DRAFT

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION

MEMORANDUM **November 2, 2022**

TO: Lee Warden, P.E., Permits and Engineering Group Manager

THROUGH: Richard Kienlen, P.E., Engineering Manager, New Source Permits Section

THROUGH: Ryan Buntyn, P.E., New Source Permits Section

FROM: Jennie Doan, E.I., Engineering Section, ROAT

SUBJECT: Evaluation of Permit Application No. **94-115-C (M-9)**
Real Alloy Recycling, LLC
Sapulpa Operations (SIC 3341/NAICS 331314)
Facility ID: 832
Latitude: 36.01718°N, Longitude: 96.11005°W
Section 26, Township 18N, Range 11E, Creek County, Oklahoma
Directions: 1508 N. 8th St. Sapulpa, OK 74066

SECTION I. INTRODUCTION

Real Alloy Recycling, LLC (applicant) has applied for an individual minor source construction permit for replacing the existing rotary Furnace #5 (EU #5) with a like-kind rotary Furnace #9 (EU #9) at their Sapulpa Operations. The facility currently operates under Permit No. 94-115-O (M-8), issued on October 28, 2010.

Requested changes for this permit:

1. Replace EU #5 with like-kind rotary furnace EU#9
2. Installation of four (4) 2.42-MMBTUH North American Carousel Pan Preheaters
3. Installation of one (1) fabric filter baghouse for EU #9
4. One (1) new stack (Stack #9) for EU #9
5. Removal of EU #5
6. Removal of Misc. equipment: Landfill and storage tanks

As a result of the above-listed changes, facility-wide emissions are estimated to be 33.76 TPY of NO_X, 57.39 TPY of CO, 1.85 TPY of VOC, 27.09 TPY of PM_{10}, and 8.22 TPY of HAPs, worst case. This facility, therefore, qualifies for a "synthetic minor" permit because the controlled emissions of each of the criteria pollutants are below the major source threshold of 100 TPY and the HAP emissions are below the 10 TPY threshold for a single HAP and below the 25 TPY threshold for any combination of HAPs.

SECTION II. PROCESS DESCRIPTION

Operations commenced at the facility in 1965, and the plant was first permitted in 1978. The facility is operated for recovery of aluminum metal, producing aluminum ingots. The facility currently includes an aluminum furnace, EU #7, rated at 9 ton charge per hour (TPH) and 26 MMBTUH. Based on review of historical heat data for all material types over a six-year period, the weighted average for furnace throughput is limited to 7 TPH, and facility requested to have emission limitations based on 7 TPH. The facility also contains a reverberatory furnace, EU #8, with burners rated at 8.48 MMBTUH. These furnaces are fired by natural gas. Baghouse operation, Stack #7, was installed for EU #7. A new aluminum furnace, EU #9, with a rate at 7 TPH and 26 MMBTUH, is proposed to replace the removed EU #5 along with a new baghouse operation, Stack #9 to be installed for EU #9.

Numerous small burners are present at de-oxidation casting, at the sow molds (sow mold is an industry term loosely meaning bigger than a pig), and at the sample furnace. Stack parameters are not listed for these small heaters. The facility operates an electrically-driven de-ox caster, from which the only Stack #8 emissions are steam.

Aluminum scrap includes used beverage cans and miscellaneous scrap such as auto parts (including engine blocks), while magnesium scrap includes lawnmower housings. In addition to the scrap, the facility receives slag from primary aluminum smelting operations for further metal recovery processing. Scrap is processed for removal of seals, gaskets, wheels, etc. Each of the aluminum furnaces is dedicated to an individual alloy or metal grade.

The rotary furnaces separate aluminum metal from slag, dross, other impurities (such as residual beverage can coating solids), and metals with higher melting points. Molten metal from the aluminum furnaces is poured directly into steel molds. Periodically, a "flux" is added to the aluminum. Fluxes cover the open surface of molten metal, reducing oxidation (cover fluxes). The action of the fluxes is both chemical and physical, agitating the melt. The fluxes used are sodium chloride (NaCl), potassium chloride (KCl), and cryolite (Na_3AlF_6).

In addition to the metal processing, the facility includes one fuel storage tank. The tank has a capacity of 2,000 gallons of diesel. The tank was installed in 2019.

Operations create emissions of hydrogen chloride (HCl) and hydrogen fluoride (HF), so a specific amount of lime per furnace is injected into the exhaust stream to neutralize the acid gases. A Continuous Monitoring System (CMS) is installed on the baghouses and shaking is performed as needed. The Quad baghouse has five modules currently in use, all manifolded to common inlet and discharge headers. All of the modules were designed and built by the facility, so performance testing was done to establish parameters defining proper operation of the system. Manometer gauges originally installed on the modules record nominal units that can be converted to standard units of pressure drop. The CMS records gauge readings for each module and for total pressure drop between a point on the inlet header upstream of all modules and a point on the discharge header downstream of all modules.

Normal operations are 24 hours per day, six days per week, with the seventh day for cleaning and equipment maintenance. Maximum operations for the permit are 8,760 hours per year. Processing rates at any particular time depend on the type and quality of material being handled.

SECTION III. EQUIPMENT

Equipment List

EU #	Description	Capacity	Control	Const. Date
Furnace – Natural Gas Combustion & Material Processing				
7	Rotary Furnace #7	26-MMBTUH Process rate 7 TPH	Baghouse #7	5/1/2010
9*	Rotary Furnace #9	26-MMBTUH Process rate 7 TPH	Baghouse #9	2022
Casting				
8	Reverb Furnace #8	2 burners @ 4.24-MMBTUH	N/A	5/1/2010
F-S	Rotary Sample Furnace	0.42-MMBTUH	N/A	5/1/2010
Preheating				
Heater-DeOx	DeOx Casting Line	Mold: 2.27-MMBTUH Drum external: 0.57-MMBTUH SE Drum external: 0.19-MMBTUH	N/A	5/1/2010
Heater-Shotgun	12 Pan Preheater Shotgun Burners	5.04-MMBTUH (total)	N/A	5/1/2010
Heater-Carousel*	4 North American Carousel Pan Preheaters	2.42-MMBTUH (each)	N/A	2022

* New equipment

SECTION IV. EMISSIONS

Unless otherwise stated, emissions are based on 8,760 hours per year of operation. This section of the memorandum discusses only the emissions from the proposed installations of Furnace # 9 (EU #9) and the Carousel Pan Preheaters (EU # Heater-Carousel) and their impacts on the facility-wide emission summary. The emissions for other equipment at this facility may be reviewed in the current operating permit.

