

CAA 112(r) INSPECTION REPORT

Name: Brushy Creek Facility	
Address: 10827 Highway KK Boss, MO 65440	Date of Inspection: April 20, 2022
County: Reynolds	Case No: 22MO0420
Phone: (573) 244-8650	RMP No: 1000 0008 9049
High Risk: No	FRS No: 1100 1800 8920
CAA Title V: No	Program Level: Program 2
Mailing Address: 1801 Park 270 Drive, Suite 300, St. Louis, MO 63146	
Process: Storage and use of sulfur dioxide for pH adjustment in milling process	

SUMMARY OF OBSERVATIONS

A review of documents pertaining to Brushy Creek Facility at 10827 Highway KK, Boss, Missouri (facility), and an inspection at that facility—both with focus on Chemical Accident Prevention Provisions (Title 40 *Code of Federal Regulations* [40 CFR] Part 68)—revealed the following deficiencies:

- 1. The facility had not estimated the population that would be included within a circle where its center is the point of the release and a radius determined by the distance to endpoint, as required by 40 CFR 68.30(a).**
- 2. The facility had not maintained records on the off-site consequence analyses related to data used to estimate population, as required by 40 CFR 68.39(e).** *This preliminary finding was identified based on post-inspection findings.*
- 3. The facility had not addressed consequences of deviation in the standard operating procedures (SOP), as required by 40 CFR 68.52(b)(7).**
- 4. The facility had not certified that compliance audits are conducted at least every 3 years, as required by 40 CFR 68.58(a).**

INTRODUCTION

I, Robert Monnig, Tetra Tech, Inc. (Tetra Tech), as a representative of U.S. Environmental Protection Agency (EPA) Region 7, inspected the Brushy Creek Facility in Boss, Reynolds County, Missouri, on April 20, 2022. On April 18, 2021, by voicemail and email, I notified Mr. Kevin James, Environmental Compliance Manager of Doe Run, of the upcoming inspection. The same day, Mr. Bryan Kemnitzer, Supervisor of Environmental Compliance for Doe Run, called me to acknowledge the notice of inspection.

The intent of the inspection was to determine if the facility complies with Section 112(r) of the Clean Air Act (CAA), as amended in 1990. EPA's regulations describing implementation of this law are included in 40 CFR 68 (CAA). All attachments cited in this inspection report (Attachments 1 through 9) are also in a folder on the accompanying CD. Folder numbers on the CD correspond to attachment numbers. As an example, Attachment #2 is in Folder #2. The CD contains a copy of this inspection report, emails between the facility and the compliance inspector, checklists, and completed forms. Because photographs I took during the walk-through were claimed by the facility as confidential business information (CBI), they are not included with this report.

HISTORY OF BUSINESS

The covered process of the facility is at 10827 Highway KK in unincorporated Reynolds County approximately 7.75 miles south-southeast of Boss, Missouri. The Brushy Creek Facility is a mill associated with the Brushy Creek Mine, and is part of the Doe Run company's Southeast Missouri Mining and Milling Organization (SEMO). The mill at the facility processes lead, copper, and zinc-bearing ore from the Brushy Creek Mine. Sulfur dioxide is the substance at the facility regulated under risk management plan (RMP) requirements. It is used in a covered process that includes a bulk storage tank storing liquid sulfur dioxide under pressure and piping to deliver sulfur dioxide vapor to the milling process.

The following summarizes reported/observed amounts of sulfur dioxide at the facility:

Parameter	Quantity (pounds)
	Sulfur dioxide
Quantity listed in 2019 RMP Submission	95,680 ^(a)
Emergency Planning and Community Right-to-Know Act (EPCRA) Tier II Maximum Daily Amount	100,000 – 499,999 ^(b)
Quantity at the Time of Inspection	30,674 ^(c)

Notes:

(a) See facility's 2019 RMP Submission (Attachment 2 on CD).

