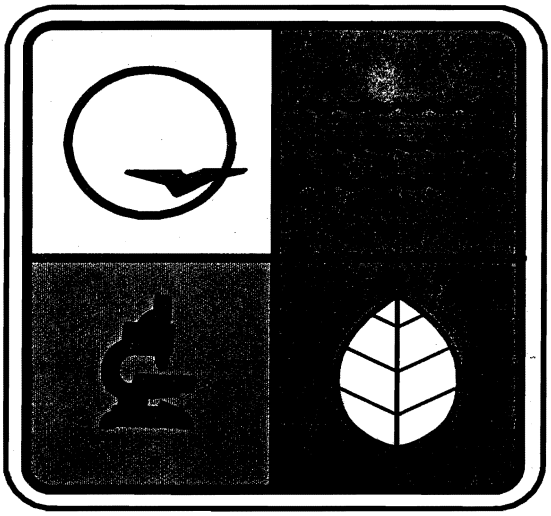
MISSOURI STATE IMPLEMENTATION PLAN

Lead Plan for the Doe Run Resource Recycling Division

2002 Revision



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Air and Land Protection Division
Air Pollution Control Program

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ACRONYMS & ABBREVIATIONS

BACT	Best Available Control Technology
CAA	Clean Air Act
CAAA	Clean Air Act Amendments of 1990
CFR	Code of Federal Regulations
CSR	Code of State Regulations
EPA	U. S. Environmental Protection Agency
NAAQS	National Ambient Air Quality Standard(s)
PSD	Prevention of Significant Deterioration
RACM	Reasonably Available Control Measures
RACT	Reasonably Available Control Technology
RFP	Reasonable Further Progress
SIP	State Implementation Plan
tpd	Tons per Day
TSP	Total Suspended Particulate
$\mu g/m^3$	Micrograms per Cubic Meter

Revision to the State Implementation Plan for Lead
Doe Run Resource Recycling Division

1.0 Introduction

The purpose of this submittal is to update the maintenance plan for the Doe Run Resource Recycling Division located in western Iron County, Missouri. These changes include modifying furnace throughput limits and making typographic corrections. This document will be submitted to the Environmental Protection Agency (EPA) as a revision to the Missouri State Implementation Plan (SIP).

Section 107(d)(3) of the 1990 Clean Air Act Amendments (CAAA) set forth the process for redesignation and specifies that the Administrator may not promulgate a redesignation of a nonattainment area to attainment unless—

(i) The Administrator determines that the area has attained the national ambient air quality standard (NAAQS);
(ii) The Administrator has fully approved the applicable implementation plan for the area under section 110(k);
(iii) The Administrator determines that the improvement in air quality is due to permanent and enforceable reductions in emissions resulting from implementation of the applicable implementation plan and applicable Federal air pollutant control regulations and other permanent and enforceable reductions;
(iv) The Administrator has fully approved a maintenance plan for the area as meeting the requirements of section 175A and;
(v) The state containing such area has met all requirements applicable to the area under section 110 and CAAA part D.

The 2000 revision of the lead plan addressed the section 107(d)(3) requirements for redesignation. It included documentation of air quality data that the area has reached attainment of the NAAQS and verified that this attainment is the result of the implementation of a control plan, which included permanent and enforceable reductions.

This document revises the maintenance plan, which was required by section 175A. The maintenance plan includes an emissions inventory, a maintenance demonstration, and contingency measures. The maintenance plan projects future emissions, performs dispersion modeling, forecasts that there will not be an exceedance of the NAAQS for lead.

1.1 Background

The present Doe Run Resource Recycling Division began smelting operations at this location in 1968. At that time, it was known as the AMAX primary lead smelter near Bixby.

The Clean Air Act (CAA) amendments of 1977, required that each state submit an implementation plan for the control of any criteria pollutant. The following year, the EPA promulgated the NAAQS for lead at the level 1.5 $\mu g/m^3$. The Missouri Department of Natural Resources developed and implemented the first lead plan in 1980. This plan listed mobile sources, mining operations, and primary smelters as significant contributors to lead emissions. Suggested controls for these sources were good housekeeping for mining operations, baghouses for smelters, and the phase-out of Tetra Ethyl lead in gasoline. However, violations of the NAAQS for lead continued.

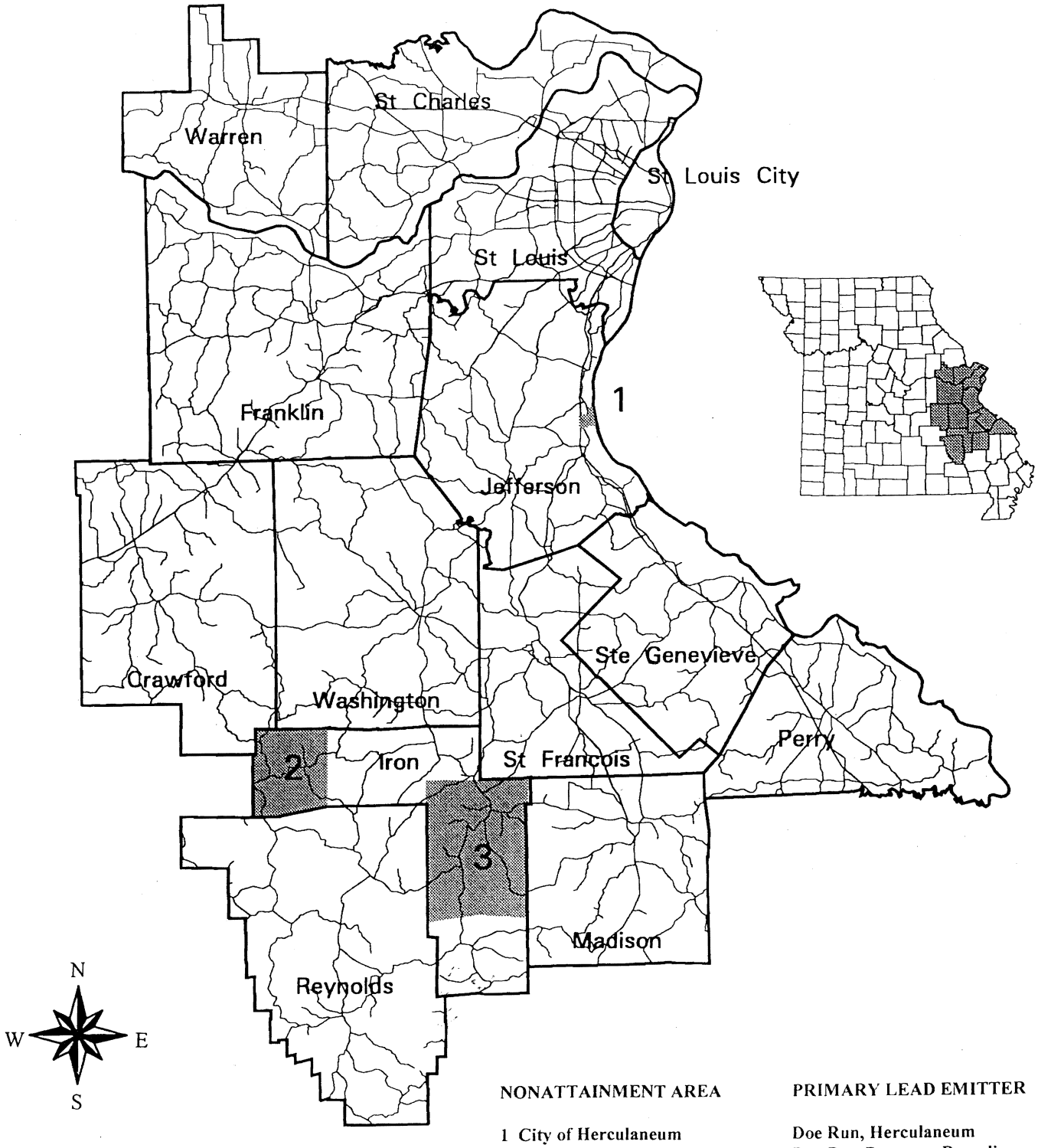
In 1982, AMAX began operating a monitoring network, which included four hi-volume ambient air lead monitors surrounding this facility. Three of the monitors were sited in the northern forested sector of the smelter vicinity approximately three-quarters to one mile from the smelter. The remaining monitor was sited approximately three-quarters of a mile south of the smelter along Route KK.

The smelter changed ownership in 1986 and Homestake Lead Company shut down operations on June 1, 1986 for business/market evaluation. The lead operations of St. Joe Minerals formed a partnership with Homestake Lead and formed the Doe Run Company on November 16, 1986. Doe Run produced primary lead at the then named Buick facility throughout 1987 and part of 1988. Violations of the NAAQS for lead were recorded in the first two calendar quarters of 1988. In the later part of 1988, Doe Run ceased operating the facility as a primary smelter. After 1988, various parts of the facility were operated intermittently to support production at Doe Run's primary smelter in Herculaneum, Missouri. Although air quality monitors indicated that ambient concentrations exceeded the 1.5 micrograms per cubic meter ($\mu g/m^3$) for some 24-hour periods, the quarterly lead standard was not violated during this intermittent operating scenario.

