



United States Environmental Protection Agency
Region 7
Enforcement and Compliance Assurance Division

Air Branch

Air Branch Inspection Report
Unannounced Partial Compliance Evaluation
Forest City Facility, LLC
111 Canon Hollow Road
Forest City, MO, 64451
FRS# 110017984608

Inspection Date(s):
February 14, 2023

LUKE

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INSPECTION OVERVIEW

INSPECTION OBJECTIVE

The objective of the partial compliance evaluation (PCE) inspection was to determine compliance of the facility with the Clean Air Act (CAA), specifically those requirements located in the code of federal regulations at 40 CFR Part 63 Subpart X. The inspection was part of the U.S. Environmental Protection Agency's (EPA) Creating Cleaner Air for Communities National Enforcement Compliance Initiative.

Table 1 lists the inspection team members.

Table 1. PROJECT TEAM MEMBERS		
Team Member	Organization	Project Role
Luke Rodriguez	EPA, Region 7, ECAD, Air Branch	Project manager (PM)
Dan Simmons	Missouri Department of Natural Resources (MoDNR), Northwest Region	Field team member

FACILITY CONTACT INFORMATION

Table 2 lists the primary facility contacts.

Table 2. FACILITY CONTACT INFORMATION		
Name, Title	Phone No.	Email Address
Hannah Voltmer, Environmental Lead	660-446-3321	hannah.voltmer@elementrelle.com
Nick Saveland, Capital Projects Engineer	660-446-3321	nicholas.saveland@elementrelle.com
Noah Jones, Plant Manager	660-446-3321	noah.jones@elementrelle.com
Mike Casper, Director Environmental Engineering	660-446-3321	mike.casper@motrexllc.com
James Capp, Environmental Director	660-446-3321	james.capp@motrexllc.com
Lacey Chitwood, Chief Counsel	660-446-3321	lacey.chitwood@motrexllc.com
Chuck Giesige, General Manager – Element Resources	660-446-3321	chuck.giesige@elementrelle.com
Robin Toups, Environmental Counsel	660-446-3321	robin.toups@taylorporter.com

FACILITY OVERVIEW

Forest City Facility LLC (Forest City) owns and operates a secondary lead smelting facility in Forest City, Missouri. The facility came online in 1979 and was recently owned by Exide until May of 2020. The facility is subject to 40 CFR 63 Subpart X - National Emission Standards for Hazardous Air Pollutants from Secondary Lead Smelting. This facility is a major source of sulfur

oxides (SO_x) emissions. It was previously also a major source of volatile organic compounds (VOC), however performance tests completed following the upgrades required by a 2014 consent agreement with the Missouri Department of Natural Resource (MoDNR) demonstrated VOC emissions below major source thresholds. Forrest City is a named source (secondary metal production) and fugitive emissions are counted in potential-to-emit calculations.

On September 25, 2014, Exide Technologies, the Missouri Attorney General's office, and the MoDNR signed a consent agreement to address violations of the 2008 Lead National Ambient Air Quality Standard. The agreement required upgrades to emission controls, including standard operating procedures manuals for fugitive dust control and baghouses.

On April 17, 2020, Forest City completed a valid compliant total hydrocarbon performance test of the blast furnace and were therefore required to complete subsequent total hydrocarbon testing no later than April 30, 2021. A valid passing test was completed on September 1, 2021. On February 2, 2023, MoDNR issued a Referral Notice of Violation to Forest City Facility LLC for completing a performance test required by 40 CFR Part 63 Subpart X, 123 days after the due date.

Table 3. APPLICABLE REGULATIONS AND STANDARDS	
Code of Federal Regulation	Standard Name
40 CFR Part 63	Subpart A, General Provisions, Subpart X - National Emission Standards for Hazardous Air Pollutants From Secondary Lead Smelting

FACILITY OPERATIONS SUMMARY

Forest City is an existing secondary lead smelting plant. The facility recycles used lead-acid batteries. The batteries are drained, and the components separated. The lead-bearing material is charged to a blast furnace. Molten lead moves to the bottom of the blast furnace and is routed to one of four refining kettles. At the refining kettle, alloys are added to meet final lead specifications. The lead then flows to a pig caster where final products consisting of 2,000-pound blocks and 65-pound ingots, are produced.