(b) See facility's 2021 EPCRA Tier II report (Attachment 3).

(c) On April 20, 2022, the facility reported an inventory of 30,674 pounds (Attachment 4).

PERSONS INTERVIEWED AND INDIVIDUAL RESPONSIBILITIES

I interviewed the following persons as part of the inspection process:

Kevin James Environmental Health and Safety Manager, Doe Run Company
 Bryan Kemnitzer Environmental Compliance Supervisor, Doe Run Company
 Kyle Anderson Environmental Specialist, Doe Run Company

OPENING CONFERENCE

I arrived at the Brushy Creek facility office on April, 20, 2022, at approximately 8:30 a.m. and met Mr. James, Mr. Kemnitzer, and Mr. Anderson. I explained that I was conducting the inspection under authority of the CAA's Chemical Accident Prevention Provisions, and that I would have to conduct a walk-through of the covered process, taking photographs. I also stated

that after completing the walk-through and reviewing all applicable documents, I would conduct an exit interview to explain my findings, provide a receipt for any requested document copies, and answer questions. I showed Mr. Kemnitzer and Mr. James my inspector credentials from EPA Region 7. I then filled out a Notice of Inspection Form (Attachment 1). I explained that my inspection was for enforcement purposes and that enforcement actions could result from the inspection. Mr. James signed the Notice of Inspection form.

After the introduction, Mr. Kemnitzer asked me if I had been trained in U.S. Department of Homeland Security Chemical-terrorism Vulnerability Information (CVI). I told him I had not, and Mr. Kemnitzer asked if I would take the web-based training before continuing the inspection. I completed the training, which took less than an hour, and I provided Mr. Kemnitzer a copy of my CVI authorized user certificate. We then proceeded with the inspection.

Mr. Kemnitzer and Mr. James told me that the facility was not subject to Occupational Safety and Health Administration (OSHA) Process Safety Management (PSM) rules, but was subject to Mine Safety and Health Administration (MSHA) rules under 30 CFR. Based on this information, I inspected the covered process as an RMP Program Level 2 process, and I noted my findings on the RMP Program Level 2 Process Checklist (Attachment 1).

After an overview of facility operations, I conducted a walk-through of the facility accompanied by Mr. Kemnitzer and Mr. Anderson. During the walk-through, I observed the 8,000-gallon sulfur dioxide storage vessel and associated piping that conveys sulfur dioxide vapor to the milling process housed in the mill building adjacent to the storage tank. Photographs I took during the walk-through were claimed by the facility as CBI and are not included with this report.

HAZARD ASSESSMENT

I asked for the facility's hazard assessment off-site consequence analysis (OCA) documentation, including the facility's prepared worst-case and alternative release scenarios. Mr. Kemnitzer showed me the facility's 2019 RMP submission that lists parameters used to estimate the distance-to-end-point radii (DTE) under worst-case and alternative release scenarios. Mr. Kemnitzer also provided me a copy of output from EPA's RMP*Comp calculator, which showed a worst-case scenario DTE calculation of 11 miles (Attachment 5). I noted the facility's 2019 RMP submission specified an estimated residential population within the worst-case DTE of 15,000 persons. I asked to see documentation of the population estimate within the worst-case DTE. Mr. Kemnitzer and Mr. James were not able to locate such documentation. I asked if the population had been estimated within the radius of the worst-case DTE. Mr. Kemnitzer and Mr. James replied that they were uncertain if the population had been estimated in this manner and were not able to locate documentation of the population estimate. Based on this information, I identified the following preliminary finding:

- 1. The facility had not estimated the population that would be included within a circle where its center is the point of the release and a radius determined by the distance to endpoint, as required by 40 CFR 68.30(a).**

During my post-inspection review of facility documentation, I noted that 40 CFR 68.39(e) requires facilities to maintain various records of the off-site consequence analysis, including

records related to data used to estimate population. Therefore, I identified the following post-inspection preliminary finding:

- 2. The facility had not maintained records on the off-site consequence analyses related to data used to estimate population, as required by 40 CFR 68.39(e).** *This preliminary finding was identified based on post-inspection findings.*

PROCESS SAFETY INFORMATION

I examined the facility's process safety information and obtained a copy of the facility's safety data sheet (SDS) for sulfur dioxide (Attachment 4).

