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SYNTHETIC MINOR OPERATING PERMIT

Schnitzer Steel Industries > Oakland, CA > Plant No. 208

Schnitzer

Bay Area Air Quality Management District

Prepared By:

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July 2019

Project 190502.0030

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1. EXECUTIVE SUMMARY

Schnitzer Steel Industries, Inc. (Schnitzer) owns and operates a metal recycling facility in Oakland, California (the Facility), within the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). The Facility currently operates under a Permit to Operate (PTO) most recently amended on March 22, 2019, by BAAQMD under Facility ID #208. Schnitzer applied for a Major Facility Review (MFR) operating permit in October 2018 to address elevated precursor organic compound (POC) emissions that were first discovered upon construction and operation of the shredder enclosure and enhanced abatement system pursuant to an Authority to Construct (ATC) issued for Application Number (A/N) 27762. Schnitzer is now proposing to add two regenerative thermal oxidizer (RTO) control devices and two packed bed scrubbers to the shredder abatement system to reduce POC emissions. The changes to add these additional control devices are detailed in a separate Authority to Construct (ATC) application, which is being submitted concurrently with this application. The changes will reduce facility emissions below the major source thresholds specified in BAAQMD Rule 2-6-212. As such, Schnitzer is submitting this Synthetic Minor Operating Permit (SMOP) Application concurrently with an ATC Application to BAAQMD.

In accordance with BAAQMD Rule 2-1-303, Schnitzer has included payment of the filing fee for the SMOP application with this submittal. Schnitzer will pay all remaining fees upon receiving an invoice from BAAQMD.

Appendix A of the Application contains the required BAAQMD SMOP forms, Appendix B provides detailed emission calculations for the Facility, and Appendix C contains the facility plot plan.

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2. INTRODUCTION

2.1. FACILITY DESCRIPTION

Schnitzer Steel Industries, Inc. (Schnitzer) owns and operates a scrap metal recovery, shredding, and recycling facility in Oakland, California (the Facility), within the jurisdiction of the BAAQMD. The Facility currently operates under a PTO issued by BAAQMD for Facility ID #208, which was most recently amended on March 22, 2019; Schnitzer separately applied for an MFR operating permit in October 2018; that application is still pending.

Bulk recyclable material, comprised of heavy iron, auto bodies, appliances, and other light iron, is delivered to the Facility by both rail and truck at the main commercial entrance where it is inspected and sorted. Auto bodies and light iron materials, including appliances and other recyclable light steel materials, are shredded by an electric hammermill (shredder) that is fully enclosed and abated by a particulate control system. Shredded material exiting the hammermill is carried by conveyor under magnetized drums which attract the ferrous materials and separate them from the nonferrous materials. The remaining intermediate non-ferrous stream is known as non-ferrous raw (NFR) and consists of both non-ferrous metal and non-metallic materials. The NFR is transferred to the Joint Products Plant (JPP) where non-ferrous metal is further sorted, by metal type, from non-metallic materials. The non-metallic residue from the JPP is stabilized (treated) using a chemical fixation process (including the use of cement from the cement silo) and shipped offsite for use as alternative daily landfill cover.

In addition to bulk scrap metal, recyclable material consisting of non-bulk ferrous/nonferrous metal scrap is also received at the Facility. This material is inspected, weighed, sorted, and segregated by hand into bins by scrap type, and is baled at the non-ferrous recovery building and/or stored in cargo containers for transport by truck offsite.

The Facility is a source of air pollutants including particulate matter (PM), particulate matter less than 10 microns (PM_{10}), particulate matter less than 2.5 microns ($PM_{2.5}$), POCs, and hazardous air pollutants (HAPs). The Facility location is designated as non-attainment for ozone and $PM_{2.5}$ National Ambient Air Quality Standards (NAAQS).

2.2. SMOP APPLICATION REQUIREMENTS

BAAQMD Rule 2-6-422 outlines the requirements for the contents of a complete SMOP permit application. The requirements are detailed below

A complete application for a SMOP requires the following pursuant to BAAQMD Rule 2-6-422:

- *422.1 – All relevant BAAQMD permit application forms;*
  - Schnitzer has included the relevant application forms in Appendix A.
- *422.2 – A statement certifying payment of any fee required by District Regulation 3, including Schedule P;*
  - As noted in Section 4.2.2 of this Application, Schnitzer will pay the associated fees as required by BAAQMD.
- *422.3 – Identification and description of all existing sources at the facility, including sources that are exempt from permits under Regulation 2, Rule 1;*
  - Schnitzer has described existing sources in Section 2.1 of this Application and in forms SMOP-ES and SMOP-EX included in Appendix A.

