. The zinc and cadmium carbonate mixture circuit can be operated without the Section 118 exemption because arsine is not produced. However, the circuit is only run when there is a customer for the mixture. The mixture is exported to China.

Both circuits include solid leaching, precipitation, and filtration with additional treatment in Facility No. 2. Process tank descriptions and specifications, provided by E/TI documents and in discussions, are listed in Table V - 4. Both circuits are shown in Figure V - 9.

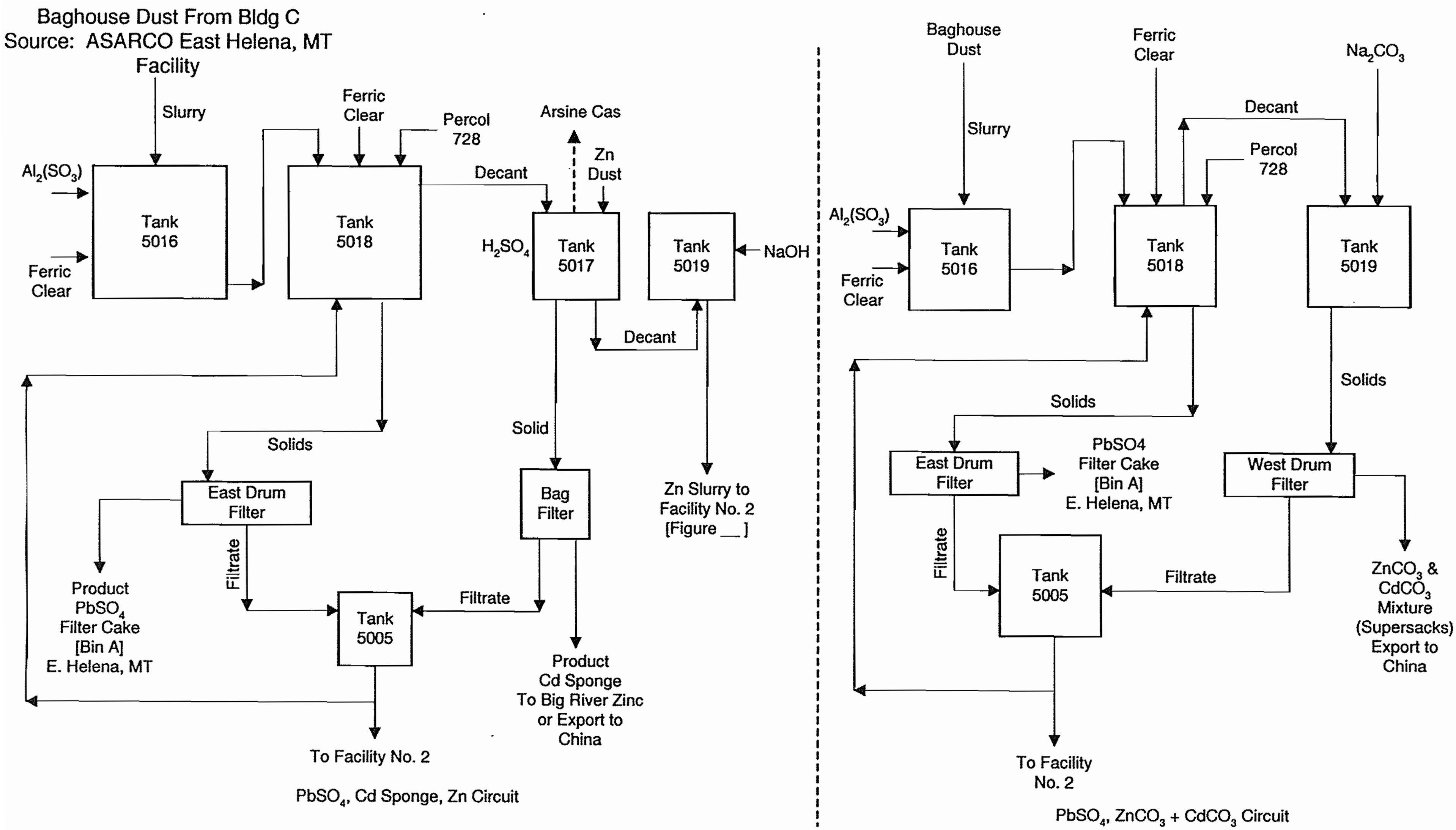
The baghouse dust arrives in covered railroad gondola cars and is off-loaded with a front-end loader and placed in storage building C. A dry and a wet process feeder system, for the baghouse dust, is located in the northwest corner of building C. E/TI tried to manage the baghouse dust as a dry solid as received, but the material was too moist to move through the dry feeders system. The baghouse dust is transferred from the storage bins by front-end loader to the wet feeder system; the baghouse dust isdumped by the front-end loader onto a screen. The material retained on the screen is placed in supersacks and stored in the numbered storage building, prior to return to the East Helena smelter. The material is returned because E/TI does not have a ball mill or other unit to

Table V - 4

FACILITY NO. 3 PROCESS TANKS [1]
Encycle/Texas, Inc.

Tank No.	Capacity (gallons)	Material of Construction	Type of Construction	Age [2]	Waste Stored	Use	Average Volume (gallons)	Level Alarm or Indicator	Emission Control
5005	10,000	Metal	Platform cover, not sealed		Filtrate	Holding		None	None
5016 5017 5018	6,655 each	Fiberglass reinforced plastic with propylene lining	Closed top	1980	Baghouse dust slurry	Mixing precipitation	5,775	None	Caustic scrubber
5019	10,152	Fiberglass reinforced plastic with propylene lining	Closed top	1980	Zinc/cadmium solution	Precipitation	8,880	None	Caustic scrubber
5035	8,460	Fiberglass reinforced plastic	Closed	1980			7,190	None	Caustic scrubber
North and south slurry tanks	20,000 each				Baghouse dust slurry	Holding		None	None

1 *Blank space in column indicates the information was not provided.*
2 *Age reported from 1980; tanks may be older.*



Products: $PbSO_4$; Cd Sponge; Zn Solids
$ZnCO_3$ + $CdCO_3$ Mixture

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Figure V-9
ENCYCLE/TEXAS, INC.
Facility No. 3
East Helena, Mt Baghouse Dust Circuits

Prepared by NEIC
Not to Scale

reduce the size of the large solids. According to Bill Tiddy, the returned material is furnace coke that is resmelted. E/TI identifies the returned material as "flux sand product."

Water is added to the East Helena baghouse dust to slurry the material to Facility No. 3. There are two slurry tanks on the southwest outside corner of building C, designated the north and south slurry tanks. The baghouse dust slurry, containing between 18 to 20% solids, is pumped through hard pipes to tank 5016 on the top floor of Facility No. 3. Aluminum sulfate, from 55-gallon drums, followed by sulfuric acid from the 8,500 gallon acid tank are added to tank 5016; the contents are leached by mixing up to 24 hours (the usual leach reaction period is 8 to 12 hours.) After leaching, the operator collects a sample of the solution for metal constituent analysis. After the analysis, the tank contents are pumped to tank 5018. While most of the material is transferred to tank 5018, a residue remains in tank 5016. The residue is periodically removed and placed in storage building C, bin A. The last time the residue was removed from tank 5016 was about 18 months prior to the EPA on-site inspection in February 1996. Zinc and cadmium are leached into solution in tank 5016, and lead is converted to lead sulfate, which is insoluble. The residue consists of lead sulfate and furnace coke.

Ferric clear is added to tank 5018 to precipitate lead and arsenic from the zinc/cadmium solution that was not removed in tank 5016. The arsenic goes with the lead sulfate through the process while the zinc and cadmium are removed from the solution later in the process. Percol 728, an organic flocculent, is added to tank 5108 and mixed for several minutes. After mixing, the solids are settled prior to further processing.

After settling, the solution is decanted either to tank 5017 or tank 5019, depending on the circuit being used. After decanting the solution, the solids containing lead and arsenic are pumped from tank 5018 to the east Eimco rotating drum filter. The filter cake drops off the drum filter to belt conveyors that empty onto another conveyor, which delivers the filter cake to storage building C, bin A. The lead sulfate filter cake, with a moisture content between 35 and 45% is placed in the "left" side of bin A (lead carbonate is placed on the "right" side of bin A). The lead sulfate "product" is not blended with other material, and is shipped to Asarco in East Helena, Montana for treatment prior to smelting.

The filtrate from the east drum filter is sent to tank 5005, and then either returned to tanks 5016, 5017, 5018, 5019, or pumped to the Facility No. 2 pump tank.

The zinc and cadmium solution in tank 5018 is processed either in the cadmium sponge-zinc slurry circuit or the cadmium-zinc carbonate circuit.

Cadmium Sponge and Zinc Slurry Circuit

The process precipitates cadmium sponge first, followed by zinc removal as a hydroxide slurry. The cadmium-zinc solution is pumped from tank 5018 to tank 5017. Sulfuric acid is added to the solution in tank 5017 followed by zinc dust. The mixture is agitated until the reaction is completed. The zinc dust is weighed and added in dry form to replace the cadmium in the reaction. The cadmium is precipitated along with some of the zinc. According to E/TI, the potential for arsine production and release occurs during this step of the process. To prevent arsine production, the pH is kept at 3.5 or less.

After the cadmium has precipitated, the zinc solution is decanted to tank 5019. Sodium hydroxide is added to tank 5019 to form zinc hydroxide at a pH of 9 to 10.5. The contents of tank 5019 are pumped to leach tank 3 in Facility No. 2, to produce a copper-zinc mixture which is stored in bin V or VI in the numbered storage building.

After decanting, the cadmium solids are pumped from tank 5017 to the gravity filter, also known as the bag filter, because the solids are pumped into cloth bags. The filtered material, retained in the cloth bags, is emptied into 55-gallon drums. The filtered material, or cadmium sponge, is the purest form of cadmium produced by E/TI, and contains from 65 to 85% cadmium; the rest is zinc. The 55-gallon drums are stored on pallets on the first floor of Facility No. 3, either on the southeast or southwest corners. The drums of cadmium are either shipped to Big River Zinc, or are exported to China.

Cadmium Carbonate and Zinc Carbonate Mixture Circuit

In this circuit, the cadmium-zinc solution is decanted directly to tank 5019 from tank 5018. Sodium carbonate is added to the solution to form cadmium and zinc carbonate at pH 9.5 to 10.5. The solids are sent to the west Eimco rotary drum filter. The filter cake drops off the drum filter to belt conveyors. The cadmium-zinc carbonate is placed in either 1-cubic-yard supersacks or tote boxes, and stored in a building next to the numbered storage building. The mixture is exported to China.

The filtrate from the west Eimco filter is sent to tank 5005 and is returned to tanks 5016, 5018, 5019, or is sent to the pump tank in Facility No. 2.

According to John Likarish, E/TI does not make a profit on the cadmium "product", and was losing money because of low prices in the cadmium market.

FACILITY NO. 4

Facility No. 4 began processing wastes in September/October 1995. The old roaster plant, converted to Facility No. 4 beginning in January 1995, is located on the west side of the site, coordinates E,F-5 [Figure I - 1]. The facility was designed to process Glover Matte from Asarco's Glover, Missouri lead smelter, and Cottrell precipitator dust from Asarco's El Paso, Texas copper smelter. At the time of the EPA on-site inspection, the Cottrell dust system had never been operated and was still proposed. The Glover Matte circuit had been operated, but process units common to both Cottrell dust and Glover Matte were not used.

For the Glover Matte, material is processed to remove sodium salts and sulfur compounds. The Cottrell dust is processed to remove the sulfide. Both materials are classified as Bevill wastes, and are excluded from RCRA regulations. Process tank descriptions and specifications provided by E/TI in discussions are listed in Table V - 5. Tanks are not numbered in Facility No. 4.

Glover Matte Circuit [Figure V - 10]

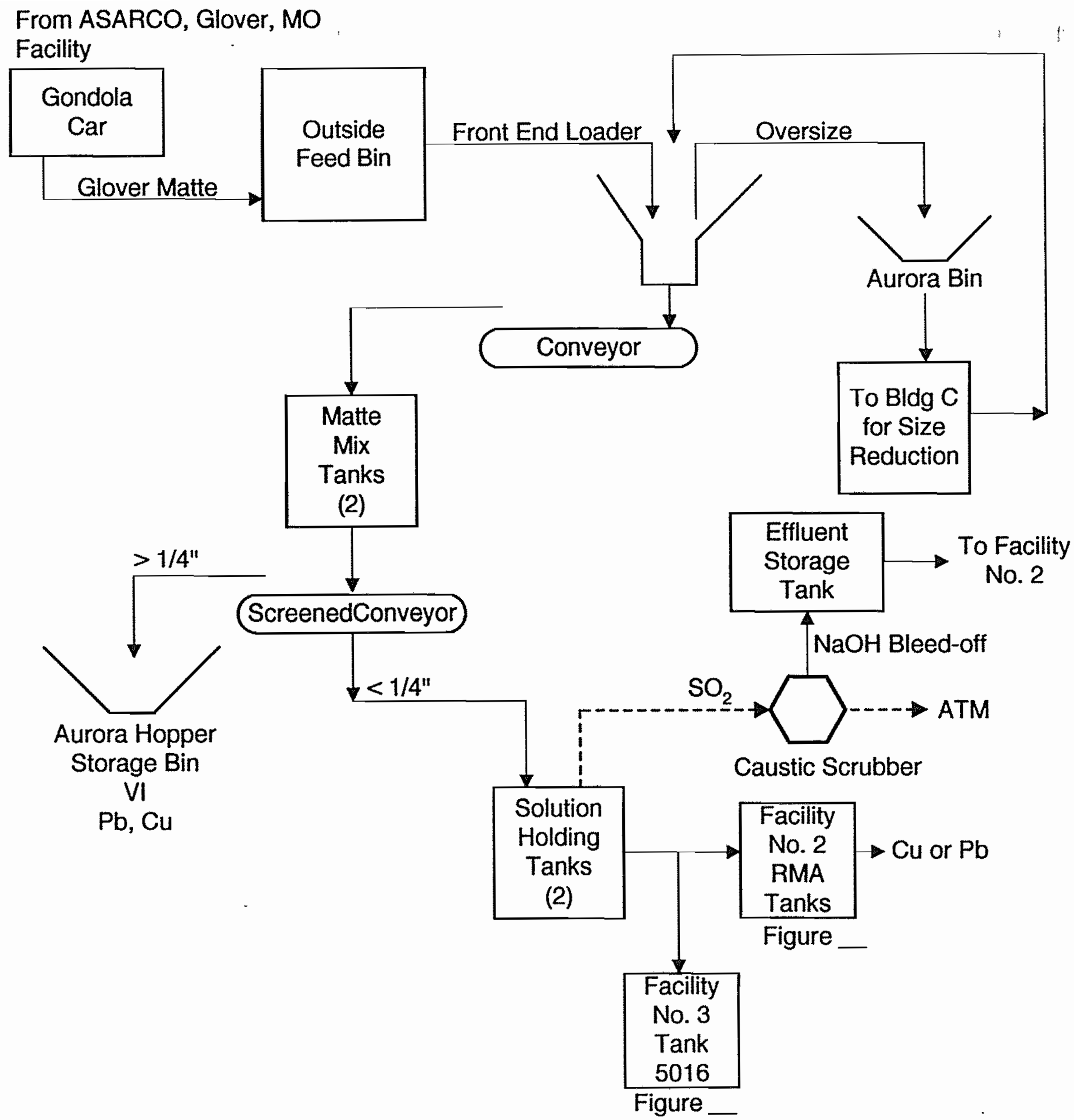
Between 700 and 1,000 tons per month of Glover Matte are received in railroad gondola cars, and are off-loaded into building C by front-end loaders. The Glover Matte is taken from the building C bins, and placed in a temporary holding bin outside Facility No. 4. The material is then scooped by a front-end loader, and dumped onto a vibrating machine known as the "blue goose," located outside, west of Facility No. 4. The oversized material, greater than 3 inches in size is segregated by the blue goose and falls into an Aurora Hopper. The Aurora Hopper is taken to building C, where the oversized material is crushed to reduce the size to less than 3 inches. The crushing is done on the concrete floor of building C with the bucket of a front-end loader. The crushed material is returned to the blue goose.

The Glover Matte, less than 3 inches in size, pass through the vibrator onto a conveyor, which transports the material to the top of Facility No. 4, and drops it into one of two Matte mixing tanks. The tanks are designated as the north and south mixers.

Table V- 5

FACILITY NO. 4 PROCESS TANKS
Encycle/Texas, Inc.

Tank No.	Capacity (gallons)	Type of Construction	Use	Emission Control
Existing Process (February-March 1996) for Glover Matte				
Matte mixing tanks (N&S)	4,000 each	Open top	Agitate Glover Matte	None: moisture content >30%
Solution holding tanks	4,000 each	Closed top	Glover Matte solution to Facility Nos. 2 or 3	Caustic scrubber
Effluent storage tank	10,000	Open top	Storage prior to treatment in Facility No. 2	None
Proposed Process for Glover Matte and Cottrell Dust				
Sulfide holding tank	8,000	Closed top	Glover Matte feed to sulfide reactor	Caustic scrubber
Receiving tank	8,500	Closed top	Cottrell dust from baghouse slurry and mixing	Caustic scrubber
Sulfide reactor	13,000	Closed top	Remove sulfur compounds from Cottrell dust	Caustic scrubber
Sulfide filter feed tank	54,000	Closed top	Decant Cottrell dust and Glover Matte solutions to belt extractor	Caustic Scrubber



Products: Lead, Copper

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Figure V-10
ENCYCLE/TEXAS, INC.
Facility No. 4
Glover Matte Circuit

Prepared by NEIC
Not to Scale

About 1,500 gallons of water is mixed with 5 tons of Glover Matte for 3 to 4 hours. The mixture, approximately 6,000 gallons, is discharged onto a screen conveyor. The solids, greater than one-quarter inch in size, are dropped from the conveyor to Aurora Hoppers, and taken to the numbered storage building, bin VI, as copper and lead "product." The "product" in bin VI is transported to Asarco's smelter in East Helena, Montana in roll-off containers. The mixing tanks are not covered, nor connected to an emissions control scrubber. Mr. Tiddy said emissions are not controlled because the moisture content of Glove Matte is greater than 30%.

Solids less than one-quarter inch in size and the solution pass through the screen conveyor into one of two solution holding tanks. Each tank is agitated to keep solids in suspension. The solution and solids mixture is pumped to the Rocky Mountain Arsenal tanks in Facility No. 2. The mixture is combined with Glover Matte from the leach surge tank, leached, thickened, filtered, dried, and sent to bin VI in the numbered storage building.

Bill Tiddy stated that the material from the solution holding tanks could be sent to tank 5016 in Facility No. 3. Mr. Tiddy did not say whether this sequence had been used previously.

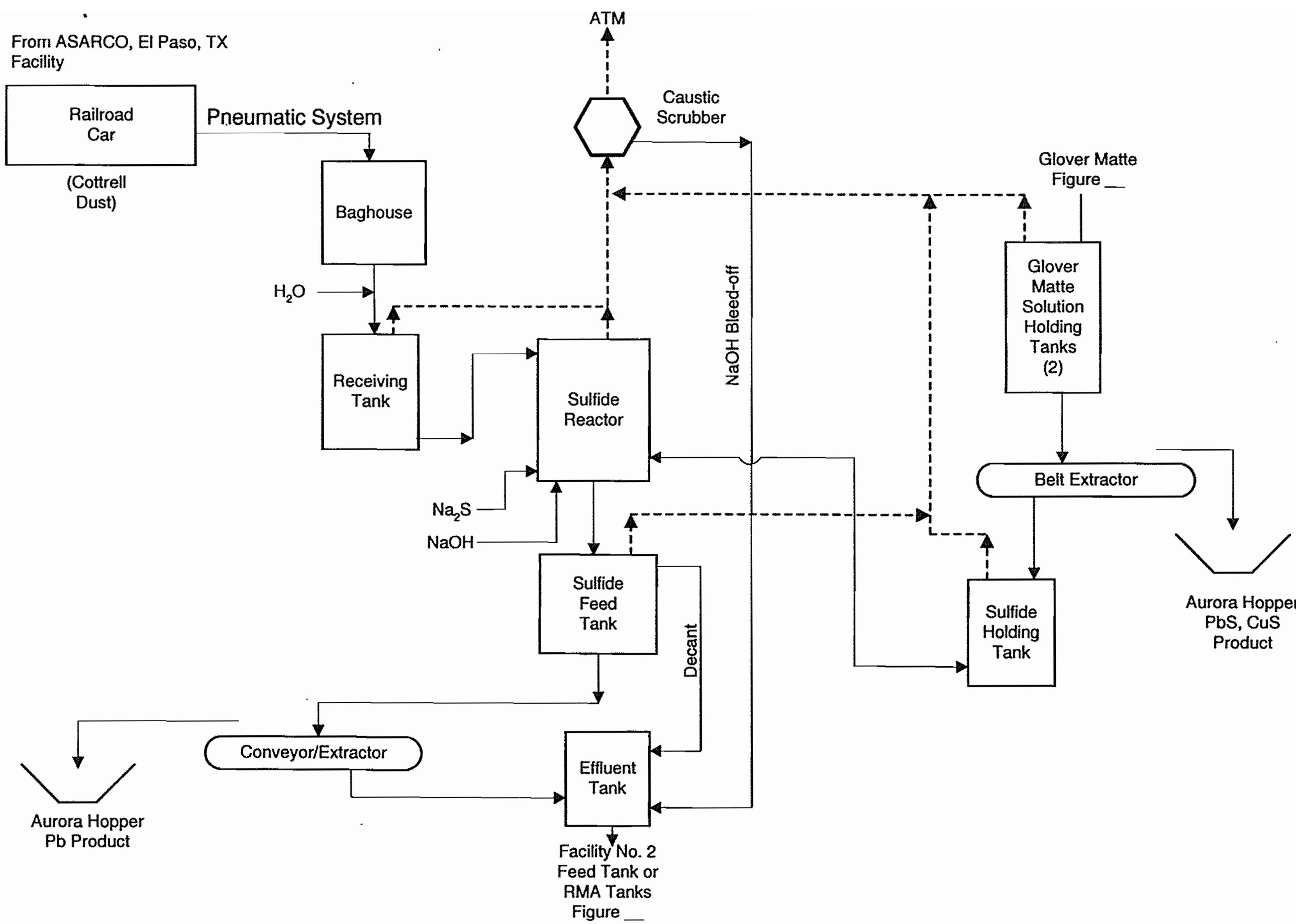
The solution holding tanks are connected to a caustic scrubber; the sodium hydroxide scrubbing solution bleed-off is discharged to the effluent storage tank on the west side of building C. The contents of the effluent storage tank are pumped to Facility No. 2.