There are three baghouses in use at the facility. The main baghouse, also called the ‘wheelabrator’ baghouse, controls emissions from the furnace and charging areas. The main baghouse is divided into an east and a west side which consist of six cells each and function as

independent units. Air flow from each is combined prior to the main stack (EP001). There are two additional baghouses which collect emissions from the remainder of the enclosed building. These are called the negative pressure baghouse North (BH02) and negative pressure baghouse South (BH01).

FIELD ACTIVITIES SUMMARY

I arrived at the facility on February 14, 2023 and completed a drive by surveillance inspection at 9:00 AM. I made entry at the front gate and introduced myself and members of the inspection team, presented my credentials, and provided my business card to Mr. Noah Jones, the plant manager. I was given a facility safety briefing by Mr. Jones and Mrs. Hannah Voltmer. I conducted an opening conference during which I explained that the purpose of the visit was to conduct an inspection to determine compliance with the CAA and specifically, with the conditions listed in Table 3. I explained that after asking for some general business information, I would observe work practices, process units, emission units, control equipment and review associated records demonstrating compliance with the standard, permit, and regulation. I explained to Mr. Jones that the facility could make a claim of business confidentiality and provided him with a Confidential Business Information form (Appendix A). Mr. Jones did not make a claim of confidentiality.

I was given a facility tour by Mr. Jones and Mr. Saveland. I was provided the required facility specific personal protective equipment for entering the facility by Mr. Jones.

I reviewed the condition of emission units associated with lead emissions, the operating status of the equipment, and any required record keeping for the equipment for compliance with the regulations and permit conditions noted in Table 3. I obtained copies of the records as indicated on the Receipt for Documents (Appendix B).

I conducted a closing conference with those facility representatives listed in Table 2. I provided the facility with copies of the Confidential Business Information form and the Receipt for Documents.

Observations and potential findings from the facility tour, and records review, and sampling/measurement activities are noted in the **Investigation Observation and Potential Findings** section below.

INVESTIGATION OBSERVATIONS AND POTENTIAL FINDINGS

Ambient weather, site conditions and activities were documented in field records. All photographs are attached as **Appendix C**. I made the following observations during the inspection. I discussed all observations with facility representatives during the closeout meeting unless otherwise noted in the observation description.

These observations are not final compliance determinations. The EPA Region 7 Air Branch case review team will make the final compliance determinations based on its review of this report and other technical, regulatory, and facility information.

According to Permit Number: OP2019-017, the Forest City is an existing facility with respect to 40 CFR 63 Subpart X. This review evaluated select compliance requirements of 40 CFR 63 Subpart X at Forest City.

§ 63.543 – Standards for process Vents

§ 63.543(a) specifies the emission standards for process vent gases and the flow-weighted average for vent gases from a secondary lead smelting facility. The Forest City most recently completed this test on 04/12/22 through 04/15/22. The results were within the standard specified and the test was accepted by MoDNR.

§ 63.543(a)(1) requires demonstrating compliance with the flow weighted average emissions limit on a 12-month rolling basis. Forest City maintains a spreadsheet with the most recent test data and updates the data monthly in accordance with § 63.543(a)(4). This information is submitted in the Semi-Annual NESHAP Report. The facility does not use a continuous emissions monitoring system (CEMS) so § 63.543(a)(5) does not apply.

§ 63.543(d) specifies how to calculate emissions from facilities which combine furnace emissions. Forest City has one single blast furnace.

