AUTHORITY TO CONSTRUCT ENGINEERING EVALUATION

Reviewed by: ____________________
Title: APCO ________________ EKAPCD
Date: ____________________

Applicant: **PSGM3, LLC**

Mailing Address: 4805 Murphy Canyon Rd.
San Diego, CA 92123

Contact Name: Mark Olson, VP Mill Operations
Phone Number: (619) 310-3311 Email: m.olson@pacificsteelgroup.com

Application No.: 5024001 – '011 Project #: 240514
Location: 506 Sopp Rd, Mojave QS/T/R: NW27/10N/12W
Latitude/Longitude (Decimal) Latitude: 35.93556 Longitude: -118.15432

Project Title: Steel Manufacturing Facility & PSD Permit

App. Rec.: 05/14/24 Deemed Complete: 06/14/24
180 Days: 12/11/24 Submittal Date: 08/27/24

Evaluation By: Samuel Johnson

Project Contents:

I. PROPOSAL:

Pacific Steel Group (PSGM3) is proposing to construct and operate a steel manufacturing facility south of Mojave, CA. The facility is new to the District; therefore, evaluation for best available control technology (BACT) and emission Offsets is required in accordance with Section III of District Rule 210.1. The facility is expected to be a major source of emissions of carbon monoxide (CO) and particulate matter less than 2.5 microns in aerodynamic diameter ($PM_{2.5}$); therefore, evaluation for compliance with Prevention of Significant Deterioration (PSD) is required, per District Rule 210.4. The facility will also be a source of toxic air contaminants (TAC), and therefore an assessment of potential health risk to off-site receptors will be performed.

II. APPLICABLE RULES and REGULATIONS:

A. Rule 201 - Permits Required (Amended 05/02/96)
Any person building, altering, or replacing any equipment, the use of which may cause the issuance of air contaminants or the use of which may eliminate or reduce or control the issuance of air contaminants, shall first obtain authorization for such construction from the APCO. An Authority to Construct (ATC) shall remain in effect until the permit to operate the equipment for which the application was filed is granted, denied, or canceled.

B. Rule 208.2 – Criteria for finding of No Significant Environmental Impact [California Environmental Quality Act (CEQA)] (Amended 05/02/96)
Establishes criteria by which a project under review by EKAPCD can be found to have no potential for causing a significant environmental impact, and, thus, be granted a general rule exemption pursuant to Section 15061 (b)(3) of the State CEQA Guidelines.

C. Rule 210.1 - New and Modified Stationary Source Review (Amended 05/04/00)
1) Provide for pre-construction review of new and modified stationary sources of affected pollutants to insure emissions will not interfere with the attainment of ambient air quality standards.
2) Insure that appropriate new and modified sources of affected pollutants are constructed with Best Available Control Technology, and
3) Provide for no significant net increase in emissions from new and modified stationary sources for all non-attainment pollutants and their precursors.

D. Rule 210.4 – Prevention of Significant Deterioration (Amended 1/12/12, Effective 02/8/13)
Incorporates by reference federal Prevention of Significant Deterioration requirements from Title 40, Code of Federal Regulations, Part 52 §52.21.

E. Rule 401 - Visible Emissions (Amended 11/29/93)
A person shall not discharge into the atmosphere emissions as dark as or darker than Ringelmann 1 or 20% opacity for more than 3 minutes in any one hour.

F. Rule 404.1 - Particulate Matter Concentration (Amended 01/24/07)
A person shall not discharge particulate matter in excess of 0.1 grains per cubic foot of gas at standard condition from any single source operation.

G. Rule 412 – Gasoline Transfer into Stationary Storage Containers, Delivery Vessels, and Bulk Plants (Amended 01/13/22)
Gasoline storage tanks larger than 250 gallons shall be equipped with a permanently affixed submerged fill tube terminating no more than six inches from the tank bottom and California Air Resources Board "certified" Phase I gasoline vapor recovery hardware which will prevent at least 98% by weight of all gasoline vapors displaced during filling of each tank from entering the atmosphere shall be utilized.

H. Rule 412.1 – Transfer of Gasoline to Vehicle Fuel Tanks (Amended 01/13/22)
Gasoline tanks and dispensers shall be equipped with California Air Resources Board "certified" Phase II gasoline vapor recovery hardware which will prevent at least 95% by weight of the gasoline vapors displaced during refueling of motor vehicles from entering the atmosphere.

I. Rule 414 – Wastewater Separators (Amended 03/07/96)
Requires wastewater separators that are not air flotation units and receive effluent containing VOC with a Reid Vapor Pressure ≥0.5psi and recover ≥200 gallons/day of VOC containing liquid to be equipped with vapor loss control devices.

J. Rule 419 - Nuisance (Adopted 4/18/72 Renumbered 5/89) and California Health and Safety Code (CH&SC) §41700
A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health or safety of any such persons or the public or which cause or have a natural tendency to cause injury or damage to business or property.

K. Rule 422 Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Engines (Amended 1/13/22)
Establishes emission standards for stationary spark ignition internal combust engines. Requirements for performance testing,

L. Rule 423 Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants (NESHAP) from Stationary Reciprocating Internal Combustion Engines (Amended 1/13/22)
Establishes emission and operating limitations for hazardous air pollutants (HAP) emitted from stationary reciprocating internal combustion engines (RICE) located at a major and area sources of HAP emissions. Requirements to demonstrate initial and continuous compliance with limitations are also established.

M. Rule 423 Subpart YYYYY – National Emission Standards for Hazardous Air Pollutants (NESHAP) for Area Sources: Electric Arc Furnace Steelmaking Facilities (Amended 1/13/22)
Establishes requirements for control of chlorinated plastics, lead, mercury, and free organic liquids being fed into EAF and AOD vessels, and to implement control for PM emissions from the EAF and/or AOD vessels located at an area source of HAP emissions. Requirements for performance testing, monitoring, recordkeeping, and reporting are also included.

N. 40 CFR Part 60 Subpart AAb – Standards of Performance for Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarbonization Vessels Constructed After May 16, 2022 (Amended 02/14/24)
Establishes standards for particulate matter emissions from Electric Arc Furnaces (EAF), argon-oxygen decarburization (AOD) vessels, and dust handling systems constructed after May 16, 2022. Requirements for monitoring of emissions & operations, performance testing, recordkeeping, and reporting are also included.

III. EQUIPMENT LOCATION & SCHEMATIC:

SOURCE: ESRI World Topographic Map.

Mojave Micro Mill Project

Figure 1: General Location of Facility

III. EQUIPMENT LOCATION & SCHEMATIC (cont.):

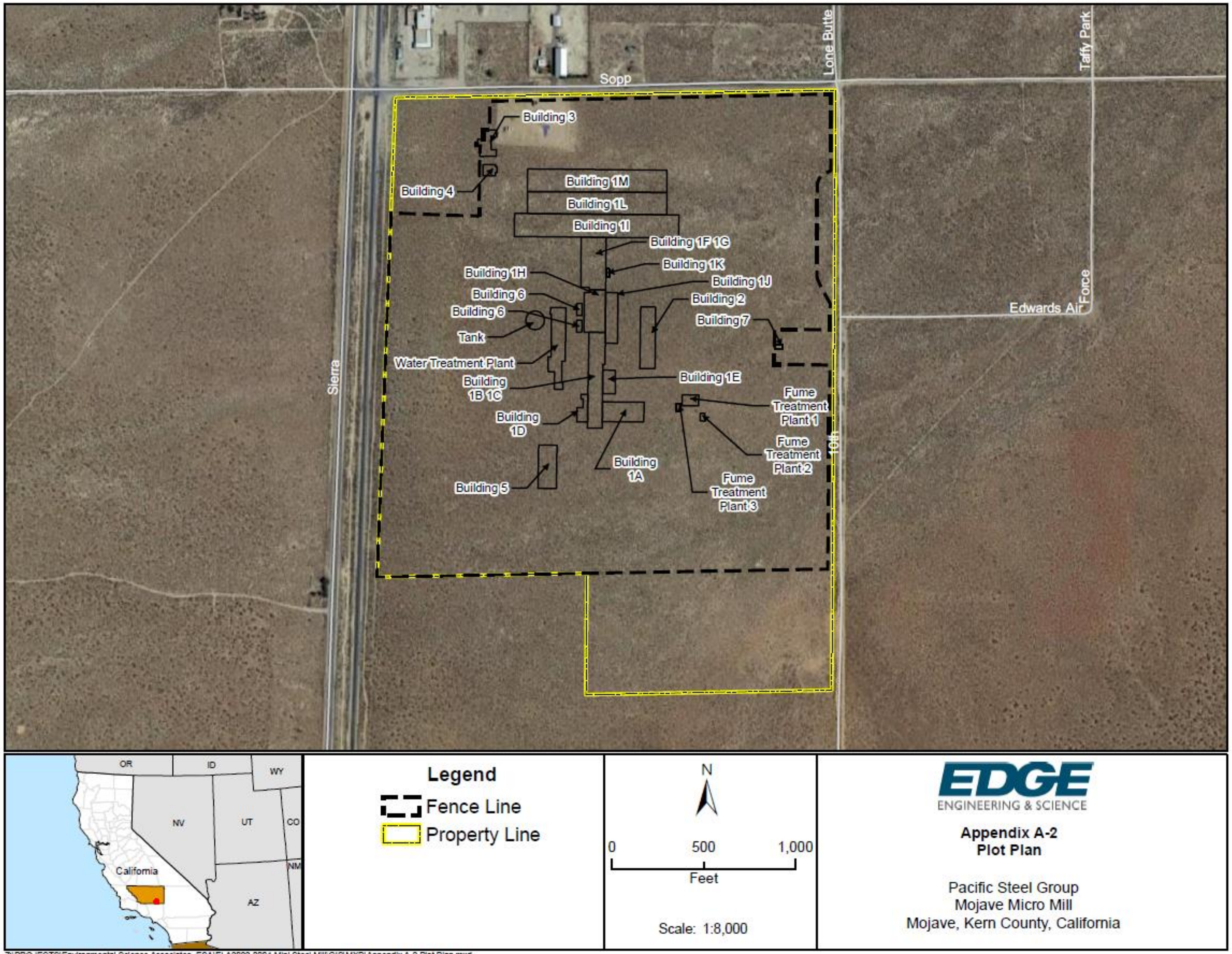
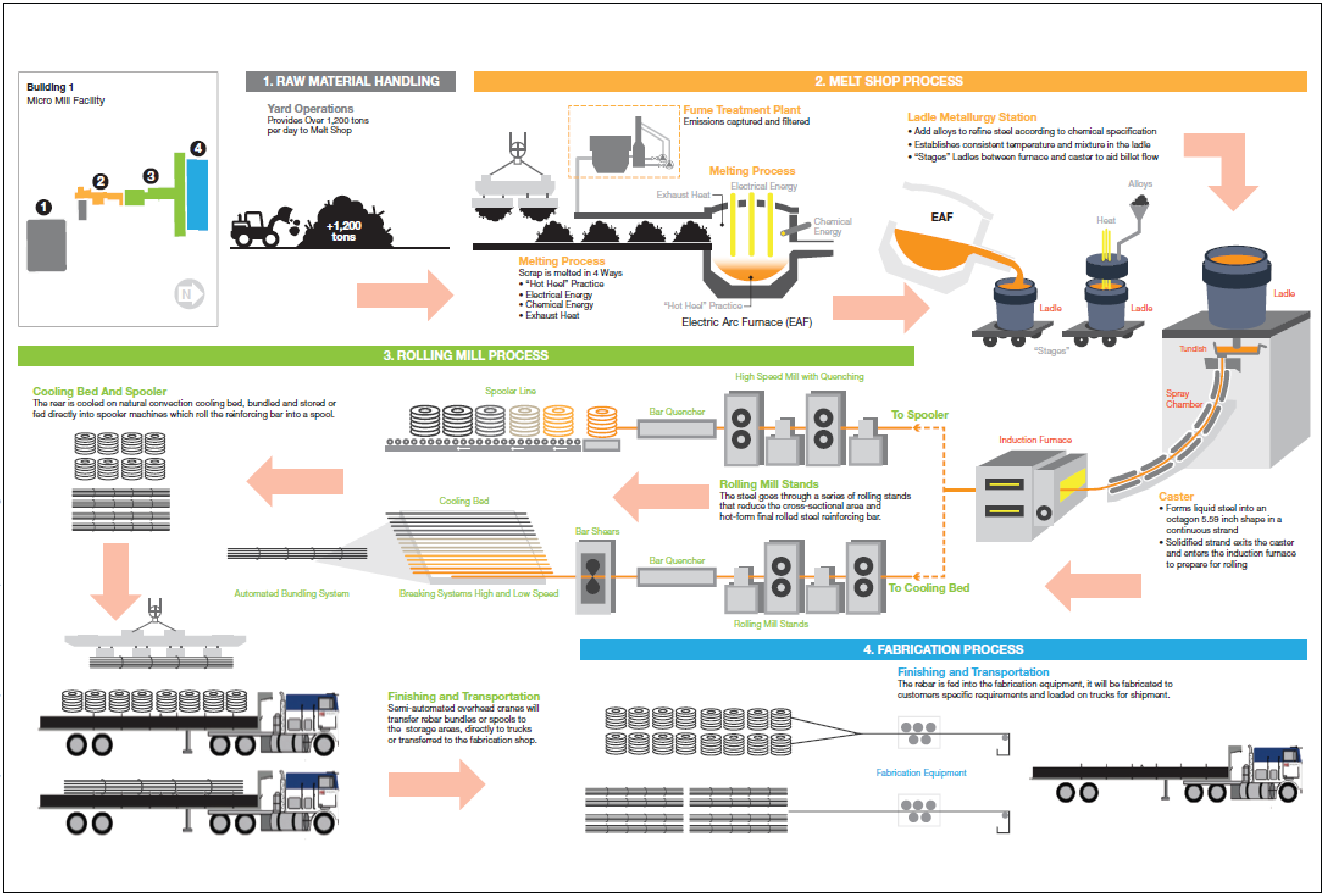


Figure 2: Proposed Facility Layout

III. EQUIPMENT LOCATION & SCHEMATIC (cont.):



SOURCE: ESA, 2024

Mojave Micro Mill Project

Figure 2: Process Flow Diagram

III. EQUIPMENT LOCATION & SCHEMATIC (cont.):

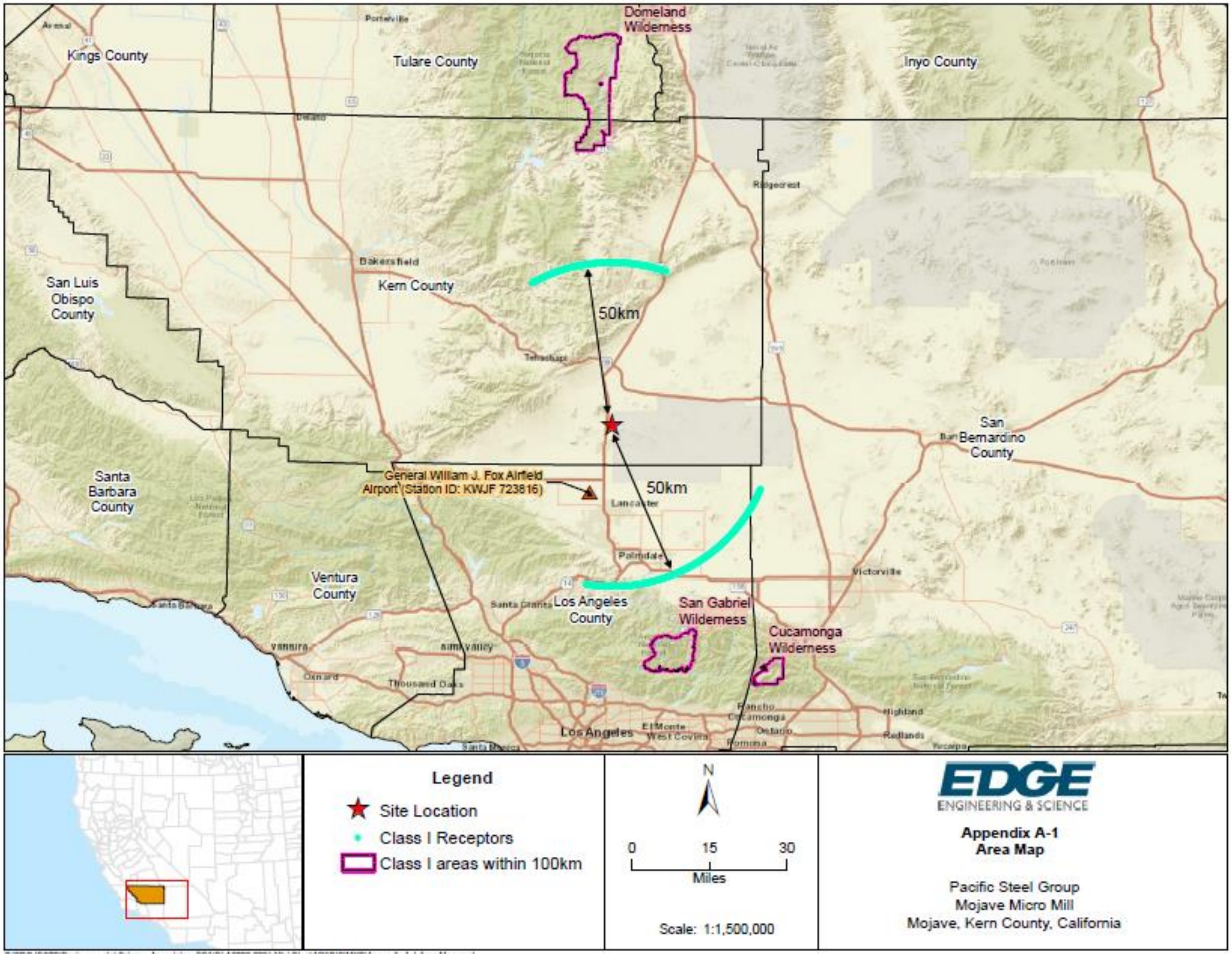


Figure 4: Proximity to Federal Class I Areas

IV. EQUIPMENT LISTING:

5024001:
Scrap and Additive Material Receiving, Handling, & Storage:

A. Scrap Unloading Bay
B. Scrap Storage Piles
C. Supplemental Alloy Storage Area
D. Storage Silos for Lime, Dolomite, and Carbon
E. Endless Charging System (ECS), including two mass charging conveyors (50-hp each), two preheating conveyors (50-hp each), and eccentric mass connecting car (30-hp)
F. ECS Tornado® preheating with twelve actuators each driven by a 5-hp motor
G. ECS Booster Fan driven by 125-hp motor

5024002:
Melting, Refining, Casting, & Rolling Operations:

A. Scrap Cutting Torches (~0.056 MMBtu/hr max)
B. Q-EBT Sand Injection System with rotating base gear motor (3-hp)
C. Electric Arc Furnace with three 10,500 kVA electrodes, oxy-lances, and Direct Evacuation control (DEC) System
D. Ladle Car with two travel drive motors (5-hp each)
E. Ladle Metallurgy Station with 7,200-kVA electrode
F. Tundish Dumping Station including capture hood with two 3-hp motors
G. Cyclone Double Clapet Dust Extractor with 0.7-hp motor
H. Cyclone Dust Extractor with 5.4-hp motor
I. Bag Filter Dust Extractor with 4-hp motor
J. 1st Bag Filter Elevator Dust Extractor with5-hp motor
K. 2nd Bag Filter Elevator Dust Extractor with 5-hp motor
L. Dust Stocking Bin Mini Filter with 0.7-hp blower
M. Dust Stocking Bin Extracting Screw Conveyor with 2-hp motor
N. Fume Treatment Plant Primary Circuit, including the following equipment:
   i. Urea injection system, reagent for selective non-catalytic reduction system (SNCR), including: urea storage tank, urea pump, distribution piping to injection ports at settling chamber, and injection control system
   ii. Primary Melt Shop Dust Collector with two 2,150-hp exhaust fans (also serves item Q)
   iii. Wet scrubber with booster fan (422-hp)
O. Fume Treatment Plant Secondary Circuit with hydrated lime injection system
P. Activated carbon sorbent injection system
Q. Secondary Melt Shop Dust Collector
R. Horizontal Preheater Transfer Car with two 5-hp motors and 2-hp cable ring motor
S. Auxiliary Transfer Car with two 5-hp motors and 2-hp cable ring motor
T. Withdrawal and Straightening Unit, including bottom & top extracting rolls and straightening roll (7.5-hp each)
U. Intermediate Roller Table with nine 1-hp rollers, one 1.5-hp roller, and one 1.5-hp pinch roll
V. Hydraulic Vertical Shear outlet roll driven by one 3-hp motor
W. Tundish Tilting Hydraulic unit with 20-hp pump
X. Ladle Slide Gate Hydraulic Unit with two pumps (10-hp each)
Y. FCC Hydraulic Unit, with two 30-hp pumps and two 2-hp recirculation pumps
Z. CCM Hydraulic Unit Container 1 with two recirculation pumps (15-hp each)
AA. CCM Hydraulic Unit Container 2 with five pumps (125-hp)
BB. Open Circuit Spray System with two Cooling Water Pumps (40-hp each)
CC. Traveling Weigh Hopper (TWH01) with 0.9-hp travel motor and 4.8-hp electric cylinder
DD. Caster Spray Vent Stack with steam exhaust fan (60-hp)
EE. Roller Tabler with Heat-Retaining Hoods, including ten roller drives (3.4-hp each)

FF. Roller Table with Heat-Retaining Hood, including roller drive (1-hp)
GG. Induction Heating Roller Table with five roller drives (3.4-hp)
HH. Pinch Roll driven by 84.8-hp motor
II. Stand ESS 685 H 00-1H driven by 335.1-hp motor
JJ. Stand ESS 685 V 00-2V driven by 335.1-hp motor
KK. Stand ESS 685 H 00-3H driven by 335.1-hp motor
LL. Stand ESS 450 V SF-4V driven by 335.1-hp motor
MM. Stand ESS 450 H SF-5H driven by 335.1-hp motor
NN. Stand ESS 450 V SF-6V driven by 469.2-hp motor
OO. Stand ESS 450 V SF-7H driven by 469.2-hp motor
PP. Stand ESS 450 V SF-8V driven by 469.2-hp motor
QQ. Start-Stop Flying Shear CVSB-030-800 driven by 222-hp motor
RR. Stand DOM 4334 FL - 9H driven by 469.2-hp motor
SS. Vertical Looper with two 2.3-hp roller drives
TT. Stand DVM 4334 FL - 10V driven by 469.2-hp motor
UU. Vertical Looper with two 2.3-hp roller drives
VV. STAND DOM 4334 FL - 11H driven by 469.2-hp motor
WW. Vertical Looper with two 2.3-hp roller drives
XX. STAND DVM 4334 FL - 12V driven by 469.2-hp motor
YY. Vertical Looper with two 2.3-hp roller drives
ZZ. STAND DOM 4334 FL - 13H driven by 469.2-hp motor
AAA. Vertical Looper with two 2.3-hp roller drives
BBB. STAND DVM 4334 FL - 14V driven by 469.2-hp motor
CCC. Vertical Looper with two 2.3-hp roller drives
DDD. STAND DOM 4334 FL - 15H driven by 469.2-hp motor
EEE. Vertical Looper with two 2.3-hp roller drives
FFF. STAND DVM 4334 FL - 16V driven by 469.2-hp motor
GGG. Roller Table with two 2.3-hp roller drives
HHH. Water Quenching Line QTB with twelve bypass roller drives each driven by a 2.3-hp motor
III. Pinch Roll at Crop Shear Entry with 69.4-hp motor
JJJ. Crop Shear driven by 120.6-hp motor
KKK. Pinch Roll at “Cut to Length” Shear Entry (69.4-hp)
LLL. “Cut to Length” Shear driven by 160.9-hp motor
MMM. Pinch Roll at Shear Exit Line#1-LH with 69.4-hp roll drive motor
NNN. Pinch Roll at Shear Exit Line#2-RH with 69.4-hp roll drive motor
OOO. Twin Bar Braker Group with two 69.4-hp motors
PPP. Roller Table driven by twelve roll drives (2.3-hp each)
QQQ. Pinch Roll at Combined Shear Entry (69.4-hp)
RRR. Combined Shear CVSM-030-0800 with 315-hp drive motor
SSS. Combined Shear Inlet/Outlet Equipment with 2.3-hp roller drive
TTT. Inlet Roller Table with Four 2.3-hp Roller Drive
UUU. Inlet Roller Table with Three 2.3-hp Roller Drive
VVV. Inlet Roller Table with Three 2.3-hp Roller Drive
WWW. Roller Table with Lifting Aprons driven by five 2.3-hp Roll Drives
XXX. Roller Table with Lifting Aprons driven by twenty 2.3-hp Roll Drives
YYY. Fast Cooling Bed, including 57-hp drive motor and lining up rollers driven by forty-six 0.5-hp motors
ZZZ. Slow Cooling Bed, including 115.6-hp bed drive and lining up rollers driven by twenty-three 0.8-hp motors
AAAA. Layer Chain Transfer with two 4.6-hp motors
BBBB. Lance Group with two 33.9-hp motors
CCCC. Bundle Run Out Roller Table with twenty-four 2.3-hp motors
DDDD. Roller Table with ten roller drive motors (2.3-hp each)
EEEE. Roller Table Drive Section A with ten roller drive motors (2.3-hp each)

