



TEXAS
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ON ENVIRONMENTAL
QUALITY

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CHIEF CLERKS OFFICE

**ASARCO LLC
El Paso Copper Plant
Air Quality Control Equipment
Assessment Report and Maintenance Plan**

Submitted to:

**Texas Commission on Environmental Quality
Executive Director
July 1, 2008**

ASARCO EL PASO COPPER PLANT
AIR QUALITY CONTROL EQUIPMENT ASSESSMENT REPORT AND MAINTENANCE PLAN

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I. INTRODUCTION AND BACKGROUND

As required by the Texas Commission on Environmental Quality's ("Commission's") March 27, 2008 Order (the "March 2008 Order"),¹ ASARCO LLC ("Asarco") submits this Assessment Report and Maintenance Plan for the major air quality control equipment at Asarco's El Paso Copper Plant. Commencing September 1, 2008, in compliance with the March 2008 Order, Asarco will provide bi-monthly Progress Summaries describing the progress towards the completion of the repairs and maintenance identified in this submission.

A. Background: The El Paso Plant and Air Quality Permit No. 20345

Asarco's El Paso Plant is a 150,000 short ton per year copper smelter. One of only four copper smelters in the United States, the plant treats purchased and mined copper concentrates using a continuous top-feed oxygen process ("Contop") for smelting the concentrates to produce high grade copper matte. The plant employs Pierce-Smith converters for converting copper matte to blister copper. The blister copper is refined in anode furnaces at the El Paso Plant and cast into anodes for electrolytic refining at Asarco's Amarillo, TX copper refinery.

First opened in 1887, the plant has been solely dedicated to copper since 1985. The plant was substantially modernized in 1992-1993, when Asarco replaced the plant's reverberatory furnace with Contop reactors, thereby reducing air emissions by over 85%. The plant was idled in 1999 and has been in a care-and-maintenance status during an extensive public hearing process.

Air Quality Permit No. 20345 authorizes the operation of the Contop units at the El Paso Plant. This permit was first issued by the Commission on May 11, 1992, in connection with the plant's transition from reverberatory furnaces to Contop. Asarco applied for renewal of Air Quality Permit No. 20345 in March 2002, prior to the end of the permit's 10-year original term. The permit was renewed by the March 2008 Order.

B. The Executive Director's Investigation and Report

Although Asarco's application to renew Air Quality Permit No. 20345 was for a "no-increase" renewal, with no associated increases in permitted emissions, the Commission took several additional steps to seek public input and evaluate the renewal application. Acting on the information from an evidentiary public interest hearing that was concluded in 2006 by Commission order, the Commission remanded the renewal application to the Executive Director and ordered additional technical review of Air Quality Permit No. 20345.

¹ Texas Comm'n on Env't'l Quality, *An Order Concerning the Application of ASARCO Incorporated for Renewal Air Quality Permit No. 20345 and All Related Filings* (March 27, 2008).

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The additional technical review of the permit consisted of two technical inspections of the plant, a comprehensive modeling study, and a regulatory permit review. Two technical inspections of the plant were conducted by or on behalf of the Executive Director. The first inspection was conducted by a Phase I Inspection Team of TCEQ staff in 2006. A second inspection was conducted in 2007 by Eric Partelpoeg of EHP Consulting, an independent process expert working at the direction of the Executive Director. Asarco prepared a comprehensive air dispersion modeling study of the plant's predicted emissions across a 50 kilometer area around the plant including Texas, New Mexico and Mexico. The modeling study was audited by the TCEQ Air Dispersion Modeling Team ("ADMT") and Arnold Srackangast of AS1MET Services, an independent modeling expert. Finally, the Executive Director also completed a review of the permitting history of the El Paso Plant.

The technical inspections, modeling, and permit review are summarized by the Executive Director in his May 1, 2007 *Report to the Commission* on the renewal of Air Quality Permit No. 20345 ("Executive Director's Report"). Reports produced by the Phase I Inspection Team ("the Phase I Inspection Report") and EHP Consulting ("the EHP Report") were included as Appendices to the Executive Director's Report.²

The air dispersion modeling demonstrated that emissions from the Plant will comply with applicable federal and state air quality standards.³ TCEQ's Toxicology Section confirmed that adverse health effects are not expected to occur as a result of exposure to the proposed emissions from the facility.⁴ Using the comprehensive air dispersion modeling, and with the expertise of TCEQ's ADMT, toxicology section, and an independent auditor, the Executive Director concluded that emissions from the Asarco El Paso Plant are not expected to cause or contribute to a condition of air pollution.⁵ Finally, from his review of the Permit history, the Executive Director concluded that past actions did not necessitate an amendment application.⁶

² TCEQ Investigation Team, *Phase I Regional Investigation Report; American Smelting and Refining Company* (April 28, 2006) (Executive Director's Report Attachment G) (hereinafter "Phase I Investigation Report"); EHP Consulting, Inc., *Asarco El Paso Smelter Review and Comments* (Apr. 9, 2007) (Executive Director's Report Attachment K) (hereinafter "EHP Report").

³ Executive Director's Report at 24.

⁴ Memorandum from Jong-Song Lee, TCEQ Toxicology Section, to Dois Webb, TCEQ Air Permits Division, *Health Effects Review of Emissions from Asarco, Inc., El Paso, El Paso County, Texas* (Apr. 12, 2007) (Executive Director's Report Attachment J).

⁵ Executive Director's Report at 24.

⁶ *Id.* at 26.

Based on his evaluation, the Executive Director concluded that all major process and abatement equipment and components are present, intact, and in generally satisfactory condition.⁷ Nevertheless, as discussed below, the Executive Director identified six recommended actions related to air quality control equipment that would be required prior to restart of the plant.⁸

C. The Commission's March 2008 Order

With the March 2008 Order, the Commission renewed Air Quality Permit No. 20345 and approved the Executive Director's Report, including its schedule of actions to be taken, in accordance with Texas Clean Air Act Section 382.055.⁹ The Commission specified that "[t]he actions to be taken by ASARCO as described in the Report shall be completed as expeditiously as possible, but no later than 90 days prior to startup."¹⁰

The six actions identified by the Executive Director are as follows:

1. *ASARCO shall make the necessary repairs and replacements, and provide a report to the ED stating the general condition of each baghouse and actions taken no later than 90 days prior to startup.*
2. *ASARCO shall conduct an inspection of Acid Plant #1 and Acid Plant #2 for corrosion. ASARCO shall report its action plan no later than 90 days prior to startup. The action plan shall include ASARCO's plans regarding Acid Plants #1 and #2, general condition of both plants, and necessary repairs or replacements for which plants will be kept in operation. If ASARCO chooses to rely solely on Acid Plant #2, the action plan shall include any necessary modifications and related schedule for Acid Plant #2 to handle the entire gas stream.*
3. *ASARCO shall conduct an investigation, make the necessary repairs and replacements, and provide the ED with a report of general condition of the ESPs and actions taken no later than 90 days prior to startup.*
4. *A report of actions taken to ameliorate damage caused by corrosion shall be provided to the ED no later than 90 days prior to startup.*

⁷ *Id.* at 24.

