POLLUTION PREVENTION POLICY

ECS Refining Texas, LLC. (ECS) is committed to continued excellence, leadership and stewardship in protecting the environment. Environmental protection is the responsibility of every employee and is the basic responsibility of this company.

In keeping with this policy, our objective as a company is to reduce waste and achieve minimal adverse impact on air, water and land through excellence in pollution control, in addition to and as an adjunct to our business purpose of recycling and creating a product from secondary materials and/or hazardous waste.

Our environmental guidelines are stated as follows:

- Environmental protection is a line of responsibility and an important measure of employee performance. Every employee is responsible for environmental protection and pollution prevention in the same manner he or she is for safety.

- Reducing the generation of waste has been and continues to be a prime consideration in process design and operations and is viewed by management as a vital ingredient of our business.

- Source reduction/waste minimization will be given first consideration prior to classification and disposal.

Matt Wilkins

MATT WILKINS, GENERAL MANAGER

11/18/04

DATE

EXECUTIVE SUMMARY

CERTIFICATION OF COMPLETION

This document certifies that the pollution prevention plan has been completed and meets the specified requirements of the Waste Reduction Policy Act of 1991, the Solid Waste Disposal Act and 30 TAC §§335.471 – 335.480 and that the information provided herein is true, correct, and complete.

This document also certifies that the person whose signature appears below has the authority to commit the corporate resources necessary to implement this plan.

Matt Wilkins

MATT WILKINS, GENERAL MANAGER

11/18/04

DATE

1.2 PLAN DATES	
ISSUED DATE:	NOVEMBER 18, 2004
EXPIRATION DATE:	NOVEMBER 18, 2009

PART 1.1 FACILITY IDENTIFICATION

1.1.1 FACILITY NAME AND ADDRESS

NAME OF FACILITY:	ECS REFINING TEXAS, LLC.
CONTACT PERSON:	KURTIS B. RHUDY
MAILING ADDRESS:	106 TEJAS DRIVE
CITY, STATE, ZIP:	TERRELL, TEXAS 75160
CONTACT PHONE:	(972) 524-1075
CONTACT FAX:	(361) 563-0904

1.1.2 FACILITY LOCATION

The site is located at 106 Tejas Drive, in a rural industrial park, outside of the city of Terrell, Kaufman County, Texas. The site is an irregular-shaped 30-acre parcel of land and located in an area of light industrial use. The site is bound to the north by vacant land and small industry. The site is bound to the west by vacant land; beyond the vacant area are other "light" industrial facilities. The site is bound to the south by Tejas Drive, beyond Tejas Drive is the Department of Public Safety, a miniature golf course and an apartment complex.

The geographical coordinates of the facility are:

- Latitude: 32 deg. 43 min. 41 sec.
- Longitude: 96 deg. 19 min. 38 sec.

1.1.3 FACILITY CONTACTS

The following employees are authorized to act on behalf of ECS Refining Texas, LLC.

NAME:	MATT WILKINS
TITLE:	GENERAL MANAGER
PHONE:	(972) 524-1075 ext. 101
NAME:	KURTIS B. RHUDY
TITLE:	SAFETY, HEALTH AND ENVIRONMENTAL COMPLIANCE MANAGER
PHONE:	(972) 524-1075 ext. 118

PART 1.2 CURRENT PERMITS

EPA ID NUMBER:	TXR000000034
TNRCC SOLID WASTE NUMBER:	39525
TOXIC RELEASE INVENTORY ID:	75160TJSRS105TE
HAZARDOUS WASTE PERMIT:	NA
WASTE WATER PRETREATMENT PERMIT:	ECS-041011
AIR - FACILITY OPERATING PERMIT:	19430
AIR - 1.5 " ROTARY SHEAR SHREDDER PERMIT:	85294
AIR - PRECIOUS METAL RECOVERY PERMIT:	87433
AIR - ELECTRIC ARC FURNACE PERMIT:	104190
AIR - ELECTROLYTIC PROCESS PERMIT:	107035
STORM WATER PERMIT	TXR050000
SIC CODE:	3341
NAISC CODE:	331492

These permits are reflected as of November 18, 2004.

PART 1.3 PLANT BACKGROUND

ECS Refining Texas LLC (ECS) operates a pyrometallurgical recycling facility in Terrell, Texas. This facility is primarily dedicated to the recovery of tin, lead and precious metals from tin and tin/lead drosses, filtercakes, by-products, sludges, baghouse dusts and contaminated pastes and wipes. ECS also operates, on-site, a hydrometallurgical process for the recovery of precious metals (“PMs”). In addition, ECS recovers computers, electronic scrap and high temperature alloys.