In 1990, the Homestake Lead Company sold its share of the operation to its partner, the lead operations of St. Joe Minerals. As a result of the 1990 Amendments to the Clean Air Act (CAAA), the EPA was authorized to designate nonattainment areas for lead for the first time since promulgation of the NAAQS for lead in 1978. On March 14, 1991, then Governor Ashcroft requested that three areas in the state be designated as non-attainment for lead. The boundaries of these areas encompassed the three primary lead smelters that were operating in the state at that time. Those smelters are the present Doe Run Glover, Herculaneum, and Resource Recycling Division facilities as shown in Figure 1. Also in 1991, the Doe Run Company began the production of lead through secondary smelting and resource recovery at this facility. They continued to utilize various pieces of equipment that had been associated with the primary operation in the secondary lead smelting operation.

Section 191(a) of the CAAA required the state to submit a SIP revision to EPA by July 6, 1993. The CAAA also required states to bring lead nonattainment areas back into attainment with the lead NAAQS as expeditiously as practicable but no later than five (5) years from the area designation effective date of January 6, 1992. In 1993, a lead plan

Figure 1 – Original Areas Designated Nonattainment for Lead



NONATTAINMENT AREA

1 City of Herculaneum
2 Dent Township
3 Liberty/Arcadia Townships

PRIMARY LEAD EMITTER

Doe Run, Herculaneum
Doe Run Resource Recycling
Doe Run, Glover

Missouri Departrment of Natural Resources
Air and Land Protection Division
Air Pollution Control Program
Created by Donald Cripe

revision for the Doe Run Resource Recycling Division was developed by the Missouri Department of Natural Resources and adopted by the Missouri Air Conservation Commission (MACC). The lead plan established control requirements for the secondary smelter operation and measures that would need to be implemented prior to the primary smelter resuming operation. As an additional measure, the rule amendment to 10 CSR 10-6.120 established enforceable emission and throughput limits for both the primary and secondary operations.

A 1993 Consent Order was signed by both Doe Run and the Missouri Department of Natural Resources which identified emission control projects that the Doe Run Resource Recycling Division would need to complete prior to processing lead concentrate and producing primary lead. At this time, the facility was operating as a secondary smelter and the primary process was on standby. The consent order also identified several emission control contingency measures to be implemented if the need was determined by the Missouri Department of Natural Resources based on ambient air quality data. In addition, other requirements relating to notification, access to smelter property, and testing were included as part of this order.

However, EPA did not approve the 1993 plan revision. In 1994, a revised Consent Order was signed and adopted by the MACC. This order, written as a modification to the 1993 order, replaced the original contingency control measures for the primary smelting process with four new emission control measures that provided sufficient reductions to satisfy the amended requirements in the Clean Air Act. The four new contingency measures addressed operational processes and were designed to reduce fugitive emissions for the secondary process. These control measures would also be implemented if the Missouri Department of Natural Resources determined that there was a need based on ambient air quality data. The nonattainment lead plan including the consent orders was approved as a revision to the Missouri SIP on August 4, 1995.

In 2000, the Missouri Department of Natural Resources revised the lead plan for Doe Run's Resource Recycling Division. The purpose of that submittal was to provide background, data, and justification for redesignation of the nonattainment area in western Iron County, Missouri to attainment for lead. That plan was submitted to the EPA as a revision to the SIP. Also submitted to EPA was the request for redesignation of the area.

The 2000 revised lead plan addressed the section 107(d)(3) requirements for redesignation. It included documentation of air quality data that the area has reached attainment of the NAAQS and verified that this attainment is the result of the implementation of a control plan, which included permanent and enforceable reductions. The plan also allowed for the removal of two of the northern monitors from the monitor network. The two selected had consistently shown low ambient air concentrations. Doe Run removed the two monitors from service during the first calendar quarter of 2001. The EPA approved the revision to the lead plan in December 2000.

This 2002 revised lead plan includes production limit changes in order to match revisions

to 10 CSR 10-6.120 that revised furnace throughput limits. These changes allow Doe Run greater operational flexibility without increasing net lead emissions. Additionally, it corrects grammatical errors and updates the quarterly monitor results. The area has been redesignated as attainment of the NAAQS for lead, and there have not been any monitored exceedances since that designation was made. Therefore, it is not necessary to identify additional emissions reductions. The plan must only demonstrate that it will adequately protect the NAAQS from future exceedances.

1.2 Current Lead-producing Operations and Requirements

Currently, Doe Run is producing secondary lead at the Resource Recycling Division. In 1998, the total production was 113,000 tons of lead bars and ingots. The facility has an operational limit through its operating permit of 140,000 tons per year. Approximately two-thirds of the material processed is vehicle and industrial batteries. The remaining processed material includes ballistic sand from firing ranges, lead-lined television screens, lead shielding from x-ray equipment, lead paint chips and other lead scrap generated from battery plants. The primary smelter sinter machine was removed in 1995, but Doe Run still uses the blast furnaces and the refinery facilities that were part of the original primary smelter.

1.3 Ambient Air Boundaries at the Doe Run Resource Recycling Division

1.3.1 Land Ownership and Ambient Air

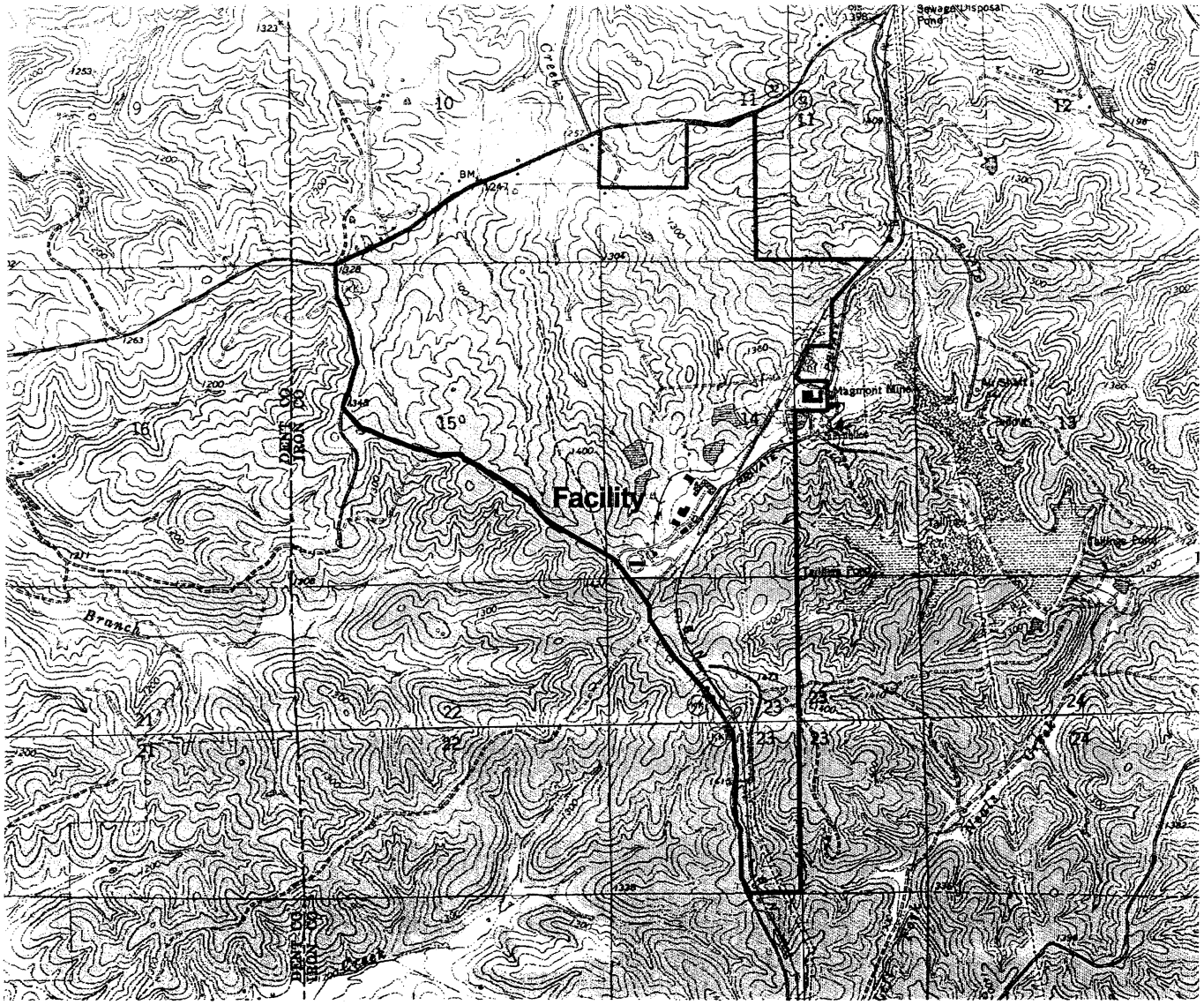
The physical extent of Doe Run's Resource Recycling Division is shown in Figure 2 as "Land Owned by Doe Run." This map shows an outline of property owned by Doe Run, delineated by a red line. Prior to the 2000 Plan revision, Doe Run leased parcels of land from Cominco, the owner and operator of the Magmont lead mine on the adjoining property east of the Doe Run Resource Recycling Division.