⁸ *See id.* at 24-26.

⁹ March 2008 Order at 2, Ordering Provision 1.

¹⁰ *Id.*

5. *Activities related to the restoration of mothballed equipment shall be included in a report to be provided to the ED no later than 90 days prior to startup.*
6. *ASARCO shall conduct an investigation (regarding general housekeeping), make the necessary repairs and replacements, and provide the ED with a report no later than 90 days prior to startup.*

D. Reporting Requirements of the March 2008 Order

The March 2008 Order requires Asarco to apprise the Executive Director of its progress toward completion of the assessment and maintenance work. Asarco's reporting obligations to the Executive Director under the March 2008 Order are as follows:

1. *By July 1, 2008, ASARCO shall provide the ED with assessment reports and maintenance plans with regard to the baghouses, the acid plants, the electrostatic precipitators, and the requirements in the Executive Director's Report with regard to corrosion damage, cleaned and/or mothballed equipment and systems, and other plant parts and areas in need of general housekeeping.¹¹*
2. *Beginning September 1 2008, ASARCO shall also submit bi-monthly progress summaries to the ED describing progress toward completion of the repairs and maintenance identified and required above.¹²*

This Assessment Report and Maintenance Plan is submitted in response to the first of the Commission's reporting requirements specified above.

¹¹ March 2008 Order, Ordering Provision 2.

¹² *Id.*

II. METHODOLOGY FOR DEVELOPMENT OF ASSESSMENT AND MAINTENANCE PROGRAMS

A. Overview

To fulfill the Commission's requirements, Asarco assembled a project team of qualified technical professionals to assess, develop and coordinate the assessment and maintenance work that is required prior to restart of the plant. The team consists of Dr. A.D. Zunkel of A.D. Consultants Inc., a metallurgical consultant specializing in nonferrous smelter processes and operations, and a team of nine Asarco employees and engineers experienced in the operation of this and similar plants. The project team also retained subject matter experts from Zephyr Engineering, FENCO, Inc., a Montreal-based company with expertise in the construction of sulfuric acid plants, and AMCS Inc., a New Jersey company specializing in the design, engineering, commissioning, and rehabilitation of oxygen plants. The team began this process in May 2007, shortly after the Executive Director had identified his recommended actions. In total, the team has devoted over 1400 hours to the restart since May 2007.

Asarco's project team has taken a staged approach to the required work. The process began with initial plant-wide inspections. Asarco and its metallurgical consultant then developed specific Inspection and Maintenance Programs for each of the Plant components or areas that were addressed in the Executive Director's Report and the March 2008 Order. Consistent with the first stages of the Inspection and Maintenance Programs, Asarco has completed in-depth inspections of most of the air quality control equipment addressed by the Executive Director's Report and the March 2008 Order.

B. Initial Plant-wide Assessments of Air Quality Control Equipment

Asarco's project team first conducted a series of initial inspections to aid in developing specific Inspection and Maintenance Programs to meet the Commission's requirements. The initial inspections and were necessarily limited primarily to the external appearance and condition of the facilities and equipment, but equipment internals were inspected to the extent access could be gained. The initial inspections covered the following processes, equipment, and facilities:

- The Contop furnace and auxiliary equipment, particularly the baghouses ventilating the equipment and the Contop building itself;
- The converters and anode furnaces, the baghouse ventilating the converter building, the converter building roof and siding, and the converter aisle;
- The sulfuric acid plant and gas handling system from the outlet of the Contop furnace and converters to the absorption towers and sulfuric acid plant stack, focusing on the electrostatic precipitators ("Cottrells"), scrubbers, dry towers, absorption towers, pump tanks, and the ducts

carrying sulfur dioxide ("SO₂") containing gases from the furnaces to the acid plant;

- The control systems for the electrostatic precipitators and the sulfuric acid plant;
- Environmental monitoring systems and equipment;
- Materials transport systems, particularly belt conveyors, screw conveyors, and elevators;
- Incoming material, in-process material, and product storage areas, along with general plant areas where dusts and residual materials might accumulated;
- The oxygen plant and supporting gas transport systems;
- The powerhouse and equipment – boilers, generators, switchgear, transformers;
- Fans, pumps, blowers, and motors throughout the plant;
- Appearance and state of repair of buildings; and
- General housekeeping in all plant areas.

C. Development of Specific Inspection and Maintenance Programs

After completing the assessments described above, Asarco developed specific programs directed at each of the actions required by the Commission. The elements of each component-specific program are listed in the next section and also in the Project Summary Spreadsheet attached as Appendix 1.

D. Ongoing Implementation of Inspection and Maintenance Programs

Now that Air Quality Permit No. 20345 has been renewed, Asarco is working to satisfy the conditions of the March 2008 Order through the Inspection and Maintenance Programs that the project team has developed for each of the plant components. The Asarco project team identified and retained three firms with expertise in the design, construction, and operation of specific components of the Plant's air quality control equipment. Zephyr Engineering has inspected plant emissions monitoring equipment and issued recommendations. FENCO, Inc, conducted a detailed inspection of the facility's sulfuric acid plants and has issued recommendations. AMCS Inc. inspected the facility's oxygen plant and issued recommendations.

Asarco has completed its assessment of all of the major air quality control equipment. The current status of each Inspection and Maintenance Program is described below and listed in the Project Summary Spreadsheet attached as Appendix 1.

III. INSPECTION AND MAINTENANCE PROGRAMS BY PLANT AREA

A. Baghouses

1. Summary of TCEQ Inspection Findings

The plant uses 10 baghouses to filter airborne solids and particulates from exhaust streams at various locations throughout the plant.

Two of the plant's baghouses were specifically identified in the EHP Report as requiring attention prior to restarting the plant: the dry bin baghouse and the converter baghouse. The dry bin baghouse ventilates the dry bin feed system to the Contop furnace. The EHP Report stated that this baghouse needed to be inspected and the solenoid valve diaphragms replaced.¹³ The converter baghouse serves the converter building ventilation system. EHP Consulting noted that bags in this baghouse may require replacement and that the shaking mechanism may require maintenance.¹⁴

More generally, the Commission in adopting the Executive Director's recommended actions, required that all baghouses be inspected, cleaned, bags replaced as required, and repaired/maintained as required.

