IN THE

CIRCUIT COURT OF IRON COUNTY

STATE OF MISSOURI

FILED
July 30, 1996
Brenda Turner
Iron County Circuit Clerk & Recorder

STATE OF MISSOURI ex rel. Jeremiah W. (Jay) Nixon and the Missouri Department of Natural Resources,	)	
Plaintiff	)	
v.	)	Case No. CV596-98CC
ASARCO, INC., MISSOURI LEAD DIVISION,	)	
Defendant.	)	

CONSENT DECREE

Come now ASARCO, Incorporated (hereafter ASARCO) and the Missouri Department of Natural Resources (hereafter MDNR), and state as follows:

1. The state of Missouri, through MDNR, for, and in consideration, of ASARCO's agreement to complete the implementation of control strategies upon the time schedules as more fully set forth in the Consent Decree below, and ASARCO for and in consideration of the state of Missouri's agreement to accept the implementation of said control strategies as sufficient, under current information and belief, to attain the federal and Missouri ambient air quality standard for lead and to accept the time table for completion of such control strategies as being as expeditious as practicable; Now Therefore, the state of Missouri and ASARCO have and do hereby agree to consent to the entry of the following Consent Decree.

2. To this end, MDNR and the Commission are preparing a State Implementation

Plan (SIP) revision to demonstrate attainment and maintenance of the national ambient air quality standard for lead in Arcadia and Liberty Townships in Iron County, Missouri. As part of the SIP revision, a lead emissions reduction program at ASARCO's Glover, Missouri facility is required. MDNR and ASARCO agree that the Court may enter the order set forth below, to be binding on the parties, providing for a lead emissions reduction program which ASARCO hereby agrees to undertake and complete on the schedule set forth in the Decree. The parties, by their signatures hereto, acknowledge that they have read and understand the terms of this Decree and the order of the Court, and agree to be bound thereby.

This matter coming before the Court on the petition filed by the plaintiff state of Missouri , the Court having jurisdiction over the subject matter and the parties pursuant to §643.151, RSMo; and being fully advised in the premises;

IT IS THEREFORE ORDERED, ADJUDGED, AND DECREED that ASARCO undertake and complete, at its Glover, Missouri facility, the following lead emission reduction program, on the schedule set forth below. These control measures and the associated schedule are the reasonably available control measures to be implemented to attain the national ambient air quality standard for lead (as required by Section 172 (c) of the Clean Air Act Amendments of 1990).

A. Projects Required as SIP Control Measures:

1. Concentrate Unloading Dock Elimination:

(a) Not later than July 1, 1996, and at all times thereafter, trucks delivering concentrate shall unload only at the unloading building. The unloading shall be conducted according to the procedures outlined in ASARCO's Work Practices Manual (Exhibit A, which, by this reference is incorporated herein).

(b) On or before July 1, 1996, the unpaved area surrounding the current concentrate unloading dock shall be chemically stabilized to eliminate lead emissions from this area resulting from wind erosion. This source is identified as 10002 in the Emission Inventory (Exhibit B, which, by this reference is incorporated herein). The stabilizing compound and schedule will be chosen by ASARCO and is subject to MDNR approval. A map showing the areas to be stabilized is attached as Exhibit C, and by this reference is incorporated herein.

(c) On or before October 1, 1996, paved roads shall be constructed that enable the concentrate trucks access to the unloading building. A map showing these roads is attached as Exhibit D, and by this reference is incorporated herein.

2. Control of Unloading Building Fugitive Emissions

(This source is identified as 20101 and 20102 in the Emission Inventory, Exhibit B.)

(a) On or before December 31, 1996, the unloading building shall be enclosed by installing siding and roll-up doors constructed to minimize air infiltration. These doors and all personnel access doors shall remain closed except as needed for employees or vehicles to enter or exit the building.

(b) On or before December 31, 1995, a modified sinter handling system shall be installed and operated. This system shall convey sinter using a partially enclosed conveyor and shall deposit it directly into the feed hoppers (at least 70% of the time). If the feed hoppers are full, sinter shall be deposited into the unloading bins.

3. Sinter Plant Process Gas Controls:

(a) On or before December 31, 1995, the ventilation gas currently exiting the Wheelabrator baghouse (originally source 20002 in the Emission Inventory, Exhibit B) shall be rerouted to the sinter machine intake.

(b) On or before December 31, 1995, the ventilation gas currently exiting the sinter plant wet scrubber (originally source 20003 in the Emission Inventory, Exhibit B) shall be rerouted to the sinter machine intake.

(c) On or before December 31, 1996, a new baghouse shall be installed and operated to service the sinter plant process gases. This baghouse originally controlled source 20001 (Emission Inventory, Exhibit B). The new baghouse shall be designed to control sources 20001, 20002, and 20003 (Emission Inventory, Exhibit B). The new baghouse shall be designed to meet a total suspended particulate specification of 0.01 grains per dry standard cubic foot of air. These gases shall be routed to the existing 186 meter main stack.

(d) Not later than December 31, 1996, and for all times thereafter, a continuous particulate monitor such as a Triboflow or MDNR approved equivalent, shall be installed and operated to monitor gases exiting the new baghouse. The continuous particulate monitor shall be designed to alert operators when particulate levels in the gases exiting the new baghouse are above those seen during a normal bag cleaning cycle. The output signals from this continuous particulate monitor shall be recorded during any stack tests.

The setpoint of the continuous particulate monitor shall be set and recalibrated as necessary as part of the quarterly ventilation system inspection required under the Work Practice Manual (Exhibit A), subject to MDNR's right to observe review and approve such calibration of the monitors. The monitor shall be operated and properly maintained such that it is out of service for no more than 48 hours per each calendar quarter. ASARCO shall maintain all necessary spare parts to assure that an extended monitor outage does not occur. ASARCO shall provide MDNR with a quarterly report within 30 days of the end of each calendar quarter summarizing monitor setpoints, alarm incidents, and any corrective actions taken.

(e) Not later than December 31, 1996, and at all times thereafter, the amperage of the sinter process gas baghouse fan shall be continuously recorded. Under the supervision of MDNR (post construction), Method 2 tests shall be conducted (40 CFR Part 60, Appendix A) to measure actual process gas flowrate while varying sinter process gas baghouse fan amperage. Under the supervision of MDNR a relationship of fan amperage to actual flowrate shall be developed. The total ventilation of the building shall be designed to meet a 200 foot per minute nominal face velocity. A minimum fan amperage (corresponding to the design criteria) shall be determined. This minimum fan amperage shall be maintained except when systems are not being operated, during start-up or shutdown of the ventilation systems, during baghouse cleaning or repair, during cellar cleaning, or during maintenance, or during other conditions not representative of normal operating conditions. If any of these conditions apply, they shall be noted in the process logs. ASARCO shall provide MDNR with a quarterly report summarizing the amperage records within 30 days of the end of each calendar quarter.

In addition, ASARCO shall measure the sinter process gas flowrates at the pre-determined minimum fan amperage each calendar quarter. ASARCO shall provide MDNR with a report summarizing the results from this test within 30 days of the end of each quarter. If, upon MDNR review, the minimum fan amperage no longer provides the designed flowrate, a new flowrate to amperage relationship shall be developed. This new relationship shall be developed in the same manner as the original, as set forth above.

4. Sinter Plant Ventilation and Fugitive Controls:

(These sources are identified as 20201 and 20202 in the Emission Inventory, Exhibit B.)

(a) On or before December 31, 1996, the sinter plant shall be enclosed by installing siding and doors constructed to minimize air infiltration. To minimize building leakage, ASARCO shall complete the siding of the existing sinter building using corrugated materials, and screws with neoprene washers. This enclosure project shall meet the criteria for a permanent total enclosure as set forth in the Environmental Protection Agency (EPA) draft guidelines for determining capture efficiency (September 30, 1993). Sinter plant doors shall remain closed except to allow for entering and exiting the building from the time of sinter machine start-up to 48 hours after sinter machine shut-down.

(b) On or before December 31, 1996, sinter plant ventilation gases shall be routed to the baghouse that currently serves the sinter machine process gases. This baghouse shall be designed to meet a total suspended particulate specification of 0.01 grains per dry standard cubic foot of air.

Not later than December 31, 1996, and at all times therafter, a continuous particulate monitor such as a Triboflow or MDNR approved equivalent, shall be installed and operated to monitor gases exiting the baghouse. The continuous particulate monitor shall be designed to alert operators when particulate levels in the gases exiting the baghouse are above those seen during a normal bag cleaning cycle. The output signals from this continuous particulate monitor shall be recorded during any stack tests.

The setpoint of the continuous particulate monitor shall be set and recalibrated as necessary as part of the quarterly ventilation system inspection required under the Work Practices Manual (Exhibit A), subject to MDNR's right to observe, review, and approve such calibration of the monitors. The monitor shall be operated and properly maintained such that it is out of service for no more than 48 hours per each calendar quarter. ASARCO shall maintain all necessary spare parts to assure that an extended monitor outage does not occur. ASARCO shall provide MDNR with a quarterly report within 30 days of the end of each calendar quarter summarizing monitor setpoints, alarm incidents, and any corrective actions taken.

(c) Not later than December 31, 1996, and for all times thereafter, the sinter plant shall be ventilated to control fugitive emissions of lead from the building. A minimum ventilation rate of 100,000 actual cubic feet of air per minute shall be maintained except during start-ups or shutdowns, during baghouse cellar cleaning or repair, during maintenance, or during other conditions nonrepresentative of normal operation.. This ventilation rate shall be continuously measured at a point immediately before the gases enter the sinter plant ventilation baghouse. This minimum ventilation rate shall be maintained for 48 hours after sinter machine shut-down. The ventilation of the building after enclosure shall be designed to maintain a 200 foot per minute face velocity at all sinter plant openings under normal operating conditions. ASARCO shall provide MDNR with a quarterly ventilation report within 30 days of the end of each calendar quarter. This report shall summarize the ventilation measurements, and explain episodes of low ventilation rates.

MDNR may conduct visual smoke tests post-construction to ensure adequate face velocities at all sinter building openings.

(d) On or before December 31, 1996, a new 70 meter tall, 2.11 meter diameter stack shall be installed and put into operation. This new stack shall service sinter plant ventilation gases originally identified as 20201 and 20202 in the Emission Inventory, Exhibit B.

(e) On or before June 30, 1996, 3360 conveyor belt, 3250 pan conveyor, and the corrugated rolls crusher shall be replaced by a conveyor belt directly from "R" hopper to the smooth rolls crusher.

(f) On or before September 30, 1994, the main feed conveyor shall be extended to the mixing drum. (This project shall eliminate a conveyor drop point.)

5. Blast Furnace Controls:

(Blast furnace fugitive emissions are identified as 30101 and 30104. Blast furnace baghouse emissions are identified as 30001 and dross kettle combustion stack emissions are identified as 30002 in the Emission Inventory, Exhibit B.)

(a) New and modified ventilation hoods shall be designed, installed, and put into operation on or before the following dates:

(i) Slag Launder Hood, by December 31, 1996.

(ii) Emergency Slag Opening Hood, by December 31, 1996.

(iii) Lead Pot Hood Modifications, by December 31, 1996.

(iv) Dross Kettle Hood Modifications, by December 31, 1996.

(b) Ventilation rates to the furnace and dross kettle processes shall be required as follows:

(i) Not later than December 31, 1996, and at all times thereafter, not less than 60,000 actual cubic feet of air per minute from the top of the blast furnace shall be routed to the blast furnace baghouse.

(ii) Not later than December 31, 1996, and at all times therafter, not less than 22,000 actual cubic feet of air per minute (total) from the front of the blast furnace shall be routed to the sinter plant ventilation baghouse.

(iii) Not later than December 31, 1996, and at all times thereafter, not less than 15,000 actual cubic feet of air per minute from the receiving kettles shall be routed to the blast furnace baghouse.

These ventilation rates shall be measured at least quarterly, and maintained except during start-ups or shut-downs, during baghouse cellar cleaning or repair, during maintenance, when the source ventilated is not in operation, or during other conditions nonrepresentative of normal operations. ASARCO shall provide MDNR with a quarterly ventilation report within 30 days of the end of each calendar quarter. This report shall summarize the ventilation measurements, and explain episodes of low ventilation rates.

(c) Not later than December 31, 1996, and at all times thereafter, a continuous particulate monitor such as a Triboflow or MDNR approved equivalent, shall be installed and operated to monitor gases exiting the blast furnace baghouse. The continuous particulate monitor shall be designed to alert operators when particulate levels in the gases exiting the blast furnace baghouse are above those seen during a normal bag cleaning cycle. The output signals from this continuous particulate monitor shall be recorded during any stack tests.

The setpoint of the continuous particulate monitor shall be set and recalibrated as necessary as part of the quarterly ventilation system inspection required under the Work Practice Manual (Exhibit A), subject to MDNR's right to observe, review, and approve such calibration of the monitors. The monitor shall be operated and properly maintained such that it is out of service for no more than 48 hours per each calendar quarter. ASARCO shall maintain all necessary spare parts to assure that an extended monitor outage does not occur. ASARCO shall provide MDNR with a quarterly report within 30 days of the end of each calendar quarter summarizing monitor setpoints, alarm incidents, and any corrective actions taken.

6. In-Plant Roads, Dust Control:

(Emissions from in-plant roads are identified as sources 66001 to 69058 (Emission Inventory, Exhibit B).)

(a) Not later than April 1, 1996, and at all times thereafter, a water sprinkler system shall be installed and operated. When the ambient temperature is below 39°F, the sprinkler system will not operate. A map showing the coverage of the sprinkler system is attached as Exhibit E, and, by this reference is incorporated herein.

(b) Not later than April 1, 1996, and at all times thereafter, a street sweeping program shall be implemented. Weather permitting, the sweeper shall be operated six hours per day, Monday through Friday, on all paved roadways within the plant that are not controlled by the water sprinkler system. The sweeper shall be operated to include those roadways controlled by the water sprinkler system when the ambient temperature is below 39°F. A map showing the area of sweeper coverage is attached as Exhibit E.

B. Enforcement Measures:

1. Stack Testing:

Compliance with the emission rates specified in 10 CSR 10-6.120 shall be demonstrated to MDNR by ASARCO, through tests conducted at ASARCO's expense, by an independent testing firm approved by MDNR. Lead emission rates shall be determined in accordance with 40 CFR Part 60 Appendix A, Method 12, or alternative methods as proposed by ASARCO and approved by MDNR, on a pounds per 24 hour basis. Testing shall be conducted before April 1, 1997, and thereafter, every four years. ASARCO shall notify MDNR of the proposed test dates and provide a copy of the test protocol to MDNR at least 30 days before testing. Test reports, including raw data, shall be submitted to MDNR within 60 working days of the completion of tests.

2. Notification of Completion Dates:

ASARCO shall provide MDNR with written notification of completion of each project specified in Section A within 30 days of completion.

3. Limitation of Hours of Operation:

ASARCO shall limit the hours of operation of the following sources as specified below:

Source/Activity	Allowable Hours of Operation
(a) Blast Furnace Baghouse Cleanout	no more than 8 hours in any one day to occur between 7:00 a.m. and 6:00 p.m., traffic permitting.
(b) Sample Preparation Baghouse	no more than 8 hours in any one day to occur between 7:00 a.m. and 6:00 p.m.
(c) Laboratory Assay Vent	no more than 8 hours in any one day to occur between 7:00 a.m. and 6:00 p.m.