FFFF. Roller Table Drive Section B with ten roller drive motors (2.3-hp each)
GGGG. Two Liftable Chain Transfers (one each for Sections A-B & C-D) each driven by 10.8-hp chain drive motor
HHHH. Collecting Chain Transfer Transfers (one each for Sections A-B & C-D) each driven by 46.2-hp chain drive motor
IIII. Pinch Roll at Crop Shear Entry with 115.6-hp drive motor
JJJJ. Crop Shear VR 12 with 115.6-hp shear drive
KKKK. FFB 4 Stands driven by 2010.7-hp main drive
LLLL. Pinch Roll along BGV bypass with 115.6-hp drive motor
MMMM. Pinch Roll at WB#2 Entry with 115.6-hp drive motor
NNNN. Pinch Roll at WB#3 Entry with 115.6-hp drive motor
OOOO. Pinch Roll at Shears Group Entry with 115.6-hp drive motor
PPPP. Crop Shear CVR 025 with 203.5-hp drive motor
QQQQ. Dividing Shear CVR 025 with 203.5-hp drive motor
RRRR. Pinch Roll at Shears Group Exit with 115.6-hp drive motor
SSSS. Pinch Roll at Spoolers Entry with 115.6-hp drive motor
TTTT. Spooler Line 1A, including Pinch Roll #14 (115.6-hp drive motor), Pinch Roll #15 Line 1A (138.7-hp drive motor), Q-VID Fan (0.7-hp motor), Mandrel Cover with 1.5-hp drive, and 1206.4-hp spooler drive motor
UUUU. Spooler Line 1B, including Pinch Roll #16 (115.6-hp drive motor), Pinch Roll #17 Line 1A (138.7-hp drive motor), Q-VID Fan (0.7-hp motor), and 1206.4-hp spooler drive motor
VVVV. Roller Table with 3.4-hp drive motor
WWWW. Weighing Roller Table with 3.4-hp drive motor
XXXX. Three Roller Tables each with 3.4-hp drive motor and Stopper
YYYY. Ten Roller Tables each with 3.4-hp drive motor
ZZZZ. Two Evacuation Roller Tables (Forklift Prelieve) each with 3.4-hp drive motor
AAAAA. Air/Oil Lubrication Unit for Rolling Area with two pump drives (2-hp each)
BBBBB. Air/Oil Lubrication Unit for FFB Area with two pump drives (2-hp each)
CCCCC. Air/Oil Lubrication Unit for Spooler Area with two pump drives (2-hp each)
DDDDD. Three Booster Pumps (147.5-hp each) serving QTB System
EEEEE. Two Booster Pumps (20.1-hp each) serving FFB 4S
FFFFF. Two Sump Pumps (1.3-hp each) for Coil Forming Area
GGGGG. EBT Walkway with 1-hp motor
HHHHH. Hydraulic Unit for ECS, EAF, LF, including three hydraulic pumps (100-hp each) and two recirculating pumps (15-hp each)
IIIII. Carbon Capture System with emission bypass option, including fume cooling system, fume pressure control system, absorption system for CO2 separation from gas stream and CO2 liquification system

5024003:

Slag Yard Operations:

A. Main Feeder (20-hp motor)
B. Syntron Feeder (5-hp motor)
C. Main Slag Conveyor (20-hp)
D. Slag Screen (25-hp)
E. Three (3) Slag Product Stacker Conveyors (15-hp each)
F. Main Metallics Feed Conveyor (20-hp)
G. Metallics Screen (25-hp)
H. Three (3) Metallics Product Stacker Conveyors (15-hp each)
I. Mill Scale Plant Main Feeder (5-hp)
J. Mill Scale Plant Main Feed Conveyor (10-hp)
K. Mill Scale Single Deck Screen (25-hp)
L. Two (2) Mil Scale Stacker Conveyors (10-hp each)

M. Main Feed belt – Metal recovery Plant (20-hp motor)
N. Magnetic Drum - Metal Recovery Plant (7.5-hp motor)

5024004:
Cooling Tower #1

A. Melt Shop CW Circuit 1 with four pumps (337.8-hp each) and two booster pumps (115.3-hp each)
B. Melt Shop CW Circuit 2 with Two Pumps (29.5-hp each) and three booster pumps (115.3-hp each)
C. Rolling Mill Circuit 1 with three pumps (138.1-hp each)
D. Secondary Cooling CW Circuit 1 with two pumps (29.5-hp each)
E. Circuit CW Cooling Tower with four Cells each containing a 100.5-hp fan motor (402.1-hp)
F. Circuit CW Emergency System Pump (138.1-hp)

5024005:
Cooling Tower #2

A. Circuit KW Cooling Tower with Two (2) Cells each containing a 29.5-hp fan motor (59-hp)
B. Melt Shop KW Circuit 1 with two pumps (203.8-hp each)
C. Rolling Mill CW Circuit 1 with two pumps (246.6-hp each)
D. Rolling Mill KW Circuit 2 with four pumps (115.3-hp each)
E. Rolling Mill KW Return Circuit 1 with submersible pump (56.3-hp)
F. Rolling Mill KW Return Circuit 3 with two submersible pumps (33.5-hp each)
G. Circuit KW Treatment Bucket with 10.1-hp motor
H. Three Circuit KW Treatment Pumps (69.7-hp each)
I. Circuit KW Treatment Oil Skimmer with 0.2-hp motor
J. Filter Backwashing with main blower (40.2-hp), hood fan blower (0.3-hp), and two pumps (9.4-hp each)
K. Drain Pit with mixer (5.4-hp) and two submersible pumps (14.7-hp each)

5024006:
Cooling Tower #3

A. Cooling Tower with two Cells each containing a 50-hp fan motor (100-hp)
B. Pumps with TBD quantity and hp ratings (engineering design pending)

5024007:
Cooling Tower #4

A. Cooling Tower with One cell containing a 15-hp fan motor
B. Pumps with TBD quantity and hp ratings (engineering design pending)

5024008:
Emergency Firewater Pump driven by 600-bhp propane-fueled internal combustion engine

5024009:
Emergency Cooling Water Pump driven by 200-bhp propane-fueled internal combustion engine

5024010:
Emergency Generator Set driven by 2,682-bhp propane-fueled internal combustion engine

5024011:
Fuel Storage & Dispensing Operation

A. 500-gallon (Model TBD) regular unleaded gasoline aboveground storage tank (AST) with a permanently affixed fill tube termination no more than six inches from bottom of tank and provisions for collection of gasoline vapors during filling (ATC No. 5024011)
B. Standing Loss Control (CARB Executive Order VR-302), including the following CARB certified components:

	Component	Manufacturer/Model Number
1.	**Pressure Vacuum Relief Valve**	Husky 5885 or Franklin Fueling Systems PV-Zero

C. Phase I (filling of storage tank) vapor recovery system, including one of the following sets of CARB certified components:

	Component	Manufacturer/Model Number	
		Executive Order VR-401	Executive Order VR-402
1.	**Emergency Vent**	OPW 301	Morrison 244O
2.	**Drop Tube**	OPW 61FT	Morrison 419
3.	**Overfill Prevention Valve**	OPW 61fSTOP	Morrison 9095
5.	**Spill Container**	OPW 33 or 53 Series	Morrison 516
6.	**Liquid Fill Adapter**	OPW 161BAN	Morrison 927
7.	**Liquid Fill Cap**	OPW 634B	Morrison 735DC
8.	**Liquid Coupler**	OPW 1711D	Morrison 928
9.	**Vapor Adapter**	OPW 1611AV or 61VSA	Morrison 323
10.	**Vapor Cap**	OPW 1711T	Morrison 323C

D. Model <TBD> gasoline dispenser with one product nozzle; and
E. Phase II (fueling of vehicle tank) without vapor recovery, including the following CARB certified components:

	Component	Manufacturer/Model Number
1.	**Nozzle**	OPW 14E; or VST Enviro-Loc; or Husky 6025
2.	**Dispensing Hose**	Contitech Futura Low Perm; or Parker 7282 Low Perm; or VST V58EC; or VST V34EC; or Husky 6025

V. ENGINEERING ANALYSIS:

The proposed facility can be classified as a steel “minimill”. In a minimill, scrap metal is melted and refined in an electric arc furnace (EAF) to make steel products. Generally, molten steel is produced in an EAF and then tapped from the EAF to a ladle. The molten steel is then usually further refined with the addition of alloys. Semi-finished product is then produced using continuous casting or ingot casting. Multiple finishing processes may then be used to produce finished steel products. A more thorough description of the steps in the process are described below.

A. Process Description

Scrap & Additive Material Receiving, Handling, & Storage

Recycled scrap metal will be transported to the facility by truck. Scrap metal to be received will include unshredded and shredded scrap, largely from crushed automobiles, and may also include old appliances, machinery, sheet metal, rectangular bundles, and miscellaneous scrap metal. Unshredded scrap metal would arrive in a form either suitable for direct use in the steelmaking process, or in a larger size that would require cutting by mechanical shears before use in the process. In instances where using shears would not be feasible, the scrap would be cut with a torch cutter located within the melt shop.

The shredded and unshredded scrap metal will primarily be unloaded from delivery truck and stored at the 24,300-square-foot scrap bay. However, market conditions may result in scrap inventory overflow, requiring the use of the overflow scrap storage piles. Material in the scrap piles would be moved into the scrap bay by front-end loader or other material-handling mobile equipment. The applicant has conservatively estimated that up to 50 percent of the scrap metal received could be stored in the overflow scrap storage piles. Once the scrap metal is inside the proposed scrap bay, a magnetic crane will load it onto the primary conveyor feed system for transport to the EAF.

In addition to the recycled scrap metal, other raw materials are necessary in the steelmaking process, including carbon (petroleum coke or biocarbon) and fluxing agents (e.g., lime, dolomite). The carbon and fluxing agents will be delivered to the project site by truck and moved into storage silos via a pneumatic system. The carbon and fluxing agents are pneumatically transferred from these silos to the EAF and ladle metallurgy station (LMS) as needed. Each silo will be equipped with a pulse jet–style fabric filter bin vent; exhaust from these dust collectors will be ducted through the inlet of the melt shop baghouse.

Alloy aggregates are also used in the EAF and LMS for refining steel metallurgy. Alloys will be transported by truck to the project site in aggregate form, and would be unloaded into outdoor storage bins. The alloys would then be transferred by front-end loader or forklift to the melt shop for use in the EAF or LMS as needed. Alloys used will primarily consist of ferro silicon 75 (FeSi75), ferro silicon manganese (FeC5H5MnSi), silicon carbide (SiC), calcium carbide (CaC2), and metallurgical carbon alloys; additional alloys, including ferro vanadium (FeV), ferro chrome (FeCr), and calcium silicon (CaSi), may also be used as part of the steelmaking process. No fluoride-containing fluxing agents or alloys are proposed to be used in the process; therefore emissions of fluorides are not expected from the process.

Melt Shop

The melt shop process includes the use of the EAF, LMS, ladle and tundish preheaters, casting operations, and refractory repairs. The main emission-control device for the EAF and LMS is the fume treatment plant. Emissions from other processes within the melt shop would be released through the completely enclosed melt shop/caster roof distribution system (secondary control circuit) and captured by the fume treatment plant. The elements of the melt shop process are described further below.

<u>Electric Arc Furnace</u>: The steelmaking process begins with the transport of scrap metal to the EAF. The EAF is be equipped with both electrodes and oxy-lances. The oxy-lances introduce oxygen into the molten steel to increase the speed of the melt, and reducing the consumption of electricity and electrode material, thereby increasing the effective capacity of the EAF.

During the first use of the EAF after downtime, scrap metal is loaded using charge buckets, which would be transported into position over the EAF using overhead cranes. Once in position, the charge bucket would open, allowing scrap to fill the EAF. After the first batch of steel is made, scrap for subsequent batches are fed to the EAF using a continuous conveyor called the endless charging system (ECS), allowing scrap metal to be fed continuously without requiring workers to open the furnace. The section of the ECS closest to the EAF will be enclosed to allow for preheating of the scrap metal using off-gases from the EAF.

Once the furnace is filled with scrap metal the EAF's electrodes are lowered and energized. The energy from the electrodes is transferred to the scrap metal to raise the temperature to approximately 3,000 °F. All off gases from the melt shop processes would be captured via the direct evacuation control (DEC) system serving the EAF, the canopy hood above the EAF, and melt shop/caster canopy; these capture devices would then vent emissions to the fume treatment plant.

During the melting and refining processes that take place in the EAF and the LMS, raw materials including fluxing agents, metallurgic coal, bio coke, and oxygen are added to the molten steel to achieve the desired product chemistry and properties and promote the formation of slag. Slag is a product of steelmaking, produced when the molten steel is separated from impurities in the EAF, and is a complex solution of silicates and oxides that solidifies upon cooling. Flux, in metallurgy, is any substance introduced in the smelting of ores to promote fluidity and to remove objectionable impurities in the form of slag. Limestone and dolomite are commonly used for this purpose in smelting iron ores.

Once the desired steel properties are reached in the EAF, the molten steel is poured (i.e., "tapped") into a refractory-lined transport vessel called a ladle. The molten steel then would be transferred to the LMS via a ladle car. The slag formed in the EAF would be emptied by tipping the EAF to the side and allowing the hot slag to be poured into a pile within the EAF/LMS bay. As the slag cools, some limited combustion of residual coke in the slag may occur. The slag would be subsequently removed from the pit using a front-end loader, quenched using process water, and transported to an outdoor storage pile before being processed on-site.

<u>Ladle Metallurgy Station</u>: The ladles filled with molten steel are transferred from the EAF to the LMS via the ladle car. At the LMS, the steel will be subjected to additional heating by electrical energy to maintain its molten state. The molten steel is further refined with the injection of fluxing agents, carbon, and alloys into the molten steel. Once the molten steel reaches the desired temperature and composition (dependent on the physical properties of the desired product), the ladle transports the molten steel to a continuous casting machine. Emissions from the LMS would be captured by the LMS roof and connected ladle duct. These captured emissions are directed to the melt shop baghouse via the LMS canopy hood. The baghouse removes particulate emissions by passing the gas stream through porous fabric filters (bags) that trap the particles on the fabric. The emissions not captured by the ladle duct would vent to the melt shop and be captured by the meltshop canopy hood.

<u>Casting Operations</u>: After reaching the desired temperature of approximately 3,000°F and composition in the LMS, the ladle would be transported to a continuous casting machine within the caster bay. During casting, steel flows out of the bottom of the ladle via a slide gate into a tundish, an intermediate holding vessel acting as a reservoir for molten steel to ensure continuous casting while ladles are switched out. Emissions from the process would be released through the caster canopy and captured by the fume treatment plant. The applicant has not proposed utilizing fluoride containing mold powder; therefore, fluoride emissions are not expected from the continuous casting process. From the tundish, the steel flows into a single mold where the steel is water-cooled to approximately 2,000°F and formed into a continuous billet.

<u>Ladle and Tundish Preheater</u>: Refractory materials would line the ladles and tundishes, which must be dried completely before steel production to avoid damage from the violent reaction that occurs when molten steel contacts water. Additionally, the ladles and tundishes must be preheated before the transfer of molten steel to prevent heat losses that can lead to product defects. Electrical ladle and tundish preheaters and dryers would be installed. The applicant has indicated the tundish would use a refractory material that does not require curing.

<u>Refractory Repair</u>: The refractory used in the EAF, ladles, and tundishes is composed of a layer of

refractory bricks with manganese and calcium oxide bases. For the EAF, the refractory is changed only when re-lining the furnace. For the ladles and tundishes, refractory repairs and replacements are required periodically. These repairs involve the use of organic binding agents (binder) to hold the refractory bricks in place. Emissions from the binder will be routed to the ladle maintenance bay's canopy. When the refractory is replaced or repaired, spent refractory materials would be recycled or disposed of, along with other various wastes generated in the steel production process.

Induction Furnace: An induction furnace would be located between the caster and the rolling mill to elevate and stabilize temperatures before the steel enters the first stand.

Rolling Mill System

The rolling mill is a metal-forming process in which metal stock would be passed through one or more pairs of rolls to reduce the metal's thickness and make it uniform. Roll stands, holding pairs of rolls, would be grouped together into rolling mills that could quickly process steel into rebar.

Rolling Mill: After continuous casting, the steel would be conveyed through a series of rolling mill stands that reduce the steel's cross-sectional area and create a hot-form, final rolled steel reinforcing bar (i.e. rebar). The rolled steel is then sheared to length and cooled on natural convection cooling beds. After cooling the bars are either bundled & stored or fed directly into spooler machines that would form the rebar into a spooled shape. As production for a particular size of rebar has been completed, the rolling mill stands would be taken to the roll shop, where employees would replace worn parts and insert a new set of mill rolls in each stand to be able to produce the next size of product. The rolling mill bay would house the following utility systems necessary to feed the rolling mill:

- Electrical and automation with programmable logic controllers.
- Switchgear and motor control centers.
- Air oil system pumps and a tank for lubrication of the rolls.
- Grease unit pumps and tanks for roller bearings.
- A lube oil system with pumps and tanks for oil in the rolling mill gearboxes.
- A hydraulic system including hydraulic fluid tank and pump to pressurize hydraulic lines.
- Air compressors and tanks.

Cooling Beds: The products exiting the rolling mill are water quenched for tempering, which improves hardness, strength, & toughness, as well as decreases brittleness in fully hardened steel. Steel products are then directed to the cooling beds for time and space to cool in the ambient air.

Spooler: The products exiting the rolling mill, if not directed to the cooling bed, would instead be directed to the spooling machines. Two spoolers would form the reinforcing bar into spooled packages.

Finishing and Transportation: After the products have cooled, a shear blade would cut the products to customer-requested lengths. Automated bundling systems would prepare products for movement by overhead crane to storage areas or directly to trucks.

Fabrication Process

Because all rebar must be cut to length and often bent before it can be placed in a construction project, the facility will include an on-site "cut and bend" facility processing up to 245,000-tons-per-year of product. The on-site location of the project's fabrication shop eliminates the need to rely on an off-site fabrication shop for maintaining an independent inventory, reduces the quantity of scrap produced due to rebar length in excess of customer requirements, and ensures that the scrap generated from cutting would be recycled. Rebar shearing is not expected to result in air pollutant emissions.

Fume Treatment Plant
Emissions captured in the melt shop would be directed to the fume treatment plant and captured by the furnace exhaust system. There are several pollution control technologies occurring within the fume treatment plant to minimize pollutant discharges to the atmosphere from the melt shop processes.

A primary circuit would capture emissions from the EAF and include the following pollution control mechanisms:

- Urea injection with air lancing applied to primary exhaust ducts and chamber before primary baghouse using selective non-catalytic reduction (SNCR) to control emissions of oxides of nitrogen (NO_x).
- Settling chamber to capture larger particulate matter (PM) through the settling process (i.e. gravitational force)
- A primary baghouse to control PM emissions, including PM with an aerodynamic diameter of 10 microns or less (PM_{10}) and PM with an aerodynamic diameter of 2.5 microns or less ($PM_{2.5}$).
- A wet scrubber to control emissions of oxides of sulfur (SO_x) and PM/PM_{10}/$PM_{2.5}$ (filterable and condensable).

Emissions from the LMS captured by canopy hood would be passed through a secondary circuit, which would use a hydrated lime injection system for the LMS stream to control SOx. The secondary circuit will capture all other emissions from the primary meltshop baghouse.

This emission stream would then combine with the primary circuit and pass through the following control mechanisms:

- An activated carbon injection system to control emissions of mercury and volatile organic compounds (VOC).
- A secondary baghouse to further control PM/PM_{10}/$PM_{2.5}$ emissions.

Dust collected by the fume treatment plant baghouses would be transferred to a dust silo controlled with a bin vent filter. The bin vent filter would be ducted to the inlet of the fume treatment plant control system, with dust captured by the filter being stored in enclosed containers to be shipped off-site by truck for recycling.

Water Pretreatment
The project site would also include a 9,000-square-foot water pretreatment building. This building will house the equipment that would take the initial source water (initially filling the water treatment plant system) and makeup water (replacing water lost through the process) from the Antelope Valley–East Kern Water Agency’s water main and would treat the water using an ultrafiltration and reverse osmosis process.

Water coming into direct contact with contaminants in the steelmaking process (contact water) would be treated on-site. Water that has run through the steelmaking process would flow to a settling basin where settleable matter would drop out, and an oil skimmer would remove oils from the water in the basin. Water would be pumped to a sand filter for further treatment, then stored in a clarified water tank where chemical dosing units would be used to balance the water’s chemistry. A cooling tower would be used to reduce the temperature of the system, then collect water in the basin before pumping cooled water back to the process. The water treatment in the PSGM3 facility is a closed loop system, and emissions are expected to be *de minimis*.

Cooling water that does not come into contact with contaminants (i.e., noncontact water), would be used to control the temperatures of the steelmaking process. This water would be in an enclosed system as it runs through the building. A cooling tower would reduce the temperature of the system. Water would then be collected in the basin and would be chemically balanced and strained before being pumped back to the process. In addition, a system for post-water treatment will be installed.

Carbon Capture System
The project would install a carbon capture system (CCS) to capture the carbon dioxide (CO2) from the combustions that occurs during the steelmaking process in the EAF. As CCS has not been demonstrated in practice in the steel industry, the system is designed with a bypass option. Therefore, no credit for capture of CO_2 is considered for the CCS in the emission calculations for GHG emissions.

The CCS process would consist of the following stages:

- Heat recovery from the EAF’s primary fumes.
- Dust removal by the fumes filtration system before the CO_2 enters the CCS.
- Cooling of the fumes by the fumes cooling system.
- Operation of a fume pressure control system to keep the carbon capture operation efficient.
- Use of a CO_2 removal system based on a solvent that is resistant to the presence of oxygen, limiting the need for refills and for disposal of residues.
- Operation of a CO_2 liquefaction system, complete with a compression, dehydration, and purification unit that would allow the removal of impurities in the product and storage. The liquefied CO_2 would then be stored for future transportation off-site via truck.

Slag and Mill Scale Handling and Crushing
Slag, a product of the steelmaking process, is produced when fluxing agents are added to molten steel to remove impurities. The function of the slag, composed mainly of lime (calcium oxide [CaO]), is to refine the steel from sulfur (desulfurization) and absorb the oxides, formed as a result of deoxidation (also known as killing process). Most slag at the facility would be produced in the EAF, with a smaller amount formed in the LMS. The EAF slag is emptied into a slag pit below the furnace to cool. After the slag is removed from the melt shop, quenched, and stored in an outdoor storage pile, the slag would be processed by an on-site slag processing plant. At the slag processing plant, large pieces of slag would first be reduced in size by a drop ball crushing process. Slag would then be processed through a system consisting of conveyors, hoppers, a jaw crusher, and a double-deck screen. In addition to the transportation by the conveyor system, loaders would transport slag to the various piles. The processed slag stored in the piles would be transported off-site by truck to be sold to consumers, disposed of, or recycled.

Emergency Use Internal Combustion Engines:
The facility will utilize emergency backup internal combustion engines. The site would include one 2,682 horsepower(hp) propane emergency generator, one 600 hp propane fire pump, and one 200 hp propane generator for the cooling water pump.

Combustion of propane fuel results in emissions of PM_{10} & $PM_{2.5}$, VOC, carbon monoxide (CO), SO_x, and NO_x. Emissions of NOx, VOC, & CO shall be based on BACT limits (see Section VI); there are not emission factors for propane fueled internal combustion engines in EPA’s AP-42 Compilation of Emission factors, therefore applicant has proposed emissions of PM_{10}, $PM_{2.5}$, & SOx be calculated using emission factors developed by CARB for their emission data system in 1991.