2. Inspection and Maintenance Program Developed by Asarco Project Team

After completing initial inspections, the project team developed for Asarco an Inspection and Maintenance Program for the baghouses consisting of the following steps:

- Inspect and repair/replace equipment and bags in the dry bin baghouse.
- Inspect and repair/replace equipment and bags in the concentrate dryer baghouse.
- Inspect and repair/replace equipment and bags in the converter building baghouse.
- Inspect all baghouses and repair and replace bags and equipment as required.

¹³ EHP Report at 9.

¹⁴ EHP Report at 12.

3. Baghouse Assessment Findings

Asarco has developed a program to inspect all baghouses, replace bags as required, repair shaking mechanisms, and return them to serviceable condition. The initial focus is on the dry bin baghouse and the converter baghouse with attention also given to the Contop dryer baghouse which is closely allied with the dry bin baghouse.

The two specific baghouses identified in the EHP Report — the dry bin baghouse and the converter baghouse — have already received attention as shown on the Project Summary Spreadsheet attached as Appendix 1. Several of the other baghouses on site have also received attention with initial inspections and removal of bags. The programs for rehabilitating the baghouses will ultimately address all baghouses.

4. Baghouse Maintenance Plan

Asarco will inspect, clean, replace bags as required, repair/replace the baghouse structures and shaking mechanisms as required, and test the rehabilitated units.

A full report stating the general condition of each baghouse and the actions taken will be submitted to the Executive Director 90 days prior to plant restart as required by the March 2008 Order as it adopted the Executive Director's recommended tasks.

B. Sulfuric Acid Plants and Electrostatic Precipitators

Based on its assessment, Asarco has identified, and is further assessing, the potential opportunity to achieve significant advantages in plant performance, emissions control, and cost effectiveness by replacing the existing acid plants and electrostatic precipitators ("ESPs") with a combined, state-of-the-art sulfur capture system. This combined replacement and modernization is under consideration by Asarco as a viable alternative to the repair and rehabilitation of the existing systems that would otherwise be completed prior to restart. The Inspection and Maintenance Programs for the two systems are discussed together in this section.

1. Summary of TCEQ Inspection Findings

a. Sulfuric Acid Plants

The plant has two sulfuric acid plants, which treat process gases exiting the Contop reactors and the Converters, removing sulfur dioxide from the process gases and producing sulfuric acid for use in industrial or agricultural applications. In their reports, EHP Consulting and the Phase I Inspection Team both reported external corrosion present on both acid plants #1 and #2, particularly on the acid plant #1 tower.¹⁵

¹⁵ EHP Report at 15-16; Phase I Investigation Report at 12.

EHP Consulting noted that acid plant corrosion is typically higher when a plant is idled because concentrated sulfuric acid is less likely to corrode steel or iron when circulating at high rates.¹⁶ EHP Consulting recommended further inspection of the plants' internal components, which were sealed to minimize corrosion, and therefore inaccessible, during his inspection.¹⁷

b. Electrostatic Precipitators

The plant currently houses two Cottrell ESPs: one for removing particulates from Contop process gas and a second for removing particulates from Converter gases. In his report, the EHP Consultant noted that he observed no holes or cracks to the Cottrells during his inspection.¹⁸ However, he recommended a more extensive inspection, given the age of the Cottrells and their recent inoperation. The Commission has required inspection and repair of the ESPs.

2. Inspection and Maintenance Programs Developed by Asarco Project Team

a. Sulfuric Acid Plants

After completing the initial assessment, the project team for Asarco initially developed an Inspection and Maintenance Program for the sulfuric acid plants consisting of the following steps:

- Repair and replace packing in scrubbers as required.
- Inspect and repair # 1 and # 2 acid plant dry towers.
- Inspect and repair # 1 and # 2 acid plant absorption towers.
- Inspect and repair # 1 and # 2 acid plant dry tower pump tanks.
- Inspect all #1 and # 2 acid plant equipment for corrosion.
- Determine the need to replace acid plant control systems.
- Determine modifications needed to acid plant # 2 if acid plant #1 is shut down.

This program will be implemented unless Asarco elects the replacement and modernization of the sulfuric acid plants along with the gas handling system.

¹⁶ *Id.* at 15.

¹⁷ *Id.* at 16.

¹⁸ EHP Report at 13-14.

b. Electrostatic Precipitators

After completing its assessment, the Asarco project team initially developed an Inspection and Maintenance Program for the sulfuric acid plants consisting of the following steps:

- Inspect and repair/replace both the Contop and converter Cottrells.
- Determine the need to replace the Cottrell control systems.
- Inspect and repair/replace the mist Cottrells.

This program will be implemented unless Asarco elects to replace and modernize the gas handling system and ESPs along with the sulfuric acid plants.

3. Assessment Findings for Sulfuric Acid Plants and Gas Handling System, Including Electrostatic Precipitators

a. Sulfuric Acid Plants

Asarco and consultant personnel conducted a detailed inspection of both acid plants. This inspection was limited primarily to the external portions of the plants as the internal portions of the plants had been temporarily sealed after shutdown to minimize the infiltration of air and moisture (both of which promote corrosion). Asarco then retained the services of a subject matter expert, FENCO, Inc, of Montreal, Canada, to assess the needs and the associated cost and schedule to correct the recognized deficiencies, uncover additional deficiencies which could not be identified by the primarily external equipment inspections, and assist Asarco to return the plant or plants to operable conditions. FENCO specializes in the design, engineering, construction, and rehabilitation of sulfuric acid plants worldwide.

Six FENCO inspectors and engineers visited the smelter during February 2008 to conduct a detailed five-day inspection of both #1 and #2 sulfuric acid plants and the gas handling systems preceding both plants. Most of the plant equipment had been opened to allow for internal inspection at this stage of the Inspection Program.

Four categories of current value were used by FENCO to review and classify the plant equipment according to its ability to be restored to operating condition:

- A: Could be used in plant startup with some rework prior to restart;
- B: Could be used in restart but would need major reconstruction of parts;
- C: Cannot be used but has some asset value; or
- D: Only good for scrap value.

The majority of equipment in the #1 acid plant fell into categories C and D while the absorbing towers, dry towers, pump tanks, and interpass heat exchangers in the

#2 acid plant fell in Category D. The process control equipment for both acid plants was determined to be out of date, and FENCO recommended replacement with more modern systems and equipment. In addition, the gas cleaning system on #1 acid plant and the fiberglass reinforced plastic ducting from the smelter to both #1 and #2 acid plants fell into category D.