Cottrell Dust Circuit/Glover Matte Circuit [Figure V - 11]

The Cottrell dust circuit is built, but had not been used prior to or during the EPA on-site inspection. The Section 118 exemption under the Texas Air Regulations had not been approved by TNRCC. E/TI also had problems handling the Cottrell dust. The dust is very fine and must be completely dry to be pneumatically removed from the railroad car to a holding tank. E/TI had only received one TrackPak railroad car of Cottrell dust. The dust was moist and E/TI could not get it to feed into the system.

The system is built to unload the railroad car pneumatically to a baghouse to prevent fugitive emissions. As the dust is removed from the baghouse, water will be added and mixed in the receiving tank. The slurry will be transferred to the sulfide reactor. Solid sodium sulfide or liquid sodium hydroxide will be added to the reactor; the solution will be transferred to the sulfide filter feed tank, where compressed air will be used for agitation. The mixture from the filter feed tank will be decanted to a belt conveyor-extractor. Solids retained by the belt extractor-conveyor discharge into an Aurora Hopper and will be transported to the numbered storage building, bin VI. The filtrate from the belt extractor-conveyor will be discharged to the effluent storage tank which is pumped either to the RMA tanks or feed tank 2 in Facility No. 2.

When the Cottrell dust circuit is operational, the Glover Matte circuit will use some of the same units. The mixture from the two Glover Matte solution holding tanks will be discharged to a belt extractor-conveyor. The solids retained on the conveyor will be collected in an Aurora Hopper and taken to bin VI. The "product" is copper sulfide and lead sulfide. The filtrate will be collected in a sulfide holding tank, then transferred to the sulfide reactor for processing with the Cottrell dust solution.



Products: Lead Sulfide
Copper Sulfide

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Figure V-11
ENCYCLE/TEXAS, INC.
Facility No. 4
Proposed Process
Cottrell Dust Circuit
Glover Matte Circuit

Prepared by NEIC
Not to Scale

All tanks to be used in the proposed process will be controlled by a caustic scrubber, except the effluent storage tank and Glover Matte mixing tanks.

PRODUCT MANAGEMENT PROGRAM

There is no written procedure for the Product Management Program (PMP), nor has any information describing the PMP been submitted to EPA or the state for approval. John Likarish, Bill Tiddy, Roger Norman, and E/TI's attorney, R. Keith Hopson said that the PMP is a procedure whereby incoming wastes are blended with other wastes and/or E/TI's "product," and shipped to customers for metal recovery. The PMP is linked to the state's approval for E/TI to ship the materials as product rather than manifesting the materials as hazardous waste.

E/TI gave EPA nine letters during the on-site inspection, and stated that the letters were the only written record for the PMP. E/TI said that the site's processes were described to the TNRCC and predecessor agencies in meetings and correspondence from 1988 through 1991. The correspondence between E/TI and the state described the hydrometallurgical processes used for the waste streams received at the facility and requests for the state's approval of the claim that E/TI's "products" are substitutes for commercial products. The TWC concurred on September 10, 1991 that the metal products were substitutes for commercial products when sent to secondary or primary smelters, and did not require manifesting. Based on this concurrence, E/TI ships all "product" off-site as a substitute for a commercial product, including waste streams which have been PMPed.

EPA inspectors were told that the PMP began in 1991. Prior to the PMP, decisions on processing wastes consisted of directing the materials to hydrometallurgical processes in Facility Nos. 1, 2, or 3. After 1991, E/TI began blending wastes as a process separate from hydrometallurgical treatment.

John Likarish explained the PMP and its evolution since 1991. Currently there are five processing operations.

1. Acid or caustic leach
2. Water leach or wash
3. Drying
4. Blending
5. Waste meets product specification, as received

For economic purposes, E/TI prefers to receive material and wastes that require the least amount of handling and processes. Waste meeting product specification, as received, is E/TI's best option. Because the composition and type of wastes available has changed since 1991, E/TI is able to PMP more wastes than when the procedure was initiated.

Prior to 1991, most of the inbound waste streams were liquids. Between 1991 and 1993, solids became the predominant waste streams. The composition of the waste streams also changed from wastes containing either low- or mid-range metal concentrations to wastes with either very low or high metal concentrations. As an example, before 1991, copper concentrations for low- and mid-range wastes were 5 and 8%, respectively. Currently, the very low and high ranges are 1 and 15%, respectively.

According to John Likarish, the 1996 projected process use was as follows:

- Acid or caustic leach: 5% (projected to increase to 15% when Facility No. 3 operates)
- Water leach: 25%
- Blending and shipped as " product": 60%

(Note: Drying is included in the leaching processes).

The materials shipped by E/TI result from the following:

1. <u>Hydrometallurgical Process Solids</u>

   - No blending, solids shipped individually
   - Blended with other hydrometallurgical processed solids, mixture shipped
   - * Blended with inbound wastes which are not hydrometallurgically processed; mixture shipped

2. <u>Nonhydrometallurgical Processed Solids</u>

   - * Inbound wastes blended with hydrometallurgical processed solids; mixture shipped
   - * Inbound wastes blended with other inbound wastes (none are hydrometallurgically processed); mixture shipped
   - * Inbound wastes shipped as received, or after size reduction

   [The above materials which are PMPed are indicated with (*).]

PMP Process

E/TI personnel stated that all material, except those listed below, are blended or mixed with other wastes (i.e., PMPed).

- Cathode ray tubes (CRT)
- Moly Corp. material
- Lead sulfate from East Helena baghouse dust process
- Ni-A ash (Agmet)

The CRTs are stored in building B (hazardous waste storage building), broken up by dropping onto the ground, and shipped to smelters as fluxing material.

The waste from the Moly Corporation contains natural occurring radioactive material (NORM), an alpha emitter, which is shipped without processing.

The lead sulfate "product" from the baghouse dust circuit in Facility No. 3 is not blended or dried in the rotary kiln dryer. The lead sulfate, stored on the left side of bin A, building C, is returned to East Helena for processing.

Precipitator ash (Nickel-A) from DuPont, and the cobalt-manganese filter cake, stored in the Agmet buildings after processing, are not blended because of the tolling agreement with Agmet.

In addition to the "products" stored in the alphabet and numbered storage buildings, the three feedstock exempt from RCRA regulations are stored in five bins in the alphabet storage building (building C). The feedstocks, which arrive in railroad gondola cars, are Glover Matte, East Helena baghouse dust, and Cottrell dust. Although not specifically stated by E/TI, the feedstocks are apparently kept segregated prior to processing, and are not PMPed.

Only solids are PMPed. Wastes arriving in bulk shipments, roll-off containers, supersacks, and tote bins, can be PMPed. After acceptance sampling and analyses, the containers are taken to the east side of building C for unloading. According to John Likarish, the inbound hazardous waste loses the waste code (such as F006 or D008), manifest tracking number, and E/TI's load number when it enters the process tanks or bins. Mr. Likarish also said that the wastes loses the hazardous waste classification once E/TI determines that it meets a "product" specification, either by sampling and analysis, or by the generator's process knowledge. The decision as to which wastes and "products" are to be blended is based on the analyses of the previous day's shipments. Since E/TI assumes that the waste is no longer classified as a hazardous waste, they blend it with other wastes in areas not designated as a regulated unit under the RCRA permit.

A front-end loader removes the inbound waste from the roll-off container and dumps it into a three-sided steel bin, outside the east wall of building C. Only one roll-off is unloaded at a time; the off-loaded material is removed from the steel bin before another roll-off container is unloaded.

Blending occurs in the storage bins or while loading the railroad gondola cars. Blending in the storage bins is done with the front-end loader. "Product" from Facility Nos. 1 through 4 are transported by dump truck, Aurora Hopper, conveyor, or front-end loader to the bins or railroad cars. "Product," dumped in the bins, is analyzed for metal composition. The inbound waste is "plowed" into the "product" in the storage bin with the front-end loader's 7- to 10-cubic-yard bucket. An excavator machine is then used to pull existing material over the top of the new wastes. The material is then pushed back gain into the bin. The blending process is repeated until the material in the entire bin has been mixed. After mixing, the "working face" of the material may be mixed and moved within the bin by a front-end loader to enhance drying in the ambient air.

Mixing in the gondola car occurs by placing "product" and waste in the car with the front-end loader. After the rail car is filled, E/TI personnel collect samples for analysis. Samples of the "product" and waste material from the roll-off container are also collected prior to loading the rail car. E/TI then has a "computer weighted average" from the "product" and waste analyses along with the assay from the rail car sampling. The rail car is not dispatched until after all analyses are complete. Samples are retained as a protective measure if there is a dispute over the composition by the customer and/or E/TI.

Supersacks are also used for blended material shipment. The supersacks are loaded inside or at the front of the bins with a front-end loader.

Wastes PMPed

During and subsequent to the on-site inspection, EPA requested information and documents on blended wastes. E/TI submitted a list of generators, CC numbers, load numbers, and dates the waste were PMPed for July through December 31, 1995. E/TI also provided preacceptance documents and laboratory analytical data for PMPed wastes.

The preacceptance documents include the generator's analytical data, either written on the Waste Characterization Questionnaire (WCQ) or attached to it; E/TI's on-site laboratory analysis of the sample sent by the generator; E/TI treatability data; and other information. The preacceptance documents for each generator were not always complete, and generator analyses did not always match the E/TI analyses. The preacceptance analytical data are used by E/TI to determine which wastes and "products" are to be blended. Although not required by the RCRA permit Waste Analysis Plan, E/TI analyzes the preacceptance samples and each incoming waste load for 18 total metals. E/TI personnel stated the total metal analyses are conducted for economic reasons because they sell the metal values in their "products." The metals analyzed are:

Silver (Ag)	Chromium (Cr)	Nickel (Ni)
Aluminum (Al)	Copper (Cu)	Lead (Pb)
Arsenic (As)	Iron (Fe)	Selenium (Se)
Barium (Be)	Magnesium (Mg)	Tin (Sn)
Calcium (Ca)	Manganese (Mn)	Zinc (Zn)
Cadmium (Cd)	Sodium (Na)	

The waste classification, hazardous or nonhazardous waste, and the appropriate hazardous waste codes, are made by the generators, either from process knowledge or chemical analysis, and listed on the WCQ.

E/TI provided a computer printout listing the generators, CC numbers, load numbers, the dates the materials were process (blended), and the storage bins where the blending occurred. E/TI emphasized that the bins may contain material added before or after the specified dates, and that they do not track loads which are mixed together for a given product shipment.

Table V - 6 summarizes the materials blended in bin V in the numbered storage building on December 16 and 21, 1995. Fifteen different waste streams were blended. The material in bin V is shipped to Asarco's copper smelter, El Paso, Texas.

Two waste streams, American Nickeloid and Omni Circuits, had high concentrations of chromium and lead, respectively, but low copper concentrations. The American Nickeloid waste did not contain any metal of value to the copper smelter. The 18% total chromium concentrations would be diluted, by blending, to approximately 100 ppm, based on the quantity of material blended, 264,853 pounds, and the quantity of

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Table V - 6

METAL CONSTITUENTS PRESENT IN WASTES BLENDED [1]
ENCYCLE/TEXAS, INC.

Generator	CC#	Haz. Waste Code	Total Metals (ppm) [2]						
			Ag	As	Ba	Cd	Cr	Pb	Se
Allistra Zinc	00407	F006	139		293	44	40	1040	
American Nickeloid	04244	F019	38	21	12	26	180,000	405	
Continental Brass	03395	F006			172	39	477	68	
Cuplex, Inc.	00989	F006					300	39,000	
H-R Industries	01110	F006						19,400	
Laidlaw Environmental	03877	F006	51	81	61	153	13,800	1,920	
Laidlaw Environmental	03936	D008		74	1.6	3.9	564	4,800	
Omni Circuits	03901	F006 D003	104	3	22	9,000	53	4,700	2

1 *E/TI analyses*
2 *Blank space indicates concentration less than 1 ppm. Hg data not in E/TI documents.*

American Nickeloid material, 1,475 pounds (0.6% of total). In the absence of additional data, blending the American Nickeloid waste with the other waste streams does not seem appropriate.

The Omni Circuit waste stream contained 37.5% silica, a fluxing agent. Mr. Likarish stated that wastes with fluxing agents may be blended with other waste streams. The lead concentration of 0.9% would be diluted by blending, and removed at the copper smelter by sintering prior to smelting. Other metals present in the waste streams, which are not recovered by the copper smelter, either are removed prior to smelting or are removed with slag. The other constituents in the waste streams are listed in Table _.

PRODUCT STORAGE BUILDINGS PROCESSES

The alphabet and numbered storage buildings are used for "product" storage and blending of "product" and waste materials, as previously described. Two processes, the tin circuit and iron circuits, are located in the numbered storage building. Each building has three-sided bins for blending and storage. Product, such as "copper concentrate" or "lead concentrate," are lettered on signs above the bins. However, the signs do not always identify the product contained in the bin, due to operating needs.

Alphabet Storage Building

The building, known as building C, is a metal sided and roofed building with a concrete floor and concrete interior walls forming three-sided bins. There are 18 bins, lettered A through G, GG, H through N, P, R, and S. The back of the bins use the common south wall with the concrete partition walls extending north. A common access driveway to the bins extends along the north wall. A railroad spur, for receiving and shipping in gondola cars, is on the north side of the building.

According to Mr. Tiddy, five bins are used to store the three feedstocks, Glover Matte, East Helena baghouse dust, and Cottrell dust. Blending is not done in the five bins.

The feed systems for the East Helena baghouse dust [Figure V - 12] and Cottrell dusts are located on the west end of the building. Front-end loaders are used to transfer the East Helena baghouse dust from the bins to the feed system. At the time of the EPA inspection, the Cottrell dust could not be processed because E/TI had not been able to develop a method to transfer the dust from the bin to the feeder. Fugitive emissions could not be controlled when the dust was transferred by the front-end loader because it was "bone dry." Upon wetting to control the emissions, the dust became too slick and the front-end loader could not be used. A pneumatic transfer system had not been used by E/TI as of the EPA inspection.

<u>Numbered Storage Building</u>

The numbered storage building has no other designation. The metal sided and roofed building has a concrete floor and concrete interior walls forming three-sided bins, similar to building C. The bins extend in the east-west direction. Bins 1 through 6 are designated with Roman numerals. Bins 7, 11, and 12 are Arabic numbers. According to Mr. Tiddy, bins 8, 9, and 10 are no longer used. Blending can be done in all bins. The tin circuit is located in bin III and the iron circuit in bin IV. The circuits are blending processes. Both processes are considered by E/TI to be minor product lines.

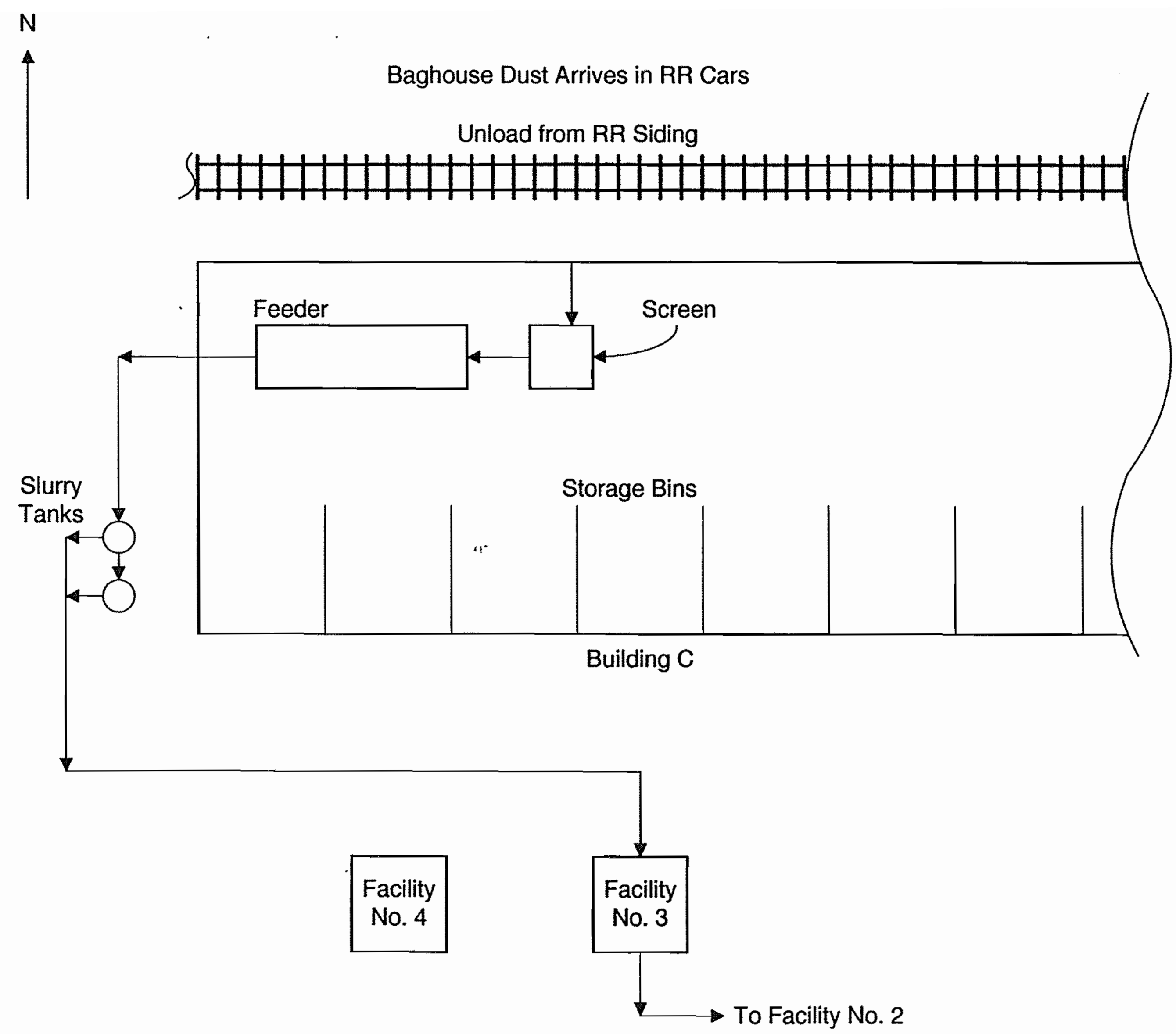

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Figure V-12
ENCYCLE/TEXAS, INC.
East Helena, MT Baghouse Dust
Receiving and Process Circuit

Prepared by NEIC
Not to Scale

Tin Circuit (Bin III)

Tin bearing material is received in supersacks and roll-off containers as a filter cake. The filter cake is blended with a front-end loader and allowed to dry in the ambient air. The tin "product" is shipped to Chemetco, Inc., in Hartford, Illinois, under a uniform bill of lading (BOL).

The tin "product" is shipped in supersacks as tin or in drums as tin/copper. According to the BOLs, the tin "product" also contains lead sulfide. The BOLs provided by E/TI are summarized below.

Date	Quantity (lbs)	
	Tin	Copper/Tin
July 3, 1995		42,890
Sept. 18, 1995	44,720	
Sept. 20, 1995	44,860	
Oct. 10, 1995	44,617	
Oct. 13, 1995	45,870	
Nov. 15, 1995	44,370	
Nov. 20, 1995	44,310	
Nov. 22, 1995	43,390	
Feb. 12, 1996	43,600	
Feb. 19, 1996	43,970	
Mar. 14, 1996	42,370	
Mar. 18, 1996	44,140	
Totals	486,217	42,890

Iron Circuit (Bin IV)

The iron circuit is a replica of the tin circuit. The wastes arrive in totes or supersacks from Robins Air Force Base. The waste is manifested as a hazardous waste. Mr. Tiddy said the waste was from "a pond." The waste is mixed with a precious metals blend to a consistent concentration. The iron concentrate is shipped to Asarco's smelter, East Helena, Montana. The BOLs, summarized below, show that 775,620 pounds of iron concentrate containing recoverable lead were shipped by rail car to East Helena.

Date (1995	Quantity (lbs)
August 18	151,380
August 22	145,280
August 23	161,500
August 28	147,200
December 6	170,260

VI

WASTEWATER TREATMENT

This section summarizes E/TI's treatment facility for wastewaters generated during the hydrometallurgical processing of hazardous and nonhazardous wastes, and the stormwater collection and storage lagoons. On-site treatment of the sanitary wastewater, discharged to a clargester, trickling filter, clarifier, and chlorinator, is not discussed in this report. The effluent from the sanitary wastewater treatment system is returned to the processes. The six sludge drying beds for the sanitary sludge are no longer used.

According to Roger Norman, the only waste stream generated by E/TI is treated and discharged through NPDES outfall 001. All solids from processes are shipped as "product." The solids from wastewater treatment are returned to the processes. Bench scale treatability studies are conducted on waste streams prior to E/TI accepting the material for processing. One purpose of the studies is to determine if the wastewater generated from processing can be treated in the wastewater treatment facility. If processing the waste stream would result in noncompliance with the NPDES permit effluent limitations, the waste is not accepted by E/TI.

Stormwater is collected in two lagoons on the north end of the facility. The stormwater is used in the processes. Discharge from the lagoons, if necessary, is on the east side of the east lagoon, through outfall 002. According to Roger Norman, there have been no discharges from the lagoons since E/TI began operations.

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WASTEWATER DISCHARGE PERMITS

E/TI was issued an NPDES Permit, No. TX0003191, on September 23, 1988 by Region 6, USEPA, effective October 24, 1988, and expired April 13, 1992. The permit regulated the discharges from outfalls 001 and 002. EPA did not reissue the permit after it expired.

