



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

Report Title: Clean Air Act Inspection of Joseph Smith & Sons, Inc.
Inspection Date(s): 03/17/22
Regulatory Program(s): Minor facility registered with the State of Maryland Department of The Environment (MDE), Synthetic Minor Source with respect to NOx.
Company Name: Joseph Smith & Sons, Inc.
Facility Name: Joseph Smith & Sons, Inc.
Facility Location: 2001 Kenilworth Avenue
Capitol Heights, MD 20743
Latitude: 38.91571 **Longitude:** -76.93187
County/Parish: Prince George's County
AFS Number: FRS # 110001833892
Permit Number: MD00000002403300956
NAICS Code: 423930 **SIC:** 5093
Unique Project #: 3E22T36U36A

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Date

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Signature

Kristen Hall
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Date

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I. Introduction

The United States Environmental Protection Agency (EPA) conducted a Clean Air Act (CAA) inspection at Joseph Smith & Sons, Inc. (Joseph Smith & Sons or the Facility) to verify compliance with applicable State and Federal regulations. The Maryland Department of the Environment (MDE) was notified of the inspection on March 1, 2022, via email. On March 15, 2022, EPA notified the Facility of the planned inspection via phone and email. EPA emailed a list of records for review to Kelly Boyle, Environmental Health and Safety (EH&S) Manager, prior to the inspection (see Attachment 1).

A. Summary of the Facility

Joseph Smith & Sons is a privately owned scrap recycling company located at 2001 Kenilworth Avenue, Capitol Heights, MD 20743. The Facility is part of South Industries which was established in 1898 and is one of the largest scrap metal companies in the mid-Atlantic region. Joseph Smith & Sons registered with the MDE as an auto shredding company and commenced operations at this location in the 1960s. The Facility initially applied on July 30, 1990 and registered with MDE for automobile scrap and miscellaneous sheet metal to be shredded at a rate of 150 tons per hour (tph) of which 111 tph would be steel, 4.5 tph non-ferrous metals and 34.5 tph non-metallic scrap. The Facility is registered for annual scrap usage of 480,000 tons per year (tpy).

Joseph Smith & Sons now occupies an area of about 100 acres, this is an increase from the 15 acres which they occupied when their operations began. The Facility is affiliated with three other shredding operations, two of which are in Allegheny County, Md. They also share an autonomous ownership with EMR Metal Recycling Company, which is in Camden, NJ.

MDE issued the Facility a Minor Operating Permit (MD0000002403300956) on May 8, 2014, the Facility is a synthetic minor source for NO_x. Roland Gorschboth, Air Quality Inspector from MDE stated that this permit is still in effect since a renewal has not yet been issued. The facility representative Kelly Boyle, Environmental Health and Safety (EH&S) Manager, stated that an ongoing PCB issue involving the surrounding creek has contributed to the delay in the permit approval process.

B. Inspection Opening Conference

At 1:00 pm on Thursday March 17th, 2022, EPA inspectors arrived at the Facility for a CAA Inspection. Kelly Boyle, EH&S Manager, greeted the inspection team and took us to the office to introduce us to Travis Smith, Executive VP, and to conduct a brief opening conference.

Joseph Smith & Sons (JSS) was represented by Travis Smith; Executive VP, Kelly Boyle; EH&S Manager, Dan Donovan; Manager, and Susan Barnes from Trinity Consultants. Roland Gorschboth, MDE inspector, was also present. EPA inspectors, Erin Willard, Shaun Burke, and Stafford Stewart, presented their credentials and explained the purpose of the visit was to

conduct an inspection to determine compliance with the permit and any applicable regulations. EPA inspector, Erin Willard explained to the Facility that the inspection would also involve a facility tour and a close out conference. Erin Willard also explained to the facility that no compliance determination would be made at this time and that a report of the inspection would be sent within 60 days. Additionally, EPA informed the Facility representatives of their right to claim any confidential business information (CBI), they also stated that photos would be taken and that the Facility would be given an opportunity to review them. At that time, Joseph Smith & Sons did not claim any photos or documentation as CBI, but Travis Smith stated their “wet separation technology” process would most likely be claimed under CBI. Travis Smith inquired why they were targeted for inspection. Inspector Erin Willard explained that the inspection was part of EPA’s National Compliance Initiative, and that the Facility was in a potential area of Environmental Justice (EJ) concern.

The Facility representative, Travis Smith provided a video overview of the operations. In the video it was stated that Joseph Smith & Sons is a scrap metal recycler, the goal is 100% recycling, non-metals including plastics that would otherwise be sent to a landfill are recycled. It was also stated in the video presentation that the Facility is committed to extracting all the metals out of the automotive shredder residue (ASR) or “fluff” and that the next major objective is to extract “organics” out of the plastics. Shredder operation hours are adjusted according to peak electric demand to take advantage of better electric rates. Maintenance is performed on the shredder as needed, there is no set time for maintenance.