I asked Mr. Kemnitzer if the facility had compiled written information regarding the sulfur dioxide equipment. Mr. Kemnitzer provided me a copy of a drawing of sulfur dioxide equipment and specifications. Following the inspection, the facility claimed these documents as CBI; therefore, these documents are not included in this report.

Mr. James stated that the sulfur dioxide system had been installed in the late 1970s. Mr. Kemnitzer told me that the facility adheres to Missouri pressure vessel standards, and engages outside consultants to inspect the covered process equipment in order to ensure conformance of the system to recognized and generally accepted good engineering practices. I obtained copies of documents related to the amount of sulfur dioxide in the storage vessel at the time of the site inspection and the facility's maximum intended inventory (Attachment 4).

HAZARD REVIEW

I asked Mr. Kemnitzer whether the facility had performed hazard reviews as required by 40 CFR 68.50. He provided documentation of a review conducted in 2018 (Attachment 10). It included the required elements—hazards associated with the process and regulated substances, opportunities for accidental release, safeguards to limit malfunctions or errors, and steps to detect or monitor releases. The facility had identified various issues during the 2018 review, and had documented these issues and resolutions to them (Attachment 10).

OPERATING PROCEDURES

I asked to review the facility's operating procedures for the facility's sulfur dioxide process. Mr. Kemnitzer provided the SOPs for the covered process (Attachment 6). I verified that the facility had procedures for initial startup and startup after emergency shutdown, normal and temporary operations, and normal and emergency shutdown. However, I noted that the procedures did not address consequences of deviation and steps required to correct or avoid deviations. Therefore, I identified the following finding:

- 3. The facility had not addressed consequences of deviation in the SOPs, as required by 40 CFR 68.52(b)(7).**

TRAINING

Mr. Kemnitzer said that the facility provides annual refresher training to employees involved in the sulfur dioxide system, and he showed me a training presentation regarding sulfur dioxide safety awareness. He also showed me MSHA records of sulfur dioxide training. Mr. Kemnitzer told me that the facility provides on-the-job training to employees operating the process.

MAINTENANCE

I asked to see the facility's maintenance procedures and inspection documentation. Mr. Kemnitzer informed me that the facility uses a preventative maintenance (PM) database program called AS400 that generates PM work orders related to maintenance of the covered process equipment. I asked to see documentation of inspections and tests performed on relief devices of the sulfur dioxide storage vessel. Mr. Kemnitzer was able to show me previously completed PM workorders documenting annual replacements of the pressure relief devices of the storage vessel (including pressure relief valves and rupture discs). Mr. Kemnitzer also told me that the facility has an outside contractor annually perform an acoustic emission test of the sulfur dioxide storage vessel to detect cracks, deformities, and other flaws.

COMPLIANCE AUDITS

I asked to see the two most recent compliance audits the facility had conducted. Mr. Kemnitzer provided audits performed in 2018 and 2019 (Attachment 7). I noted that neither compliance audit included a certification statement. I inquired of Mr. Kemnitzer whether the facility had certified performance of compliance audits at least every 3 years. Mr. Kemnitzer was not able to find such documentation; therefore, I identified the following preliminary finding:

- 4. The facility had not certified that compliance audits are conducted at least every 3 years, as required by 40 CFR 68.58(a).**

I reviewed the 2019 compliance audit and noted that the auditor had offered several recommendations. I asked if the facility had determined and documented a response to each finding of the audit. Mr. Kemnitzer showed me a copy of a spreadsheet used to track recommendations from the compliance audit and the associated response (Attachment 7).