The Texas Water Commission (TWC) issued Permit No. 00314, which corresponded to NPDES permit No. TX003191 on March 6, 1989. The TWC permit was amended on November 28, 1989 and expired April 6, 1993. The TNRCC reissued Permit No. 00314 (current permit) on March 11, 1994, which replaced the permit approved July 30, 1993. The current permit expires July 30, 1998. The July 30, 1993 permit was reissued because E/TI had applied for an amendment to remove the effluent limitations and monitoring requirements for COD for outfall 001. The COD excursions were due to high chloride levels in the effluent, an interference in the COD analysis. TNRCC eliminated the COD requirements in the amended permit.

The TNRCC permit regulated the discharge of treated process wastewater, treated domestic sewage, and treated stormwater runoff from outfall 001 from July 30, 1993 through December 31, 1995. On January 1, 1996, more stringent discharge limitations became effective because E/TI's new 78-foot-diameter reactor/clarifier was due to be on-line on October 1, 1995. The new reactor/clarifier was still being constructed as of the EPA on-site inspection. The unit was scheduled for start-up in the end of March to mid-April 1996 time period. The 65-foot-diameter reactor/clarifier was still being used. According to E/TI personnel, the 65-foot-diameter unit will be taken out of service, repaired, and then used as a standby reactor/clarifier.

The outfall 001 effluent limitations for the following constituents were reduced on January 1, 1996, as follows:

Characteristic	Discharge Limitations (Outfall 001)					
	Daily Avg. (lb/day)		Daily Max (lb/day)		Grab (mg/L)	
	Expires 12/31/95	Effective 01/01/96	Expires 12/31/95	Effective 01/01/96	Expires 12/31/95	Effective 01/01/96
Cyanide [1]	4.2	0.0366	8.4	0.0775	2.0	0.03
Zinc	4.2	1.12	8.4	2.37	3.0	0.80
Cadmium	0.4	0.29	0.8	0.63	0.3	0.21
Lead	2.1	0.69	4.2	1.47	1.5	0.5
Mercury	0.02	0.035	0.04	0.0075	0.1	0.003
Nickel	4.2	0.61	8.4	1.30	3.0	0.45

1 *Cyanide amenable to chlorination*

In addition, bioassay of the whole effluent lethality for Mysidopsis bahia and Menidia beryllina had a daily average limitation requirement added, ≥8% NOEC,[1] instead of a "reporting only" requirement. The remaining limitations did not change. Outfall 002 effluent limitations include metals and total suspended solids (ATTACHMENT VI -1) lists the permit limitations for outfalls 001 and 002).

No observed effect concentration

EPA Region 6 conducted an NPDES compliance inspection on September 20, 1995; samples were not collected by the inspector. The facility was determined to be satisfactory for the areas evaluated.

- Permit
- Records/Reports
- Facility Site Review
- Flow Measurement
- Effluent/Receiving Waters
- Self-Monitoring Program
- Operations and Maintenance
- Sludge Disposal

The inspector observed excessive foam in the channel immediately upstream of the 6-inch Parshall flume, and iron particles from the 65-foot-diameter reactor/clarifier were being discharged into outfall 001.

On February 27, 1996, the EPA inspectors observed that a tube connected to the automatic composite sampler had been permanently installed in the throat of the Parshall flume. The self-monitoring effluent samples were collected through the tube. Placing the tube in the flume throat would cause the flow recording device to measure a higher flow than was actually being discharged, as the tube would cause an increase in the height of the wastewater in the flume's stilling well. E/TI personnel were informed, and by the end of the inspection, the sampling tube had been relocated to a position upstream of the throat, which would not affect flow measurement.

WASTEWATER TREATMENT PROCESS [FIGURE VI - 1]

All wastewater generated from the hydrometallurgical process flows to the pretreatment process in Facility No. 1. After pretreatment to reduce hexavalent chromium to trivalent chromium, and remove ammonia, sulfide, and copper "product," the process wastewater is discharged to tank 5040 in Facility No. 1 and the pH is adjusted to 10.5 to 11 from 4 to 5 with lime. The overflow from tank 5040 is hard piped to the wastewater treatment plant and the neutralization tank. The treatment tank capacities and descriptions are summarized below.

WASTEWATER TREATMENT TANKS [1]

Tank	Capacity [2] (gallons)	Use
Neutralization tank	8,000	pH adjustment with CaO; tank agitated
65-foot reactor/clarifier	400,000	Solids removal
78-foot reactor/clarifier	600,000	Solids removal
pH adjustment tank	6,000	Adjust pH to 8 with H2SO4
Thickener	30,000	Temporary solids storage

1 *Tanks are open top*
2 *Capacities provided by production manager*

Lime is added to the neutralization tank to increase the pH to 11 or 11¾. The wastewater flows from the bottom of the tank (about 1 foot from bottom) to the 65-foot-diameter reactor/clarifier. A manually operated valve on the neutralization tank's effluent pipe controls the wastewater level inside the tank. Allied Chemical anionic flocculents 611 and 336 are added to the reactor/ clarifier. The overflow from the reactor/clarifier is discharged to the pH adjustment tank where 93% sulfuric acid is added to reduce the pH to 8. The effluent from the pH adjustment tank is discharged through a 6-inch Parshall flume where the effluent is sampled

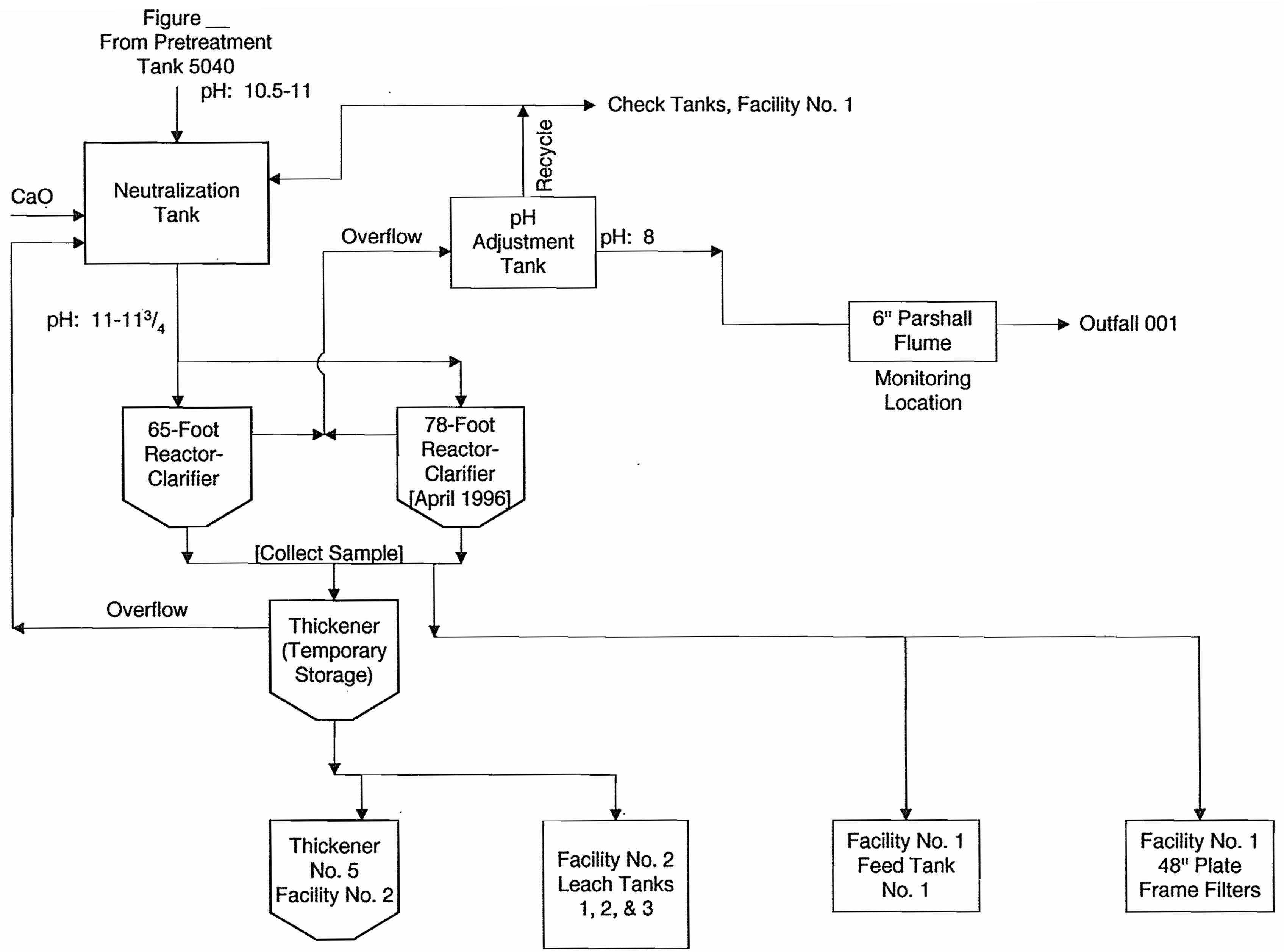

Figure VI-1
ENCYCLE/TEXAS, INC.
Wastewater Treatment

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and the flow measured and recorded. The effluent from the flume flows to a channel located on the east side of the stormwater lagoons berm, and into the Corpus Christi Inner Harbor.

The underflow, or solids, from the reactor/clarifier are returned to either Facility No. 1 or No. 2 or returned to the neutralization tank. Solids returned to Facility No. 1 enter the copper circuit via feed tank 1 or the 48-inch plate frame filters. A 30,000-gallon thickener, used as a reserve reactor/clarifier, is used to collect the underflow from the 65-foot reactor/clarifier if the solids are not sent to Facility No. 1, or returned to the neutralization tank. The thickener overflow is sent to the neutralization tank, and the solids to either leach tanks 1, 2, and 3 or to thickener 5 in Facility No. 2.

The wastewater in the pH adjustment tank can be recirculated to the neutralization tank or to the check tanks in Facility No. 1.

During the EPA inspection, E/TI personnel showed where the outlet pipe from the 65-foot reactor/clarifier overflow tank had been "blinded" at a pipe connection flange, the section of the pipe removed, and a valve on a reactor/clarifier outlet pipe "locked-off." This was done to prevent the discharge of process wastewater to the stormwater lagoons. TNRCC inspectors had previously discovered that the treatment operators had discharged wastewater to the lagoons. The information had been recorded in the operating logs. The wastewater carries RCRA listed hazardous waste codes when it is not discharged through outfall 001.

STORMWATER COLLECTION AND REUSE

The active portion of the facility is served by storm sewers installed prior to E/TI's ownership. The storm sewers collect the rainwater and convey it to a wet well at the south side of the berm dividing the stormwater lagoons into two units. The drains to the storm sewers have "pans" or covers which prevent spills from process areas entering the sewer system. The "pans" are manually removed during precipitation events.

The wet well contains two pumps, known as the outfall pumps or lagoon pumps, which pump the stormwater to two "demineralizer tanks," each 250,000-gallon capacity, located west of Facility No. 1's north side. The wet well overflows by gravity to the west lagoon if the demineralizer tanks are full. The stormwater from the demineralizer tanks is used as process water and eventually is treated in the wastewater treatment plant. E/TI personnel stated that they prefer to use the stormwater as far "up the process" as possible (i.e., minimum amount of processing). During the EPA inspection, the stormwater piping system was from the demineralization tanks to thickener numbers 1 and 2 in Facility No. 2.

The two lagoons were built prior to E/TI ownership. Originally there was one large lagoon, clay lined with a hypalong liner. The hypalong liner was removed from the lagoon, and an 80-mil HDPE liner installed over the original clay liner in the west side. The entire hypalong liner was removed because of maintenance problems (i.e., "bubbling effect"). A berm was constructed between the HDPE (lined section) and the section without a synthetic liner, creating the west and east lagoons. Mr. Keith Hopson stated that the HDPE liner was installed because the state was concerned about contamination from stormwater runoff.

The west lagoon, 800,000 gallon capacity, overflows to 5,200,000-gallon capacity east lagoon. The overflow from the east lagoon, outfall 002, enters the channel on the east side of the lagoons carrying the treated process water discharged from outfall 001, and flows into the Inner Harbor. There is no flow measuring/recording equipment at outfall 002.

The stormwater lagoons were part of the wastewater treatment process during the Asarco zinc production period. A pipe from the 65-foot-diameter reactor/clarifier discharged into the west lagoon. The flow from the reactor/ clarifier would automatically be discharged to the lagoon under the Asarco flow scheme. The pipe, as previously discussed, was blinded at a flange and a section removed. The lagoon system is included in the RCRA Facility Investigation (RFI) in the TNRCC permit.

VII

COMPLIANCE EVALUATION

This section details the findings of the permitted activities and waste management practices under RCRA. NEIC personnel evaluated the E/TI laboratory practices and Region VI personnel evaluated the waste management activities dealing with the manifests, storage areas, Contingency Plan, facility standards, and general operating conditions. E/TI must comply with the specific requirements in the RCRA permit. The findings and areas of concern are preliminary until a review has been made by the Region VI Compliance Assurance And Enforcement Division, Hazardous Waste Enforcement Branch with concurrence by the Legal Branch.

LABORATORY EVALUATION

RCRA Permit

Waste Handling And Analysis

This section of the report details the findings of the on-site inspection of the sampling and laboratory capabilities of E/TI and also an analysis of information from documents collected in association with the review of waste handling and laboratory capability at the site.

Background

The waste handling and analysis requirements for this site are set forth in the TWC permit (HW-50221-001 Appendix A, revised 6-92) which incorporates by reference, in Section VIII. D., the additional specific requirements of the Waste Analysis Summary (Attachment G, revised 6-16-92, hereinafter referred to as the "June 1992 WAP"). This section of the permit states that "The permittee shall follow the waste analysis plan developed in accordance with 40 CFR Part 264.13 dated April 14, 1987 and modified March 25, 1991 and June 19, 1992..." The federal regulations are further referenced in Section IX. B which requires the permittee to "obtain from the generator a representative sample of the waste or a certified representation of the waste and chemical and physical data for the waste which is sufficient to characterize the waste in accordance with 40 CFR 264.13. The permit authorizes E/TI to treat and store certain types of wastes while prohibiting others. The permit and the June 1992 WAP are included with this report, respectively, as Attachment VII - A and Attachment VII - B. Unless otherwise noted, the June 1992 WAP will be referred to in this report as simply the "WAP".

Between March 4 and March 7, 1996, chemists from NEIC evaluated waste acceptance and waste handling practices at the E/TI facility in Corpus Cristi. Many of the findings presented here resulted from interviews of site employees and through observation of site activities. The remainder of findings resulted from analyses of documents requested during or subsequent to the site visit in March. The primary purpose of this evaluation was to determine regulatory compliance with the RCRA regulations as delegated to the State of Texas. E/TI's on-site laboratory was part of the evaluation because of its role in waste analyses and other materials evaluations pursuant to regulatory compliance. E/TI also uses an off-site contract laboratory which was not evaluated because of its minor role in waste identification and analyses. This section identifies the various components of the evaluation and presents compliance status.

E/TI company personnel who furnished information for this section of the report are as follows:

Sampling:	Kathy Neve, Facility Manager
Laboratory Procedures:	Hanna Zwierzkowski, Laboratory Manager
	Elizabeth Payne, Environmental Manager
TOC, VOC, ICP and AA Procedures:	Hank Wendland, Chemist
Outbound product sampling:	Aubrey Beadle, Sampling Supervisor
	Joe Ybarra, Process Tech
Additional Information and Coordination:	Elizabeth Payne

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Description of Waste Analysis, Waste Tracking and Handling

- Pre-acceptance

Before E/TI can treat or store any waste, certain information and testing results must be collected. In this report, this portion of the generators due diligence requirement will be termed "pre-acceptance".

Normally, prior to waste acceptance, a sales person is to send the client a waste characterization questionnaire (WCQ) and a sampling package. The WCQ describes and certifies the identity and chemical character of the waste stream. A representative sample of the waste and filled out WCQ are returned to E/TI. The WAP requires the WCQ to be completed and certified by signature. E/TI checks the WCQ for completeness and signatures. The representative sample received back from the client for a particular waste stream is termed the "marketing" sample and given a Corpus Christie (CC) number. This sample is required to be analyzed by E/TI to verify and supplement the information supplied by the waste generator in the WCQ prior to E/TI's decision to accept the waste. E/TI also reported that they always do their own analysis because discrepancies have occurred in the amount of recoverable product the client has claimed. The E/TI analysis results are to be recorded on a Marketing Report. At the time of the NEIC visit in March 1996, E/TI used different colored Marketing Reports to record analytical and test data. A "gold" colored report was used for liquid wastes during the pre-acceptance process. A "yellow" colored report was used for solids. The Marketing Reports are stored in the laboratory and filed under the generator name, as well as in the administrative office in the marketing folders. The laboratory can then compare these result to those of actual shipments .

The pre-acceptance test parameters required by the WAP are:

a) specific gravity

b) physical description (color, phases, odor)

c) pH

d) alkalinity in wastes with pH greater than 8

e) total cyanide in alkaline wastes (pH greater than 7)

f) sulfide in alkaline wastes (pH greater than 7)

g) acidity in wastes with pH less than 4

h) free liquid content by a paint filter test, when the presence of free liquids is possible

i) moisture content in wet sludges

The WCQ attached to the June 1992 WAP, used to assess compliance, requires approximately two pages of detailed essential information (Attachment VII - B).Included in the WCQ requirements, however, are:

- Generators certification that the information presented is complete, true and accurate (authorized signature)
- Certification of representative sample

The "waste decision process" begins when the analytical results are entered into the E/TI computer system. The analyses sheets are retained; analytical results are attached to the analytical package. As part of the waste decision process, the analytical manager will verify that all appropriate analyses have been performed. The analytical manager will note whether the waste is accepted or rejected. Other departments which are included in the decision to accept a particular waste include the environmental department, which is responsible for making sure the waste is acceptable under the permit. The operations department determines if the size and consistency of the waste will allow for handling. The Technical department insures that the product has economic value, i.e., can be sold.

The pre-acceptance testing is to be repeated at least once per year on wastes received annually or more frequently; or on each shipment, for wastes received less frequently than annually. More frequent analysis may be necessary (although nothing specific is required by either the permit or the WAP) when E/TI is informed by the waste generator of changes, or when any analysis results show that the waste differs significantly (as outlined in WAP) from the original characterization.

- Acceptance

Once E/TI has determined that a waste stream would be acceptable for treatment at the site and given approval, there are further requirements to identify each load received. Collectively, these procedures will be referred to in this report as "acceptance" procedures.

After approved the generator schedules a load, then a Waste Order is created. A transportation profile and approval is required for each transporter prior to shipment. Upon arrival of a truck or rail car the sampler collects a representative sample of the material in accordance with the operating procedures and transmits it together with the Waste Order, the Hazardous Waste Manifest and Bill of Lading (trucks only) to the laboratory for fingerprinting. The WAP requires a representative sample of the waste received at the facility for each load. Waste material can be received by tanker truck, rail car, roll-off containers, drums, boxes, totes, bags and supersacks. Liquids in carriers are to be sampled by coliwasa. Solids in carriers are to be sampled by a stainless steel coring tool inserted vertically through the entire thickness. Each arriving waste truck, regardless of the number of waste streams aboard, is given a load number which tracks the transport vehicle while on-site. If the waste is in drums, there will be a CC number, a load number and a drum number on the "white sticker" placed on the drum.

For acceptance, a representative sample of each load is to be tested for the following parameters:

a) free liquids by a paint filter test if the presence of free liquids is possible

b) total organic carbon (TOC) when the presence of organics is suspected

c) PCBs when the presence of organics is suspected

d) radioactivity when the presence of organics is suspected

e) bench scale reactivity

f) cyanide in alkaline, cyanide bearing wastes

g) sulfide in alkaline, sulfide bearing wastes

The analysis results are to be recorded on a form called a Shipment Report. There are two types of Shipment Reports: a "blue" colored Liquid Shipment report is for liquid wastes, and a "green" colored Solid Shipment Report is for solid wastes. Laboratory personnel are able to compare preacceptance information with the shipment information because a folder containing these reports is kept for each generator.

According to Ms. Payne, a major discrepancy would cause the waste to be rejected if the site could not process the waste, if the resulting product would be unsaleable, if a treatment fee could not be agreed upon with the generator, and if processing the waste would cause exceedences of the NPDES permit or noncompliance with the waste handling permit.

Ms. Payne stated that the PMP is part of the process. That is, the same marketing and waste acceptance sampling and analysis procedures take place prior to the waste entering the PMP as would occur for wastes entering other recovery processes.

Sample Analysis and Laboratory Procedures

The following were determined by inspection and interview while on-site:

- *Sampling*

Samples collected for on-site analysis of incoming wastes are not always representative as required in the permit. The permit requires sampling methods from either Appendix I or Part 261 or the equivalent. On March 5, 1996 sampling procedures were observed in Units 4 and 5, building B which is a receiving area. A sample was taken from a waste load described as Moen , CC #4744. Some of the drums contained both liquid and solid phases. Only the solid phase from one of these drums was sampled, which was not representative of the contents. In the sampling of another waste, CC #04747, load #11468, #2, the thief used to obtain a sample was only inserted about 12 to 14 inches into the barrel. This procedure only sampled the upper volume of the waste and neglect the lower, which is in contravention to the required sampling protocol.

- Analysis

Page 11 of the permit requires that all waste analyses utilized for waste identification or verification are in accordance with "Test Methods for Chemical Analysis of Water and Wastes" or Test methods for the Evaluation of Solid Waste: (SW-846) or other methods which are approved by the EPA. There were a number of methods not performed in accordance with this requirement, as follows:

According to Ms. Payne the marketing and shipping reports do not have a space for reactive sulfide results, and E/TI typically does not perform reactive sulfide because the site does not accept reactive sulfide-containing wastes. However, NEIC was also told that the E/TI laboratory was using lead acetate paper to check for the presence of reactive sulfide.