4. Process Weight Limits:

(a) Sinter plant production shall be limited to 202,000 tons of material charged per each calendar quarter. Sinter plant production shall be limited to 3,120 tons of material charged per day (7:00 a.m. to 7:00 a.m.).

(b) Blast furnace production shall be limited to 75,000 tons of lead-bearing material charged per each calendar quarter.

5. Work Practice Manual:

ASARCO shall, to the extent consistent with this order and 10 CSR 10-6.120, adhere to the "Work Practice Manual" (Exhibit A). Work practices in the Work Practice Manual and the other exhibits attached hereto may be modified only with the prior written approval of MDNR.

6. Record-Keeping:

ASARCO shall maintain the following records for MDNR review for a minimum of 5 years following the recording of information.

(a) ASARCO shall maintain a file that states for each shift, i.) sinter machine throughput, ii.) blast furnace throughput, and iii.) refined lead produced.

(b) ASARCO shall maintain a file of the date, time, findings, and corrective actions taken for all baghouse inspections scheduled in the Work Practice Manual, Exhibit A.

(c) ASARCO shall maintain a file that records any upset operating conditions or material spills that affect lead emissions.

(d) ASARCO shall maintain a file that includes the following information involving street sweeping and the road sprinkler system:

(i) Sweeper hours of operation;
(ii) Reasons for not conducting sweeping on any occasion;
(iii) Sweeper maintenance records, including dates of brush and filter replacement;
(iv) Reason for not operating the road sprinklers on any occasion.

(e) ASARCO shall maintain a file that records the weekly inspection of the condition of the doors and siding of the Unloading and Sinter Plant Buildings.

Pending resolution of any enforcement action initiated by MDNR, ASARCO shall maintain all pertinent records indefinitely.

7. MDNR and ASARCO shall continue monitoring the air for lead at all current monitor locations and frequencies and share all collected data. ASARCO shall continue to provide MDNR physical access to do air monitoring where monitors currently are sited. In addition, data collected from the current meteorological stations shall continue to be collected and shared. These data collection efforts shall continue until the Arcadia/Liberty Lead Nonattainment Area has been formally redesignated as an attainment area for lead by EPA.

8. On or before December 31, 1996, ASARCO shall install a fence that precludes public access to areas that the attainment demonstration modeling indicates will have lead concentrations above the national ambient air quality standard for lead. A map showing fencing is attached as Exhibit F, which, by this reference is incorporated herein.

9. Visible Emission Limitations.

A. The opacity of fugitive emissions from the Sinter Plant Building shall not exceed ten (10) percent for any three (3) minutes of any continuous one hour period, according to the proposed test method 203-B. Proposed test method 203-B is attached as Exhibit G, which by this reference is incorporated herein.

B. The opacity of fugitive emissions from the Unloading and Blast Furnace

Buildings shall be limited to an average of twenty (20) percent averaged over six (6) minutes, except when the slag granulation system is not operable, according to proposed test method 203-A. Proposed test method 203-A is attached as Exhibit G.

C. Projects required as Contingency Control Measures.

If the air quality data for the calendar quarter following the attainment date (January 6, 1997), or any quarter thereafter, exceeds the lead standard as specified in 40 CFR 50.12, MDNR shall notify the smelter owner/operator. Implementation of contingency measures shall begin within 30 days from receipt of MDNR's notice, according to the following schedule:

Contingency measure number 1 shall be implemented within 30 days from receipt of MDNR's original notice. If the lead standard is not achieved in the quarter following implementation of contingency measure number 1, then contingency measures numbers 2, 3 and 4 shall be implemented in the next quarter. If the lead standard is not achieved in the quarter following implementation of contingency measures numbers 2, 3, and 4, then contingency measures numbers 5, 6 and 7 shall be implemented.

Contingency Measures:

1. Truck Wash.

2. Expand In-Plant Road Sprinkler System.

3. Withdraw Unloading Building air for Sinter Plant Make-up air.

4. ASARCO shall meet the following stack emission limits:

Stack Names	Emissions Limitation (Lbs. per 24 hours)
Main	160.1
Ventilation Baghouse	108.9
Blast Furnace	71.5

Compliance with these contingency stack emission rates shall be demonstrated to MDNR by ASARCO through tests conducted at ASARCO's expense, by an independent testing firm approved by MDNR. Lead emission rates shall be determined in accordance with 40 CFR Part 60 Appendix A, Method 12, or alternative methods as proposed by ASARCO and approved by MDNR, on a pounds per 24 hour basis. Contingency stack testing shall be conducted within 30 days of notification from MDNR. ASARCO shall notify MDNR of the proposed test dates and provide a copy of the test protocol to MDNR at least 30 days before testing. Test reports, including raw data, shall be submitted to MDNR within 60 working days of the completion of tests.

5. Allow Lead Bullion Pots to Cool Before Dumping into Receiving Kettles.

6. Modify Refinery Skims Handling in Blast Furnace area.

7. Increase Efficiency of Sinter Plant Ventilation Baghouse.

ASARCO shall complete all of the planning and engineering work for the seven contingency measures on or before July 1, 1996. On or before July 1, 1996, ASARCO shall maintain current bids on the materials necessary to implement each of these contingency measures.

If ASARCO identifies and demonstrates to MDNR's satisfaction alternative control measure(s) that would achieve equal or greater air quality improvements than the Contingency Measure(s) identified above, MDNR agrees that ASARCO may substitute the new control(s) for the contingency measure(s) identified above. The substitute contingency measure shall be implemented under the same time frame as the original measure, unless both parties agree to a modified contingency schedule.

D. Stipulated Penalties

1. If ASARCO fails to complete construction of the control measures set out in this Decree by the dates specified, ASARCO shall pay stipulated penalties according to the following schedule. The penalties set forth below are per day penalties which are to be assessed beginning with the first day after the scheduled deadline date.

Period of Noncompliance	Penalty per Day of Violation
First through 30th day of noncompliance	-0-
31st through 60th day of noncompliance	$500.00
60th through 90th day of noncompliance	$1,000.00
Beyond 91st day of noncompliance	$1,500.00

2. If ASARCO fails to comply with any other requirement of this Decree, ASARCO shall pay stipulated penalties according to the following schedule. The penalties set forth below are per day penalties which are to be assessed beginning with the first day of violation after the scheduled deadline date.

Period of Noncompliance	Penalty per Day of Violation
First through 30th day of noncompliance	$500.00
31st through 60th day of noncompliance	$1,000.00
Beyond 61st day of noncompliance	$1,500.00

3. The penalties set forth above are per day penalties which are to be assessed beginning with the first day of violation after the scheduled deadline date. All penalties shall be paid within 45 days of the date of notification of noncompliance unless the penalty is challenged by ASARCO pursuant to the Dispute Resolution procedure outlined in Section E. If the penalty is challenged, it shall not be paid until 30 days after the Director's determination that ASARCO owes the stipulated penalty, and ASARCO has failed to use, or has exhausted, its rights to review the Director's Decision.

4. Stipulated penalties shall continue to accrue during the formal Dispute Resolution process or any appeal. In the event ASARCO prevails, stipulated penalties shall not be due or owed.

5. All penalties shall be paid by certified check made payable to the Iron County Treasurer as Trustee for the Iron County School Fund, and delivered to the Attorney General of Missouri, P.O. Box 899, Jefferson City, Missouri 65102-0899, Attention: Shelley A. Woods, Assistant Attorney General, or Designee.

6. The penalties set forth herein shall not apply in the event of a force majeure, as defined in this section. For the purposes of this Decree, force majeure shall be defined as any event arising from causes beyond the control of ASARCO and of any entity controlled by ASARCO that delays or interferes with the performance of any obligation under this Decree notwithstanding ASARCO's best efforts to avoid such an event. The requirement that ASARCO exercise "best efforts to avoid such an event" includes using best efforts to anticipate any potential force majeure event and best efforts to address the effects of any potential force majeure event (1) as it is occurring, and (2) following the potential force majeure event such that the adverse effect or delay is minimized to the greatest extent practicable. Examples of events that are not force majeure events include, but are not limited to, increased costs or expenses of any work to be performed under this Decree or the financial difficulty of ASARCO to perform such work.

7. If any event occurs that is likely to delay or interfere with the performance of an obligation under this Decree, whether or not caused by a force majeure event, ASARCO shall notify MDNR by telephone within 72 hours if ASARCO knows that the event is likely to delay or interfere with performance of an obligation under this Decree. Within 5 business days thereafter, ASARCO shall provide in writing the reasons for the event; the anticipated duration; all actions taken or to be taken to minimize its effects; a schedule for implementation of any measures to be taken to mitigate the event; and a statement as to whether, in the opinion of ASARCO, such an

event may cause or contribute to the endangerment of public health, public welfare, or the environment. Failure to comply with the substance of the above requirements shall preclude ASARCO from asserting any claim of force majeure.

8. If MDNR agrees that the delay or anticipated delay is attributable to a force majeure, then the time for performance of any obligation under this Decree that is directly affected by the force majeure event shall be extended for a period of time not to exceed the actual duration of the delay caused by the force majeure event.

9. If MDNR does not agree that the delay or noncompliance has been or will be caused by a force majeure event, or does not agree with ASARCO on the length of any time extension, the issue shall be subject to the Dispute Resolution procedures set forth in Section E of this Decree. In any such proceeding, to qualify for force majeure defense ASARCO shall have the burden of demonstrating by a preponderance of the evidence that the delay or noncompliance has been or will be caused by a force majeure event, that its duration was or will be warranted under the circumstances, that ASARCO exercised or is exercising due diligence by using its best efforts to avoid and mitigate its effects, and that ASARCO complied with the requirements of Paragraph 7 above. Should ASARCO carry the burden set forth in this Paragraph 9, the delay or noncompliance at issue shall be deemed not to be a violation of the affected obligation of this Decree.

10. MDNR agrees that the stipulated penalties set forth herein shall be MDNR's sole and exclusive remedy for any alleged or actual noncompliance by ASARCO with any terms or requirements of this Decree, of the Work Practices Manual, or of 10 CSR 10-6.120(2)(A), and MDNR waives its right to seek additional penalties under § 643.151, RSMo or any other provision of law for any such noncompliance.

11. Upon the request of ASARCO, MDNR may in its unreviewable discretion impose a lesser penalty or no penalty at all for violations subject to stipulated penalties.

E. Dispute Resolution

Any dispute which arises with respect to the meaning, application or implementation of this Consent Decree shall in the first instance be the subject of informal negotiations between ASARCO and MDNR. Notice of a dispute shall be given by the party alleging the dispute, shall be addressed in writing to the MDNR Director, and copied to the opposing party. Such notice shall state the specific grounds for the dispute, including any supporting documentation, and the relief requested.

The MDNR and ASARCO shall have thirty (30) days from the receipt of the notice of the dispute to resolve the dispute. If agreement is reached, the resolution shall be reduced to writing and this Decree modified, if appropriate. If the MDNR and ASARCO are unable to reach complete agreement within the thirty-day period and this period is not extended in writing by mutual agreement of the parties, the matter will be submitted to the Director. The opposing party may file suggestions in opposition and include any documentation relevant to deciding the dispute. Said suggestions and documentation shall be submitted within fourteen days of submission of the matter to the Director. The MDNR Director will issue a written decision following his/her review of the record submitted by the parties.

The parties will then be entitled to judicial review pursuant to Section 536.140, RSMo. The filing of a notice of dispute shall not automatically suspend or postpone any parties' obligations under this Consent Decree with respect to the disputed Issue. This provision shall not be construed to prevent either party from requesting a stay of the party's obligations under this Consent Decree, which request shall be filed at the same time as the notice of dispute.

ASARCO, Incorporated (for the Glover Lead Smelter)

BY: ______________________ DATE: 5/23/96

MISSOURI DEPARTMENT OF NATURAL RESOURCES

BY: ______________________ DATE: JUN 27 1996
David A. Shorr, Director

ATTORNEY GENERAL OF MISSOURI
Jeremiah W. (Jay) Nixon, Attorney General

BY: ______________________ DATE: May 30, 1996
Shelley A. Woods, Assistant Attorney General

ENTERED THIS 30th DAY OF July 1996

______________________ DATE: 7-30-96
Judge

STATE OF MISSOURI }
COUNTY OF IRON } I, Brenda Turner, Clerk of the Circuit Court in and for said County, hereby certify that the above is a full, true and correct copy of the original document as the same appears of record in my office.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seal of said court at my office in Ironton, Mo., this July 31, 1996.

Brenda Turner

Brenda Turner, Circuit Clerk

By ______________________

Deputy Clerk

Elkins-Swyers Co., Springfield, Mo. - V-8547

Exhibit A

9.3 Manual of Work Practices

for Control of Lead Emissions

Table of Contents

1.0 Introduction 1

1.1 Regulatory Requirements 1
1.2 Definitions 1

2.0 Description of Operations 3

2.1 Concentrate Unloading 3
2.2 Sinter Plant 3
2.3 Blast Furnace 4
2.4 Refinery and Molding 5

3.0 Work Practices to Reduce Lead Emissions 6

3.1 Concentrate Unloading 6

3.1.1 Keeping Building Doors Closed During Material Handling Operations 7
3.1.2 Maintenance of Doors and Siding 7

3.2 Sinter Plant 7

3.2.1 Keeping Building Doors Closed 8
3.2.2 Maintenance of Doors and Siding 8
3.2.3 Sinter Building Washdown 8
3.2.4 Sinter Building Ventilation 8

3.3 Blast Furnace 9

3.3.1 Filling of Bullion Pots 9
3.3.2 Use of Bullion Pot Covers 9
3.3.3 Use of Point Source Ventilation Systems 9
3.3.4 Periodic Inspection of Point Source Ventilation Systems 10
3.3.5 Prevention and Response to Blow Holes 10
3.3.6 Execution of Sodium Treatment 10

3.3.7 Refinery Area Washdown 10
3.4 In-Plant Roads 10

3.4.1 Sprinkler Systems 11
3.4.2 Road Sweeping 13

3.5 Baghouse Cleaning 13

3.6 Baghouse Inspections 15

4.0 Training 17

Supplement A: Recordkeeping Forms

Supplement B: Point Source Ventilation Systems Inspection and Maintenance Procedures

Supplement C: Road Vacuum Sweeper Operation and Maintenance Procedures

Supplement D: Quarterly Baghouse Inspections

1.0 Introduction

This manual of work practices has been revised in support of the revision of the State Implementation Plan (SIP) for the control of lead emissions in the Glover, Missouri area. The ASARCO Incorporated Primary Lead Smelter and Refinery is the principal source of lead emissions in this area. These work practices are intended to minimize fugitive emissions of lead.

These work practices reflect process and equipment changes that will be made be part of the selected control strategy to reduce overall lead emissions.