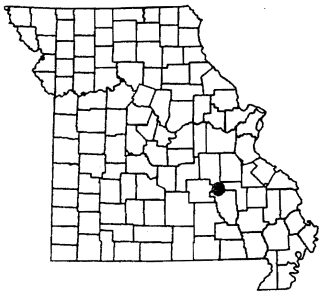
Section 175A of the CAAA requires that the maintenance plan provide for maintenance of the lead NAAQS for at least ten (10) years after EPA's designation of attainment of the standard. Any changes in land boundaries will be reported to the Missouri Department of Natural Resource by Doe Run. A review of the land ownership change will then be made to determine whether a plan revision is needed.

1.3.2 Fencing to Restrict Public Access to Property

By EPA's definition of ambient air (40 CFR 50.1 (e)), public access must be restricted to smelter-owned or controlled property where there is potential for the lead NAAQS to be exceeded. Doe Run installed fencing to enclose the approximate area within the 1.5 ug/m^3 isopleth for 1994 secondary smelter operations. Currently, ambient air in the vicinity of the smelter is in compliance with the NAAQS for lead. No increase in fenced area is required, and fencing required by the 1994 plan will remain.

Figure 2 - Land Owned by Doe Run





N
W E
S

Land Owned by Doe Run

Highways

Rivers and Streams

Railroads

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2.0 Description of Nonattainment Area

2.1 Location

The nonattainment area is defined by the boundaries of Dent township in western Iron County (See Figure 3). The Doe Run Resource Recycling Division is the major source of lead in this area is located in the southwest corner of the township. In the area, other sources of lead include several mines and a lead mill. The contribution to the lead emission inventory by non-smelting sources is included in the background concentration.

2.2 Nonattainment Designation

When the nonattainment boundaries were established in 1991, they were based on monitoring information, as no modeling information was available. At the time, the lead monitoring network around this smelter consisted of four monitors – three north (#4, #5, and #6) and one south (#1) of the lead smelter. Only monitor #5 had shown an exceedance of the lead standard in the three years previous to the nonattainment determination (1988-1990). However, since the northern and eastern nonattainment boundaries were approximately 6.5 miles from the smelter, it was unlikely that they would be threatened by high concentrations of the heavy lead particles.

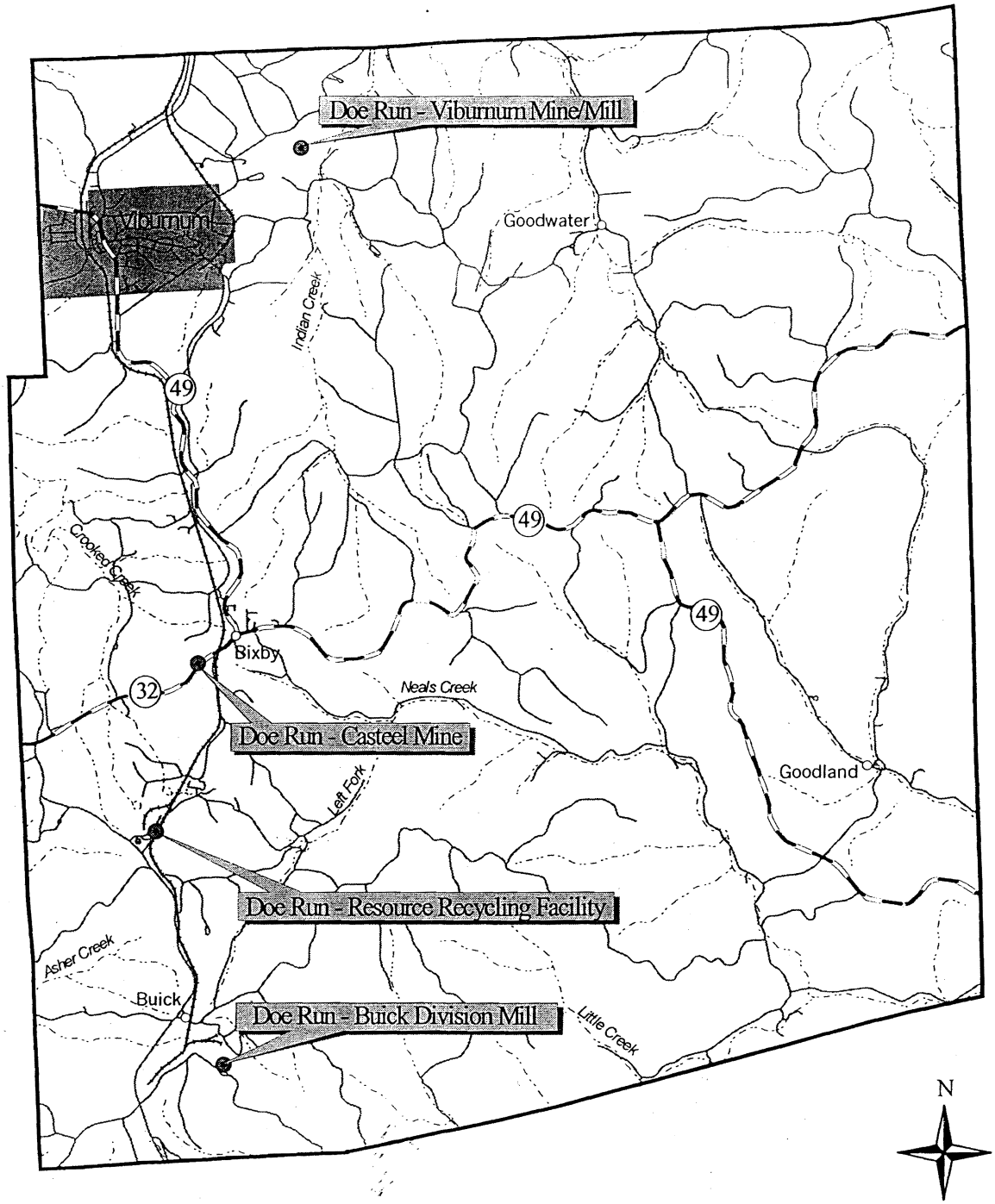
In 1991, when the nonattainment boundaries were selected, there was some concern about the south and west boundaries because the smelter is located near the southwest corner of the township. The monitor data from monitors #1 (south) and #6 (northwest) did not show high lead concentrations. Since no other data was available at that time, it was concluded that there were no violations of the lead standard occurring further west or further south of the nonattainment boundaries.

2.3 CAAA Part D Requirements for Nonattainment Areas and Attainment Demonstration

The CAAA requires states to bring lead nonattainment areas back into attainment with the lead NAAQS as expeditiously as practicable but no later than five (5) years from the area designation effective date of January 6, 1992. Section 191(a) of the CAAA required the state to submit a SIP revision to EPA by July 6, 1993.

In 1993 and 1994, a CAAA Part D nonattainment plan for the Doe Run Resource Recycling Division was developed by the Missouri Department of Natural Resources and adopted by the MACC. The Part D nonattainment plan established control requirements for the secondary smelter operation and measures that would need to be implemented prior to the primary smelter resuming operation. As an additional measure, the rule amendment to 10 CSR 10-6.120 established enforceable emission and throughput limits for both the primary and secondary operations. The Part D nonattainment plan including the consent orders was approved as a revision to the Missouri SIP on August 4, 1995.

Figure 3 - Dent Township Lead Nonattainment Area



Grayed area represents extent of nonattainment location within Iron County, Missouri.

Missouri State Highways
Roads
Rivers and Streams
Railroads

0 1 2 Miles

EPA
REGION 7
ENSV DIVISION

NOTE: The Environmental Protection Agency does not guarantee the accuracy, completeness, or timeliness of the information shown, and shall not be liable for any loss or injury resulting from reliance upon the information shown.

DENT TOWNSHIP LEAD NONATTAINMENT AREA LAYOUT
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Tue Jul 13 11:36:04 1999

The lead nonattainment plan included:

1) A revision to rule 10 CSR 10-6.120 Restrictions of Emissions of Lead from Specific Lead Smelter-Refinery Installations which established enforceable throughput and emission point limits at the Doe Run Resource Recycling Division.

2) A 1993 Consent Order signed by both Doe Run and the Missouri Department of Natural Resources which identified emission control projects that the Doe Run Resource Recycling Division would need to complete prior to processing lead concentrate and producing primary lead. At this time the facility was operating as a secondary smelter and the primary process was on standby. The consent order also identified several emission control contingency measures to be implemented if the need was determined by the Missouri Department of Natural Resources based on ambient air quality data. In addition, other requirements relating to notification, access to smelter property, and testing were included as part of this order.

3) A 1994 Consent Order was signed and adopted by the MACC. This order, written as a modification to the 1993 order, replaced the original contingency control measures for the primary smelting process with four new emission control measures that provided sufficient reductions to satisfy the amended Part D requirements in the Clean Air Act. The four new contingency measures addressed operational processes and were designed to reduce fugitive emissions for the secondary process. These control measures would also be implemented if the Missouri Department of Natural Resources determined that there was a need based on ambient air quality data.