According to Ms. Payne, since July 1995, if the presence of cyanide is indicated in wastes, the pre-acceptance sample is sent out to Jordan Laboratories for total CN^- analyses. Also, she reported that E/TI had stopped accepting liquids containing CN^-.

According to Ms. Zwierzkowski, the pH meter is standardized using a pH buffer of 7 but not always using a second buffer value. EPA methodologies require the use of two buffer solutions to bracket the sample pH and establish linearity. The practice of standardizing with two buffers is also important in identifying contamination of or problems with the electrode.

There is evidence to indicated that wastes containing more than the 1000 ppm limit for VOC may have been inappropriately accepted by the site because it is believed that some total organic carbon (TOC) and some volatile organic carbon (VOC) results used in waste pre-acceptance and acceptance have contained significant error. Further investigation will be required to make exact determinations. TOC is by one definition the sum of VOC plus non-purgeable organic carbon (NPOC). The documents available indicate that the present method for preparing "TOC" samples is acidification to pH less than 2, followed by sparging with oxygen for 6 minutes, which would indicate the measurement of NPOC only. The manufacturer of the instrument used, the Dohrman DC80, also confirmed that under normal operation, the instrument used only measures NPOC. Further problems were indicated by the documentation for a liquid shipment report for Kemet Electronics Corp dated 1/9/95 (Exhibit VII- A: #600574) which shows a TOC of 1815 and a VOC of 7586 milligrams per liter. VOC on any given sample could not be greater than TOC. It results in a permit violation that this Kemet load was apparently approved even though the VOC result exceeded 1000 ppm. Further investigation may reveal additional anomalies.

The laboratory also has the capability of directly measuring volatile organic carbon on the Dohrman DC80 for liquids using a different sample introduction process. These direct measurements are believed to be reasonably accurate. It is unknown for which samples this method was employed without further investigation.

Another way in which TOC can also be determined is by measuring total carbon (TC) and separately, inorganic carbon (IC), then subtracting IC from TC. Documents examined for earlier periods, e.g., NASA Photowaste, CC #55-90, dated 8/2/93, indicated that VOC was determined by subtracting IC from TC. In this example the VOC was reported at 50 ppm but was obtained by subtracting an IC of 11220 from a TC of 11270. The difference between these two numbers is really TOC but if the TOC were actually 50, it would mean that the VOC could be no more than 50. It is assumed that this is why VOC was reported at "50". The problem with estimating the maximum VOC in this manner is that one relatively large number is subtracted from another which leads to large relative error in the difference and an inability in many cases to accurately discern the limit, 1000 ppm. This problem is actually demonstrated for an "Alltrista F006" load #9399 reported on 12/22/94 (006340). The solid shipment report, attached as Exhibit VII - C further indicates that VOC was incorrectly determined because TC-IC=TOC=995 mg/L, but TOC is reported above on this sheet as 1838 mg/L. Also, without further inquiry, it is not apparent that E/TI had the procedures in place to measure IC necessary for this method of determining VOC.

There is a permit limitation of 1000 ppm for VOC. Where these methods were used to measure TOC to say that the VOC component of TOC was less than or equal to the "TOC" measurement, the conclusion would be unfounded. That is, it is believed that direct measurements of VOC may have been reliable but that estimates of VOC through the NPOC or subtraction methods have not been. Unfortunately it is not always possible to determine the origin of the VOC data observed in the documentation provided.

The WAP makes optional "bench scale tests" used to determine if "recycling is complete and effluent is suitable for discharge", or that recycling is economical. The WAP, however, requires "bench scale reactivity " and "compatibility" testing. Bench scale reactivity pertains to mixing incoming waste with waste received in the previous 24 hours to observe for temperature changes according to the WAP. Compatibility testing, required to be completed before placing a new waste in a tank, is performed by mixing a sample of the incoming waste with the contents of a tank taken just prior to emptying the tank. Ms. Payne indicated that waste receipt compatibility testing is performed but not documented. This is in contravention of the Permit requirement, section IX.b.4. which requires record keeping of information and data concerning the results of analyses conducted on the waste material to be processed at this facility. Also stated was that compatibility testing is typically not performed on solids unless from a really complex material. According to Ms. Payne, wastes are "batched". Batching is based on knowledge. Wide differences in pH of materials is the prime consideration affecting compatibility considerations. Ninety-nine of the wastes received were said to be acidic although some zinc anode slurries are received with a pH of 13. Later, NEIC ask for records of compatibility testing, not distinguishing between bench scale reactivity and "compatibility" testing. However, E/TI's response (EN2, #6) implies that E/TI's requirement for compatibility testing is limited to reactive cyanide and sulfide determination, which is not the case. The lack of records fails to substantiate that the required determinations were made.

Ms. Payne related that they had not done acidity and alkalinity for at least 1 year. Acidity and alkalinity are required for pre-acceptance and if performed in pre-acceptance is also required for acceptance. Omission of these determinations is assessed in sections of this report to follow.

Ms. Payne indicated that since 1989 E/TI has relied on the generators signed statement on the WCQ that there are no PCBs and consequently discontinued GC determinations for this parameter. The statement was made that E/TI no longer processes any oily wastes. Undoubtedly this statement was an oversight because in the examination of records, oily samples were frequently noted. Where these oily wastes were noted, the WAP required PCB testing.

Mr. Wendland indicated that hexavalent chromium was performed by atomic absorption, but very infrequently and only on special request. E/TI related that generally hexavalent chromium is not measured because it is "all reduced to the trivalent form." The permit requires that all hexavalent chromium present in incomming waste be reduced to trivalent chromium. The available pre-acceptance documentation does not address hexavalent chromium and there is a concern, especially for the PMP wastes, that hexavalent chromium is unidentified.

The specific gravity method at the time of the NEIC visit was performed by discharging the contents of a one milliliter Eppendorf tip onto a tared weighing vessel placed on the pan of an analytical balance. Such a practice may lead to subsampling error when the material is non-homogeneous and/or cannot be adequately represented by this small sample. This is not a violation but an area of concern.

Percent water for solids and slurries consisted of gravimetric determination after one hour by heating in an oven at 120 °C, and using approximately 2 grams of sample. At the time of inspection, the desiccant used to equilibrate the sample while cooling was observed to be pink in color indicating that it was spent and unable to prevent water from being re-entrained by the sample. This practice may lead to results biased low for percent moisture and is an area of concern.

Permit Deviations

Section III.B.6 of the permit requires that all waste analyses have been performed by EPA approved methodology. Discrepancies with the total cyanide, total organic carbon (TOC) and volatile organic carbon (VOC) procedures performed as waste analyses procedures were noted. These are further explained in the section on "Sample Analysis and Laboratory Performance."

Waste Analysis Plan Deviations

Section VIII. D. requires the waste analysis plan to be developed in accordance with 40 CFR 264.13. The initial WAP dated April 14, 1987 and required by the permit was officially modified on March 25, 1991 and June 19, 1992. At the time of the March 1996 on-site inspection, E/TI's Environmental manager furnished an undated version of the WAP (the "undated WAP") and stated that it was the protocol being followed. However, upon further investigation, it was determined that the undated WAP was never formally adopted by the TNRCC. The focus of this investigation was on the three years (1993-1995) prior to the date of the NEIC inspection. Thus, the June 1992 WAP set forth the practices to be followed throughout this period and was used to determine compliance with WAP requirements. The undated WAP is included in this report as Attachment VII - C. Deviations from the June 1992 WAP are presented below: The permit refers directly to the federal regulations, therefore the following findings may be violations of the federal code:

- 40 CFR 264.13(b)(1) requires specification of the rationale for selection of parameters for analysis. No specific rationale was presented for the parameters specific gravity, physical description and pH.

- 40 CFR 264.13(b)(2) requires the specification of the test methods to be used for specific waste analyses. The test methodology was not specified for the parameters specific gravity and physical description.

• 40 CFR 264.13(c)(3) for off-site facilities receiving containerized hazardous waste, requires description of the procedure which will be used to determine whether a biodegradable sorbent has been added to the waste in the container. These procedures were not present in the June 1992 WAP.

• 40 CFR 264.13(b) requires the owner/operator to follow the written WAP. The WAP requires the facility to perform bench scale reactivity. No record was provided to indicate that this was done, as further detailed in Sample Analysis section of report. Also, the permit requires the determination of waste constituents present in concentrations greater than one percent. NEIC performed analyses on selected samples taken during the March visit. These results, which are reported in the section of this report entitled Sampling and Sample Analyses, indicate that this is not always done. The NEIC analyses indicate that silicon and sulfur present at concentrations greater than one percent had not always been assessed. Although it is understandable that E/TI was primarily interested in the recoverable metals present, the requirement makes no such distinction. Also, significant concentrations of other elemental constituents such as tellurium and thallium were found in the NEIC analyses. Although the concentrations were slightly below one percent their presence at those levels constitutes endangerment to employees and was apparently unassessed by E/TI. An assessment of whether required testing was conducted follows in the section on "Records and Analyses of Waste Identification"section.

Rarely did E/TI update the WCQ, which is part of the vehicle for updating all of the preliminary waste stream information needed to treat and store specific wastes at the site. This is part of the regulatory requirement under 40 CFR 264.13 (a)(3). Each incident is not individually cited, however could be, for all of the loads examined.

Problems with the June 1992 Waste Analysis Plan

There was no preacceptance requirement to indicate whether a waste stream had been assessed for a possible infectious or putrescible nature. Such wastes are prohibited by the permit.

The permit (section IX.B.1.c) requires certification of the methods and quality control procedures used by the generator to determine certain key parameters such as percent concentrations of constituents, VOC, reactive cyanide and reactive sulfides. There was no documentation specified in the WAP to address this requirement. When applicable, signed statements certifying which procedures were used should be submitted by the generator along with the documentation for each waste stream.

The WCQ questions are sometimes ambiguous. It is unclear whether all questions must be answered. For instance, blanks are present after specific parameters, and should be filled in with an appropriate response such as "yes" or "no". Whereas the generator might overlook a response, a blank could be interpreted by E/TI that the parameter or property of concern was not present or not applicable. Although E/TI personnel could (and should) contact the generator to resolve any question, the presence of clear instructions in the WCQ would resolve this ambiguity. There were, in fact, several instances where WCQs presumed to be complete had unanswered questions.

Page 30 of the permit requires removal of hexavalent chromium from the wastes. It appears that the WAP does not provide a pre-acceptance screening procedure to identify hexavalent chromium, as it should. Nor is there a screening procedure for use upon acceptance of individual waste loads. The lack of a screening technique for hexavalent chromium is a particular concern when wastes are handled by the Product Management Program (PMP) where wastes are blended and may pass through the plant untreated.

Radioactive screening is required on each received load only if organic materials are suspected to be present. Screening for radioactive materials should be performed on all wastes.

Page 4 of the WAP states that the annual pre-acceptance analysis will be performed on samples taken from a regular delivery of waste material. The generator is to certify that the material used for the annual analysis needs to be a representative sample of the waste. Any load of a given waste could be representative, but it must be certified as such to meet the requirements of the permit. The WAP should therefore, further indicate the need to certify load specific waste as representative , if a sample from a particular load is to be used in this manner.

The WAP references methods to determine total cyanide and sulfide in aqueous wastes in order to "determine the possibility of generating cyanide" and "to predict the possibility of corrosivity and safety problems caused by compounds such as H_2S". Because cyanide and sulfide may be present in other than aqueous wastes, test procedures should be included for non-aqueous or solid wastes as well.

Page 6 of the WAP states that "All loads with suspended solids contents which are 1.0% by weight greater than that expected will be considered at variance with the normal material." However, there is no requirement for performing TSS on incoming loads in order to make this comparison.

The permit requires the use of EPA approved methods. The WAP allows for the use of ASTM and APHA methods and does not require EPA approval of these. The permit may be overly restrictive in the sense that the intent is for applicable, reliable methodologies. The WAP and the permit should be brought into agreement. The permit requirements, since they are more restrictive here, override the less stringent WAP requirements for purposes of this report.

Records and Analysis of Waste Identification

This portion of the report addresses NEIC's review of waste handling and analytical records for generators of loads received at E/TI from January 1993 through February 1996. The purpose of the documents evaluation was to determine: a) whether E/TI has been conducting the appropriate tests when/as required by the permit and the WAP, b) whether RCRA record-keeping procedures have been followed, and c) whether E/TI has been rejecting wastes that are prohibited for recycling, as required by the permit.

To represent the spectrum of customers and waste types, NEIC selected 28 customers (waste generators) from E/TIs loads received list during the site visit . From the 28 customers, specific generator CC numbers/ waste streams were chosen. Copies of all documents pertaining to the specific waste steams selected were requested and later shipped by E/TI to NEIC. The documents include the contents of the Marketing Folders, needed for waste acceptance determination, and Shipment Analytical Reports from loads received from January 1993 to February 1993 for the waste streams selected. Records for the Rocky Mountain Arsenal site were specifically included in the NEIC request because of the tremendous volume of this waste shipped to E/TI , as it would have impacted and reflected on operations at this site.

- Additional Pre-acceptance Testing Requirements

Most of the pre-acceptance testing requirements have been enumerated above in the section on "Description of Waste Analysis, Waste Tracking and Handling". Additional pre-acceptance requirements of the permit include determination of the concentration of:

j) volatile organic carbon (VOC)

k) reactive cyanide

l) reactive sulfide

m) any chemical component present at greater than 1%.

These additional test requirements have the same frequency of testing as the other pre-acceptance parameters specified in the WAP. NEIC for purposes of this evaluation accepted either actual test results or generator knowledge in the fulfillment of these later requirements because the permit had no specific requirement for actual testing. Furthermore, if another test had been done to eliminate the need for a specific test requirement, that test was deemed to have fulfilled the requirement. For example, if total cyanide had been determined and had a result of zero, it could be assumed that reactive cyanide, a subset of total cyanide, would also be zero.

Where any of the information requested on the WCQ was not provided, the WCQ requirement was deemed incomplete.

- E/TI's Pre-acceptance Testing Performance

The permit and/or the WAP requires E/TI to obtain several documents prior to accepting a waste for recycling. These include the WCQ, certification of truth and accuracy of the information provided by the waste generator, certification that the pre-acceptance sample is representative of the waste, certification that any test methods used to generate analytical data provided to E/TI are RCRA-approved methods, and results (marketing report) of the pre-acceptance analyses . Table VII - 1 summarizes whether or not these documents were provided in each of the 28 customer marketing files. All marketing folders contained WCQs, however, there were 7 instances of incomplete WCQs, specifically pertaining to questions regarding the chemical nature of the wastes. Two certifications of truth and accuracy were missing. One certification of representativeness of the pre-acceptance sample was missing. There were five instances where certification of test methods used by the customer (or on behalf of the customer) were required, but not present in the marketing folder.

The list of required pre-acceptance/annual tests, as outlined above in the pre-acceptance testing discussion was used as a comparison to determine whether E/TI conducted each of the tests at the required time. Table VII - 2 summarizes the findings.

TABLE VII-1

CONFIDENTIAL -- ATTOURNEY WORK PRODUCT

ATTACHMENT A -- Q23 ENCYCLE, EVALUATION SUMMARY OF PREACCEPTANCE DOCUMENT RECORD KEEPING (Q23DOC.XLS)

Generator/CC# Document #	WCQ Present	Information Complete	Certif'n of Truth and AccuracySigned	Rep. Sample Provided/ Certif'n Signed	Marketing Report Present
Amana Refrig./ CC1182-90 11079-11137	Y	NC	Y	Y	Y
Altrista Zinc/ CC407-89 11138-11152	Y	NC	Y	Y	Y
Briggs and Stratton/ CC3012-91 11153-11161	Y	NC	Y	Y	Y
Caribe GE CC1489-90 11162-11215	Y	NC	Y	Y	Y
Chevron/ CC3902	Y	NC	Y	Y	Y
Crest Products/ CC1979-90	Y	Y	Y	NC	Y
Crouse-Hinds	Waiting for marketing				
Dale Electric	Waiting for marketing				

Note: Certif'n = Certification; NA = not applicable; NC = incident of noncompliance due to information omission.
WCQ = Waste Characterization Questionaire; Y = yes.

TABLE VII - 1

~~ATTACHMENT A~~ -- Q23 ENCYCLE, EVALUATION SUMMARY OF PREACCEPTANCE DOCUMENT RECORD KEEPING (Q23DOC.XLS)

CONFIDENTIAL -- ATTOURNEY WORK PRODUCT

Generator/CC# Document #	WCQ Present	Complete	Certif'n of Truth and AccuracySigned	Certif'n of Rep. Sample Signed	Marketing Report Present
Du Pont/ CC3108-92 11257-11322	Y	NC	Y	Y	Y
East Side Plating /CC1865-90 11323-11347	Y	NC	Y	Y	Y
Englehard /CC413-89 11348-11354	NC	NC	NC	NC	Y
Furnas Electric/ CC1442-90 11355-11364	Y	NC	Y	Y	Y
Gleco/CC3075-92 11365-11371	Y	Y	NC	Y	Y
Hewlett Packard /CC1790-90 11372-11389	Y	NC	Y	Y	Y
Kemet/CC2118-91 11390-11414	Y	NC	Y	Y	Y
Lincoln/ CC4446-94 11599-11607	Y	NC	Y	Y	Y
Master Lock/ CC3560 11608-11615	Y	NC	Y	Y	Y
Multilayer/CC 11616-11621	Y	NC	Y	Y	Y
NASA-LBJ	Y	NC	Y	Y	Y
Space Center/ CC55-90 11462-11481					

TABLE VII-1

CONFIDENTIAL -- ATTOURNEY WORK PRODUCT

~~ATTACHMENT~~ A -- Q23 ENCYCLE, EVALUATION SUMMARY OF PREACCEPTANCE DOCUMENT RECORD KEEPING (Q23DOC.XLS)

Generator/CC# Document #	WCQ Present	Complete	Certif'n of Truth and AccuracySigned	Certif'n of Rep. Sample Signed	Marketing Report Present
Olin Brass/CC 11482-11500	Y	NC	Y	NC	Y
Photo Circuits/ 11622-11629	Y	NC	Y	Y	Y
Pico Rivera/ 11501-11506	Y	NC	N	Y	Y
Razorback Metal /CC 002287-002428	Y	NC	Y	Y	Y
Rocky Mountain Arsenal/ CC2936-91 11508-11547	Y	NC	Y	NC	Y
Sheldahl/ CC478-90 11664-11671	Y	NC	Y	Y	Y
Sematech CC34-90 11548-11576	Y	NC	Y	NC	Y
Sumco/CC374 11672-11682	Y	NC	Y	Y	Y
Virco/ CC1670-90 11686-11670	Y	NC	Y	Y	Y
Warner Robins/ CC4516 006485-'006560	Y	NC	Y	Y	Y

TABLE VII-2

CONFIDENTIAL -- ATTOURNEY WORK PRODUCT

~~ATTACHMENT B~~ -- Q23 ENCYCLE, EVALUATION SUMMARY OF PRE-ACCEPTANCE TESTING ACTIVITY (Q23ANPAR.XLS)

General Waste Stream Information						Pre-acceptance Testing Parameters													
Customer/ Encycle Waste #	Doc. Number	Report Type	Report Date	Waste Description	Waste Code(s)	Physical Description	Test for Components Present >1%	Specific Gravity	Paint Filter Test	% Moisture	pH	Acidity	Alkalinity	Total CN-	Total S--	Evidence for Presence of Organics	TOC	VOC	PCBs
Amana/ CC3728	006172	L. MRK	7/27/93	CrAc	D7	Y	Y	Y	NA	NA	Y	NC		NA	NA	N	N	NA	NA
Alltrista Zinc/ CC407-89	11138	S. MRK	6/14/94	CRS	F6	Y	Y	NA	NA	Y	NA	NA	NA	Y	NA	N	N	NA	NA
Briggs and Stratton/ CC3012-91	11158	MRK	12/27/91	PS	F6	Y	Y	Y	NC	NA	N	N	N	Y	N	Y	Y	NA	NA
Caribe GE/ CC1489-90	11172	MRK	10/8/90	EPS	F6	NC	Y	NA	NC	Y	N	N	N	N	N	Y	N	N@	NA
Chevron/ CC3902	11223	S. MRK	11/11/93	ZOC	D3	Y	Y	NA	NA	Y	NA	NA	NA	NA	NA	Y	Y	N@	NA
Crest Products/ CC1979-90	11244	S. MRK	6/10/93	PS		Y	Y	NA	NA	Y	NA	NA	NA	Y	NA	Y	Y	N@	NA
DuPont CC3108-92	11281	S. MRK	4/6/92	FA		Y-	Y	NA	NA	Y	NA	NA	NA	NA	NA	Y	Y	N@	NA
East Side Plating	11339	S. MRK	11/6/90	EPS	F6, D6, 7	NC	Y	Y	NC	Y	N	N	N	Y	N	N	N	NA	NA
/CC1865-90	11323	S. MRK	3/10/94	EPS	F6, D6, 7	Y	Y	NA	NA	Y	NA	NA	NA	Y	NA	Y	Y	NA	NA
Englehard /CC413-89	11348	S. MRK	8/27/93	TCO		Y	Y	NA	N	Y	NA	NA	NA	NA	NA	Y	Y	N@	N@
Furnas Electric/ CC24-559	11360	S. MRK	10/4/90	MHS	D7	NC	NC	NA	NC	Y	N	N	N	N	N	N	N	N@	N@
Gleco Plating/ co-3075	11365	S. MRK	2/5/92	MPS	F6, 8, 19	Y	Y	Y	NA	Y	NA	NA	NA	Y	NA	Y	Y	N@	NA
Hewlett Packard/ CC1790-90	11373	MRK	10/18/90	CuCl	D2, D4	Y	Y	Y	NA	NA	Y	Y	NA	NA	NA	Y	Y	N@	NA

Note: patterned items in regular type are areas of concern.
BFS=buffing sludge, CN- = cyanide, CuCl =cupric chloride, CuSLDG=copper sludge.
CRS=copper-rich sludge, CrAc = chromic acid, EPS=electroplating sludge, IA=incinerator ash.
L. MRK = liquid marketing, L. SHP = liquid shipping, MHS = metal hydroxide sludge, MPS = metal plating sludge.
NA = Test for this parameter was not applicable, NC=noncompliance because test was omitted.
NI = Test was done or reported incorrectly or incompletely, PCBs=polychlorinated biphenyls.
PW = photo waste, PS=plating sludge, PWTS=plating waste treatment sludge, S. MRK = solid marketing.
S. SHP = solid shipping, STPS=spent tin plating solution, S-- =sulfide, TBCP=treatment brine from chlordane production, TCH=trivalent chromium hydroxide.
TCO=trench clean-out, TOC=total organic carbon, VOC = volatile organic carbon, WWTS=waste water treatment sludge, Y=test was done, ZOC=zinc oxide catalyst.
*Test result was obtained using methodology other than what is specified in the waste handling permit.
@Test was not required at this time, however, ommitting it prevented determining whether waste was within acceptance limitations.