1.1 Regulatory Requirements

This Manual is written to comply with the Missouri Air conservation Rule 10 CSR 10-6.120(3)(B) which states:

> *The owner or operator shall prepare, submit for approval, and then implement a process and area-specific work practice manual that will apply to locations of fugitive lead emissions at the installation;*

and (3)(B)2 which requires that:

> *The manual shall be the method of determining compliance with the provisions of this subsection. Failure to adhere to the work practices in the manual shall be a violation of this rule.*
>
> *Any change in the work practices in the manual requires prior written approval from the MDNR director before any change becomes effective and goes into practice.*

In addition, this Manual is the mechanism which will be used to determine compliance with the applicable portions of the current Consent Decree as well as the lead rule (10 CSR 10-6.120).

1.2 Definitions

Accumulated materials: Lead bearing particulate that has the potential to become reentrained.

Washdown: To wet or reduce accumulated materials.

Wetting: Addition of sufficient water to ensure no visible emissions immediately following washdown.

2.0 Description of Operations

The operations of the various departments of the ASARCO Glover Plant are described below.

2.1 Concentrate Unloading

The primary feedstock for the Glover Plant is lead concentrate from local mines. The concentrate is approximately 78% lead in the sulfide form. The concentrate is delivered by semi-trucks.

The semi-trucks enter the North end of the Plant and are weighed. The trucks then proceed to the North end of the Unloading Building where they dump the concentrate directly into a hopper.

Other non-lead-bearing feedstock materials are received in similar fashion by truck or railcar.

An overhead bucket crane in the Unloading Building transfers the concentrate and other feedstock materials in to hoppers that proportionately deposit material onto conveyors that enter the Sinter Plant.

2.2 Sinter Plant

The sulfur in the lead concentrate is thermally removed in the sintering process. The concentrate is mixed in proportion with other feedstock materials such as silica, iron ore, and limestone fluxes. These materials are crushed and mixed prior to being deposited on the sinter machine conveyor with returned sinter and blast furnace slag through the mixing drum.

An ignition layer enters the sinter machine and is ignited by gas-fired burners. The main layer is laid down over the ignition layer. This complete feed bed enters the updraft portion of the machine which draws air across the sinter bed from bottom to top to drive the thermal reaction. The off-gases are collected in a hood covering the machine and directed to a process gas baghouse.

The product of this process is a lava-like material called sinter. The sinter is broken into various sizes and sorted by size. The larger pieces are transferred to the Unloading Building via conveyors. The undersized pieces are returned to the sinter machine feed after crushing. Approximately 50% of the sinter machine feed is undersized material.

2.3 Blast Furnace

The sinter from the Sinter Plant is directly deposited in one of three proportioning hoppers in the Unloading Building five days per week. These hoppers feed the "charge car" which contains the feedstock materials that charge the Blast Furnace. Some sinter is deposited in a large storage bin in the Unloading Building, typically on weekend days to provide reserve sinter that can be added to the hoppers by the overhead crane during times when the Sinter Plant is not operating.

The charge car is lifted to the top of the operating Blast Furnace and its contents are dumped into the furnace. The furnace shaft is fed from the top. Inside the shaft, the sinter is reduced by air and coke to form molten lead bullion. The flux materials form slag.

The bullion and slag are continuously tapped from the front of the furnace into a brick-lined settler where they are separated by gravity. The bullion is tapped into covered pots. The slag is generally granulated with water, cooled, and transported by conveyor belt to the Sinter Plant where it is recycled. Approximately one-third of the granulated slag is transported by truck and dumped onto the slag pile. During the infrequent times when the granulation system is not operational, the slag is tapped into pots, transported, and dumped onto the floor to cool. The cooled slag is then hauled to the slag pile.

The pots of bullion are lifted by an overhead crane and dumped into receiving kettles which are covered by ventilated hoods. As the bullion cools, a copper dross floats to the surface. Periodically, this dross is removed by skimming.

After the dross has been removed, the rough-drossed bullion is transported by ladle to the Refinery.

2.4 Refinery and Molding

The lead bullion from the receiving kettles is further refined by the removal of copper, silver, zinc, and other trace impurities. These refining steps are performed in kettles and involve the addition of various reagents. Most of the processes are conducted at a temperature just above the melting point of lead and consequently, emissions are minimal.

The refined lead is pumped to the molding department where it is molded into sizes and shapes requested by customers.

The molded lead is primarily shipped from the plant in semi-trucks although some is shipped by rail.

3.0 Work Practices for the Control of Fugitive Lead Emissions

These work practices are intended to inform employees of preestablished procedures that will minimize fugitive lead emissions caused from such activities as materials handling and maximize the effectiveness and longevity of installed fugitive emissions control equipment.

Maintenance activities in the Glover Plant are requested with a computer-based Work Order system. The Work Orders are ranked in descending priority from "Priority 1" through "Priority 6". Following is a description of the priority levels:

Priority 1 - Needs immediate attention;
Priority 2 - Needs to be completed within 7 days;
Priority 3 - Routine planned work;
Priority 4 - Downtime work;
Priority 5 - Preventive maintenance; and
Priority 6 - Downtime immediate action.

Records maintained pursuant to this Manual of Work Practices will be retained for five years by the party responsible for their completion or in a central ASARCO file. All records maintained pursuant to this manual will require the initials or signature of the person filling out the record form.

The Environmental department will keep a record of upsets in the plant that lead to unexpected lead emissions. An example of this would be spills of lead bearing material. This environmental incident report will note the duration, possible cause, estimates of emissions, and detail any corrective actions taken to correct the situation. A form for this purpose is given in Supplement A.

3.1 Concentrate Unloading

The primary control of fugitive lead emissions in this department is accomplished by the enclosed sides of the Unloading Building. The enclosed walls and doors prevent wind from entering the building and subsequently transporting lead-bearing dust out of the building. The dust is generated by material handling and dumping activities inside the building. The applicable work practices supporting emissions controls focus on maintaining enclosed conditions for the Unloading Building.

3.1.1 Keeping Building Doors Closed During Material Handling Operations

Numerous roll-up doors will be installed to allow truck, railcar, front-end loader, and other vehicle access to the bins. The doors will be closed except during dumping from trucks and/or front-end loaders into storage bins. The doors will only be open during the dumping phase and will be closed immediately after dumping.

The exception to this practice is the unloading of baghouse dust. This dust must be dumped into a storage bin through a door on the West side of the building. The door will be immediately closed after a cellar is cleaned and all dust transported to the bin.

3.1.2 Maintenance of Doors and Siding

All doors and siding will be inspected regularly and repaired promptly.

The Unloading Supervisor will inspect the condition of the doors and siding once per week. If holes or openings are found in the doors or siding, repairs will be completed within 7 days of detection.

If a door is found that cannot be fully closed, either during the weekly inspection or during normal work, the door will be immediately corrected so that it will close. The door will not be opened during operations until it has been repaired to allow normal opening and closing.

The Unloading Supervisor will keep records of the weekly inspections using a form found in Supplement A.

3.2 Sinter Plant

Control of fugitive lead emissions in this department requires the effective enclosure and ventilation of the Sinter Plant. Lead dust inside the Sinter Plant is generated by the movement of materials and by the sintering machine itself. The applicable work practices that support these emission controls focus on maintaining enclosed conditions and maintaining proper building ventilation.

3.2.1 Keeping Building Doors Closed

The doors to the Sinter Building will be closed except when people or equipment are entering or exiting the building.

3.2.2 Maintenance of Doors and Siding

All doors and siding will be inspected regularly and repaired promptly.

The Sinter Plant Supervisor will inspect the condition of the doors and siding once per week. If holes or openings are found in the doors or siding, repairs will be completed within 7 days of detection.

The Sinter Plant Supervisor will keep records of the weekly inspections using a form found in Supplement A.

3.2.3 Sinter Building Washdown

Material spilled onto the lower floor will be collected and returned to the process using hoses and front-end loaders. Washdown will be performed once per day at a minimum when the ambient temperature is above 39° F. Washdown activities will be noted on sinter process logs.

3.2.4 Sinter Building Ventilation

Operation of the sinter machine will be initiated only if the Sinter Building ventilation is operating. Sinter Building ventilation will be operated for at least 48 hours after the shutdown of the sinter machine.

The ventilation system will undergo quarterly inspections as described in Supplement B.

3.3 Blast Furnace Area

3.3.1 Filling of Bullion Pots

Blast furnace employees will be trained in work practices to avoid overfilling of lead pots.

3.3.2 Use of Bullion Pot Covers

Blast furnace employees will be trained in work practices to recognize deficient covers. Appropriate Work Orders will be submitted for the repair of damaged covers.

Buillion pots will not be filled unless a proper pot cover is used.

3.3.3 Use of Point Source Ventilation Systems

The point source ventilation systems for the blast furnace area include: 1) the front of the furnace and tapping area; 2) the receiving (dross) kettles; and 3) the top of the furnace.

Operation of a blast furnace and the associated bullion and slag tapping, kettle bullion transfers; or treatment in the dross kettles will be initiated only if the appurtenant point source ventilation systems are operable.

The processes of the blast furnace area are initiated by a large increase in temperature that begins a self-sustaining, continuous process. Once initiated, these processes cannot be stopped immediately and must wait for the temperature of the system to slowly drop below a level where the self sustaining portion of the process begins to diminish. If during operation, excessive emissions are seen, the applicable point source ventilation system will be inspected immediately. Based on the inspection the next course of action will be chosen. This could include one of the following options: 1) reduce the blast furnace processes as much as possible to minimize excess emissions; 2) provide alternate ventilation; or 3) begin complete cessation of the blast furnace operations.

A Work Order of appropriate "Priority" status will be submitted to coordinate with the course of action chosen.

3.3.4 Periodic Inspection of Point Source Ventilation Systems

The point source ventilation systems in the blast furnace area will undergo quarterly inspections as described in Supplement B.

Records will be kept of these system inspections on a form found in Supplement A.

3.3.5 Prevention and Response to Blow Holes

The blast furnace operators will ensure that enough feed material is in the furnace to provide a sufficient seal at the top of the furnace.

If a blow hole should occur, prompt action will be taken to seal the hole. This action could include shooting the area around the hole with explosives or adding additional feed material.

Blow hole occurrences and the corrective actions taken will be recorded on the Blast Furnace Daily Log Sheet by the supervisor in charge, after the condition has been corrected.

3.3.6 Execution of Sodium Treatment

Liquid sodium will be injected below the surface of the bath to prevent excess emissions.

3.3.7 Refinery Area Washdown

Material spilled onto the floor will be collected and returned to the process using hoses and front-end loaders. Washdown will be performed once per day at a minimum. Washdown activities will be noted on refinery process logs. For safety reasons, washdown will not be performed if the temperature is below 39° F.

3.4 In-Plant Roads

The In-plant roads are illustrated in Figure 3-1. A combination of sprinkling and sweeping will be used, as needed to minimize road dust.

3.4.1 Sprinkler Systems

The traffic routes controlled by sprinklers are identified in Figure 3-1. These sprinkler systems will be maintained in proper working condition. Systems will be operated when the ambient temperature is above 39° F.

The systems will be inspected once per day by the Environmental Department. Records of the daily inspections will be kept in the Environmental Daily Log.

If a sprinkler system is providing less than full coverage of a traffic route through which vehicles drive, the following actions will be taken: 1) that section of the system will be inspected to determine the possible cause of the malfunction; 2)a "Priority 3" Work Order will be submitted; 3) all traffic will be routed around the area not covered until a) an alternate sprinkler/wetting system is setup or b) the area is dried and vacuum swept to a condition where minimal visible dust exists.

Records of the corrective actions taken will be kept in the Environmental Daily Log.

Exhibit A

Asarco Glover

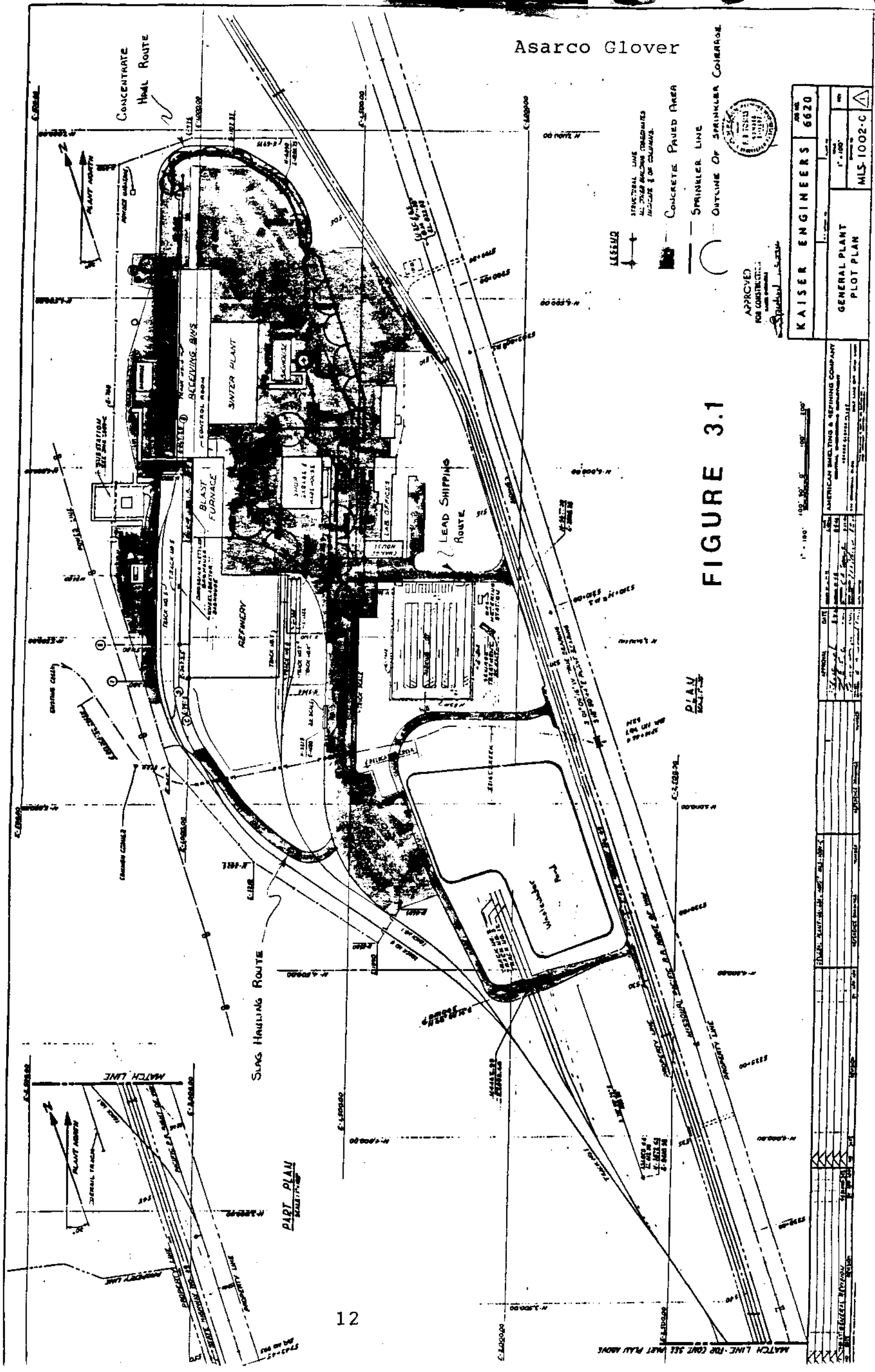

FIGURE 3.1

3.4.2 Road Sweeping

The In-plant roads will be swept as needed to minimize dust loading and during times when sprinkler system cannot be operated, such as during periods when the ambient temperature is below 39° F or during a malfunction of a sprinkler system section as described above. The areas controlled by sweeping are identified in Figure 3-1.