Fuel Storage & Dispensing Operation
The project would have an 8,000-gallon diesel storage tank, a 2,000-gallon diesel storage tank, a 500-gallon gasoline storage tank, and a 250-gallon gasoline fuel tank. Emissions of criteria air pollutants from gasoline and diesel storage & dispensing are expected to consist entirely of VOC,

a portion of which are also classified as toxic air contaminants (TAC). VOC emissions are a result of the following operations: filling of the aboveground storage tank (AST), refueling of vehicles at dispensers, and evaporation of gasoline in the AST & dispensing equipment.

Emissions from the filling of the AST (Phase I) are the result of vapors in the empty space in the tank being displaced with liquid fuels; these emissions are controlled by routing the vapors to the gasoline delivery vessel using the Phase I enhanced vapor recovery (EVR) equipment. Pressure driven (aka "breathing") losses occur as fuels within the AST evaporates during the periods of low activity or increase in ambient temperature, resulting in an increase in system pressure that forces vapors into the atmosphere. These emissions are typically controlled by using a vent valve that prevent gasoline vapors from exiting through vent piping unless the internal tank pressure approaches an unsafe threshold, and a "vapor processor" that either captures vapors in a filter or destroys vapors using combustion may also be used. Emissions from filling of vehicle fuel tanks (Phase II) occur as a result of vapors within the vehicle fuel tank being displaced during filling, as well as spillage of fuels before, during, or after fueling. These emissions are typically controlled by Phase II vapor recovery equipment on the dispenser and/or onboard refueling vapor recovery (ORVR) systems on the vehicle being refueled.

VOC emissions from the gasoline storage & dispensing operation shall be based on maximum throughput rates and gasoline storage & dispensing emission factors developed by the California Air Pollution Control Officer's Association (CAPCOA) and the California Air Resources Board (CARB). The proposed 250 gasoline tank and two diesel tanks are exempted from permitting requirements, pursuant to District Rule 202.II.G; therefore, emissions from these sources will not be calculated to determine emission limitations.

B. Prevention of Significant Deterioration Requirements

Based on applicant's proposal, emissions of CO and $PM_{2.5}$ from the facility would represent a significant emissions increase (as defined in 40 CFR §52.21(b)(23)), calculated in accordance with 40 CFR §52.21. Therefore, the facility would be classified as a major source of these air pollutants, and evaluation for compliance with Prevention of Significant Deterioration (PSD) program requirements is necessary.

Major sources of air pollutants located in an area designated as attainment or unclassified for the pollutant are required to be evaluated for compliance with the requirements of 40 CFR §52.21 prior to commencing construction. Subsection (j) requires owner/operator to implement BACT for each pollutant with emissions above the significant emission threshold. Subsection (k) requires the owner/operator to demonstrate the emissions increase would not cause or contribute to an exceedance of the national ambient air quality standards (NAAQS) and the maximum allowable increase above the baseline concentration, using an air quality model approved by EPA. Subsection (l) specifies the model air quality models to be used in the source impact analysis. Subsection (m) requires an analysis of the impact to air quality for each pollutant that would be emitted in a significant amount. Subsection (n) specifies the source information necessary to perform the analyses required. Subsection (o) requires the owner/operator to provide an analysis of the impairment to visibility, soils, and vegetation that would occur as a result of the project, as well as impacts from additional commercial, industrial, or residential growth associated with the project. Subsection (p) specifies requirements for projects that may impact Federal Class I areas. Subsection (q) requires a public noticing & comment period prior to issuance of the PSD permit. Subsection (r) specifies the source's obligation to construct and operate the source in a timely manner and in accordance with the conditions of the approval to construct.

<u>Source Information</u>
The owner or operator of a proposed source or modification is required to submit all information

necessary to perform an analysis or make any determination required by the PSD rule. This includes:

- a description of the location, design capacity, and typical operating schedule of the source or modification
- a detailed schedule for construction of the source or modification; and
- a detailed description as to what emission controls or reductions of potential emissions are planned for the source or modification, estimates of those emissions, and other information necessary to determine that BACT would be applied to the source or modification

The owner or operator may also be required to provide the following information upon request of the District or EPA:

- air quality impact of the source or modification; and
- air quality impacts of any commercial, industrial, residential, and other growth in the area the proposed source or modification would affect

PSGM3 included the following analyses with the application: a detailed control technology review for source of emissions above the significant emission rate; worst-case emission estimates; source impact analysis; additional impacts analysis, and assessment of potential Class I area impacts.

Control Technology Review (40 CFR §52.21(j))
A review of control technologies for emissions of CO and $PM_{2.5}$ were included with the application; this is further discussed in Section VI of this evaluation.

Air Quality Models
Subsection (l) of 40 CFR §52.21 requires the estimates of ambient pollutant concentrations be made using a model and input data meeting the requirements of the EPA’s Guideline on Air Quality Models (Appendix W to Part 51). Section 4 of the Guidelines describe appropriate air quality models for assessing pollutant concentrations in ambient air, Section 6 provides general modeling considerations, Section 8 contains the requirements for model input data, and Section 9 provides guidance on the regulatory application of air quality models.

Ambient concentrations of $PM_{2.5}$ and CO were estimated using the AERMOD model, a gaussian plume dispersion model approved by EPA for use in PSD applications. Meteorological data preprocessed by the California Air Resources Board (CARB) from the General William J. Fox Airport weather station was obtained for years 2017-2021. Terrain data from the National Elevation dataset (NED) was obtained and processed using the latest version of AERMAP to determine the elevations of each modeled building, source, and receptor in the modeling domain.

Receptors were modeled as follows:

- Along the facility fence line, spaced at 25-meter (m) intervals;
- Grid of 50m x 50m spacing out to 500m from the fenceline
- Grid of 100m x 100m spacing from 500m to 1 kilometer (km)
- Grid of 250m x 250m spacing from 1 km to 5 km
- Grid of 500m x 500m spacing from 5 km to 10 km
- Grid of 1km x 1km spacing from 10 km to 50 km

Building downwash impacts for nearby receptors were evaluated using algorithms from EPA’s Building Profile Input Program – Plume Rise Model Enhancements (BPIP-PRIME) Model.

The proposed dispersion model and input data were found to meet the criteria specified in EPA’s Guidelines, and therefore the proposed model is acceptable for assessing the project’s impacts on ambient $PM_{2.5}$ and CO concentrations.

Source Impact Analysis (40 CFR §52.21(k))
The applicant is required to demonstrate the new facility will not cause or contribute to a violation of a national ambient air quality standard (NAAQS) and will also not result in an increase in pollutant concentration above the maximum allowable increase above the baseline concentration.

The increase in ambient concentration of each pollutant was estimated using the approved model. (see Attachment B of this evaluation for pollutant concentration contours). Comparison to the applicable standards are summarized in the following table:

Pollutant	Averaging Period	Model Results (µg/m^3)	Significant Impact Level (SIL) (µg/m^3)	PSD Increment, Class II Area (µg/m^3)	Primary NAAQS (µg/m^3)	CAAQS (µg/m^3)	Monitoring *de minimis* Concentration (µg/m^3)
CO	1-hour	97.8	2,000	N/A	40,000	23,000	
	8-hour	18.5	500	N/A	10,000	10,000	575
PM2.5 (Primary)	24-hour	0.498					
	Annual	0.083					
PM2.5 (Secondary)	24-hour	0.017					
	Annual	0.001					
PM2.5 (Total)	24-hour	0.515	1.2	9	35	-	N/A
	Annual	0.084	0.13	4	9	12	N/A

The projected increase in ambient concentration of CO and $PM_{2.5}$ is expected to be less than all thresholds of significance; therefore, the proposed facility is not expected to cause or contribute to a violation of the NAAQS for either pollutant.

Air Quality Analysis
Major modifications are typically required to include an analysis of the existing air quality in the area the modification would impact; this includes at least one year of pre-construction ambient monitoring of the pollutant that would have a significant net emissions increase as a result of the modification to determine whether the project increase in ambient concentrations would result in a violation of the NAAQS. Post-construction ambient monitoring may also be required to determine the actual effects of the project on air quality in any area. However, subsection (i)(5) of 40 CFR §52.21 allows an exemption from ambient monitoring requirements if the projected increase is less than the *de minimis* amount specified for the pollutant: for CO, this threshold is 575 µg/m^3 (8-hour avg.); there are no exemptions from post-construction monitoring requirements for $PM_{2.5}$.

The source impact analysis indicates that the projected increase in ambient air concentration would be below the threshold requiring ambient monitoring to be conducted for CO. While there is no exemption for post-project monitoring of $PM_{2.5}$ (if deemed necessary by the Administrator), the increase in $PM_{2.5}$ concentrations is expected to be less than the significant impact level for all averaging periods, and therefore post-construction monitoring for $PM_{2.5}$ will not be required.

Additional Impact Analysis
The owner or operator of the major source or modification is required to provide an analysis of the impairment to visibility, soils, and vegetation that would occur as a result of the modification, as well as any associated commercial, industrial, residential, and other growth.

Vegetation
Impacts on vegetation can occur through both acute and prolonged (i.e. chronic) exposure to air pollution. Acute exposure impacts that have been observed include internal visible damage to leaf tissues, and impacts from prolonged exposure are associated with a decreased ability to

perform physiological processes such as photosynthesis, carbon allocation, and stomatal functioning. USEPA has indicated that ambient air concentrations of criteria pollutants below the secondary NAAQS will generally not result in harmful effects, though sensitive vegetation species and soil types may experience harmful effects for regulated pollutants without an established NAAQS.

The project area is characterized by grasslands and shrub communities in the Mojave Basin and Range ecoregion and a warm, dry climate. Applicant's analysis of land cover types obtained from the Kern County Planning & Natural Resources Department indicated there are no plant species officially classified as sensitive natural communities withing the project vicinity, although the wester Joshua tree (*yucca brevifolia*) is listed as a candidate species to be listed as threatened and is present in the project area.

Increases in CO emissions have the potential to adversely affect vegetation; increased CO exposure has been linked to an overproduction reactive oxygen species (such as hydrogen peroxide), which reduces photosynthesis rates. Given the expected increase in CO emissions would not cause or contribute to a violation of the NAAQS for CO, adverse impacts on vegetation are not expected.

SO_2 exposure can create negative effects in various types of vegetation including trees, shrubs, herbaceous plants, and crop plants. It can directly inhibit photosynthesis, causing water loss within the plant cells leading to flecking, bronzing, and necrosis of leaf tissue. Long term exposure to SO_2 may also reduce quality and quantity of plant yield. Given that projected SO_2 emissions are below the significant emissions rate (SER) threshold in the PSD regulation and the applicants analysis of increases in ambient SO_2 concentrations are below the maximum allowable increments, SO_2 emissions are not expected to adversely impact vegetation within and adjacent to the project area.

Exposure to NO_x can result in foliar injury to vegetation in high concentrations, particularly under wet soil conditions. Given that projected NO_x emissions are below the significant emissions rate (SER) threshold in the PSD regulation, the applicant's analysis indicates the increase in ambient NO_x concentrations are below the maximum allowable increments, and the dry climate of the region, NO_x emissions are not expected to adversely impact vegetation within and adjacent to the project area.

PM emissions may cause adverse impacts on vegetation within the immediate vicinity, most commonly by deposition of particles on the leaf, smothering the surface & preventing photosynthesis. Finer particles may also be absorbed by the plant causing injury to plant tissues. Given that expected increase in PM emissions would not cause or contribute to a violation of the NAAQS for PM_{10} and $PM_{2.5}$, adverse impacts on vegetation are not expected.

While VOC are not specifically a criteria pollutant with a set NAAQS, they are a contributor to the formation of ozone (specifically "ground-level ozone"), when present in the ambient air with NO_x and sunlight. Ozone is a criteria pollutant with a set NAAQS, and is typically generated over a wide area as a result of photochemical reactions in ambient air. Plants exposed to ozone can experience impacts that include decreased growth and visible injury to leaves. While the project is located within an area designated as nonattainment for ozone, emissions of VOC are proposed to be less than the District's emission offset threshold for VOC and the SER. Therefore, VOC emissions are not expected to cause or contribute to a significant increase in ozone within the vicinity of the project.

<u>Soils</u>
In general, air pollution can enter the soil via biogeochemical pathways of acidification (for NO_X and SO_2); eutrophication via introduction of nitrogen and sulfur, and direct impacts via deposition

of nitrogen and sulfur in particulate matter (USEPA 2018). NO_X and SO_2 deposition can have either positive or negative impacts on soil, depending on soil composition. Where soils are nitrogen limited, deposition can stimulate growth; where soils are sensitive, deposition of nitrogen and sulfur can cause soil acidification and negatively affect plant growth (USEPA 2018).

NO_X emissions from soil are among the natural sources of nitrogen oxides, and in California's agricultural regions, soil-derived NO_X actually constitutes a portion of California's overall NO_X emissions (CARB 2024b). The impacts of PM deposition on soil depend on the contents of the particulates (e.g., the presence of metals or other constituents), as well as soil characteristics including pH and moisture content (USEPA 2018). Overall, the project's anticipated NO_X, SO_2, and PM emission rates and resulting project impacts are not expected to adversely affect soils in the project area because the projected emissions are not expected to result in an exceedance of the NAAQS.

Soils are known to remove CO from the atmosphere; soils also sequester CO_2 in the form of decomposing plant matter. Based on a study conducted along a California freeway (Ingersoll et al. 1974), soils constantly exposed to high levels of CO have higher CO uptake capabilities. However, desert soils have the lowest potential for CO uptake capacity, and CO uptake of agricultural soils generally occurs at a lower rate than soil under natural vegetation. The rate of CO uptake by the soils in the project area is not expected to be weakened with the CO emitted by the project. Further, the project's anticipated CO emission rates are not expected to adversely affect soils in the project area because the projected emissions are not expected to result in an exceedance of the NAAQS.

<u>Growth</u>
Per the Environmental Impact Report (EIR) conducted and approved in accordance with California Environmental Quality Act (CEQA) guidelines, the project is not anticipated to result in additional commercial, industrial, or residential growth in the area.

<u>Visibility and Deposition</u>
Class I areas are protected more stringently under the PSD program than under the NAAQS. Class I areas include national parks, wilderness areas, and other areas of special national and cultural significance. Five Class I areas are within 200 kilometers of the project site.

Class I Area	D (km)
San Gabriel Wilderness	67
Domelands Wilderness	85
Cucamonga Wilderness	88
Sequioa National Forest	150
Joshua Tree National Park	180

Following the most recent Federal Land Managers' Air Quality Related Values Work Group (FLAG) Workshop procedures (USFS et al. 2010), the screening procedure (ratio of initial cumulative annual emissions divided by distance to Class I area, referred to as "Q/D") was used to determine whether the project could screen out of an air quality–related value (AQRV) assessment for visibility and deposition with the CALPUFF modeling system.

Following the FLAG screening procedures and using annualized emissions (based on the maximum 24-hour emission rates) of NO_X, SO_2, $PM_{10}/PM_{2.5}$, and sulfuric acid (H_2SO_4) mist were summed and divided by the distance to the respective Class I area. The applicant has indicated that annualized emissions rates calculated in this manner are only for the Q/D analysis and are not indicative of proposed annual sitewide emission rates.

Class I Area	Q*	D (km)	Q/D
San Gabriel Wilderness	158.59	67	2.37
Domelands Wilderness	158.59	85	1.87
Cucamonga Wilderness	158.59	88	1.80
Sequioa National Forest	158.59	150	1.06
Joshua Tree National Park	158.59	180	0.88

*sum of NOx, SOx, PM, and sulfuric acid mist emissions, ton/yr

In accordance with the FLAG guidance, if the Q/D ratio is less than 10 it is presumed that the project would not have an adverse impact, and no AQRV analysis is required. Based on the calculated Q/D ratios, projected emissions from the proposed facility would not have an adverse impact on Class I areas, and further analysis of AQRV is not required.

Additional Requirements for Sources Impacting Federal Class I Areas

Proposed major sources whose emissions may impact a Federal Class I area are required to have the application and analysis reviewed by the Federal Land Manager (FLM) and the Federal official charged with direct responsibility for management of any lands within any such area.

The FLM was provided with copies of the Class I area impact analysis for concurrence. Based on the information provided in the Q/D analysis, the FLM concurred that the project would not adversely impact any Federal Class I areas.

Class I Area Increment Analysis

CO does not have any PSD Class I increment, however there is a PSD Class I increment for PM2.5. The Class I area SIL for 24-hour average and annual average PM2.5 are 0.07 and 0.06 µg/m3. The nearest Class I area from the project is 67 km, which is beyond the allowable distance for AERMOD to be used (50 km). Therefore, the project impacts were estimated using the guidance in the recent USEPA memorandum dated April 30, 2024, from Tyler Fox, Group Leader to Regional Office Modeling Contacts. A copy of the memorandum is included in Attachment F of the application.

The NO_X and SO_2 emissions are largely emitted from the EAF stack, which is 165 feet (50 m) tall. Therefore, the applicant selected an average of the impact data for 10m and 90m tall stacks from EPA’s Modeled Emission Rates for Precursors (MERPs) online tool to be representative of the stack. Since the nearest Class I area from the PSGM3 site is 67 km., USEPA impact data at 60km distance was used as a conservative estimate for the impact determination. The results of the analysis are as follows:

Averaging Time/Category	Pollutant	Value	Units
24-hour			
$PM_{2.5}$ Impact*	NO_x	0.0820	µg/m^3
	SO_2	0.0703	µg/m^3
PSGM3 Project Emissions	NO_x	22.79	tpy
	SO_2	23.12	tpy
PSGM3 Project Impact	NO_x	0.0037	µg/m^3
	SO_2	0.0033	µg/m^3
	$NO_x + SO_2$	0.0070	µg/m^3
PSD Class I SIL		0.07	µg/m^3
Project Impact, % of Class I SIL		9.96	%
Annual			
$PM_{2.5}$ Impact*	NO_x	0.0066	µg/m^3
	SO_2	0.0049	µg/m^3

PSGM3 Project Emissions	NO_x	22.79	tpy
	SO_2	23.12	tpy
PSGM3 Project Impact	NO_x	0.0003	µg/m^3
	SO_2	0.0002	µg/m^3
	NO_x + SO_2	0.0005	µg/m^3
PSD Class I SIL		0.06	µg/m^3
Project Impact, % of Class I SIL		0.88	%

*Average of hypothetical source impacts for tall (90m) and short (10m) stacks, determined by applicant using USEPA’s Modeled Emission Rates for Precursors (MERPs) View Qlk online tool

Based on these results, the project would not result in adverse impacts to any Class I area.

Class II Area Impact Analysis

In accordance with recommendations from USEPA Region 9 incorporated into the approved modeling protocol, the projects emission impacts were compared to USEPA’s screening ambient threshold concentrations listed in the 1980 publication “*A Screening Procedure for the Impacts of Air Pollution Sources on Plants, Soils, and Animals”*. The applicant selected as a conservative approach for assessing the short-term impacts of NO_2 and CO emissions by comparing the 1-hour averaging time concentration determined in the air dispersion modeling for NO_2 to the 4-hour & one-month average NO_2 impacts, and comparing the 8-hour averaging time for CO to the weekly CO impact.

Pollutant	Screening Concentration (µg/m^3)	Max. Modeled Concentration (µg/m^3)	Modeled Averaging Time
SO_2 – 1-hour avg.	917	5.42	1-hour
SO_2 – 3-hour avg.	786	2.31	3-hour
SO_2 – annual avg.	18	0.08	Annual
NO_2 – 4-hour avg.	3,760	8.83	1-hour
NO_2 – 1 month avg.	564	8.83	1-hour
NO_2 – annual avg.	94	0.30	Annual
CO – weekly avg.	1,800,000	16.87	8-hour

Given that the project area is classified as attainment or unclassified for the NAAQS for each of these pollutants and applicant modeled emissions are below the screening concentration thresholds, the project is not expected to cause adverse impacts on vegetation or soils in Class II areas.

Source Obligation
The owner or operator is required to construct and operate the source in accordance with the application submitted and terms listed in the permit approving construction. Approval to construct becomes invalid if construction does not commence within 18 months of receipt of such approval or is discontinued for a period of 18 months or more. An extension may be granted if the owner or operator provides sufficient justification that such an extension is justified.

C. Toxic Emissions Health Risk Assessment

The proposed facility will be a source of toxic air contaminant emissions (TAC), including heavy metals and harmful organic gases. Initially, a “Prioritization Score” is obtained to determine if a more refined screening risk assessment will be required. The prioritization score was based on the following information: maximum hourly and annual TAC emission rates proposed by applicant, TAC health risk values approved by the California Office of Environmental Health Hazard Assessment (OEHHA), and distance to the nearest receptor. Prioritization scores for the proposed facility are as follows:

Proximity Factors (Meters)		Carcinogenic Scores	Non-Carcinogenic Scores	Facility Ranking
0 < R < 100	1.000	4232.74	217.39	High Priority
100 ≤ R < 250	0.250	1058.18	54.35	High Priority
250 ≤ R < 500	0.040	169.31	8.70	High Priority
500≤ R < 1000	0.011	46.56	2.39	High Priority
1000≤ R < 1500	0.003	12.70	0.65	High Priority
1500≤ R < 2000	0.001	8.47	0.43	Intermediate Priority
R ≥ 2000	0.001	4.23	0.22	Intermediate Priority

Based on carcinogenic and non-carcinogenic scores (see Attachment A for more details), TAC emissions may present a significant non-carcinogenic health risk to receptors within 1000 meters, and carcinogenic health risk to receptors beyond 2000 meters. A review of aerial imagery indicates there are off-site receptors within 1000 meters. Therefore, a more refined health risk assessment is required.

Utilizing the Air Dispersion Modeling and Risk Tool (ADMRT) module of the Hotspots Analysis and Reporting Program (HARP2) software, a detailed health risk assessment was performed & submitted by the applicant. The plume dispersion model used in the AQIA was also used for the HRA, with pollutant emission rates changed to reflect maximum hourly and annual TAC emission rates from the facility to estimate the ground level concentration (GLC) for each TAC. These GLC’s are then compared to OEHHA health risk thresholds for each TAC to determine potential cancer and non-cancer health risk to off-site receptors.

Based on health risk assessment results (see Attachment A for details), emissions from the facility may expose nearby residences to a cancer risk of greater than 1 in one million; no off-site worker receptors are expected to be exposed to a potential cancer risk of 1 in one million or greater, and no residences are expected to be exposed to a potential cancer risk of 10 in one million or greater. The maximum projected Hazard Index (HI) for noncarcinogenic (noncancerous) chronic exposure impacts is expected to be less than 0.1 for both residential and worker receptors, and therefore this risk type is deemed “low priority” for risk assessment purposes. The maximum HI for noncarcinogenic acute exposure impacts is projected to be 0.47 at the location of the maximum exposed individual resident (MEIR) and 0.60 at the location of the maximum exposed individual worker (MEIW). At the point of maximum impact (PMI), the HI for acute risk is 0.91.

The potential risk at the MEIR, maximum exposed individual worker (MEIW), and point of maximum impact (PMI), are as follows:

	Location/Address	Cancer (per million)	Noncancer, chronic (HI)	Noncancer, acute (HI)
MEIR	1846 Highgate Ave	2.68	0.01	-
	8101 Sierra Highway	-	-	0.47
MEIW	929 Sopp Road	0.09	0.01	0.60

	Location	Point of Maximum Impact (PMI)
Cancer	34.93662, -118.13670	16.91
NC, Chronic	34.93662, -118.13670	0.08
NC Acute	34.93307, -118.14879	0.91

Sources that present a potential carcinogenic health risk greater than 1 in one million or a non-carcinogenic hazard index (HI) greater than 0.2 are required to implement best available control technology for toxics (TBACT). Sources of toxics from the facility are expected to be the melt shop operation, internal combustion engines, and fuel dispensing operations.

Melt Shop TBACT:
Toxics from the melt shop operations are largely in the form of PM and VOC. Applicant has proposed use of fabric collectors, a wet scrubber, and activated carbon injection for control of these pollutants, and the proposed maximum emissions rates are lower than those found at comparable steel manufacturing facilities (See Sections VI and VIII for additional information). Given that the potential health risk from the facility is less than public notification thresholds, and the facility is required to implement control measures for PM and VOC toxics to satisfy federal NESHAP requirements, the applicants’ proposal for PM and VOC BACT constitutes TBACT for the melt shop operations.