According to a review of historical records, the site was used for agriculture until approximately 1991. In 1987, Tejas Resources, Inc. (Tejas) purchased the property to build a state of the art lead-acid battery recycling facility. From approximately 1991 to 1996, Tejas physically occupied the site; however, the facility was in operation only during the initial 18 months. ECS purchased the property in 1996. As part of a thorough site assessment during the acquisition of the property, minor soil contamination was discovered in the vicinity of the building and loading dock areas. Although the contamination in the soil was less than the state action levels for industrial areas, the contaminated soil was excavated and removed from the site by the previous owners. All excavated soil was sampled, analyzed and disposed of in accordance with U.S. EPA and the State of Texas requirements.

PART 1.4 GENERAL OPERATIONS

1.4.1 OVERVIEW OF PROCESS OPERATIONS

ECS Refining Texas LLC (ECS) in Terrell, Texas, is primarily dedicated to the recovery of tin, lead and precious metals from materials such as tin and tin/lead drosses, filtercakes, by-products, sludges, baghouse dusts and contaminated pastes and wipes. Materials are received and evaluated for processing in the pyrometallurgical process. Tin and tin/lead materials may be prepared for introduction into a rotary furnace by shredding the materials into a uniform size, if necessary. Most tin and tin/lead materials received at ECS are immediately shredded upon arrival, sampled and analyzed for further processing. Printed circuit boards and electronic scrap may also be shredded. In some cases, incoming material may be further processed in the 1.5-inch rotary shear shredder. Upon leaving the shredders, material enters the pyrometallurgical process, which includes a rotary furnace, reverberatory furnaces, sweat furnace, tilt crucible furnaces, a blender/dryer, refining kettles, an electric arc furnace and a ball mill. Feed materials, shredded materials and fluxing agents are transferred in charging tubs into the rotary furnace chamber. Depending upon the final use of the metal and the presence of impurities such as copper, the metal may be refined in one of the five refining kettles. At the end of the pyrometallurgical processes, liquid metal is cast into molds or ingots and is shipped offsite. In addition, ECS operates hand-held arc cutting systems used for destroying and cutting high temperature alloys. In selected cases these materials are transferred to the precious metals recovery process. Depending on metal composition of feed materials, some material may be transferred directly to the precious metals recovery, high temperature alloy, electrolytic, or pyrometallurgical process. Wastewater generated from these processes (e.g. scrubber water) is routed to the wastewater pretreatment equipment prior to discharge to a POTW.

A detailed description of the shredder process, pyrometallurgical process, electrolytic process, high temperature alloy, precious metals process, and wastewater pretreatment process are included in this section.

Equipment	FIN	Vents to:	EPN
Shredder Process			
2-Inch Rotary Shear Shredder	S-12	Shredder Baghouse	P-12
1.5-Inch Rotary Shear Shredder	S-19	Shredder Baghouse	P-12
Pyrometallurgical Process			
Refining Kettle No. 1	S-1	Kettle Baghouse	P-15
Refining Kettle No. 2	S-2	Kettle Baghouse	P-15
Refining Kettle No. 3	S-3	Kettle Baghouse	P-15
Refining Kettle No. 4	S-4	Kettle Baghouse	P-15
Refining Kettle No. 5	S-5	Kettle Baghouse	P-15
Kettle burners	S-1Comb to S-5Comb	Atmosphere	P-16A to P-16E
Ingot Autocaster	S-40	Hygiene Baghouse	P-14
Rotary Furnace	S-6	Furnace Baghouse / Scrubber	P-6
Slag Hammering Fugitives	S-39	Hygiene Baghouse	P-14
Sweat Furnace	S-7	Kettle Baghouse	P-15
600 Tilt Crucible Furnace	S-8	Shredder Baghouse	P-12
175 Tilt Crucible Furnace	S-9	Shredder Baghouse	P-12
Reverberatory Furnace No. 1	S-10	Shredder Baghouse	P-12
Reverberatory Furnace No. 2	S-11	Shredder Baghouse	P-12
Electric Arc Furnace	S-21	Hygiene Baghouse	P-14
Block Casting Molds	S-41	Hygiene Baghouse	P-14
Ball Mill	S-13	Hygiene Baghouse	P-14
Blender/Dryer	S-17	Blender/Dryer Baghouse	P-17
Blender/Dryer Burner	S-17Comb	Atmosphere	P-25
Electrolytic Process			
Electrolytic Process	S-22	Electrolytic Scrubber	P-22
High Temperature Alloys			
Hand-held Arc Cutting System – 1	S-37	Hygiene Baghouse	P-14
Hand-held Arc Cutting System – 2	S-38	Hygiene Baghouse	P-14
Precious Metals Process			
Precious Metal Recovery	S-20	Precious Metal Scrubber	P-20
Crucible Furnace No. 1	S-35	Crucible Furnace Exhaust	P-24
Crucible Furnace No. 2	S-36	Crucible Furnace Exhaust	P-24
Wastewater Pretreatment Process			
Reaction Tank (R-1)	S-24	Precious Metal Scrubber	P-20
Treatment Tank (T-1)	S-25	Hygiene Baghouse	P-14
Treatment Tank (T-2)	S-26	Hygiene Baghouse	P-14
Treatment Tank (T-3)	S-27	Hygiene Baghouse	P-14
Treatment Tank (T-4)	S-28	Hygiene Baghouse	P-14
Collection Tank (T-5)	S-29	Hygiene Baghouse	P-14
Discharge Tank (D-1)	S-30	Hygiene Baghouse	P-14
Discharge Tank (D-2)	S-31	Hygiene Baghouse	P-14
Caustic Tank No. 1	S-32	Hygiene Baghouse	P-14
Caustic Tank No. 2	S-33	Hygiene Baghouse	P-14
Wet Vacuum Sweeper	S-42	Hygiene Baghouse	P-14
Acid Loading Fugitives	S-34	Hygiene Baghouse	P-14
Sample Prep Room			
Sample Prep Room	S-23	Hygiene Baghouse	P-14