II. Site Activity/Process Description

Raw materials, including the feedstock for shredding, arrive at the facility via trucks or railcars. The Facility uses large cutting shears attached to heavy equipment to cut the raw materials, these large mobile shears work essentially as a large pair of scissors, used to cut beams, rail tracks and other “large” metal pieces to a manageable size. The raw materials or feedstock consist of scrap metals received from the public, small family operations, tow companies, salvage yards, as well as from larger construction and demolition companies. Materials received include end of life vehicles (ELVs), loose metals, steel plates, cast iron, rebar, washers, dryers, refrigerators, and metallic construction debris. Items like old appliances are called “white goods” and accounts for about 10% of the feed, with the remainder being the other items listed above. Non-ferrous scrap includes, wires, copper, brass, computers, air conditioner coils, brass pads, insulated wires, aluminum cast, soft lead, and electronic motors.

ELVs can either be crushed prior to receiving, or are accepted without crushing; however, each vehicle must have a “de-polluting” process completed. If any vehicles are found to contain batteries, engine fluids (gasoline, antifreeze, oil), mercury switches or refrigerants, the vehicle is rejected. There is no torch cutting, nor coatings, sprays, degreasers, or parts washers that are used on site. If any scrap is found containing propylene or acetylene tanks or any other prohibited substance the supplier could be fined or barred for a certain period. Construction and demolition

(C&D) waste is limited to metallic materials. There are no vehicle draining racks, checks are made for mercury (Hg) switches or refrigerants and if any of these materials are found, the vehicles are rejected.

Scrap for processing is transferred by stationary cranes from the scrap pile and after cutting, the raw materials are conveyed into the shredder, the ratio of the feedstock is typically 3:1 of white goods to ELVs. The shredding operation is equipped with a magnetic separator, a water separator, and a conveyor system. The feedstock is conveyed to the shredder box of the 5000 horsepower (hp) hammermill type shredder and is processed (pulverized) by the rotating hammers, resulting in finished material, some of which are mill ready and some subject to further processing. Water sprays are injected into the shredder mill base at a rate of 1000 gals/min to control fugitive dusts and to cool the unit to prevent fires. The water system is based on the amperage draw of the motor; however, the water spray can also be controlled at the operator's discretion. EPA inspectors Erin Willard and Stafford Stewart asked about the source of the water used and whether the injection rate was steady. Kelly Boyle stated that both public and creek waters are used and that the water injection rate is checked by an operator. EPA inquired whether a creek withdrawal permit had been issued by Maryland, and whether the Facility ever experienced dry creek conditions. Facility staff were unsure of the water withdrawal permit requirements. Kelly Boyle also stated that they have never experienced any dry creek conditions.

After the raw materials are shredded, the facility uses numerous types of mechanical separation to categorize and separate metals, plastics, and textiles into saleable materials. The shredded scrap is conveyed to magnetized rollers which are utilized to create two streams, metallic "frag" and non-ferrous "fluff" or ASR. The Facility's primary separation technology is mechanical separation, wet technology is also used to enhance separation since the Facility is a 100% recycle company. Separation occurs as the ferrous metal adheres to a rotating drum and is then dropped onto another conveyor, while the non-ferrous material is conveyed for further processing, the separation is about 74% "frag" and 26 % "fluff". The "frag" is mostly iron and is mill ready at this point. The non-ferrous "fluff" or ASR is subjected to a five-step separation process that utilizes density, size, concentration, magnets, and eddy currents. Density (gravimetric) separation is introduced at this stage to generate "light", "medium" and "heavy" products. The non-ferrous separation process also involves the use of four sizing screens (three of which are identical), a magnetic separation process, a vacuum pressure system with recovery cyclones and two positive pressure systems with recovery cyclones. There is also a 49.3 MMBtu/hr dryer for drying the wet non-ferrous ASR before eddy currents are applied to enhance separation. Application of wet separation technology to the "fluff" allows for the recovery of about 3% non-ferrous and 23% non-metallic materials. Wet separation technology is used to enhance separation, this procedure involves the use of large amounts of fresh water. EPA inspector, Erin Willard asked the Facility about the wastewater generated from this process. Travis Smith stated that it is collected, treated, and reused in the process. Mechanical separation

(magnets, eddy currents, etc) and Wet Separation Technology are the key mechanisms utilized to recover virtually all the metals fed to the shredder.

The Facility's goal is to eliminate sending any waste to landfills. Currently, the non-metallic fluff produced is utilized as daily cover at landfills. EPA inspectors asked the Facility representative, Kelly Boyle if a RCRA permit is needed to use the material for that purpose. The Facility representative stated that they are only required to provide an analysis of the material to the receiving landfills.

EPA inspectors asked the Facility representatives about engines, emergency generators and boilers that may be used on site. Kelly Boyle stated that there is a 500 hp diesel powered emergency generator and a 49.3 MMBtu/hr natural gas fired dryer used for moisture removal prior to the eddy current process to enhance separation. Electric pumps are used to pump water on site, however the goal is to remove all petroleum-powered equipment on site and replace them with electric powered equipment. There are no waste oil burners on site.