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- *422.4 – A calculation (following the protocol set forth in the Manual of Procedures, Volume II, Part 3, subsection 2.2.2.c) of annual and monthly maximum emissions of regulated air pollutants and hazardous air pollutants from the facility. All fugitive emissions of hazardous air pollutants shall be included;*
  - Schnitzer has quantified annual and monthly maximum emissions of regulated air pollutants and HAPs as demonstrated in Section 3.2 and Appendix B.
- *422.5 – Proposed permit conditions to limit facility-wide emissions to below the thresholds for a major facility; and*
  - Schnitzer proposes to retain existing limits as proposed in the 2018 Title V Permit application with the revision of a lower limit on POC emissions as enabled by installation of the RTOs. The revised emission limits qualify the Facility as a synthetic minor source. Proposed permit conditions are summarized in Appendix A.
- *422.6 – Proposed permit conditions imposing monitoring, recordkeeping and reporting requirements sufficient to determine ongoing compliance.*
  - Schnitzer proposes to retain existing monitoring, reporting, and record keeping conditions as proposed in the 2018 Title V Permit application. Proposed permit conditions are summarized in Appendix A.

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3. EMISSION CALCULATIONS

The following sections describe and summarize the methodologies for calculating emissions associated with the Facility. Detailed emission calculations are presented in Appendix B of this report.

3.1. EMISSION CALCULATION METHODOLOGY

The Potential-to-Emit (PTE) for stack emissions of POC and $PM/PM_{10}/PM_{2.5}$ from the shredder was calculated using emission factors based upon source test results submitted to BAAQMD, additional POC control from the RTOs, and an appropriate compliance margin. The fugitive emissions from the shredder were calculated assuming a 95% capture efficiency for the shredder enclosure. The emission factors were used along with the maximum hourly throughput and maximum annual throughput to calculate the PTE. The maximum annual throughput was based on limits contained in the Facility's PTO. No changes are requested to the permitted throughput limits as a part of this SMOP application

Toxic air contaminant (TAC) emissions were calculated for the shredder by using emission factors based upon compiled source test results submitted to BAAQMD[1] and applying reductions attributable to RTO control where applicable. To quantify the potential acid gas (HCl) emissions from the RTOs, a mass balance approach was used where TACs emitted from the shredder enclosure and controlled by the RTOs that have chlorine atoms were assumed to be completely converted to HCl gas.

While NO_x emissions from the RTOs are expected to be negligible based upon the design of a similar system being installed at Schnitzer's Massachusetts facility (only a trace amount of NO_x is formed at the flameless RTO operating temperature), Schnitzer conservatively estimated combustion emissions from the RTOs' natural gas consumption in place of manufacturer guarantees. The POC, $PM/PM_{10}/PM_{2.5}$, NO_x, CO, and SO_2 PTE for the RTOs was calculated using emission factors from EPA's AP-42 Section 1.4, *Natural Gas Combustion,* Tables 1.4-1 and 1.4-2, and the RTOs' burner heat rating for different operating scenarios, including normal operating capacity and standby capacity. [redacted] TAC emission estimates for the shredder were assumed to include the minimal additional TACs that might be formed from the combustion/oxidation of natural gas in the RTOs.

The $PM/PM_{10}/PM_{2.5}$ PTE for the cement silo was calculated using emission factors from the U.S. Environmental Protection Agency's (EPA) AP-42 Section 11.19.2, *Crushed Stone Processing,* Table 19.2-4 for product storage with fabric filter control.[2] The maximum annual throughput was obtained from the Facility's PTO. Maximum annual emissions were calculated based upon the assumption of 8,760 hours of operation during the year. TAC emissions from the cement silo were calculated using emission factors obtained from the BAAQMD Handbook, Chapter 11.5 for cement silo filling with fabric filter.[3]

[1] Compiled source test results compiled and submitted to Carol Allen (BAAQMD) via email from Gary Rubenstein (Foulweather Consulting) on March 29, 2019 and updated on May 7, 2019.
[2] Guidance available here: https://www3.epa.gov/ttn/chief/ap42/ch11/final/c11s1902.pdf
[3] Guidance available here: http://www.baaqmd.gov/~/media/files/engineering/permit-handbook/baaqmd-permit-handbook.pdf

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3.2. SUMMARY OF POTENTIAL EMISSIONS

A summary of the potential emissions from the Facility as calculated in Appendix B is provided in Table 3-1 and a summary of the estimated TACs from the Facility is provided in Table 3-2 along with a comparison to the major source thresholds as defined in BAAQMD Rule 2-6-212.