1.4.2 SHREDDER PROCESS

Incoming materials processed at ECS are received in a variety of containers, such as metal drums equipped with metal bolt rings, cubic yard boxes and five (5) gallon metal pails. These materials are sampled for conformance by a grab method or by transferring the material to the shredding system. The shredding system consists of a 2-inch rotary shear shredder, a 1.5-inch rotary shear shredder and a hydraulic sampling device. The purpose of the shredder system is to reduce the size of the materials and to obtain a representative sample. All materials from this process are feed it into rotary furnace charging tubs or cubic yard boxes.

A forklift transfers material into the shredder. The contents and the container it arrives in are shredded into approximately two-inch particles and dropped onto a conveyor belt. A metallic separator removes shredded pieces of ferrous metallics. Shredded ferrous scrap is recycled off-site. The shredded material passes through a sampling device and may be transferred onto another conveyor belt to the 1.5-inch rotary shear shredder. Material is not heated during the shredding process. The final shredded material is transferred into charging carts for delivery to the rotary furnace or into cubic yard boxes.

Feed material is reduced in size due to a cutting or shearing action, rather than pulverized through high impact. This substantially reduces dust generation compared with high impact shredders. Most dust is generated during loading the material rather than shredding. Hoods are located where dust is generated: the system feed hopper, the bottom discharge of the shredder, the material transfer belt, the iron scraping belt, the discharge of the transfer belt, and the containers for the shredded product and samples. Material in the hoods is exhausted through the shredder baghouse (EPN P-12). Any uncontrolled or fugitive emissions from this process are routed to the atmosphere through the hygiene baghouse (EPN P-14).

1.4.3 PYMOMETALLURGICAL PROCESS

The refining kettles (FINs S-1 through S-5) receive metal from the pyrometallurgical, the electrolytic process and/or directly from feedstocks. The primary purpose of the kettles is to refine the metal to a customer specific product. Reducing agents and fluxes (e.g. sulfur, aluminum, saw dust, etc.) are added to the kettles to remove impurities from the metal as metal by-products. Once the refining is complete, the metal is cast into customers-specific ingots, blocks or customer-specific molds using the ingot autocaster (FIN S-40) or water-jacketed molds. Process emissions are routed to the kettle baghouse (EPN P-15) prior to discharging to the atmosphere. The baghouse dust and kettle by-products are collected and may be recycled in the pyrometallurgical process or shipped off-site for further recycling. The kettles are natural gas heated. Products of combustion (FIN S-1Comb through S-5Comb) from heating these kettles are routed to the atmosphere (EPNs P-16A to P16E).

The rotary furnace (FIN S-6) receives material from feedstocks and other process at the plant. The furnace is "charged" using tubs. These charge drums convey the raw material and fluxing agents directly into the furnace chamber. Reducing agents are added to transform the metal oxides into metal. The furnace rotates while heating material in its chamber, allowing for thorough mixing and more efficient reduction. Once the reaction is complete, the furnace is tapped and molten metal flows into prepared molds. Each mold holds approximately 6,000 pounds of metal. The slag from the system is similarly and separately cast into prepared molds. The slag is mechanically broken up and containerized either for reuse in the pyrometallurgical process or to be shipped off-site. Fugitives from this slag hammering process (FIN S-39) are released through the hygiene baghouse. Depending upon the end use of the metal and the presence of impurities such as copper, the resulting metal may be refined in one of five refining kettles (FINs S-1 to S-5). Emissions from the rotary furnace are routed to the rotary furnace baghouse/scrubber (EPN P-6). The scrubber at the outlet of the baghouse controls acid emissions which are also released through EPN P-6. Any uncontrolled or fugitive emissions from this furnace are routed to the atmosphere through the hygiene baghouse (EPN P-14). The slag and baghouse dust generated from this process are recycled back into the rotary furnace, shipped off-site for further recycling or sent for disposal. This furnace is natural gas heated. The products of combustion from this furnace are routed through the furnace stack and released to the atmosphere through the baghouse/scrubber, EPN P-6.