FENCO concluded that prior to restart, the two acid plants will require major repairs to correct for the amount of structural damage and buildup of sulfates in the systems. FENCO also noted that the plant would have to be reinsulated to the original requirements.

b. Electrostatic Precipitators

Asarco and consultant personnel inspected each of the ESPs. Following detailed inspections, Asarco has determined that the ESPs and supporting equipment such as screw conveyors, belt conveyors, and elevators are damaged and will require significant repair or replacement to return them to operable condition prior to restart.

4. Maintenance Plan for Sulfuric Acid Plants and Gas Handling System, Including Electrostatic Precipitators.

Based on FENCO's inspection results and recommendations regarding the condition of #1 and #2 sulfuric acid plants and the gas handling system preceding the acid plants, Asarco is continuing to assess a modified approach to restarting the El Paso Plant. While retaining the option to repair and replace only portions of the acid plants and gas handling system, Asarco is exploring the replacement of the existing acid plants with a new state-of-the-art complete sulfur capture system.

a. Sulfuric Acid Plants

While continuing to evaluate FENCO's assessment work and recommendations, Asarco has commissioned FENCO to provide further information regarding a state-of-the-art comprehensive SO₂ capture and management system that would replace the two acid plants and gas handling system and modernize the capture of SO₂ gases from the El Paso smelter. FENCO has developed a conceptual plan, cost estimate, and schedule for the design, engineering, construction, and commissioning of a new double absorption acid plant and gas handling system meeting these goals.

Asarco expects the construction and operation of a new acid plant would yield environmental performance and benefits superior to those projected for air permit renewal for operation of rehabilitated #1 and #2 acid plants together or rehabilitated and upgraded #2 acid plant alone. The new plant would employ the latest sulfuric acid manufacturing technology and processes. The enhanced benefits, primarily in decreased SO₂ emissions, will be quantified.

Asarco will conclude its study of the FENCO inspection results and the additional information provided by FENCO on a new SO₂ capture and management system to replace the existing two acid plants and gas handling system: the process technology, the design, engineering, installation, and commissioning of a new plant, the capital and operating costs, and the proposed schedule. From this information, Asarco will finalize its course of action – repair the existing units or replace them entirely.

Asarco will update the Executive Director on an ongoing basis of its plans for repair or replacement of the Acid Plants and its progress toward completion of those plans.

b. Gas Handling System

Since the existing acid plants may be replaced and significant costs would be incurred in repairing/replacing parts of the existing gas handling system ahead of the sulfuric acid plants, Asarco believes that the gas handling system should also be replaced. This new system would replace the ESPs, spray chambers, and ducting between the Contop furnace and converter gas outlets and the acid plant inlet. This new system may be significantly different than that on the existing plant from a processing and equipment standpoint with wet scrubbers replacing the current dry ESPs and spray chambers. Replacing the gas handling system is included in the FENCO acid plant replacement study to assure that the two systems — gas handling and acid manufacture — are properly designed, engineered, integrated, and operable.

Replacement of the gas handling system will also yield environmental benefits beyond those proposed for air permit renewal. State-of-the-art gas scrubbing, and cooling equipment, ductwork, and processes will be designed and installed which will improve dust collection and eliminate leakage of both dust and SO₂ from both equipment and ducts. These improvements will also be quantified as part of the acid plant-gas handling system project.

An integral part of a project to replace the sulfuric acid plants would be design, engineering, installation, and commissioning of a new gas handling system for the gas streams exiting the Contop furnace and the converters. If the existing gas handling system will be replaced with a new system, Asarco will submit its action plan to the TCEQ well ahead of restart and by a date set by agreement between the TCEQ and Asarco.

C. Corrosion

1. Summary of TCEQ Inspection Findings

Corrosion is a common problem in the base smelting and refining industries, particularly those in which sulfur-containing materials are handled. This corrosion results from the formation of sulfur dioxide, sulfuric acid, and sulfates in the processes and subsequent exposure of structures and equipment to these corrosive materials. The TCEQ Phase I Investigation Team noted some instances of corrosion to Plant components and recommended that individual components/equipment be assessed to determine the extent of any internal damage that may exist due to possible effects of corrosion.¹⁹

With its adoption of the Executive Director's recommended actions, the Commission required Asarco to conduct a complete inspection of all vessels, equipment, and ducts to determine the full extent of corrosion damage. Inspection and Maintenance Program Developed by Asarco.

2. Inspection and Maintenance Programs Developed by Asarco Project Team

After completing initial inspections, the Asarco project team initially developed an Inspection and Maintenance Program to address corrosion damage consisting of the following steps:

- Inspect and repair/replace corrosion on the converter baghouse plenum.
- Inspect for corrosion and repair/replace all vessels, equipment, and ducts as necessary.

3. Corrosion-Related Assessment Findings To Date

Asarco confirmed the Executive Director's observations and recommendations regarding corrosion of the converter baghouse plenum. More detailed inspections of plant equipment by Asarco personnel revealed corrosion requiring repair on the following equipment:

- Baghouse fans
- Fluid bed dryer
- Duct from the converter baghouse fan to the stack
- Duct from the converter baghouse to the stack
- Converters and support structure
- Contop furnace and support structure

¹⁹ Phase I Investigation Report at 12.

4. Corrosion Repair and Maintenance Plan

Asarco recognizes that plant equipment and structures have experienced corrosion, as is typical of a metals-processing facility. Much of the plant equipment and structures have been visually inspected, and more internal inspections will follow. Asarco will develop a plan and schedule to systematically proceed through the plant identifying and repairing/replacing equipment/structures affected by corrosion on a priority basis.

Asarco will provide the Executive Director a report of actions taken to ameliorate damage caused by corrosion no later than 90 days prior to restart.

D. Mothballed Equipment and Systems

1. Summary of TCEQ Inspection Findings

A wide array of equipment was mothballed by Asarco when the plant was idled in 1999. In his Report, Executive Director recommended that (1) mothballed monitoring equipment should be restored, inspected, and calibrated to ensure the equipment is in proper working condition; and (2) the oxygen plant should also be restored.²⁰ Asarco has accounted for both of these Plant components in its Inspection and Maintenance program.

2. Inspection and Maintenance Program Developed by Asarco Project Team

After completing initial inspections, the Asarco project team initially developed an Inspection and Maintenance Program for the plant's mothballed equipment consisting of the following steps:

- Return mothballed equipment to serviceable condition.
- Inspect/restore/calibrate environmental monitoring equipment.
- Restore the oxygen plant to serviceable condition.