2.3.1 Emission Inventory and Air Dispersion Modeling

Air dispersion modeling was used to determine that the controls established in the CAAA Part D nonattainment plan for the Doe Run Resource Recycling Division were sufficient to attain the lead NAAQS. The 1992 emissions inventory was developed and used as input data for the modeling analysis required for the attainment demonstration.

The Emission Inventory of 1992 was the baseline for the 1993 and 1994 SIP Revisions. This inventory was quantified through stack testing, personnel samplers for fugitive process emissions, evaluation of equipment and procedures, EPA emission estimation methods and engineering judgement. The emission rates were based upon a continuous production of primary lead at full throughput.

The Doe Run Company performed dispersion modeling using the EPA's ISC2 Long-Term Model, version dated 92273. The dispersion modeling projected the effect of control measures on the ambient air in the near vicinity of the smelter as related to the NAAQS

for lead of 1.5 ug/m^3.

The modeling indicated that the maximum concentration for lead would be located north of the smelter on the north side of Highway 32. After a background value of 0.15 ug/m^3 was added, the modeling determined that the maximum projected air quality value would be 0.86 ug/m^3. This value is below the NAAQS for lead of 1.5 ug/m^3. The background value was determined by examining the monitored values from the 3rd and 4th quarters 1986. During this time no smelting activities occurred. However, some minor activities including process cleanup and vehicle traffic took place. In light of the minor plant activity, the highest value from this period was assumed to represent a conservative and appropriate background level.

2.4 Revision to 10 CSR 10-6.120

On June 26, 1998, the MACC adopted an amendment to regulation 10 CSR 10-6.120 Restrictions of Emissions of Lead from Specific Lead Smelter-Refinery Installations. This revision removed language which allowed the Doe Run Resource Recycling Division to resume operation as a primary smelter only.

The company retained the right to feed sinter from Doe Run's Herculaneum and Glover primary lead smelters. Sinter is the pure metallic lead product that results from removing the sulfide components of lead ore. This event would occur if there is an overflow of sinter at either of Doe Run's primary smelters or if there is a significant event impacting the refinery process of either primary smelter. In nether case could the Doe Run Resource Recycling Division exceed the lead throughput or emission limits.

On December 5, 2002 the MACC adopted an amendment to 10 CSR 10-6.120 that revised the daily throughput limits for the Blast, Reverbatory, and Rotary Melt furnaces. The Doe Run Company proposed to reduce the maximum daily throughput limit for the Blast furnace from 1000 tons per day (tpd) to 786 tpd. The limits for the Reverbatory furnace were raised from 360 tpd to 500 tpd and the limits for the Rotary Melt furnace were raised from 240 tpd to 300 tpd. Since the emission factor for the Blast furnace is higher than the other two furnaces, and there is no net increase in maximum daily throughput, the maximum potential lead emissions are expected to decrease.

3.0 Foundation for Redesignation

3.1 Attainment of the NAAQS (Summary of Air Quality Data)

The nonattainment area near the Doe Run Resource Recycling Division has shown compliance with the NAAQS for lead since the second calendar quarter of 1988. The last exceedance of the lead standard was a concentration of 1.75 $\mu g/m^3$ at monitor #5 which is located north of the facility (See Section 4.1 Air Quality Data).

3.2 Implementation of Controls

The CAAA Part D nonattainment plan control strategy was fully implemented by the Doe Run Resource Recycling Division. In addition, the permanent closure of the primary lead smelting operation, controls on the secondary lead smelting operation, and the installation of reasonable available control technology (RACT) and reasonable available control measures (RACM) controls directly resulted in improvement of the air quality. The attainment of the lead standard is directly related to these permanent and enforceable reductions in emissions.

3.3 RACT and RACM Analysis

As part of the control requirements of the CAAA Part D nonattainment plan submittal, provisions to ensure RACM (including RACT) were implemented. A 1991 RACT analysis to control point source emissions was conducted by Fluor Daniel, Inc. which evaluated the process technology, existing facilities and operating procedures.

Projects identified with this report that focused on the primary smelter operations (i.e. sinter feed systems) were not incorporated as the facility never resumed primary smelting operations after the report submittal.

Those projects that were not incorporated due to closure of the primary plant include the following:

- Installation of a pulse-jet baghouse in the sinter preparation area.
- Installation of a Redler conveyor to transport dust from the sinter preparation area to the baghouse.
- Installation of a dust collector for concentrate and sinter feed bins.
- Installation of a pulse-jet baghouse on the sinter feed machine and sinter handling equipment.
- Construction of an enclosure with a retractable door and water suppression system during sinter discharge.
- Replacement of sinter plant wall panels.
- Bullion transfer pot rotation procedure.

Projects identified and which were completed include the following:

- Installation of water sprays for open pile storage.
- Installation of building enclosures for bulk lead piles.
- Fabrication and installation of kettle covers in the dross and refinery plants.
- Installation of a temperature control system to reduce the baghouse temperature below the dew point.
- Ventilation provided for all kettle hoods to a baghouse system.
- Modification and enlargement of ductwork and tap hood at the blast furnace.

A RACM survey of both area and fugitive emissions was also conducted. Three of the fifteen RACM measures used in the survey were found to be applicable to the then named Buick facility. These applicable measures include:

1) requiring dust control for construction or land-clearing projects,
2) prohibiting permanent unpaved haul roads, and parking or staging areas at commercial, municipal or industrial facilities, and
3) requiring dust control measures for material storage piles.

In response to the identification of these measures, Doe Run incorporated formal written guidelines for construction and demolition projects into the work practices manual. The company paved or chemically stabilized all permanent haul roads, parking areas and staging areas with the exception of one employee parking lot. Doe Run also implemented a plan to enclose their materials storage into bins and bunkers. The secondary lead smelter maximum achievable control technology standard (MACT) required that all material storage piles be enclosed except for blast furnace slag.

By implementing these measures, Doe Run reduced their fugitive emissions by approximately 5 tons of lead/year. Further information regarding this data is included in the 1993 and 1999 emissions inventory questionnaires.

3.4 Current Controls and Requirements

Regulation 10 CSR 10-6.120, Restriction of Emissions of Lead from Specific Lead Smelter-Refinery Installations lists the following throughput limits:

Process Name	Throughput (tons per day)
Blast Furnace	786 Charge
Reverb Furnace	500 Charge
Rotary Melt	300 Charge
Refinery	648 Lead Cast

This regulation also limits the emissions from the Main Stack at the Doe Run Resource Recycling Division to 540 lbs of lead per 24 hour. Section (3) of this rule also requires the owner or operator of each specific lead smelting/refining facility to control fugitive emissions of lead from all process and area sources by measures described in a work practice manual. The current work practices manual for the Doe Run Resource Recycling Division can be found in Appendix A. The current process flow diagrams with appropriate control points are attached in Appendix E.

Effective October 30, 1998, 10 CSR 10-6.120 was amended to remove all references for sinter plant emission limits. The RACT control measures were re-examined for applicability to current smelter operations. Consequently, no process or operational changes were necessary for the plan revision. The regulation's title and purpose were amended to reflect that the Doe Run Resource Recycling Division facility was a secondary smelter as the regulation had previously applied to only primary smelter-refinery installations.

3.5 Additional Engineering Projects

Since 1993, Doe Run has implemented the following additional engineering projects to reduce lead emissions from the Resource Recycling Division. Projects A and B were required to meet to the MACT standards recently promulgated for secondary lead smelting facilities.

A. Feed Storage Buildings - Construction and utilization of building enclosures for blast, reverberatory, and sweat furnace feed/screening processes. These enclosures significantly reduce fugitive lead emissions by keeping the emissions from each of the processes and storage piles confined within the building.

B. Bag Leak Detection Monitoring - Installation of a monitoring unit to detect broken or failed bags at the facility's main baghouse. This system provides real-time data readout at four different locations and includes visual and audible alarm systems.

Projects C, D and E were voluntarily implemented by Doe Run on a company initiated basis to improve operation efficiency and reduce lead emissions. None of these improvements were required by the 1993 or 1994 revisions to the lead plan.

C. Corrective Action Cleanup - Cleanup of over 100,000 cubic yards of sludges and other lead bearing materials from several earthen impoundments. This cleanup reduced emissions by eliminating windblown exposure from these materials and paving access roads to the impoundments which further reduced airborne dust.

D. De-watering Screw Conveyors - Installation and utilization of three de-watering baths to water quench and screw convey the dry skimmings from the dross and refinery kettle operations, and the drosses generated from the rotary melter. This installation controlled lead emissions by processing the dry skimmings and

drosses through water instead of dumping these products directly from the process into a truck that created a dust cloud.

E. Tuyere Controls - Utilization of an air control system designed to regulate airflow through the bed of the blast furnace. This reduces the potential for unequal air pockets to form inside the furnace, which produced uncontrolled emissions from the front of the furnace. Installation and troubleshooting of this project was completed in late 1996. Based upon airborne data collected since this project was completed, a reduction in the number and severity of monitored "spikes" of airborne lead levels has been observed.