FURNACE

Emissions from the furnace consist of combustion emissions, based on a heating value of 1,020 SCF/BTU, and emissions from material processing. The emission factors and references are listed in the tables below.

Combustion Emission Factors

Pollutant	Emission Factor Reference/Basis	Emission Factor (lb/MMSCF)
NO_X	AP-42 (7/98), Table 1.4-1 and Table 1.4-2	100
CO	Based on current permitted factor of 214 lb/MMSCF, which is based on Rockwood, TN stack test data	214

Pollutant	Emission Factor Reference/Basis	Emission Factor (lb/MMSCF)
$PM_{10/2.5}$	AP-42 (7/98), Table 1.4-1 and Table 1.4-2	7.6
VOC	AP-42 (7/98), Table 1.4-1 and Table 1.4-2	5.5
SO_2	AP-42 (7/98), Table 1.4-1 and Table 1.4-2	0.6

Material Process's Emission Factors

Pollutant	Emission Factor Reference/Basis	Emission Factor
$PM_{10/2.5}$	NESHAP Subpart RRR Standard	0.40 lb/ton charge
HCl	Based on June 2010 Oklahoma Stack Test Data from actual emission unit	0.134 lb/ton charge
Dioxin and Furan (D/F)	NESHAP Subpart RRR Standard	3.00 E-08 lb/ton charge

Furnace's Hourly Emissions

EU #	NO_X	CO	$PM_{10/2.5}$		VOC	SO_2	HCl	D/F
			Comb.	Melt.				
	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr	lb/hr
9	2.55	5.45	0.19	2.80	0.14	0.02	0.94	4.79E-08

Furnace's Annual Emissions

EU #	NO_X	CO	$PM_{10/2.5}$		VOC	SO_2	HCl	D/F
			Comb.	Melt.				
	TPY	TPY	TPY	TPY	TPY	TPY	TPY	TPY
9	11.16	23.89	0.85	12.26	0.61	0.07	4.11	2.10E-07

HEATERS

Emissions for the new heaters are based on the following emission factors, a heating value of 1,020 SCF/BTU, and the rating capacity of 2.42-MMBTUH per heater. The emissions listed in the table below are total emission from four 2.42-MMBTUH heaters.

Heaters' Emission Factors

Pollutant	Emission Factor Reference/Basis	Emission Factor (lb/MMSCF)
NO_X	AP-42 (7/98), Table 1.4-1 and Table 1.4-2	100
CO		84
$PM_{10/2.5}$		7.6
VOC		5.5
SO_2		0.6

Combustion Emissions Heaters

EU #	NO_x		CO		VOC		SO_2		PM_{10}	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
Heater-Carousel	0.95	4.16	0.80	3.49	0.05	0.23	0.01	0.02	0.07	0.32

FACILITY-WIDE EMISSIONS

Emissions of HAP are below the major source threshold of 10 TPY for an individual HAP and 25 TPY of combined HAP. The permit includes caps on individual HAP emissions (9.99 TPY) and total HAP emissions (24.99 TPY).

Facility-Wide Emissions

EU	NO_x		CO		VOC		SO_2		PM_{10}	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
7	2.55	11.16	5.45	23.89	0.14	0.61	0.02	0.07	2.99	13.11
9 (1)	2.55	11.16	5.45	23.89	0.14	0.61	0.02	0.07	2.99	13.11
8	0.83	3.64	0.70	3.06	0.05	0.20	<0.01	0.02	0.06	0.28
F-S	0.04	0.18	0.03	0.15	<0.01	0.01	<0.01	<0.01	<0.01	0.01
Heater-DeOx	0.30	1.30	0.25	1.09	0.02	0.07	<0.01	0.01	0.02	0.10
Heater-Shotgun	0.49	2.16	0.42	1.82	0.03	0.12	<0.01	0.01	0.04	0.16
Heater-Carousel(1)	0.95	4.16	0.80	3.49	0.05	0.23	0.01	0.02	0.07	0.32
Total(2)	**7.71**	**33.76**	**13.1**	**57.39**	**0.44**	**1.85**	**0.09**	**0.21**	**6.17**	**27.09**
Previous Permit Limits	**6.23**	**27.3**	**12.10**	**53.0**	**0.39**	**1.70**	**0.04**	**0.16**	**10.7**	**46.90**
Difference	**1.48**	**6.46**	**1.00**	**4.39**	**0.05**	**0.15**	**0.05**	**0.05**	**(4.53)**	**(19.81)**

(1) New equipment.

(2) PM_{10} emission decreased due to facility requested emission limits based on 7 TPY instead of 9 TPY from previous permit.

Facility-Wide HAP Emissions

HAP	Previous Permit	Current Emissions	Difference
	TPY	TPY	TPY
Chlorine(1)	2.57	---	(2.57)
HCl	5.15	8.22	3.07
HF	0.30	---	(0.30)
Nickel(2)	0.001	---	(0.001)
Chromium(2)	0.003	---	(0.003)
D/F	---	4.20E-07	4.20E-07
Total	**8.02**	**8.22**	**0.20**

(1) Facility requested to have chlorine emissions covered under HCl emissions.

(2) Facility is no longer emitting these HAPs, and facility requested these HAPs to be removed.

SECTION V. OKLAHOMA AIR POLLUTION CONTROL RULES

OAC 252:100-1 (General Provisions) [Applicable]

Subchapter 1 includes definitions but there are no regulatory requirements.

OAC 252:100-2 (Incorporation by Reference) [Applicable]

This subchapter incorporates by reference applicable provisions of Title 40 of the Code of Federal Regulations. These requirements are addressed in the "Federal Regulations" section.

OAC 252:100-3 (Air Quality Standards and Increments) [Applicable]
Primary Standards are in Appendix E and Secondary Standards are in Appendix F of the Air Pollution Control Rules. At this time, all of Oklahoma is in attainment of these standards.

OAC 252:100-5 (Registration, Emissions Inventory and Annual Operating Fees) [Applicable]
Subchapter 5 requires sources of air contaminants to register with Air Quality, file emission inventories annually, and pay annual operating fees based upon total annual emissions of regulated pollutants. Required annual information (Turn-Around Document) shall be provided to Air Quality by April 1st every year.