1.4.3 PYMOMETALLURGICAL PROCESS – CONT.

The sweat furnace (FIN S-7) is used mainly to separate copper from tin/lead materials. Blocks of intermediate metal, typically weighing 6,000 pounds and having a copper content greater than 5 percent, are transferred from the rotary furnace to the sweat furnace with no additional fluxes. The furnace is heated to approximately 700 ºF to melt and collect the fraction of the alloy with a low melting temperature, which is predominately tin and lead. The unmelted remaining metal, which has a high copper content, is sent off-site for further recycling or is processed further in the pyrometallurgical process. Emissions from the sweat furnace are directed to the kettle baghouse (EPN P-15). This furnace is natural gas heated. The products of combustion from this furnace are routed through the furnace stack and released to the atmosphere through the kettle baghouse, EPN P-15.

The 175 Crucible Furnace (FIN S-9) and the 600 Crucible Furnace (FIN S-8) typically process small lots of high-grade material. For instance, lots containing high concentrations of precious metals are typical materials processed in these furnaces. Both furnaces are gas-fired and operate at temperatures of approximately 1500 °F - 2200 °F. Material is loaded into the furnaces using buckets or shovels. Fluxing agents such as soda ash, borax, and fluorspar are added and the material is heated. Once the charge has completely reacted, it is cast into ingots or blocks by tilling the furnace. Emissions from the tilt crucible furnaces and its product of combustion emissions are routed to the shredder baghouse (EPN P-12).

Two compact precious metal reverberatory furnaces (FINs S-10 and S-11) are direct-fired using natural gas to recover precious metals from precious metal bearing materials, such as silver from silver recovery cartridges in the photographic industry wastewater systems. Material to be smelted is charged into the furnace manually and a proprietary flux mixture is added. The flux may include but is not limited to soda ash, borax, and potassium nitrate. Once melted, the metal and slag are removed from the furnace. Emissions from these furnaces are routed to the shredder baghouse (EPN P-12). Product of combustion emissions from natural gas used to heat these furnaces are also routed through the shredder baghouse, EPN P-12.

1.4.3 PYMOMETALLURGICAL PROCESS – CONT.

The electric arc furnace (FIN S-21), which recovers precious metals, is a square-shaped, refractory-lined container made of steel. An anode is located at the bottom and a cathode extends downward into the container. Materials such as metal oxides, oxide dross, aluminum dross, and de-copperized (decop) dross produced from the refining kettles (FINs S-1 through S-5) are charged into the top of the furnace. Electric current flows from the cathode to the anode through the scrap charge. The electrical resistance of the charge causes the charge to heat up and become molten. There is no combustion involved in this process. Metal is tapped from the bottom and slag is tapped from the side of the furnace. The furnace is located within a 10-foot by 12-foot structure that is vented to hygiene baghouse (EPN P-14).

Once a process from various pyrometallurgical processes is complete, molten metal and slag is tapped, poured or pumped into various size block and customer-specific casting molds (FIN S-41). Emissions from this activity, if any, are released through the hygiene baghouse (EPN P-14).

ECS crushes precious metal bearing materials and other related feedstocks in a ball mill. The ball mill (FIN S-13) is a cylindrical steel shell filled partially with steel balls that pulverized the material into fine powder. As the mill turns, material is crushed by the tumbling steel balls. Once the material is completely pulverized, the opening in the mill is replaced with a grate that allows crushed product to flow out while retaining the balls. The ball mill vents air emissions to a dedicated baghouse with a HEPA fabric filter dust collector and to the hygiene baghouse (EPN P-14).

The blender/dryer (FIN S-17) prepares filtercakes, other wet material and fluxes for introduction into the rotary furnace or for recovery at other off-site facilities. The blender/dryer consist of a cylindrical stainless steel chamber (similar to a cement mixer chamber) with exterior, gas-fired burners. There are two burners in the unit, one on the side and one at the front. During the drying or mixing process, the dryer rotates, which causes the material to form small consistent-sized balls. Burners heat the materials to expedite the removal of moisture. The dried or mixed materials are off-loaded into the rotary furnace charging tubs or into cubic yard boxes. The blender/dryer vents are routed through the Blender/Dryer Baghouse (EPN P-17). Product of combustion emissions from burning natural gas for the Blender/Dryer (FIN S-17) are released to the atmosphere (EPN P-25).