TABLE VII - 2 CONFIDENTIAL -- ATTOURNEY WORK PRODUCT

~~ATTACHMENT B~~ -- Q23 ENCYCLE, EVALUATION SUMMARY OF PRE-ACCEPTANCE TESTING ACTIVITY (Q23ANPAR.XLS)

General Waste Stream Information						Pre-acceptance and Annual Testing Parameters													
Customer/ Encycle Waste #	Doc. Number	Report Type	Report Date	Waste Description	Waste Code(s)	Physical Description	Components Present >1%	Specific Gravity	Paint Filter Test	% Moisture	pH	Acidity	Alkalinity	Free or Total CN-	Free or Total S--	Evidence for Presence of Organics	TOC	VOC	PCBs
Kemet/CC2118-91	11390	L. MRK	7/13/93	STPS	D2,6,8	Y	Y	Y	NA	NA	Y	NC	NA	NA	NA	Y	Y	Y~	NA
	11399	L. MRK	2/7/91	STPS		Y		Y	NA	NA	Y	NC	NA	NA	NA	Y	N	Y	NA
Lincoln Plating/ CC-4446	11599	S. MRK	10/13/94	TCH	F6,D6	Y~	Y	NA	NA	Y	NA	NA	NA	NA	NA	Y	Y	NO	NA
Master Lock/ CC-3560	11608	S.MRK	3/5/93	BFS	D8	Y	Y	NA	NA	Y	NA	NA	NA	NA	NA	Y	Y	NO	NA
Multilayer/ CC-4042	11616	S.MRK	2/8/94	WWTS	F6	Y	Y	NA	NA	Y	NA	NA	NA	NA	NA	Y	Y	NO	NA
NASA-LBJ Space Center/CC55	11473	MRK	8/6/90	PW	D6,7,9,11	Y	Y	Y	NA	NA	Y	NA	NA	Y	Y	Y	N	Y	NA
Olin Brass/ CC1831-90	11485	S.MRK	10/23/90	WWTS	F6,K46	NC	Y	NA	NA	Y	Y	NA	NC	Y	Y	Y	N	NO	NA
Photocircuits/ CC4534-94	11622	S.MRK	12/12/94	CuSLDG	F6	Y	Y	NA	NA	Y	NA	NA	NA	NA	NA	N	Y	Y	NA
						Y	Y	NA	NA	Y	NA	NA	NA	NA	NA	N	Y	Y	NA
Pico Rivera/ CC3179-92	11501	S.MRK	3/27/92	Filter Cake	F6	Y	Y	NA	NA	Y	NA	NA	NA	Y	NA	Y	Y	NO	NA
Razorback Metals	11643	S.MRK	4/13/95	Filter Cake	F6	Y	Y	NA	NA	Y	NA	NA	NA	NA	NA	Y	Y	NO	NA
Rocky Mountain Arsenal CC2936-91	11514	L.MRK	4/20/92	TBCP	K97,33,F3 D8,10	Y	Y	Y	NA	NA	Y	NA	NC	Y	NC	Y	Y	NO	NA
Sheldahl CC478-90	11664	MRK	3/1/90	MHS	F6,D8	NC	Y	N	NC	N	N	N	N	N	N	N	N	NO	NA
Sematech CC34-90	11548	MRK	2/17/90	HF Waste	D2	Y	Y	Y	NA	NA	Y	Y	NA	NA	NA	Y	Y	NO	NA
Sumco/CC374	11672	S. MRK	8/27/93	PWTS	F6	Y	Y	NA	NA	Y	NA	NA	NA	Y	NA	Y	Y	NO	NA
Virco/ CC1670-90	11694	MRK	10/16/90	MPS	F6	NC	Y	NA	NA	Y	NA	NA	NA	Y	NA	Y	N	NO	NA
Warner Robins/ CC4516	006560	MRK	11/30/94	WWTS	F6,19,D7	Y	Y	NA	NA	Y	NA	NA	NA	Y	NA	Y	Y	Y	NA
WG-Cameron Forge/CC87-89	11589	MRK	4/28/89	spent acid		Y	Y	Y	NA	NA	Y	Y	NA	NA	NA	Y	N	Y	NA

Of the twenty-eight marketing folders, twenty should have had data describing the content of volatile organic carbon content in the wastes. Data/process information regarding VOC content existed in only five marketing folders. The purpose of this test requirement is to ensure that wastes exceeding the 1000 ppm are rejected.

There were six instances where physical descriptions of samples were omitted, and two where sample descriptions were incomplete. The physical description is important for determining appearance of a given sample of waste, the type and number of phases of sample, which tests are required later, and because it can be used to provide a visual match. Visual matching is often one of the most readily performed and positive means for confirming the identity of a waste.

The paint filter test for determining the presence of free liquids in a solid sample was omitted in five instances where free liquids may have been present.

Moisture content and specific gravity were consistently determined as appropriate.

pH was determined on all samples that were definitely liquids, however, in cases where no physical description or incomplete physical description, and/or no paint filter test was done, it could not be determined whether pH testing would have been appropriate. There were six instances where acidity or alkalinity tests were required, but omitted.

An assessment of whether or not tests for components greater than 1% were conducted would be difficult, if not impossible, and would require further investigation.

- E/TI's Acceptance Testing Performance

The requirements for acceptance testing were described above in the section on "Description of Waste Analysis, Waste Tracking and Handling". Table VII -3 summarizes the acceptance testing activities for the waste stream documents evaluated. In several cases, it was not possible to determine whether a given test was appropriately omitted, or whether it should have been done. This is due to lack of complete physical descriptions or other test results, e.g., in the case of alkalinity required on aqueous wastes with pH greater than 8.0, it was difficult to determine this requirement if the waste did not indicate free liquids or a specific pH. Further information would be required to determine this requirement on those loads where this problem existed. These loads are noted in the table.

Physical descriptions were usually incomplete. A complete physical description helps determine which tests are appropriate for a given sample, and should include the number of phases, the color, opacity, consistency, odor, particle size (if any) of each phase, and the identity (liquid, sludge, clay, etc.) of each phase. The number of phases in the sample, as well as the type of material, were often not mentioned.

TABLE VII-3

~~ATTACHMENT~~ C -- Q23 ENCYCLE, EVALUATION SUMMARY OF SHIPMENT TESTING ACTIVITY (Q23SHPAR.XLS)

General Waste Stream Information					By-Shipment Testing Parameters											
Customer/ Encycle Waste #	Report Type	Load Number	Report Date	Waste Code(s)	Phase Separation/ Physical Description	Specific Gravity	Paint Filter Test	pH	Bench-Scale Reactivity	Alkalinity	Acidity	Evidence of Organics (odor, prev. data, WCQ)	TOC	PCBs	VOC	Radio-activity
Amana Refrigeration/ CC1182-90	L. SHP	7290	12/22/93	D7	Y	Y	NA	Y	NC	NA	NC	N	N	NA	NA	Y
Alltrista Zinc CC407-89	S. SHP	8961	10/12/94	F6	YI	NA	NA	NA	NC	NA	NA	N	N	NA	NA	Y
	S. SHP	9109	11/3/94	F6	YI	NA	NA	NA	NC	NA	NA	N	N	NA	NA	Y
	S. SHP	9196	11/17/94	F6	YI	NA	NA	NA	NC	NA	NA	N	N	NA	NA	Y
	S. SHP	9399	12/22/94	F6	Y	NA	NA	NA	NC	NA	NA	Y	Y	NC	Y	Y
	S. SHP	9536	1/25/95	F6	YI	NA	NA	NA	NC	NA	NA	N	Y	NC	N@	Y
	S. SHP	10135	5/26/95	F6	YI	NA	NA	NA	NC	NA	NA	N	NC	NC	N@	Y
	S. SHP	11070	12/13/95	F6	YI	NA	NA	NA	NC	NA	NA	N	NC	NC	N@	Y
	S. SHP	11146	12/21/95	F6	YI	NA	NA	NA	NC	NA	NA	N	NC	NC	N@	Y
	S. SHP	11253	1/19/96	F6	YI	NA	NA	NA	NC	NA	NA	N	NC	NC	N@	Y
	S. SHP	11301	2/2/96	F6	YI	NA	NA	NA	NC	NA	NA	N	NC	NC	N@	Y
	S. SHP	11352	2/15/96	F6	YI	NA	NA	NA	NC	NA	NA	N	NC	NC	N@	Y
	S. SHP	11419	3/1/96	F6	YI	NA	NA	NA	NC	NA	NA	N	NC	NC	N@	Y
Briggs and Stratton/ CC3012-91	S. SHP	9592	2/3/95	F6, D7	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9933	3/28/95	F6, D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10160	5/10/95	F6, D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10391	6/23/95	F6, D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10548-A	7/31/95	F6, D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10548-B	8/4/95	F6, D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10771-A	9/19/95	F6, D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10771	9/20/95	F6, D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10989-A	11/8/95	F6, D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10989-B	11/8/95	F6, D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11288-A	1/19/96	F6, D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11288-B	1/19/96	F6, D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y

Note:

BFS=buffing sludge, CN- = cyanide, CuCl =cupric chloride, CuSLDG=copper sludge.

CRS=copper-rich sludge, CrAc = chromic acid, EPS=electroplating sludge, IA=incinerator ash, L. MRK = liquid marketing.

L. SHP = liquid shipping, MHS = metal hydroxide sludge, MPS = metal plating sludge, N=test was omitted, NA=Test for this parameter was not applicable.

NC=noncompliance due to test omission, NLOD = reported as not detected, but no detection limit value reported, PS=plating sludge

PCBs=polychlorinated biphenyls, PW = photo waste, PWTS=plating waste treatment sludge, S. MRK = solid marketing.

S. SHP = solid shipping, STPS=spent tin plating solution, S-- =sulfide, TBCP=treatment brine from chlordane production, TCH=trivalent chromium hydroxide.

TCO=trench clean-out, TOC=total organic carbon, VOC = volatile organic carbon, WWTS=waste water treatment sludge, Y=test was done, ZOC=zinc oxide catalyst.

YM=Test result was obtained using methodology other than what is specified in the waste handling permit.

YI =Test was done or reported incorrectly or incompletely.

@Test was not required at this time, however, ommitting it prevented determining whether waste was within acceptance limitations.

**The load is atypical of the waste stream.

!!Load exceeded waste acceptance limitations of the permit.

~~ATTACHMENT~~ C -- Q23 ENCYCLE, EVALUATION SUMMARY OF SHIPMENT TESTING ACTIVITY (Q23SHPAR.XLS)

General Waste Stream Information					By-Shipment Testing Parameters											
Customer/ Encycle Waste #	Report Type	Load Number	Report Date	Waste Code(s)	Phase Separation/ Physical Description	Specific Gravity	Paint Filter Test	pH	Bench-Scale Reactivity	Alkalinity	Acidity	Evidence of Organics (odor, prev. data, WCQ)	TOC	PCBs	VOC	Radio-activity
Caribe GE	S. SHP	5621	4/21/93	F6, D7	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
CC1489-90	S. SHP	6491	8/30/93	F6, D7	Y	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	7330	12/28/93	F6, D7	YI	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	8556	7/27/93	F6, D7	YI	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
Chevron/	S. SHP	7556	2/14/94	D3	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
CC3902	S. SHP	7558	2/15/94	D3	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	7557	2/15/94	D3	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	7555	2/14/94	D3	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
									NC							
									NC							
Crest Products	S. SHP	7578	2/23/94	F6	YI	NA	NA	NA	NC	NA	NA	Y	Y	NC	N@	Y
CC1979-90	S. SHP	7674	3/23/94	F6	YI	N	N	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	7856	4/6/94	F6	YI	N	N	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	7471	1/31/94	F6	YI	N	N	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	7985	4/29/94	F6	YI	N	N	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	8164	5/27/94	F6	YI	N	N	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	8311	6/20/94	F6	YI	N	N	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	8587	8/1/94	F6	YI	N	N	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	8753	9/6/94	F6	YI	N	N	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	8929	9/28/94	F6	YI	N	N	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	9067	10/26/94	F6	YI	N	N	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	9299	12/5/94	F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9417	12/21/94	F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9585-A	1/27/95	F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9558-B	1/28/95	F6	YI	N	N	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	9623	1/28/95	F6	YI	N	N	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	9677	2/24/95	F6	YI	N	N	N	NC	N	N	Y	Y	NC	N@	Y
	S. SHP	9837	3/22/95	F6	YI	N	N	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	10031	4/21/95	F6	YI	N	N	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	10174	5/25/95	F6	YI	N	N	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	10315	6/26/95	F6	YI	N	N	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	10477	7/27/95	F6	YI	N	N	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	10601	8/25/95	F6	YI	N	N	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	10747	9/21/95	F6	YI	N	N	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	10853	10/23/95	F6	YI	N	N	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	10996	11/22/95	F6	YI	N	N	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	11124	12/20/95	F6	YI	N	N	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	11261	1/24/96	F6	YI	N	N	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	11399	2/20/96	F6	YI	N	N	N	NC	N	N	Y	NC	NC	N@	Y
									NC							
DuPont/	S. SHP	5050	1/14/93	D4,6,7	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	NC
CC31008-92	S. SHP	5049	1/14/93	D4,6,7	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	NC
	S. SHP	5077	1/22/93	D4,6,7	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	NC
	S. SHP	5076	1/22/93	D4,6,7	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	NC

ATTACHMENT C -- Q23 ENCYCLE, EVALUATION SUMMARY OF SHIPMENT TESTING ACTIVITY (Q23SHPAR.XLS)

General Waste Stream Information					By-Shipment Testing Parameters											
Customer/ Encycle Waste #	Report Type	Load Number	Report Date	Waste Code(s)	Phase Separation/ Physical Description	Specific Gravity	Paint Filter Test	pH	Bench-Scale Reactivity	Alkalinity	Acidity	Evidence of Organics (odor, prev. data, WCQ)	TOC	PCBs	VOC	Radio-activity
DuPont/ cont.	S. SHP	5121	1/29/93	D4,6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	NC
	S. SHP	5120	1/29/93	D4,6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	NC
	S. SHP	5190	2/5/93	D4,6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	NC
	S. SHP	5191	2/5/93	D4,6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	NC
	S. SHP	5183	2/6/93	D4,6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	NC
	S. SHP	5226	2/12/93	D4,6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	NC
	S. SHP	5227	2/12/93	D4,6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	NC
	S. SHP	5236	2/13/93	D4,6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	NC
	S. SHP	5228	2/13/93	D4,6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	NC
	S. SHP	5598	4/8/93	D4,6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	NC
	S. SHP	5599	4/8/93	D4,6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	NC
	S. SHP	5511	3/29/93	D4,6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	NC
	S. SHP	5437	3/18/93	D4,6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	NC
	S. SHP	5436	3/18/93	D4,6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	NC
	S. SHP	5306	2/26/93	D4,6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	NC
	S. SHP	5308	2/26/93	D4,6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	NC
	S. SHP	5644	4/16/93	D4,6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	NC
	S. SHP	5645	4/16/93	D4,6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	NC
	S. SHP	5713	4/27/93	D4,6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	5712	4/27/93	D4,6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	5772	5/4/93	D4,6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	5771	5/4/93	D4,6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	5858	5/18/93	D4,6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	5857	5/18/93	D4,6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	5838	5/28/93	D4,6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	6043	6/15/93	D4,6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	6044	6/15/93	D4,6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	6072	6/24/93	D4,6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	6234	7/9/93	D4,6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	6280	7/16/93	D4,6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	6279	7/16/93	D4,6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	6318	7/23/93	D4,6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	6371	8/2/93	D4,6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	6374	8/2/93	D4,6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	6364	8/12/93	D4,6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	6465	8/12/93	D4,6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	6510	8/21/93	D8	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	6509	8/21/93	D8	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	6509	9/3/93	D8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	6662	9/10/93	D8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	6716	9/23/93	D8	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	6766	9/30/93	D8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	6770	10/1/93	D8	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	6817	10/7/93	D8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y

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ATTACHMENT C -- Q23 ENCYCLE, EVALUATION SUMMARY OF SHIPMENT TESTING ACTIVITY (Q23SHPAR.XLS)

General Waste Stream Information					By-Shipment Testing Parameters												
Customer/ Encycle Waste #	Report Type	Load Number	Report Date	Waste Code(s)	Phase Separation/ Physical Description	Specific Gravity	Paint Filter Test	pH	Bench-Scale Reactivity	Alkalinity	Acidity	Evidence of Organics (odor, prev. data, WCQ)	TOC	PCBs	VOC	Radio-activity
Dupont Cont.	S. SHP	6818	10/6/93	D8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	6894	10/15/93	D8	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	6893	10/15/93	D8	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	6927	10/22/93	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	6975	10/29/93	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	6974	10/29/93	D7, 8	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP		11/26/93	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	7164	12/1/93	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	7165	12/1/93	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	7215	12/9/93	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	7216	12/9/93	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP		12/17/93	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	7287	12/17/93	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	7322	12/22/93	D7, 8	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	7368	1/7/94	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	7369	1/7/94	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	7384	1/14/94	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	7386	1/14/94	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	7444	1/21/94	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	7445	1/21/94	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	7487	1/28/94	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	7486	1/28/94	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	7573	2/11/94	D7, 8	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	7574	2/11/94	D7, 8	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	7645	2/25/94	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	7644	2/25/94	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	7774	3/18/94	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	7773	3/18/94	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	7797	3/25/94	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	7845	3/31/94	D7, 8	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9006	10/7/94	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9003	10/7/94	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9059	10/13/94	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9041	10/14/94	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9042	10/14/94	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9082	10/21/94	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9084	10/21/94	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9107	10/28/94	D7, 8	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9108	10/28/94	D7, 8	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9154	11/4/94	D7, 8	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9198	11/11/94	D7, 8	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9197	11/11/94	D7, 8	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9260	11/23/94	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9318	12/2/94	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y

ATTACHMENT C -- Q23 ENCYCLE, EVALUATION SUMMARY OF SHIPMENT TESTING ACTIVITY (Q23SHPAR.XLS)

General Waste Stream Information					By-Shipment Testing Parameters											
Customer/ Encycle Waste #	Report Type	Load Number	Report Date	Waste Code(s)	Phase Separation/ Physical Description	Specific Gravity	Paint Filter Test	pH	Bench-Scale Reactivity	Alkalinity	Acidity	Evidence of Organics (odor, prev. data, WCQ)	TOC	PCBs	VOC	Radio-activity
Dupont cont.	S. SHP	9368	12/13/94	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9261	11/23/94	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9367	12/13/94	D7, 8	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9533	1/19/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9534	1/19/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9576	1/26/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9621	2/2/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9622	2/2/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9666	2/10/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9665	2/10/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9739	2/24/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9793	3/10/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9794	3/10/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9887	3/17/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9916	3/24/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9953	3/31/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10113	4/28/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10112	4/28/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10147	5/5/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10148	5/5/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10190	5/12/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10189	4/12/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10259	5/23/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10260	5/23/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10281	6/1/95	D6, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10282	6/1/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10286	6/1/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10291	6/1/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10323	6/9/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10359	6/16/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10422	6/30/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10438	7/7/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10488	7/14/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10507	7/20/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10439	7/7/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10508	7/20/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10506	7/21/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10575	8/4/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10576	8/4/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10595	8/11/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10594	8/11/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10593	8/10/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10630	8/18/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10652	8/25/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10651	8/25/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10687	9/1/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10686	9/1/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y

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ATTACHMENT C -- Q23 ENCYCLE, EVALUATION SUMMARY OF SHIPMENT TESTING ACTIVITY (Q23SHPAR.XLS)

General Waste Stream Information					By-Shipment Testing Parameters											
Customer/ Encycle Waste #	Report Type	Load Number	Report Date	Waste Code(s)	Phase Separation/ Physical Description	Specific Gravity	Paint Filter Test	pH	Bench-Scale Reactivity	Alkalinity	Acidity	Evidence of Organics (odor, prev. data, WCQ)	TOC	PCBs	VOC	Radio-activity
Dupont cont.	S. SHP	10707	9/8/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10708	9/8/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10726	9/8/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10760	9/15/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10780	9/22/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10781	9/22/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10807	9/29/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10838	10/6/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10872	10/13/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10901	10/20/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10902	10/20/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10903	10/27/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10904	10/27/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10988	11/3/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11019	11/10/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11020	11/10/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11036	11/17/95	D7, 8	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11044	11/17/95	D7, 8	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11037	11/17/95	D7, 8	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11038	11/24/95		YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11041	11/24/95		YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11079	12/1/95		YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11078	12/1/95		YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11116	12/8/95	D7, 8	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11117	12/8/95	D7, 8	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11132	12/8/95	D7, 8	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11152	12/15/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11166			YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11166	12/22/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11168	12/29/95	D7, 8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
									NC							
East Side	S. SHP		6/1/93		Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
Plating/	S. SHP	8831	9/20/94	F6, D6	YI	N	N	N	NC	N	N	Y	NC	NC	N@	Y
CC1865-90	S. SHP	8984-A	10/7/94	F6, D6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	8984-B	10/7/94	F6, D6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9083	10/28/94	F6, D6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9146	11/14/94	F6, D6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9146	11/14/94	F6, D6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9284	12/5/94	F6, D6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9381	12/19/94	F6, D6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9467	1/4/95	F6, D6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9561	1/26/95	F6, D6	YI	NA	NA	NA	NC	NA	NA	Y	Y	NC	Y	Y
	S. SHP	9727	3/3/95	F6, D6	YI	NA	NA	NA	NC	NA	NA	Y	Y	NC	N@	Y
	S. SHP	9871	3/20/95	F6, D6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9934	4/6/95	F6, D6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10138	5/2/95	F6, D6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10245	5/23/95	F6, D6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y