OAC 252:100-7 (Permits for Minor Facilities) [Applicable]
This facility (with controls listed in this permit) qualifies as a true minor source because uncontrolled emissions of each criteria pollutant will be below 100 TPY and Hazardous Air Pollutants (HAP) emissions will be below 10 TPY for any one HAP and 25 TPY for any aggregate of HAP. The uncontrolled emissions at this site are under the major source thresholds, and thus, this facility is a true minor facility.

OAC 252:100-9 (Excess Emissions Reporting Requirements) [Applicable]
Except as provided in OAC 252:100-9-7(a)(1), the owner or operator of a source of excess emissions shall notify the Director as soon as possible but no later than 4:30 p.m. the following working day of the first occurrence of excess emissions in each excess emission event. No later than thirty (30) calendar days after the start of any excess emission event, the owner or operator of an air contaminant source from which excess emissions have occurred shall submit a report for each excess emission event describing the extent of the event and the actions taken by the owner or operator of the facility in response to this event. Request for mitigation, as described in OAC 252:100-9-8, shall be included in the excess emission event report. Additional reporting may be required in the case of ongoing emission events and in the case of excess emissions reporting required by 40 CFR Parts 60, 61, or 63.

OAC 252:100-13 (Open Burning) [Applicable]
Open burning of refuse and other combustible material is prohibited except as authorized in the specific examples and under the conditions listed in this subchapter.

OAC 252:100-19 (Particulate Matter (PM)) [Applicable]
Section 19-4 regulates emissions of PM from new and existing fuel-burning equipment. Particulate emission limits are based on maximum design heat input rating, as described in Appendix C.

Appendix C specifies a PM emission limitation of 0.60 lb/MMBTU for all equipment with a heat input rating of 10 MMBTUH or less. For equipment with rated heat input greater than 10 but less than 1,000 MMBTUH, the PM limit is calculated using the equation from OAC 252:100 Appendix C, which is listed below.

$$\mathbf{E = 1.0428080X^{(-0.238561)}}$$

Where:

E = allowable total particulate matter emissions in pounds per MMBTH
X = the maximum heat input in MMBTU

Table 1.4-1 of AP-42 (7/98) lists natural gas emissions to be 7.6 lbs/million scf or about 0.0076 lbs/MMBtu, which shows all units to be in compliance.

EU #	Heat Rate	Appendix C PM_{10} Limitation	Potential PM_{10} Emissions
	MMBTUH	lb/MMBTU	lb/MMBTU
7	26	0.47	0.007
9	26	0.47	0.007
8	8.48[(1)]	0.6	0.007
F-S	0.42	0.6	0.007
Heater-DeOx	3.03[(2)]	0.6	0.007
Heater-Shotgun	5.04[(3)]	0.6	0.007
Heater-Carousel	9.68[(4)]	0.6	0.007

(1) Total heat rates: 2 heat ratings at 4.24-MMBTUH.
(2) Total heat rates: 2.27-MMBTUH mold, 0.57-MMBTUH drum external, 0.19-MMBTUH SE drum external.
(3) Total heat rates of 12 burners.
(4) Total heat rates of four 2.42-MMBTUH.

Section 19-12 specifies limitations on PM emissions based on process weight rate, per Appendix G. The equation to calculate the PM limitation from Appendix G is listed below. As shown in the following table, all emission points are in compliance with Subchapter 19.

$$E = 4.10P^{0.67}$$

Where:

E = allowable total particulate matter emissions in pounds per MMBTH
P = process weight rate in tons per hour (TPH)

EU #	Process Rate	Appendix G PM_{10} Limitation	Potential PM_{10} Emissions
	TPH	lb/hr	lb/hr
7	7.0	15.10	2.80
9	7.0	15.10	2.80

OAC 252:100-25 (Visible Emissions and Particulates) [Applicable]
No discharge of greater than 20% opacity is allowed except for short-term occurrences that consist of not more than one six-minute period in any consecutive 60 minutes, not to exceed three such periods in any consecutive 24 hours. In no case shall the average of any six-minute period exceed 60% opacity. The permit will require that fuel-burning units be fueled only with natural gas to ensure compliance with these requirements. The permit will also require the furnaces to meet the requirements of NESHAP Subpart RRR, ensuring compliance with this subchapter.

OAC 252:100-29 (Fugitive Dust) [Applicable]
No person shall cause or permit the discharge of any visible fugitive dust emissions beyond the property line on which the emissions originate in such a manner as to damage or to interfere with the use of adjacent properties, or cause air quality standards to be exceeded, or interfere with the maintenance of air quality standards. Under normal operating conditions, this facility will not cause a problem in this area, therefore it is not necessary to require specific precautions to be taken.

OAC 252:100-31 (Sulfur Compounds) [Applicable]
Part 2 limits the ambient air concentration of hydrogen sulfide (H_2S) emissions from any facility to 0.2 ppmv (24-hour average) at standard conditions which is equivalent to 283 $\mu g/m^3$. Fuel-burning equipment fired with commercial natural gas or commercial propane gas will not have the potential to exceed the H_2S ambient air concentration limit.
Part 5 limits sulfur dioxide emissions from new fuel-burning equipment (constructed after July 1, 1972). For gaseous fuels the limit is 0.2 lb/MMBTU heat input, 3-hour average. AP-42(3/98), Table 1.4-2 lists the total SO_2 emissions for natural gas to be 0.6 lb/$MMft^3$ or about 0.0006 lb/MMBTU which is in compliance with this limitation. The permit requires the use of commercial-grade natural gas for all fuel-burning equipment to ensure compliance with Subchapter 31.

OAC 252:100-33 (Nitrogen Oxides) [Not Applicable]
This subchapter limits NOx emissions from new fuel-burning equipment with rated heat input greater than or equal to 50 MMBTUH to emissions of 0.2 lb of NOx per MMBTU. There are no equipment items that exceed the 50 MMBTUH threshold.

OAC 252:100-35 (Carbon Monoxide) [Not Applicable]
None of the following affected processes are located at this facility: gray iron cupola, blast furnace, basic oxygen furnace, petroleum catalytic cracking unit, or petroleum catalytic reforming unit.

OAC 252:100-37 (Volatile Organic Compounds) [Part 7 Applicable]
Part 3 requires VOC storage tanks constructed after December 28, 1974, with a capacity of 400 gallons or more and storing a VOC with a vapor pressure greater than 1.5 psia to be equipped with a permanent submerged fill pipe or with an organic vapor recovery system. The storage tanks in the previous permit have been removed from the site, and there is no storage tank on-site.
Part 5 limits the VOC content of coatings used in coating lines or operations. This facility does not perform coatings (or have coating lines) as part of normal operations.
Part 7 requires fuel-burning and refuse-burning equipment to be operated to minimize emissions of VOC. The burners on the furnaces and the heaters are subject to this requirement.