3.6 2000 Consent Order

This submittal includes the 2000 Doe Run Resource Recycling Division consent order, Appendix B, which consolidates the applicable requirements of the past consent orders and address the current and future operations of the facility. This consent order contains the contingency control measures that would be implemented if the Missouri Department of Natural Resources determined that there was a need based on ambient air quality data.

4.0 Maintenance Plan

4.1 Monitoring Network

Since 1982, Doe Run has operated a monitoring network which includes four hi-vol. ambient air lead monitors surrounding the Resource Recovery Division. Three of the monitors are located in the northern forested sector of the smelter vicinity approximately three-quarters to one mile from the smelter and one monitor is located approximately three-quarters of a mile south of the smelter along Rt. KK. The locations of the monitors are shown in Figure 4. Each sampling quarter, Shell Engineering & Associates will perform a performance flow audit following the procedures used for a mass flow controller. The samplers are audited at their normal operating flow. The performance flow audit procedures are referenced in the Standard Operating Procedures for the Doe Run Resource Recycling Division. In addition to conducting performance audits, Doe Run participates in systems audits that are performed by the Department. These systems audits are the responsibility of the Department and are performed by their personnel or a designated representative. Doe Run also participates in the EPA's National Performance Audit Program for sampler flows and filter analysis.

Table 1 lists the ambient air lead data from 1982 through 2001 for each of the four monitors. The monitors are owned, operated and maintained by the smelter. The smelter shall continue to operate an appropriate air quality monitoring network to verify the attainment status of the area.

4.2 Monitoring Network Modification

The current monitoring network has been amended since the lead plan was approved. Two monitors, the Short and Northwest, have been removed since these monitors had consistently shown low ambient air concentrations. The maximum value monitored at these two stations since 1993 is 0.7 $\mu g/m^3$ of lead, or 47% of the 1.5 $\mu g/m^3$ standard.

The North and the South monitors, while not having a measured exceedance during the past 10 years, have had quarterly lead concentrations that approach the NAAQS limit. These monitors will remain in place and will be used to demonstrate continued attainment of the lead NAAQS during the 10-year demonstration and beyond.

Table 1.
LEAD AMBIENT AIR QUALITY DATA
DOE RUN RESOURCE RECYCLING DIVISION
CALENDAR QUARTERLY VALUES
in micrograms of lead per cubic meter of air (ug/m^3)

Date	#1 South	#4 Short	#5 North	#6 North W
1982				
3rd	1.69	1.80	1.19	.72
4th	.75	3.16	3.09	1.12
1983				
1st	.90	.82	.68	1.54
2nd	2.39	1.74	1.90?	1.21
3rd	.56	1.72	1.46	.91
4th	.39	.70	2.85	.33
1984				
1st	1.26	.99	1.26	1.10
2nd	2.21	.96	.85	.80
3rd	1.70	.49?	.98	.66
4th	.49	.65	.96	.25
1985				
1st	2.38	.56	.96	.54
2nd	2.09	2.19	1.80	.96
3rd	1.32	4.22	2.73	2.32
4th	.24	1.25?	1.12	.82
1986				
1st	1.85	1.49	3.29	.85
2nd	1.17	.95	.88	1.52
3rd	*	*	*	*
4th	.11	.15	.14	.10
1987				
1st	1.78	2.25?	1.23	2.96?
2nd	3.49	1.29	1.07	.94
3rd	2.02	2.96	1.26	2.33
4th	1.79	1.86	.35	.61
1988				
1st	1.52	.76	1.38	.38?
2nd	.68	.70	1.75	.74
3rd	.91	.98	.91	.44
4th	.66	1.00?	.80	.90?
1989				
1st	.39	.18	.31	.11
2nd	.52	.32	.47	.10
3rd	.63	.50	.35	.29
4th	1.16	.36	.44	.14

LEAD AMBIENT AIR QUALITY DATA
DOE RUN RESOURCE RECYCLING DIVISION
CALENDAR QUARTERLY VALUES
in micrograms of lead per cubic meter of air (ug/m^3)

Date	#1 South	#4 Short	#5 North	#6 North W
1990				
1st	.57	.21	.28	.17
2nd	.59	.17	.15	.11
3rd	.33	.29	.25?	.47?
4th	.52	.73	.81	.51
1991				
1st	1.08	1.10	1.29	.97
2nd	.60	.35?	.85	1.49
3rd	.38	.38	.17	.32
4th	.49?	.32	.68	.21
1992				
1st	.89	.38	.46	.41
2nd	.32	.46	.28	.78
3rd	.30	.26	.30	.12
4th	.51	.89	.63	.29?
1993				
1st	.44	.15	.13	.25?
2nd	.75	.65	.41	.35
3rd	.91	.53	.59	.23
4th	.77	.51	1.25	.23
1994				
1st	1.44	.74	.67	.27
2nd	1.27	.46	1.14	.35
3rd	.75	.49	.46	.35
4th	.79	.45	.52	.31
1995				
1st	.54	.42	.52	.40
2nd	.53	.46	.49	.46
3rd	.55	.39	.94	.54
4th	.66	.57	1.18	.10
1996				
1st	.84	.47	.83	.11
2nd	.73	.32	.50	.36
3rd	1.35	.34	.20	.29
4th	.42	.25	.78	.10

LEAD AMBIENT AIR QUALITY DATA
DOE RUN RESOURCE RECYCLING DIVISION
CALENDAR QUARTERLY VALUES
in micrograms of lead per cubic meter of air (ug/m^3)

Date	#1 South	#4 Short	#5 North	#6 North W
1997				
1st	.43	.24	.35	.18
2nd	.51	.54	.23	.47
3rd	1.00	.31	.29	.60
4th	.45	.32	.53	.42
1998				
1st	.78	.34	.42	.21
2nd	.60	.56	.62	.22
3rd	.71	.74	.31	.49
4th	1.14	.43	.30	.46
1999				
1st	.52	.41	.55	.13
2nd	.85	.20	.25	.24
3rd	.75	.20	.22	.42
4th	.76	.25	.35	.10
2000				
1st	.58	.26	.36	.13
2nd	.56	.47	.52	.18
3rd	.53	.37	.22	.19
4th	.55	.25	.35	.14
2001				
1st	.86	.23	.31	.13
2nd	.59		.69	
3rd	.15		.15	
4th	.45		.59	

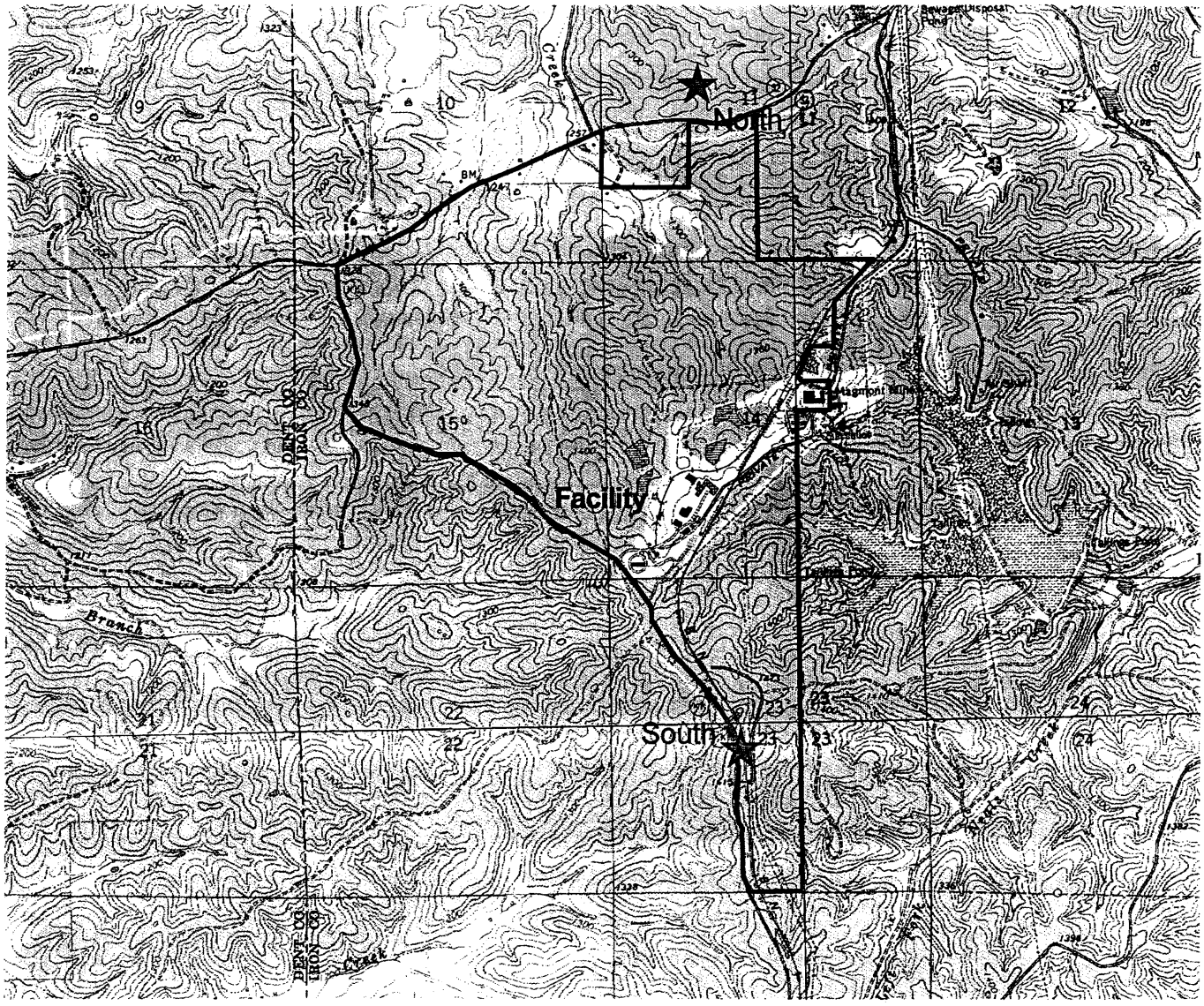
Underlined Quarterly Air Quality Values exceed the (NAAQS) National Ambient Air Quality Standard for lead; the NAAQS for Lead is 1.5 ug/m^3 and is the arithmetic mean of a series of daily (24-hour) valves from hi-vol monitors measuring particulate matter, within a 3-month (calendar quarter) period.