ATTACHMENT C -- Q23 ENCYCLE, EVALUATION SUMMARY OF SHIPMENT TESTING ACTIVITY (Q23SHPAR.XLS)

General Waste Stream Information					By-Shipment Testing Parameters											
Customer/ Encycle Waste #	Report Type	Load Number	Report Date	Waste Code(s)	Phase Separation/ Physical Description	Specific Gravity	Paint Filter Test	pH	Bench-Scale Reactivity	Alkalinity	Acidity	Evidence of Organics (odor, prev. data, WCQ)	TOC	PCBs	VOC	Radio-activity
East Side	S. SHP	10324	6/16/95	F6, D6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
Plating, cont.	S. SHP	10402	6/30/95	F6, D6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10505	7/21/95	F6, D6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10606	8/15/95	F6, D6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10601	9/6/95	F6, D6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10820	10/17/95	F6, D6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11032	11/22/95	F6, D6	N	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11163	12/27/95	F6, D6	N	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11232	1/9/96	F6, D6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11318	2/6/96	F6, D6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11425	2/26/96	F6, D6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
Englehard/	S. SHP	5011	1/22/93	D6,7,8,K2	Y	NA	NC	N	NC	N	N	N	NA	NA	NA	Y
CC413-89	S. SHP	5108	2/10/93	D6,7,8,K2	Y	NA	NC	N	NC	N	N	N	NA	NA	NA	Y
	S. SHP	5239	3/5/93	D6,7,8,K2	YI	NA	NC	N	NC	N	N	N	NA	NA	NA	Y
	S. SHP	5392	3/26/93	D6,7,8,K2	Y	NA	NC	N	NC	N	N	N	NA	NA	NA	Y
	S. SHP	5523	4/16/93	D6,7,8,K2	YI	NA	NC	N	NC	N	N	N	NA	NA	NA	Y
	S. SHP	5665	5/12/93	D6,7,8,K2	YI	NA	NC	N	NC	N	N	N	NA	NA	NA	Y
	S. SHP	5751	5/27/93	D6,7,8,K2	Y	NA	NC	N	NC	N	N	N	NA	NA	NA	Y
	S. SHP	5822	6/16/93	D6,7,8,K2	Y	NA	NC	N	NC	N	N	N	NA	NA	NA	Y
	S. SHP	7476	1/31/94	D6,7	YI	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	7518	2/4/94	D6,7	Y	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	7528	2/11/94	D6,7	Y	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	7609	2/23/94	D6,7	YI	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	7641		D6,7	YI	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	7680	2/23/94	D6,7	YI	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	7681	3/22/94	D6,7	Y	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	7682	3/24/94	D6,7	Y	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	7802	3/31/94	D6,7	Y	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	7803	4/8/94	D6,7	YI	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	8298-A	6/14/94	D6,7	Y	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	8298-B	6/22/94	D6,7	YI	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	8533	7/21/94	K2,3	Y	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	8533	7/1/94	K2,3	Y	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	8410	7/8/94	K2,3	Y	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	8543-A	7/26/94		Y	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	8543-B	8/3/94	D6,7	YI	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	8629-B	8/12/94	K2,3	Y	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	8629-A	8/12/94	K2,3	Y	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	8630-A		K2,3	Y	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	8630-B	8/19/94	K2,3	YI	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	8706-A	8/26/94	K2,3	Y	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	8706-B	8/26/94	D6,7	YI	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	8707-B	9/2/94	D6,7	YI	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y

ATTACHMENT C -- Q23 ENCYCLE, EVALUATION SUMMARY OF SHIPMENT TESTING ACTIVITY (Q23SHPAR.XLS)

General Waste Stream Information					By-Shipment Testing Parameters												
Customer/ Encycle Waste #	Report Type	Load Number	Report Date	Waste Code(s)	Phase Separation/ Physical Description	Specific Gravity	Paint Filter Test	pH	Bench-Scale Reactivity	Alkalinity	Acidity	Evidence of Organics (odor, prev. data, WCQ)	TOC	PCBs	VOC	Radio-activity
	S. SHP	8707-A	9/2/94	D6,7	Y	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
Englehard cont.	S. SHP	8766-A	9/8/94	D6,7	YI	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	8864-B	9/22/94	D6,7,8,K2	YI	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	8864-A		D6,7,8,K2	YI	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	8896-B	9/29/94	K2,3	YI	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	8896-A	9/29/94	D6,7,8,K2	Y	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	8897-B	10/6/94	D6,7	YI	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	8897-A	10/5/94	D6,7	Y	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP			K2,3	Y	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	8898	10/13/94	K2,3	YI	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	9037-B	10/20/94	K2,3	YI	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	9037-A	10/20/94	K2,3	Y	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	9038-A	10/26/94	K2,3	YI	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	9038-B	10/27/94	K2,3	YI	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	9114-A	11/2/94	K2,3	Y	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	9114-B	11/3/94	K2,3	YI	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	9803-A	3/10/95	K2,3	Y	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	9803-B	3/10/95	K2,3	Y	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	9957-B	3/30/95	K2,3	YI	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	9957-A	3/30/95	K2,3	Y	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	9653	2/9/95	K2,3	YI	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	9653-A	2/8/95	K2,3	YI	NA	NC	N	NC	N	N	Y	Y	NC	N@	Y
	S. SHP	9654	2/23/95	K2,3	YI	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
Furnas Elect./	S. SHP	5035-A	1/21/93	D7	Y	NA	NA	NA	NC	NA	NA	N	NA	NA	N	N
cc1442-90	S. SHP	5035-B	1/21/93	D7	Y	NA	NC	N	NC	N	N	N	NA	NA	N	N
	S. SHP	5462	4/1/93	D7	Y	NA	NA	NA	NC	NA	NA	N	NA	NA	N	N
	S. SHP	6021-A	6/21/93	D7	YI	N	NA	NA	NC	NA	NA	N	NA	NA	N	Y
	S. SHP	6021-B	6/21/93	D7	YI	N	NC	N	NC	N	N	N	NA	NA	N	Y
	S. SHP	6462	8/30/93	D7	Y	NA	NA	NA	NC	NA	NA	N	NA	NA	N	Y
	S. SHP	6848-A	10/15/93	D7	Y	NA	NA	NA	NC	NA	NA	Y	Y	NC	N@	Y
	S. SHP	6848-B	10/15/93	D7	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	7150-A	12/3/93	D7	YI	N	N	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	7150-B	12/3/93	D7	Y	NC	NC	NC	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	7390-A	1/20/94	D7	Y	N	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	7390-B	1/20/94	D7	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	7725-A	3/24/94	D7	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	L. SHP	7725-B**	3/24/94	D7	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	S. SHP	7935-A	4/22/94	D7	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	7935-B	4/22/94	D7	Y	N	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	8050-A	5/18/94	D7	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	8050-B	5/18/94	D7	Y	N	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	8644	8/18/94	D7	Y	N	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	8813-A**	9/16/94	D7	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y

ATTACHMENT C -- Q23 ENCYCLE, EVALUATION SUMMARY OF SHIPMENT TESTING ACTIVITY (Q23SHPAR.XLS)

General Waste Stream Information					By-Shipment Testing Parameters												
Customer/ Encycle Waste #	Report Type	Load Number	Report Date	Waste Code(s)	Phase Separation/ Physical Description	Specific Gravity	Paint Filter Test	pH	Bench-Scale Reactivity	Alkalinity	Acidity	Evidence of Organics (odor, prev. data, WCQ)	TOC	PCBs	VOC	Radio-activity
Furnas cont.	S. SHP	8707-B	9/2/94	D6,7	YI	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	8813-B**	9/16/94	D7	Y	N	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	9018-A	10/24/94	D7	Y	N	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	9018-B	10/24/94	D7	Y	N	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9263	12/2/94	D7	YI	N	N	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	9350-A	12/21/94	D7	Y	N	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	9350-B	12/21/94	D7	Y	N	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9498	1/20/95	D7	Y	N	NA	NA	NC	NA	NA	Y	NC	NC	Y	Y
	S. SHP	9660-A	2/17/95	D7	YI	N	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	9660-B	2/17/95	D7	YI	N	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	9841-A	3/17/95	D7	Y	N	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9841-B	3/17/95	D7	Y	NC	NC	NC	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	10015	4/20/95	D7	Y	N	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	10180-A	5/12/95	D7	YI	NC	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	10180-B	5/12/95	D7	YI	N	N	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	10313-A	6/15/95	D7	Y	N	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10313-B	6/15/95	D7	Y	N	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10451	7/21/95	D7	Y	N	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10590-A	8/17/95	D7	Y	N	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10590-B	8/17/95	D7	YI	N	N	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	10718-A	9/21/95	D7	YI	N	N	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	10718-B	9/21/95	D7	YI	N	N	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	10899	10/30/95	D7	YI	N	N	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	11006-A	11/17/95	D7	Y	N	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11006-B	11/17/95	D7	YI	N	N	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	11006-C	11/17/95	D7	YI	N	N	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	11125	12/22/95	D7	YI	N	N	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	11237-A	1/15/96	D7	YI	N	N	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	11237-B	1/15/96	D7	YI	N	N	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	11361-A	2/15/96	D7	YI	N	N	N	NC	N	N	Y	NC	NC	N@	Y
	S. SHP	11361-B	2/15/96	D7	YI	N	N	N	NC	N	N	Y	NC	NC	N@	Y
Gleco Plating/ cc-3075	S.SHP	5404-C	3/19/93	F6, 8, 19	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	NC
	S.SHP	5404-B	3/19/93	F6,8,19	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	NC
	S.SHP	5404-A	3/19/93	F6,8,19	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	NC
	S.SHP	6013	6/24/93	F6,8,19	Y	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S.SHP	6885	10/21/93	F6/19	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	7397	1/26/94	F6/19	Y	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
	S.SHP	8662	8/24/94	F6/19	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	7724	3/23/94	F6/19	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	9051	10/26/94	F6/19	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	9513	1/27/95	F6/19	YI	NA	NC	N	NC	N	N	Y	Y	NC	Y	Y
	S.SHP	9682	2/23/95	F6/19	YI	NA	NC	N	NC	N	N	Y	Y	NC	N@	Y

ATTACHMENT C -- Q23 ENCYCLE, EVALUATION SUMMARY OF SHIPMENT TESTING ACTIVITY (Q23SHPAR.XLS)

General Waste Stream Information					By-Shipment Testing Parameters											
Customer/ Encycle Waste #	Report Type	Load Number	Report Date	Waste Code(s)	Phase Separation/ Physical Description	Specific Gravity	Paint Filter Test	pH	Bench-Scale Reactivity	Alkalinity	Acidity	Evidence of Organics (odor, prev. data, WCQ)	TOC	PCBs	VOC	Radio-activity
Hewlett	L. SHP	5004	1/13/93	D4	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	NC
Packard/	L. SHP	5119	2/3/93	D4	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	NC
CC1790-90	L. SHP	5230	2/18/93	D4	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	NC
	L. SHP	5485	3/31/93	D4	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	NC
	L. SHP	5329	3/10/93	D4	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	NC
	L. SHP	5641	4/21/93	D4							NC					
	L. SHP	5715	5/5/93	D4	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	NC
	L. SHP	5885	5/27/93	D4							NC					
	L. SHP	6053	6/23/93	D4							NC					
	L. SHP	6194	7/14/93	D2, D4	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	6357	8/4/93	D2, D4	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	6496	8/25/93	D2, D4	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	6559	9/3/93	D2, D4	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	6616	9/15/93	D2, D4	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	6718	9/29/93	D2, D4	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	6866	10/13/93	D2, D4	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	6969	11/3/93	D2, D4	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	7079	11/17/93	D2, D4	NC	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	7162	12/8/93	D2, D4	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	7279	12/22/93	D2, D4	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	7345	1/12/94	D2, D4	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	7515	2/9/94	D2, D4	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	7647	3/2/94	D2, D4	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	7758	3/17/94	D2, D4	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	7850	4/6/94	D2, D4	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	7957	4/27/94	D2, D4	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	8085	5/18/94	D2, D4	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
Kemet/																
CC2118-91																
	L. SHP	7246	1/4/94	D2,6,8	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	7247**	1/12/94	D2,6,8	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	7248	1/17/94	D2,6,8	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	7250	1/31/94	D2,6,8	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	7457	2/7/94	D2,6,8	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	7458	2/14/94	D2,6,8	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	7459	2/28/94	D2,6,8	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	7616	3/7/94	D2,6,8	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	7617	3/14/94	D2,6,8	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	7619	3/28/94	D2,6,8	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	7815	4/18/94	D2,6,8	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	8129	6/13/94	D2,6,8	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	8130	6/20/94	D2,6	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	8131	6/27/94	D2,6	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	8347	7/11/94	D2,6	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y

ATTACHMENT C -- Q23 ENCYCLE, EVALUATION SUMMARY OF SHIPMENT TESTING ACTIVITY (Q23SHPAR.XLS)

General Waste Stream Information					By-Shipment Testing Parameters												
Customer/ Encycle Waste #	Report Type	Load Number	Report Date	Waste Code(s)	Phase Separation/ Physical Description	Specific Gravity	Paint Filter Test	pH	Bench-Scale Reactivity	Alkalinity	Acidity	Evidence of Organics (odor, prev. data, WCQ)	TOC	PCBs	VOC	Radio-activity
Kemet cont.	L. SHP	8349	7/25/94	D2,6	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	8350	8/1/94	D2,6	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	8562	8/8/94	D2,6	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	8563	8/15/94	D2,6	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	8564	8/22/94	D2,6	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	N@	Y
	L. SHP	8761	9/12/94	D2,6	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	8717	9/19/94	D2,6	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	8909	10/3/94	D2,6	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	9384!!	1/9/95	D2,6	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	8911	10/24/94	D2,6	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	9092	11/14/94	D2,6	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	9091	11/14/94	D2,6	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	9276	11/14/94	D2,6	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
Lincoln Plating/	S.SHP	9493	1/16/95	F6,D6	YI	NA	NC	N	NC	N	N	Y	NC	NC	N@	Y
cc-4446	S.SHP	9847	3/29/95	F6,D6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	10095	4/20/95	F6,D6	YI	N	N	N	NC	N	N	Y	V	NC	N@	Y
	S.SHP	10451	7/21/95	F6,D7	YI	NA	N	N	NC	N	N	Y	NC	NC	N@	Y
	S.SHP	10173	5/17/95	F6,D6	YI	NA	N	N	NC	N	N	Y	NC	NC	N@	Y
	S.SHP	10597	8/17/95	F6,D7	YI	NA	N	N	NC	N	N	Y	NC	NC	N@	Y
	S.SHP	10867	10/25/95	F6,D7	YI	NA	N	N	NC	N	N	Y	NC	NC	N@	Y
	S.SHP	11030	11/20/95	F6,D7	YI	NA	N	N	NC	N	N	Y	NC	NC	N@	Y
	S.SHP	11110	12/13/95	F6,D7	YI	NA	N	N	NC	N	N	Y	NC	NC	N@	Y
	S.SHP	11237	1/15/96	F6,D7	YI	NA	N	N	NC	N	N	Y	NC	NC	N@	Y
	S.SHP	11365	2/16/96	F6,D7	YI	NA	N	N	NC	N	N	Y	NC	NC	N@	Y
Master Lock/	S.SHP	8314	6/29/94	D8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
cc-3560	S.SHP	8494	7/21/94	D8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	8498	7/28/94	D8	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	NC
	S.SHP	8619	8/3/94	D8	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	NC
	S.SHP	8697	8/19/94	D8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	8759	9/12/94	D8	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	8761	9/23/94	D8	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	9025	10/12/94	D8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	9045	10/26/94	D8	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	9285	11/29/94	D8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	9410	1/5/95	D8	Y	NA	NA	NA	NC	NA	NA	Y	Y	NC	Y	Y
	S.SHP	9492	1/18/95	D8	Y	NA	NA	NA	NC	NA	NA	Y	Y	NC	Y	Y
	S.SHP	9588	2/3/95	D8	Y	NA	NA	NA	NC	NA	NA	Y	Y	NC	Y	Y
	S.SHP	9714	2/24/95	D8	YI	NA	NA	NA	NC	NA	NA	Y	Y	NC	Y	Y
	S.SHP	9845	3/13/95	D8	Y	NA	NA	NA	NC	NA	NA	Y	Y	NC	Y	Y
	S.SHP	9950	4/5/95	D8	YI	NA	NA	NA	NC	NA	NA	Y	Y	NC	Y	Y
	S.SHP	10036	4/19/95	D8	YI	NA	NA	NA	NC	NA	NA	Y	Y	NC	Y	Y
	S.SHP	10141	5/8/95	D8	YI	NA	NA	NA	NC	NA	NA	Y	Y	NC	Y	Y

ATTACHMENT C -- Q23 ENCYCLE, EVALUATION SUMMARY OF SHIPMENT TESTING ACTIVITY (Q23SHPAR.XLS)

General Waste Stream Information					By-Shipment Testing Parameters											
Customer/ Encycle Waste #	Report Type	Load Number	Report Date	Waste Code(s)	Phase Separation/ Physical Description	Specific Gravity	Paint Filter Test	pH	Bench-Scale Reactivity	Alkalinity	Acidity	Evidence of Organics (odor, prev. data, WCQ)	TOC	PCBs	VOC	Radio-activity
Master Lock, cont.	S.SHP	10238	5/22/95	D8	YI	NA	NA	NA	NC	NA	NA	Y	Y	NC	Y	Y
	S.SHP	10321	5/12/95	D8	Y	NA	NA	NA	NC	NA	NA	Y	Y	NC	Y	Y
	S.SHP	10411	6/30/95	D8	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	10511	7/31/95	D8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	10500		D8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	10623	8/21/95	D8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	10634	8/24/95	D8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	10715	9/13/95	D8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	10782	9/25/95	D8	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	10819	10/6/95	D8	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	10932	11/6/95	D8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	11076	12/4/95	D8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	11091	12/22/95	D8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	11290	1/24/96	D8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	11388	2/14/96	D8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
Multilayer/ co-4042	S.SHP	9560	1/25/95	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	9594	2/7/95	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	9737	2/27/95	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	9804	3/10/95	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	9898	3/20/95	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	9909	3/27/95	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	9965	4/7/95	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	10106	5/1/95	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	10304	6/12/95	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	10366	6/26/95	F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	10509	7/24/95	F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	10154	5/15/95	F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	10292	6/5/95	F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	10228	5/22/95	F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
									NC	NC						
NASA-LBJ Space Center/ CC55-90	L. SHP	4995	1/4/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	NC
	L. SHP	5024	1/7/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	NC
	L. SHP	5057	1/15/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	NC
	L. SHP	5089	1/20/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	NC
	L. SHP	5074	1/20/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	NC
	L. SHP	5113	1/26/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	NC
	L. SHP	5913	1/29/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	NC
	L. SHP	5176	2/2/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	NC
	L. SHP	5193	2/5/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	NC
	L. SHP	5218	2/10/93	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	NC
	L. SHP	5231	2/11/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	NC
	L. SHP	5248	2/17/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	NC
	L. SHP	5268	2/23/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	NC

ATTACHMENT C -- Q23 ENCYCLE, EVALUATION SUMMARY OF SHIPMENT TESTING ACTIVITY (Q23SHPAR.XLS)

General Waste Stream Information					By-Shipment Testing Parameters											
Customer/ Encycle Waste #	Report Type	Load Number	Report Date	Waste Code(s)	Phase Separation/ Physical Description	Specific Gravity	Paint Filter Test	pH	Bench-Scale Reactivity	Alkalinity	Acidity	Evidence of Organics (odor, prev. data, WCQ)	TOC	PCBs	VOC	Radio-activity
NASA cont.	L. SHP	5327	3/2/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	NC
	L. SHP	5380	3/9/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	NC
	L. SHP	5448	3/18/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	NC
	L. SHP	5543**	4/1/93	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	NC
	L. SHP	5587	4/5/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	NC
	L. SHP	5626	4/12/93	D7, 11	YI	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	NC
	L. SHP	5633	4/13/93	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	NC
	L. SHP	5656	4/19/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	NC
	L. SHP	5657	4/20/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	NC
	L. SHP	5685	4/23/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	NC
	L. SHP	5691	4/27/93	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	NC
	L. SHP	5737**	4/30/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	5777	5/5/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	5791	5/10/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	5821	5/13/93	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	5836	5/14/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	5795	5/11/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	5867	5/19/93	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	5872	5/20/93	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	5907**	5/25/95?	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	5946	6/1/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	5929	5/27/93	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	5989	6/3/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	5999	6/7/93	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	6015	6/10/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	6054	6/15/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	6067	6/18/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	6098	6/23/93	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	6099	6/25/93	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	6099	6/25/93	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	6174**	6/29/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	YI	Y
	L. SHP	6222	7/6/93	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	6188	7/2/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	6233	7/8/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	6244	7/9/93	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	6258	7/12/93	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	6285	7/14/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	6295	7/16/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	6316	7/20/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	6301	7/20/93	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	6331	7/22/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	6345	7/23/93	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	6351**	7/27/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	6376	7/30/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y

ATTACHMENT C -- Q23 ENCYCLE, EVALUATION SUMMARY OF SHIPMENT TESTING ACTIVITY (Q23SHPAR.XLS)