OAC 252:100-42 (Toxic Air Contaminants (TAC)) [Applicable]
This subchapter regulates TAC that are emitted into the ambient air in areas of concern (AOC). Any work practice, material substitution, or control equipment required by the Department prior to June 11, 2004, to control a TAC, shall be retained, unless a modification is approved by the Director. Since no AOC has been designated there are no specific requirements for this facility at this time.

OAC 252:100-43 (Testing, Monitoring, and Recordkeeping) [Applicable]
This subchapter provides general requirements for testing, monitoring and recordkeeping and applies to any testing, monitoring or recordkeeping activity conducted at any stationary source. To determine compliance with emissions limitations or standards, the Air Quality Director may require the owner or operator of any source in the state of Oklahoma to install, maintain and operate monitoring equipment or to conduct tests, including stack tests, of the air contaminant source. All required testing must be conducted by methods approved by the Air Quality Director and under the direction of qualified personnel. A notice-of-intent to test and a testing protocol shall be submitted to Air Quality at least 30 days prior to any EPA Reference Method stack tests. Emissions and other data required to demonstrate compliance with any federal or state emission limit or standard, or any requirement set forth in a valid permit shall be recorded, maintained, and submitted as required by this subchapter, an applicable rule, or permit requirement.

SECTION VI. FEDERAL REGULATIONS

PSD, 40 CFR Part 52 [Not Applicable]
Final total emissions are less than the threshold of 250 TPY of any single regulated pollutant and the facility is not one of the 26 specific industries with a threshold of 100 TPY.

NSPS, 40 CFR Part 60 [Not Applicable]
Subparts K, Ka, Kb, VOL Storage Vessels. This subpart regulates hydrocarbon storage tanks larger than 19,813 gallons capacity for Subpart Kb and 40,000 gallons for Subparts K and Ka. These subparts are not applicable since there are no VOL storage vessels at this facility.

Subpart S, Primary Aluminum Reduction Plants. This subpart affects the following facilities in primary aluminum reduction plants: pot room groups and anode bake plants. This facility is a secondary aluminum production facility and is not subject to this subpart.

NESHAP, 40 CFR Part 63 [Subpart RRR Applicable]
Subpart RRR, Secondary Aluminum Production. This subpart affects secondary aluminum production facilities. The requirements of this subpart pertaining to dioxin and furan (D/F) emissions and associated operating, monitoring, reporting, and recordkeeping requirements apply to each new secondary aluminum processing units (containing one or more group 1 furnace emission units processing other than clean charge) located at a secondary aluminum production facility that is an area source of HAP. Area sources are not required to obtain a Part 70 permit under this subpart.

EU #7 and #9 are equipped with a baghouse, and so, they are Group 1 furnaces with an Add-On Air Control Device.

EU #8 and #FS are considered Group 2 furnaces for using only clean charge. Per §63.1500(c), Group 2 furnaces located at an area source are not affected facilities.

Compliance Requirements for EU #7 & 9:

Emission Limitation per §63.1505(i)(3) and Table 1, Emission Standards for New and Existing Affected Sources:

Pollutant	Limit
PM	0.4 lb/ton of feed
HCl	0.40 lb/ton of feed, or 10% of the HCl upstream of the add-on control device
D/F	15.0 ug of D/F TEQ* per megagram (Mg) of feed

* Toxicity equivalents for dioxins and furan as defined in "Interim Procedures for Estimating Risks Associated with Exposures to Mixtures of Chlorinated Dibenzo-p-Dioxins and -Dibenzofurans (CDDs and CDFs) and 1989 Update" (EPA-625/3-89-016).

Operating Requirements per §63.1506 and Table 2, Summary of Operating Requirements for New and Existing Affected Sources and Emission Units:

Monitor Type/Operation/Process	Operating Requirements
Bag Leak Detector or	Initiate corrective action within 1-hr of alarm; operate such that alarm does not sound more than 5% of operating time in 6-month period; complete corrective action in accordance with the Operation, Maintenance, and Monitoring (OM&M) plan.
COM	Initiate corrective action within 1-hr of a 6-minute average opacity reading of 5% or more; complete corrective action in accordance with the OM&M plan.
Fabric Filter Inlet Temperature	Maintain average fabric filter inlet temperature for each 3-hour period at or below average temperature during the performance test +14 °C (+25 °F).
Natural gas-fired, propane-fired or electrically heated group 1 furnaces that will be idled for at least 24 hours	Operation of associated capture/collection systems and air pollution control device may be temporarily stopped. Operation of these capture/collection systems and control devices must be restarted before feed/charge, flux or alloying materials are added to the furnace.
Reactive flux injection rate	Maintain reactive flux injection rate (kg/Mg) (lb/ton) at or below rate used during the performance test for each furnace cycle.
Lime injection rate	Maintain free-flowing lime in the feed hopper or silo at all times for continuous injection systems; maintain feeder setting at or above the level established at performance test for continuous injection systems.
Maintain molten aluminum level	Operate sidewell furnaces such that the level of molten metal is above the top of the passage between sidewell and hearth during reactive flux injection, unless the hearth is also controlled.

Monitor Type/Operation/Process	Operating Requirements
Fluxing in sidewell furnace hearth	Add reactive flux only to the sidewell of the furnace unless the hearth is also controlled.

Monitoring Requirements per §63.1510 and Table 3, Summary of Monitoring Requirements for New and Existing Affected Sources and Emission Units:

Monitor Type/Operation/Process	Monitoring Requirements
Bag Leak Detector or	Install and operate in accordance with manufacturer's operating instructions.
COM	Design and install in accordance with PS-1; collect data in accordance with subpart A of 40 CFR part 63; determine and record 6-minute block averages.
Lime injection rate	For continuous injection systems, record feeder setting daily and inspect each feed hopper or silo every 8 hours to verify that lime is free-flowing; record results of each inspection. If blockage occurs, inspect every 4 hours for 3 days; return to 8-hour inspections if corrective action results in no further blockage during 3-day period. Verify monthly that the lime injection rate is no less than 90 percent of the rate used during the compliance demonstration test.
Reactive flux injection rate	Weight measurement device accuracy of ±1%;[b] calibrate every 3 months; record weight and type of reactive flux added or injected for each 15-minute block period while reactive fluxing occurs; calculate and record total reactive chlorine flux injection rate and the total reactive fluorine flux injection rate for each operating cycle or time period used in performance test; or Alternative flux injection rate determination procedure per §63.1510(j)(5). For solid flux added intermittently, record the amount added for each operating cycle or time period used in the performance test.