The sweeper will be operated according to the following schedule on a five days per week, six hours per day basis. The sweeper will not operate when the concrete is wet.

1. The concentrate truck unloading road will be swept a minimum of three times per day.

2. The refined lead truck road from the plant entrance to the refined lead loading area to the plant scale will be swept three times per day.

3. The slag haulage road from the plant scale to the rear plant entrance will be swept once per day.

4. The area between the maintenance shop and the blast furnace baghouse will be swept once per week. Additional sweeping will be done if visible suspended emissions exist in the area.

5. The area between the unloading building and the blast furnace baghouse will be swept twice per week. Additional sweeping will be done if visible suspended emissions exist in this area.

The sweeper will be operated and maintained according to the manufacturer's recommendations as provided in Supplement C.

3.5 Baghouse Cleaning

The objective of this procedure is to minimize, control, and prevent the escape of fugitive dust during the removal, transportation, and unloading of Sinter Plant Ventilation and Blast Furnace baghouse dust. The procedures are similar for each baghouse.

The Sinter Plant supervisor shall be responsible for assuring that baghouse dust unloading is conducted according to this procedure. The supervisor is responsible for training the hourly employees in the proper procedures. The supervisor shall inspect any baghouse dust unloading operation to ensure the procedures are followed. The supervisor shall be responsible for a log of all cellar cleaning activity.

Consideration should be given to wind. Windy conditions can lead to significant lead emissions during baghouse dust transport. Baghouse cleaning will not be done if the Sinter Plant supervisor feels that the local wind conditions would cause visible emissions.

Two employees shall perform the unloading procedure: a front-end loader operator and a baghouseman who operates the high pressure water hose and acts as a safety man.

A front-end loader is used to clean the cellars and transport the dust. The plant dump truck may be used on occasion to transport the dust.

The following steps are taken:

1) The damper is closed on the cellar to be cleaned;

2) Airborne dust is allowed to settle;

3) The main access door to the cellar is opened and the hose inserted to wet the dust as much as practical;

4) As the payloader cleans the cellar the baghouseman continues to wet the dust;

5) The dust is transported to the Unloading Building and dropped into the storage bin at as low level as possible to minimize the drop of the dust;

6) When the cellar is cleaned, the cellar door is resealed and the chamber put back in service by opening the damper. The roll-up door at the Unloading Building bin will be closed;

7) The doors are checked for leaks and corrected as necessary;

8) The area is cleaned by washing down with the hose and picking up any material with the payloader.

9) The area is to be kept clean with a vacuum sweeper as required.

3.6 Baghouse Inspections

The baghouses are designed to filter particulate from ventilation and process gas streams. The purpose of baghouse inspections and baghouse particulate alarms is to ensure that the baghouses are operating properly, and to identify problems that can be corrected.

All baghouses will be inspected weekly for leaks using visual methods. The baghouse supervisor will be responsible for these inspections. Records of these inspections will be kept. If the weekly baghouse inspection indicates a problem with the baghouse, appropriate corrective action will be taken. The corrective actions will be noted on the inspection forms.

The baghouses will be inspected quarterly employing Visolite® tests according to the procedure in Supplement D. The baghouse supervisor will be responsible for these inspections. Records of these inspections will be kept.

Continuous particulate monitors will be operated whenever the Blast Furnace, Sinter Process, or Sinter Building Ventilation Baghouses are operated. If the signal from the continuous particulate monitor exceeds the output observed during a normal cleaning cycle, the alarm will sound.

If a baghouse alarm sounds, the following actions will be taken:

1. The baghouse operator will attempt to identify the cause of the alarms. This may mean locking out different cells in the baghouse and noting the output signal of the particulate monitor.

2. If the problem is identified, an appropriate work order will be submitted. Until corrective action has been taken, the baghouse will

be operated such that lead emissions are minimized.

3. If the problem could not be immediately identified, the problem will be reported to the environmental department for further review. This review will include a complete baghouse inspection.

4. All alarms and corrective actions will be noted on an inspection form and filed for future reference.

4.0 Training

Training will be given to the plant employees that will communicate the purpose and requirements of this Manual of Work Practices.

Operation guidelines, their rationale, and their effects on minimizing fugitive lead emissions will be stressed in this training.

The training will be part of the annual training module given to each Glover Plant employee. New employees also receive this training. Employees transferred into specialized areas will receive training for their new area.

Specialized training will be the responsibility of the area supervisor. General training of this Manual will be the responsibility of the Environmental Department. Training records will be kept in the plant safety office.

Specialized training is provided for the following job classifications:

- ★ Baghouseman
- ★ Sweeper operator
- ★ Charge car operator
- ★ Furnaceman
- ★ Drossman

Supplement A

Recordkeeping Forms

Exhibit A **ASARCO INC,** MISSOURI LEAD DIVISION, GLOVER UNIT

ENVIRONMENTAL INCIDENT REPORT

DATE:________________ LOCAL TIME:____________ SKY COVER:____________

GROUND COND(WET,DRY,ETC):__________ DURATION:________ INTENSITY:________

DESCRIBE INCIDENT IN DETAIL:____

____

____

____

____

AREA SUPERVISOR ON DUTY:______________________ CORRECTIVE ACTION:________

____

____

____

SIGNATURE OF ENVIRONMENTAL SPECIALIST:______________________________

ASARCO GLOVER PLANT PROCESS BAGHOUSE INSPECTION SHEET

BAGHOUSE: ____________________ DATE: ____________

INSPECTOR: ____________________ TIME: ____________

CELL	MAGNEHELIC: GOOD	MAGNEHELIC: NEEDS ATTN:	DIAPHRAM: GOOD	DIAPHRAM: NEEDS ATTN:	TIME SETTING: GOOD	TIME SETTING: NEEDS ATTN:	BAGS: GOOD	BAGS: NEEDS ATTN:
1	( )	( )	( )	( )	( )	( )	( )	( )
2	( )	( )	( )	( )	( )	( )	( )	( )
3	( )	( )	( )	( )	( )	( )	( )	( )
4	( )	( )	( )	( )	( )	( )	( )	( )
5	( )	( )	( )	( )	( )	( )	( )	( )
6	( )	( )	( )	( )	( )	( )		

	GOOD	NEEDS ATTN:
FAN AMPS: ____________	( )	( )
AIR PRESSURE	( )	( )
SOLENOID VALVES	( )	( )

CORRECTIVE ACTION TAKEN: ____________________

DATE: ____________

BAG FAILURE	TOP	MIDDLE	BOTTOM
( ) TEARS	( )	( )	( )
( ) TORN SEAMS	( )	( )	( )
( ) PIN HOLES	( )	( )	( )

WHICH CELL: ____________

NO. BAGS REPLACED: ____________

CORRECTIVE ACTION TAKEN: ____________________

DATE: ____________

CAGE CONDITION: BENT: ________ BROKEN: ________ TIME: ________

CELL #: ________ NUMBER OF CAGES: ________ DATE: ________

WEEKLY MAGNAHELIC READINGS

CELL #	MON	TUES	WED	THUR	FRI	SAT	SUN
1							
2							
3							
4							
5							
6							

QUARTERLY VISOLITE TEST:

DATE: ____________

RESULTS: ____________________

CORRECTIVE ACTION TAKEN: ____________________

Exhibit A

ASARCO GLOVER PLANT WHEELABRATOR BAGHOUSE INSPECTION SHEET

BAGHOUSE: ____________________ DATE: ____________

INSPECTOR: ____________________ TIME: ____________

CELL	MAGNEHELIC GOOD	MAGNEHELIC NEEDS ATTN:	DIAPHRAM GOOD	DIAPHRAM NEEDS ATTN:	TIME SETTING GOOD	TIME SETTING NEEDS ATTN:	BAGS GOOD	BAGS NEEDS ATTN:
1	( )	( )	( )	( )	( )	( )	( )	( )
2	( )	( )	( )	( )	( )	( )	( )	( )
3	( )	( )	( )	( )	( )	( )	( )	( )
4	( )	( )	( )	( )	( )	( )	( )	( )
5	( )	( )	( )	( )	( )	( )	( )	( )

	GOOD	NEEDS ATTN:
AMPS 3906 FAN	( )	( )
AIR PRESSURE	( )	( )
SOLENOID VALVES	( )	( )

CORRECTIVE ACTION TAKEN: ____________

DATE: ____________

BAG FAILURE	TOP	MIDDLE	BOTTOM
( ) TEARS	( )	( )	( )
( ) TORN SEAMS	( )	( )	( )
( ) PIN HOLES	( )	( )	( )

WHICH CELL: ____________

NO. BAGS REPLACED: ____________

CORRECTIVE ACTION TAKEN: ____________

DATE: ____________

CAGE CONDITION: BENT: ________ BROKEN: ________ TIME: ________

CELL #: ________ NUMBER OF CAGES: ________ DATE: ________

WEEKLY MAGNAHELIC READINGS

CELL #	MON	TUES	WED	THUR	FRI	SAT	SUN
1							
2							
3							
4							
5							

QUARTERLY VISOLITE TEST:

DATE: ____________

RESULTS: ____________

CORRECTIVE ACTION TAKEN: ____________

Exhibit A

Asarco Glover

DAILY BAG-HOUSE REPORT

Date:_________

Sinter Plant

	1	2	3	4	5	6	7	8	9
Cellars fired									
Bags: Replaced									
Refiled									
Capped									
Dust Removed (Cat Buckets)									
Dampers working: Inlet									
Outlet									
Shakers Working									

Any Defects Noted:

Quality Visolite Test Results:

Spray Chamber	
No. of sprays cleaned	
Spray Temp. Control	
Baghouse Temp. Control	

Blast Furnace

	1	2	3	4	5	6
Cellars fired						
Bags: Replaced						
Refiled						
Capped						
Dust Removed (Cat Buckets)						
Dampers working: Inlet						
Outlet						
Shakers Working						

Please note the cause of any problems which occured in the last 24 hours, and any corrective action taken. When bags fail, describe as accurately as possible the location (top, middle, bottom; seam, bell, etc.)of the failure and possible cause.

Any Defects Noted:

Quality Visolite Test Results:

Spray Chamber	
No. of sprays cleaned	
Spray Temp. Control	
ʼouse Temp. Control	

Exhibit A arco Glover

DESCRIPTION OF PROBLEM	CORRECTIVE ACTION	DATE W/O WRITTEN	DATE COMPLETED

SINTER BUILDING ENCLOSURE INSPECTION

DATE: ______________

SIDING CONDITION	OK	NEEDS REPAIR	DESCRIPTION OF PROBLEM	CORRECTIVE ACTION	DATE W/O WRITTEN	DATE COMPLETED
DOORS:						
DOOR #:						
1						
2						
3						
4						
5						
6						
7						
8						

INSPECTED BY: ______________________________

POINT SOURCE VENTILATION SYSTEMS QUARTERLY INSPECTION REPORT

DATE: ______________

BLAST FURNACE AREA PSV SYSTEMS	MINIMUM REQUIRED AIR FLOW ACFM	ACTUAL ACFM	VISUAL INSPECTION MECHANICAL & PHYSICAL CONDITION		W/O	DEFICIENCY	CORRECTIVE ACTION	DATE COMP.
			OK	NEEDS REPAIR				
1. FRONT OF FURNACE & TAPPING AREA	22,000							
2. RECEIVING KETTLES	15,000							
3. TOP OF FURNACE	60,000							

SINTER BUILDING PSV SYSTEMS	MINIMUM REQUIRED AIR FLOW ACFM	ACTUAL ACFM	VISUAL INSPECTION MECHANICAL & PHYSICAL CONDITION		W/O	DEFICIENCY	CORRECTIVE ACTION	DATE COMP.
			OK	NEEDS REPAIR				
1. PROCESS GASES	185,000							
2. SINTER BUILDING VENTILATION	100,000							

INSPECTOR: ______________________________

Supplement B

Point Source Ventilation Systems

Inspection and Maintenance Procedures

ASARCO Glover Plant
Blast Furnace Area and Sinter Building
Point Source Ventilation System
Inspection and Maintenance Procedures

Introduction

The Point Source Ventilation (PSV) Systems are designed to collect air from fugitive dust emission sources. The collected air (and the dust contained in it) is then routed to a baghouse where the dust is captured and subsequently accumulated for reprocessing.

The PSV systems for the blast furnace area include: 1) the front of the furnace and tapping area; 2) the receiving (dross) kettles; and 3) the top of the furnace. The PSV systems for the sinter building include: 1) sinter plant process gases; 2) sinter building ventilation; and 3) other conveying, crushing and mixing equipment PSV systems.

These systems undergo routine, periodic inspections to insure proper operation. The systems are also inspected prior to initiation of blast furnace operations after a period of down time greater than 1 day.

Routine Inspection Frequency

Routine inspections will be performed once per quarter. As part of these routine quarterly inspections, the Triboflow (or MDNR approved equivalent) continuous particulate monitors will be calibrated as necessary to alert operators when particulate levels in the exhaust gases are above those seen during normal bag cleaning cycles, subject to MDNR's right to observe, review and approve such calibration of the monitors.

Inspection Procedures

Visual Inspection - A visual inspection of the mechanical and physical condition of the systems is the fundamental procedure to be used. Any deficiencies will be noted and will be the subjects of the subsequent Work Order that will be submitted.

Air Flow Measurements - Sinter Building ventilation gases will be continuously measured and recorded. These rates will be recorded at a minimum of five minute intervals. The sinter process gas baghouse fan amperage will be recorded continuously (see explanation below). Other ventilation rates will be measured quarterly. The measured ventilation rates/fan amperages must be maintained above the following minimums:

Source/Area Ventilated	Minimum Air Flow/Fan Amperage	Point of Measurement	Measurement Frequency
Blast Furnace Ventilation - Total Flow	60,000 acfm	Just prior to spray chamber	Quarterly
Dross Kettles	15,000 acfm	Just downstream of the fan	Quarterly
Front of Blast Furnace	22,000 acfm	In flue leading to the sinter plant ventilation baghouse	Quarterly
Sinter Building Ventilation	100,000 acfm	90 inch flue leading from the header system to the intake at the baghouse	Continuously
Sinter Machine Process Gases	"*"		Continuously / Quarterly

The Sinter Plant Supervisor is responsible for assuring that the minimum ventilation rates are being met. If the calculated ventilation rates fall below these minimums, the Sinter Plant Supervisor will submit the appropriate work order for repairs. The corrective actions will be noted on an inspection report, and Environmental Department will be notified.

These minimum ventilation rates/fan amperages will not apply when systems are not being operated, during start-up or shutdown of the ventilation systems, during baghouse cleaning or repair, during cellar cleaning, during maintenance, or other conditions nonrepresentative of normal operating conditions. If any of these conditions apply, they will be noted on the inspection report.

If for any reason the minimum ventilation rates cannot be met, the ventilation systems will be inspected. Based on this inspection the next course of action will be chosen. This could include one of the following options: 1) reduce process rates as much as possible to minimize emissions, 2) provide alternate ventilation, or 3) begin complete cessation of the associated process.