3. Mothballed Equipment Assessment Findings To Date

a. Environmental Monitoring Systems

All of the environmental monitoring systems used to control and monitor environmental performance of the smelter equipment and processes were disassembled, cleaned, and stored after the plant was idled in 1999. That equipment has been removed from storage and inspected. Those pieces of equipment deemed useable in the restarted

²⁰ Executive Director's Report at 25.

smelter have been identified and will be cleaned, repaired, and recalibrated prior to return to service.

b. Oxygen Plant

The plant's BOC oxygen plant supplies oxygen to the two Contop reactors, the holding furnace's oxy-fuel burners, and the converters. The oxygen plant was idled and placed on care-and maintenance in 1999 along with all other processes at the smelter. Realizing the potential degradation that could occur in such a plant over a long-idled period and being unable to access the plant internals, Asarco retained AMCS Inc., a New Jersey company specializing in the design, engineering, commissioning, and rehabilitation of oxygen plants, to inspect the plant and equipment externally and internally and recommend what repairs and/or replacements were required to restart the plant, the associated cost, and the schedule.

Three AMCS inspectors visited the plant during the week of November 4, 2007 and prepared a final report detailing the results, conclusions, and recommendations of their inspection. Their general conclusions and recommendations were:

- AMCS reported that "The plant is in many ways in good condition, but it should be kept in mind that, even though it has not operated continuously it has existed for a full design lifetime already."
- ACMS has recommended "a fairly comprehensive relifing effort. If performed, industry experience as well as AMCS's judgment, suggests that the plant can be expected to operate for a further 15 years with a reliability comparable to what it had previously achieved assuming, of course, that it is well run and maintained."
- Selected rotating equipment, process equipment, valves and instrumentation require repair, maintenance, and calibration.
- Piping must be inspected and insulated.
- Insulation must be repaired or replaced.
- Some control system components must be replaced.
- All electrical systems must be tested and repaired as necessary.
- Spare parts must be inventoried and spare replaced as necessary.

Asarco reviewed the ACMS report in detail and discussed its conclusions and recommendations with AMCS. Asarco concurred with the AMCS findings.

4. Mothballed Equipment Plan

The Executive Director's Report states that the oxygen plant should be restored. Significant other large and complex equipment unrelated to environmental control such as boilers, power generation equipment, compressors, transformers, fans,

and pumps were also mothballed prior to shutdown and will require detailed attention prior to restart.

Asarco will develop a plan and schedule to systematically proceed through the plant identifying and repairing/replacing and testing mothballed equipment other than the environmental monitoring equipment and oxygen plant on a priority basis. Those pieces of equipment whose repair or replacement may lead to long delivery times will be considered first.

Asarco will submit to the Executive Director a report related to the restoration of mothballed equipment no later than 90 days prior to restart.

a. Environmental Monitoring Systems

Most of the environmental monitoring systems on hand were carefully decommissioned, cleaned, packed, and stored in a controlled environment. These systems should be ready to return to service after recalibration. Those systems not stored or maintained in a controlled environment — samplers, pumps, meters, recorders, housings, communications devices, weather monitoring equipment — will be identified, unpacked, cleaned, reactivated, and manufacturer recalibrated prior to restart. The central environmental monitoring system, data transmission system, and data collection stations will be reactivated, checked, and returned to service.

b. Oxygen Plant

The plan proposed by AMCS to restart the mothballed oxygen plant will be undertaken 12-14 months prior to the scheduled restart of the copper smelter. The key steps in this plan are the following:

- Restart contract award
- Project initiation and site survey
- Document preparation for vendor inquiries
- Procurement
- Fabrication
- Fabrication of water wash tower
- Phase 1 work on site
- Phase 2 work onsite
- Checkout
- Commissioning

In addition, AMCS recommended that a few selected activities such as inspecting the air compressor and its motor which could reveal hidden flaws with lengthy mitigation times be undertaken as early as possible during the copper smelter

refurbishment program to provide time for repair or replacement should a problem be discovered.

The majority of these activities will be executed by AMCS personnel with support as required from Asarco. The scope and schedule for execution of the oxygen plant restart was verified with AMCS in May 2008.

Asarco will provide the Executive Director a report on the activities related to the restoration of mothballed equipment no later than 90 days prior to restart.

E. General Housekeeping

1. Summary of TCEQ Inspection Findings

The TCEQ Phase I Inspection Team observed that:

[G]eneral maintenance and basic housekeeping throughout the plant was adequate to prevent significant soiling and/or deterioration of equipment; however, there are some areas where cleaning, repair and/or replacement of parts electrical, electronic, switches, meters, hoses, air lines, etc.) will be needed to operate. In addition, there are some areas of dust accumulation, missing or frayed wiring, minor corrosion and/or oxidation of metal panels; and missing or dislodged covers on duct insulation.²¹

In adopting the Executive Director's recommendations, the Commission ordered Asarco to "conduct an investigation, make the necessary repairs and replacements, and provide the ED with a report no later than 90 days prior to startup."²²

2. Inspection and Maintenance Program Developed by Asarco Project Team

After completing inspections, the Asarco project team initially developed an Inspection and Maintenance Program related to housekeeping consisting of the following steps:

- Inspect/clean/repair/replace electrical equipment, electronics, switches, meters, and wiring as necessary.
- Inspect/repair/replace hoses and airlines as necessary.
- Cleanup accumulated dust.
- Tighten/replace loose covers as necessary.
- Repair/replace insulation as necessary.

²¹ Phase I Investigation Report at 15.

²² Executive Director's Report at 26.

- Paint structures and equipment as necessary.

3. Inspection Findings Related to Housekeeping

As with most industrial facilities, housekeeping requires continuous attention to prevent unwanted accumulation of materials, distribution of dust into the environment, exposure of personnel to dust, and uneconomical losses of feeds, in process materials, and products. The major causes of housekeeping problems generally are the handling and processing of fine, dry materials, the inherent nature of the high temperature processes, and the recycling of these materials in the process.

The Executive Director's Report identified a number of housekeeping tasks to be completed before the smelter is restarted. Among these are:

- Electric and electronic equipment such as substations and transformers which may require maintenance;
- Frayed and loose wiring;
- Nonfunctioning meters;
- Disconnected hoses and air lines;
- Loose or missing insulation on equipment and buildings;
- Loose or missing equipment covers on duct insulation;
- Chipped and spalling paint on equipment and buildings; and
- Dust accumulations on and around equipment and buildings.

Asarco's inspection of the site, buildings, and equipment confirmed these observations and recommendations.