Table 3-1. Facility-Wide Criteria Pollutant PTE

Pollutant	Hourly Emissions	Monthly Emissions	Annual Emissions	Major Source Threshold	Exceeds Major Source Threshold?
	(lb/hr)	(lb/month)	(tpy)	(tpy)	(Yes/No)
POC	19.20	2903	17.42	100	No
PM	5.43	859	5.16	100	No
PM_{10}	5.41	844	5.06	100	No
$PM_{2.5}$	5.40	842	5.05	100	No
NO_x	0.91	340	2.04	100	No
CO	1.52	571	3.43	100	No
SO_2	0.01	4.08	0.02	100	No

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Table 3-2. Facility-Wide TAC Emissions

Pollutant	HAP?	Hourly Emissions	Monthly Emissions	Annual Emissions	Major Source Threshold	Exceeds Major Source Threshold?
	(Yes/No)	(lb/hr)	(lb/month)	(lb/yr)	(tpy)	(Yes/No)
Acetaldehyde	Yes	6.74E-03	1.01E+00	1.21E+01	--	--
Arsenic	Yes	1.06E-08	7.74E-06	9.29E-05	--	--
Benzene	Yes	2.47E-02	3.70E+00	4.44E+01	--	--
Beryllium	Yes	1.22E-09	8.87E-07	1.06E-05	--	--
Butadiene, 1,3-	Yes	6.38E-04	9.56E-02	1.15E+00	--	--
Cadmium	Yes	4.79E-04	4.96E-03	5.95E-02	--	--
Ethyl Benzene	Yes	5.23E-02	7.84E+00	9.41E+01	--	--
Hydrogen Chloride	Yes	1.38E-04	2.07E-02	2.48E-01	--	--
Hexane	Yes	7.57E-02	1.14E+01	1.36E+02	--	--
Hexavalent Chromium	Yes	2.13E-05	3.20E-03	3.84E-02	--	--
Isopropyl Alcohol	No	7.57E-03	1.14E+00	1.36E+01	--	--
Lead	Yes	3.39E-03	5.08E-01	6.10E+00	--	--
Manganese	Yes	2.93E-07	2.14E-04	2.56E-03	--	--
Methanol	Yes	1.15E-02	1.72E+00	2.07E+01	--	--
Methyl Chloroform	Yes	4.01E-03	6.02E-01	7.22E+00	--	--
Methyl Ethyl Ketone	No	1.13E-02	1.70E+00	2.04E+01	--	--
Methylene Chloride	Yes	1.83E-03	2.74E-01	3.29E+00	--	--
Nickel	Yes	1.05E-07	7.63E-05	9.15E-04	--	--
Perchloroethylene	Yes	2.47E-03	3.71E-01	4.45E+00	--	--
PCBs	Yes	3.63E-04	5.44E-02	6.53E-01	--	--
Propylene	No	1.59E-02	2.38E+00	2.85E+01	--	--
Styrene	Yes	8.15E-03	1.22E+00	1.47E+01	--	--
Sulfate	No	2.11E+02	1.54E+05	1.84E+06	--	--
Toluene	Yes	2.12E-01	3.18E+01	3.81E+02	--	--
Xylenes (mixed)	Yes	1.95E-01	2.93E+01	3.51E+02	--	--
o-Xylene	Yes	7.19E-02	1.08E+01	1.29E+02	--	--
Highest Individual HAP - Toluene (tpy)	--	--	--	0.19	10	No
Total HAPs (tpy)	--	--	--	0.60	25	No

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4. REGULATORY APPLICABILITY

The Facility is subject to various federal and local air quality regulations. This section summarizes the air quality regulations that generally apply to the Facility. Note that regulations applicable to the existing cement silo are not discussed in this application. Specifically, the applicability of Prevention of Significant Deterioration (PSD) permitting requirements, New Source Performance Standards (NSPS), National Emission Standards for Hazardous Air Pollutants (NESHAP), and California State Implementation Plan (SIP) regulations are addressed in this section.

4.1. FEDERAL REGULATIONS

4.1.1. Prevention of Significant Deterioration

PSD applies to new major sources or major modifications at existing sources for pollutants where the area the source is located is in attainment or unclassifiable with the National Ambient Air Quality Standards (NAAQS). PSD is not applicable to this application since there will be no new sources or major modifications in this SMOP application.

4.1.2. New Source Performance Standards

New Source Performance Standards (NSPS) have been established in 40 CFR Part 60 and apply to certain types of equipment that are newly constructed, modified, or reconstructed after a given applicability date. NSPS are designed to control emissions to the level achievable by the best-demonstrated technology as specified in the applicable provisions or subparts. No NSPS are applicable to the Facility.