Copies of all ventilation inspections will be sent to MDNR on a quarterly basis.

"*" - Under the supervision of MDNR (post construction), Method 2 tests will be conducted (40 CFR pt. 60 Appendix A) to measure actual process gas flowrate while varying sinter process gas baghouse fan amperage. A relationship of fan amperage to actual flowrate will be developed.

The total ventilation of the Sinter Building will be designed to meet a 200 foot per minute nominal face velocity. Fan amperage will be continuously recorded. A minimum fan amperage (corresponding to the 100,000 acfm design criteria) will be added to the above table.

In addition to the continuous recording of fan amperage, quarterly measurements will be made to ensure that equipment efficiencies remain the same, and that the design 200 foot per minute face velocity is maintained. If these quarterly tests indicate that the original relationship of process gas flowrate to fan amperage is no longer correct, new Method 2 testing will be conducted to establish a new fan amperage to process gas flowrate relationship.

Supplement C

Road Vacuum Sweeper

Operation and Maintenance Procedures

This information will be added when the Road Sweeper is selected and purchased. A final decision in this area has not been made.

Supplement D

Quarterly Baghouse Inspections

Quarterly Baghouse Inspections

Procedure for Visolite® Baghouse Leak Detection Testing

Ventilation Baghouse:

1. Visolite® testing is normally done on sinter plant down days each quarter or when leaks are suspected that cannot be found by visual inspection.

2. The baghouse fan is operating, the air impulse (bag cleaning) system is off.

3. Visolite® in the appropriate amount is introduced into the inlet manifold to each module through the 2-inch nipple provided.

4. After 1.5 minutes the top (inlet) damper to the module is closed.

5. The cell is checked with the ultraviolet light and all leaks repaired.

6. The test is repeated through all five modules.

Sinter Machine Baghouse:

1. Visolite® testing is normally done on sinter plant down days each quarter or when leaks are suspected that cannot be found by visual inspection.

2. The Visolite® inspection is a duplication of the above for the six modules in the baghouse.

ASARCO Design Baghouse - Sinter Building Ventilation:

1 Visolite® testing is normally done on sinter plant down days each quarter or when leaks are suspected that cannot be found by visual inspection.

2. The main baghouse fan is operating.

3. The shaking system is turned off.

4. 1,2,3 cellar dampers are open.

5. 4,5,6,7,8,9 cellar dampers are closed.

6. The appropriate amount of Visolite® is dumped into provided port on the inlet side of the baghouse fan.

7. The fan is operated for 1.5 minutes.

8. Shut off fan.

9. Check for leaks in the first three cellars with the ultraviolet light (UV).

10. Repair any leaks found.

11. Repeat this procedure in groups of three cellars.

EXHIBIT C

Map Showing Area of Soil Stabilization Around Current Concentrate Unloading Area

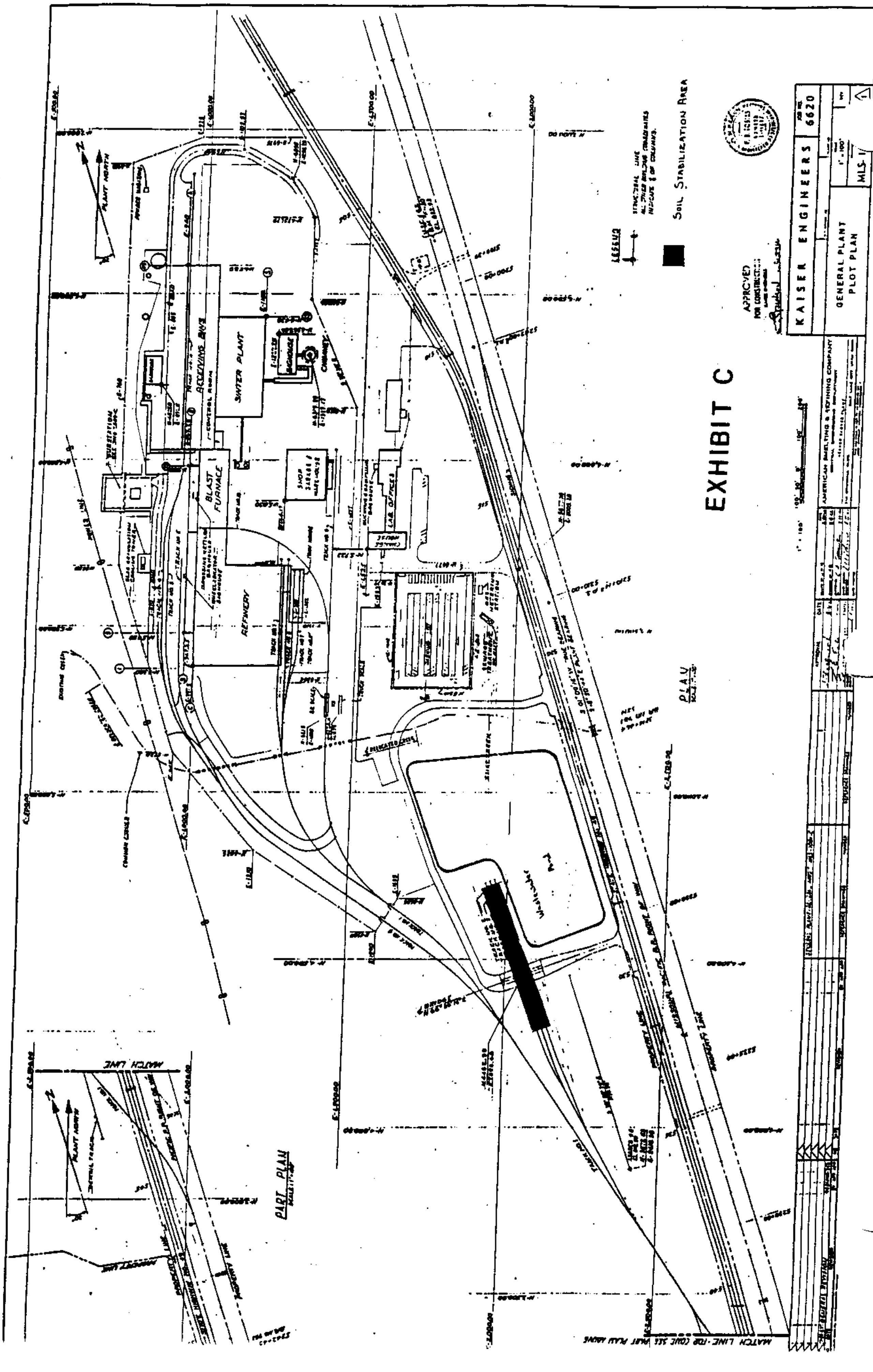
EXHIBIT C
KAISER ENGINEERS
GENERAL PLANT PLOT PLAN
6620
AMERICAN SMELTING & REFINING COMPANY
APPROVED FOR CONSTRUCTION
LEGEND
SOIL STABILIZATION AREA
SINTER PLANT
BLAST FURNACE
REFINERY
LAB. OFFICES
SHOP
Wastewater Pond
PLAN
PART PLAN
MATCH LINE
PLANT NORTH
PROPERTY LINE

EXHIBIT D

Map Showing Road Paving Project and Unloading Building Access

Exhibit D Asarco Glover

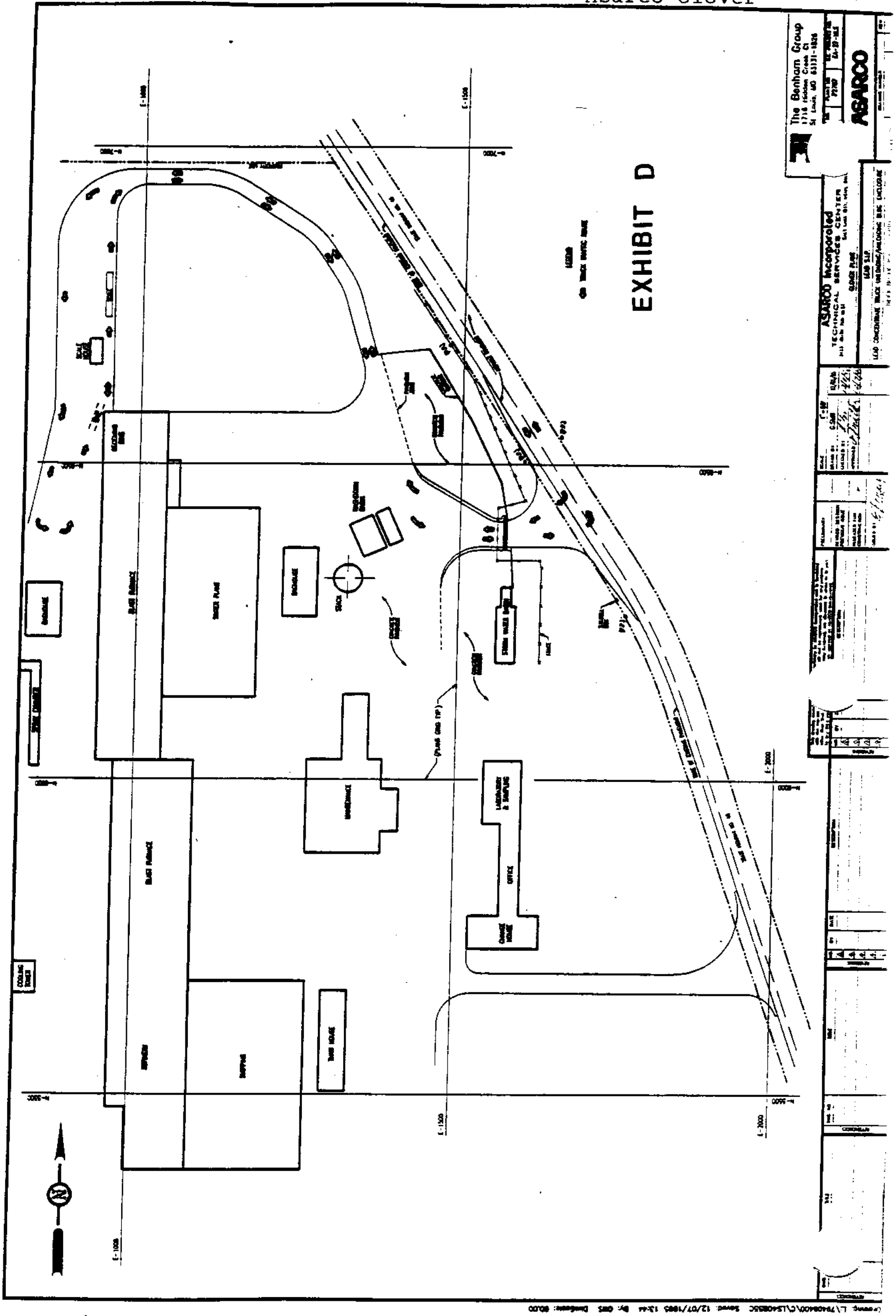

EXHIBIT E

Map Showing Road Sprinkler and Sweeper Coverage Areas

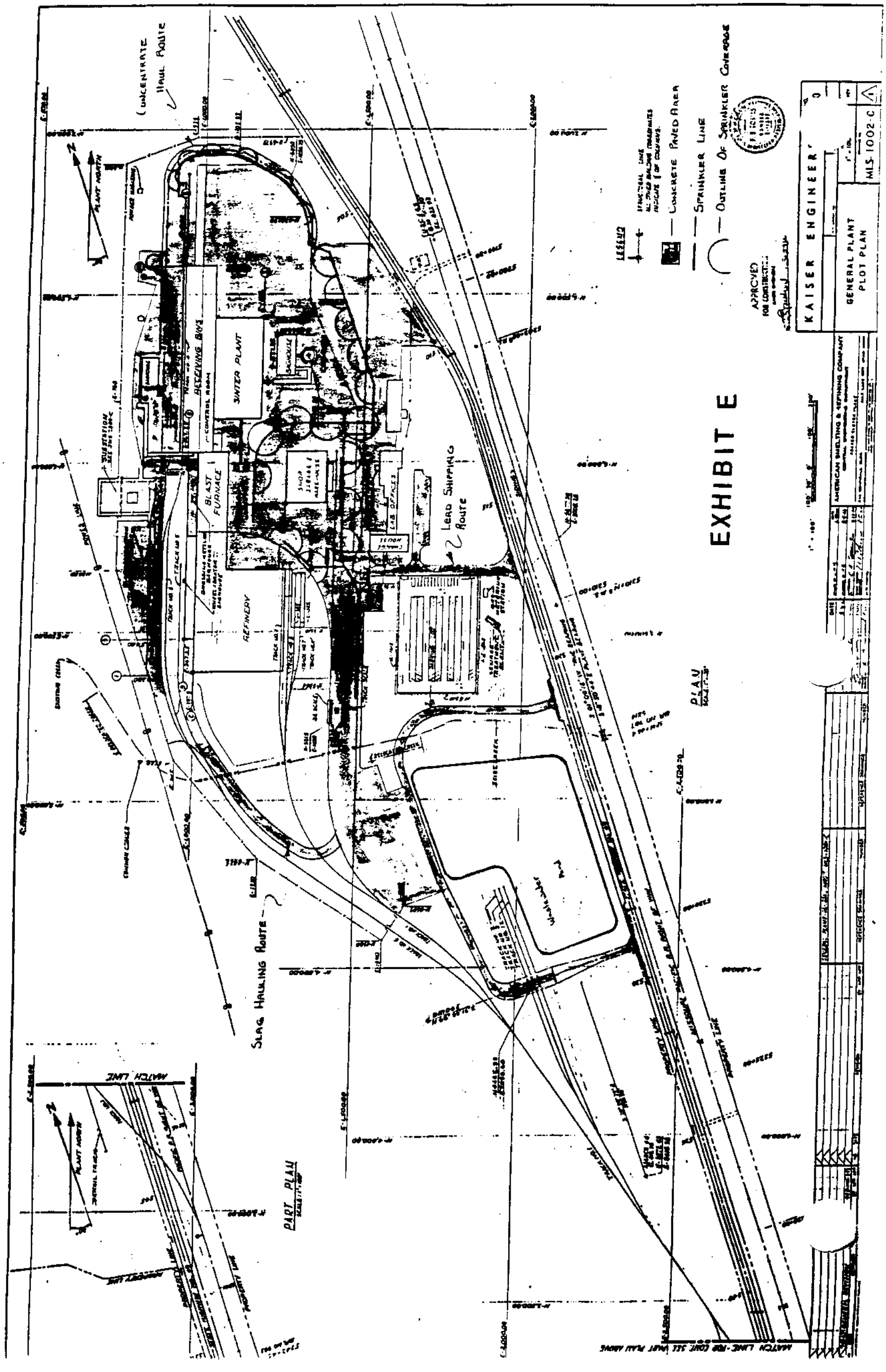
EXHIBIT E
KAISER ENGINEERS
GENERAL PLANT PLOT PLAN
AMERICAN SMELTING & REFINING COMPANY
MLS-1002-C
LEGEND
Concrete Paved Area
Sprinkler Line
Outline Of Sprinkler Coverage
APPROVED FOR CONSTRUCTION
Concentrate Haul Route
PLANT NORTH
RECEIVING BINS
SINTER PLANT
CONTROL ROOM
SUBSTATION
BLAST FURNACE
SHOP
LAB OFFICES
Lead Shipping Route
REFINERY
Slag Hauling Route
PLAN
PART PLAN
MATCH LINE
PROPERTY LINE