As part of the plant's inspection and maintenance program, Asarco has continued, with the assistance of engineering and processes consultants and equipment specialists, to open, clean, and inspect equipment in an effort to estimate the total cost and time required to restart the smelter. This cost and schedule estimate includes all of the Executive Director's environmental control-related recommendations and those additional items necessary to repair, replace, or purchase operating and support equipment and hire and train personnel to operate the facility.

4. Future Housekeeping Work

Asarco will conduct a detailed investigation and develop a detailed plan and schedule to clean up the plant. In addition, ASARCO will repair/replace those related items identified by the Executive Director and others requiring attention prior to restart. Again problem areas will be identified in a priority order so the most critical can be dealt with first, once smelter restart is authorized.

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AIR QUALITY CONTROL EQUIPMENT ASSESSMENT REPORT AND MAINTENANCE PLAN

Asarco will provide the Executive Director a report on the activities related to general housekeeping and related repairs and replacement no later than 90 days prior to restart.

IV. ADDITIONAL AIR QUALITY CONTROL MAINTENANCE PLANNED OR IN PROGRESS

A. Assessment and Planning Projects

In anticipation of and prior to renewal of the permit Asarco has completed several significant assessment and planning projects directly related to the restart:

1. A more detailed restart plan has been developed based on the original plan submitted to the TCEQ in conjunction with the air permit renewal.
2. An estimate of the total cost and schedule for restarting the smelter based on replacing the existing acid plants and gas handling facilities with new units.
3. A manning table and organization chart for the smelter has been developed.

B. Ambient Air Monitoring

In conformance with the March 2008 Order, Asarco is evaluating options for satisfying the directive to establish, maintain, and operate four additional air quality monitors.²³ At this time, Asarco believes that the best way to satisfy this requirement is through the monitoring of lead in the ambient air using four fixed air monitoring stations located around the perimeter of the site. These monitors would be established in both predominant upwind and downwind directions and at or near the location of maximum projected impacts due to Asarco's emissions as determined during the November 2006 air dispersion modeling study. Asarco's air dispersion modeling consultant is currently evaluating the modeling results to identify the most appropriate monitoring locations and is also evaluating monitoring technologies to identify which should be used. Asarco will seek the input of TCEQ staff as well as other stakeholders in developing and implementing a program for ambient air monitoring near the El Paso Plant.

C. Additional Maintenance Planning Work

As Asarco's restart effort progresses, the following projects will be undertaken:

- Detailed schedules for the projects related to responding to the Executive Director's recommendations on baghouses, corrosion, mothballed equipment, and housekeeping will be developed.

²³ See March 2008 Order, Ordering Provision 5(B).

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AIR QUALITY CONTROL EQUIPMENT ASSESSMENT REPORT AND MAINTENANCE PLAN

- The Startup Plan will be refined as appropriate.
- Additional quotes will be solicited, received, and evaluated for non-environmental-related restart activities such as restocking the warehouse, purchasing or leasing rolling stock, etc.

V. ESTIMATED COMPLETION OF PLANT MAINTENANCE AND REHABILITATION

Significant decisions concerning the implementation of the maintenance plans for the El Paso Plant will be made consistent with court procedures in the near future as Asarco and its assets emerge from bankruptcy. The construction and operation of the new sulfuric acid plant and gas handling system would be the critical path item now in the restart of the El Paso copper smelter if that path were chosen. Commissioning and restart of the acid plant would occur 27-28 months following authorization by Asarco to restart the smelter. Thus all other restart activities – repairs, replacements, restocking, personnel hiring and training – can be completed well within the 27-28 months required for acid plant completion.

VI. REPORTS AND REPORTING SCHEDULE

A. July 1, 2008 Progress Report

This document is intended to meet the requirement set forth in the March 2008 Order for Asarco to provide Assessment Reports and Maintenance Plans of major air quality control equipment to the Executive Director by July 1, 2008.

B. Bimonthly Progress Reports

Asarco will submit bi-monthly progress report to the TCEQ on beginning September 1, 2008 as required by the renewed Air Permit.



APPENDIX 1

PROGRAM SUMMARY RESTART OF EL PASO PLANT

APPENDIX 1
PROGRAM SUMMARY -- RESTART OF EL PASO PLANT

CATEGORY	PROCESS/EQUIPMENT	OBSERVATION IN TCEQ REPORTS
A. BAGHOUSES	1) Dry bin baghouse	1) Baghouse internals need to be checked -- solenoid diaphragms may require replacement
	2) Contop dryer baghouse	2) No specific concerns detailed
	3) Converter baghouse	3) Bags may require replacement -- shaking mechanism requires maintenance
	4) Other baghouses	4) All baghouses require inspection and bag replacement/maintenance as required
B. SULFURIC ACID PLANTS	1) Corrosion	1) Corrosion noted on equipment; all AP equipment must be inspected for internal corrosion
	2) Scrubbers	2) Scrubber packing may require replacement
	3) Dry towers	3) Towers require repair
	4) Absorption towers	4) Towers require repair
	5) Converters/heat exchangers	5) No specific concerns detailed
	6) Pump tanks	6) Inspect and repair #1 and #2 dry lower pump tanks
	7) Control system	7) Control system out-of-date and should consider replacement
	8) Future operations	8) Determine the need to replace or repair #1 AP
	9) Future operations	9) Determine modifications needed to #2 AP if #1 AP shut down and only #2 AP operated
C. ESPS	1) Contop Cottrells	1) Cottrells have suffered corrosion damage
	2) Converter Cottrells	2) Cottrells have suffered corrosion damage
	3) Mist precipitators	3) No specific concerns detailed
	4) Control system	4) Control system out-of-date and should consider replacement
D. CORROSION	1) Fluid bed dryer	1) No specific concerns detailed
	2) Converter/Contop ventilation system	2) Converter baghouse plenum corroded
	3) Vessels, equipment, and ducts Baghouse fans Duct from converter BH to stack Duct from dry bin BH to stack Converters Contop furnace	3) Complete inspection of all vessels, equipment, and ducts for corrosion required
E. MOTHBALLED EQUIPMENT	1) Environmental monitoring equipment	1) Restore, inspect, and recalibrate mothballed environmental monitoring equipment
	2) Oxygen plant	2) O2 plant requires restoration
F. GENERAL HOUSEKEEPING	1) Electronics/electrics	1) Inspect/clean/repair/replace as required
	2) Wiring	2) Inspect/clean/repair/replace as required
	3) Switches	3) Inspect/clean/repair/replace as required
	4) Meters	4) Inspect/clean/repair/replace as required
	5) Hoses and air lines	5) Inspect/repair/replace hoses and airlines as required
	6) Insulation	6) Repair/replace insulation as required
	7) Covers	7) Tighten/replace loose covers as required
	8) Metal panels	8) Paint structures and equipment as required
	9) Dust accumulation	9) Clean up accumulated dust