§ 63.543(e) indicates that for facilities which combine furnace emissions with the furnace charging process fugitive emissions and discharge them to the atmosphere through a common emissions point, compliance with the hydrocarbons limit in § 63.543(c) must be demonstrated a location downstream from the point at which the two emissions streams are combined. Forest

City does combine the furnace and fugitive furnace charging emissions – both are routed to the main stack. Testing for the hydrocarbons limit is conducted with readings taken downstream of the combination point.

§ 63.543(g) indicates that testing for compliance with lead emissions must be completed no later than 12 calendar months following the previous test. The most recent test was completed on 04/12/22 through 04/15/22 and the test prior to that was completed on 06/23/21 and 06/24/21. Forest City achieved an emission rate of 0.10 milligram of lead per dry standard cubic meter or less during the 2022 annual compliance test and submitted a written request to MoDNR applying for an extension of up to 24 calendar months. An extension from MoDNR was granted and the new test deadline is April of 2024.

§ 63.543(h) indicates that testing for compliance with hydrocarbon emissions must be completed no later than 12 calendar months following the previous test. On April 17, 2020, Forest City completed a valid compliant total hydrocarbon performance test of the blast furnace. Forest City was required to complete the subsequent hydrocarbon testing no later than April 30, 2021, in order to satisfy the requirement to test every twelve calendar months. A valid passing test was completed on September 1, 2021. Forest City completed the compliant performance test 123 days after the due date. On February 2, 2023, MoDNR issued a Referral Notice of Violation to Forest City for failing to complete a passing test within 12 months. The most recent test was completed on 04/12/22 through 04/15/22.

§ 63.543(i) specifies the schedule for completing dioxin and furans emission testing following the initial test. Subsequent tests must be completed once every 6 years following the previous test. Forest City most recently completed the dioxin and furan tests on June 23, and 24 of 2021. The next tests are required to be completed by June of 2027.

§ 63.544 – Total enclosure standards

§ 63.544(a) lists the types of equipment which is subject to the total enclosure standards. § 63.544(b) lists areas which do not require enclosure. Forest City has the following equipment/areas subject to the standard:

Table 4. FOREST CITY FACILITY EQUIPMENT			
Type of Equipment	Equipment At Facility	Location	Control Equipment
(1) Smelting furnaces.	1 blast furnace	Main building	EP001 (Main baghouse and stack)
(2) Smelting furnace charging areas.	1 charging area directly above the furnace	Main building	EP001 (Main baghouse and stack)
(3) Lead taps, slag taps, and molds during tapping.	Slag Taps and Molds only on the Kettle floor.	Main building	NPB1 & 2 (Vent to the 2 negative pressure baghouses.)
(4) Battery breakers.	Yes	Battery breaker room in main building	NPB1 & 2 (Vent to the 2 negative pressure baghouses.)
(5) Refining kettles, casting areas.	There are 4 kettles. 1 pig caster 1 block mold	Main building	EP001 (Main baghouse and stack)
(6) Dryers.	None at facility	N/A	N/A
(7) Agglomerating furnaces and agglomerating furnace product taps.	None at facility	N/A	N/A
(8) Material handling areas for any lead bearing materials except those listed in paragraph (b) of this section.	Mix room De minimis room South Containment building Dock Room 80 x 80 Room	Main building	NPB1 & 2 (Vent to the 2 negative pressure baghouses.)
(9) Areas where dust from fabric filters, sweepings or used fabric filters are processed.	None at facility	N/A	N/A

§ 63.544(c) requires that total enclosures must be free of significant cracks, gaps, corrosion or other deterioration that could cause lead bearing material to be released. The facility is comprised of a single building. One set of negative draft fans create negative pressure for the entire facility. I walked around the facility and reviewed the condition of the enclosure. There were two roll-up doors which had sustained damage. These are visible in photos 8 and 9 in Appendix C. In both cases, Forest City had taken some measures to block the gaps created by the accident. I was told by Mr. Jones that the facility had already contacted a door repair company but that the company was booked and could not immediately get to the facility to complete the work. I did not see any other gaps or cracks in the enclosure. § 63.544(c) further requires that measures be in place to prevent the tracking of lead bearing material out of the unit by personnel or by equipment used in handling the material and that an area must be designated to decontaminate equipment and any rinsate must be collected and properly managed. Each door at the facility has a boot wash station and I observed one in use by an employee. Each loading door

has wash equipment and signs posted. See Photo 10 for a boot wash station and photo 16 for an equipment wash station in Appendix C.