4.1.3. National Emission Standards for Hazardous Air Pollutants

National Emissions Standards for Hazardous Air Pollutants (NESHAPs) are federal regulations that apply to sources of HAPs. NESHAP subparts codified under 40 CFR 61 are pollutant-specific regulations applicable to certain sources of HAPs and NESHAP subparts codified under 40 CFR 63 are source category-specific regulations. No NESHAPs are applicable to the Facility.

4.2. BAAQMD REGULATIONS

In addition to the federal air regulations described previously, BAAQMD establishes regulations applicable at the emission unit level and at the facility level. The regulations also contain requirements related to construction and/or operating permits. Potentially applicable regulations for the Facility are detailed in the following sections.

4.2.1. Regulation 2 - Permits

4.2.1.1. Rule 2-1: General Requirements

BAAQMD Rule 2-1-301, *Authority to Construct*, requires facilities to obtain written authorization from BAAQMD prior to constructing any equipment that may reduce or control the emission of air contaminants. Schnitzer has submitted an ATC application concurrently to this SMOP application to install various control equipment, as required under BAAQMD Rule 2-1-301.

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BAAQMD Rule 2-1-310, *Applicability of CEQA*, describes California Environmental Quality Act (CEQA) applicability for various projects. This application is for a SMOP, and does not include any new or modified sources. Consequently, this application is not subject to CEQA review.

4.2.1.2. Rule 2-6: Major Facility Review

BAAQMD Rule 2-6, *Major Facility Review*, implements permitting requirements of Title V of the Clean Air Act, and is applicable to major facilities and other facilities designated as requiring a Title V permit. Previously in 2018, Schnitzer applied for a MFR permit from BAAQMD, but the purpose of this application is to apply for a SMOP by demonstrating that after the proposed shredder controls are implemented (as described in a separate, concurrent ATC application submittal to BAAQMD), the Facility emissions will fall below the major source thresholds. As such, BAAQMD Rule 2-6 SMOP requirements will apply to the Facility, which are detailed in Section 2.2 of this application

4.2.2. Regulation 3 - Fees

BAAQMD Regulation 3 specifies fees that must be paid as part of this application. In accordance with BAAQMD Rule 2-1-303, Schnitzer has included payment for the SMOP initial filing fee and will provide payment of all applicable remaining fees upon receiving an invoice from BAAQMD.

4.2.3. Regulation 6 - Particulate Matter Requirements

4.2.3.1. Rule 6-1: General Requirements

BAAQMD Rule 6-1 Sections 301 and 302 limit the discharge of any air contaminant, other than uncombined water vapor, which is as dark or darker than No. 1 on the Ringelmann Chart (or greater than or equal to 20% opacity) for a period of periods aggregating more than three minutes in any one hour. In addition, Section 305 of this rule specifies that the visible particulate emissions cannot cause annoyance to others if emissions cross property boundaries. However, per Rule 6-1-110.4, metal recycling and shredding operations are exempt from this rule but are subject to Rule 6-4, which is discussed further in this application report.

4.2.3.2. Rule 6-4: Metal Recycling and Shredding Operations

BAAQMD Rule 6-4 requires the development of and compliance with Emissions Minimization Plans (EMPs) designed to minimize the fugitive emissions of particulate matter from metal recycling facilities operating within the District. This rule is applicable to a metal recycling facility with a metal throughput of 1000 tons or more per rolling twelve-month period. Condition #26401 of the PTO limits the shredder throughput to 720,000 tons per calendar year, so this rule is applicable to the Facility. Per Section 401, this rule requires the development of, and compliance with, an EMP. Schnitzer's current EMP was submitted and approved by BAAQMD in August 2018, with a recent revision submitted to BAAQMD in June 2019. Schnitzer will continue to operate the Facility in accordance with the EMP.

4.2.4. Regulation 7 - Odorous Substances

Regulation 7 places general limitations on odorous substances and specific emission limitations on certain odorous compounds. The limitations of this Regulation are not applicable unless and until the APCO receives odor complaints from ten or more complainants within a 90-day period, alleging that a person has caused odors perceived at or beyond the property line of such person and deemed to be objectionable by the complainants in the normal course of their work, travel or residence. The Facility is subject to the requirements of Regulation 7 although the provisions of the rule have not been triggered.

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4.2.5. Regulation 8 - Organic Compounds

4.2.5.1. Rule 8-2: Miscellaneous Operations

BAAQMD Rule 8-2 Section 301 requires that a person shall not discharge an emission containing more than 15 pounds per day and containing a concentration of more than 300 parts per million (PPM) total carbon on a dry basis. Schnitzer will comply with all applicable provisions of BAAQMD Rule 8-2 at the Facility, including Section 301.