Internal Combustion Engine TBACT:
TAC from internal combustion engines that combust propane are anticipated to consist entirely of VOC. BACT/TBACT evaluation by Sac Metro AQMD for emergency use spark ignition engines indicated that BACT for VOC also constitutes TBACT.

Gasoline Dispensing TBACT:
The applicant is required to implement enhanced vapor recovery (EVR) to control VOC emissions under BACT requirements. Since the District is prohibited by state law from requiring controls more stringent than CARB certified EVR equipment, BACT for VOC emissions constitutes TBACT for fuel storage & dispensing.

VI. <u>BACT DETERMINATION:</u>

BACT is required for all new emission units of PM, SOx, NOx, and VOC in accordance with Section III.A of District Rule 210.1. BACT is defined in District Rule 210.1 as the following:

> The most stringent emission limitation or control technique of the following:
> 1. That achieved in practice for such emissions unit and class of source;
> 2. That contained in any State Implementation Plan approved by U.S. EPA for such emissions unit category and class of source. A specific limitation or control technique shall not apply if the owner or operator of the proposed emissions unit demonstrates to satisfaction of the Control Officer such limitation or control technique is not currently achievable; or
> 3. Any other emission limitation, control device, alternate basic equipment, or different fuel or process found by the Control Officer to be technologically feasible for such class or category of source or for a specific source, and cost effective as determined by official District policy.
>
> Best Available Control Technology shall not be determined to be less stringent than the emission control required by any applicable provision of local, state, or federal, law or regulation unless the applicant demonstrates to the Control Officer such limitations are not achievable. Application of Best Available Control Technology shall not result in the emission of any pollutant exceeding emissions allowed by any applicable New Source Performance Standard or National Emission Standard for Hazardous Air Pollutants.

BACT for CO is required for projects resulting in a significant emissions increase (>100 tpy), pursuant to the PSD Program requirements.

PSGM3’s application included a review of control technologies for $PM_{2.5}$, CO, and greenhouse gas (GHG) emissions to satisfy PSD requirements of 40 CFR §52.21(j); for all other pollutants, a review of EPA’s RACT/BACT/LAER Clearinghouse (RBLC) was performed by the applicant.

To assist with determining BACT for each permitted operation at the facility, a review of prior District BACT determinations, BACT determinations from other California air districts, and EPA’s RBLC was performed by District staff.

Scrap & Additive Material Receiving, Handling, & Storage

In a review of the RLBC, the following control technologies were identified by the applicant for the control of particulate emissions from storage piles, material handling, and fugitives:

- Wetting piles.
- Partial enclosure.
- Minimization of drop height.

Minimizing drop height and using covered conveyors are both technically feasible control technologies for handling all material types.

The applicant has indicated that wetting piles or using chemical dust suppressants is technically infeasible for raw scrap piles, fluxing agents, carbon, and alloys; this is because if water were to contact molten steel in the EAF, a violent and unsafe reaction would occur. If wetting were used to control dust, more energy and combustion would be needed to dry out the material before its entry into the EAF. Partial enclosures are feasible in specific cases based on the site layout and travel routes.

Applicant has proposed the following as BACT for the raw material handling & storage operations:

Source	**Control**
Haul roads	develop, maintain, and implement a fugitive dust control plan
Scrap Yard	Minimizing drop height
Scrap Building	Partial enclosure, minimize drop height
Alloy Pile	Partial enclosure, minimize drop height
Lime, Dolomite, & Carbon Storage, Transfer	Enclosed pneumatic transfer & storage in enclosed silos
Dust loadout	Connected to primary melt shop baghouse
Conveyor Transfer	Partial enclosure, minimize drop height

After review of prior District BACT determinations for material unloading & transfer operations (primarily aggregates), the following was found to constitute BACT for the raw materials receiving, handling, and storage operation:

Pollutant	**Control Technology**
PM_{10}	• Partial Enclosure - scrap receiving bay • Enclosed transfer for lime, dolomite, & carbon • Enclosed storage silos for lime, dolomite, & carbon additives, served by fabric collectors • Partial enclosure storage for alloy storage piles

- Visible emissions from truck unloading of scrap and alloy materials not to exceed 20% opacity for more than 3 minutes in any one hour
- Visible emission from transfer points not to exceed 5% opacity for more than 3 minutes in any one hour
- Dust Control Plan for roadways and outdoor handling & storage piles

Melt Shop (EAF, LMS, Tundish, Casting, Rolling, Fabrication)

Pollutants Subject to PSD BACT – $PM_{2.5}$, CO, & Greenhouse Gases

PM Emissions:
In an EAF steelmaking facility, particulate matter (PM) is generated during the charging of scrap metal in the EAF, the melting of scrap via electric arc, and the pouring of the molten metal into the ladle, with the majority of emissions generated during the melting of the scrap. Emissions from the EAF are vented through the direct evacuation control (DEC) system, which is a system that creates and maintains a negative pressure within the shell of the EAF during melting and refining, capturing and transporting the emissions from the EAF to downstream control devices (typically fabric collectors or scrubbers).

The $PM_{2.5}$ portion of PM includes both filterable and condensable particulate matter (CPM). In regulatory language, the term "PM" normally includes only the filterable particulate and does not include CPM. For this evaluation, when referring to PM_{10} or $PM_{2.5}$ CPM is included with the filterable fractions unless otherwise noted. The CPM portion in PM_{10} & $PM_{2.5}$ is highly variable and dependent on the type of scrap and other raw material used in the EAF and LMS, and thus $PM_{2.5}$ emissions vary widely between facilities.

CPM forms primarily from sulfate compounds (produced by sulfur added to the steel) and combustion of volatile organic compounds (VOCs) present in the scrap steel during the melting phase. The amount of sulfur and VOC varies significantly because of the various grades of steel produced and the amount of grease and oil present in the EAF charge, respectively.

The following technologies were found to be available for the control of PM emissions from

- Centrifugal separator (cyclone)
- Fabric filter (baghouse)
- Electrostatic precipitator (ESP)
- Wet Scrubber

Centrifugal separator (cyclone): Cyclones utilize centrifugal force and inertia to remove large and medium-sized particles from a gas stream. The particle-laden stream is introduced into the top of the cyclone in a tangential manner, causing it to spiral down a tube. The larger particles are moved outward, impact the wall of the cyclone, and then slide down to a dust receiver for collection. When the gas stream reaches the bottom of the cyclone, it reverses direction, moving upward in a smaller, inner spiral that exits from the top as a cleaned gas stream. Cyclones are considered technically feasible for PM control, although control efficiencies are lower than those of other particulate control devices.

Fabric Filter (Baghouse): Fabric filters, also known as baghouses, remove particulate by passing the gas stream through porous fabric filters (bags) that trap the particles on the fabric. The particles collect on the fabric filters and form a porous dust cake layer, which results in a high collection efficiency, even for smaller particles. Baghouses are highly energy efficient and provide sufficient operational flexibility because of their tolerance of varying gas stream conditions inherent in EAF operations. Baghouses have been employed as BACT particulate control for the vast majority of EAFs in existence and are a proven feasible control technology capable of achieving greater than 99% control efficiency.

Electrostatic Precipitator: ESPs utilize an electric field to electrically charge the exhaust particles, which are then collected on an oppositely charged electric plate, thereby removing the particles from the exhaust stream. The collection plates are periodically cleaned by mechanical rapping to dislodge the particles, which are collected in a hopper. ESPs could be operated as dry ESP or wet ESPs; the difference is that water is injected in wet ESPs to improve charging. Although it is technically feasible, ESP performance is affected by the presence of metals, especially iron oxide in the EAF/LMS gas stream (if located upstream of other PM control devices), which can affect the electrical discharges because of its magnetic properties.. Both dry and wet ESPs are technically feasible for control of PM..

Wet Scrubber: Wet scrubbers remove particulate primarily via the inertial impact of the particles with water droplets. While wet scrubbers can have high removal efficiency for consistent, steady-state streams, the scrubbers require a high-pressure drop (which entails high energy costs) to maintain high removal efficiencies. Wet scrubbers can also generate large quantities of wastewater stream as blowdown, creating additional treatment & handling costs resulting from the wastewater generated. A wet scrubber is considered technically feasible for PM control, as it has been utilized for PM control in chemical, aluminum, food & agriculture, and ferroalloy industries.

In comparable facilities listed in the RBLC, the lowest BACT limit found for PM2.5 was 0.15 lb/ton of steel and a control device outlet grain loading of 0.0024 gr/dscf.

In addition, the proposed BACT for the EAF, LMS, and melt shop must also satisfy the requirements of the NSPS (40 CFR 60 Subpart AAb) and NESHAP (40 CFR Part 63 Subpart YYYYY) applicable to the project, as follows:

- 3 percent opacity at the exit from a control device (secondary baghouse).
- 0 percent opacity from a melt shop during melting and refining and 6 percent opacity during charging.
- PM emission rate not to exceed 0.16 lb/ton steel (~0.0014 gr/scf at proposed maximum exhaust flow)
- PM exhaust concentration of 0.0052 gr/scf (~0.27 lb/ton steel at proposed maximum production) from the control device serving the EAF

The applicant has proposed utilizing a state-of-the-art control system for the melt shop operation, including a settling chamber, wet scrubber, and two baghouses in series; these are proposed to reduce the PM2.5 emissions to 0.0467 lbs/ton of steel (corresponding to an outlet concentration of 0.0004-gr/scf), per their vendor specifications.

The applicant has proposed this emission rate as an “alternate equivalent” control technology for PM emissions from the melt shop baghouse (EAF and LMS), based on their vendor specifications: This proposed emission rate is below the currently established BACT (i.e. not “achieved in practice”) for steel facilities, and is approximately 71% lower than what would be required to meet NSPS Subpart AAb standards.

Given that wet scrubbers and fabric filters are individually capable of capturing greater than 71% of PM2.5 emissions (AP-42 Table B.2.3, EPA Control Technology Fact Sheets EPA-452/F-03-025, 452/F-03-017, 452/F-03-012, 452/F-03-015), the applicant’s proposal appears feasible. However, it will be necessary for the applicant to demonstrate this emission rate has been achieved during initial compliance testing for the facility.

CO Emissions:
Applicant review of CO emission control technologies determined the following are potential options for BACT:

- Direct Evacuation Control (DEC)
- Catalytic Oxidization
- Thermal Oxidation

Direct Evacuation Control. DEC utilizes a shell above the EAF to capture emissions at the source; DEC is technically feasible and the project’s EAF and LMS have been designed to include both oxygen lancing and DEC. Some oxidation of CO can occur with use of air gap in the DEC.

Catalytic Oxidizers. Catalytic oxidizers employ a catalyst bed through which the exhaust stream is vented. CO oxidation occurs at the catalyst bed. However, the catalyst bed would be prone to plugging due to the large amounts of particulate in the exhaust stream from the melt shop, thereby drastically reducing the surface area available for oxidation reactions and rendering it ineffective in a short time. In addition, the typical operating temperature window for catalytic oxidizers is 500–550 degrees Fahrenheit (°F); Given the large volume of air exhausted from the melt shop into the baghouse system, this temperature window would not be available in the process. Therefore, catalytic oxidizers are not a technically feasible option for CO control.

Thermal Oxidizers. Thermal oxidizers utilize a high-temperature chamber to combust or oxidize pollutants. Thermal oxidizers utilize fossil fuel such as natural gas to ensure combustion of process exhaust gases; but in an effort to minimize environmental impacts, the design of the facility does not include any supply of natural gas. Other fossil fuels such as diesel oil are not practical for the operation of a thermal oxidizer for this facility.

Thermal oxidizers also generate NOx emissions as a result of the high temperatures involved (i.e. formation of thermal NOx), creating an additional emissions impact from the fuel combustion necessary to maintain the high temperatures needed for proper operation. Additionally, thermal oxidizers are unlikely to provide a substantial reduction in CO emissions beyond those already achieved by the air gap in the DEC, which provides for oxidation given the high temperature of the EAF exhaust. Therefore, thermal oxidizers are not a technically feasible option for CO control.

Applicant’s vendor has provided specification for CO emissions of 1.819 pounds per ton (lb/ton) of steel produced for the EAF/LMS operation, achieved with state-of-the-art pollution control design. This specification is lower than the currently achieved BACT for similar facilities listed in the RBLC (1.98 lb/ton, NUCOR Brandenburg); however, this EAF utilizes oxy-fuel burners that contribute additional CO emissions to the operation that will not be present at the Mojave facility, and the appears in line with the emission factor listed in Chapter 12.5.1 (Steel Minimills) of EPA’s AP-42 “Compilation of Emission Factors” of 1.8 lb/ton (B rating).

Therefore, the applicant’s proposed use of DEC to capture CO emissions from the EAF and an emission rate of 1.819 lb/ton of steel produced appears technologically feasible to implement as BACT for CO emissions.

Greenhouse Gases
As the hot waste gases leave the EAF, combustion air is typically introduced to the ductwork to convert the CO to CO2, because CO is a regulated criteria pollutant. This practice, called post-combustion, is widely used throughout the industry as the best technology for CO control. Emissions of CO2 are also generated from the use of oxy-lances in the EAF. These oxy-lances introduce oxygen into the molten steel, which oxidizes the CO and VOC gases in the EAF and forms CO2. These oxy-lances increase the effective capacity of the EAF by increasing the speed of the melt and reducing the consumption of electricity and electrode material, which reduces

energy-related GHG emissions. Oxy-lances also increase heat transfer while reducing heat losses and reduce tap-to-tap time.

Operational and Design Measures. There are several operational and design measures that, if implemented, could reduce overall energy requirements in the EAF steelmaking process. By reducing the energy requirements of the EAF, the following measures would indirectly reduce GHG emissions:

- Improved Process Control (Neural Network)—This measure involves the use of a modem control and monitoring system that integrates real-time monitoring of the process variables (e.g., steel bath temperature and carbon levels) with real-time control systems for carbon injection and lance oxygen practice.
- Adjustable-Speed Drives—As the rates of flue gas flow from the EAF/LMS vary during its operation, there are opportunities to adapt the speed of the dust collection fans by using adjustable speed drives matching the demand of air flow rates. While adjusting the speed of the dust collection fans might slightly reduce the total amount of dust collected, the energy savings from operating the fans at lower speeds can be substantial. This is because the power consumption of a fan is typically proportional to the cube of its speed, meaning that even small reductions in speed can result in significant energy savings.
- Monitoring and Control of Adjustable-Speed Drives— Monitoring the flue gas from EAF and controlling the flue gas fans using ASDs can reduce energy usage, which in turn reduces the losses in the flue gas. ASD control systems can help maintain the proper environment inside the EAF that result from variability in the scrap and from energy fluctuations.
- Transformer Efficiency–Ultra-High-Power Transformers—Ultra-high-power transformers help to reduce energy loss and increase productivity through modem design.
- Bottom Stirring/Stirring Gas Injection—Bottom stirring is accomplished by injecting an inert gas into the bottom of the ladle to increase the heat transfer and mixing in a melt.
- Foamy Slag Practice—Foamy slag covers the arc and melt surface to reduce radiant heat losses. Foamy slag can be obtained by injecting carbonaceous material and oxygen or by lancing of oxygen only. Slag foaming increases the electric power efficiency by at least 20 percent in spite of a higher arc voltage. The use of the foamy slag process may also increase productivity through reduced tap-to-tap times.
- Post-combustion of the Flue Gases—Post-combustion is a process for utilizing the chemical energy in the CO and hydrogen evolving from the steel bath to heat the steel in the EAF ladle or to preheat scrap. Post-combustion helps to optimize the benefits of oxygen and carbon injection.
- Direct Current (DC) Arc Furnace—The DC arc furnace technology replaces the normal three electrodes (one for each phase) with one large electrode that uses DC instead of alternating current (AC) for heating the scrap in the EAF. Based on the distinctive feature of using the heat and magnetic force generated by the current in melting, this arc furnace achieves an energy saving of approximately 5 percent in terms of power unit consumption in comparison to the three-phase AC arc furnace.
- Scrap Preheating Using the ECS Process—Preheating the scrap reduces power consumption to the EAF by using the waste heat of the EAF as the energy source for the preheating operation. The ECS process consists of a conveyance system that transports the scrap through a tunnel to the EAF. In addition to energy savings, the ECS process can increase productivity by 33 percent, decrease electrode consumption by 40 percent, and reduce dust emissions.
- Micro Mill with No Reheat Furnace—The design of the project facility incorporates the use of a rolling mill that would roll the steel billet to the final dimensions immediately after the casting process, thus eliminating the need for a reheat furnace typically found at a steel mill that would use scrap as the feedstock. This would eliminate a significant source of GHG emissions.
- Engineered Refractories—Refractories in the EAF must withstand extreme temperatures, oxidation, thermal shock, erosion, and corrosion. These conditions generally lead to

undesirable wear on refractories. Through the use of controlled microstructure of the refractories, these factors can be controlled, resulting in the reduction in ladle leakages and slag formation during transfer operations.

- Airtight Operation— During an EAF’s heat cycle, large quantities of ambient-temperature air enter the EAF. The air’s nitrogen and non-reacted oxygen are heated in the furnace and exit with the fumes at high temperature (around 1,800°F), resulting in significant thermal losses. Of the associated cost savings attributable to this operation, 80 percent can be attributed to the reduction in the heat losses from the flue gases and 20 percent can be attributed to the reduced thermal losses from reduced tap-to-tap time. This technology cannot be utilized 100 percent of the time, given the requirement to monitor the material in the EAF during the scrap charging process and the need to balance this requirement against the requirement to control emissions. It is typically necessary to find a balance between air tightness, scrap density, and access to the furnace for sampling the metal.
- Monitoring and Control of Variable-Speed Drives (VSDs)-The use of VSDs can reduce energy usage of the flue gas fans, which in turn reduces the losses in the flue gas. VSD control systems can help predict problems in the EAF that result from variability in the scrap and from energy fluctuations.
- Eccentric bottom tapping- Eccentric bottom tapping leads to slag-free tapping, shorter tap-to-tap times, reduced refractory and electrode consumption, and improved ladle life.
- Energy Monitoring and Management System- The Energy Monitoring and Management System plays a crucial role in tracking, analyzing, and optimizing energy usage within the facility. By incorporating adjustments to account for peak demand periods, the system helps to minimize costs, enhance efficiency, and ensure reliable operation, ultimately contributing to sustainable energy management practices.
- Zero Natural Gas Usage in the Steelmaking Process—Most steel micro mills use natural gas to supply additional heat energy during the steelmaking process and to pre-heat equipment such as ladles and tundishes. The project would operate as an all-electric micro mill and would not use natural gas.

In addition to the technologies discussed above, it is appropriate to consider add-on technologies such as Carbon Capture and Sequestration System (CCS) as possible way to capture GHG emissions emitted from the proposed Mojave Micro Mill and to prevent them from entering the atmosphere. These emerging technologies generally consist of processes that separate CO_2 from combustion process flue gas, then compress, transport, and finally inject it into geologic formations such as oil and gas reservoirs, unmineable coal seams, and underground saline formations. Of the emerging CO_2 capture technologies identified, only amine absorption is currently commercially used for state-of-the art CO_2 separation processes. Amine absorption has been applied to processes in the petroleum refining and natural gas processing industries and for exhausts from gas-fired industrial boilers. Other potential absorption and membrane technologies are currently considered developmental.

If CO_2 capture can be achieved at a steel production facility, the captured CO_2 must be dealt with. One option is for it to be routed via pipeline to a geologic formation capable of long-term storage. The long-term storage potential for a formation is a function of the volumetric capacity of a geologic formation and CO_2 trapping mechanisms within the formation, including dissolution in brine, reactions with minerals to form solid carbonates, and/or adsorption in porous rock. The DOE-NETL is currently studying the geologic formations that could potentially serve as CO_2 storage sites. Potential types of reservoirs are being discovered but these areas may contain fluids that may include natural gas, oil, or saline water, any of which may affect CO_2 storage differently. Another option is to store liquefied CO_2 in storage tanks onsite and sell it to prospective customers rather than injecting it into a pipeline.

The following options for GHG BACT were found to not be feasible by the applicant:

DC Arc Furnace—As per “The AIST 2015 Electric Arc Furnace Roundup,” the typical DC electrode technology is utilized on larger EAFs with capacity of at least 100 tons. This same reference notes that there are several steelmaking facilities that utilize three-phase electrodes on smaller EAFs (less than 100 tons) that can achieve similar efficiencies to the DC electrode technology. Because the EAF at the proposed Mojave Micro Mill would be less than 100 tons, the three-phase electrode design is indicated, thus rendering the DC electrode technology not applicable.

Carbon Capture System, or CCS—CCS has not been implemented in any EAF at this time; therefore, it is not yet achieved in practice. In addition, further studies are needed to ensure the continuous safe disposal of captured CO_2 at the project facility’s location. An option to be investigated for the project is to store liquefied CO2 in storage tanks on-site and sell it to prospective customers rather than injecting it into a pipeline.

Applicant has proposed the following as BACT for GHG emissions:

- Improved process control network (neural network)
- Adjustable-speed drives
- Ultra-high-power transformers
- Bottom stirring/stirring gas injection
- Foamy slag practice
- Post-combustion of the flue gases
- Scrap preheating using the ECS process
- No reheat furnace
- Engineered refractories
- Airtight operation where possible, given process restraints
- Variable-speed drives
- Eccentric bottom tapping
- Energy monitoring and management system
- Zero natural gas usage in the steelmaking process
- Emission rate of 438 lb CO_2e per ton steel; 100,092 ton/yr CO_2e

The applicant will also be utilizing the carbon capture system for control of GHG emissions. The system is designed with a bypass option to allow the facility to operate without use of the CCS; therefore, a control effectiveness cannot be claimed, and the CCS system cannot be treated as BACT for GHG.

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Emissions Subject to New Source Review (NSR) BACT – PM10, SOx, NOx, & VOC
For PM10, SOx, NOx, & VOC emissions from the melt shop operations, the applicant found the following BACT determinations in the RBLC:

TABLE 5-11
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION FOR COMPARABLE FACILITIES

Facility	Gerdau AmeriSteel, Charlotte, North Carolina	Nucor Steel, Frostproof, Florida	Nucor Steel, Sedalia, Missouri	Nucor Steel, Kingman, Arizona	CMS, Mesa, Arizona	CMC, Durant, Oklahoma
Permit ID (Issued)	19-01-V-567 (2019)	1050472-001-AC & PSD FL-446 (2019)	2018-03-048 (2018)	Application ID: 95370	V07001	2015-0643-C (2016)
Steel Production (tpy)	575,000	450,000	450,000	650,000	635,000	650,000
PM/PM10 BACT	Baghouse; PM(F)/PM10(T): N/A/0.24 lbs/ton of steel	Baghouse; PM(F)/PM10(T): 0.14/0.30 lbs/ton of steel	Baghouse; PM(F)/PM10(T): 0.10/0.15 lbs/ton of steel	Baghouse; PM(F)/PM10(T): 0.58/0.27 lbs/ton of steel	Baghouse; PM(F)/PM10(T): 0.13/0.18 lbs/ton of steel	Baghouse; PM(F)/PM10(T): N/A/0.18 lbs/ton of steel
VOC BACT	Good Combustion Control: 0.34 lbs/ton of steel	Good Combustion Control: 0.30 lbs/ton of steel	Good Combustion Control: 0.30 lbs/ton of steel	Good Combustion Control: 0.30 lbs/ton of steel	Good Combustion Control: 0.30 lbs/ton of steel	Good Combustion Control: 0.30 lbs/ton of steel
NO_X BACT	DEC; 0.34 lb/ton of steel	DEC; 0.30 lb/ton of steel	DEC; 0.30 lb/ton of steel	DEC; 0.35 lb/ton of steel	DEC with oxy firing; 0.30 lb/ton of steel	DEC with oxy firing; 0.30 lb/ton of steel
SO_2 BACT	DEC; 0.16 lb/ton of steel	DEC; 0.6 lb/ton of steel	DEC; 0.5 lb/ton of steel	DEC; 0.64 lb/ton of steel	DEC; 0.3 lb/ton of steel	DEC; 0.6 lb/ton of steel

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PM10 Emissions

Controls for PM2.5 emissions are also applicable to PM10 emissions; therefore, the control technologies evaluated for PM2.5 emissions from the melt shop are also valid for PM10.