EU #7 and #9 shall comply with the performance testing requirements listed under §63.1511 and §63.1512(d). Facility shall conduct an initial performance test for new furnace EU #9 within 180 days upon startup as required under §63.1511(b).

SECTION VII. COMPLIANCE

Tier Classification

This application has been classified as **Tier I** based on the request for modification of a minor construction permit that has not undergone the FESOP Enhanced NSR Process.

The draft permit will undergo public notice on the DEQ's web site as required in OAC 252:4-7-13(g). The public, tribal governments, and the EPA have 30 days to comment on the draft permit. Permits available for public review and comment are found at Air Quality section of the DEQ Web page: www.deq.ok.gov.

Environmental Justice Review
All people should be protected from the impacts of environmental pollution regardless of race, national origin, or income. DEQ is committed to ensuring such protection through the development, implementation, and consistent enforcement of environmental laws and regulations.

Pending any public review indicated in this Section, AQD has determined that no communities with environmental justice concerns are impacted by the issuance of this permit. This determination is based on this permit qualifying as a minor source under OAC 252:100-7.

Landowner Affidavit
The applicant has submitted an affidavit that they are not seeking a permit for land use or for any operation upon land owned by others without their knowledge. The affidavit certifies that the applicant owns the real property.

Enforcement Case/Violation
There is no active enforcement case for this facility.

Testing

Testing	Date	Result
Excess Emission/Summary Report	3/3/2022	- No excess emission for period: 6/1/2021 – 12/31/2021 - Rotary Furnace #7 and #5 complied with emission standards, monitoring and operating requirements under NESHAP Subpart RRR.

Inspection
An initial inspection is not required for construction permits.

Fee Paid
A fee of $2,000 was paid for a minor source construction permit on March 29, 2022.

SECTION VIII. SUMMARY

The facility has demonstrated the ability to comply with all applicable Air Quality rules and regulations. There are no active Air Quality compliance or enforcement issues concerning this facility. Issuance of the construction permit is recommended, contingent on public review.

PERMIT TO CONSTRUCT
AIR POLLUTION CONTROL FACILITY
SPECIFIC CONDITIONS

Real Alloys Recycling, LLC **Permit No. 94-115-C (M-9)**
Sapulpa Operations

The permittee is authorized to construct in conformity with the specifications submitted to the Air Quality Division on March 3, 2022. The Evaluation Memorandum dated November 2, 2022, explains the derivation of applicable permit requirements and estimates of emissions; however, it does not contain operating limitations or permit requirements. Commencing construction and continuing operations under this permit constitutes acceptance of, and consent to, the conditions contained herein:

1. **Facility-Wide Emission Limits:** NO_X, CO, VOC, SO_2, $PM_{10}/PM_{2.5}$, and HAP emissions from the whole facility shall be based on material usage, performance testing, emission factors, and hours of operation, and shall be limited to the emission limits shown in the table below. Compliance with the emission limits for NO_X, CO, VOC, SO_2, and $PM_{10}/PM_{2.5}$ from the whole facility shall be demonstrated based on monthly fuel usage, 12-month rolling basis. Emissions of HAP from the whole facility shall not exceed the following limits based on a monthly, 12-month rolling total. Each month the permittee shall calculate HAP emissions from the whole facility and add them to the previous eleven months.

Facility-Wide Emissions

EU #	NO_x	CO	VOC	SO_2	PM_{10}	HAPs
	TPY	**TPY**	**TPY**	**TPY**	**TPY**	**TPY**
7	11.16	23.89	0.61	0.07	13.11	4.11
9	11.16	23.89	0.61	0.07	13.11	4.11
8	3.64	3.06	0.20	0.02	0.28	----
F-S	0.18	0.15	0.01	<0.01	0.01	----
Heater-DeOx	1.30	1.09	0.07	0.01	0.10	----
Heater-Shotgun	2.16	1.82	0.12	0.01	0.16	----
Heater-Carousel	4.16	3.49	0.23	0.02	0.32	----
Total	**33.76**	**57.39**	**1.85**	**0.21**	**27.09**	**8.22**

   a. **Group 1 Furnace:** Emissions from EU #7 and #9 shall be limited by (and will contribute to) the facility-wide cap on NOx, CO, VOC, PM_{10}, SO_2, and HAP emissions identified in Specific Condition No. 1.

      i. Emissions calculations for EU #7 and EU #9 shall be calculated using methodology and emission factors listed in the memorandum. Compliance with the emissions authorized in the Specific Condition No. 1 above is demonstrated by limiting the aluminum throughput to 122,640 TPY, a 12-month rolling total.

ii. **Emission Limits:**

1) EU #7 and EU #9 shall not exceed the emission limits listed below.

Pollutant	Limit
PM	0.40 lb/ton of feed
HCl	0.134 lb/ton of charge
D/F	15.0 µg of D/F toxicity equivalent (TEQ) per megagram (Mg) of feed

iii. The scale used to determine the weight of each batch shall be calibrated according to the manufacturer's specifications, if specified. If the manufacture does not specify a calibration frequency, calibration shall be completed at least once every three (3) months. Calibrations shall be completed to an accuracy of ±1 percent of the weight being measured.

iv. The permittee shall conduct melting operations with process discharges vented to baghouses or equivalent PM emissions control devices.

v. Process feed rates in tons per day for each furnace shall be calculated by tracking the weights of the individual loads of metal charged, using the production tracking system.

vi. **Baghouse's Requirements:**

1) Baghouses shall be operated within 3-10 in. of water. Calculations supporting ranges selected shall be available for review at the facility.
2) The baghouse's differential pressure shall be recorded by CMS.
3) Lime shall be charged to the baghouses at a rate not less than 31 pph. Minimum effective lime usage settings for the baghouses are 20% of digital control's operating parameter. Usage settings shall be checked at least once daily and visual verification that the lime is flowing shall be performed every eight hours (once per shift).
4) Baghouse inlet temperatures shall be continuously recorded and averaged over three-hour blocks. Temperatures shall not exceed 274°F for the baghouse. The system shall be inspected and calibrated according to manufacturer's specifications during normal operation downtime.
5) The broken bag detector shall be monitored to ensure proper operation of the baghouse, with an alarm set to detect leaks of a magnitude suggesting a broken bag, all in accordance with the manufacturer's manual and EPA's 1997 "Fabric Filter Bag Leak Detection Guidance." The system shall be inspected and calibrated according to manufacturer's specifications during normal operation.

b. **Group 2 Furnace:** Emissions from EU #8 and EU #F-S shall be limited by (and will contribute to) the facility-wide cap on NOx, CO, VOC, PM_{10}, SO_2, and HAP emissions identified in Specific Condition No. 1. In accordance with §63.1500(c), Group 2 Furnaces EU #8 and EU #F-S shall use only clean charge and are not considered an affected facility for area sources of HAP.