EXHIBIT F

Map Showing ASARCO Fence Line

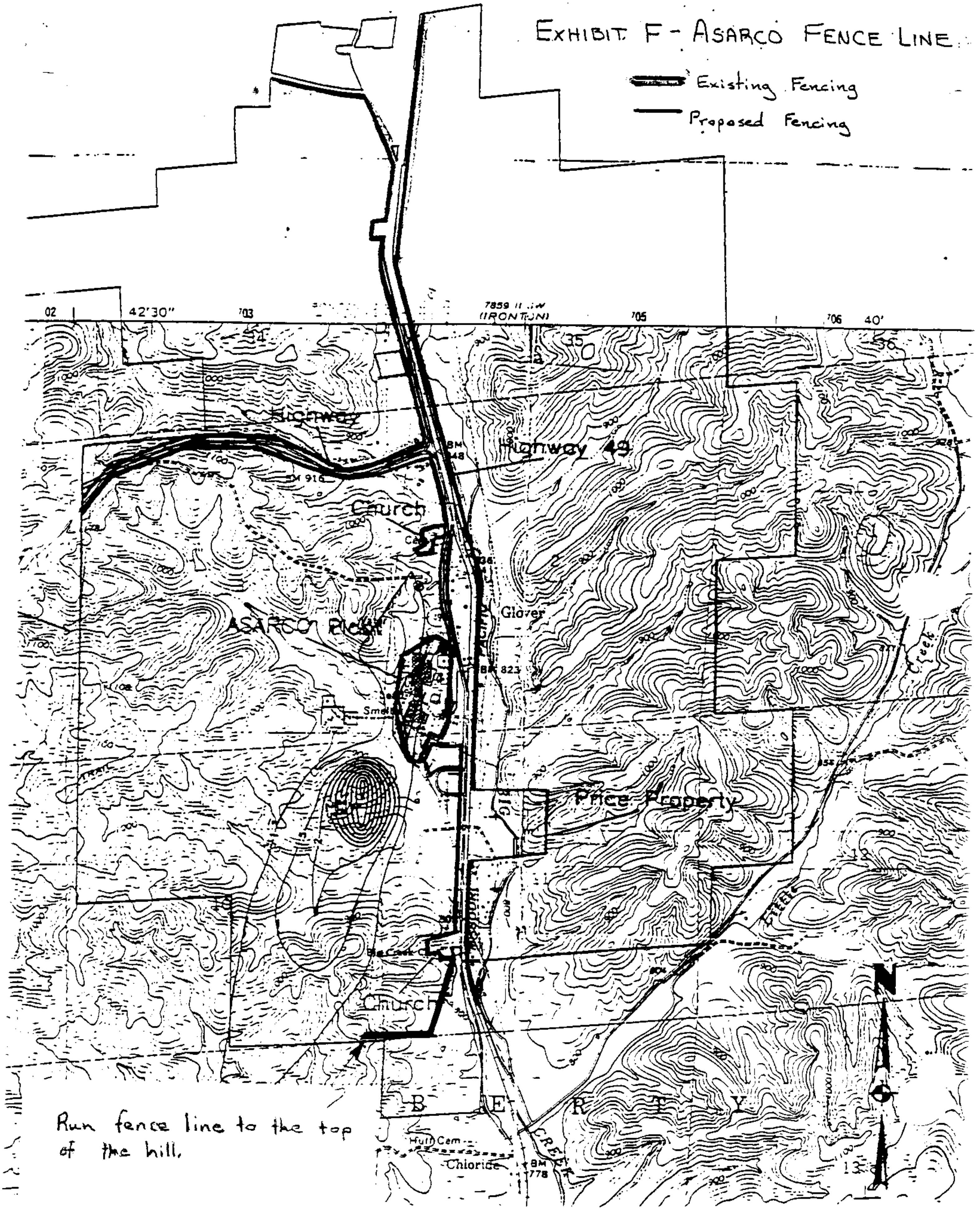
EXHIBIT F - ASARCO FENCE LINE
Existing Fencing
Proposed Fencing
42'30"
703
7859 II SW (IRONTON)
705
706
40'
35
36
Highway
Highway 49
BM 916
Church
ASARCO Plant
Glover
BM 823
Smelter
Price Property
Church
B E R T Y
CREEK
Hull Cem
Chloride
BM 778
Run fence line to the top of the hill.

Exhibit G

Test Methods 203, 203-A, and 203-B

METHOD 203. DETERMINATION OF THE OPACITY OF EMISSIONS FROM STATIONARY SOURCES BY CONTINUOUS OPACITY MONITORING SYSTEMS

1. APPLICABILITY AND PRINCIPLE

1.1 Applicability. This method applies to the measurement of the opacity of emissions from stationary sources by continuous opacity monitoring systems (COMS), in order to determine compliance with an emissions standard. The method is not applicable where water droplets are present in the effluent being measured.

1.2 Principle. The opacity of emissions from a stationary source is continuously measured and recorded using a COMS that meets all the requirements of Performance Specification 1 (PS 1) of 40 CFR Part 60, Appendix B. Minimum quality control (QC) and quality assurance (QA) requirements are specified to assess the quality of COMS performance. Daily zero and span checks, quarterly performance audits, and annual zero alignment checks are required in order to assure the proper functioning of the COMS and the accuracy of the COMS data.

Because control and corrective action encompasses a variety of policies, specifications, standards, and corrective measures, this method treats QC requirements in general terms to allow the development of a QC system that is most effective and efficient for the circumstances.

2. DEFINITIONS

2.1 Continuous Opacity Monitoring System (COMS). The total equipment required for the determination of the opacity of emissions which meets the minimum requirements of Performance Specification 1 of 40 CFR Part 60.

2.2 Simulated Zero Check. Method or device used to provide a simulated zero opacity (or low-level value between zero and 20 percent of the applicable opacity standard). Where a standard of less than 10 percent opacity has been specified, a surrogate opacity standard of 10 percent shall be used for determining this value.

2.3 Out-of-Control Periods.

2.3.1 Daily Assessments. Whenever the calibration drift (CD) exceeds twice the specification of PS-1, the COMS is out-of-control. The beginning of the out-of-control period is the time corresponding to the last successful drift-check. The end of the out-of-control period is the time corresponding to the completion of appropriate adjustment and subsequent successful CD assessment.

2.3.2 Quarterly and Annual Assessment. Whenever a quarterly performance audit or annual zero alignment audit indicates unacceptable results, the COMS is "out-of-control." The beginning of the out-of-control period is the time corresponding to the completion of the performance audit indicating and unacceptable performance. The end of the out-of-control period is the time corresponding to the completion of appropriate corrective actions and subsequent successful audit (or, if applicable, partial audit).

2.4 Upscale Opacity Condition. Method or device used to provide a simulated upscale opacity (50 to 100 percent of the opacity standard).

2.5 External Zeroing Device (Zero-Jig). An external, removable device for simulating or checking the cross-stack zero alignment of the COMS.

3. COMS INSTALLATION, DESIGN, AND PERFORMANCE SPECIFICATIONS

In addition to the installation, design, and performance requirements of PS 1, the following are added:

3.1 External Calibration Filter Access. The COMS must be designed to allow for the evaluation of both the linearity and accuracy relative to a simulated zero value and provide a check of all system components. An adequate design would accommodate a calibration filter assembly and permit periodic use of external (i.e., not intrinsic to the instrument) neutral density filters.

3.2 Data Reduction/Recording. The COMS shall be designed to allow for the data reduction, recording, and reporting in accordance with the applicable opacity standards. Monitors that automatically adjust the data to the corrected calibration value must be capable of recording the amount of adjustment that is applied to the exhaust gas stream measurement. Data recorded during periods of COMS breakdowns, repairs, calibration checks, and adjustments shall not be used in the data averages of Section 3.4.

3.3 Zero and Upscale Calibration Evaluations. All COMS installed pursuant to these procedures shall include a method for producing a simulated zero opacity condition and an upscale opacity condition using a certified neutral density filter to produce an known obscuration of light. Such procedures shall provide a system check of the analyzer internal optical surfaces and all active electronic circuitry including the lamp and photodetector assembly used in the measurement mode.

3.4 Data Averages. All COMS installed pursuant to these requirements shall complete a minimum of one cycle of sampling and analyzing for each successive 10-second period and one cycle of data recording for each specified data average, e.g., 6-minute average. An arithmetic or integrated average of all data should be used.

4. OPACITY MEASUREMENT.

4.1 The opacity of emissions shall be continuously measured and recorded in units of percent opacity, and shall be expressed in the averaging period specified in the applicable regulation.

4.2 The COMS shall be operated, maintained and calibrated to meet these requirements in accordance with the instructions provided by the instrument manufacturer.

4.3 Except for COMS breakdowns, repairs, calibration checks, zero and span checks and other quality-assurance activities, the COMS shall be in continuous operation during all periods of source operation.

4.4 A data average shall be considered valid if no less than 83 percent of the opacity readings upon which the data average is based are obtained.

4.5 Any and all valid data averages may be used to determine compliance with the applicable opacity standard. Data obtained during "out-of-control" periods shall not be used for compliance determination; however, the data can be used for identifying periods of failure to meet quality assurance and control criteria.

5. QUALITY CONTROL (QC) REQUIREMENTS

5.1 Calibration Drift (CD) Assessment. The COMS shall be checked, at least once daily and the CD quantified and recorded at the zero (or low-level) and upscale-level opacity. The COMS shall be adjusted whenever the CD exceeds the specification of PS-1, and the COMS shall be declared "out-of-control" when the CD exceeds twice the specification of PS-1. Corrective actions, followed by a validating CD check are required when the COMS is out-of-control.

5.2 Fault indicators Assessment. At least daily, the fault lamp indicators, data acquisition system error messages, and other system self diagnostic indicators shall be checked. The appropriate corrective actions should be taken when the COMS is operating outside preset limits. All COMS data recorded during periods in which fault indicators are illuminated shall be considered invalid.

5.3 Performance audits. Checks of the individual COMS components and factors affecting the accuracy of the monitoring data, as described below, shall be conducted on a quarterly basis. Examples of detailed audit procedures may be found in Reference 1, "Performance Audit Procedures for Opacity Monitors", and Reference 2, "CEMS Pilot Project: Evaluation of CEMS Reliability and QA

Procedures Volume 1". The following identify the absolute minimum checks that shall be included in the performance audit:

5.3.1 Optical Alignment Assessment. The status of the optical alignment of the monitor components shall be checked and recorded according to the procedures specified by the monitor manufacturer. Realign as necessary.

5.3.2 Optical Surface Dust Accumulation Assessment. The apparent effluent opacity shall be compared and recorded before and after cleaning of each of the exposed optical surfaces. The total optical surface dust accumulation shall be determined by summing the apparent reductions in opacity for all of the optical surfaces that are cleaned. Caution should be employed in performing this check since fluctuations in effluent opacity occurring during the cleaning cycle may adversely affect the results.

5.3.3 Zero and Upscale Response Assessment. The zero and upscale response errors shall be determined and recorded according to the CD procedures. The error is defined as the difference (in % opacity) between the correct value and the observed value for the zero and high-level calibration checks.

5.3.4 Zero Compensation Assessment. The value of the zero compensation applied at the time of the audit shall be calculated as equivalent opacity, corrected to stack exit conditions as necessary, according to the procedures specified by the manufacturer. Record the compensation applied to the effluent recorded by the monitor system.

5.3.5 Stack Exit Correlation Error Assessment. The optical pathlength correction ratio (OPLR) shall be computed form the monitor pathlength and stack exit diameter and shall be compared, and the difference recorded, to the monitor setup value. The stack exit correlation error shall be determined as the absolute value of the difference between the measured value and the correct value, expressed as a percentage of the correct value.

5.3.6 Calibration Error Assessment. A three-point calibration error test of the COMS shall be conducted. For either calibration error test methods below, three neutral density filters meeting the requirements of PS-1, shall be placed in the COMS light beam path five consecutive times and the monitor responses shall be independently recorded from the permanent COMS data recorder. Additional guidance for conducting this test is included in Section 7.0 of PS-1. The low-, mid-, and high-range calibration error results shall be computed as the mean difference and 95 percent confidence interval for the difference between the expected and actual responses of the monitor as corrected to stack exit conditions. These values shall be calculated using the procedures of Section 8.0 of PS-1.

5.3.6.1 Primary Calibration Error Method. The calibration error test requires the installation of an external calibration audit device (zero-jig). The zero-jig shall be adjusted to provide the same zero response as the monitor's simulated zero.

5.3.6.2 Alternative Calibration Error Method. Conduct an incremental calibration test by superimposing the neutral density filters over the effluent opacity and comparing the COMS responses to the expected value calculated from the filter and opacity values immediately preceding the superimposing. Record both the stack effluent opacity and the calibration filter value prior to each test. This method is sensitive to fluctuations in the effluent opacity during the test.

5.3.6.3 Attenuators. Use calibration attenuators (i.e. neutral density filters) with values that have been determined according to Section 7.1.3 "Attenuator Calibration" of PS 1, Appendix B, 40 CFR Part 60, and produce simulated opacities (corrected to stack exit conditions as necsesary) in the ranges listed in Table 1 below. For emission standards of 10 percent (or less) opacity, attenuator selection may be based on a 10 percent opacity standard.

5.3.6.2. Attenuator Stability. The stability of the attenuator values should be checked at least once per year according to the procedures specified in PS-1. The attenuators shall be recalibrated if the stability checks indicate a change of two percent opacity or greater.

TABLE 1 - FILTER RANGES FOR COMS PERFORMANCE AUDITS

Audit Point	-- Audit Filter Range (% Op)
1	20 - 60 Percent of the Emission Limit (low)
2	80 - 120 Percent of the Emission Limit (mid)
3	150 - 200 Percent of the Emission Limit (high)

5.4 Zero alignment Assessment. Compare the COMSs simulated zero to the actual clear path zero of the installation annually. The audit may be conducted in conjunction with, but prior to, a performance audit.

5.4.1 Primary Zero Alignment Method. The primary zero alignment shall be performed under clear path conditions. This may be accomplished if the process is not operating and the monitor pathlength is free of particulate matter or the monitor may be removed from its installation and set up under clear path conditions. The absence of particulate matter shall be demonstrated prior to conducting the test at the installed site. No adjustment to the monitor is allowed other than the establishment of the proper monitor pathlength and correct optical alignment of the monitor components. Record the monitor response to a clear path condition and to the monitor's simulated zero condition as percent opacity corrected to stack exit conditions as necessary. For monitors with automatic zero compensation, disconnect or disable the zero compensation mechanism or record the amount of correction applied to the monitor's simulated zero condition. The response difference in percent opacity to the clear path and simulated zero conditions shall be recorded as the zero alignment error. Adjust the monitor's simulated zero device to provide the same response as the clear path condition. Restore the COMS to its operating mode.