INCIDENT INVESTIGATION

I asked Mr. Kemnitzer and Mr. James about for more information about an accident on April 15, 2018, that was listed in the accident history section of the facility's RMP submission and whether the facility had prepared an incident investigation report. Mr. Kemnitzer provided me a copy of the incident investigation report regarding the sulfur dioxide release on that date (Attachment 8). I reviewed report, which stated that the release had occurred from a pop-off valve of the sulfur dioxide storage vessel due to over pressurization of the storage vessel. I asked what caused the over pressurization, and Mr. James responded that a heater for the storage vessel had not shut off when vapor pressure had reached a benchmark level—suspected to have resulted from failure of response by a faulty sensor associated with the heater control. The accident history section of the facility's RMP submission specifies duration of the leak as 12 hours and 47 minutes. I asked Mr. James about the shelter-in-place of four persons indicated in the accident history section of the RMP submission. Mr. James replied that, during the release, the facility had asked occupants of three nearby residences to shelter-in-place. He said that the facility had

also closed County Road 906 (Reynolds County Road) with permission from the local sheriff's office. Mr. Kemnitzer showed me documentation that corrective action related to the release had included replacement of a rupture disc and the pop-off valve that had opened, installation of redundant sulfur dioxide tank pressure sensors tied into the "DeltaV" control and alarm system, and installation of redundant heater controls. I obtained copies of these documents (Attachment 8).

I inquired whether other releases of sulfur dioxide had occurred, and Mr. Kemnitzer provided me a copy of an incident investigation report regarding a sulfur dioxide release on May 3, 2018 (Attachment 8). The report documents occurrence of a small vapor leak at the top of the storage vessel, and repair of the vessel by Lee Mechanical. Mr. Kemnitzer told me that no injuries were associated with the release, and that no persons had to shelter-in-place. Based on my review of documents and interviews with facility representatives, these two incidents did not appear to be related.

EMERGENCY RESPONSE

I asked if the facility is designated as a responding facility. Mr. James responded affirmatively and told me that trained facility personnel (the facility's Mine Safety Group) would respond to an accidental release of sulfur dioxide. I inquired whether the facility had an emergency response program. Mr. Kemnitzer provided me a copy of the facility's emergency response plan (Attachment 9). Mr. Kemnitzer stated that the facility mails and emails this plan to nearby community responders such as the local fire and sheriff department, and regularly invites these community responders to visit the facility. Mr. Kemnitzer also told me that many community emergency responders are also employees of Doe Run.

I asked for a copy of the facility's most recent EPCRA Tier II report, and received a copy of the facility's 2021 report (Attachment 3).

CLOSING CONFERENCE

At the end of the inspection, I reviewed my observations and the preliminary findings with Mr. James, Mr. Kemnitzer, and Mr. Anderson. I explained that additional findings could be identified via post-inspection review of the documents obtained. I provided the Confidentiality Notice and the completed Receipt for Samples and Documents form (Attachment 1). Mr. James reviewed the receipt for documents first, signed it, and completed the Confidentiality Notice. Mr. Kemnitzer subsequently identified the following documents as CBI:

- All photographs taken during the inspection
- Drawing of sulfur dioxide equipment and specifications.

I then filled out the Notice of Preliminary Findings form (Attachment 1) and provided it to Mr. James for review and signature.

I departed the facility around 3:45 p.m. on April 20, 2022.

This report concludes my inspection activities regarding the Brushy Creek Facility in Boss, Missouri.



Robert Monnig
Compliance Inspector

ATTACHMENTS

- 1 – Inspection Forms and Checklists
- 2 – 2019 RMP Submission
- 3 – EPCRA Tier II Report
- 4 – Process Safety Information
- 5 – Offsite Consequence Analysis
- 6 – Standard Operating Procedures
- 7 – Compliance Audits
- 8 – Incident Investigation Reports
- 9 – Emergency Response Plan
- 10 – Hazard Review
- CD – Attached to Report