2. The fuel-burning equipment shall be fired with commercial-grade natural gas. Compliance can be shown by a current natural gas company bill. Compliance shall be demonstrated at least once each calendar year.

3. Except as provided in OAC 252:100-9-7(a)(1), the owner or operator of a source of excess emissions shall notify the Director as soon as possible but no later than 4:30 p.m. the following working day of the first occurrence of excess emissions in each excess emission event.

4. Facility shall update the OM&M plan to include the new equipment from this construction permit. Facility shall maintain the most up-to-date OM&M plan on-site and available for inspection by DEQ personnel during routine inspections.

5. Reasonable precautions shall be taken to minimize fugitive dust emissions from the roads, and stockpiles. These precautions shall include, but not be limited to:

    a. Use of water or chemicals on roads, stockpiles, and materials during transfer operations;
    b. Application of other coatings or coverings to substances susceptible to becoming airborne or wind-borne;
    c. Covering or wetting material in trucks;
    d. Planting and maintaining vegetation coverings or windbreaks where practicable;
    e. Sweeping of concrete storage and transfer areas when solid material accumulates.

6. The owner/operator shall comply with all applicable requirements of NESHAP Subpart RRR, including but not limited to the following:

    a. §63.1500 Applicability.
    b. §63.1501 Dates.
    c. §63.1503 Definitions.
    d. §63.1505 Emission standards for affected sources and emission units.
    e. §63.1506 Operating requirements.
    f. §§63.1507-63.1509 [Reserved]
    g. §63.1510 Monitoring requirements.
    h. §63.1511 Performance test/compliance demonstration general requirements.
    i. §63.1512 Performance test/compliance demonstration requirements and procedures.
    j. §63.1513 Equations for determining compliance.
    k. §63.1514 Change of furnace classification.
    l. §63.1515 Notifications.
    m. §63.1516 Reports.
    n. §63.1517 Records.
    o. §63.1518 Applicability of general provisions.
    p. §63.1519 Implementation and enforcement.

7. Records of operations listed below shall be maintained on-site and shall be available for review by regulatory personnel during normal business hours. These records shall be maintained for a period of at least five years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

    a. Records of fuel usage demonstrating compliance with the criteria pollutant emission limits in Specific Condition No. 1 (monthly, 12-month rolling basis).
    b. Emission calculations showing compliance with the HAP emission limits in Specific Condition No. 1 (monthly, 12-month rolling basis).
    c. CMS records of baghouse's pressure difference per Specific Condition No. 1(iv).
    d. Records of feed charge per Specific Condition No. 1(v).
    e. Records of excess emission events, per Specific Condition No. 3.
    f. All records required by 40 CFR 63, Subpart RRR.

8. The permittee is authorized to operate this facility continuously (24 hours per day, every day of the year).

9. Within 180 days of commencement of operation of the modifications authorized by this construction permit, the owner/operator shall submit an administratively complete operating permit application, including all equipment at the site and the OM&M Plan for EU #9, to incorporate these modifications into the operating permit.

MINOR SOURCE PERMIT TO OPERATE / CONSTRUCT
AIR POLLUTION CONTROL FACILITY
STANDARD CONDITIONS

(February 13, 2020)

A. The issuing Authority for the permit is the Air Quality Division (AQD) of the Oklahoma Department of Environmental Quality (DEQ) in accordance with and under the authority of the Oklahoma Clean Air Act. The permit does not relieve the holder of the obligation to comply with other applicable federal, state, or local statutes, regulations, rules, or ordinances. This specifically includes compliance with the rules of the other Divisions of DEQ: Land Protection Division and Water Quality Division.

B. A duly issued construction permit or authorization to construct or modify will terminate and become null and void (unless extended as provided in OAC 252:100-7-15(g)) if the construction is not commenced within 18 months after the date the permit or authorization was issued, or if work is suspended for more than 18 months after it is commenced. [OAC 252:100-7-15(f)]

C. The recipient of a construction permit shall apply for a permit to operate (or modified operating permit) within 180 days following the first day of operation. [OAC 252:100-7-18(a)]

D. Unless specified otherwise, the term of an operating permit shall be unlimited.

E. Notification to the Air Quality Division of DEQ of the sale or transfer of ownership of this facility is required and shall be made in writing by the transferor within 30 days after such date. A new permit is not required. [OAC 252:100-7-2(f)]

F. The following limitations apply to the facility unless covered in the Specific Conditions:

1. No person shall cause or permit the discharge of emissions such that National Ambient Air Quality Standards (NAAQS) are exceeded on land outside the permitted facility. [OAC 252:100-3]
2. All facilities that emit air contaminants are required to file an emission inventory and pay annual operating fees based on the inventory. Instructions are available on the Air Quality section of the DEQ web page. *www.deq.ok.gov* [OAC 252:100-5]
3. Deviations that result in emissions exceeding those allowed in this permit shall be reported consistent with the requirements of OAC 252:100-9, Excess Emission Reporting Requirements. [OAC 252:100-9]
4. Open burning of refuse and other combustible material is prohibited except as authorized in the specific examples and under the conditions listed in the Open Burning subchapter. [OAC 252:100-13]
5. No particulate emissions from new fuel-burning equipment with a rated heat input of 10 MMBTUH or less shall exceed 0.6 lbs/MMBTU. [OAC 252:100-19]
6. No discharge of greater than 20% opacity is allowed except for short-term occurrences which consist of not more than one six-minute period in any consecutive 60 minutes, not to exceed three such periods in any consecutive 24 hours. In no case shall the average of any six-minute period exceed 60% opacity. [OAC 252:100-25]