The Facility maintains storage containers and aboveground storage tanks (ASTs) for the storage of anti-freeze, hydraulic fluids, gasoline, and diesel. These storage containers include 275-gallon totes, a 10,000-gallon diesel AST and a 4,400-gallon reservoir for hydraulic fluid among others. There are balers that are used in the non-ferrous downstream process, one baler is currently out-of-service, there is no spraying, coating or torch cutting, neither is there any parts washer nor degreasing operation on site. There are no waste oil burners on site, portable "torpedos" are used for comfort heat.

The opening conference concluded at 2:15 pm.

III. Observations

EPA inspectors were led on a tour of the Facility at 2:30 pm by Kelly Boyle of Joseph Smith & Sons, Susan Barnes of Trinity Consultants, Roland Gorschboth of MDE was also present for the walkthrough. EPA inspectors stated that photos would be taken during the Facility walkthrough (Attachment 2).

The Facility tour began in inclement weather, golf carts were used to transport the inspection team to various areas on the site. The first area visited by the inspection team was the area referred to as the "scrap pile", which contained unprocessed metallic materials. Three stationary cranes were also observed in this area moving piles of scrap to be conveyed to the shredder for processing, the Facility representative, Kelly Boyle stated that these cranes are operated with electric/hybrid motors. The inspection team then inspected the area where shredding is conducted, Kelly Boyle explained that the raw materials conveyed to the shredder box are processed by rotating hammers, a rotating drum electromagnet then separates the shredded scrap into ferrous and nonferrous material streams. A fluff pile was observed on the left of the main shredder and a frag pile was on the right, the team was able to observe that fluff was being continuously fed by hoppers and conveyed for further downstream processing. The next area

inspected was the “50/60 sizing area”, here the fluff is subjected to extra processing which includes further shredding. The inspection team observed the balers and guillotine shears, Kelly Boyle stated that the balers are used infrequently. The inspection team then toured the “wire chop” area and the area where rebar is sheared and stored to be sold “as is”, there is no shredding of the rebars. The next area visited contained much of the equipment used in the fluff downstream processing, the equipment observed included the 3DS system, which is the first of the fluff processing steps. The ball mill process was then inspected. Impact and friction from the balls are used for size reduction of the fluff, a second ball mill and the fluff dewatering process area were also inspected. The building that houses the skid line where copper is processed and reclaimed was inspected followed by the jig area where “eddy currents” are used to separate nonferrous metals such as aluminum, and copper from nonmetallic material.

The fluid storage area was also inspected, here aboveground storage tanks (ASTs) are used to store hydraulic fluids and diesel, some totes that are used for storing anti-freeze and hydraulic fluids are also located in this area. Secondary containment was in place to contain any unplanned spills, this storage area is equipped with roof covers.

The facility tour concluded at 3:35 pm.

IV. Records Review

The records review commenced immediately after the plant walkthrough at 3:41 pm. EPA inspectors were not able to review all the documents requested in the March 15, 2022, email to Kelly Boyle (see Attachment 1) because the Facility needed more time to gather them. EPA inspector Erin Willard told the facility that a CAA Section 114 request would be sent for records, including the records originally requested in the March 15, 2022, email. Below are the records that were requested prior to the inspection as well as records that will be requested after the inspection:

1. The size in tons per hour and hp/kW for each shredder
2. Shredder feed rate in tons, on a daily or monthly basis, broken down by material type (auto, white goods, light iron, etc) for the last five years
3. Information on any emission controls at each facility
4. Hours of operation for the shredder for the last five years
5. A list of all combustion sources at the site
6. Hours of operation for the dryer for the last five years

EPA inspector, Shaun Burke asked the Facility how the shredder feed rate is determined, and whether it is done by weight and if the emissions factor used in the past is still relevant. The Facility representative, Kelly Boyle stated that it is indeed determined by weight and the Facility will redo the emissions factor (EF) after April 1st, 2022, based on a lower temperature. Inspector

Shaun Burke informed the Facility that EPA has resources and would be willing to assist them in figuring out the correct EF and emissions rate. EPA inspector, Erin Willard told the Facility that where appropriate, five years' worth of records would be requested.

V. Closing Conference

After the records review, EPA inspectors, Kelly Boyle of Joseph Smith & Sons, Susan Barnes of Trinity Consultants, and Roland Gorschboth of MDE had a brief closing conference to ask additional questions and discuss observations. The EPA inspectors noted that the investigation is on-going, and any areas of concern identified in the final reports do not necessarily reflect a violation or deviation, rather, they are areas that will require further investigation. EPA also noted that they would issue an inspection report within in 60 days, with a copy to the State. Simultaneously, EPA will perform a detailed review of records and may have additional questions. The inspection concluded at 4:15 pm.

The following have been identified as *potential* issues during the inspection. They are issues that require either further investigation by EPA or additional information or explanation by the Facility.

- The emissions factor (EF) used for the last permit application may no longer apply, a review of the current EF used would be undertaken by the Facility after April 1, 2022.
- EPA R3 will review the data that will be submitted by the Facility for particulate matter (PM), volatile organic compounds (VOCs), sulfur dioxide (SO₂), and nitrogen oxides (NO_x)

VI. List of Attachments

Attachment 1: Email correspondence to Kelly Boyle on March 15, 2022, of records requested to review during inspection

Attachment 2: Photo Log. Photos DSC00227 to DSC00233