Based what has been found as "achieved in practice" and applicable NSPS & NESHAP standards, BACT would be required to not be less stringent than the following (lb/hr & ton/yr based on applicant proposed steel production):

	lb/ton steel	lb/hr	ton/yr	gr/scf (@ 677,000 scfm)
NSPS	0.16	8.33	36.48	0.0013
RBLC	0.15	7.81	34.20	0.0014

	gr/scf	lb/hr	ton/yr	lb/ton steel (@ 52 ton/hr)
RBLC	0.0024	13.93	61.00	0.27
NESHAP	0.0052	30.17	132.17	0.58

Per District Rule 210.1, stationary sources with a potential to emit PM10 in excess of 15 tons/yr are required to provide emission offsets prior to approval.

The applicant’s proposed PM10 emissions of 0.0467 lb/ton steel corresponds to annual PM10 emissions of 10.65 ton/yr (see Section VIII) from the melt shop baghouse, which would be less than the offset threshold of 15 ton/yr.

SOx Emissions

The emissions of SO2 generated in the EAF and LMS are primarily dictated by the use of charge carbon or inject carbon with a small influence of the sulfur that is present in the melted scrap.

Review of California air district BACT determinations did not reveal any determinations for SOx emissions from steelmaking facilities. Controls for SOx emissions found in the RBLC include scrap management plan/program, natural gas fuel in ladle & tundish preheaters, and good combustion & operating practices.

There are no NSPS or NESHAP standards for SOx emissions for melt shop operations; therefore, BACT would be required to not be less stringent than what has been found to be achieved from a comparable facility:

	lb/ton	lb/hr	ton/yr
RBLC	0.16	8.33	36.48

Per District Rule 210.1, stationary sources with a potential to emit SOx in excess of 27 tons/yr are required to provide emission offsets prior to approval.

Applicant has proposed use of the following control technologies for SOx emissions, with emission rate based on specifications from their vendor:

- Scrap management plan;
- No gas combustion for preheating, electrical heating used;
- Wet scrubber in primary circuit (serving EAF) of fume treatment plant providing a 70% SOx reduction from the EAF;
- Lime injection (i.e. dry sorbent injection) in secondary circuit (serving LMS and other shop operations) of fume treatment plant providing 30% SOx reduction
- Pre-control emission rate of 0.150 lb/ton steel from EAF and 0.080 lb/ton steel from the LMS (0.23 lb/ton steel combined); post control emission rate of 0.101 lb/ton steel from the melt shop dust collector stack

Lime injection & wet scrubbers were not found to be an “achieved in practice” BACT for control of SO_x emissions from steelmaking facilities in the RBLC. These controls have been successfully implemented for utility & industrial boilers, waste incinerators, metal smelters, cement kilns, and glass furnaces, and have achieved SO2 control efficiencies of 50% to 80% for dry scrubbers and 80% to 99% for wet scrubbers.

Applicant has proposed the use of the wet scrubber and lime injection as an “equivalent technology” for control of SOx that has been demonstrated in other industries to be as or more effective than established BACT for steel facilities.

Wet scrubbers function by introducing an alkali scrubbing liquid or reagent into the gas stream, which absorbs SO_2 molecules in the stream & produces neutral salts. Wet scrubbers typically come in one of three forms:

- Impingement-Plate/Tray-Tower Scrubber: An impingement-plate scrubber promotes contact between the flue gas and a sorbent slurry in a vertical column with transversely mounted perforated trays. Absorption of SO2 is accomplished by countercurrent contact between the flue gas and reagent slurry.

- Packed-Bed/Packed-Tower Wet Scrubber: Scrubbing liquid (e.g., NaOH), which is introduced above layers of variously shaped packing material, flows concurrently against the flue gas stream. The acid gases are absorbed into the scrubbing solution and react with alkaline compounds to produce neutral salts.

- Spray-Chamber/Spray-Tower Wet Scrubber: Spray tower scrubbers introduce a reagent slurry as atomized droplets through an array of spray nozzles within the scrubbing chamber. The waste gas enters the bottom of the column and travels upward in a countercurrent flow. Absorption of SO_2 is accomplished by the contact between the gas and reagent slurry, which results in the formation of neutral salts.

Lime (a material consisting of calcium oxides and hydroxides) can react with SO_2 to form calcium sulfite ($CaSO_3$) and calcium sulfate ($CaSO_4$), which are particulates that can be captured by PM control devices in the fume treatment plant. Lime injection functions by introducing an alkali agent as an aqueous slurry (for wet systems) or is pneumatically injected as a powder in the waste gas ductwork (for dry systems). Absorption of SO_2 is accomplished by the contact between the gas and reagent slurry or powder.

Wet scrubbers used for SOx control generate wastewater streams as well as sludge that must be treated, creating additional operational costs.

Applicants' proposal was found to exceed BACT for SOx emissions from melt shop operations. Therefore, BACT has been satisfied for SOx emissions from the melt shop operation, but verification that proposed emissions have been achieved will be required during initial compliance testing.

NOx Emissions:
Review of California air district BACT determinations did not reveal any determinations for NOx emissions from steelmaking facilities. Identified controls in the RBLC for NOx emissions from steelmaking facilities include oxy-fuel burners (combusting oxygen with natural gas instead of air) for the EAF and low NOx burners for furnaces. The lowest emission rate identified was 0.15 lb/ton steel (Gerdau Ameristeel, Cartersville GA)

Based what has been found as "achieved in practice", BACT would be required to not be less stringent than the following:

	lb/ton	lb/hr	ton/yr
RBLC	0.15	7.81	34.20

Per District Rules 210.1 and 210.1A, stationary sources with a potential to emit NOx in excess of 25 tons/yr are required to provide emission offsets prior to approval.

Applicant has proposed the following controls for NOx proposed emission rate is based on specifications from their vendor:

- No gas combustion for preheating of ladles & tundish, electric heaters will be used;
- DEC capturing NOx emissions & routing to fume treatment plant;
- Selective non-catalytic reduction (SNCR) with urea injection providing a 40% NOx

reduction;
- Pre-control NOx emission rate from the EAF/melt shop of 0.150 lb/ton steel; post-control emission rate of 0.090 lb/ton of steel

Use of SNCR was not found to be an “achieved in practice” BACT for NOx emissions from steelmaking facilities. Additionally, no entries in RBLC identified the use of all-electric ladle & tundish preheaters. SNCR has been deemed infeasible in other determinations found in RBLC primarily because of variably exhaust temperatures & flow rates from the EAF, as well as low NOx concentrations when the furnace is not being charged with scrap.

The applicant has proposed SNCR as an “equivalent technology” that has been demonstrated to be as or more effective than established BACT, based on its use in other industries such as cement manufacturing, glass manufacturing, and utility scale power generation, where it has been demonstrated to be capable of achieving control efficiencies varying from 25% to 90% (*EPA Cost Control Manual (2019) – Chapter 1, Selective Non-Catalytic Reduction*).

The applicant’s proposed use of the endless charging system (ECS) in lieu of batch-charging the EAF via overhead bucket & use of a swing-open roof from the EAF is expected to provide a steady scrap feed into the EAF, thereby reducing the wide temperature swings typical of EAF operations. Per discussion with the applicant, the system is designed to have a single starting charge per day, after which scrap is steadily fed into the EAF.

SNCR is a post combustion emissions control technology for reducing NOx by injecting an ammonia-based reagent (aqueous ammonia (NH_3) or urea [$CO(NH_2)_2$]) into the combustion unit at a properly determined location. The process begins with an ammonia-based reagent being vaporized, either before injection by a vaporizer or after injection by the heat of the combustion unit. Within the appropriate temperature range, the gas-phase urea or ammonia then decomposes into free radicals including NH_3 and NH_2. After a series of reactions, the ammonia radicals come into contact with the NOx and reduce it to N_2 and H_2O. Since NO_x includes both NO and NO_2, the overall reactions with urea for NO and NO2 are as follows:

$$2NO + CO(NH_2)_2 + \frac{1}{2}O_2 \rightarrow 2N_2 + CO_2 + 2H_2O$$

$$2NO_2 + 2CO(NH_2)_2 + O_2 \rightarrow 3N_2 + 2CO_2 + 4H_2O$$

SNCR reduction efficiencies vary over a wide range: temperature, residence time, type of NOx reducing reagent, reagent injection rate, uncontrolled NOx level, distribution of the reagent in the flue gas, and CO and O_2 concentrations all affect the reduction efficiency of the SNCR. It is not suitable for sources where the residence time is too short, temperatures are too low, NOx concentrations are low, or if the reagent would contaminate the product, or no suitable location exists for installing reagent injection ports.

The NO_x reduction reaction occurs within a specific temperature range for a selected reagent - at lower temperatures, the reaction kinetics are slow: at higher temperatures, the reagent oxidizes, and additional NOx is generated. For urea, the optimum temperature range is 1650–2100°F, with peak removal typically occurring at 1850°F.

SNCR systems require sufficient residence time (amount of time the reactants are present within a chemical reactor) to be effective. USEPA has found that residence time in SNCR systems can vary from 0.001 to 10 seconds; however, the gain in performance for residence times greater than 0.5 seconds is generally minimal, and performance degradation is observed for residence times less than 0.2 seconds.

For optimal reaction rates and decreased reagent consumption, the reagent needs to be properly mixed with the flue gas via a multi-point injection grid. The mixing requirements are unit specific and depend on the air flow profiles through the process. Mixing is performed by the injection system, where injectors atomize the reagent and control the spray angle, velocity, and direction of the injected reagent, and these systems are equipment and reagent specific. Evaporation time and trajectory are a function of the diameter of the droplet; larger droplets have more momentum and penetrate farther into the flue gas stream; however, they require a longer time to volatilize, increasing the required residence time.

The concentration of the reactants also affects the reaction rate of the NO_x reduction process. The reaction kinetics decrease as the concentration of reactants decreases. This is due to thermodynamic considerations that limit the reduction process at low NO_x concentrations. For lower NO_x inlet concentrations, the optimum temperature for the reaction is lower; hence, the percent NO_x reduction is lower.

The normalized stoichiometric ratio (NSR) defines the amount of reagent needed to achieve the targeted NOx reduction. Theoretically, two moles of NO can be removed with one mole of urea or two moles of ammonia and one mole of NO_2 requires one mole of urea and two moles of ammonia. Since NO_x is mostly comprised of NO (approximately 95%), the theoretical NSR for NO_x is close to one mole of ammonia per mole of NO_x and 0.5 moles of urea per mole of NO_x.

In practice, more than the theoretical amount of reagent needs to be injected into the flue gas to obtain a specific level of NO_x reduction, due to the complexity of the actual chemical reactions involving NO_x, injected reagent, and mixing limitations between reagent and flue gas. Typical NSR values are between 0.5 and 3 moles of ammonia per mole of NO_x. USEPA review of SNCR systems indicates that increasing the quantity of reagent does not significantly increase the NOx reduction for NSR values over 2.0.

Excess reagent injection, used to ensure the desired level of NOx reduction, can result in ammonia emissions to the atmosphere (referred to as “ammonia slip”). Although the level of ammonia slip will differ from one unit to the next based on the limitations inherent to each system, for any individual SNCR, the NO_x reduction and ammonia slip are established by the reagent injection rate – an operational setting that can be adjusted based on the desired NO_x reduction and allowed ammonia slip. Ammonia has a detectable odor at levels of 5 ppm or greater, and poses a health concern at levels of 25 ppm or greater. Ammonia can also react with sulfur compounds and acid gases to form particulate, primarily ammonium sulfate & ammonium nitrate. This can cause clogging and/or fouling of downstream equipment.

The applicants’ proposal was found to exceed BACT for NOx emissions from the melt shop operations. Therefore, BACT has been satisfied for NOx emissions from the melt shop operation, but verification that proposed emissions have been achieved will be required during initial compliance testing.

Prior District evaluation for SNCR systems on cement kilns determined that an ammonia slip limit of 10 ppm is technologically feasible; this requirement will be incorporated into permit conditions.

VOC Emissions

VOC emissions from the melt shop are the result of organic materials within the scrap and additive material evaporating or combusting in the EAF and LMS; lubricating oils & cooling water containing oils used in the casting & rolling operations also evaporate to the atmosphere.

Review of California air district BACT determinations did not reveal any determinations for VOC emissions from steelmaking facilities. Review of RBLC indicated that a scrap management plan, good combustion/operation practices as achieved control technologies for VOC control, and a VOC emission rate of 0.09 lb/ton of steel has been achieved by the NUCOR Steel Gallatin facility (KY-0115, Permit No. V-20-015 R1).

Based what has been found as “achieved in practice”, BACT for VOC would be required to not be less stringent than the following:

	lb/ton	lb/hr	ton/yr
RBLC	0.09	4.68	20.52

Per District Rules 210.1 and 210.1A, stationary sources with a potential to emit VOC in excess of 25 tons/yr are required to provide emission offsets prior to approval.

The applicant has proposed the following controls for VOC emissions from the melt shop operation:

- Scrap management plan to minimize volatile organics entering EAF
- Fume treatment plant with wet scrubber achieving 40% control and activated carbon injection
- Pre-control emission rate of 0.139 lb/ton steel produced; post-control emission rate of 0.075 lb/ton steel produced

Activated carbon injection (ACI) and wet scrubber were not found to be an “achieved in practice” control technology for VOC emissions from steel manufacturing facilities. Applicant has proposed use of ACI and the wet scrubber as an “equivalent technology” that has been demonstrated to be as or more effective than established BACT. Packed-bed wet scrubbers have been found to achieve VOC collection efficiencies of greater than 70% (EPA Control Technology Fact Sheet EPA-452/F-03-015).

The ACI process functions by pneumatically injecting a fine powder of activated carbon into the flue-gas duct upstream of the particulate device. An ACI system typically consists of a storage silo, solids feeders, blowers, transport lines, and injection lances. Activated carbon attracts and holds organic chemicals from vapor and liquid streams cleaning them of unwanted chemicals.

The applicants’ proposal was found to exceed BACT for VOC emissions from the melt shop operation; therefore, BACT has been satisfied for VOC emissions.

Lead Emissions:

Review of California air district BACT determinations did not reveal any determinations for lead emissions from steelmaking facilities. Lead emissions are entirely PM, and therefore control technologies for PM are also applicable. Applicant has estimated that lead emissions from the facility to be 0.0497 ton/yr (99.4 lb/yr), based on a source test from analysis of the EAF baghouse at a similar facility in Berkeley, SC. This would correspond to an emission rate of 0.00022 lb/ton of steel produced, based on applicants’ proposed maximum steel production rate.

Summary of BACT for the Melt Shop Operation:

Pollutant	Control Technology
$PM_{10}/PM_{2.5)}$	DEC serving EAF; Electric reheat furnaces (no fuel combustion); enclosed melt shop/caster roof distribution system (secondary control circuit); Primary & secondary baghouses serving melt shop; wet scrubber; PM emission rate not to exceed 0.16 lb/ton steel (~0.0014 gr/scf); visible emissions not to exceed 40 CFR Part 60 Subpart AAb & Part 63 Subpart YYYYY standards.
SOx	Electric heating (no fuel combustion); Scrap management plan minimizing scrap containing sulfur allowed into EAF; SO_x emission rate of 0.16 lb/ton of steel
NOx	Electric heating (no fuel combustion); DEC directing EAF exhaust gases to fume treatment plant; emission rate not to exceed 0.15 lb/ton steel
VOC	Scrap management plan; VOC emission rate not to exceed 0.09 lb/ton of steel produced; rolling mill vent emissions not to exceed 0.83 lb/hr
CO	DEC with air gap for post-capture oxidation; emission rate of 1.98 lb/ton steel
GHGs	Electric reheating furnaces (no gas fuel combustion); bottom stirring, foamy slag practice, eccentric tapping; process energy optimizations; annual emissions of 100,092 ton/yr CO_2e

Applicant Voluntarily Proposed Controls:

Pollutant	Control Technology
$PM_{10}/PM_{2.5)}$	DEC serving EAF; Electric reheat furnaces (no fuel combustion); enclosed melt shop/caster roof distribution system (secondary control circuit); Primary & secondary baghouses serving melt shop; wet scrubber; PM emission rate not to exceed 0.0467 lb/ton steel (~0.0004 gr/scf); visible emissions not to exceed 40 CFR Part 60 Subpart AAb & Part 63 Subpart YYYYY standards.
SOx	Electric reheat furnaces (no fuel combustion); Scrap management plan minimizing scrap containing sulfur allowed into EAF; lime injection and wet scrubber in fume treatment plant; SO_x emission rate of 0.101 lb/ton of steel
NOx	Electric heating (no fuel combustion); DEC directing EAF exhaust gases to fume treatment plant; SNCR; emission rate not to exceed 0.090 lb/ton steel
VOC	Activated carbon injection and wet scrubber in fume treatment plant; VOC emission rate not to exceed 0.075 lb/ton of steel produced; rolling mill vent emissions not to exceed 0.83 lb/hr
CO	DEC with air gap for post-capture oxidation; emission rate of 1.819 lb/ton steel
GHGs	Electric reheating furnaces (no gas fuel combustion); bottom stirring, foamy slag practice, eccentric tapping; process energy optimizations; annual emissions of 100,092 ton/yr CO_2e

Applicant has indicated that nature of the melt shop operations is such that the startup and shutdown (SUSD) emissions from the EAF are lower than maximum routine emissions . Therefore, a separate BACT analysis for SUSD is not required and the SUSD emissions are included as part of the proposed hourly and annual emission limits.

<u>Slag Processing, Handling, & Stockpiling</u>

Applicant has proposed the following as BACT for the slag yard operations, based on review of the RBLC:

Source	Control

Haul roads	Develop, maintain, and implement a fugitive dust control plan
Mill Scale Pile	Wetting
Slag Yard	Wetting, minimize drop height
Conveyor Transfer	Partial enclosure, minimize drop height

The following was found to constitute BACT for the slag yard operations, based on review of prior District determinations of crushing, screening, & stockpiling operations:

Pollutant	Control Technology
PM_{10}	• Water sprays at crushing, screening, and conveyor transfer • Covered conveyors • 10% opacity from crushing • 5% opacity from screening & transfer points • 10% opacity from storage piles • Fugitive Dust Control Plan

Cooling Towers

The District has previously determined BACT for cooling towers to be the following:

Pollutant	Control
PM-10:	Drift rate not to exceed 0.0005%; TDS not to exceed 4000 ppmv; visible emissions not to exceed 5% opacity

Applicant has proposed a high efficiency drift rate of 0.0005% for the cooling towers. Therefore, BACT is satisfied for PM emissions from the cooling towers, and maximum drift rate will be required as a permit condition of approval.

Stationary Internal Combustion Engines

Applicant PSD Control Technology Review

In engines, CO results from incomplete combustion. Control of CO emissions is typically accomplished by providing adequate fuel residence time and a high temperature in the combustion zone to ensure complete combustion. CO emissions may indicate early quenching of combustion gases on cylinder walls or valve surfaces. Lean-burn engines typically have higher CO emissions and lower NOx emissions because of the air-to-fuel ratios at which they operate.

The technologies identified for reducing CO emissions from the engines are 1) an oxidation catalyst (also referred to as a CO catalyst) and 2) combustion controls. The standard technology for reducing CO emissions is to maintain "good combustion" through proper control and monitoring of the combustion process through the air-to-fuel ratio. Applicant's review of the RBLC database indicates that combustion controls are the most prevalent BACT control, with several oxidation catalysts also listed as BACT.

Oxidation Catalysts. Oxidation catalysts are a post-combustion technology that does not rely on the introduction of additional chemicals for a reaction to occur. The oxidation of CO to CO2 utilizes excess air present in the engine exhaust; the activation energy required for the reaction to proceed is lowered in the presence of a catalyst. Products of combustion are introduced into a catalytic bed, with the optimum temperature range for these systems being between 700°F and 1,100°F. At higher temperatures, catalyst sintering may occur, potentially causing permanent damage to the catalyst. The addition of a catalyst bed onto the engine exhaust would create a pressure drop, resulting in back pressure to the engine. This has the effect of reducing the efficiency of the engine and the power-generating capabilities.

When operated intermittently as an emergency engine, the reciprocating internal combustion engine (RICE) would not maintain a consistent temperature hot enough for oxidation catalyst operation. Additionally, the infrequent scheduled use of the engine during testing and maintenance for 200 hours per year would not result in efficient operation of the oxidation catalyst. Therefore, the use of oxidation catalysts is not technically feasible method for controlling CO emissions from the RICE.

BACT for the emergency use propane fueled engines were determined in accordance with District BACT policy and review of BACT determinations from other air districts in California. A 2024 BACT analysis from the Sacramento Metropolitan Air Quality Management District determined the following as 'achieved in practice' BACT for standby lean-burn spark ignition engines:

Pollutant	BACT
PM10	Natural gas fuel or equivalent, good combustion practices
PM2.5	Natural gas fuel or equivalent, good combustion practices
SOx	Natural gas fuel or equivalent, good combustion practices
NOx	<500bhp: 1.0 g/bhp-hr ≥500-bhp: 0.5 g/bhp-hr
VOC	206 ppmvd @ 15% O2 (~1.0-g/bhp-hr)
CO	2.0 g/bhp-hr

Therefore, BACT for emergency use, lean-burn spark ignition engines was determined to be the following:

Pollutant	Control Technology
PM_{10}, $PM_{2.5}$	NPGA quality propane fuel; Visible emissions not to exceed Ringelmann 0 or 0% opacity once normal operating temperature is achieved.
SOx	NPGA quality propane fuel
NOx	Engines ≤500-bhp: Maximum NOx emissions not to exceed 1.0 g/bhp-hr Engines >500-bhp: Maximum NOx emissions not to exceed 0.5 g/bhp-hr
VOC	VOC emissions not to exceed 206 ppmvd @ 15% O2, as methane (1.0 g/bhp-hr)
CO	2.0-g/bhp-hr

The applicant has proposed use of propane fuel to satisfy BACT for PM and SOx emissions, and has also proposed a CO emission rate of 1.6 g/bhp-hr; these satisfy BACT requirements. NOx & VOC emission rates found to constitute BACT will be required as a condition of approval.

<u>Fuel Storage & Dispensing</u>
In accordance with CARB's Executive Orders for Gasoline Dispensing Facilities equipped with AST, enhanced vapor recovery (EVR) Phase I and standing loss control (SLC) has proven to be Best Available Control Technology (BACT) for control of Volatile Organic Compound (VOC) emissions generated by the filling of gasoline storage tanks and from vapor losses due to diurnal pressure changes. Therefore, BACT for filling of the gasoline tank shall be installation of Phase I EVR equipment and compliance with CARB SLC requirements.

The District has previously determined BACT for gasoline dispensing into motor vehicle fuel tanks to be the following:

- CARB-certified Phase II EVR equipment; or
- Non-retail fuel dispensing to vehicles also owned by the AST owner and equipped with ORVR systems, or limiting dispensing to less than 24,000 gallons per year and 10,000 gallons in any one month: and compliance with CARB executive Order NVR-1-

Proposed operation is non-retail, and applicant has not proposed use of a Phase II EVR system. Therefore, BACT for transfer of gasoline into vehicle fuel tanks shall be implementation of CARB certified low-permeation conventional dispensing hoses and ECO dispensing nozzles. These requirements will be incorporated into permit conditions for the gasoline storage & dispensing operation.

VII. CEQA DETERMINATION:

EASTERN KERN APCD PERMITS - CEQA COMPLIANCE
Instructions for Checklist

This form is designed to be used by the permit application processing engineer in implementing requirements of the California Environmental Quality Act (CEQA) for District permitting activities when the District is the lead or responsible agency under CEQA. The District is generally a responsible agency for portions of development projects requiring District permits. The District is a commenting agency for other parts of a project, such as, indirect source emissions and vehicle trips. Most District permits are considered exempt from CEQA (see District List of Exempt Projects). In most cases the environmental document prepared by the lead agency is adequate for the District permitting action. Certain District permit modifications may require supplemental CEQA documents.

CEQA compliance for a project subject to District permit requirements includes two steps:

A. Determining what CEQA-related information, if any, is required from the applicant to deem the application complete (this may also be identified at the pre-application stage, if there is one[1]).

B. Determining and documenting CEQA compliance for each permit application prior to granting a permit by completing the attached form.

The following instructions correspond to the questions on the form:

B.2. Projects subject to District permits often also require a land use or other permit from other agencies. The permit engineer should check the application or request from the applicant information regarding what other agencies will be requiring permits for the project and who the "Lead Agency" will be. District permit processing should begin as soon as adequate information is available to deem the application complete, even if the lead agency has not completed the environmental document (Govt. Code ' 65941 (b), amended 1993), and if the applicant so requests (Govt. Code ' 65951, amended 1993).

B.3. For District permits that do not fall under the preceding case, the engineer shall receive from the applicant a signed and dated environmental questionnaire (Initial Study checklist).