1.4.4 ELECTROLYTIC PROCESS

CONFIDENTIAL

1.4.5 HIGH TEMPERATURE ALLOYS

Aircraft engines and other assembled aircraft parts containing high temperature alloys are received at the plant for dismantling, destruction and mutilation. A hand-held arc cutting system is used on these materials to render aircraft parts unusable as required by the Federal Aviation Administration. Once the material is certified destroyed it is segregated by specific alloy and shipped off site. In addition, these systems may be used for the preparation of certain precious metal bearing aircraft parts that will be transferred to the precious metal recovery process. Any emissions from this process are routed to the atmosphere through the hygiene baghouse (EPN P-14).

1.4.6 PRECIOUS METALS RECOVERY

CONFIDENTIAL

1.4.7 WASTEWATER PRETREATMENT

ECS operates a wastewater pre-treatment area to handle wastewater generated from recycling processes (e.g., spent scrubber water). The wastewater pretreatment process consists of one reaction tank (FIN S-24), four treatment tanks (FINs S-25 through S-27), one collection tank (FIN S-29), two discharge tanks (FINs S-30 and S-31), two caustic tanks (FINs S-32 and S-33). Emissions from all these tanks as well as the acid loading fugitives (FIN S-34) are vented into the room and released to the atmosphere through the hygiene baghouse, EPN P-14. Emissions from the reaction tank are routed through the precious metals scrubber (EPN P-20).

1.4.8 SAMPLE PREP ROOM

In addition to the process-specific equipment described in previous sections, ECS operates a sample prep room (FIN S-23) to support all operations at the plant. Emissions from activities in the sample prep room are vented in the building and are released to the atmosphere through the hygiene baghouse (EPN P-14).

PART 2.1 IDENTIFICATION OF WASTE

Waste Name/Description - 2003	Estimated Quantity (lbs / Yr)[1]	TNRCC Waste Code No.	EPA Hazardous Waste Code
REFRACTORY BRICK A AND CASTIBLE FROM RELINING ROTARY FURNACE	5,000	0010319H	D004, D005, D006, D007, D008, D010, D011
WASTE OIL CONTAMINATED W/LEAD[1]	0	2001206H	D008
EMPTY DRUMS	144,000	20023082	NA
PLANT TRASH	204,000	20039992	NA
SLAG GENERATED FROM THERMAL REDUCTION OF METAL OXIDES	0	20043022	NA
SCRUBBER WATER FROM AIR POLLUTION DEVICES[2]	550,000	2005115H	D004, D006, D007, D008
WATER FROM FLOOR SWEEPER[2]	85,000	2006119H	D008
LABORATORY WASTE FROM ANALYTICAL ANALYSIS[2]	110,000	2007103H	D002, D008
SLAG FROM HIGH TEMPERATURE METALS RECOVERY	280,000	20083041	NA
HDPE DRUMS, EMPTIED, CLEANED AND RENDERED UNUSABLE[1]	0	20094062	NA
REFRACTORY BRICK FROM RELINING ROTARY FURNACE	0	20103192	NA
SLAG FROM HIGH TEMPERATURE METALS RECOVERY	0	2011304H	D004, D005, D006, D007, D008, D010, D011
SPENT RESPIRATOR CARTRIDGES AND PPE	500	2012319H	D004, D005, D006, D007, D008, D010, D011
LABORATORY WASTE – LAB PACK[1]	0	2013001H	D002 - D011, F003
NON-HAZARDOUS CRUCIBLES[3]	0	20153192	NA
REFRACTORY BRICK FROM RELINING ROTARY FURNACE	30,000	20163191	NA
NON-HAZARDOUS MATERIALS FROM MAINTENANCE ACTIVITIES[4]	0	20173901	NA
SPENT ACIDS FROM PRECIOUS METAL RECOVERY[2]	500,000	2018103H	D002

Based on the ECS Refining Texas, LLC Annual Waste Summary for 2003.

NOTE 1 – Although listed on ECS' NOR, these wastes are only generated periodically and were not generated during 2003.

NOTE 2 – Although listed on ECS' NOR, all estimated quantities generated are processed in the on-site wastewater pretreatment system and discharged to the local POTW.

NOTE 3 – Although listed on ECS's NOR, these waste materials are no longer generated.

NOTE 4 – NGW = Newly Generated Waste – annual quantities not available.

PART 2.2 POLYCHLORINATED BYPHENYLS (PCBs)

Waste Name/Description	Estimated Quantity (Tons / Yr)	TNRCC Waste Code No.	EPA Hazardous Waste Code
PCB (> 500 ppm) Contaminated Materials	0	NA	NA

ECS Refining Texas, LLC does not contain any polychlorinated by-phenols containing equipment or materials on the site.