General Waste Stream Information					By-Shipment Testing Parameters											
Customer/ Encycle Waste #	Report Type	Load Number	Report Date	Waste Code(s)	Phase Separation/ Physical Description	Specific Gravity	Paint Filter Test	pH	Bench-Scale Reactivity	Alkalinity	Acidity	Evidence of Organics (odor, prev. data, WCQ)	TOC	PCBs	VOC	Radio-activity
NASA cont.	L. SHP	6382**	8/2/93	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	6470	8/10/93	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	6498	8/17/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	6518**	8/20/93	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	6557	8/27/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	6561	8/30/93	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	6659	9/9/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	6701	9/16/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	6695	9/17/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	6733	9/22/93	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	6734	9/23/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	6746	9/24/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	6763	9/29/93	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	6778	9/30/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	6777	9/30/93	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	6841	10/6/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	6853	10/7/93	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	6910	10/15/93	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	6925	10/18/93	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	6958	10/22/93	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	6972	10/27/93	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	7012	10/29/93	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	7039	11/2/93	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	7042	11/3/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	7057	11/4/93	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	7116**	11/15/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	7075	11/9/93	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	7117	11/17/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	7138	11/19/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	7144	11/23/93	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	7151	11/24/93	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	7178	12/1/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	7210	12/6/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	7273	12/13/93	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	7214**	12/7/93	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	7285**	12/15/93	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	7300	12/17/93	D7	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	7307	12/20/93	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	7323	12/22/93	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	7329	12/29/93	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	NC	NC	Y	Y
	L. SHP	7370	1/5/94	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	7401	1/12/94	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	7454	1/21/94	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	N	Y
	L. SHP	7489	1/28/94	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y

ATTACHMENT C -- Q23 ENCYCLE, EVALUATION SUMMARY OF SHIPMENT TESTING ACTIVITY (Q23SHPAR.XLS)

General Waste Stream Information					By-Shipment Testing Parameters											
Customer/ Encycle Waste #	Report Type	Load Number	Report Date	Waste Code(s)	Phase Separation/ Physical Description	Specific Gravity	Paint Filter Test	pH	Bench-Scale Reactivity	Alkalinity	Acidity	Evidence of Organics (odor, prev. data, WCQ)	TOC	PCBs	VOC	Radio-activity
NASA, cont.	L. SHP	7513	2/2/94	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	7527	2/3/94	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	7594	2/14/94	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	7593	2/14/94	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	7599	2/16/94	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	7652	2/23/94	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	7675	3/1/94	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	7745	3/14/94	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	7762	3/16/94	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	7783	3/21/94	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	N	Y	Y
	L. SHP	7811	3/24/94	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	7847	3/29/94	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	7853	3/31/94	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	7910**	3/29/94	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	7937**	4/13/94	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	7966	4/20/94	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	7978	4/22/94	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	7992**	4/26/94	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	8027**	5/4/94	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	NC
	L. SHP	8058	5/6/94	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	8083	5/10/94	D7, 11	YI	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	8096	5/12/94	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	8097	5/12/94	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	8110	5/12/94	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	8127**	5/17/94	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	8155	5/20/94	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	8180	5/25/94	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	8217	6/3/94	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	8274	6/9/94	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	8309	6/15/94	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	8357	6/23/94	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	8415**	7/5/94	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	8520	7/15/94	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	8550	7/22/94	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	8585	7/27/94	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	8614	8/3/94	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	8643	8/8/94	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	8654	8/10/94	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	8701	8/19/94	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	8730	8/24/94	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	8765	8/31/94	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	8819	9/8/94	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	8872	9/19/94	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	8900	9/20/94	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y

ATTACHMENT C -- Q23 ENCYCLE, EVALUATION SUMMARY OF SHIPMENT TESTING ACTIVITY (Q23SHPAR.XLS)

General Waste Stream Information					By-Shipment Testing Parameters											
Customer/ Encycle Waste #	Report Type	Load Number	Report Date	Waste Code(s)	Phase Separation/ Physical Description	Specific Gravity	Paint Filter Test	pH	Bench-Scale Reactivity	Alkalinity	Acidity	Evidence of Organics (odor, prev. data, WCQ)	TOC	PCBs	VOC	Radio-activity
NASA cont.	L. SHP	8933**	9/23/94	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	8969	9/29/94	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	8969	9/29/94	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	8995	10/5/94	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	9046	10/12/94	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	9061	10/14/94	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	9072	10/18/94	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	9105**	10/25/94	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	9118	10/27/94	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	9132	11/1/94	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	9157	11/3/94	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	9157	11/8/94	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	9213	11/10/94	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	9256**	11/17/94	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	9278	11/22/94	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	9307	11/30/94	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	9347	12/7/94	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	9390**	12/13/94	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	9427	12/22/94	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	9457	1/3/95	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	9458	1/6/95	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	9459	1/6/95	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	9529	1/13/95	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	9556	1/20/95	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	9589	1/25/95	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	9606	1/30/95	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	9637	2/2/95	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	9647	2/6/95	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	9698	2/13/95	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	9717**	2/16/95	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	9767	2/23/95	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	9834**	3/7/95	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	9881	3/13/95	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	9885	3/14/95	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	9903	3/20/95	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	9925	3/23/95	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	9941	3/24/95	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	9960	3/31/95	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	9988	4/3/95	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	10047	4/11/95	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	9989	4/3/95	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	10082**	4/19/95	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	10121**	4/25/95	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	10137**	5/1/95	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y

ATTACHMENT C -- Q23 ENCYCLE, EVALUATION SUMMARY OF SHIPMENT TESTING ACTIVITY (Q23SHPAR.XLS)

General Waste Stream Information					By-Shipment Testing Parameters											
Customer/ Encycle Waste #	Report Type	Load Number	Report Date	Waste Code(s)	Phase Separation/ Physical Description	Specific Gravity	Paint Filter Test	pH	Bench-Scale Reactivity	Alkalinity	Acidity	Evidence of Organics (odor, prev. data, WCQ)	TOC	PCBs	VOC	Radio-activity
NASA cont.	L. SHP	10162	5/5/95	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	10230	5/19/95	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	10270	5/24/95	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	10290	6/1/95	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	10327	6/8/95	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	10376**	6/20/95	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	10425	6/27/95	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	10440	7/5/95	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	10442	7/6/95	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	10461	7/11/95	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	10497	7/17/95	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	10531	7/25/95	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	10516	7/20/95	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	10535	7/28/95	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	10556	8/3/95	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	10584	8/8/95	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	10664	8/25/95	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	10694	8/31/95	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	10695	9/1/95	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	10779	9/19/95	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	10925	10/23/95	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	11069**	10/28/95	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	11008	10/7/95	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	11121	12/7/95	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	NLOD	Y
	L. SHP	11170	12/20/95	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	11324	1/29/96	D7, 11	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	11264	1/10/96	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
	L. SHP	11445	2/21/96	D7, 11	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	Y	Y
									NC							
Olin Brass/	S.SHP	5014	1/12/93	K46,F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	NC
co-1831-90	S.SHP	5179	2/9/93	K46,F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	NC
	S.SHP	5334	3/9/93	K46,F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	NC
	S.SHP	5612	4/20/93		YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	5910	6/8/93	K46,F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	6086	6/29/93	K46,F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	6248	7/13/93	K46,F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	6499	8/24/93	K46,F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	6753	10/5/93	K46,F6		NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	6976	11/2/93	K46,F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	7219	12/14/93	K46,F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	7492	2/1/94	K46,F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	7700	3/22/94	K46,F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	7872	4/12/94	K46,F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	8191	6/7/94	K46,F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y

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General Waste Stream Information					By-Shipment Testing Parameters												
Customer/ Encycle Waste #	Report Type	Load Number	Report Date	Waste Code(s)	Phase Separation/ Physical Description	Specific Gravity	Paint Filter Test	pH	Bench-Scale Reactivity	Alkalinity	Acidity	Evidence of Organics (odor, prev. data, WCQ)	TOC	PCBs	VOC	Radio-activity
Olin Brass cont.	S.SHP	8340A	6/27/94	K46,F6	NC	NA	NA	NA	NC	NA	NA	Y	Y	NC	N@	Y
	S.SHP	8340B	6/28/94	K46,F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	8536A	7/28/94	K46,F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	NC
	S.SHP	8536B	8/2/94	K46,F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	8789A	9/15/94	K46,F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	8977A	10/12/94	K46,F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	8977B	10/12/94	K46,F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	9164A	11/15/94	K46,F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	9164B	11/15/94	K46,F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	9380A	12/19/94	K46,F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	9380B	12/20/94	K46,F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	9557A	1/24/95	K46,F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	9557B	1/25/95	K46,F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	9720	2/28/95	K46,F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	9908	3/28/95	K46,F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	10198A	5/8/95	K46,F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	10198B	5/9/95	K46,F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	10319A	6/12/95	K46,F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	10319B	6/15/95	K46,F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	10499	7/25/95	K46,F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	10693A		K46,F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	10693B	9/12/95	K46,F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	10913B	11/7/95	K46,D8	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	10304	1/23/96	K46,D8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	11080A	12/19/95	K46,D8	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	
Photocicuits/ cc-4534-94	S.SHP	9858	3/16/95	F6	YI	NA	NA	NA	NC	NA	NA	N	Y	N@	N@	Y
Pico Rivera/ cc-3179-92	S.SHP	5048	1/19/93	F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	NC
	S.SHP	4901	1/4/93	F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	NC
	S.SHP	5178	2/8/93	F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	NC
	S.SHP	5434	4/14/93	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	NC
	S.SHP	5710	4/30/93	F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	5792	5/20/93	F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	6008	6/22/93	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	6210	7/12/93	F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	6629	9/13/93	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	6802	10/7/93	F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	7284	12/28/93	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	7554	2/14/94	F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	7747	3/29/94	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	7885	4/15/94	F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	8232	6/17/94	F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y

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General Waste Stream Information					By-Shipment Testing Parameters											
Customer/ Encycle Waste #	Report Type	Load Number	Report Date	Waste Code(s)	Phase Separation/ Physical Description	Specific Gravity	Paint Filter Test	pH	Bench-Scale Reactivity	Alkalinity	Acidity	Evidence of Organics (odor, prev. data, WCQ)	TOC	PCBs	VOC	Radio-activity
Pico Rivera,	S.SHP	8116	5/24/94	F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
cont.	S.SHP	8464	7/18/94	F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	8678	8/26/94	F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S.SHP	8852	9/26/94	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
Rocky	L.SHP	5837	5/28/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	NC
Mountain	L.SHP	5668	4/13/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	NC
Arsenal	L.SHP		4/14/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	NC
CC2936-91	L.SHP	5669	4/14/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	NC
	L.SHP	5805*	5/17/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	5806	5/25/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	5807	5/25/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	5839	5/27/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	5837	5/28/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	5859	5/27/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	5897	6/2/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	5898	6/4/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	5899	6/2/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6027	6/8/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6026	6/8/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6028	6/10/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6037	6/17/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6039	6/16/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6041	6/22/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6164	6/26/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6161	6/24/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6162	6/24/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6159	6/25/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6160	6/25/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6209	7/2/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6211	7/2/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6207	7/1/93	F36	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6206	7/1/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6226	7/12/93	F36	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6227	7/9/93	F36	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6229	7/8/93	F36	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6230	7/7/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6228	7/13/93	F36	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6262	7/9/93	F36	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6238	7/10/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
RMA cont.	L.SHP	6265	7/25/93	F36	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6278	7/27/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6267	7/27/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6277	7/28/93	F36	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y

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General Waste Stream Information					By-Shipment Testing Parameters											
Customer/ Encycle Waste #	Report Type	Load Number	Report Date	Waste Code(s)	Phase Separation/ Physical Description	Specific Gravity	Paint Filter Test	pH	Bench-Scale Reactivity	Alkalinity	Acidity	Evidence of Organics (odor, prev. data, WCQ)	TOC	PCBs	VOC	Radio-activity
RMA cont.	L.SHP	6349	7/29/93	F36	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6263	7/14/93	F36	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6264	7/14/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6275	7/20/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6266	7/26/93	F36	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6236	7/8/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6278	7/27/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6262	7/20/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6713	10/4/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6712	10/4/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6729	10/4/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6761	10/10/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6726	10/6/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6727	10/6/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6731	10/10/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6730	10/12/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6754	10/12/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6760	10/13/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6728	10/13/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6896	10/14/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6897	10/14/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6756	10/15/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6758	10/15/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6757	10/16/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6759	10/16/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6903	10/20/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6902	10/20/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6901	10/20/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6755	10/20/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6904	10/20/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6900	10/20/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6898	10/26/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6905	10/26/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6899	10/26/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6987	10/26/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6983	10/28/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6941	10/28/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6984	10/28/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6943	10/28/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6568	9/1/93	F36	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6569	9/1/93	F36	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6573	9/1/93	F36	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6570	9/1/93	F36	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6571	9/10/93	F36	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y

ATTACHMENT C -- Q23 ENCYCLE, EVALUATION SUMMARY OF SHIPMENT TESTING ACTIVITY (Q23SHPAR.XLS)

General Waste Stream Information					By-Shipment Testing Parameters												
Customer/ Encycle Waste #	Report Type	Load Number	Report Date	Waste Code(s)	Phase Separation/ Physical Description	Specific Gravity	Paint Filter Test	pH	Bench-Scale Reactivity	Alkalinity	Acidity	Evidence of Organics (odor, prev. data, WCQ)	TOC	PCBs	VOC	Radio-activity
RMA cont.	L.SHP	6576	9/10/93	F36	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6572	9/10/93	F36	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6591	9/11/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6590	9/11/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6574	9/11/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6592	9/11/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6565	9/10/93	F36	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6567	9/15/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6643	9/15/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6566	9/15/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6641	9/15/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6644	9/15/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6640	9/23/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6642	9/23/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6639	9/23/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6645	9/23/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6708	9/29/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6711	9/29/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6706	9/30/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6709	9/30/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6710	9/30/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7133	11/18/93		Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6645	11/18/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7131	11/18/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7134	11/18/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7072	11/19/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7047	11/19/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7142	11/19/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7053	11/23/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7008	11/19/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7051	11/23/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7050	11/23/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7045	11/24/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7048	11/24/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7167	11/29/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7168	11/29/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7169	11/29/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7170	11/29/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7154	11/29/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7153	11/24/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7152	11/24/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6992	11/3/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6990	11/6/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6996	11/6/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y

ATTACHMENT C -- Q23 ENCYCLE, EVALUATION SUMMARY OF SHIPMENT TESTING ACTIVITY (Q23SHPAR.XLS)

General Waste Stream Information					By-Shipment Testing Parameters												
Customer/ Encycle Waste #	Report Type	Load Number	Report Date	Waste Code(s)	Phase Separation/ Physical Description	Specific Gravity	Paint Filter Test	pH	Bench-Scale Reactivity	Alkalinity	Acidity	Evidence of Organics (odor, prev. data, WCQ)	TOC	PCBs	VOC	Radio-activity
RMA cont.	L.SHP	6993	11/6/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6987	11/6/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6991	11/6/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6989	11/6/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7002	11/9/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7001	11/15/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6988	11/6/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6986	11/10/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6997	11/10/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7003	11/11/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6998	11/11/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7006	11/12/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7000	11/12/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7007	11/13/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7004	11/13/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7005	11/15/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7009	11/16/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7011	11/16/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7010	11/17/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6999	11/17/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6985	11/3/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6994	11/3/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	6995	11/3/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7172	12/2/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7188	12/2/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7173	12/2/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7171	12/2/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7166	12/1/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7191	12/20/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7189	12/20/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7262	12/20/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7263	12/20/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7260	12/21/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7265	12/21/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7297	12/23/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7295	12/23/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7294	12/23/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7266	12/23/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7264	12/29/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7259	12/29/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7261	12/21/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7190	12/20/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7264	12/29/93	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7362	1/6/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y

ATTACHMENT C -- Q23 ENCYCLE, EVALUATION SUMMARY OF SHIPMENT TESTING ACTIVITY (Q23SHPAR.XLS)

General Waste Stream Information					By-Shipment Testing Parameters											
Customer/ Encycle Waste #	Report Type	Load Number	Report Date	Waste Code(s)	Phase Separation/ Physical Description	Specific Gravity	Paint Filter Test	pH	Bench-Scale Reactivity	Alkalinity	Acidity	Evidence of Organics (odor, prev. data, WCQ)	TOC	PCBs	VOC	Radio-activity
RMA cont.	L.SHP	7355	1/6/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7354	1/6/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7356	1/6/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7357	1/4/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7351	1/3/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7391	1/10/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7361	1/10/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7360	1/10/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7352	1/4/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7353	1/6/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7346	1/12/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7347	1/12/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7299	1/12/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7298	1/12/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7348	1/15/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7358	1/15/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7359	1/15/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7434	1/18/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7435	1/18/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7446	1/18/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7426	1/19/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7433	1/19/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7431	1/25/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7429	1/25/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7483	1/25/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7484	1/25/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7495	1/28/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7494	1/28/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7493	1/28/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	7496	1/28/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	8983	10/3/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	8984	9/20/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	8986	9/23/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	8988	9/23/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	8996	9/15/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	8985	9/20/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	8987	9/23/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	8997	9/23/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	8989	9/23/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	9000	9/23/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	9001	9/23/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	9029	9/30/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	9002	9/30/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	9030	9/30/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y

ATTACHMENT C -- Q23 ENCYCLE, EVALUATION SUMMARY OF SHIPMENT TESTING ACTIVITY (Q23SHPAR.XLS)

General Waste Stream Information					By-Shipment Testing Parameters												
Customer/ Encycle Waste #	Report Type	Load Number	Report Date	Waste Code(s)	Phase Separation/ Physical Description	Specific Gravity	Paint Filter Test	pH	Bench-Scale Reactivity	Alkalinity	Acidity	Evidence of Organics (odor, prev. data, WCQ)	TOC	PCBs	VOC	Radio-activity
RMA cont.	L.SHP	9028	9/23/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	9096	10/19/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	9095*	10/19/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	9110	10/25/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	9111	10/19/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	9112	10/19/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP		10/19/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	9142	10/19/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	9141	10/24/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	9142	10/19/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	9979	3/27/94	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	9980	3/27/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	9381	3/27/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	9983	4/5/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10057	4/6/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10010	4/6/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	9996	4/5/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	9982	4/5/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10008	4/5/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10009	4/6/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10059	4/11/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10058	4/6/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10087	4/11/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10084	4/11/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10086	4/11/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10088	4/11/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10089	4/11/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10102	4/18/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10103	4/18/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10085	4/11/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10083	4/11/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10125	4/18/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10130	4/18/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10101	4/18/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10122	4/18/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10131	4/27/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP		4/25/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10104	4/18/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10107	4/24/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10183	5/2/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10139	4/25/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10150	4/25/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10159	5/2/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10157	5/2/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y

ATTACHMENT C -- Q23 ENCYCLE, EVALUATION SUMMARY OF SHIPMENT TESTING ACTIVITY (Q23SHPAR.XLS)

General Waste Stream Information					By-Shipment Testing Parameters												
Customer/ Encycle Waste #	Report Type	Load Number	Report Date	Waste Code(s)	Phase Separation/ Physical Description	Specific Gravity	Paint Filter Test	pH	Bench-Scale Reactivity	Alkalinity	Acidity	Evidence of Organics (odor, prev. data, WCQ)	TOC	PCBs	VOC	Radio-activity
RMA cont.	L.SHP	10158	5/2/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10217	5/9/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10240	5/9/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10218	5/9/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10216	5/9/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10241	5/19/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10251	5/19/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10257	5/19/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10278	5/12/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10267	5/21/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10266	5/19/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10279	5/21/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10287	5/21/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10288	6/1/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10299	6/1/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10300	6/1/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10301	6/1/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10310	6/6/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10334	6/8/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10343	6/12/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10414	6/27/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10427	6/26/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10415	6/26/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10371	6/19/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10368	6/15/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10367	6/15/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10356	6/13/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10433	6/29/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP		4/25/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10467	7/5/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10436	7/3/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10437	7/3/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10466	7/6/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10485	7/13/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10465	7/6/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10486	7/13/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10484	7/11/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	10464**	7/17/95	F39	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	N@	Y
	L.SHP	10504**	7/17/95	F39	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	N@	Y
	L.SHP	10486**	7/19/95	F39	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	N@	Y
	L.SHP	10524**	7/26/95	F39	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	N@	Y
	L.SHP	10523**	7/26/95	F39	Y	Y	NA	Y	NC	NC	NA	Y	Y	NC	N@	Y
	L.SHP	11012**	11/13/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y
	L.SHP	11011**	11/13/95	F39	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	N@	Y

ATTACHMENT C -- Q23 ENCYCLE, EVALUATION SUMMARY OF SHIPMENT TESTING ACTIVITY (Q23SHPAR.XLS)