4.2.6. Regulation 10 - New Source Performance Standards

BAAQMD Regulation 10 contains a series of rules applicable to new, modified, or reconstructed sources of air pollution. This regulation also incorporates by reference the specific federal NSPS for which enforcement authority has been delegated to the BAAQMD. As discussed previously in Section 4.1.2, the Facility is not subject to any NSPS.

4.2.7. Regulation 11 - Hazardous Pollutants

BAAQMD Regulation 11 contains a series of rules applicable to various source-specific process and emissions units that have the potential to emit specific HAPs. This regulation also incorporates by reference the specific federal NESHAPs for which enforcement authority has been delegated to the BAAQMD. Metal recycling operations are not a source specifically defined in any rule under Regulation 11. As discussed in Section 4.1.3, the Facility is not subject to any NESHAPs.

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APPENDIX A: BAAQMD APPLICATION FORMS

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Engineering Division
Bay Area Air Quality Management District
375 Beale Street, Ste# 600, San Francisco, CA 94105
415-749-4990

Form P-101C

Application # : _____ (For District Use)

BUSINESS NAME: Schnitzer Steel Industries Inc **PLANT #:** 208

APPLICATION FOR SYNTHETIC MINOR OPERATING PERMIT

This application form is to be used for all initial applications for synthetic minor operating permits, as well as for applications to modify synthetic minor operating permits. It is to be used in lieu of District P-101B. Note: if a proposed modification would increase emissions above any threshold for a major facility, then the plant must apply for an authority to construct using form P-101B and must apply for an MFR permit in accordance with Regulation 2, Rule 6, Major Facility Review.

Other Business Name (if any) _____ **Parent Company** _____

Mailing Address P.O. Box 747, Oakland, CA 94607
Street Address or PO Box City State Zip Code
Phone Number (510) 839 - 4714 Fax Number ( ) -

Plant Address Adeline St, Foot of (1101 Embarcadero West), Oakland, CA 94607
Street Address or PO Box City State Zip Code
Phone Number (510) 839 - 4714 Fax Number ( ) -

Plant Contact Pamela Gray **Title** Regional Environmental Manager, West

Plant Contact's Company (if different from above) _____ **Relation to Project** _____

Responsible Official Pamela Gray **Title** Regional Environmental Manager, West

Principal Product/Operation Auto Body Recycling

Number of Permitted Sources 3

Status (mark all that apply)

- [x] Initial Application for Synthetic Minor Permit
- [ ] Application for New or Modified Source(s)
- [ ] Revisions to Existing Federally Enforceable Conditions
- [ ] Revisions to Existing Non Fed. Enforceable Conditions
- [x] Emission Factor Revised (Attach Data Form X)
- [x] Establishes New Federally Enforceable Conditions
- [ ] Banking
- [ ] Existing Unpermitted Source(s)*
  *Date Installed _____

In order to expedite your application the following items must be enclosed:

- Form SMOP-ES (Emissions Summary)
- Form SMOP-EX (Exempt Sources)
- Emission Calculations
- Proposed Permit Conditions
- Proposed Record-keeping Requirements
- Source Offsets (if applicable

In addition to the above, applications for new and modified sources must include the following:

- Project Description and Flow Diagram
- BAAQMD Data Forms
- Mfr.'s Equipment Description & Data

~~Public Copy~~

IMPORTANT: Under the California Public Records Act, all information in your permit application will be considered a matter of public record and may be disclosed to a third party. If you wish to keep certain items separate as specified in Regulation 2, Rule 1, Section 402.7, please complete the following steps:

(a) Make a copy of your permit application with the confidential information blanked out. Label this copy "Public Copy".

(b) Label the original copy "Confidential." Circle all confidential items on each page. Label each page with confidential information "Confidential".

(c) Prepare a written justification for the confidentiality of each confidential item. Append this to the confidential copy.

ACKNOWLEDGEMENT ***(Please initial)*** PG

NOTICE **To avoid delay of processing, mail completed application to:**

Engineering Division
Bay Area Air Quality Management District
375 Beale Street, Suite 600, San Francisco, CA 94105
(Do not mail to an individual)

Note: EPA and other agencies may request a copy of your complete application. For further information, you should contact the local city or county office of permit assistance within the Office of Planning and Research in Sacramento.

Office of Planning and Research
1400 Tenth Street
Sacramento, CA 95814
(916) 332-4245

[REDACTED]

APPENDIX B: EMISSION CALCULATIONS

[REDACTED]

APPENDIX C: FACILTY MAP/PLOT PLAN

[REDACTED]