§ 63.544(c)(1) The total enclosure must be ventilated continuously to ensure negative pressure values of at least 0.013 mm of mercury (0.007 inches of water). Forest City captures this information on a PLC which logs the data in a Historian. There were 2 instances in the 1st half of 2022 where the negative pressure in the facility fell below 0.013 mm of mercury (0.007 inches of water); on 2/22/22 and 3/24/22. Both instances were due to power loss.

§ 63.544(c)(2) The facility must maintain an inward flow of air through all natural draft openings. I opened several doors and observed a strong inward flow into the facility from each.

§ 63.544(c)(3) specifies locations for monitoring (c)(1) and (c)(2). The Forest City has also set up alarms to activate in the event that the pressure differential drops below the required value. I reviewed the past 6 months of data, there were no alarms which occurred in the 6 months preceding my visit.

§ 63.544(d) requires a facility to inspect enclosures and facility structures that contain any lead-bearing materials at least once per month and must repair any gaps, breaks, separations, leak points or other possible routes for emissions of lead to the atmosphere within one week of identification. Appendix D is a log of the monthly inspections from 2022. The form indicates whether damage is visible and whether the incident has been referred to maintenance for correction.

§ 63.545 – Standards for fugitive dust sources

§ 63.545 (a) requires that a subject facility prepare, and at all times operate according to, a standard operating procedures manual that describes in detail the measures that will be put in place and implemented to control the fugitive dust emissions from the sources listed in paragraphs (a)(1) through (7) of § 63.545. The SOP Manual must address the components in § 63.545 (c)(1) through (7). Appendix E is the facility's "Standard Operating Procedures Manual for Fugitive Dust Sources" which was last revised in October of 2014. The SOP contains each of the required sections under § 63.545(a)(1) through (7). Appendix F is the facility's record of the sweeper/water truck operations log. There is a record of 2 pavement cleanings per day as required by § 63.545(c)(2) for each day in 2022. Appendix G is a record of the mobile equipment

wash log. As required under § 63.545(c)(5), a record of each instance where a vehicle exited the material storage and handling area. The record does not indicate which activities were completed during each cleaning, only that a cleaning occurred.

§ 63.545(d) The standard operating procedures manual must specify that records be maintained of all pavement cleaning, vehicle washing, and battery storage inspection activities performed to control fugitive dust emissions. The “Standard Operating Procedures Manual for Fugitive Dust Sources” specifies records to be maintained.

§ 63.545(e) requires a facility to pave all grounds on the facility or plant groundcover sufficient to prevent wind-blown dust. The Forest City is entirely paved or covered with plant groundcover.

Forest City has not requested alternative measures to the practices required by § 63.545.

§ 63.548 – Monitoring Requirements

§ 63.548(a) requires that a facility prepare, and at all times operate according to, a standard operating procedures manual that describes in detail procedures for inspection, maintenance, and bag leak detection and corrective action plans for all baghouses (fabric filters or cartridge filters) that are used to control process vents, process fugitive, or fugitive dust emissions. Appendix H is the facility’s “Standard Operating Procedures Manual for Baghouses” revised on 1/25/2023. § 63.548(c)(1) through (9) and § 63.548(d) specifies the minimum requirements for the SOP. The Forest City SOP meets the requirements in § 63.548(c)(1) through (9) and § 63.548(d). I requested the inspection and maintenance records required by the SOP for 2022. These records are included as Appendix I.