General Waste Stream Information					By-Shipment Testing Parameters												
Customer/ Encycle Waste #	Report Type	Load Number	Report Date	Waste Code(s)	Phase Separation/ Physical Description	Specific Gravity	Paint Filter Test	pH	Bench-Scale Reactivity	Alkalinity	Acidity	Evidence of Organics (odor, prev. data, WCQ)	TOC	PCBs	VOC	Radio-activity
Sheldahl	S. SHP	5026	1/17/93	F6, D8	Y	NC	Y	NC	NC	NC	NA	N	NA	NA	NA	NA
CC478-90	S. SHP	5208	2/22/93	F6, D8	Y	NC	Y	NC	NC	NC	NA	N	NA	NA	NA	NA
	S. SHP	5421	3/31/93	F6, D8	Y	NC	NC	NC	NC	NC	NA	N	NA	NA	NA	NA
	S. SHP	5640	4/23/93	F6, D8	Y	NC	NC	NC	NC	NC	NA	N	NA	NA	NA	Y
	S. SHP	6046	6/24/93	F6, D8	Y	NC	NC	NC	NC	NC	NA	N	NA	NA	NA	Y
	S. SHP	6255	7/21/93	F6, D8	Y	NC	NC	NC	NC	NC	NA	N	NA	NA	NA	Y
	S. SHP	6479	8/27/93	F6, D8	YI	NC	NC	NC	NC	NC	NA	N	NA	NA	NA	Y
	S. SHP	5640	10/26/93	F6, D8	Y	NC	NC	NC	NC	NC	NA	N	NA	NA	NA	Y
	S. SHP	7073	11/19/93	F6, D8	Y	NC	NA	NC	NC	NC	NA	N	NA	NA	NA	Y
	S. SHP	7390	1/20/94	F6, D8	YI	NC	NC	NC	NC	NC	NA	N	NA	NA	NA	Y
	S. SHP	7716**	3/28/94	F6, D8	Y	NC	NC	NC	NC	NC	NA	N	NA	NA	NA	Y
	S. SHP	8276	6/23/94	F6, D8	YI	NC	NC	NC	NC	NC	NA	N	NA	NA	NA	Y
	S. SHP	8653	8/22/94	F6, D8	Y	NC	NC	NC	NC	NC	NA	N	Y	NC	N@	Y
	S. SHP	8653	8/22/94	F6, D8	Y	NC	NC	NC	NC	NC	NA	N	Y	NC	N@	Y
	S. SHP	9068	11/1/94	F6, D8	YI	NC	NC	NC	NC	NC	NA	N	NC	NC	NA	Y
	S. SHP	9405	1/3/95	F6, D8	Y	NC	NC	NC	NC	NC	NA	N	NC	NC	NA	Y
	S. SHP	9651	2/17/95	F6, D8	Y	NC	NC	NC	NC	NC	NA	N	NC	NC	NA	Y
	S. SHP	10062	4/27/95	F6, D8	Y	NC	NC	NC	NC	NC	NA	N	NC	NC	NA	Y
	S. SHP	10349	6/19/95	F6, D8	YI	NC	NC	NC	NC	NC	NA	N	NC	NC	NA	Y
	S. SHP	10586	8/30/95	F6, D8	YI	NC	NC	NC	NC	NC	NA	N	NC	NC	NA	NC
	S. SHP	10899	10/30/95	F6, D8	YI	NC	NC	NC	NC	NC	NA	N	NC	NC	NA	Y
	S. SHP	11125	12/22/95	F6, D8	YI	NC	NC	NC	NC	NC	NA	N	NC	NC	NA	Y
Sematech	L. SHP	4986	1/5/93		N	Y	NA	NC	NC	NA	NC	Y	NC	NC	N@	NC
CC34-90	L. SHP	5056	1/19/93	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	NC
	L. SHP	5219	2/10/93	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	NC
	L. SHP	5253	2/17/93	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	NC
	L. SHP	5325	3/2/93	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	NC
	L. SHP	5381	3/10/93	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	N@	NC
	L. SHP	5465	3/22/93	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	NC
	L. SHP	5526	3/30/93	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	NC
	L. SHP	5634	4/13/93	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	NC
	L. SHP	5692	4/26/93	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	5794	5/11/93	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	5861	5/20/93	D2	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	5991	6/8/93	D2	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	6082	6/23/93	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	6211	7/8/93	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	6286	7/16/93	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	6320	7/27/93	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	6450	8/10/93	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	6486	8/17/93	D2	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	6584	9/1/93	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	6679	9/15/93	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y

ATTACHMENT C -- Q23 ENCYCLE, EVALUATION SUMMARY OF SHIPMENT TESTING ACTIVITY (Q23SHPAR.XLS)

General Waste Stream Information					By-Shipment Testing Parameters											
Customer/ Encycle Waste #	Report Type	Load Number	Report Date	Waste Code(s)	Phase Separation/ Physical Description	Specific Gravity	Paint Filter Test	pH	Bench-Scale Reactivity	Alkalinity	Acidity	Evidence of Organics (odor, prev. data, WCQ)	TOC	PCBs	VOC	Radio-activity
Sematech cont.	L. SHP	6783	10/4/93	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	6912	10/18/93	D2	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	6973	10/28/93	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	7028	11/3/93	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	7109	11/15/93	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	7141	11/22/93	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	7161	12/1/93	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	7248	12/15/93	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	7328	12/29/93	D2	Y	Y	NA	Y	NC	NA	NC	Y	NC	NC	N@	Y
	L. SHP	7335	1/5/94	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	7380	1/12/94	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	7427	1/18/94	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	7443	1/24/94	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	7506	2/1/94	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	7600	2/17/94	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	7683	3/3/94	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	7755	3/17/94	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	7852	3/31/94	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	7927	4/13/94	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	7970	4/22/94	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	8022	5/3/94	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	8117	5/3/94	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	8173	5/27/94	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	8223	6/8/94	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	8291	6/15/94	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	8386	6/27/94	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	8429	7/7/94	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	8531	7/20/94	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	8610	8/2/94	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	8669	8/12/94	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	8713	8/22/94	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	8758	9/1/94	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	8862	9/16/94	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	8938	9/27/94	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	9013	10/7/94	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	9077	10/21/94	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	9136	11/2/94	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	9210	11/11/94	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	9296	11/23/94	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	9332	12/7/94	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	9339	12/22/94	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	10921	12/22/94	D2	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	YI	Y
Sumco/CC374	S. SHP	7326-A	12/30/93	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y

ATTACHMENT C -- Q23 ENCYCLE, EVALUATION SUMMARY OF SHIPMENT TESTING ACTIVITY (Q23SHPAR.XLS)

General Waste Stream Information					By-Shipment Testing Parameters											
Customer/ Encycle Waste #	Report Type	Load Number	Report Date	Waste Code(s)	Phase Separation/ Physical Description	Specific Gravity	Paint Filter Test	pH	Bench-Scale Reactivity	Alkalinity	Acidity	Evidence of Organics (odor, prev. data, WCQ)	TOC	PCBs	VOC	Radio-activity
Sumco, cont.	S. SHP	7326-B	12/30/93	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	7456	1/28/94	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	7554	2/11/94	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	7633	2/28/94	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	7689	3/11/94	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	7784	3/25/94	F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	7827	4/4/94	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	7982-B	4/28/94	F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	7982-A	4/28/94	F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	8313	6/22/94	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	8635	8/15/94	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	8786	9/12/94	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9057	10/31/94	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9229	11/21/94	F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9478	1/13/95	F6	Y	NA	NA	NA	NC	NA	NA	Y	Y	NC	Y	Y
	S. SHP	9651	2/10/95	F6	YI	NA	NA	NA	NC	NA	NA	Y	Y	NC	N@	Y
	S. SHP	9692	2/27/95	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9745	3/1/95	F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9779	3/13/95	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9854	3/17/95	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9899	3/24/95	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9926	3/30/95	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9992	4/6/95	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10044	4/13/95	F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10188	5/15/95	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10261	5/26/95	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10322	6/12/95	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10624	8/21/95	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10681	9/5/95	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10785	9/25/95	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10818	10/5/95	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10863	10/16/95	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10961	11/2/95	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11000	11/9/95	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11098	12/11/95	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11198	1/5/96	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11307	2/5/96	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
Virco/ CC1670-90	S. SHP	5209	2/19/93	F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	N
	S. SHP	5397	3/19/93	F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	N
	S. SHP	5628	4/22/93	F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	5852	5/27/93	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	6251	7/22/93	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	6663*	9/30/93	F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y

ATTACHMENT C -- Q23 ENCYCLE, EVALUATION SUMMARY OF SHIPMENT TESTING ACTIVITY (Q23SHPAR.XLS)

General Waste Stream Information					By-Shipment Testing Parameters												
Customer/ Encycle Waste #	Report Type	Load Number	Report Date	Waste Code(s)	Phase Separation/ Physical Description	Specific Gravity	Paint Filter Test	pH	Bench-Scale Reactivity	Alkalinity	Acidity	Evidence of Organics (odor, prev. data, WCQ)	TOC	PCBs	VOC	Radio-activity
Virco, cont.	S. SHP	7226	9/30/93	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	7533*	2/10/94	F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	7722	4/4/94	F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	7889	4/15/94	F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	8081	5/18/94	F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	8452	7/21/94	F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	8804	9/14/94	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9091	10/27/94	F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9173	11/23/94	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9511	1/13/95	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	Y	Y
	S. SHP	9655	2/27/95	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	9874	3/29/95	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10175	5/30/95	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10329	6/29/95	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10476	7/28/95	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10607	8/28/95	F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10746	9/27/95	F6	Y	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10854	10/18/95	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10965	11/3/95	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11056	11/29/95	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11142	12/22/95	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11306	1/29/96	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11398	2/14/96	F6	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
Warner	S. SHP	10558	8/16/95	F6,19,D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
Robins/	S. SHP	10557	8/16/95	F6,19,D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
CC4516	S. SHP	10560	8/17/95	F6,19,D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10559	8/17/95	F6,19,D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10563	8/21/95	F6,19,D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10564	8/21/95	F6,19,D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10640	8/23/95	F6,19,D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10658	8/23/95	F6,19,D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10642	8/23/95	F6,19,D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10565	8/22/95	F6,19,D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10566	8/22/95	F6,19,D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10644	8/24/95	F6,19,D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10645	8/24/95	F6,19,D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10565	8/18/95	F6,19,D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10561	8/18/95	F6,19,D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10646	8/28/95	F6,19,D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10657	8/25/95	F6,19,D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10794	9/27/95	F6,19,D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10793	9/27/95	F6,19,D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10795	9/28/95	F6,19,D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10957	11/2/95	F6,19,D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y

ATTACHMENT C -- Q23 ENCYCLE, EVALUATION SUMMARY OF SHIPMENT TESTING ACTIVITY (Q23SHPAR.XLS)

General Waste Stream Information					By-Shipment Testing Parameters											
Customer/ Encycle Waste #	Report Type	Load Number	Report Date	Waste Code(s)	Phase Separation/ Physical Description	Specific Gravity	Paint Filter Test	pH	Bench-Scale Reactivity	Alkalinity	Acidity	Evidence of Organics (odor, prev. data, WCQ)	TOC	PCBs	VOC	Radio-activity
Warner	S. SHP	10956	11/1/95	F6,19,D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
Robins, cont.	S. SHP	10955	11/1/95	F6,19,D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	10958	11/2/95	F6,19,D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11106	12/11/95	F6,19,D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11104	12/11/95	F6,19,D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11176	12/29/95	F6,19,D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11177	12/29/95	F6,19,D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11178	1/2/96	F6,19,D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11105	12/11/95	F6,19,D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11356	2/7/96	F6,19,D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11357	2/7/96	F6,19,D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11358	2/8/96	F6,19,D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11359	2/8/96	F6,19,D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11442	2/22/96	F6,19,D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
	S. SHP	11443	2/22/96	F6,19,D7	YI	NA	NA	NA	NC	NA	NA	Y	NC	NC	N@	Y
Wyman	L. SHP	5131	1/28/93	D2, 7	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	N@	N
Gordon –	L. SHP	5244	2/16/93	D2, 7	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	N@	N
Cameron	L. SHP	7806	3/23/94	D2, 8	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	9179	11/7/94	D2, 7	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	Y	Y
	L. SHP	9201	11/10/94	D2, 7	Y	Y	NA	Y	NC	NA	NA	Y	Y	NC	Y	Y
	L. SHP	9446	1/5/95	D2, 7	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	NLOD	Y
	L. SHP	9495	1/9/95	D2, 7	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	NLOD	Y
	L. SHP	9943	3/27/95	D2, 7	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	NLOD	Y
	L. SHP	10051	4/13/95	D2, 7	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	N@	Y
	L. SHP	10055	4/18/95	D2, 7	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	N@	Y
	L. SHP	10090	4/20/95	D2, 7	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	N@	Y
	L. SHP	10129	5/1/95	D2, 7	Y	Y	NA	Y	NC	NA	NC	Y	Y	NC	N@	Y

Specific gravity and pH appeared to be done routinely when samples were identified as liquids. On infrequent occasions, multiphased samples (such as slurries) were treated as single-phased solids and no testing appropriate to liquids was done.

Paint filter tests were rarely done, even though many of the samples encountered had high moisture content -- the requirement is that they be done if the presence of free liquid is possible. The paint filter test is important for determining whether any corrosive character could be present wastes. If the test were omitted on a sample containing free liquids, all of the tests required on the liquid portion of the sample would also be omitted.

Alkalinity was often omitted, although required, on samples of wastes received from the NASA-LBJ Space Center. Presumably, this was due to the large amount of NASA material arriving at the facility. Acidity was rarely determined in cases where the measured pH indicated it was required.

More often than not, TOC testing was omitted despite the fact that most of the waste streams exhibited evidence of organics via a positive TOC test during pre-acceptance or some other time. TOC testing is important not only because it is a requirement, but it could be used as an indicator of whether approaching the VOC waste limitation is possible.

No record of any PCB analysis exists in any of the documents NEIC received.

Routine radioactivity screening was begun in April, 1993, according to analytical documents. Prior to that time, no radioactivity results were recorded in the shipment or marketing analytical reports except on the WCQ. There was approximately a 10-month lag in instituting this test requirement.

Approximately two pages of the WAP are devoted to testing the compatibility of incoming wastes with tank contents, i.e., the WAP states that "E/TI personnel are aware that an 'empty' tank may have a significant volume of remaining liquids and that a compatibility test must be run for these wastes and the succeeding wastes based upon a sample of the contents of the tank taken prior to 'emptying' ". Although NEIC requested these documents, no documents were furnished to indicate that this required testing was being performed. A potential violation could be cited for each liquid load examined.

Findings and Concerns

Findings

1) Procedures used to perform total cyanide, VOC and TOC at the E/TI laboratory did not in all cases conform to EPA methodology, required by the permit.

2) 40 CFR 264.13(b) requires the owner/operator to follow the written WAP. Of the records examined, there were 32 instances where the required pre-acceptance documents were either incomplete or missing, there were 3955 instances where required testing or determinations were either inadequate or omitted; 20 in acceptance testing and the remainder in pre-acceptance. This tabulation included frequently omitted PCB, TOC, acidity and alkalinity testing. The WAP requires the facility to perform bench scale reactivity and comparability testing. No record was provided to indicate that this was done, as further detailed in Sample Analysis section of report. The on-site inspection revealed that samples collected for incoming wastes loads are not always representative.

3) No specific rationale was presented for the parameters specific gravity, physical description and pH appearing in the WAP. 40 CFR 264.13(b)(1) requires specification of the rationale for selection of parameters for analysis.

4) The test methodology was not specified in the WAP for the parameters specific gravity and physical description. 40 CFR 264.13(b)(2) requires the specification of the test methods to be used for specific waste analyses.

5) Rarely did E/TI update the WCQ, which is part of the vehicle for updating all of the preliminary waste stream information needed to treat and store specific wastes at the site. This is part of the regulatory requirement under 40 CFR 264.13 (a)(3). Each incident is not individually cited, however could be, for most of the loads examined.

6) At least one load which exceeded the VOC permit limitation was nevertheless accepted and treated.

Areas of Concern

1) The permit requires the determination of waste constituents present in concentrations greater than one percent. Sulfur species, silicon and several toxic metals were found to be omitted.

2) Although not required by the 1992 regulations, 40 CFR 264.13(c)(3) for off-site facilities receiving containerized hazardous waste, now requires description of the procedure which will be used to determine whether a biodegradable sorbent has been added to the waste in the container. These procedures are not present in the June 1992 WAP.

3) Potential problems were noted in the specific gravity and percent water procedures used by the E/TI laboratory as noted below in the section on Analysis.

4) In addition, all of the items mentioned in the section titled "Problems with the Waste Analysis Plan" are areas of concern.

WASTE MANAGEMENT ACTIVITIES

This section addresses the part of the inspection that applied to compliance with the facility's permit and other applicable RCRA regulations outside the scope of the permit. This part of the inspection was conducted concurrently with the process-oriented reviews that were being performed primarily by the NEIC personnel.

The inspection began on February 27, 1996; during the first two days of the inspection, the inspectors worked together to review facility operations, processes, and materials management practices. On the third day of the inspection, the inspectors split into two teams. NEIC personnel primarily continued with the process-oriented reviews, while the two Region VI inspectors reviewed the facilities compliance with conditions in the permit. In addition to the permit requirements, the inspectors reviewed compliance with 40 CFR Part 262 (and referenced portions of Part 265) and Part 268. During the remainder of the inspection, Region 6 inspectors often worked separately to review documents and inspected the permitted units at the facility.

Permitted units at the facility are as follows [Tab;e IV - 2]:

(1) Hazardous Waste Tank (Facility 3) - not in use since 1991, but being operated as a permitted tank. [Photo #22]

(2) Container Storage Area (Drum Storage Area Facility No. 1) [Photos #51, 52, 53, and 54]

(3) Container Storage Area (Drum Storage Area Facility No. 3) [Photos #23, 24, and 35]

(4) Container Storage Area (Section A [Area 4] of Building B - Receiving Building) [Photo #17]

(5) Container Storage Area (Section B [Area 5] of Building B - Receiving Building)[Photo #16]

(6) Eighteen (18) Container Storage Areas (Bins A to S in the Product Storage Building C)[Photos #28 - 32]

The RCRA permit contains Air Quality Provisions (Section IX.) as required by the Texas Clean Air Act. Many of these provisions apply to the above listed RCRA permitted units. In addition to the RCRA permitted units, Attachments B and C of the permit list units (such as tanks, scrubbers, and baghouses) which are considered emission points. These units were inspected and compliance with the Air Quality Provisions was also evaluated during this portion of the inspection.

PRIVILEGED: ATTORNEY WORK PRODUCT

Findings and Concerns

The findings are listed below

1) Fifty-three (53) Land Disposal Restriction (LDR) notices were found during the file reviews that did not include the manifest number associated with the shipment of waste. Table VII - 4 lists manifest numbers issued by the State of Texas. These manifests were for ETI generated wastes which had an associated LDR notice that did not include the manifest number. It is ETI's practice to use the last five digits of the state manifest number as the "Manifest Document Number" as required in box no. 1 of the Uniform Hazardous Waste Manifest. 40 CFR 268.7 requires that each LDR notice include the manifest number associated with the shipment of waste.

2) Two plastic drums in the Container Storage Area (Drum Storage Area) in Facility No. 1 were found during a tour of the area on March 7, 1996 to have bulging lids [see Photo #54]. These drums were labeled as containing F006 waste (aqueous copper hydroxide). The generator of the drums is Adflex Solutions, Inc. of Mexico (AZD 983485053). The inventory number of the waste is cc #03775. 40 CFR 264.171 and 264.173 and Permit Section IX.G.3

PRIVILEGED: ATTORNEY WORK PRODUCT

TABLE VII - 4

TABLE OF MANIFESTS NUMBERS ASSOCIATED WITH LDR NOTICES WHICH DID NOT HAVE MANIFEST NUMBERS ENCYCLE/TEXAS, INC.

Note: These manifest numbers are those provided on manifests issued by the State of Texas. It is the practice of ENCYCLE to use the last five digits of this number as the Manifest Document Number as required in box no. 1 on the Uniform Hazardous Waste Manifest form.

1995

00854281	00854247	00854232	00854233
00854282	00854249	00854252	00854291
00854290	00854289	00854253	00854254
00854256	00854259	00477423	00854237
00854203	00854236	00854235	00854234
00854246	00854241	00854240	00854239
00854243	00854242	00854245	00854244
00854228	00854227	00854226	00854224
00854222	00854221	00854220	00854216
00854209	00854215	00854219	00854201
00854218	00854212	00854213	00854210
00477434	00594087	00594088	00594088
00594091	00594090		

1996

00926788	00854287	00854286

requires that containers being stored are in good condition and managed so as to prevent leakage or fugitive emissions.

3) 40 CFR 264.54(c) requires that the Contingency Plan (Permit Section VIII.A) be amended immediately whenever the facility changes in its design so as to change the response necessary in an emergency. The map in the Contingency Plan on file at the facility did not indicate Facility #4 or evacuation routes for and in the area of this facility.

4) Section III.B.7 of the permit requires that inspection forms used by the facility for inspections at units or facility components include "a list of all items to be inspected at each unit and component." This list of items is not on the forms used to inspect the permitted Hazardous Waste Tank in Facility No. 3.

5) Permit Section III.B.8, 40 CFR 264.16(d), and 40 CFR 270.14(b)(12) requires that the facility maintain a written description of the type and amount of both introductory and continuing training that will be given each person filling a position related to hazardous waste management. A written description could not be provided by the facility during the inspection.

6) Permit Section III.B.10 (40 CFR 264.14(c)) requires that the permittee shall post signs in English and Spanish at all main access points for each facility unit and in sufficient number and locations so as to be seen from any approach to active portions of the facility. The signs shall be printed so they may be clearly seen from a distance of at least 25 feet and shall state "Danger - Unauthorized Personnel Keep Out." No such signs were visible to the entrances to the permitted container storage area Building B (Receiving Building)[Photos #15, 18, and 19]. Such warning signs were posted in English but not Spanish at the entrances to three other units: 1) Facility #3 (Hazardous Waste Tank and Container Storage Area)[Photos #21, 22]; 2) Container Storage Area in Facility #1[Photo #51, 52]; and 3) Building C - Container Storage Areas [Photos #56, 57, and 58].

7) Permit Section III.B.13 requires that all transfer of waste from off-site transport trucks or railcars into the facility shall take place in areas provided with secondary containment. Off-site trucks were observed unloading waste near the north entrance to Building B (Receiving Building)[Photo #4]. Portions of this unloading area did not have curbing or other forms of secondary containment. A breech in this containment was immediately adjacent to where unloading occurs [Photo #20].

8) Permit Section IX.E.3 requires that the facility install and maintain a monitoring system to continuously measure and record ambient air concentrations of hydrogen cyanide (HCN) and hydrogen sulfide (H_2S) within Building No. 3. No such system has been installed.

Encycle claims not to be accepting wastes which contain these constituents in concentrations high enough to pose a concern.

9) 40 CFR 264.12 requires Encycle to notify the Regional Administrator that it intends receive waste from a foreign source. This TSD notification is a one-time notification and the TSD is also required to supply the information described in this section. A review of the HAZTRAKS database indicates that six shipments of D008 wastes were sent to Encycle without this required notification. Five of these shipments were from the generator, Partes de Television/Reynosa, on October 24, 1994; March 15, 1994; July 01, 1994; December 17, 1993; December 17, 1995. The U.S. Importer is listed as Zenith Electronics of Texas/McAllen. Another shipment of D008 waste was sent without notification by Encycle on September 12, 1995. This waste was generated by Telson in Agua Prieta, Sonora, Mexico and imported by Zenith Electronics of Texas/McAllen (Attachment VII - D).