C.2. As a "responsible agency" under CEQA, the Control Officer shall consider information contained in the lead agency's final EIR or ND prior to granting the District permit. Acting on behalf of the Control Officer, the engineer shall review the ND or EIR and adopt any mitigation measures for air quality impacts or project alternatives over which the District has regulatory discretion.

C.3. If any component of the project is not listed, and if exceptions to these exemptions provided in the form are true, then the project cannot be considered exempt. In making a recommendation to issue the District permit, the permit engineer shall review the environmental questionnaire provided by the applicant to establish the project has no potential for resulting in a significant adverse environmental impact to any environmental media (see Initial Study form). The study shall also demonstrate the project will not contribute to significant cumulative impacts and will not have significant impact itself. Although no further action is required under CEQA, the applicant may request a Notice of Exemption to be filed, to reduce the statute of limitations from 180 days to 30 days, on challenges to the decision the project is exempt from CEQA.

[1] *Preapplication under PRC ' 21080.1(b) amended 1993-at the request of the applicant the lead agency must provide for pre-application consultation on the environmental document.*

EASTERN KERN APCD PERMITS -- CEQA COMPLIANCE CHECKLIST

Completeness Review Form

This form shall be completed by the permit application engineer for all Authority to Construct permit applications. The completed form shall be included in the Engineering Evaluation File.

A. General Information

Application Number: 5024001 – ‘011
Applicant Name: PSGM3, LLC
Project Description: Steel Manufacturing Facility

B. Determination of Completeness

Check the corresponding action to be taken to determine the application is complete for CEQA purposes and fill in blanks where appropriate.

1. Ministerial Exemption

___This permit application is not subject to CEQA because the evaluation is a ministerial action conducted using fixed standards and objective measurements. No discretion or judgment is required in granting of this permit.

2. Project Was Exempted by or is Subject to Negative Declaration or EIR by Another Agency

X This permit application was exempted by or is subject to a ND or EIR prepared (or under preparation) by another agency. The District has received the necessary information indicating another agency is acting as the Lead Agency. Therefore, the application shall be deemed complete for CEQA purposes.

3. All Other Permits

___The District has received from the applicant, a completed, signed and dated environmental questionnaire and any other information necessary for preparing a negative declaration or EIR, if required (see Form Instructions B.3.). Therefore, the application shall be deemed complete for CEQA purposes.

C. Final Action

Check the appropriate action taken by the APCO prior to issuing the final permit.

1. Ministerial Action

___This permit application is exempt from CEQA because the permit evaluation is a ministerial action. CEQA does not apply to ministerial actions. No further action is necessary.

2. Project Was Exempted by or is Subject to Negative Declaration or EIR by Another Agency

X This permit application was exempted by or was subject to an EIR or Negative Declaration by another agency. The final action on the District permit was taken only after review and consideration of information in the certified CEQA document by the Control Officer, or authorized District representative of the Control Officer.

3. Exemption

__This permit application is exempt from CEQA because the project, as a whole, is listed in the District List of Exempt Projects AND because the project has no potential for causing a significant adverse environmental impact. A General Exemption under CEQA Section 15061 (b) (3) applies if the project is not listed in the District Exemption List AND it can be seen with certainty the project will not have a significant adverse effect on the environment. In making this determination,

a. a review of information submitted by the applicant has been conducted indicating there is no potential for a significant adverse environmental impact on any environmental media from the project;
b. emissions offsets were not required by EKAPCD Rule 210.1, Subsection III.B.;
c. recognized Best Available Control Technology (BACT) was proposed; and
d. no unusual circumstances such as location, or cumulative impacts from successive projects of the same type in the same place over time, were determined to result in significant adverse environmental impacts.

4. Permit is Not Exempt from CEQA

__This permit was found not to be exempt from CEQA and no other agency will be conducting a CEQA review for the project. The District has prepared and adopted a Negative Declaration/Addendum or certified an EIR for the project. The final action by the District was taken only after information contained in the final EIR or ND was considered and any significant adverse environmental effects were mitigated to the maximum extent feasible.

RECEIVED WITH FEE
RECEIPT# 15150626

FILED
KERN COUNTY

MAR 2 1 2024

AIMEE X. ESPINOZA
AUDITOR CONTROLLER-COUNTY CLERK
BY ______ DEPUTY

NOTICE OF DETERMINATION
(CALIFORNIA ENVIRONMENTAL QUALITY ACT OF 1970)

TO WHOM IT MAY CONCERN:

1. The Board of Supervisors of the County of Kern has approved the following described project in the County of Kern, State of California:

   a. Applicant, or sponsoring agency or department: PSGM3 Holdings Corp (Pacific Steel Group) (PP22402);

   b. Name of Project: (a) General Plan Amendment Case No. 3, Map 213; (b) Amendment of Zoning Map 213, Zone Change Case No. 62; (c) Conditional Use Permit Case No. 71, Map 213; (d) Conditional Use Permit Case No. 72, Map 213; (e) Precise Development Plan No. 3, Map 213; (f) Zone Variance Case No. 24, Map 213; (g) Zone Variance Case No. 25, Map 213;

   c. Street Address/Cross-Street of Project: The proposed project site is located at the southeast corner of Sierra Highway and Sopp Road in the unincorporated area of Southeastern Kern County; (APNs: 431-010-02 & 431-030-02)

   Map of Project (if no street address): Attached

   d. Description of Project The proposed Mojave Micro Mill Project is for the construction and operation of a micro steel mill facility and associated infrastructure necessary to produce rebar from scrap metal (e.g., shredded automobiles, appliances, structural and sheet metal, and other pre-processed steel bundles) through various recycling processes. Development would include an approximate 489,200-square-foot steel mill facility with an additional 61,721 square feet of accessory buildings and structures, for a total of 550,921 square feet, and an approximate 63-acre accessory solar array, all on 174 acres of privately owned land in unincorporated Kern County. The proposal includes:

   (a) Amendment to the Land Use, Open Space, and Conservation Element of the Kern County General Plan (GPA No. 3, Map 213) from Map Code 8.5 (Resource Management) to 7.3 (Heavy Industrial), or a more restrictive map code designation, on approximately 174 acres;

   (b) Change in zone classification (ZCC No. 62, Map 213) from A-1 (Limited Agriculture) to M-3 PD (Heavy Industrial – Precise Development Combining), or a more restrictive district, on approximately 174 acres;

   (c) Conditional Use Permit (CUP No. 71, Map 213) to allow on-site capture of carbon dioxide (CO_2) and temporary storage for eventual transport for off-site distribution (Sections 19.08.085 & 19.06.920) on an approximate 174-acre project site;

   (d) Conditional Use Permit (CUP No. 72, Map 213) to allow an on-site water treatment plant (Section 19.40.030.K) on an approximate 174-acre project site;

   (e) Precise Development Plan (PD Plan No. 3, Map 213) to allow for the construction and operation of an approximate 489,200-square-foot micro steel mill facility with an additional 61,721 square feet of accessory buildings, for a total of 550,921 square

34782

Notice of Environmental Document Posted by County Clerk on 03/21/2024 and for 30 days thereafter, Pursuant to Section 21152(C), Public Resources Code

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KERN COUNTY

MAR 21 2024

AIMEE X. ESPINOZA
AUDITOR-CONTROLLER-COUNTY CLERK
BY PD DEPUTY

RECEIVED WITH FEE
RECEIPT# 151526026

feet, served by a 63-acre solar array accessory to the proposed use, all on [illegible] total acres in the M-3 PD District (Sections 19.40.020.E.1 & 19.40.020.H);

(f) Zone Variance (ZV No. 24, Map 213) to allow for a reduction in the required number parking spaces from 993 spaces to 306 spaces;

(g) Zone Variance (ZV No. 25, No. 213) to allow for a maximum building and structure height of 165 feet where 150 feet is permitted (Sections 19.40.080.A & 19.08.160.B) in the M-3 PD (Heavy Industrial – Precise Development Combining) District

2. Approval – Summary of Proceedings:

   Adoption date March 19, 2024, Item No. 8 2:00 p.m.

3. The Board of Supervisors of the County of Kern has determined that the project in its approved form will have a significant effect on the environment.

4. An Environmental Impact Report (EIR) and a Mitigation Monitoring and Reporting Program were prepared pursuant to California Environmental Quality Act of 1970 (CEQA) and the State CEQA Guidelines and were received and considered by this Board and certified as required by Section 15090 the State CEQA Guidelines.

5. Mitigation measures and a Mitigation Monitoring and Reporting Program were made as conditions of approval of the project. Findings were made pursuant to Section 15091 of the State CEQA Guidelines. A Statement of Overriding Considerations was adopted for the project, pursuant to Section 15093 of the State CEQA Guidelines.

6. A copy of the EIR may be examined by any interested person during regular business hours at the following location: Kern County Administrative Center, 1115 Truxtun Avenue, Fifth Floor, Bakersfield, California 93301, Telephone No. 868-3585.

Lorelei H. Oviatt, AICP, Director
Planning and Natural Resources Department
County of Kern, State of California

By: Lorelei H. Oviatt

Telephone No. 862-8600

MT:an

Notice of Environmental Document
Posted by County Clerk on 03/21/2024
and for 30 days thereafter, Pursuant to
Section 21152(C), Public Resources Code

Section 4.3
Air Quality

4.3.1 Introduction

This section of the EIR describes the affected environment and regulatory setting of the project and evaluates the short- and long-term air quality impacts associated with development of the site. Further, this analysis describes the affected environment and regulatory setting for air quality. Where necessary, mitigation measures are included to avoid or lessen the impacts of the proposed project.

Information in this section is based primarily on the *Air Quality Technical Report* located in Appendix C (ESA, 2023d) and the *Air Quality Analysis of Off-Site Power Utilities Memorandum* located in Appendix D (ESA, 2023a). The report was prepared in accordance with the Kern County Planning Department's *Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports* (Kern, 2006) and Eastern Kern Air Pollution Control District's (EKAPCD) *Guidelines for Implementation of the California Environmental Quality Act* (CEQA) (EKAPCD, 2021b).

Existing Conditions

The Mojave Micro Mill Project ("project" or "proposed project") will be situated on a 174-acre site located at 860 Sopp Road, at the southeast corner of Sopp Road and Sierra Highway, in unincorporated southeastern Kern County, California. The project site is bounded by the Union Pacific Railway and Sierra Highway (west), Sopp Road (north), vacant land (south) and Edwards Air Force Base (east). The project site is located approximately 57 miles southeast of the City of Bakersfield, approximately 4 miles north of the unincorporated community of Rosamond and 8 miles south of the unincorporated community of Mojave in unincorporated Kern County, California. Regional access to the project site is provided by State Route 14 (SR-14). The project site would be accessed by Backus Road one mile north of the project site, from Sierra Highway to the east off of SR-14. The proposed project is located in the western portion of the Mojave Desert, in the Antelope Valley area. The Mojave Desert is to the south and east of several low mountain ranges and is dominated by desert vegetation. Topography is mostly flat, but elevations gradually rise toward the west and northwest. The Tehachapi Mountains are to the north and west and the San Gabriel Mountains to the south.

Nearby uses surrounding the project site include vacant agriculturally designated land to the south, industrial development (Shemshad Food Products Inc.) to the north, the Edwards Solar Facility followed by Edwards Airforce Base lie east of the project site, and vacant agricultural land, Sierra Highway, and Union Pacific lie to the west of the project site. The immediate area surrounding the project has a few nearby residences; the nearest residence is approximately 1,000 feet to the northwest. Farther away are a few clusters of unincorporated residences located near the State Route 14 and Backus Road exit, as well as approximately 1.25 miles west of the project site beyond State Route 14.

4.3.2 Environmental Setting

Project Description

The proposed project would include development of an approximate 489,200 square-foot micro mill facility which would produce and fabricate reinforcing steel commonly known as "rebar". The proposed project would also include an additional 61,721square feet of accessory buildings, for a total of 550,921 square feet, as well as an approximate 63-acre accessory solar array on 174 total acres of privately owned land that is currently vacant. Outdoor storage for scrap materials and staging is included as part of the proposed project.

The 489,200 square-foot micro mill facility would include raw materials handling, melt shop processes, rolling mill processes, and fabrication shop processes. The micro mill facility would support seven ancillary structures for storeroom and vehicle maintenance, office building, locker room, slag processing office building, containerized power control room, guard shack/scale house, and a trucker restroom facility. Additional site components would include: 63 acres of ground-mounted solar panels, a carbon capture system (CCS), substation to support solar panels, fume treatment plant, water treatment plant, slag processing plant, dolomite and lime silos, staging and spare parts storage, numerous AC power unit substations located throughout the project site to power the various buildings, on-site access corridors, perimeter security fencing, on-site parking area, road improvements along Sopp Road and future private road south of Lone Butte Road/Sopp Road corner, two fiber optic cable lines to provide electricity and telecommunications, a new water main, landscaping, and new pavement, and curb and gutter.

It is anticipated that construction activities would commence as early as the second quarter 2024 with full build-out occurring in second quarter 2026. Construction is anticipated to last approximately 24 months.

The California Air Resources Board (CARB) has divided California into regional air basins according to topographic drainage features. The project site is located in the Mojave Desert Air Basin (MDAB) and is under the jurisdiction of EKAPCD. The MDAB includes the eastern half of Kern County, the northern part of Los Angeles County, most of San Bernardino County except for the southwest corner, and the eastern edge of Riverside County. It is separated from the South Coast Air Basin, to its south, by the San Gabriel and San Bernardino Mountains. It is separated from the San Joaquin Valley to the northwest by the Tehachapi Mountains and the southern end of the Sierra Nevada.

Topography and Meteorology

Air pollution, especially the dispersion of air pollutants, is directly related to a region's topographic features. Air quality is a function of both the rate and location of pollutant emissions and the meteorological conditions and topographic features that influence pollutant movement and dispersal. Atmospheric conditions such as wind speed, wind direction, atmospheric stability, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants, which affects ambient air quality.

The project is located within the Antelope Valley, approximately 4 miles north of the unincorporated community of Rosamond, in the southeast portion of Kern County. The Antelope Valley is within the western portion of the Mojave Desert and is bounded by the Tehachapi Mountains to the northwest and the San Gabriel Mountains to the southwest. Land uses in the project area include undeveloped desert, fallow and active agriculture, low-density residences, and energy development (e.g., solar and wind). The Mojave Desert is bordered on the southwest by the San Bernardino Mountains, separated from the San Gabriel Mountains by the Cajon Pass (4,200 feet above mean sea level [amsl]). A lesser valley lies between the San Bernardino Mountains and the Little San Bernardino Mountains (the Morongo Valley). The Palo Verde Valley portion of the Mojave Desert lies in the low desert, at the eastern end of a series of valleys (notably the Coachella Valley) whose primary channel is the San Gorgonio Pass (2,300 feet amsl) between San Bernardino and San Jacinto Mountains.

The MDAB is characterized by hot summers, cold winters, large diurnal ranges in temperature, low relative humidity, and irregular rainfall. The MDAB is an assemblage of mountain ranges interspersed with long broad valleys that often contain dry lakes. Many of the lower mountains rise from 1,000 to 4,000 feet above the valley floor. Prevailing winds in the MDAB are out of the west and southwest, due to the proximity of the MDAB to the Pacific Ocean and the blocking nature of the Sierra Nevada Mountains to the north. Air masses pushed onshore in southern California by differential heating are channeled through the MDAB. The MDAB is separated from the southern California coastal and central California valley regions by mountains (highest elevation approximately 10,000 feet amsl), the passes of which form the main channels for these air masses.

During the summer, the MDAB is generally influenced by a Pacific Subtropical High cell that sits off the coast to the west, inhibiting cloud formation and encouraging daytime solar heating. The MDAB is rarely influenced by cold air masses moving south from Canada and Alaska, as these frontal systems are weak and diffuse by the time they reach the desert. Most desert moisture arrives from infrequent warm, moist and unstable air masses from the south.

Weather recorded at the Mojave, California Station (NCDC COOP Station # 045756), would be representative of the climate at the project site. The average maximum and minimum temperatures, average precipitation, and average snowfall are recorded below in **Table 4.3-1:** *Mojave Station 045756 Monthly Climate Summary*.

Table 4.3-1: Mojave Station 045756 Monthly Climate Summary

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Annual
Avg. Max Temp. (F)	57.8	61.2	64.7	71.3	79.9	89.9	97.6	96.4	89.0	78.5	65.7	57.2	75.8
Avg. Min Temp. (F)	34.2	37.1	41.0	46.3	55.1	63.8	69.7	68.0	60.3	50.3	40.2	32.9	49.9
Average Total Precipitation (in.)	1.20	1.27	0.93	0.30	0.09	0.03	0.11	0.15	0.21	0.24	0.53	0.87	5.93
Average Total Snowfall (in.)	0.8	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	1.7

Source: Western Regional Climate Center, 2016.
Period of record 01/01/1904 to 06/08/2016

Criteria Air Pollutants

Air pollution, especially the dispersion of air pollutants, is directly related to a region's topographic features. Air quality is a function of both the rate and location of pollutant emissions and the meteorological conditions and topographic features that influence pollutant movement and dispersal. Atmospheric conditions such as wind speed, wind direction, atmospheric stability, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants, which affects ambient air quality. The project is located within the Antelope Valley, approximately 8 miles south of the unincorporated community of Mojave in unincorporated Kern County within the Mojave Desert Air Basin (Basin). The Basin encompasses the eastern half of Kern County, the northern part of Los Angeles County, most of San Bernardino County except for the southwest corner, and the eastern edge of Riverside County. It is separated from the South Coast Air Basin, to its south, by the San Gabriel and San Bernardino Mountains. It is separated from the San Joaquin Valley, to the northwest, by the Tehachapi Mountains and the south end of the Sierra Nevada. The Basin has four air districts which regulate air quality. The project site lies within the Eastern Kern Air Pollution Control District (EKAPCD).

The Antelope Valley is within the western portion of the Mojave Desert and is bounded by the Tehachapi Mountains to the northwest and the San Gabriel Mountains to the southwest. The Mojave Desert is bordered on the southwest by the San Bernardino Mountains, separated from the San Gabriel Mountains by the Cajon Pass. A lesser valley lies between the San Bernardino Mountains and the Little San Bernardino Mountains (the Morongo Valley). The Palo Verde Valley portion of the Mojave Desert lies in the low desert, at the eastern end of a series of valleys (notably the Coachella Valley) whose primary channel is the San Gorgonio Pass between San Bernardino and San Jacinto Mountains.

The Basin is characterized by hot summers, cold winters, large diurnal ranges in temperature, low relative humidity, and irregular rainfall. The Basin is an assemblage of mountain ranges interspersed with long broad valleys that often contain dry lakes. Many of the lower mountains rise from 1,000 to 4,000 feet above the valley floor. Prevailing winds in the Basin are out of the west and southwest, due to the proximity of the Basin to the Pacific Ocean and the blocking nature of the Sierra Nevada Mountains to the north. Air masses pushed onshore in southern California by differential heating are channeled through the Basin. The Basin is separated from the southern California coastal and central California valley regions by mountains (highest elevation approximately 10,000 feet above mean sea level), the passes of which form the main channels for these air masses.

During the summer, the Basin is generally influenced by a Pacific Subtropical High cell that sits off the coast to the west, inhibiting cloud formation and encouraging daytime solar heating. The Basin is rarely influenced by cold air masses moving south from Canada and Alaska, as these frontal systems are weak and diffuse by the time they reach the desert. Most desert moisture arrives from infrequent warm, moist, and unstable air masses from the south. Average temperatures recorded in the Mojave area, range from a low of 35 degrees Fahrenheit (°F) in January to highs of 100°F in July and August (NOAA, 2022). Rainfall is light, averaging about seven inches a year (NOAA, 2022). The Basin averages between three and seven inches of precipitation per year (from 16 to 30 days with at least 0.01 inch of precipitation). The Basin is classified as a dry-hot desert climate, with portions classified as dry-very hot desert, which indicates at least three months have maximum average temperatures over 100°F.

Certain air pollutants have been recognized to cause notable health problems and consequential damage to the environment either directly or in reaction with other pollutants, due to their presence in elevated concentrations in the atmosphere. Such pollutants have been identified and regulated as part of the overall endeavor to prevent further deterioration and facilitate improvement in air quality. The following pollutants are regulated by the United States Environmental Protection Agency (USEPA) and are subject to emissions control requirements adopted by federal, state and local regulatory agencies. These pollutants are referred to as "criteria air pollutants" as a result of the specific standards, or criteria, which have been adopted for them. A brief description of the health effects of these criteria air pollutants are provided below.

Ozone (O_3)

Ozone is a regional air pollutant, which is generated over a large area and transported and spread by the wind. As the primary constituent of smog, ozone is the most complex, difficult to control, and pervasive of the criteria pollutants. Unlike other pollutants, it is not emitted directly into the air by specific sources but is created by sunlight acting on other air pollutants (the precursors), specifically nitrogen oxides (NO_X) and reactive organic gases (ROG). Sources of precursor gases number in the thousands and include common sources such as consumer products, gasoline vapors, chemical solvents, and combustion byproducts of various fuels. Originating from gas stations, motor vehicles, large industrial facilities, and small businesses such as bakeries and dry cleaners, the ozone forming chemical reactions often take place in another location, catalyzed by sunlight and heat. Thus, high ozone concentrations can form over large regions when emissions from motor vehicles and stationary sources are carried hundreds of miles from their origins. Ozone concentrations are generally highest during the summer months when direct sunlight, light wind, and warm temperature conditions are favorable.

According to the USEPA, ozone can cause the muscles in the airways to constrict potentially leading to wheezing and shortness of breath (USEPA, 2022c). Ozone can make it more difficult to breathe deeply and vigorously; cause shortness of breath and pain when taking a deep breath; cause coughing and sore or scratchy throat; inflame and damage the airways; aggravate lung diseases such as asthma, emphysema and chronic bronchitis; increase the frequency of asthma attacks; make the lungs more susceptible to infection; continue to damage the lungs even when the symptoms have disappeared; and cause chronic obstructive pulmonary disease (USEPA, 2022c). Long-term exposure to ozone is linked to aggravation of asthma, and is likely to be one of many causes of asthma development and long-term exposures to higher concentrations of ozone may also be linked to permanent lung damage, such as abnormal lung development in children (USEPA, 2022c). According to the California Air Resource Board (CARB), inhalation of ozone causes inflammation and irritation of the tissues lining human airways, causing and worsening a variety of symptoms and exposure to ozone can reduce the volume of air that the lungs breathe in and cause shortness of breath (CARB, 2022m). The USEPA states that people most at risk from breathing air containing ozone include people with asthma, children, older adults, and people who are active outdoors, especially outdoor workers (USEPA, 2022c). Children are at greatest risk from exposure to ozone because their lungs are still developing and they are more likely to be active outdoors when ozone levels are high, which increases their exposure (USEPA, 2022c). According to CARB, studies show that children are no more or less likely to suffer harmful effects than adults; however, children and teens may be more susceptible to ozone and other pollutants because they spend nearly twice as much time outdoors and engaged in vigorous activities compared to adults (CARB, 2022m). Children breathe more rapidly than adults and inhale more pollution per pound of their body weight than adults and are less likely than adults to notice their own symptoms and avoid harmful exposures (CARB, 2022m). Further research may be able to better distinguish between health effects in children and adults (CARB, 2022m). Elevated ozone concentrations also reduce crop and timber yields, damage native plants, and damage materials such as rubber, paints, fabric, and plastics (CARB, 2007).

Reactive Organic Gases (ROG) and Volatile Organic Compounds (VOCs)

ROG and VOCs are organic chemical compounds of carbon and are not "criteria" pollutants themselves; however, they contribute with NO_X to form ozone, and are regulated to prevent the formation of ozone (USEPA, 2022i). According to CARB, some ROG and VOCs are highly reactive and play a critical role in the formation of ozone, other ROG and VOCs have adverse health effects, and in some cases, can be both highly reactive and have adverse health effects (CARB, 2022d). ROG and VOCs are typically formed from combustion of fuels and/or released through evaporation of organic liquids, internal combustion associated with motor vehicle usage, and consumer products (e.g., architectural coatings, deodorants, hair spray, cleaning products, spray paint, insecticides, etc.) (CARB, 2022d).

The primary health effects of hydrocarbons result from the formation of ozone and its related health effects. High levels of hydrocarbons in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. There are no separate federal or California ambient air quality standards for ROG and VOC. Carcinogenic forms of ROG and VOCs are considered toxic air contaminants (TACs). An example is benzene, which is a carcinogen. The health effects of individual ROG and VOCs are described under the "Toxic Air Contaminants" heading below. For the purposes of this assessment ROG and VOC are used interchangeably.