Values followed by a question mark (?) indicate that the value does not satisfy monitoring requirements.

Values represented by an asterix (*) indicate that less than 75% of scheduled sampling days were collected.

The #4 Short and #6 Northwest monitors were removed from service during the second quarter 2001.

Figure 4 - Air Monitor Locations



N
W E
S

- Land Owned by Doe Run
- Highways
- Rivers and Streams
- Railroads
- Air Monitors

Missouri Departrment of Natural Resources
Air and Land Protection Division
Air Pollution Control Program
Created by Donald Cripe

4.3 Emission Inventory

4.3.1 1997 Modeling Baseline Emission Inventory

The lead smelter emission inventory was developed from numerous references and individual smelter inputs. Fugitive emissions were measured for each smelter process using the actual average process throughputs during the time that measurements were being made. Process emissions were based on the potential to emit using either the emission limits established in the lead plan or from operating permits. These inventories show the high degree of control already existing at all point process, process fugitive and open fugitive emission sources in steady-state operation.

The 1997 Emission Inventory updates the 1992 Emission Inventory by eliminating several individual point sources that were removed from the plant following the 1994 revision to the lead plan. The demolition of the sinter plant and removal of the sinter plant baghouse created the most significant change in emissions. Removal of these two sources reduced the Doe Run Resource Recycling Division's potential to emit by over 1000 lbs of lead per day.

4.3.2 1997 Emission Inventory Calculations

The emission calculations (Appendix D) used either the lead plan limits or the fugitive emissions measured at each process to calculate the lead emissions for the facility processes in both tons per year (tpy) and pounds per day (lbs/day). These values were then used as inputs for the air dispersion modeling analysis to estimate the lead emission impacts in the area surrounding the facility.

Table 2 lists each emission inventory point or area, the appropriate control device and the emissions for each in the 1992 inventory and 1997 inventory. The reason for each change is also described in the last column. The total reduction of potential emissions from 1992 to 1997 equals 1111.85 lbs/day or an equivalent of 202.9 tons/year. This significant emission reduction is mainly related to the closure of the sinter plant.

Table 2.
Doe Run 1992 vs. 1997 Lead Emission Inventory

Emission Inventory (Point or Area) Number (EI No.)	Source Name	Control Device	1992 EI lbs/day	1997 EI Potential To Emit lbs/day	Reason for Change
1	#1 Scrubber	N/A	21.80	0.00	Removed Sinter Plant
2	#2 Scrubber	N/A	21.30	0.00	Removed Sinter Plant
3	#6 Scrubber	N/A	93.10	0.00	Removed Sinter Plant
4	#7 Scrubber	N/A	17.50	0.00	Removed Sinter Plant
5	#8 Scrubber	N/A	14.90	0.00	Removed Sinter Plant
6	#9 Scrubber	N/A	11.50	0.00	Removed Sinter Plant
7	Stack Crusher BH	N/A	17.50	0.00	Removed Sinter Plant
8	Main Stack	N/A	1080.90	540.00	Removed Sinter Plant
10	Blast Furnace Fugitives	N/A	27.95	2.18	New Sample
10A	Bag House Fumes	N/A	2.79	0.00	New Dust Agg. Furnace
11	Dross Plant Fugitives	N/A	17.50	1.08	New Sample
12	Refinery fugitives	N/A	27.90	2.90	New Sample
13	Conc. Unloading & Storage	N/A	4.38	4.38	No Change
14	Sinter Plant Fugitives	N/A	176.98	0.00	Removed Sinter Plant
16	Battery Brking Scrubber	Scrubber	0.10	0.10	No Change
17	Paste BH	Baghouse	0.01	0.01	No Change
29	Slag Tower	N/A	0.10	0.00	Ducted to Main Stack
31	Shredder BH	Baghouse	0.00	0.20	Not Modeled in '94 Plan
35	Sinter Transfer	N/A	2.23	0.00	Removed Sinter Plant
36	Sinter Storage	N/A	13.13	10.20	Less Sinter Stored
37	On-Property Resuspension	N/A	112.00	25.70	RCRA Soil Clean Up
53	Screen	H2O Spray	0.00	0.01	Not Modeled in '94 Plan
54	Dust Agglomeration	N/A	0.00	0.00	New Permit
63	Sweat Furnace	Baghouse	0.00	3.29	New Permit
		TOTAL	1702.2	590.25	

Conversion: lbs/day x (365/2000) = tons/year

4.4 Demonstration of Continued Attainment

4.4.1 Development of Dispersion Model Inputs

4.4.1.1 Emissions Inventory

The 1997 emission inventory, which was used as the baseline for the 1997 modeling analysis, was developed from numerous references and individual smelter inputs. Fugitive emissions were measured for each smelter process using the average process throughputs during the time that measurements were being made. This provides an accurate estimation of the actual fugitive potential to emit. The 1997 emission inventory reflects the reductions in lead emissions created by control measures and operational changes following the 1994 revision to the lead plan.

4.4.1.2 Topography

The Doe Run Resource Recycling Division is located at the top of a north-south oriented ridge in western Iron County, Missouri at an elevation of approximately 1450 feet above Mean Sea Level. The terrain surrounding the ridge is comprised of low, vegetated hills, with drainage valleys approximately 100 to 200 feet below the hillside. All surface runoff from the facility drains into a lined concrete impoundment.

The surface runoff water in the impoundment is treated using a three-stage water treatment process. The water is adjusted for pH, flows through a flocculent process that uses a coagulant, and then passes through a sand filter before it is released into Crooked Creek, a permanent stream flowing to the southeast.

4.4.2 Model Input Development

In January of 1997, Shell Engineering & Associates, on behalf of the Doe Run Company, submitted a modeling study in support of the Resource Recycling Division's redesignation request. As submitted, the modeling procedures used in the study did not follow current air quality modeling guidelines. However, only minor changes were required to fulfill the recommendations described in 40 CFR Chapter 1 Part 51, Appendix W entitled "Guideline on Air Quality Models". These changes included the use of the most current version of the Industrial Source Complex Short Term (ISCST) Version 3 dated June 24, 1999. In addition, a number of the emission rates used in the original model were not based upon 365 days of operation per year. To correct this, the model was rerun using the emission rates contained in Section 4.3.2 of this plan. The revised modeling study is described in detail in the following paragraphs.

Current guidance states that the ISCST is the preferred air quality model for determining the maximum quarterly lead concentrations resulting from the operation of major lead sources. The ISCST Version 3 dated June 24, 1999, was used to evaluate the concentration of lead resulting from the operations at the Doe Run Resource Recycling

Division. The ISCST Version 3 is based upon the Guassian plume equation and can be used to model point, area, volume, and open pit sources. The model allows for the input of multiple sources, terrain elevations, structure effects, various grid receptors, wet and dry depletion calculations, urban or rural terrain, and averaging periods ranging from one hour to one year.

At the Doe Run Resource Recycling Division, emissions of lead result from process fugitives, baghouses, storage, resuspension, and raw material screening. Table 2 entitled "1997 Lead Emission Inventory" contains the emission points and the emission rate input into the ISCST Version 3 model. All of the sources were modeled at their 1997 potential emissions. Emissions from open storage, sinter storage, and resuspension were allowed to vary by wind speed and stability class. Appendix D provides the calculations used to determine fugitive emissions.

In order to determine the maximum impact from the recycling center, a Cartesian grid of coarseness varying from 240 meter to 100-meter spacing was utilized. The grid extended 2400 meters in each cardinal direction from the main stack. Terrain elevations were included as elevated terrain exists in the vicinity of the source.

Because on-site meteorological data was not available, the five latest consecutive years of meteorological data were obtained from the EPA Support Center for Regulatory Air Models web page located at the following address http://www.epa.gov/scram001. The meteorological input files were developed using surface data from Springfield Regional Airport and upper air data from Monett WSMO for the years: 1987-91. An anemometer height of 20 feet was input into the model.