5.4.2 Alternate Zero Alignment Method. Monitors capable of allowing the installation of an external, removable zero-jig, may use the equipment for an alternative zero alignment provided that the zero-jig setting is established for the monitor pathlength and recorded for the specific COMS by comparison of the COMS responses to the installed zero-jig and to the clear path condition; the zero-jig is demonstrated to be capable of producing a consistent zero response when it is repeatedly (i.e., three consecutive installations and removals prior to conducting the final zero alignment check) installed on the COMS. The zero-jig setting shall be permanently set at the time of the initial COMS zeroing to the clear path zero value and protected when not in use to ensure that the setting equivalent to zero opacity does not change. The zero-jig setting shall be checked and recorded prior to initiating the zero alignment. Source owners and operators that employ a zero-jig shall perform a primary zero alignment audit once every 3 years.

5.5 Monitor Acceptance Criteria.

5.5.1 Performance Assessment. The following criteria are to be used for determining acceptable performance of and out-of-control periods for the COMS:

TABLE 2 - PERFORMANCE AUDIT CRITERIA

Stack Exit Correlation Error:	≤ 2 percent	
Fault Indicators:	Inactive - no error messages	
Zero and Upscale Responses:	≤ 2 percent opacity	Zero Compe nsati

	on: ≤ 4 percent opacity
Optical Alignment:	Misalignment error ≤ 2 percent opacity
Optical Surface Dust Accumulation:	≤ 4 percent opacity
Calibration Error:	≤ 2 percent opacity
Zero Alignment	≤ 5 percent opacity for one check ≤ 2 percent opacity for three consecutive checks
Valid Data Average Capture	≥ 95 percent of source operating time

5.5.2 Zero Alignment. The zero alignment is acceptable if the error at the simulated zero check is less than 2 percent opacity prior to adjustment. The simulated zero check shall be adjusted to provide the correct response each time the zero alignment check is performed.

5.5.3 Unacceptable Results - Single Performance Assessment. The COMS is out-of-control whenever the results of a quarterly performance audit indicate non-compliance with any of the performance assessment criteria of TABLE 2 of §5.5.1 above. If the COMS is out-of-control, take necessary corrective action to eliminate the problem. Following corrective action, the source owner or operator must re-conduct the appropriate failed portion of the audit and other applicable portions to determine whether the COMS is operating properly and within specifications. The COMS owner or operator shall record both audit results showing the COMS to be out-of-control and the results following corrective action.

COMS data obtained during any out-of-control period are may not be used for compliance determination or to meet the data capture requirement of §5.5.6, hoever the data can be used for identifying periods where there has been a failure to meet quality assurance and control criteria.

5.5.4 Unacceptable Results - Multiple Performance Assessments. Repeated audit failures (i.e., out-of-control conditions resulting from the quarterly audits) indicate that the QC procedures are inadequate or the COMS is incapable of providing quality data. The source owner or operator shall increase the frequency of the above QC procedures until the performance criteria is maintained or modify or repalce the COMS whenever two consecutive quarters of unacceptable performance occurs.

5.5.5 Unacceptable Zero Alignment. If the error of the simulated zero check prior to adjustment exceeds 5 percent opacity for any zero check, or exceeds the 2 percent opacity acceptance criterion for three consecutive checks, the performance of the COMS is unacceptable. The source owner or operator shall take corrective action to resolve the problem and improve the stability of the simulated zero check method or device or replace the COMS. If the COMS is not replaced, zero alignment audits shall be conducted at least biannually during non-consecutive quarters.

5.5.6 Unacceptable Results- Insufficient Data Capture. Compliance with the 95 percent data capture requirement shall be determined by considering COMS downtime for all causes (e.g., monitor malfunctions, data system failures, preventive maintenance, unknown causes, etc.) except for downtime associated with routine zero and span checks and QA/QC activities required by this method. Failure of a COMS to obtain valid opacity data for at least 95 percent of the source operating time during any reporting period (e.g., day, month, quarter, semiannual period, etc.) indicates that the QC/QA procedures are not sufficient or that the COMS is not capable of continuously providing quality data. Whenever less than 95 percent valid data are obtained for a reporting period, the source owner or operator shall either: (1) perform such additional QC/QA activities as deemed necessary to assure acceptable data capture; or (2) modify or replace the COMS. Additional QC/QA procedures include, but are not limited to,: implementation or revision of a QC program; maintenance of a spare-parts inventory; conducting more frequent system performance audits.

6. CALCULATIONS FOR COMS ASSESSMENTS.

6.1 Performance Audit Calculations. The calculations contained in Section 8 of PS-1 shall be followed.

6.2 Zero Alignment Checks. The procedures contained in Reference 1, Section 10, Zero Alignment Checks, shall be followed.

7. REPORTING REQUIREMENTS.

At the reporting frequency and in the format specified in the applicable regulation, report on a quarterly basis the performance and accuracy results from Section 5.0. The quarterly performance and accuracy report must contain the drift and audit result information as a Data Assessment Report (DAR), see example format Figure 1. A copy of the quarterly DAR should be included as a separate report with the periodic reports of emissions required under applicable regulatory requirements. As a minimum, the DAR must contain the following information:

1. Source owner and operator name and address.

2. Identification (by serial number) and location of the monitors in the COMS.

3. Manufacturer and model of each monitor in the COMS.

4. Results of COMS performance and date of assessment as determined by performance audit or zero alignment audit, including performance audit results for each of the tests described in Sections 5.3 and 5.4, the calculation of these results, as well as the zero error and its calculation. If the performance audit results show the COMS to be out-of-control, the COMS owner or operator shall report both the audit results showing the COMS to be out-of-control and the results of the audit following corrective action showing the COMS to be operating within specification.

5. Summary of all corrective actions taken when COMS was determined to be out-of-control, as described in Sections 5.5.

<u>8. Bibliography</u>

8.1 " CEMS Pilot Project: Evaluation of CEMS Reliability and QA Procedures Volume 1", EPA - 340/1-86-009a, May 1986, U.S.EPA, Office of Air Quality Planning and Standards, Washington, D.C. 20460

8.2 "Performance Audit Procedures For Opacity Monitors", EPA-450/4-92-010, April 1992, U.S. EPA, Office of Air Quality Planning and Standards, Research Triangle Park, NC 27711

8.3 Specification and Test Procedures for Opacity Continuous Emission Monitoring Systems in Stationary Sources, Performance Specification 1, 40 C.F.R. Part 60, Appendix B.

8.4 Procedure 1. Quality Assurance Requirements for Gas Continuous Emission Monitoring Systems Used for Compliance Determination, 40 C.F.R. Part 60, Appendix F.

Figure 1. EXAMPLE FORMAT FOR COMS DATA ASSESSMENT REPORT

Period ending date:________________Year:________________
Company Name: ____
Plant Name: ______________________________ Unit No.______
COMS Manufacturer:____________________________ Model:_____
COMS Serial No.(s): ____________________________________

I. Performance Audit
1. Stack Exit Correlation Error
a. Actual pathlength correction factor __________

b. Correct pathlength correction factor __________

c. Stack exit Correlation Error ________________

2. Active Fault Indicators; error messages present:____

____

3. Zero and Upscale Calibration Check Responses

	Correct Value	Response	Difference
Zero	____________	______________	____________
Upscale	____________	______________	____________

4. Zero Compensation Value (percent opacity): ________

5. Optical Alignment Status: _________________________

6. Dust Accumulation on Optical Surfaces

	Initial Opacity	Final Opacity	Difference
Window 1	________________	______________	__________
Window 2	________________	______________	__________
		Total	__________

7. Calibration Error
a. Filter Values (equivalent opacity)
Low: ___________ Mid: ___________ High: ___________

b. Test Results

	Low	Mid	High
1.			
2.			
3.			
4.			
5.			

c. Calibration Error

Low: ____________ Mid: ____________ High: ____________

8. Corrective Action for Unacceptable Performance
Out-of-control periods:
Date(s)and Time(s): ______________________
Number of hours: ______________________
Corrective action taken: ______________________
Results of audit (or partial audit) following corrective action. (Use format,as applicable, as shown in I-8 above)

II. Zero Alignment Audit
1. Clear Path Zero Response: ____________ percent opacity
2. Simulated Zero Response: ____________ percent opacity
3. Zero Alignment Error: ____________ percent opacity
4. Zero Error of Previous Two(2) Assessments: ____________

____

III. Calibration Drift Assessment
Out-of-control periods:
Date(s): ______________________
Number of days: ______________________

Corrective action taken: ______________________

Results of CD after corrective action. (Use format above)

IV. Data Capture Assessment
1. Source operating hours: ____________
2. Total hours of valid COMS data: ____________
(During source operating hours, <u>including</u> valid data obtained during routine calibration checks and QA/QC activities required by this method.)

3. Percent data capture: ____________

V. Calculations (Include on a separate page.)

Method 203A--Visual Determination of Opacity of Emissions from Stationary Sources for Time-Averaged Regulations

Method 203A is virtually identical to EPA's Method 9 except for the data-reduction procedures, which provide for averaging times other than 6 minutes. That is, using Method 203A with a 6-minute averaging time would be the same as following EPA Method 9. Additionally, Method 203A provides procedures for fugitive dust applications. The certification procedures provided in section 3 are virtually identical to Method 9 and are provided here, in full, for clarity and convenience. A sample visible emission observation form and instructions for its use are appended to this method.

1. APPLICABILITY AND PRINCIPLE

1.1 Applicability. This method is applicable for the determination of the opacity of emissions from sources of visible emissions for time-averaged regulations. A time-averaged regulation is any regulation that requires averaging visible emission data to determine the opacity of visible emissions over a specific time period.

1.2 Principle. The opacity of emissions from sources of visible emissions is determined visually by an observer qualified according to the procedures of section 3.

2. Procedures

An observer qualified in accordance with section 3 of this method shall use the following procedures for visually determining the opacity of emissions.

2.1 Procedures for Emissions from Stationary Sources. These procedures are applicable for visually determining the opacity of stack emissions by a qualified observer. The qualified observer should do the following:

2.1.1 Position. Stand at a distance sufficient to provide a clear view of the emissions with the sun oriented in the 140-degree sector to the observer's back. Consistent with maintaining the above requirement as much as possible, make opacity observations from a position such that the line of vision is approximately perpendicular to the plume direction, and when observing opacity of emissions from rectangular outlets (e.g., roof monitors, open baghouses, noncircular stacks), approximately perpendicular to the longer axis of the outlet. Do not include more than one plume in the line of sight at a time when multiple plumes are involved and, in any case, make opacity observations with the line of sight perpendicular to the longer axis of such a set of multiple stacks (e.g., stub stacks on baghouses).

2.1.2 Field Records. Record the name of the plant, emission location, type of facility, observer's name and affiliation, a sketch of the observer's position relative to the source, and the date on a field data sheet. A sample visible emission observation form is included in appendix 1 of Method 203A. Record the time, estimated distance to the emission location, approximate wind direction, estimated wind speed, description of the sky condition (presence and color of clouds), and plume background on the field data sheet at the time opacity readings are initiated and completed.

2.1.3 Observations. Make opacity observations at the point of greatest opacity in that portion of the plume where condensed water vapor is not present.

Do not look continuously at the plume but, instead, observe the plume momentarily at 15-second intervals.

2.1.3.1 Attached Steam Plumes. When condensed water vapor is present within the plume as it emerges from the emission outlet, make opacity observations beyond the point in the plume at which condensed water vapor is no longer visible. Record the approximate distance from the emission outlet to the point in the plume at which the observations are made.

2.1.3.2 Detached Steam Plumes. When water vapor in the plume condenses and becomes visible at a distinct distance from the emission outlet, evaluate the opacity of emissions at the emission outlet prior to the condensation of water vapor and the formation of the steam plume.

2.2 Procedures for Fugitive Process Dust Emissions. These procedures are applicable for the determination of the opacity of fugitive emissions by a qualified observer. The qualified observer should do the following:

2.2.1 Position. Stand at a position at least 5 meters from the fugitive source in order to provide a clear view of the emissions with the sun oriented in the 140-degree sector to the back. Consistent as much as possible with maintaining the above requirements, make opacity observations from a position such that the line of vision is approximately perpendicular to the plume and wind direction. As much as possible, if multiple plumes are involved, do not include more than one plume in the line of sight at one time.

2.2.2 Field Records. Record the name of the plant or site, fugitive source location, source type [pile, stack industrial process unit, incinerator, open burning operation, activity, material handling (transfer, loading, sorting, etc.)], method of control used, if any, observer's name, certification date and affiliation, a sketch of the observer's position relative to the fugitive source, and date on a field data sheet, such as the sample visible emission observation form included in appendix 1. Also, record the time, estimated distance to the fugitive source location, approximate wind direction, estimated wind speed, description of the sky condition (presence and color of clouds), observer's position relative to the fugitive source, and color of the plume and type of background on the visible emission observation form when opacity readings are initiated and completed. For roads, storage piles, parking lots, record a description of the surface conditions (presence of moisture).

2.2.3 Observations. Make opacity observations, to the extent possible, using a contrasting background that is perpendicular to the line of vision. For roads, storage piles, and parking lots, make opacity observations approximately 1 meter above the surface from which the plume is generated. For other fugitive sources, make opacity observations at the point of greatest opacity in that portion of the plume where condensed water vapor is not present. For intermittent sources, the initial observation should begin immediately after a plume has been created above the surface involved. Do not look continuously at the plume but, instead, observe the plume momentarily at 15-second intervals.

2.3 Recording Observations. Record the opacity observations to the nearest 5 percent every 15 seconds on an observational record sheet such as the visible emission observation form included in appendix 1. Each momentary observation recorded represents the average opacity of emissions for a 15-second period. The overall length of time for which observations are recorded shall be appropriate to the averaging time specified in the State regulation.

2.4 Data Reduction for Time-Averaged Regulations. A set of observations is composed of an appropriate number of consecutive observations determined by the averaging time specified. Divide the recorded observations into sets of appropriate time lengths for the specified averaging time. Sets must consist of consecutive observations; however, observations immediately preceding and following interrupted observations shall be deemed consecutive. Sets need not be consecutive in time and in no case shall two sets overlap, resulting in multiple violations. For each set of observations, calculate the appropriate average opacity.

3. <u>Qualification and Testing</u>

3.1 Certification Requirements. To receive certification as a qualified observer, a candidate must be tested and demonstrate the ability to assign opacity readings in 5 percent increments to 25 different black plumes and 25 different white plumes, with an error not to exceed 15 percent opacity on any one reading and an average error not to exceed 7.5 percent opacity in each category. Candidates shall be tested according to the procedures described in paragraph 3.2. Any smoke generator used pursuant to paragraph 3.2 shall be equipped with a smoke meter which meets the requirements of paragraph 3.3. Certification tests that do not meet the requirements of paragraphs 3.2 and 3.3 are not valid.

The certification shall be valid for a period of 6 months, and after each 6-month period, the qualification procedures must be repeated by an observer in order to retain certification.

3.2 Certification Procedure. The certification test consists of showing the candidate a complete run of 50 plumes, 25 black plumes and 25 white plumes, generated by a smoke generator. Plumes shall be presented in random order within each set of 25 black and 25 white plumes. The candidate assigns an opacity value to each plume and records the observation on a suitable form. At the completion of each run of 50 readings, the score of the candidate is determined. If a candidate fails to qualify, the complete run of 50 readings must be repeated in any retest. The smoke test may be administered as part of a smoke school or training program, and may be preceded by training or familiarization runs of the smoke generator during which candidates are shown black and white plumes of known opacity.