Nitrogen Dioxide (NO_2) and Nitrogen Oxides (NO_X)

NO_X is a term that refers to a group of compounds containing nitrogen and oxygen. The primary compounds of air quality concern include NO_2 and nitric oxide (NO). Ambient air quality standards have been promulgated for NO_2, which is a reddish-brown, reactive gas (CARB, 2022k). The principle form of NO_X produced by combustion is NO, but NO reacts quickly in the atmosphere to form NO2, creating the mixture of NO and NO_2 referred to as NO_X (CARB, 2022k). Major sources of NO_X include emissions from cars, trucks and buses, power plants, and off-road equipment (USEPA, 2022e). The terms NO_X and NO_2 are sometimes used interchangeably. However, the term NO_X is typically used when discussing emissions, usually from combustion-related activities, and the term NO_2 is typically used when discussing ambient air quality standards. Where NO_X emissions are discussed in the context of the thresholds of significance or impact analyses, the discussions are based on the conservative assumption that all NO_X emissions would oxidize in the atmosphere to form NO_2.

According to the USEPA, short-term exposures to NO_2 can potentially aggravate respiratory diseases, particularly asthma, leading to respiratory symptoms (such as coughing, wheezing or difficulty breathing), hospital admissions and visits to emergency rooms while longer exposures to elevated concentrations of NO_2 may contribute to the development of asthma and potentially increase susceptibility to respiratory infections (USEPA, 2022e). According to CARB, controlled human exposure studies that show that NO_2 exposure can intensify responses to allergens in allergic asthmatics (CARB, 2022k). In addition, a number of epidemiological studies have demonstrated associations between NO_2 exposure and premature death, cardiopulmonary effects, decreased lung function growth in children, respiratory symptoms, emergency room visits for asthma, and intensified allergic responses (CARB, 2022k). Infants and children are particularly at risk from exposure to NO_2 because they have disproportionately higher exposure to NO_2 than adults due to their greater breathing rate for their body weight and their typically greater outdoor exposure duration while in adults, the greatest risk is to people who have chronic respiratory diseases, such as asthma and chronic obstructive pulmonary disease (CARB, 2022k). CARB states that much of the information on distribution in air, human exposure and dose, and health effects is specifically for NO_2 and there is only limited information for NO and NO_X, as well as large uncertainty in relating health effects to NO or NO_X exposure (CARB, 2022k).

NO_X contributes to a wide range of environmental effects both directly and indirectly when combined with other precursors in acid rain and ozone. NO_X can cause fading of textile dyes and additives, deterioration of cotton and nylon, and corrosion of metals due to the production of particulate nitrates. Airborne NO_X can also impair visibility. Increased nitrogen inputs to terrestrial and wetland systems can lead to changes in plant species composition and diversity. Similarly, direct nitrogen inputs to aquatic ecosystems such as those found in estuarine and coastal waters can lead to eutrophication (a condition that promotes excessive algae growth, which can lead to a severe depletion of dissolved oxygen and increased levels of toxins harmful to aquatic life). Nitrogen, alone or in acid rain, also can acidify soils and surface waters. Acidification of soils causes the loss of essential plant nutrients and increased levels of soluble aluminum, which is toxic to plants. Acidification of surface waters creates conditions of low pH and levels of aluminum that are toxic to fish and other aquatic organisms. NO_X also contributes to visibility impairment (CAPCOA, 2019).

Carbon Monoxide (CO)

CO is primarily emitted from combustion processes and motor vehicles due to the incomplete combustion of fuel, such as natural gas, gasoline, or wood, with the majority of outdoor CO emissions from mobile sources (CARB, 2022c). According to the USEPA, breathing air with a high concentration of CO reduces the amount of oxygen that can be transported in the blood stream to critical organs like the heart and brain and at very high levels, which are possible indoors or in other enclosed environments, CO can cause dizziness, confusion, unconsciousness and death (USEPA, 2022a). Very high levels of CO are not likely to occur outdoors; however, when CO levels are elevated outdoors, they can be of particular concern for people with some types of heart disease since these people already have a reduced ability for getting oxygenated blood to their hearts and are especially vulnerable to the effects of CO when exercising or under increased stress (USEPA, 2022a). In these situations, short-term exposure to elevated CO may result in reduced oxygen to the heart accompanied by chest pain also known as angina (USEPA, 2022a). According to CARB, the most common effects of CO exposure are fatigue, headaches, confusion, and dizziness due to inadequate oxygen delivery to the brain (CARB, 2022c). For people with cardiovascular disease, short-term CO exposure can further reduce their body's already compromised ability to respond to the increased oxygen demands of exercise, exertion, or stress; inadequate oxygen delivery to the heart muscle leads to chest pain and decreased exercise tolerance (CARB, 2022c). Unborn babies, infants, elderly people, and people with anemia or with a history of heart or respiratory disease are most likely to experience health effects with exposure to elevated levels of CO (CARB, 2022c).

Sulfur Dioxide (SO_2)

Sulfates are the fully oxidized ionic form of sulfur. Sulfates occur in combination with metal and/or hydrogen ions. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. This sulfur is oxidized to sulfur dioxide (SO_2) during the combustion process and subsequently converted to sulfate compounds in the atmosphere. The conversion of SO_2 to sulfates takes place comparatively rapidly and completely in urban areas of California because of regional meteorological features. According to the USEPA, the largest source of SO_2 emissions in the atmosphere is the burning of fossil fuels by power plants and other industrial facilities while smaller sources of SO_2 emissions include industrial processes such as extracting metal from ore; natural sources such as volcanoes; and locomotives, ships and other vehicles and heavy equipment that burn fuel with a high sulfur content (USEPA, 2022g). In 2006, California phased-in the ultra-low-sulfur diesel regulation limiting vehicle diesel fuel to a sulfur content not exceeding 15 parts per million, down from the previous requirement of 500 parts per million, substantially reducing emissions of sulfur from diesel combustion (CARB, 2003). SO_2 is a colorless, irritating gas with a "rotten egg" smell that is formed primarily by the combustion of sulfur-containing fossil fuels. Historically, SO_2 was a pollutant of concern in Kern County, but with the successful implementation of regulations, the levels have been reduced significantly.

According to the USEPA, short-term exposures to SO_2 can harm the human respiratory system and make breathing difficult (USEPA, 2022g). According to CARB, health effects at levels near the state one-hour standard are those of asthma exacerbation, including bronchoconstriction accompanied by symptoms of respiratory irritation such as wheezing, shortness of breath and chest tightness, especially during exercise or physical activity and exposure at elevated levels of SO_2 (above 1 part per million (ppm)) results in increased incidence of pulmonary symptoms and disease, decreased pulmonary function, and increased risk of mortality (CARB, 2022r). Children, the elderly, and those with asthma, cardiovascular disease, or chronic lung disease (such as bronchitis or emphysema) are most likely to experience the adverse effects of SO_2 (CARB, 2022r; USEPA, 2022g).

SO_2 tends to have more toxic effects when acidic pollutants, liquid or solid aerosols, and particulates are also present. Effects are more pronounced among "mouth breathers," e.g., people who are exercising or who have head colds. These effects include:

- Health problems, such as episodes of bronchitis requiring hospitalization associated with lower level acid concentrations;
- Self-reported respiratory conditions, such as chronic cough and difficult breathing, associated with acid aerosol concentrations (individuals with asthma are especially susceptible to these effects. The elderly and those with chronic respiratory conditions may also be affected at lower concentrations than the general population);

- Increased respiratory tract infections associated with longer term, lower level exposures to SO_2 and acid aerosols; and
- Subjective symptoms, such as headaches and nausea, in the absence of pathological abnormalities due to long-term exposure.

SO_2 easily injures many plant species and varieties, both native and cultivated. Some of the most sensitive plants include various commercially valuable pines, legumes, red and black oaks, white ash, alfalfa, and blackberry. The effects include:

- Visible injury to the most sensitive plants at exposures as low as 0.12 ppm for eight hours;
- Visible injury to many other plant types of intermediate sensitivity at exposures of 0.30 ppm for eight hours; and
- Positive benefits from low levels in a very few species growing on sulfur-deficient soils.

Increases in SO_2 concentrations accelerate the corrosion of metals, probably through the formation of acids. SO_2 is a major precursor to acidic deposition. Sulfur oxides may also damage stone and masonry, paint, various fibers, paper, leather, and electrical components.

Increased SO_2 also contributes to impaired visibility. Particulate sulfate, much of which is derived from SO_2 emissions, is a major component of the complex total suspended particulate mixture.

Particulate Matter (PM_{10} and $PM_{2.5}$)

Particulate matter air pollution is a mixture of solid particles and liquid droplets found in the air (USEPA, 2022f). Some particles, such as dust, dirt, soot, or smoke, are large or dark enough to be seen with the naked eye while other particles are so small they can only be detected using an electron microscope (USEPA, 2022f). Particles are defined by their diameter for air quality regulatory purposes: inhalable particles with diameters that are generally 10 micrometers and smaller (PM_{10}); and fine inhalable particles with diameters that are generally 2.5 micrometers and smaller ($PM_{2.5}$) (USEPA, 2022f). Thus, $PM_{2.5}$ comprises a portion or a subset of PM_{10}. Sources of PM_{10} emissions include dust from construction sites, landfills and agriculture, wildfires and brush/waste burning, industrial sources, and wind-blown dust from open lands (CARB, 2022g). Sources of $PM_{2.5}$ emissions include combustion of gasoline, oil, diesel fuel, or wood (CARB, 2022g). PM_{10} and $PM_{2.5}$ may be either directly emitted from sources (primary particles) or formed in the atmosphere through chemical reactions of gases (secondary particles) such as SO_2, NO_X, and certain organic compounds (CARB, 2022g).

According to CARB, both PM_{10} and $PM_{2.5}$ can be inhaled, with some depositing throughout the airways; PM_{10} is more likely to deposit on the surfaces of the larger airways of the upper region of the lung while $PM_{2.5}$ is more likely to travel into and deposit on the surface of the deeper parts of the lung, which can induce tissue damage, and lung inflammation (CARB, 2022g). Short-term (up to 24 hours duration) exposure to PM_{10} has been associated primarily with worsening of respiratory diseases, including asthma and chronic obstructive pulmonary disease, leading to hospitalization and emergency department visits (CARB, 2022g). The effects of long-term (months or years) exposure to PM_{10} are less clear, although studies suggest a link between long-term PM_{10} exposure and respiratory mortality. The International Agency for Research on Cancer published a review in

2015 that concluded that particulate matter in outdoor air pollution causes lung cancer (CARB, 2022g). Short-term exposure to $PM_{2.5}$ has been associated with premature mortality, increased hospital admissions for heart or lung causes, acute and chronic bronchitis, asthma attacks, emergency room visits, respiratory symptoms, and restricted activity days and long-term exposure to $PM_{2.5}$ has been linked to premature death, particularly in people who have chronic heart or lung diseases, and reduced lung function growth in children (CARB, 2022g). According to CARB, populations most likely to experience adverse health effects with exposure to PM_{10} and $PM_{2.5}$ include older adults with chronic heart or lung disease, children, and asthmatics and children and infants are more susceptible to harm from inhaling pollutants such as PM_{10} and $PM_{2.5}$ compared to healthy adults because they inhale more air per pound of body weight than do adults, spend more time outdoors, and have developing immune systems (CARB, 2022g). Research has shown that children living in communities with high levels of $PM_{2.5}$ had slower lung growth, and had smaller lungs at age 18 compared to children who lived in communities with low $PM_{2.5}$ levels (Appendix C) (CARB, 2022g). CARB conducted a risk assessment of premature mortality associated with exposure to $PM_{2.5}$ which indicated that $PM_{2.5}$ exposure contributes to 5,400 (uncertainty range of 4,200 – 6,700) premature deaths due to cardiopulmonary causes per year in California (CARB, 2022g). Additionally, $PM_{2.5}$ exposure contributes to approximately 2,800 hospitalizations for cardiovascular and respiratory diseases (uncertainty rage 350 – 5,100), and about 6,700 emergency room visits for asthma (uncertainty range 4,300 to 9,300) each year in California (CARB, 2022g).

Lead

Lead is a metal that is a natural constituent of air, water, and the biosphere. Major sources of lead emissions include ore and metals processing, piston-engine aircraft operating on leaded aviation fuel, waste incinerators, utilities, and lead-acid battery manufacturers (USEPA, 2022d). In the past, leaded gasoline was a major source of lead emissions; however, the removal of lead from gasoline has resulted in a decrease of lead in the air by 98 percent between 1980 and 2014 (USEPA, 2022d). EKAPCD no longer monitors lead ambient levels of atmospheric lead in the Air Basin. Lead can adversely affect the nervous system, kidney function, immune system, reproductive and developmental systems and the cardiovascular system, and affects the oxygen carrying capacity of blood (USEPA, 2022d). The lead effects most commonly encountered in current populations are neurological effects in children, such as behavioral problems and reduced intelligence, anemia, and liver or kidney damage (CARB, 2022i). Excessive lead exposure in adults can cause reproductive problems in men and women, high blood pressure, kidney disease, digestive problems, nerve disorders, memory and concentration problems, and muscle and joint pain (CARB, 2022i).

Other Criteria Pollutants (California Only)

The California Ambient Air Quality Standards (CAAQS) regulate the same criteria pollutants as the National Ambient Air Quality Standards (NAAQS) but in addition, regulate State-identified criteria pollutants, including sulfates, hydrogen sulfide, visibility-reducing particles, and vinyl chloride (CARB, 2022a). According to CARB, California law continues to mandate CAAQS, although attainment of the NAAQS has precedence over attainment of the CAAQS due to federal penalties for failure to meet federal attainment deadlines (CARB, 2022a). California law does not require that CAAQS be met by specified dates as is the case with NAAQS. Rather, it requires incremental progress toward attainment (CARB, 2022a).

With respect to the State-identified criteria pollutants (i.e., sulfates, hydrogen sulfide, visibility reducing particles, and vinyl chloride), the project would either not emit them (i.e., hydrogen sulfide and vinyl chloride), or they would be accounted for as part of the pollutants estimated in this analysis (i.e., sulfates and visibility reducing particles). For example, visibility reducing particles are associated with particulate matter emissions and sulfates are associated with SO_X emissions. Both particulate matter and SO_X are included in the emissions estimates for the project. A description of the health effects of the State-identified criteria air pollutants is provided below.

Sulfates (SO_4^{2-})

Sulfates (SO_4^{2-}) are particulate product that comes from the combustion of sulfur-containing fossil fuels. When sulfur monoxide or SO_2 is exposed to oxygen, it precipitates out into sulfates (SO_3 or SO_4). Sulfates are the fully oxidized ionic form of sulfur. Sulfates occur in combination with metal and/or hydrogen ions. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur (CARB, 2022q). This sulfur is oxidized to SO_2 during the combustion process and subsequently converted to sulfate compounds in the atmosphere. The conversion of SO_2 to sulfates takes place comparatively rapidly and completely in urban areas of California because of regional meteorological features.

Exposure to SO_4^{2-}, which are part of $PM_{2.5}$, results in health effects similar to those from exposure to $PM_{2.5}$ including reduced lung function, aggravated asthmatic symptoms, and increased risk of emergency department visits, hospitalizations, and death in people who have chronic heart or lung diseases (CARB, 2022q). Population groups with higher risks of experiencing adverse health effects with exposure to SO_4^{2-} include children, asthmatics, and older adults who have chronic heart or lung diseases (CARB, 2022q). CARB's sulfates standard is designed to prevent aggravation of respiratory symptoms. When acidic pollutants and particulates are also present, SO_2 tends to have an even more toxic effect. In addition to particulates, SO_3 and SO_4 are also precursors to acid rain. SO_X and NO_X are the leading precursors to acid rain. Acid rain can lead to corrosion of man-made structures and cause acidification of water bodies. Sulfates are particularly effective in degrading visibility and because they are usually acidic, can harm ecosystems and damage materials and property.

Hydrogen Sulfide (H_2S)

H_2S is a colorless gas with a strong odor of rotten eggs. The most common sources of H2S emissions are oil and natural gas extraction and processing, and natural emissions from geothermal fields. Industrial sources of H_2S include petrochemical plants and kraft paper mills. H_2S is also formed during bacterial decomposition of human and animal wastes, and is present in emissions from sewage treatment facilities and landfills (CARB, 2022f).

H_2S is regulated as a nuisance based on its odor detection level; if the standard were based on adverse health effects, it would be set at a much higher level (CARB, 2022f). According to CARB, there are insufficient data available to determine whether or not some groups are at greater risk than others (CARB, 2022f). Exposure to H_2S can induce tearing of the eyes and symptoms related to overstimulation of the sense of smell, including headache, nausea, or vomiting; additional health effects of eye irritation have only been reported with exposures greater than 50 ppm, which is considerably higher than the odor threshold (CARB, 2022f). Exposure to higher concentrations (above 100 ppm) can cause olfactory fatigue, respiratory paralysis, and death. Brief exposures to high concentrations of H_2S (greater than 500 ppm) can cause a loss of consciousness. In most cases, the person appears to regain consciousness without any other effects. However, in many individuals, there may be permanent or long-term effects such as headaches, poor attention span, poor memory, and poor motor function. No health effects have been found in humans exposed to typical environmental concentrations of H_2S (0.00011–0.00033 ppm). Deaths due to breathing in large amounts of H_2S have been reported in a variety of different work settings, including sewers, animal processing plants, waste dumps, sludge plants, oil and gas well drilling sites, and tanks and cesspools.

Visibility-Reducing Particles

Visibility-reducing particles come from a variety of natural and manmade sources and can vary greatly in shape, size and chemical composition. Visibility reduction is caused by the absorption and scattering of light by the particles in the atmosphere before it reaches the observer. Certain visibility-reducing particles are directly emitted to the air such as windblown dust and soot, while others are formed in the atmosphere through chemical transformations of gaseous pollutants (e.g., sulfates, nitrates, organic carbon particles) which are the major constituents of particulate matter. As the number of visibility reducing particles increases, more light is absorbed and scattered, resulting in less clarity, color, and visual range (CARB, 2022t). Exposure to some haze-causing pollutants have been linked to adverse health impacts similar to PM_{10} and $PM_{2.5}$ as discussed above (CARB, 2022t).

Vinyl Chloride

Vinyl chloride is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride (PVC) plastic and vinyl products and are generally emitted from industrial processes and other major sources of vinyl chloride have been detected near landfills, sewage plants, and hazardous waste sites, due to microbial breakdown of chlorinated solvents (CARB, 2022s).

Short-term health of effects of exposure to high levels of vinyl chloride in the air include central nervous system effects, such as dizziness, drowsiness, and headaches while long-term exposure to vinyl chloride through inhalation and oral exposure causes liver damage and has been shown to increase the risk of angiosarcoma, a rare form of liver cancer in humans (CARB, 2022s). Most health data on vinyl chloride relate to carcinogenicity; thus, the people most at risk are those who have long-term exposure to elevated levels, which is more likely to occur in occupational or industrial settings; however, control methodologies applied to industrial facilities generally prevent emissions to the ambient air (CARB, 2022s).

Toxic Air Contaminants (TACs)

In addition to criteria pollutants, the EKAPCD periodically assesses levels of toxic air contaminants (TACs) in the Air Basin. A TAC is defined by California Health and Safety Code Section 39655:

> "Toxic air contaminant" means an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard

to human health. A substance that is listed as a hazardous air pollutant pursuant to subsection (b) of Section 112 of the federal act (42 U.S.C. Sec. 7412(b)) is a toxic air contaminant.

Diesel particulate matter, which is emitted in the exhaust from diesel engines, was listed by the state as a toxic air contaminant in 1998. Most major sources of diesel emissions, such as ships, trains, and trucks operate in and around ports, railyards, and heavily traveled roadways. These areas are often located near highly populated areas resulting in greater health consequences for urban areas than rural areas (CARB, 2022l). Diesel particulate matter has historically been used as a surrogate measure of exposure for all diesel exhaust emissions. Diesel particulate matter consists of fine particles (fine particles have a diameter <2.5 µm), including a subgroup of ultrafine particles (ultrafine particles have a diameter <0.1 µm). Collectively, these particles have a large surface area which makes them an excellent medium for absorbing organics. The visible emissions in diesel exhaust include carbon particles or "soot." Diesel exhaust also contains a variety of harmful gases and cancer-causing substances.

Exposure to diesel particulate matter may be a health hazard, particularly to children whose lungs are still developing and the elderly who may have other serious health problems. Diesel particulate matter levels and resultant potential health effects may be higher in proximity to heavily traveled roadways with substantial truck traffic or near industrial facilities. According to CARB, diesel particulate matter exposure may lead to the following adverse health effects: (1) Aggravated asthma; (2) Chronic bronchitis; (3) Increased respiratory and cardiovascular hospitalizations; (4) Decreased lung function in children; (5) Lung cancer; and (6) Premature deaths for people with heart or lung disease (CARB, 2008 & 2022l).

Airborne Fungus (*Coccidioides immitis*)

Coccidioidomycosis, commonly referred to as San Joaquin Valley Fever or Valley Fever, is one of the most studied and oldest known fungal infections. Valley Fever most commonly affects people who live in hot dry areas with alkaline soil and varies with the season. This disease, which affects both humans and animals, is caused by inhalation of arthroconidia (spores) of the fungus Coccidioides immitis.

Coccidioides immitis spores are found in the top few inches of soil. The cocci fungus lives as a saprophyte in dry, alkaline soil. When weather and moisture conditions are favorable, the fungus "blooms" and forms many tiny spores that lie dormant in the soil until they are stirred up by wind, vehicles, excavation, or other ground-moving activities and become airborne. Agricultural workers, construction workers, and other people who work outdoors and who are exposed to wind and dust are more likely to contract Valley Fever. Children and adults whose hobbies or sports activities expose them to wind and dust also are more likely to contract Valley Fever. After the fungal spores have settled in the lungs, they change into a multicellular structure called a spherule. Fungal growth in the lungs occurs as the spherule grows and bursts, releasing endospores, which then develop into more spherules.

Approximately 60 percent of Valley Fever cases are mild and display flu-like symptoms or no symptoms at all. Of those who are exposed and seek medical treatment, the most common symptoms include fatigue, cough, loss of appetite, rash, headache, and joint aches. In some cases, painful red bumps may develop on the skin. Because these symptoms are not unique to Valley

Fever and also may be caused by other illnesses, identifying and confirming this disease requires specific laboratory tests, such as the following (VFCE, 2022b):

- Microscopic identification of the fungal spherules in infected tissue, sputum or body fluid sample.
- Growing a culture of Coccidioides immitis from a tissue specimen, sputum, or body fluid.
- Detection of antibodies (serological tests specifically for Valley Fever) against the fungus in blood serum or other body fluids.
- Administering the Valley Fever Skin Test (called coccidioidin or spherulin), which indicate prior exposure to the fungus.

The highest incidence rate within California occurs in Kern County within the San Joaquin Valley Air Basin, with 3,045 annual cases reported for the year 2021 (Kern, 2022). Valley Fever is not contagious, and therefore cannot be passed on from person to person. Most of those who are infected recover without treatment within six months and thereafter have a lifelong immunity to the fungal spores. In severe cases, especially in those patients with rapid and extensive primary illness, those who are at risk for dissemination of disease, and those who have disseminated disease, antifungal drug therapy is used.

The type of medication used and the duration of drug therapy are determined by the severity of disease and response to the therapy. The medications used include ketoconazole, itraconazole, and fluconazole in chronic, mild-to-moderate disease, and amphotericin B, given intravenously or inserted into the spinal fluid, for rapidly progressive disease. Although these treatments are often helpful, evidence of disease may persist and years of treatment may be required (VFCE, 2022a). Approximately 60 percent of people infected are asymptomatic and do not seek medical attention. In the remaining 40 percent, symptoms range from mild to severe. A small percentage, approximately one percent, die as a result of the disease (CDPH, 2022).

The usual course of Valley Fever in healthy people is complete recovery within six months. In most cases, the body’s immune response is effective, and no specific course of treatment is necessary. About five percent of cases result in pneumonia (infection of the lungs), while another 5 to 10 percent of patients develop lung cavities. These cavities occur most often in adults, usually without symptoms, and about 50 percent of them disappear within two years. Occasionally, these cavities rupture, causing chest pain and difficulty breathing which requires surgical repair. Only one to two percent of those exposed who seek medical attention would develop a disease that disseminates (spreads) to other parts of the body other than the lungs (CDPH, 2022).