PART 2.3 TOXIC RELEASE INVENTORY (TRI)

TRI Chemical – 2003	CAS Number	Annual Activity (Tons)
Antimony	7440-38-0	12.07
Copper	N100	51.55
Lead	N420	243.37
Zinc Compounds	N982	27.15
Cadmium Compounds	N078	9.31

2.3.1 SUMMARY OF RELEASES – 2003

CHEMICAL	RELEASES TO (Pounds)				TOTAL RELEASES
	STACK AIR	FUGITIVE AIR	WATER	LAND	
Antimony	7.3	0.5	*	160	168
Copper	*	*	0.06	403	403
Lead	199.1	14.7	0.04	1,996	2,209
Zinc Compounds	*	*	0.49	12,804	12,805
Cadmium Compounds	*	*	0.04	158	158
TOTALS	206.4	15.2	0.63	15,521	15,743

* *These chemicals were not measured.*

2.3.2 SUMMARY OF TOTAL TRANSFERS OFFSITE – 2003

CHEMICAL	TOTAL OFFSITE TRANSFERS (Pounds)			TOTAL TRANSFERS
	DISPOSED	RECYCLED	TREATED	
Antimony	160	6,876	0	7,036
Copper	403	30,752	0	31,155
Lead	1,996	116,234	0	118,230
Zinc Compounds	12,805	19,156	0	31,961
Cadmium Compounds	158	10,533	0	10,691
TOTALS	15,522	183,551	0	199,073

PART 2.4 PRIORITIZED LIST OF WASTE STREAMS

2.4.1 PRIORITIZATION CRITERIA

ECS Refining Texas, LLC has prioritized its waste streams using the following criteria:

- Current disposal practices and cost
- Current and potential future environmental regulations
- Raw material costs
- Threat to workers, public, and environment
- Handling, storage and disposal problems
- Amount of waste generated
- Length of time waste displays hazardous characteristics

PART 3.1 GOALS AND REDUCTION ESTIMATES

3.1.1 GOALS

ECS Refining Texas, LLC (ECS) commitment to the protection of the environment and waste reduction practices is stated in its corporate Environmental, Health and Safety Policy (Section 3.1.2). This policy states that ECS will reduce, recycle, and manage waste responsibly. As part of the pledge, ECS has set the following goals to reduce waste over the next five years.

1. Reduce the amount of Class 1 non-hazardous slag that is sent for disposal which will lead to reduce disposal cost and reduction in TRI chemical inventory.
2. Reduce the amount of hazardous brick that is produced during the relining of the rotary furnace which will reduce disposal cost.
3. Implement a process for washing baghouse dust to allow for a cleaner on-site recycling option.

3.1.2 CORPORATE ENVIRONMENTAL, HEALTH AND SAFETY POLICY

ECS REFINING TEXAS, LLC

ENVIRONMENTAL, SAFETY AND HEALTH POLICY

ECS Refining Texas, LLC is committed to environmental excellence and is exemplified by its pollution prevention and control measures that go beyond the requirements of the regulatory agencies.

Now more than ever, companies are looking beyond the old strategy of reactive compliance with environmental regulations to adopting a proactive, risk-based approach to environmental issues. This allows development of corporate environmental programs that not only comply with the law, but also have a positive impact on the bottom line of the company. ECS has always maintained this viewpoint and is well-equipped to handle environmentally sensitive metal-bearing waste materials. In addition, safety will be given primary importance in planning and operating all company activities in order to protect employees against occupational injuries and illnesses and to protect the company against unnecessary financial burden and reduced efficiency. The employees of ECS are considered valuable assets. Their safety is of vital concern. Recognizing its' need and responsibility for the safety of it's' employees, the company considers injury and illness prevention an important and integral part of every operation.

ECS is committed to the conservation of natural resources, including energy; to the reduction, recycling and responsible management of its wastes; and to exercising stewardship over its products.

ECS will comply with existing environmental, safety and health laws and regulations and support activities that contribute to pollution prevention, responsible resource management, and the safety, health and well being of employees, customers and the communities in which it operates.

Matt Wilkins

General Manager

3.1.3 IMPLEMENTATION SCHEDULE

This section provides an implementation schedule that ECS Refining Texas, LLC (ECS) will follow in order to meet the goals as stated above. The table covers the five year period of November 18, 2004 through November 18, 2009. The first year in the table will be the period of November 18, 2004 through November 18, 2005, and all subsequent years will follow the same plan.