7. No visible fugitive dust emissions shall be discharged beyond the property line on which the emissions originate in such a manner as to damage or to interfere with the use of adjacent properties, or cause air quality standards to be exceeded, or interfere with the maintenance of air quality standards. [OAC 252:100-29]
8. No sulfur oxide emissions from new gas-fired fuel-burning equipment shall exceed 0.2 lbs/MMBTU. No existing source shall exceed the listed ambient air standards for sulfur dioxide. [OAC 252:100-31]
9. Volatile Organic Compound (VOC) storage tanks built after December 28, 1974, and with a capacity of 400 gallons or more storing a liquid with a vapor pressure of 1.5 psia or greater under actual conditions shall be equipped with a permanent submerged fill pipe or with an organic material vapor-recovery system. [OAC 252:100-37-15(b)]
10. All fuel-burning equipment shall at all times be properly operated and maintained in a manner that will minimize emissions of VOCs. [OAC 252:100-37-36]

G. Any owner or operator subject to provisions of NSPS shall provide written notification as follows: [40 CFR 60.7 (a)]

1. A notification of the date construction (or reconstruction as defined under §60.15) of an affected facility is commenced postmarked no later than 30 days after such date. This requirement shall not apply in the case of mass-produced facilities which are purchased in completed form.
2. A notification of any physical or operational change to an existing facility which may increase the emission rate of any air pollutant to which a standard applies, unless that change is specifically exempted under an applicable subpart or in §60.14(e). This notice shall be postmarked 60 days or as soon as practicable before the change is commenced and shall include information describing the precise nature of the change, present and proposed emission control systems, productive capacity of the facility before and after the change, and the expected completion date of the change. The Administrator may request additional relevant information subsequent to this notice.
3. A notification of the actual date of initial start-up of an affected facility postmarked within 15 days after such date.
4. If a continuous emission monitoring system is included in the construction, a notification of the date upon which the test demonstrating the system performance will commence, along with a pretest plan, postmarked no less than 30 days prior to such a date.

H. Any owner or operator subject to provisions of NSPS shall maintain records of the occurrence and duration of any start-up, shutdown, or malfunction in the operation of an affected facility or any malfunction of the air pollution control equipment. [40 CFR 60.7 (b)]

I. Any owner or operator subject to the provisions of NSPS shall maintain a file of all measurements and other information required by this subpart recorded in a permanent file suitable for inspection. This file shall be retained for at least five years following the date of such measurements, maintenance, and records. [40 CFR 60.7 (f)]

J. Any owner or operator subject to the provisions of NSPS shall conduct performance test(s) and furnish to AQD a written report of the results of such test(s). Test(s) shall be conducted within 60 days after achieving the maximum production rate at which the facility will be operated, but not later than 180 days after initial start-up. [40 CFR 60.8]

PERMIT

AIR QUALITY DIVISION
STATE OF OKLAHOMA
DEPARTMENT OF ENVIRONMENTAL QUALITY
707 N. ROBINSON, SUITE 4100
P.O. BOX 1677
OKLAHOMA CITY, OKLAHOMA 73101-1677

Permit No. 94-115-C (M-9)

Real Alloy Recycling, LLC,

having complied with the requirements of the law, is hereby granted permission to operate the Sapulpa Operations, located Section 26, Township 18N, Range 11E, Creek County, Oklahoma, subject to standard conditions dated February 13, 2020, and specific conditions, both attached.

In the absence of construction commencement, this permit shall expire 18 months from the issuance date, except as authorized under Section B of the Standard Conditions.

DRAFT

Lee Warden, P.E.
Permits and Engineering Group Manager

Date Issued

Scott A. Thompson
Executive Director

OKLAHOMA Environmental Quality

Kevin Stitt
Governor

Robert Wallace
Real Alloy Recycling, LLC
1508 N 8th St.
Sapulpa, OK 74066

Subject: Operating Permit No. **94-115-C (M-9)**
Sapulpa Operations (Fac. ID: 832)
Section 26, Township 18N, Range 11E, Creek County

Dear Mr. Wallace:

Enclosed is the permit authorizing construction at the referenced facility. Please note that this permit is issued subject to standard and specific conditions, which are attached. These conditions must be carefully followed since they define the limits of the permit and will be confirmed by periodic inspections.

Also note that you are required to annually submit an emission inventory for this facility. An emission inventory must be completed through DEQ's electronic reporting system by April 1st of every year. Any questions concerning the form or submittal process should be referred to the Emission Inventory Staff at (405) 702-4100.

Thank you for your cooperation. If you have any questions, please refer to the permit number above and contact the permit writer at (918) 293-1615, or by e-mail at jennie.doan@deq.ok.gov. Air Quality personnel are located in the Regional Office at Tulsa, 9933 E. 16th Street, Tulsa, OK, 74128.

Sincerely,

DRAFT

Lee Warden, P.E.
Permit and Engineering Group Manager
AIR QUALITY DIVISION

Enclosure

Scott A. Thompson
Executive Director

OKLAHOMA Environmental Quality

Kevin Stitt
Governor

Muscogee Creek Nation
Attn: David hill, Principal Chief
P.O. Box 580
Okmulgee, OK 74447

Re: Operating Permit No. **94-115-C (M-9)**
Real Alloy Recycling, LLC
Sapulpa Operations (Fac. ID: 832)
Section 26, Township 18N, Range 11E, Creek County

Dear Mr. Hill:

The Oklahoma Department of Environmental Quality (ODEQ), Air Quality Division (AQD), has received the Tier II application referenced above. A Tier II application requires the facility provide a 30-day public comment period on the draft Tier II at a public location within the county of the facility. The process requires the facility to notify the public by newspaper notice in a newspaper in the county of the proposed project. Since the proposed project falls within your Tribal jurisdiction, AQD is providing this direct notice. This letter notification is in addition to the newspaper notice.

Copies of draft permits and comment opportunities are also provided to the public on the ODEQ website at the following location:

https://www.deq.ok.gov/air-quality-division/air-permits/public-participation-issued-permits/

If you prefer a copy of the draft and/or proposed permit, or direct notification by letter for any remaining public comment opportunities, if applicable, on the referenced permit action, please notify me by e-mail at phillip.fielder@deq.ok.gov, or by letter at:

Department of Environmental Quality, Air Quality Division
Attn: Phillip Fielder, Chief Engineer
707 N Robinson
Oklahoma City, OK, 73102

Thank you for your cooperation. If you have any questions, I can also be contacted at (405) 702-4185.