APPENDIX 1
PROGRAM SUMMARY -- RESTART OF EL PASO PLANT

CATEGORY	PROCESS/EQUIPMENT	ASARCO ASSESSMENT
A. BAGHOUSES	1) Dry bin baghouse	1) Visually inspected outside of baghouse
	2) Contop dryer baghouse	2) Opened baghouse, removed bags, cleaned, and visually inspected inside and outside
	3) Converter baghouse	3) Opened baghouse, removed bags, cleaned, and visually inspected inside and outside
	4) Other baghouses	4) Opened baghouses, removed bags, cleaned, and visually inspected inside and outside
B. SULFURIC ACID PLANTS	1) Corrosion	1) Inspected #1 and #2 AP in depth to assess condition
	2) Scrubbers	Retained FENCO to conduct detailed inspection and provide report
	3) Dry towers	
	4) Absorption towers	
	5) Converters/heat exchangers	
	6) Pump tanks	
	7) Control system	
	8) Future operations	
	9) Future operations	
C. ESPS	1) Contop Cottrells	1) Inspected all ESPs in depth to assess problems
	2) Converter Cottrells	
	3) Mist precipitators	
	4) Control system	
D. CORROSION	1) Fluid bed dryer	1) Visually inspected outside of dryer and combustion chamber
	2) Converter/Contop ventilation system	2) Visually inspected externals
	3) Vessels, equipment, and ducts	Visually inspected externals
	Baghouse fans	Visually inspected externals
	Duct from converter BH to stack	Visually inspected externals
E. MOTHBALLED EQUIPMENT	Duct from dry bin BH to stack	Visually inspected externals
	Converters	Visually inspected externals
	Contop furnace	Visually inspected externals
	1) Environmental monitoring equipment	1) Assessment not yet conducted -- internal discussions of needs, methodology, plans, and schedule completed
	2) Oxygen plant	2) Inspected O2 plant externals to determine if detailed inspection required Retained AMCS to conduct detailed inspection and provide report AMCS determined O2 plant in reasonably good condition and can be restarted with minor repairs/replacements
F. GENERAL HOUSEKEEPING	1) Electronics/electrics	1) Visually inspected substations
	2) Wiring	2) Visually inspected plant areas to identify wiring requiring replacement or removal
	3) Switches	3) Assessment not yet conducted
	4) Meters	4) Assessment not yet conducted
	5) Hoses and air lines	5) Assessment not yet conducted
	6) Insulation	6) Began visual inspections of buildings and equipment to identify areas needing re-insulation
	7) Covers	7) Assessment not yet conducted
	8) Metal panels	8) Visually inspected RCC and other areas, buildings, and equipment to identify areas requiring painting
	9) Dust accumulation	9) Visually inspected plant to identify areas requiring cleanup and started cleaning areas with large accumulations

APPENDIX 1
PROGRAM SUMMARY -- RESTART OF EL PASO PLANT

CATEGORY	PROCESS/EQUIPMENT	RECOMMENDED ACTION BASED ON TCEQ ED'S REPORT AND ASARCO'S ASSESSMENT
A. BAGHOUSES	1) Dry bin baghouse	1) Remove bags, test & repair/replace solenoids, clean and inspect interior and exterior of BH
	2) Contop dryer baghouse	2) Remove bags, test & repair/replace equipment, clean and inspect interior and exterior of BH
	3) Converter baghouse	3) Remove bags, test & repair/replace equipment, clean and inspect interior and exterior of BH
	4) Other baghouses	4) Remove bags, test & repair/replace equipment, clean and inspect interior and exterior of BH
B. SULFURIC ACID PLANTS	1) Corrosion	1) Commission FENCO to provide further information on state-of-the-art SO2 systems to replace #1 and #2 acid plants and modernize SO2 gas capture in El Paso
	2) Scrubbers	
	3) Dry towers	
	4) Absorption towers	
	5) Converters/heat exchangers	
	6) Pump tanks	
	7) Control system	
	8) Future operations	
	9) Future operations	
C. ESPS	1) Contop Cottrells	1) Commission FENCO to provide detailed plan and schedule for design, engineering, construction, and commissioning of new gas handling system in conjunction with a new acid plant
	2) Converter Cottrells	
	3) Mist precipitators	
	4) Control system	
D. CORROSION	1) Fluid bed dryer	1) Inspect and replace/replace corroded sections, rebuild pumps, rebuild burner and rebrick
	2) Converter/Contop ventilation system	2) Inspect and replace/repair corroded sections of converter/Contop ventilation system Remove fans, clean, check, balance and replace
	3) Vessels, equipment, and ducts Baghouse fans Duct from converter BH to stack Duct from dry bin BH to stack Converters Contop furnace	Remove, sand blast, magnaflux, balance, replace bearings and install Clean, inspect and repair as needed Clean, inspect and repair as needed Remove brick, repair shell, tuyere air system and rebrick Dig out, test jackets and rebrick
	1) Environmental monitoring equipment	1) Inspect/restore/calibrate/restore monitoring equipment, systems, and facilities
	2) Oxygen plant	2) Inspect, repair, and restore O2 plant to serviceable condition
E. MOTHBALLED EQUIPMENT	1) Electronics/electrics	1) Inspect, clean, load test, repair/replace substations and controls
	2) Wiring	2) Inspect/repair/replace wiring
	3) Switches	3) Inspect/test/repair or replace switches
	4) Meters	4) Inspect/test/repair or replace meters
	5) Hoses and air lines	5) Inspect/clean/repair/replace hoses and air lines
	6) Insulation	6) Repair/replace insulation
	7) Covers	7) Tighten/replace loose covers
	8) Metal panels	8) Paint structures and equipment as required
	9) Dust accumulation	9) Clean up/dispose of accumulated dust, residues, process materials, construction/demolition, waste, and trash
F. GENERAL HOUSEKEEPING	1) Electronics/electrics	1) Inspect, clean, load test, repair/replace substations and controls
	2) Wiring	2) Inspect/repair/replace wiring
	3) Switches	3) Inspect/test/repair or replace switches
	4) Meters	4) Inspect/test/repair or replace meters
	5) Hoses and air lines	5) Inspect/clean/repair/replace hoses and air lines
	6) Insulation	6) Repair/replace insulation
	7) Covers	7) Tighten/replace loose covers
	8) Metal panels	8) Paint structures and equipment as required
	9) Dust accumulation	9) Clean up/dispose of accumulated dust, residues, process materials, construction/demolition, waste, and trash