EXPIRATION DATE: November 18, 2009

GOAL	1ST YEAR	2ND YEAR	3RD YEAR	4TH YEAR	5TH YEAR
	11/'04 – 11/'05	11/'05 – 11/'06	11/'06 – 11/'07	11/'07 – 11/'08	11/'08 – 11/'09
1 – Rotary Furnace Slag	25 %	25 %	25 %	5 %	0 %
2 – Hazardous Brick	0 %	10 %	50 %	10 %	5 %
3 – Baghouse Dust	0 %	10%	50%	75%	0%

PART 4.1 POLLUTION PREVENTION PROJECTS

4.1.1 REDUCTION OF DISPOSAL OF ROTARY FURNACE "SPENT" SLAG

The rotary furnace (S-6) receives material from feedstocks and other processes at the plant. Reducing agents are added to the process for transforming metal oxides into metal. The furnace rotates while heating material in its chamber, allowing for thorough mixing and more efficient reduction. Once the reaction is complete, the furnace is tapped and molten metal flows into prepared molds. Each mold holds approximately 6,000 pounds of metal. The slag from the system is similarly and separately cast into prepared molds. Slag is a by-product from the smelting process. It is typically high in silicates of calcium, magnesium, aluminum and contains high amounts of zinc and iron Slag is primarily used to collect impurities from the metal oxides during the reduction step. In many cases, these slags when tapped contain enough fluxing value and/or metal content (e.g., tin) that it may be recycled back into the process. However, once the metal value is depleted and/or the fluxing value is exhausted the slag becomes "spent" and must be shipped off-site for disposal.

In 2003, approximately 277,872 lbs of the "spent" slag generated at ECS Refining Texas, LLC (ECS) was shipped off-site to a landfill as a Texas class 1 non-hazardous waste. It is this material that contributes most to the amount of waste generated at ECS. It is projected that the total amount of "spent" slag generated will double in future years. Therefore, it has the potential to significantly affect the amount of TRI – Pb, TRI Zn and other potential TRI chemicals transferred off-site in a given year. The reason for this increase includes a recently stronger economical market for tin and lead which has lead to an increase in incoming materials and plant production. Do to this increase in production; ECS will have the potential to produce more slag on an annual basis. ECS is continuing to refine its operations in hope to produce a Texas Class 2 non-hazardous slag that may be disposed of in a non-hazardous landfill or be sent for recycling (e.g., road aggregate).

4.1.1.1 TECHNICAL AND ECONOMIC CONSIDERATIONS

The primary reason for the future increase in “spent” slags is do to an increase in production. This will ultimately increase the overall cost of disposal at ECS. At present, landfill disposal cost for a Texas class 1 non-hazardous waste is $35.00 per ton. The cost of a Texas class 2 non-hazardous waste is $25 per ton. Based on the slag generated in 2003 ECS would have saved approximately $1,500 in disposal cost if it produced a Class 2 non-hazardous slag. Landfill disposal provides a superior waste solution only if other solutions (recycling and/or refining) exceed economic cost and are not available while offering adequate protection from human health and the environment.

ECS is in the process of exploring alternative uses for “spent” slag that will eliminate the need for a landfill disposal and provide economical resource that will benefit the operations at ECS, human health and the environment.

4.1.1.2 ENVIRONMENTAL AND HUMAN HEALTH CONSIDERATIONS

Waste minimization will minimize environmental risks by reducing exposures and potential releases to the environment during handling of the materials and volume that needs to be sent off-site for land disposal.

4.1.2 REDUCTION OF "HAZARDOUS" REFRACTORY BRICK

ECS Refining Texas, LLC (ECS) waste stream 0010319H comprises of materials containing alumina oxides contaminated with metal compounds. The primary source of the waste stream is the insulating brick used to line the rotary furnace (S-6). It is generated during the relining of the rotary furnace which occurs approximately every 15-18 months. In past years, this waste stream has contributed up to 98% of the hazardous waste generated and transferred off-site. Therefore, it has the potential to significantly affect the amount of TRI – Pb, TRI Zn and other potential TRI chemicals recorded in a given year. For instance, this waste stream added 16,796 lbs in 2001, 12,038 lbs in 2002 and 4,900 lbs in 2003 to the Annual Waste Summary. These materials were treated to universal treatment standards and disposed of in a Class C landfill.

ECS has implemented procedures to help extend the life of the refractory brick and lining in general by limiting the number of "hot-cold" cycles applied during the furnace operation. In addition, ECS is exploring the use of a castible refractory as a replacement for the refractory brick. In both cases, ECS hopes reduce unnecessary generation of "hazardous" waste that needs to be treated and ultimately disposed. Efforts are also being explored that will allow a more probable chance that the material can be place back into a reclamation process off-site.