3.3 Smoke Generator Specifications. Any smoke generator used for the purpose of paragraph 3.2 shall be equipped with a smoke meter installed to measure opacity across the diameter of the smoke generator stack. The smoke meter output shall display in-stack opacity, based upon a path length equal to the stack exit diameter on a full 0 to 100 percent chart recorder scale. The smoke meter optical design and performance shall meet the specifications shown in Table 1. The smoke meter shall be calibrated as prescribed in paragraph 3.3.1 prior to conducting each smoke reading test. At the completion of each test, the zero and span drift, shall be checked, and if the drift exceeds ±1 percent opacity, the condition shall be corrected prior to conducting any subsequent test runs. The smoke meter shall be demonstrated at the time of installation to meet the specifications listed in Table 1. This demonstration shall be repeated following any subsequent repair or replacement of the photocell or associated electronic circuitry including the chart recorder or output meter, or every 6 months, whichever occurs first.

3.3.1 Calibration. The smoke meter is calibrated after allowing a minimum of 30 minutes warm-up by alternately producing simulated opacity of 0 percent and 100 percent. When stable response at 0 percent or 100 percent is noted, the smoke meter is adjusted to produce an output of 0 percent or 100 percent, as appropriate. This calibration shall be repeated until stable 0 percent and 100 percent readings are produced without adjustment. Simulated 0 percent and 100 percent opacity values may be produced by alternately switching the power to the light source on and off while the smoke generator is not producing smoke.

3.3.2 Smoke Meter Evaluation. The smoke meter design and performance are to be evaluated as follows:

3.3.2.1 Light Source. Verify from manufacturer's data and from voltage measurements made at the lamp, as installed, that the lamp is operated within ±5 percent of the nominal rated voltage.

3.3.2.2 Spectral Response of Photocell. Verify from manufacturer's data that the photocell has a photopic response; i.e., the spectral sensitivity of the cell shall closely approximate the standard spectral-luminosity curve for photopic vision which is referenced in (b) of Table 1.

3.3.2.3 Angle of View. Check construction geometry to ensure that the total angle of view of the smoke plume, as
seen by the photocell, does not exceed 15 degrees. Calculate the total angle of view as follows:

$$\Phi_V = 2 \tan^{-1} d/2L,$$

where:

Φ_V = total angle of view;

d = the photocell diameter + the diameter of the limiting aperture; and

L = distance from the photocell to the limiting aperture.

The limiting aperture is the point in the path between the photocell and the smoke plume where the angle of view is most restricted. In smoke generator smoke meters, this is normally an orifice plate.

3.3.2.4 Angle of Projection. Check construction geometry to ensure that the total angle of projection of the lamp on the smoke plume does not exceed 15 degrees. Calculate the total angle of projection as follows:

$$\Phi_p = 2 \tan^{-1} d/2L$$

where:

Φ_p = total angle of projection;

d = the sum of the length of the lamp filament + the diameter of the limiting aperture; and

L = the distance from the lamp to the limiting aperture.

3.3.2.5 Calibration Error. Using neutral-density filters of known opacity, check the error between the actual response and the theoretical linear response of the smoke meter. This check is accomplished by first calibrating the smoke meter according to 3.3.1 and then inserting a series of three neutral-density filters of nominal opacity of 20, 50, and 75 percent in the smoke meter path length. Use filters calibrated within ±2 percent. Care should be taken when inserting the filters to prevent stray light from affecting the meter. Make a total of five nonconsecutive readings for each filter. The maximum opacity error on any one reading shall be ±3 percent.

3.3.2.6 Zero and Span Drift. Determine the zero and span drift by calibrating and operating the smoke generator in a normal manner over a 1-hour period. The drift is measured by checking the zero and span at the end of this period.

3.3.2.7 Response Time. Determine the response time by producing the series of five simulated 0 percent and 100 percent opacity values and observing the time required to reach stable response. Opacity values of 0 percent and 100 percent may be simulated by alternately switching the power to the light source off and on while the smoke generator is not operating.

4. References

1. U. S. Environmental Protection Agency. Standards of Performance for New Stationary Sources; appendix A; Method 9 for Visual Determination of the Opacity of Emissions from Stationary Sources. Final Rule. 39 FR 219. Washington, DC. U. S. Government Printing Office. November 12, 1974.

2. Office of Air and Radiation. "Quality Assurance Guideline for Visible Emission Training Programs." EPA-600/S4-83-011. Quality Assurance Division. Research Triangle Park, N.C. May 1982.

3. "Method 9 - Visible Determination of the Opacity of Emissions from Stationary Sources." February 1984. Quality Assurance Handbook for Air Pollution Measurement Systems. Volume III, section 3.1.2. Stationary Source Specific Methods. EPA-600-4-77-027b. August 1977. Office of Research and Development Publications, 26 West Clair Street, Cincinnati, Oh.

4. Office of Air Quality Planning and Standards. "Opacity Error for Averaging and Nonaveraging Data Reduction and Reporting Techniques." Final Report-SR-1-6-85. Emission Measurement Branch, Research Triangle Park, N.C. June 1985.

5. The U. S. Environmental Protection Agency. Preparation, Adoption, and Submittal of State Implementation Plans. Methods for Measurement of PM_{10} Emissions from Stationary Sources. Final Rule. FEDERAL REGISTER. Washington, DC. U. S. Government Printing Office. Volumes 55. No. 74. pps. 14246-14279. April 17, 1990.

TABLE 1. SMOKE METER DESIGN AND PERFORMANCE SPECIFICATIONS

Parameter	Specification
a. Light source	Incandescent lamp operated at nominal rated voltage.
b. Spectral response of photocell	Photopic (daylight spectral response of the human eye -- Reference 4.1 of section 4).
c. Angle of view	15 degrees maximum total angle.
d. Angle of projection ...	15 degrees maximum total angle.
e. Calibration error	±3-percent opacity, maximum.
f. Zero and span drift ...	±1-percent opacity, 30 minutes.
g. Response time	≤ 5 seconds.

Method 203B--Visual Determination of Opacity of Emissions From Stationary Sources for Time-Exception Regulations

Method 203B is virtually identical to EPA's Method 9, except for the data-reduction procedures, which have been modified for application to time-exception regulations. Additionally, Method 203B provides procedures for fugitive dust applications which were unavailable when Method 9 was promulgated. The certification procedures in section 3 are identical to those in Method 9 and are provided in Method 203A as well. Therefore, the certification procedures have not been repeated within this method. As an additional aid for observers, a sample visible emission observation form has been appended to Method 203A.

1. APPLICABILITY AND PRINCIPLE

1.1 Applicability. This method is applicable for the determination of the opacity of emissions from sources of visible emissions for time-exception regulations. A time-exception regulation means any regulation that allows predefined periods of opacity above the otherwise applicable opacity limit.

1.2 Principle. The opacity of emissions from sources of visible emissions is determined visually by a qualified observer.

2. Procedures

The observer qualified in accordance with section 3 of this method shall use the following procedures for visually determining the opacity of emissions.

2.1 Procedures for Emissions From Stationary Sources. Same as in 2.1, Method 203A.

2.2 Procedures For Fugitive Process Dust Emissions. Same as 2.2, Method 203A.

2.3 Recording Observations. Record opacity observations to the nearest 5 percent at 15-second intervals on an observational record sheet. Each momentary observation recorded represents the average opacity of emissions for a 15-second period. The overall length of time for which observations are recorded shall be appropriate to the applicable regulation for which opacity is being measured.

2.4 Data Reduction for Time-Exception Regulations. For a time-exception regulation, reduce opacity observations as follows: count the number of observations above the applicable standard and multiply that number by 0.25 to determine the minutes of emissions above the target opacity.

3. Qualification and Testing

3.1 Certification Requirements. To receive certification as a qualified observer, a candidate must be tested and demonstrate the ability to assign opacity readings in 5 percent increments to 25 different black plumes and 25 different white plumes, with an error not to exceed 15 percent opacity on any one reading and an average error not to exceed 7.5 percent opacity in each category. Candidates shall be tested according to the procedures described in paragraph 3.2. Any smoke generator used pursuant to paragraph 3.2 shall be equipped with a smoke meter which meets the requirements of paragraph 3.3. Certification tests that do not meet the requirements of paragraphs 3.2 and 3.3 are not valid.

The certification shall be valid for a period of 6 months, and after each 6-month period, the qualification procedures must be repeated by an observer in order to retain certification.

3.2 Certification Procedure. The certification test consists of showing the candidate a complete run of 50 plumes, 25 black plumes and 25 white plumes, generated by a smoke generator. Plumes shall be presented in random order within each set of 25 black and 25 white plumes. The candidate assigns an opacity value to each plume and records the observation on a suitable form. At the completion of each run of 50 readings, the score of the candidate is determined. If a candidate fails to qualify, the complete run of 50 readings must be repeated in any retest. The smoke test may be administered as part of a smoke school or training program, and may be preceded by training or familiarization runs of the smoke generator during which candidates are shown black and white plumes of known opacity.

3.3 Smoke Generator Specifications. Any smoke generator used for the purpose of paragraph 3.2 shall be equipped with a smoke meter installed to measure opacity across the diameter of the smoke generator stack. The smoke meter output shall display in-stack opacity, based upon a path length equal to the stack exit diameter on a full 0 to 100 percent chart recorder scale. The smoke meter optical design and performance shall meet the specifications shown in Table 1. The smoke meter shall be calibrated as prescribed in paragraph 3.3.1 prior to conducting each smoke reading test. At the completion of each test, the zero and span drift, shall be checked, and if the drift exceeds ±1 percent opacity, the condition shall be corrected prior to conducting any subsequent test runs. The smoke meter shall be demonstrated at the time of installation to meet the specifications listed in Table 1. This demonstration shall be repeated following any subsequent repair or replacement of the photocell or associated electronic circuitry including the chart recorder or output meter, or every 6 months, whichever occurs first.

3.3.1 Calibration. The smoke meter is calibrated after allowing a minimum of 30 minutes warm-up by alternately producing simulated opacity of 0 percent and 100 percent. When stable response at 0 percent or 100 percent is noted, the smoke meter is adjusted to produce an output of 0 percent or 100 percent, as appropriate. This calibration shall be repeated until stable 0 percent and 100 percent readings are produced without adjustment. Simulated 0 percent and 100 percent opacity values may be produced by alternately switching the power to the light source on and off while the smoke generator is not producing smoke.

3.3.2 Smoke Meter Evaluation. The smoke meter design and performance are to be evaluated as follows:

3.3.2.1 Light Source. Verify from manufacturer's data and from voltage measurements made at the lamp, as installed, that the lamp is operated within ±5 percent of the nominal rated voltage.

3.3.2.2 Spectral Response of Photocell. Verify from manufacturer's data that the photocell has a photopic response; i.e., the spectral sensitivity of the cell shall closely approximate the standard spectral-luminosity curve for photopic vision which is referenced in (b) of Table 1.

3.3.2.3 Angle of View. Check construction geometry to ensure that the total angle of view of the smoke plume, as seen by the photocell, does not exceed 15 degrees. Calculate the total angle of view as follows:

$$\Phi_V = 2 \tan^{-1} d/2L,$$

where:

Φ_V = total angle of view;

d = the photocell diameter + the diameter of the limiting aperture; and

L = distance from the photocell to the limiting aperture.

The limiting aperture is the point in the path between the photocell and the smoke plume where the angle of view is most restricted. In smoke generator smoke meters, this is normally an orifice plate.

3.3.2.4 Angle of Projection. Check construction geometry to ensure that the total angle of projection of the lamp on the smoke plume does not exceed 15 degrees. Calculate the total angle of projection as follows:

$$\Phi_p = 2 \tan^{-1} d/2L$$

where:

Φ_p = total angle of projection;

d = the sum of the length of the lamp filament + the diameter of the limiting aperture; and

L = the distance from the lamp to the limiting aperture.

3.3.2.5 Calibration Error. Using neutral-density filters of known opacity, check the error between the actual response and the theoretical linear response of the smoke meter. This check is accomplished by first calibrating the smoke meter according to 3.3.1 and then inserting a series of three neutral-density filters of nominal opacity of 20, 50, and 75 percent in the smoke meter path length. Use filters calibrated within ±2 percent. Care should be taken when inserting the filters to prevent stray light from affecting the meter. Make a total of five nonconsecutive readings for each filter. The maximum opacity error on any one reading shall be ±3 percent.

3.3.2.6 Zero and Span Drift. Determine the zero and span drift by calibrating and operating the smoke generator in a normal manner over a 1-hour period. The drift is measured by checking the zero and span at the end of this period.

3.3.2.7 Response Time. Determine the response time by producing the series of five simulated 0 percent and 100 percent opacity values and observing the time required to reach stable response. Opacity values of 0 percent and 100 percent may be simulated by alternately switching the power to the light source off and on while the smoke generator is not operating.

4. References

1. U. S. Environmental Protection Agency. Standards of Performance for New Stationary Sources; appendix A; Method 9 for Visual Determination of the Opacity of Emissions from Stationary Sources. Final Rule. 39 FR 219. Washington, DC. U. S. Government Printing Office. November 12, 1974.

2. Office of Air and Radiation. "Quality Assurance Guideline for Visible Emission Training Programs."

EPA-600/S4-83-011. Quality Assurance Division. Research Triangle Park, N.C. May 1982.

3. "Method 9 - Visible Determination of the Opacity of Emissions from Stationary Sources." February 1984. Quality Assurance Handbook for Air Pollution Measurement Systems. Volume III, section 3.1.2. Stationary Source Specific Methods. EPA-600-4-77-027b. August 1977. Office of Research and Development Publications, 26 West Clair Street, Cincinnati, Oh.

4. Office of Air Quality Planning and Standards. "Opacity Error for Averaging and Nonaveraging Data Reduction and Reporting Techniques." Final Report-SR-1-6-85. Emission Measurement Branch, Research Triangle Park, N.C. June 1985.

5. The U. S. Environmental Protection Agency. Preparation, Adoption, and Submittal of State Implementation Plans. Methods for Measurement of PM_{10} Emissions from Stationary Sources. Final Rule. FEDERAL REGISTER. Washington, DC. U. S. Government Printing Office. Volumes 55. No. 74. pps. 14246-14279. April 17, 1990.

EPA Rulemakings

CFR: 40 C.F.R. 52.1320 (c)(95)(i)(B)
FRM: 62 FR 9970 (3/5/97)
PRM: 62 FR 10000 (3/5/97)
State Submission: 8/13/96
State Proposal: 2/29/96
State Final: 7/30/96
APDB File: MO-87
Description: The EPA approved Consent Decree CV596-98CC with Exhibits A, C, D, E, F, and G between MDMR and Asarco, Inc., Glover, Missouri, Lead Division. This was part of the emissions control plan to bring the nonattainment area defined by the boundaries of the Liberty and Arcadia Townships located in Iron County into attainment with the NAAQS for lead.

Difference Between the State and EPA-Approved Regulation

None.