To account for building downwash, the Building Profile Input Program (BPIP) was utilized. The information needed to execute the BPIP are the heights and locations of structures that could contribute to building downwash, and the stack locations in relation to these structures. BPIP serves two main functions. The first function of the program is to determine if a stack is being subjected to wake effects from a surrounding structure or structures. Flags are then set to indicate stacks that are affected by structure wake effects. If a stack is influenced by a structure, then the second function of the program is executed. The second function calculates the building heights and widths to be included in the model-input file so that building downwash effects can be considered.

In order to determine compliance with the NAAQS for lead, a background value must be included in the maximum-modeled quarterly concentration to account for unidentified sources, nearby sources, and natural sources of lead in the vicinity of the source. For this project, a background value of 0.15 $\mu g/m^3$ was used. Table 3 contains the maximum quarterly lead concentrations, including background, as predicted by the ISCST Version 3 model. Appendix G contains isopleth maps that show the expected location of the highest lead concentration.

Table 3
Modeling Results**

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
1987	0.50924	0.55654	0.57375	0.58840
1988	0.61580	0.55895	0.55847	0.57787
1989	0.53957	0.55611	0.48059	0.54208
1990	0.61306	0.64924	0.51146	0.72409
1991	0.63871	0.67190	0.59505	0.71612

**All concentrations are in $\mu g/m^3$

The maximum concentration predicted by the model occurred during the fourth quarter of 1990 with a value of 0.72409 $\mu g/m^3$. Based upon the model results the facility is in compliance with the NAAQS of 1.5 $\mu g/m^3$. The variance in the modeling results does not indicate anything more than production fluctuations and meteorological influences. Currently, the emissions are limited to regulation, work practices, and consent decree. Doe Run would be required to conduct a Prevention of Significant Deterioration (PSD) permit review for the installation of any new equipment to increase capacity. Therefore, emissions are expected to remain consistent for the foreseeable future. This consistency satisfies CAAA section 175A requirements to maintain the air quality for a period of ten years following redesignation. Furthermore, the state of Missouri commits to submit to the EPA, eight years after redesignation, a SIP revision projecting maintenance of the NAAQS for an additional ten years.

In addition to modeling attainment, the source must submit eight quarters of clean air quality data. As shown in Table 1, the monitor network has not measured an exceedance of the NAAQS for Lead in over 40 quarters. The North and South monitors continue to have quarterly averages significantly higher than the model predicted concentrations. These averages occur infrequently, but still indicate the need for further monitoring at these sites.

4.4.3 10-Year Projections and Growth Assumptions

Currently, emissions are limited through regulation, work practices, and consent decree. To forecast the emissions for the next ten years, the Missouri Department of Natural Resources addressed the growth assumptions for the facility, the emissions inventory and examined production increases for the prior 5 years.

Doe Run estimates that the Resource Recycling Division will increase potential production from 140,000 tpy to 200,000 tpy during the next ten years. Currently, the Doe Run Resource Recycling Division is limited by permit to 140,000 tpy. Doe Run will be required to conduct a PSD permit review for the installation of any new equipment to increase capacity past the 140,000 tpy limit. A condition of granting such a permit is modeling the new potential emissions and showing that the new plant configuration will not exceed the allowable PSD increments.

A "global capture" system designed to reduce process fugitives and improve the environmental performance of the facility is scheduled to be finished May 2003 (See Appendix F.). This "global capture" system will provide additional emission reductions which will partially offset emission increases associated with the potential production increase. Therefore, the facility is expected to continue to stay in attainment with the ambient air quality standards for lead during the next ten years and beyond, which satisfies CAAA section 175A requirements. The state commits to amend the SIP to include the revised production limit and modeling if the Doe Run Resource Recycling Division receives a PSD permit.

4.5 Annual Tracking and Inventory Updates

Doe Run's Resource Recycling Division will continue to operate the ambient air monitoring network for lead as described previously. The Short and Northwest monitors have been removed which will leave the South and North monitors to record ambient air data for lead. Changes in production levels could lead to a re-evaluation of the adequacy of the monitor network.

Annual emission inventory questionnaires will be updated as necessary, and Doe Run will conduct compliance testing of the main stack at a minimum of every two years. If any exceedance of the lead standard is measured, the state will take action to enforce the contingency plan.

4.6 Contingency Plan

4.6.1 Requirements

This plan provides for specific "contingency" lead emission control measures in addition to controls or restrictions identified by 10 CSR 10-6.120 or the SIP. Should the smelter violate the standard following the attainment date herein, these contingency measures shall take effect without further action by the state (Part D, section 172(c)(9), CAAA).

4.6.2 Determination of Need to Implement Contingency Control Measures.

If the air quality data for the calendar quarter following the attainment date exceeds the NAAQS for lead, the Missouri Department of Natural Resources shall notify the smelter owner/operator of nonattainment and the maximum air quality value that exceeds the standard. Doe Run shall then implement the contingency control measures sixty (60) days from receipt of the Missouri Department of Natural Resources' notice.

4.6.3 Contingency Control Measures

The following contingency control measures shall be implemented when a violation of the NAAQS for lead is monitored:

1. Pave remainder of employee parking area north west of the administrative building.

2. Increase the frequency of facility roadway sweeping and washdown to two shifts daily.

3. Replace bags in main baghouse compartment #1 with teflon coated bags to improve ventilation capacity to the furnace process and process fugitives.

4. Replace compartment #8 bags in main baghouse with teflon coated bags the first full quarter following installation of compartment #1 bags if the standard has not been achieved.

The Contingency Measures listed above are included in a Consent Order for the Doe Run Resource Recycling Division in Appendix B. This Consent Order replaces all earlier Consent Orders. It retains one contingency control measure from the previous Consent Order in amended form, and includes three new contingency control measures. Finally, the provisions for leased property was deleted from this Consent Order as Doe Run purchased the formerly leased land. The Consent Order will be submitted to EPA to be included in the Missouri SIP.

4.7 Commitment to Submit Subsequent Maintenance Plan Revisions

The state of Missouri commits to submit to the EPA, eight years after redesignation, a plan to project maintenance of the NAAQS for an additional ten years. A SIP revision will also be submitted if significant changes are projected for the facility that would affect the attainment status of the area. Significant changes could include a change in ambient air boundaries, a change in production or a change in ownership of the facility.

5.0 Enforcement Condition Authority

Legal authority for enforcement of the lead control strategy resides with the MACC under the existing Missouri Law RSMo 643 and the currently approved SIP. Point source controls are regulated by the existing Missouri regulation 10 CSR 10-6.120. New source construction is regulated by 10 CSR 10-6.060 and facility operation is regulated by 10 CSR 10-6.065. Control of malfunctions and upsets are regulated by 10 CSR 10-6.050.

The consent orders pertaining to The Doe Run Lead Company of Missouri as adopted pursuant to section 643.050.1(5), RSMo 1996, which provides that the MACC is empowered to:

> "Enter such order or determination as may be necessary to effectuate the purposes of sections 643.010 to 643.190. In making its orders and determinations hereunder, the commission shall exercise a sound discretion in weighing the equities involved and the advantages and disadvantages to the person involved and to those affected by air contaminants emitted by such person as set out in section 643.030. . . ."

The following sections of Missouri Law provide the enforcement condition authority to the MACC. These orders include requiring installation of equipment to reduce emission of air contaminants in order to attain and maintain the NAAQS for lead.

- Section 643.030, RSMo 1996, which provides that the discharge of air contaminants which cause or contribute to air pollution is contrary to the public policy and in violation of Chapter 643 RSMo.

- Section 643.190, RSMo 1996, which empowers the Air Conservation Commission to take all necessary or appropriate action to obtain the benefits of any federal air pollution control act

- Section 643.050.1(5) empowers the Air Conservation to issue orders necessary to effectuate approval of the SIP.

6.0 Summary

In 2000, the Missouri Department of Natural Resources submitted a request that the EPA change the designation of the Doe Run Resource Recycling Division from nonattainment to attainment of the NAAQS for lead. The plan revision and designation request satisfied the 1990 CAAA section 107(d)(3) requirements for redesignation and the section 175A maintenance plan requirements by:

1) showing more than eight (8) consecutive quarters of air data without exceedance of the NAAQS for lead. The Dent Township nonattainment area has not had a monitored exceedance since 1988.
2) performing dispersion modeling that did not forecast an exceedance of the NAAQS. The highest predicted value using the 1997 emission inventory was 0.725 $\mu g/m^3$.
3) implementing all RACT/RACM as part of the 1994 plan revision. Those controls provided enforceable and verifiable emission reductions that demonstrated attainment of the NAAQS for Lead.
4) showing air quality improvement that is permanent and enforceable. The 1994 lead plan revision established enforceable operating conditions that showed attainment of the NAAQS. This revision includes additional reductions that provide greater assurance of continued attainment and revises the contingency control measures.
5) containing a fully approved maintenance plan. Prior to or concurrent with a redesignation request, the state must have a fully approved maintenance plan as specified by section 175A. The maintenance plan contains the following elements:
    - Attainment Inventory - Shows that the current level of emissions has attained the NAAQS for Lead and confirms by monitored data, the area is in attainment. Lead emission inventory identifies the sources of lead used to demonstrate attainment.
    - Maintenance Demonstration - The maintenance demonstration shows that future emissions will not exceed the present inventory or it must show by modeling that any increase in emissions will not exceed the allowable PSD increments.
    - Monitoring Network - The state will continue to operate an appropriate air quality monitoring network to verify the attainment status of the area.
    - Verification of Continual Attainment - This demonstration shows that future emission inventories will not exceed the attainment inventory, or revised modeling demonstration.
    - Enforceable Contingency Measures - The Consent Order contains a list of contingency control measures that automatically become effective in the event of an exceedance of the NAAQS for lead.