4.1.2.1 TECHNICAL AND ECONOMIC CONSIDERATIONS

As mentioned above, ECS has implemented procedures to extend the life of the refractory brick and lining within the rotary furnace. It is important for ECS to maximize the use of this lining because the cost of the brick with installation can exceed $180,000 per relining. An effort is being explore to replace the brick lining with a castible lining. This will reduce the installation cost by approximately $43,000 per relining and hopefully extend the service life of the rotary furnace. ECS also hopes that the castible lining will produce a less toxic (i.e., fails TCLP) spent material and can be managed as a non-hazardous waste. In both cases, the lining must be managed according to federal, state and local regulations and be properly disposed of until alternative recycling opportunities exist.

Present landfill disposal cost for characteristically hazardous brick and castible with multiple EPA hazardous waste codes (failing TCLP) is approximately $233.00 per ton. It is this material that contributes most to the amount of hazardous waste generated at ECS. Landfill disposal provides a superior waste solution only if other solutions (recycling and/or refining) exceed economic cost and are not available while offering adequate protection from human health and the environment.

4.1.2.2 ENVIRONMENTAL AND HUMAN HEALTH CONSIDERATIONS

Waste minimization will minimize environmental risks by reducing exposures and potential releases to the environment during handling of the materials and volume that needs to be sent off-site for land disposal.

4.1.3 ON-SITE RECYCLING OF BAGHOUSE DUST

As shown in Section 1.4.1, ECS Refining Texas, LLC (ECS) operates several baghouses which are used to collect and clean emission from various process equipment. A baghouse is nothing more than a "house full of bags." The bags are usually made of cotton, wool, synthetic, or glass fibers, and there may be hundreds of bags within one structure. This kind of fabric filtration is a well-known and practiced method for separating dry particles from a stream of gases (usually air or combustion gases). The dusty gas flows into and through the fabric, leaving the dust on the inside of the bag, while the cleaned gas exits through the bag to the other side and then out the baghouse. The fabric does some filtering of the dust, but really is more important in its role as a support medium for the layer of dust that quickly accumulates on it. This dust layer actually does the highly efficient filtering of small particles for which baghouses are known. Extended operation of these baghouse requires that the bags be periodically cleaned, and that the dust be removed from the baghouse. This baghouse dust typical will contain economical amounts of tin, lead and precious metals.

At times, the baghouse dust is recycled back into the rotary furnace to collect the existing metal value contain within. Unfortunately, this material is light and “fluffy” which make loading to the rotary furnace difficult. For instance, ECS can loose up to 30% of its weight immediately back to the baghouse. This causes impurities to build up in the baghouse dust making it difficult to handle and recycle. In 2003, ECS shipped approximately 90,000 lbs of baghouse dust off-site to smelters that could handle the higher impurities contained within. These shipments increase the amount TRI chemicals transferred in a year and reduce the value of the material.

In the near future, ECS will be washing its baghouse dust upon generation. It is believed that washing the fume will remove certain problem impurities (e.g., cadmium, zinc, etc.) allowing for a cleaner smelt in the furnace and less shipments off-site, thus reducing the amount of TRI chemicals transferred off-site.

4.1.3.1 TECHNICAL AND ECONOMIC CONSIDERATIONS

As mentioned above, ECS shipped several loads of baghouse dust off-site for further recycling. These shipments combined contained approximately 29,000 lbs of tin and 12,000 lbs of lead. At current market this material contains approximately $125,000 worth in tin and lead. When ECS ships a material off-site for further processing, the value of the material is reduced significantly do to processing charges and transportation cost. Therefore, washing the dust on-site will allow ECS to recover and maintain most of the value of the material. It also allows for a cleaner smelt in the furnace which leads to reduce operating cost. In addition, it will prevent impurities from building up in the system that ultimately needs to be shipped off-site for further recycling or disposal. Finally, this new process will allow a quicker means of recycling the material through the system and prevent any speculative accumulation.

4.1.3.2 ENVIRONMENTAL AND HUMAN HEALTH CONSIDERATIONS

Waste minimization will minimize environmental risks by reducing exposures and potential releases to the environment during handling of baghouse dust and reduce the volume which is sent off-site.

PART 5.1 EMPLOYEE AWARENESS AND TRAINING

5.1.1 ENVIRONMENTAL AWARENESS TRAINING

ECS Refining Texas, LLC (ECS) began training employees in pollution prevention in 1996 when the facility started up. This training was conducted by the ECS environmental group and begun in part as a way of soliciting ideas concerning pollution prevention from all employees. Topics discussed at the training include the prevention pollution goals currently being address and pollution prevention goals under consideration. Following discussions, potential pollution prevention ideas are solicited from employees.

5.1.2 FUTURE TRAINING ACTIVITIES

Future employee awareness programs will be conducted annually. These programs will serve to inform employees of the plant's current pollution prevention plan and to solicit new ideas that may be of use in reducing waste in the future.