Sincerely,

Lee Warden, P.E.
Permit and Engineer Group Manager
AIR QUALITY DIVISION

Department of Environmental Quality (DEQ)
Air Quality Division (AQD)
Acronym List

9-10-21

ACFM	Actual Cubic Feet per Minute
AD	Applicability Determination
AFRC	Air-to-Fuel Ratio Controller
API	American Petroleum Institute
ASTM	American Society for Testing and Materials
BACT	Best Available Control Technology
BAE	Baseline Actual Emissions
BBL	Barrel(s)
BHP	Brake Horsepower (bhp)
BTU	British thermal unit (Btu)
C&E	Compliance and Enforcement
CAA	Clean Air Act
CAM	Compliance Assurance Monitoring
CAS	Chemical Abstract Service
CAAA	Clean Air Act Amendments
CC	Catalytic Converter
CCR	Continuous Catalyst Regeneration
CD	Consent Decree
CEM	Continuous Emission Monitor
CFC	Chlorofluorocarbon
CFR	Code of Federal Regulations
CI	Compression Ignition
CNG	Compressed Natural Gas
CO	Carbon Monoxide or Consent Order
COA	Capable of Accommodating
COM	Continuous Opacity Monitor
D	Day
DEF	Diesel Exhaust Fluid
DG	Demand Growth
DSCF	Dry Standard (At Standard Conditions) Cubic Foot (Feet)
EGU	Electric Generating Unit
EI	Emissions Inventory
EPA	Environmental Protection Agency
ESP	Electrostatic Precipitator
EUG	Emissions Unit Group
EUSGU	Electric Utility Steam Generating Unit
FCE	Full Compliance Evaluation
FCCU	Fluid Catalytic Cracking Unit
FEL	Federally Enforceable Limit(s)
FESOP	Federally Enforceable State Operating Permit
FIP	Federal Implementation Plan
FR	Federal Register
GACT	Generally Achievable Control Technology
GAL	Gallon (gal)
GDF	Gasoline Dispensing Facility
GEP	Good Engineering Practice
GHG	Greenhouse Gases
GR	Grain(s) (gr)
H_2CO	Formaldehyde
H_2S	Hydrogen Sulfide
HAP	Hazardous Air Pollutants
HC	Hydrocarbon
HCFC	Hydrochlorofluorocarbon
HFR	Horizontal Fixed Roof
HON	Hazardous Organic NESHAP
HP	Horsepower (hp)
HR	Hour (hr)
I&M	Inspection and Maintenance
IBR	Incorporation by Reference
ICE	Internal Combustion Engine
LAER	Lowest Achievable Emission Rate
LB	Pound(s) [Mass] (lb, lbs, lbm)
LB/HR	Pound(s) per Hour (lb/hr)
LDAR	Leak Detection and Repair
LNG	Liquefied Natural Gas
LT	Long Ton(s) (metric)
M	Thousand (Roman Numeral)
MAAC	Maximum Acceptable Ambient Concentration
MACT	Maximum Achievable Control Technology
MM	Prefix used for Million (Thousand-Thousand)
MMBTU	Million British Thermal Units (MMBtu)
MMBTUH	Million British Thermal Units per Hour (MMBtu/hr)
MMSCF	Million Standard Cubic Feet (MMscf)
MMSCFD	Million Standard Cubic Feet per Day
MSDS	Material Safety Data Sheet
MWC	Municipal Waste Combustor
MWe	Megawatt Electrical
NA	Nonattainment
NAAQS	National Ambient Air Quality Standards
NAICS	North American Industry Classification System
NESHAP	National Emission Standards for Hazardous Air Pollutants

NH_3	Ammonia
NMHC	Non-methane Hydrocarbon
NGL	Natural Gas Liquids
NO_2	Nitrogen Dioxide
NOx	Nitrogen Oxides
NOI	Notice of Intent
NSCR	Non-Selective Catalytic Reduction
NSPS	New Source Performance Standards
NSR	New Source Review
O_3	Ozone
O&G	Oil and Gas
O&M	Operation and Maintenance
O&NG	Oil and Natural Gas
OAC	Oklahoma Administrative Code
OC	Oxidation Catalyst
PAH	Polycyclic Aromatic Hydrocarbons
PAE	Projected Actual Emissions
PAL	Plant-wide Applicability Limit
Pb	Lead
PBR	Permit by Rule
PCB	Polychlorinated Biphenyls
PCE	Partial Compliance Evaluation
PEA	Portable Emissions Analyzer
PFAS	Per- and Polyfluoroalkyl Substance
PM	Particulate Matter
$PM_{2.5}$	Particulate Matter with an Aerodynamic Diameter <= 2.5 Micrometers
PM_{10}	Particulate Matter with an Aerodynamic Diameter <= 10 Micrometers
POM	Particulate Organic Matter or Polycyclic Organic Matter
ppb	Parts per Billion
ppm	Parts per Million
ppmv	Parts per Million Volume
ppmvd	Parts per Million Dry Volume
PSD	Prevention of Significant Deterioration
psi	Pounds per Square Inch
psia	Pounds per Square Inch Absolute
psig	Pounds per Square Inch Gage
RACT	Reasonably Available Control Technology
RATA	Relative Accuracy Test Audit
RAP	Regulated Air Pollutant or Reclaimed Asphalt Pavement
RFG	Refinery Fuel Gas
RICE	Reciprocating Internal Combustion Engine
RO	Responsible Official
ROAT	Regional Office at Tulsa
RVP	Reid Vapor Pressure
SCC	Source Classification Code
SCF	Standard Cubic Foot
SCFD	Standard Cubic Feet per Day
SCFM	Standard Cubic Feet per Minute
SCR	Selective Catalytic Reduction
SER	Significant Emission Rate
SI	Spark Ignition
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SNCR	Selective Non-Catalytic Reduction
SO_2	Sulfur Dioxide
SOx	Sulfur Oxides
SOP	Standard Operating Procedure
SRU	Sulfur Recovery Unit
T	Tons
TAC	Toxic Air Contaminant
TEG	Triethylene Glycol
THC	Total Hydrocarbons
TPY	Tons per Year
TRS	Total Reduced Sulfur
TSP	Total Suspended Particulates
TV	Title V of the Federal Clean Air Act
$\mu g/m^3$	Micrograms per Cubic Meter
US EPA	U. S. Environmental Protection Agency
VFR	Vertical Fixed Roof
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compound
VOL	Volatile Organic Liquid
VRT	Vapor Recovery Tower
VRU	Vapor Recovery Unit
YR	Year
2SLB	2-Stroke Lean Burn
4SLB	4-Stroke Lean Burn
4SRB	4-Stroke Rich Burn