§ 63.548(e)(1) through (8) specify the requirements for any bag leak detection systems. Forest City uses a bag leak detection system (BLDS) on the Main Baghouse (EP001) also called the “Wheelabrator” baghouse. The other two negative pressure baghouses are HEPA filters and thus under § 63.548(g), are not required to be equipped with BLDS. The BLDS was installed, certified and calibrated by the manufacturer. There were no bag leak detection alarms during 2022 and therefore no corrective actions were required to be documented.

§ 63.548(f) indicates that the SOP required by § 63.548(a) must include a corrective action plan with specific requirements. The Forest City SOP (Appendix G) includes a corrective action plan for bag leak events and includes the requirements listed in § 63.548(f)(1) and (2).

As noted above, § 63.548(g) does not require a baghouse equipped with a high efficiency particulate air (or HEPA) filter, be equipped a BLDS. However, there are different requirements for such equipment which include monitoring, inspection and repairs. The negative pressure baghouse North (BH02) and negative pressure baghouse South (BH01) units are monitored, inspected and repaired in accordance with the “Standard Operating Procedures Manual for Baghouses” as described above. In the facility’s written response to a request for records of corrective actions which occurred in 2022, a Forest City letter said “HEPA limit specified by Manufacturer is 3” [inches] H₂O. All daily averages were below 3”. Therefore, there were no corrective actions.” According to Mr. Jones and Mrs. Voltmer, Forest City maintains a BLDS on these units but does not report compliance based on those alarms. The BLDS operates prior to the HEPA differential pressure readings and would shut down the system prior to a differential pressure reading outside of the normal range. The record of the daily differential pressure readings are included in Appendix I.

§ 63.548(h) and § 63.548(i) specify requirements if the facility is using a wet electrostatic precipitator or a wet scrubber respectively. Forest City is using neither and these sections are not applicable.

§ 63.548(j) includes requirements for demonstrating continuous compliance with the total hydrocarbons ,dioxins and furans emissions standards. Forest City maintains a contract with Sulfonix to conduct quarterly calibrations. The thermocouples are certified by the manufacturer. The temperature established during the most recent test was 1319° F. Mrs. Voltmer manually checks each 3-hour average temperature against the operating record to determine whether any 3-hour block average exceedance occurred during normal operations. I reviewed the last 6 months of the temperature records on site. I reviewed the last 6 months of the temperature data by searching for minimum values in a spreadsheet maintained by Mrs. Voltmer. I did not see any values below 1269 °Fahrenheit (more than 50 °Fahrenheit below the established average) during non-startup or shutdown events.

§ 63.548(k) specifies monitoring requirements for each total enclosure. As described above, the Forest City is a single enclosed building. I reviewed the location of the required digital differential pressure monitoring system. The system was in place on the required three walls. I reviewed the last 6 months of facility total enclosure differential data by searching for minimum values in a spreadsheet maintained by Mrs. Voltmer. I did not see any values below the standard of 0.007 inches of water.

§ 63.548(l) requires new or reconstructed sources to install and operate a CEMS for measuring lead emissions. The Forest City is an existing facility and according to Mr. Jones, has not undertaken any improvement or maintenance activities on their existing equipment which would exceed 50% of the fixed capital cost that would be required to construct a comparable new source. Mr. Jones did say that there are regular recurring rebuilds of the brick refractory and steel water jackets (as needed), the afterburner is rebuilt every 3 or 4 years and the crucible is rebuilt or repaired every 3 or 4 years. According to Mr. Jones, none of these rebuild or repair activities have resulted in a change in the operation of the facility.

Potential Finding 1: Facility failed to complete 40 CFR 63 Subpart X test by deadline.
Observation Summary: Forest City Facility completed a test 123 days after the required completion date.
Citation: § 63.543(h)
Evidence: February 2, 2023, MoDNR Referral Notice of Violation
Description of Observation: On April 17, 2020, Forest City Facility completed a valid compliant total hydrocarbon performance test of the blast furnace and were therefore required to complete a subsequent total hydrocarbon testing no later than April 30, 2021. A valid passing test was completed on September 1, 2021.