APPENDIX 1
PROGRAM SUMMARY -- RESTART OF EL PASO PLANT

CATEGORY	PROCESS/EQUIPMENT	ASARGO REPAIR/MAINTENANCE PLAN AND SCHEDULE
A. BAGHOUSES	1) Dry bin baghouse	1) Inspect/repair/test/replace - complete 90 days prior to start-up
	2) Contop dryer baghouse	2) Inspect/repair/test/replace - complete 90 days prior to start-up
	3) Converter baghouse	3) Inspect/repair/test/replace - complete 90 days prior to start-up
	4) Other baghouses	4) Inspect/repair/test/replace - complete 90 days prior to start-up
B. SULFURIC ACID PLANTS	1) Corrosion	1) ASARGO assessing FENCO information on state-of-the-art SO2 capture systems to replace #1 and #2 acid plants and modernize SO2 gas capture in El Paso
	2) Scrubbers	
	3) Dry towers	
	4) Absorption towers	
	5) Converters/heat exchangers	
	6) Pump tanks	
	7) Control system	
	8) Future operations	
	9) Future operations	
C. ESPS	1) Contop Cottrells	1) ASARGO assessing FENCO information on state-of-the-art gas handling systems to replace the existing system and modernize gas handling in El Paso
	2) Converter Cottrells	
	3) Mist precipitators	
	4) Control system	
D. CORROSION	1) Fluid bed dryer	1) Remove/replace pumps, repair ducts, remove, clean, and balance fan, rebrick, repair/replace burner - Complete 180 days prior to start-up
	2) Converter/Contop ventilation system	2) Repair/replace, ducts, expansion joints and fan housings - remove fans, clean, repair, balance install - complete 180 days prior to start-up
	3) Vessels, equipment, and ducts	Remove, inspect, and install - complete 180 days prior to start-up
	Baghouse fans	Clean, inspect, and repair as needed - complete 180 days prior to start-up
	Duct from converter BH to stack	Clean, inspect, and repair as needed - complete 180 days prior to start-up
E. MOTHBALLLED EQUIPMENT	Duct from dry bin BH to stack	Repair/replace and rebrick - complete 180 days prior to start-up
	Converters	Test, repair/replace, and rebrick - complete 180 days prior to start-up
	Contop furnace	
	1) Environmental monitoring equipment	1) Inspect/restore/calibrate/restore monitoring equipment, systems, and facilities -- complete 120 days prior to start-up
	2) Oxygen plant	2) Retain AMCS to restore O2 plant to operable condition 12-14 months prior to startup
F. GENERAL HOUSEKEEPING	1) Electronics/electrics	1) Inspect, clean, load test, repair/replace substations and controls - complete 90 days prior to startup
	2) Wiring	2) Inspect/repair/replace wiring - complete 180 days prior to start-up
	3) Switches	3) Inspect/test/repair or replace switches - complete 180 days prior to start-up
	4) Meters	4) Inspect/test/repair or replace meters - complete 180 days prior to start-up
	5) Hoses and air lines	5) Inspect/clean/repair/replace hoses and air lines - complete 180 days prior start-up
	6) Insulation	6) Remove/repair/replace used and missing insulation - complete 180 days prior to start-up
	7) Covers	7) Regasket/repair/replace covers - complete 90 days prior to start-up
	8) Metal panels	8) Strip/paint structures and equipment - complete 45 day prior to start-up
	9) Dust accumulation	9) Clean up/dispose of dust, residues, process materials, construction/demolition, waste, and trash - complete 30 days prior to start-up

APPENDIX 1
PROGRAM SUMMARY -- RESTART OF EL PASO PLANT

CATEGORY	PROCESS/EQUIPMENT	1 JULY 2008 STATUS
A. BAGHOUSES	1) Dry bin baghouse	1) Baghouse visually inspected externally
	2) Contop dryer baghouse	2) All bags removed, chambers cleaned and inspected
	3) Converter baghouse	3) All bags removed, chambers cleaned and inspected
	4) Other baghouses	4) Bags removed, chambers cleaned and inspected -- 25% of total completed
B. SULFURIC ACID PLANTS	1) Corrosion	1) Began developing concepts, plan, and schedule with FENCO for new acid plant
	2) Scrubbers	
	3) Dry towers	
	4) Absorption towers	
	5) Converters/heat exchangers	
	6) Pump tanks	
	7) Control system	
	8) Future operations	
	9) Future operations	
C. ESPS	1) Contop Cottrells	1) Began developing concepts, plan, and schedule with FENCO for new gas handling system
	2) Converter Cottrells	
	3) Mist precipitators	
	4) Control system	
D. CORROSION	1) Fluid bed dryer	1) No activity to date -- plan and schedule to be developed by 1 September 2008
	2) Converter/Contop ventilation system	1) No activity to date -- plan and schedule to be developed by 1 September 2008
	3) Vessels, equipment, and ducts	No activity to date -- plan and schedule to be developed by 1 September 2008
	Baghouse fans	No activity to date -- plan and schedule to be developed by 1 September 2008
	Duct from converter BH to stack	No activity to date -- plan and schedule to be developed by 1 September 2008
E. MOTHBALLED EQUIPMENT	Duct from dry bin BH to stack	No activity to date -- plan and schedule to be developed by 1 September 2008
	Converters	No activity to date -- plan and schedule to be developed by 1 September 2008
	Contop furnace	No activity to date -- plan and schedule to be developed by 1 September 2008
	1) Environmental monitoring equipment	1) No activity to date -- plan and schedule to be developed by 1 August 2008
	2) Oxygen plant	2) Confirmed AMCS availability for restart assistance
F. GENERAL HOUSEKEEPING	1) Electronics/electrics	1) 5% electrical equipment visually inspected
	2) Wiring	2) 25% unused wiring removed or replaced
	3) Switches	3) No activity to date -- plan and schedule to be developed by 15 August 2008
	4) Meters	3) No activity to date -- plan and schedule to be developed by 15 August 2008
	5) Hoses and air lines	3) No activity to date -- plan and schedule to be developed by 15 August 2008
	6) Insulation	3) No activity to date -- plan and schedule to be developed by 15 August 2008
	7) Covers	3) No activity to date -- plan and schedule to be developed by 15 August 2008
	8) Metal panels	8) 5% of tanks, handrails, barriers painted
	9) Dust accumulation	9) 5% of dust and trash cleaned up and disposed of