The 2002 revision to the lead plan includes production limit changes in order to match revisions to 10 CSR 10-6.120 that revised furnace throughput limits. These changes allow Doe Run greater operational flexibility without increasing net lead emissions. Additionally, it corrects grammatical errors and updates the quarterly monitor results. The area has been redesignated as attainment of the NAAQS for lead, and there have not been any monitored exceedances. Therefore, it is not necessary to identify additional emissions reductions.

7.0 REFERENCES

1. "Short-Term Lead Monitoring Plan in the Vicinity of Significant Point Sources", Final dated December 1979, based on EPA Guidelines.

2. "An Example Control Strategy for Lead", EPA-450/2-79-002, April 1979.

3. "Control Techniques for Lead Air Emissions", EPA-450/2-77-012, December 1977.

4. "Guideline for Lead Monitoring in the Vicinity of Point Sources", EPA-450/4-81-005, January 1981. (Rev. 7-82).

5. "Evaluation of Lead Emission Controls at the Doe Run Company's Buick Smelter" (near Bixby, Missouri), Fluor Daniel, Inc., June 1991, Volumes (projects) 1, 2, 3, 5, 7, 8 and 9.

6. "Technical Memoranda: Potential Lead Emission Reductions at the Buick Smelter", The Doe Run Company, February 1993.

7. "Baseline Modeling of the Buick Lead Smelter Using ISCLT 2 Model for Primary and Secondary Lead Smelter and Modeling Analysis Report Demonstrating the Effects of Potential Lead Emission Reductions at the Doe Run Company's Buick Smelter", Shell Engineering & Associates, Inc., June 1993, in two volumes.

8. "Modeling Analysis Report Demonstrating the Effects of Potential Lead Emissions from Current (1993) Lead Producing Conditions at the Doe Run Company's Buick Smelter", Shell Engineering & Associates, Inc., June 1993.

9. Froning, D., Technical Report to Doe Run Buick file on 1997 Buick modeling results, Missouri Department of Natural Resources, Air Pollution Control Program, January, 1998

10. 10 CSR 10-6.060 Permits Required (re: CAA Part D).

11. "RACT Analysis for the Buick Smelter", The Doe Run Company, April 1993.

12. "Work Practice Manual" for Buick Smelter, December 1998.

13. "A Report to the Community, The Doe Run Company, Resource Recycling Division/Buick Facility, 1995.

APPENDIX C.

10 CSR 10-6.120 Restriction of Emissions of Lead from Specific Lead Smelter-Refinery Installations

10 CSR 10-6.120 Restriction of Emissions of Lead From Specific Lead Smelter-Refinery Installations

(1) General Provisions.

(A) Application. This rule shall apply to existing installations in Missouri engaged in specific smelting and refining for the production of lead.

(B) Operation and Maintenance of Lead Emissions Control Equipment and Procedures. The owner or operator of any specific lead smelter shall operate and maintain all lead emissions control equipment and perform all procedures as required by this rule.

(C) Methods of Measurement of Lead Emissions.

1. The method of determining the concentration of visible emissions from stack sources shall be as specified in 10 CSR 10-6.030(9).
2. The method of measuring lead in stack gases shall be the sampling method as specified in 10 CSR 10-6.030(12).
3. The method of quantifying the determination of compliance with the emission limitations from stacks in this rule shall be as follows:
   A. Three (3)-stack samplings shall be planned to be conducted for any one (1) stack within a twenty-four (24)-hour period in accordance with paragraph (1)(C)2. If this cannot be done due to weather, operating or other preventative conditions that develop during the twenty-four (24)-hour period, then the remaining samplings may be conducted in a reasonable time determined by the director following the twenty-four (24)-hour period;
   B. Each stack sample shall have a sampling time of at least one (1) hour;
   C. The process(es) producing the emissions to that stack being tested shall be operating at a minimum of ninety percent (90%) of capacity of the process(es) for the full duration of the samplings; and
   D. The emission rate to be used for compliance determination shall be quantified by using the following formula:
      Ec = T avg lbs per hour x 24 hours = lbs per 24 hours
      Where:
      Ec = 24-hour emission rate extrapolated from stack sampling results used for compliance determination; and
      T avg = Summation of hourly emission rates of three (3) stack sampling results, divided by three (3) for the average hourly rate.
4. The method of measuring lead in the ambient atmosphere shall be the reference method as specified in 10 CSR 10-6.040(4)(G).

(D) Operational Malfunction.

1. The owner or operator shall maintain a file which identifies the date and time of any significant malfunction of plant process operations or of emission control equipment which results in increased lead emissions. The file also shall contain a description of any corrective action taken.

including the date and time. 10 CSR 10-6.050 Start-Up, Shutdown and Malfunction Conditions shall apply.

2. All of these files relating to operational malfunction shall be retained for a minimum of two (2) years and, upon request, shall be made available to the director.

(2) Provisions Pertaining to Limitations of Lead Emissions from Specific Installations.

(A) Doe Run Primary Lead Smelter-Refinery at Glover, Missouri.

1. This installation shall limit lead emissions into the atmosphere to the allowable amount as shown in Table IA.

Table IA

Stack Name	Emissions Limitation (lbs per 24 hours)
Main Ventilation Baghouse	184.2
Blast Furnace	125.4
	82.3

2. Fugitive lead emissions from lead production processes.

A. This installation shall limit production of lead from processes that emit lead to the ambient air to the allowable amount as shown in Table IB and Table IC.

Table IB

Process Name	Throughput (tons per calendar quarter)
Sinter Plant—Material across Sinter Machine	202,000
Blast Furnace—Lead Bearing Material	75,000

Table IC

Process Name	Throughput (tons per day)
Sinter Plant—Material across Sinter Machine	3120

B. Record keeping. The operator shall keep records of daily process throughput corresponding with the processes in Table IB in subparagraph (2)(A)2.A. These records shall be maintained on-site

for at least three (3) years and made available upon request of the director.

(B) Doe Run Primary Lead Smelter-Refinery in Herculaneum, Missouri. This installation shall limit lead emissions into the atmosphere to the allowable amount as shown in Table II.

Table II

Stack Name	Emissions Limitation (lbs per 24 hours)
Main Stack	794.0
Number 7 & 9 Baghouse Stack	56.6
Number 8 Baghouse Stack	8.2

(C) Doe Run Resource Recycling Division. The following applies to Doe Run's 1998 and ongoing lead producing operations at this installation.

1. Lead emissions from stacks. This installation shall limit lead emissions into the atmosphere to the allowable amount as shown in Table III.

Table III

Stack Name	Emissions Limitation (lbs per 24 hours)
Main Stack	540.0

2. Fugitive lead emissions from lead production processes. This installation shall limit production from processes that emit lead to the ambient air to the allowable amount as shown in Table IV.

Table IV

Process Name	Throughput (tons per day)
Blast Furnace	786 Charge
Reverb Furnace	500 Charge
Rotary Melt	300 Charge
Refinery	648 Lead Cast

3. Record keeping. The operator shall keep records of daily process throughput corresponding with the processes in Table IV in paragraph (2)(C)2. of this rule. These records shall be maintained on-site for at least three (3) years and made available upon the request of the director.

(3) Provisions Pertaining to Limitations of Lead Emissions From Other Than Stacks at All Installations.

(A) The owner or operator shall control fugitive emissions of lead from all process and area sources at an installation by measures described in a work practice manual identified in subsection (3)(B). It shall be a violation of this rule to fail to adhere to the requirements of these work practices.

(B) Work Practice Manual.

1. 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.
2. The manual shall be the method of determining compliance with the provisions of this section. Failure to adhere to the work practices in the manual shall be a violation of this rule.
3. Any change to the manual proposed by the owner or operator following the initial approval shall be requested in writing to the director. Any proposed change shall demonstrate that the change in the work practice will not lessen the effectiveness of the fugitive emission reductions for the work practice involved. Written approval by the director is required before any change becomes effective in the manual.
4. If the director determines a change in the work practice manual is necessary, the director will notify the owner or operator of that installation. The owner or operator shall revise the manual to reflect these changes and submit the revised manual within thirty (30) days of receipt of notification. These changes shall become effective following written approval of the revised manual by the director.

(C) Record Keeping.

1. The operator shall keep records and files generated by the work practice manual's implementation.
2. The work practice manual shall contain the requirement that records of inspections made by the operator of fugitive emissions control equipment such as hoods, air ducts and exhaust fans be maintained by the operator.
3. Records shall be kept for a minimum of two (2) years at the installation and shall be made available upon request of the director for purposes of determining compliance.