Asbestos

Asbestos is a term used for several types of naturally-occurring fibrous minerals found in many parts of California. The three most common types of asbestos are chrysotile, amosite, and crocidolite. Chrysotile, also known as white asbestos, is the most common type of asbestos found in buildings. Chrysotile makes up approximately 90 to 95 percent of all asbestos contained in buildings in the United States. In addition, naturally occurring asbestos can be released from serpentinite and ultramafic rocks when the rock is broken or crushed. At the point of release, the asbestos fibers may become airborne, causing air quality and human health hazards. These rocks have been commonly used for unpaved gravel roads, landscaping, fill projects, and other improvement projects in some localities. Asbestos may be released to the atmosphere due to vehicular traffic on unpaved roads, during grading for development projects, and at quarry operations. Serpentinite and/or ultramafic rock are known to be present in 44 of California's 58 counties. These rocks are particularly abundant in the counties associated with the Sierra Nevada foothills, the Klamath Mountains, and Coast Ranges. According to information provided by the Department of Conservation Division of Mines and Geology, the project site is not located in an area where naturally occurring asbestos is likely to be present (CDOC, 2000).

Local Air Quality

CARB has established and maintains a network of sampling stations (called the State and Local Air Monitoring Stations [SLAMS] network) that work in conjunction with local air pollution control districts and air quality management districts to monitor ambient pollutant levels. The SLAMS network in Kern County consists of eight stations that monitor various pollutant concentrations. The locations of these stations were chosen to meet monitoring objectives, which, for the SLAMS network, call for stations that monitor the highest pollutant concentrations, representative concentrations in areas of high population density, the impact of major pollution emissions sources, and general background concentration levels.

The EKAPCD is responsible for monitoring air quality in the Kern County portion of the MDAB to determine whether pollutant concentrations meet state and national air quality standards. The nearest air monitoring station to the project site is the Mojave air monitoring station, located approximately 7.5 miles north of the project site. The Mojave monitoring station monitors ambient concentrations of ozone, PM_{10}, and $PM_{2.5}$. CO and NO_2 data were obtained from the Lancaster monitoring station and SO_2 data was obtained from the Victorville-Park Avenue monitoring station as these are the closest stations that monitors for these pollutants. Data obtained for 2019 through 2022 is summarized below in **Table 4.3-2**, *Ambient Air Quality Data*.

Table 4.3-2: Ambient Air Quality Data

Pollutant/Standard	2019	2020	2021	2022
O_3 (1-hour) Mojave				
Maximum Concentration (ppm)	0.085	0.108	0.094	0.091
Days > CAAQS (0.09 ppm)	0	5	0	0
O_3 (8-hour) Mojave				
Maximum Concentration (ppm)	0.077	0.100	0.084	0.075
Days > CAAQS (0.070 ppm)	10	16	19	9
Days > NAAQS (0.075 ppm)	2	9	10	0
NO_2 (1-hour) Lancaster				
Maximum Concentration (ppm)	0.050	0.052	0.046	0.044
NO_2 (Annual) Lancaster				
Annual Arithmetic Mean (0.030 ppm)	0.025	0.026	0.027	N/A
CO (1-hour) Lancaster				
Maximum Concentration (ppm)	1.388	1.617	1.416	N/A
CO (8-hour) Lancaster				
Maximum Concentration (ppm)	0.628	0.707	0.746	N/A

Pollutant/Standard	2019	2020	2021	2022
SO_2 (1-hour) Victorville-Park				
Maximum Concentration (ppm)	0.016	0.006	0.136	N/A
SO_2 (24-hour) Victorville-Park				
Maximum Concentration (ppm)	0.009	0.003	0.016	N/A
PM_{10} (24-hour) Mojave				
Maximum Concentration (μg/m^3)	248.7	114.8	352.0	121.5
Samples > CAAQS (50 μg/m^3)	15	13	33	7
Samples > NAAQS (150 μg/m^3)	2	0	1	0
$PM_{2.5}$ (24-hour) Mojave				
Maximum Concentration (μg/m^3)	19.8	72.8	50.7	10.9
Samples > NAAQS (35 μg/m^3)	0	6	3	0

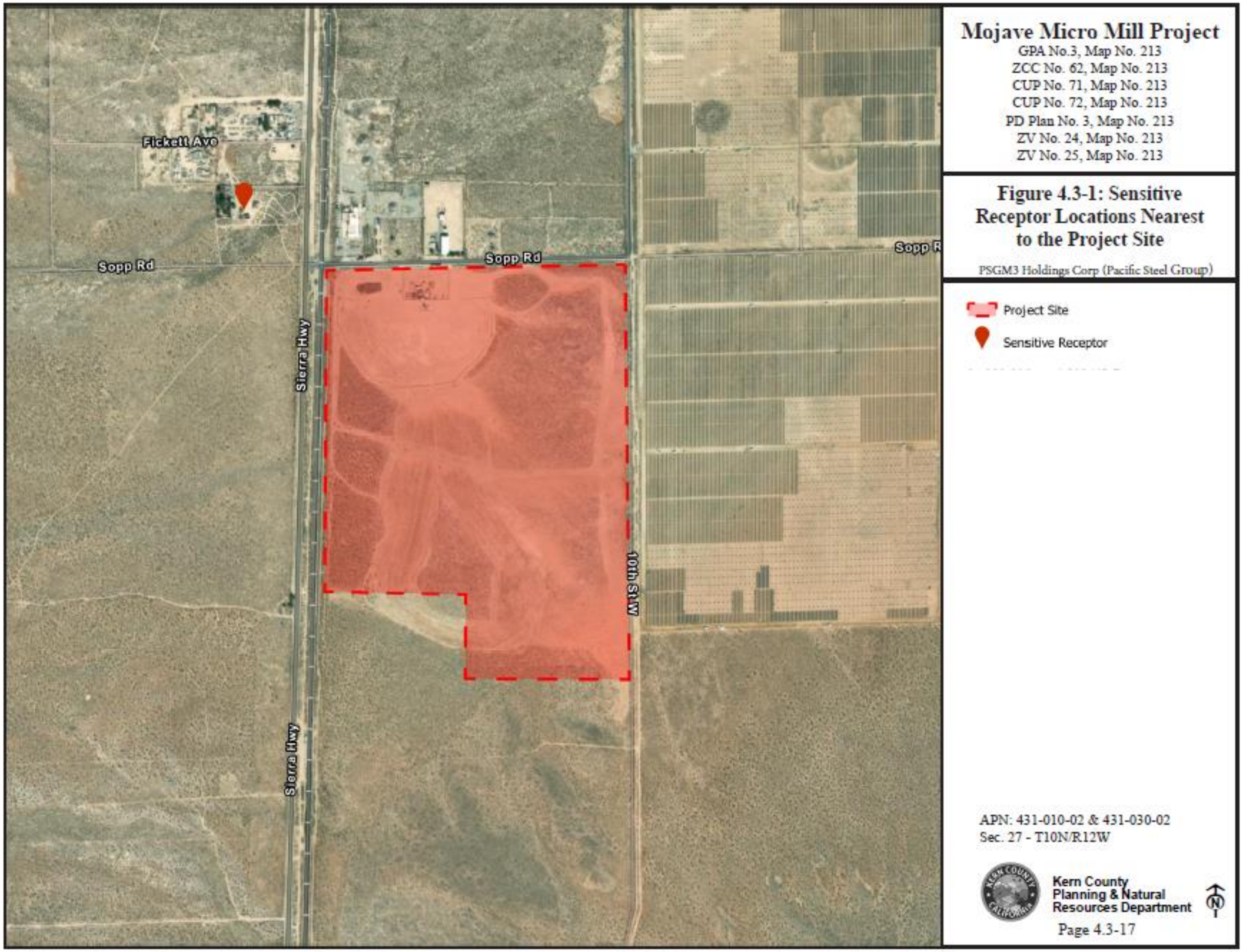
ppm = parts per million; μg/m^3 = micrograms per cubic meter
SOURCE:CARB, Air Quality and Meteorological Information System (AQMIS), 2022. https://arb.ca.gov/aqmis2/aqdselect.php. Accessed October 12, 2023.
CARB, Top 4 Summary. https://www.arb.ca.gov/adam/topfour/topfour1.php. Accessed October 12, 2023.

4.3.3 Sensitive Receptors

Certain population groups, such as children, elderly, and acutely and chronically ill persons (especially those with cardio-respiratory diseases), are considered more sensitive to the potential effects of air pollution than others. Sensitive land uses within ¼ mile of the project site are shown in **Figure 4.3-1**: *Sensitive Receptor Locations Nearest to the Project Site*, and include the following:

- Residential Uses: Single-family residences located approximately 1,000 feet to the northwest of the project site along Dobbs Road.

All other air quality sensitive receptors are located at greater distances from the project site, and would be less impacted by project emissions. Impacts are quantified for the sensitive receptors listed here.


Fickett Ave
Sopp Rd
Sopp Rd
Sopp R
Sierra Hwy
Sierra Hwy
10th St W
Mojave Micro Mill Project
GPA No.3, Map No. 213
ZCC No. 62, Map No. 213
CUP No. 71, Map No. 213
CUP No. 72, Map No. 213
PD Plan No. 3, Map No. 213
ZV No. 24, Map No. 213
ZV No. 25, Map No. 213
Figure 4.3-1: Sensitive Receptor Locations Nearest to the Project Site
PSGM3 Holdings Corp (Pacific Steel Group)
Project Site
Sensitive Receptor
APN: 431-010-02 & 431-030-02
Sec. 27 - T10N/R12W
Kern County Planning & Natural Resources Department
N
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4.3.4 Regulatory Setting

A number of statutes, regulations, plans and policies have been adopted which address air quality concerns. The project site and vicinity is subject to air quality regulations developed and implemented at the federal, State, and local levels. At the federal level, the USEPA is responsible for implementation of the federal CAA. Some portions of the CAA (e.g., certain mobile source requirements and other requirements) are implemented directly by the USEPA. Other portions of the CAA (e.g., stationary source requirements) are implemented through delegation of authority to state and local agencies. A number of plans and policies have been adopted by various agencies that address air quality concerns. Those plans and policies that are relevant to the project are discussed below.

Federal

The federal Clean Air Act (CAA) was enacted in 1955 and has been amended numerous times in subsequent years, with the most recent amendments occurring in 1990 (42 U.S.C. §7401 et seq.). The CAA is the comprehensive federal law that regulates air emissions in order to protect public health and welfare (USEPA, 2022h). The USEPA is responsible for the implementation and enforcement of the CAA, which establishes federal NAAQS, specifies future dates for achieving compliance, and requires USEPA to designate areas as attainment, nonattainment, or maintenance. The CAA also mandates that each state submit and implement a State Implementation Plan (SIP) for each criteria pollutant for which the state has not achieved the applicable NAAQS. The SIP includes pollution control measures that demonstrate how the standards for those pollutants will be met. The sections of the CAA most applicable to the project include Title I (Nonattainment Provisions) and Title II (Mobile Source Provisions) (USEPA, 2022b).

The federal Clean Air Act (CAA) establishes a classification system for the level of protection from the impacts of air pollution in an area. Areas designated as Class I receive the greatest level of protection from the impacts of air pollution. There are three Class I areas within 62 miles (100 kilometers (km)) of the proposed project site. These include the Domeland Wilderness Area which is located approximately 85 km to the north, the San Gabriel Wilderness Area located approximately 67 km to the south, and the Cucamonga Wilderness Area located approximately 88 km to the south-southeast.

Title I requirements are implemented for the purpose of attaining NAAQS for criteria air pollutants. The NAAQS were amended in July 1997 to include an 8-hour standard for ozone and to adopt a NAAQS for $PM_{2.5}$. The NAAQS were also amended in September 2006 to include an established methodology for calculating $PM_{2.5}$, as well to revoke the annual PM_{10} threshold.

Table 4.3-3, *Ambient Air Quality Standards*, shows the NAAQS currently in effect for each criteria pollutant. The NAAQS and the CAAQS for the California criteria air pollutants (discussed below) have been set at levels considered safe to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly with a margin of safety; and to protect public welfare, including against decreased visibility and damage to animals, crops, vegetation, and buildings (USEPA, 2023a). In addition to criteria pollutants, Title I also includes air toxics provisions which require USEPA to develop and enforce regulations to protect the public from exposure to airborne contaminants that are known to be hazardous to human health. In accordance with Section 112, USEPA establishes National Emission Standards for Hazardous Air Pollutants. The list of hazardous air pollutants (HAPs), or air toxics, includes specific compounds that are known or suspected to cause cancer or other serious health effects. It also includes the requirements for the Prevention of Significant Deterioration (PSD) of Air Quality, which sets limits on sulfur oxide and particulate matter and other pollutants as outlined in Sections 163 and 166.

Additionally, Title I also includes measures for the Prevention of Significant Deterioration (PSD) of Air Quality (40 CFR 52.21) which requires new and modified stationary sources to demonstrate that their allowable emissions will not cause or contribute to a violation of "any national ambient air quality standard in any air quality control region. Under the PSD, major sources located in a NAAQS attainment or unclassifiable area require the following: installation of Best Available Control Technology (BACT); an air quality analysis (specifically for the PSD permit which demonstrates that new emissions would not cause or contribute to a violation of any applicable NAAQS or PSD increment); an additional impact analysis; and public involvement. The PSD permit dos not prevent sources from increasing emissions, but is designed to (USEPA, 2023c):

- Protect public health and welfare.
- Preserve, protect and enhance the air quality in national parks, national wilderness areas, national monuments, national seashores, and other areas of special national or regional natural, recreational, scenic, or historic value.
- Ensure that economic growth will occur in a manner consistent with the preservation of existing clean air resources.
- Assure that emissions from any source in any state will not interfere with any portion of the applicable implementation plan to prevent significant deterioration of air quality for any other State.
- Assure that any decision to permit increased air pollution in any area to which this section applies is made only after careful evaluation of all the consequences of such a decision and after adequate procedural opportunities for informed public participation in the decision making process.

Title II requirements pertain to mobile sources, such as cars, trucks, buses, and planes. Reformulated gasoline, automobile pollution control devices, and vapor recovery nozzles on gas pumps are a few of the mechanisms the USEPA uses to regulate mobile air emission sources. The provisions of Title II have resulted in tailpipe emission standards for vehicles, which have been strengthened in recent years to improve air quality. For example, the standards for NO_X emissions have been lowered substantially, and the specification requirements for cleaner burning gasoline are more stringent.

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Table 4.3-3: Ambient Air Quality Standards

Pollutant	Average Time	California Standards[a]		National Standards[b]		
		Concentration[c]	Method[d]	Primary[c,e]	Secondary[c,f]	Method[g]
O_3[h]	1 Hour	0.09 ppm (180 μg/m3)	Ultraviolent Photometry	-	Same as Primary Standard	Ultraviolent Photometry
	8 Hour	0.070 ppm (137 μg/m³)		0.070 ppm (137 μg/m3)		
NO_2[i]	1 Hour	0.18 ppm (339 μg/m³)	Gas Phase Chemiluminescence	100 ppb (188 μg/m³)	None	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 μg/m³)		53 ppb (100 μg/m³)	Same as Primary Standard	
CO	1 Hour	20 ppm (23 mg/m3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m3)	None	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10mg/m3)		9 ppm (10 mg/m3)		
SO_2[j]	1 Hour	0.25 ppm (655 μg/m³)	Ultraviolet Fluorescence	75 ppb (196 μg/m³)	-	Ultraviolet Fluorescene; Spectrophotometry (Pararosani-ine Method)[g]
	3 Hour	-		-	0.5 ppm (1300 μg/m³)	
	24 Hour	0.04 ppm (105 μg/m³)		0.14 ppm (for certain areas)[j]	-	
PM_{10}[k]	24 Hour	50 μg/m³	Gravimetric or Beta Attenuation	150 μg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic	20 μg/m³		-		
$PM_{2.5}$[k]	24 Hour	No Separate State Standard		35 μg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 μg/m³	Gravimetric or Beta Attenuation	12.0 μg/m³[k]	15 μg/m³	
Lead [l,m]	30 Day Average	1.5 μg/m³	Atomic Absorption	-	-	High Volume Sampler and Atomic Absorption
	Rolling 3-Month Average [m]	--		0.15 μg/m³		
Visibility Reducing Particles [n]	8 Hour	Extinction coefficient of 0.23 per kilometer — visibility of 10 miles or more due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		No Federal Standards		
Sulfates (SO_4)	24 Hour	25 μg/m³	Ion Chromatography			

Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m³)	Ultravi olet Fluores ce-nce	
Vinyl Chloride [l]	24 Hour	0.01 ppm (26 µg/m³)	Gas Chrom ato-graphy	

[a] California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM_{10}, $PM_{2.5}$, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[b] National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 micrograms/per cubic meter (µg/m³) is equal to or less than one. For $PM_{2.5}$, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.

[c] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[d] Any equivalent procedure which can be shown to the satisfaction of the California Air Resources Board to give equivalent results at or near the level of the air quality standard may be used.

[e] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

[f] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[g] Reference method as described by the USEPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the USEPA.

[h] On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

[i] To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

[j] On June 2, 2010, a new 1-hour SO_2 standard was established, and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated non-attainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

[k] On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 µg/m³ to 12.0 µg/m³.

[l] The California Air Resources Board has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[m] The national standard for lead was revised on October 15, 2008 to a rolling three-month average. The 1978 lead standard (1.5 µg/m³ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

[n] In 1989, the California Air Resources Board converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Source: California Air Resources Board, Ambient Air Quality Standards (5/4/16). Available https://ww2.arb.ca.gov/resources/documents/ambientair-quality-standards-0. Accessed November 2022.

Table 4.3-4, *EKAPCD Attainment Status*, shows the attainment status of the Air Basin for each criteria pollutant. Further, **Table 4.3-4**, the Air Basin is designated under federal or state ambient air quality standards as nonattainment for ozone and PM_{10}. As detailed in the EKAPCD 2020- 2021 Information Report (EKAPCD, 2021), the major sources of air pollution in the Air Basin are mining, military, aerospace, farming, cannabis, renewable energy, and most recently the wildfires.

Title V of the CAA, as amended in 1990, creates an operating permit program for certain defined major sources. In general, owner/operators of defined industrial or commercial sources that emit more than 100 tons per year (tpy) of any pollutant must process a Title V permit. However, in non-attainment areas, lower thresholds apply as defined in the CAA. Additionally, major source thresholds for HAPs are 10 tpy for a single HAP or 25 tpy for any combination of HAPs. As EKAPCD is in severe non-attainment for ozone, the threshold changes from 100 tpy to 25 tpy.

Title V does not impose any new air pollution standards, require installation of any new controls on the affected facilities, or require reductions in emissions. Title V does enhance public and EPA participation in the permitting process and requires additional record keeping and reporting by businesses, which results in significant administrative requirements.

Table 4.3-4: EKAPCD Attainment Status

Pollutant	National Standards (NAAQS)	California Standards (CAAQS)
O_3 (1-hour standard)	Attainment/Maintenance [a b]	Non-attainment
O_3 (8-hour standard)	Non-attainment – Severe	Non-attainment
CO	Unclassified/Attainment	Unclassified
NO_2	Unclassified/Attainment	Attainment
SO_2	Unclassified/Attainment	Attainment
PM_{10}	Unclassified/Attainment [d]	Non-attainment
$PM_{2.5}$	Unclassified/Attainment	Unclassified
Lead (Pb)	Unclassified/Attainment	Attainment
Visibility Reducing Particles	N/A	Unclassified
Sulfates	N/A	Attainment
Hydrogen Sulfide	N/A	Unclassified
Vinyl Chloride [c]	N/A	N/A

N/A = not applicable

[a] The NAAQS for 1-hour ozone was revoked on June 15, 2005, for all areas except Early Action Compact areas.

[b] EKAPCD was in attainment for the 1-hour ozone NAAQS at time of revocation, the proposed Attainment Maintenance designation’s effective date was June 21, 2005, therefore it did not become effective.

[c] In 1990, the California Air Resources Board identified vinyl chloride as a toxic air contaminant and determined that it does not have an identifiable threshold. Therefore, the California Air Resources Board does not monitor or make status designations for this pollutant.

[d] The proposed project area is located in the portion of EKAPCD that is designated Unclassified/Attainment, the Kern River/Cummings Valleys area is classified as Nonattainment – Serious, and the Indian Wells Valley is classified at Attainment Maintenance.

SOURCE: USEPA, The Green Book Non-Attainment Areas for Criteria Pollutants, https://www.epa.gov/green-book; CARB, Area Designations Maps/State and National, http://www.arb.ca.gov/desig/adm/adm.htm, and Eastern Kern APCD Attainment Status, http://www.kernair.org/Documents/Announcements/Attainment/EKAPCD%20Attainment%20Status%202022.pdf. Accessed November 2022.

New Source Review

New Source Review (NSR) is a Clean Air Act program that requires industrial facilities to install modern pollution control equipment when they are built or when making a change that increases emissions significantly (USEPA, 2015). The program accomplishes this when owners or operators obtain permits limiting air emissions before they begin construction.

There are three types of NSR permitting requirements: Prevention of Significant Deterioration (PSD), Nonattainment NSR, and Minor source permits. Most NSR permits are issued by state or local air pollution control agencies with the USEPA issues permits in some cases (USEPA, 2023b).

Prevention of Significant Deterioration (PSD)

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 unclassified with the NAAQS (USEPA, 2023c).

A PSD permit requires the following:

- Installation of the Best Available Control Technology;
- An air quality analysis
- An additional impact analysis; and
- Public involvement.

PSD does not prevent sources from increasing emissions (USEPA, 2023c). Instead, PSD is designed to: Protect public health and welfare; preserve, protect, and enhance the air quality in national parks, national wilderness areas, national monuments, national seashores, and other areas of special national or regional natural, recreational, scenic, or historic value; insure that economic growth will occur in a manner consistent with the preservation of existing clean air resources; and assure that any decision to permit increased air pollution in any area to which this section applies is made only after careful evaluation of all the consequences of such a decision and after adequate procedural opportunities for informed public participation in the decision making process (USEPA, 2023c).

State

California Air Resources Board

The California Clean Air Act (CCAA), signed into law in 1988, requires all areas of California to achieve and maintain the CAAQS. CARB, a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both federal and state air pollution control programs within California. In this capacity, CARB conducts research, sets the CAAQS, compiles emission inventories, develops suggested control measures, and provides oversight of local programs. CARB establishes emissions standards for motor vehicles sold in California, consumer products (such as hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions. CARB has primary responsibility for the development of California's SIP, for which it works closely with the federal government and the local air districts. The SIP is required for the state to take over implementation of the federal CAA from USEPA.

California Clean Air Act

The California Clean Air Act, signed into law in 1988, requires all areas of the state to achieve and maintain the CAAQS by the earliest practical date. The CAAQS are established to protect the health of the most sensitive groups and apply to the same criteria pollutants as the federal Clean Air Act and also includes State-identified criteria pollutants, which are sulfates, visibility reducing particles, hydrogen sulfide, and vinyl chloride. CARB has primary responsibility for ensuring the implementation of the California Clean Air Act (Chapter 1568 of the Statutes of 1988), responding to the federal Clean Air Act planning requirements applicable to the state, and regulating emissions from motor vehicles and consumer products within the state.

Health and Safety Code Section 39607(e) requires CARB to establish and periodically review area designation criteria. Table 3 provides a summary of the attainment status of the Eastern Kern County portion of the Air Basin with respect to the state standards. The Air Basin is designated as attainment for the California standards for sulfates and unclassified for hydrogen sulfide and visibility-reducing particles. The Air Basin is currently in non-attainment for ozone and PM_{10} under the CAAQS. Since vinyl chloride is a carcinogenic toxic air contaminant, CARB does not classify attainment status for this pollutant.

California Code of Regulations

The California Code of Regulations (CCR) is the official compilation and publication of regulations adopted, amended or repealed by the state agencies pursuant to the Administrative Procedure Act. The CCR includes regulations that pertain to air quality emissions. Specifically, Section 2485 in Title 13 of the CCR states that the idling of all diesel-fueled commercial vehicles (weighing over 10,000 pounds) during construction shall be limited to five minutes at any location. In addition, Section 93115 in Title 17 of the CCR states that operations of any stationary, diesel-fueled, compression-ignition engines shall meet specified fuel and fuel additive requirements and emissions standards.

California Air Resources Board On-Road and Off-Road Vehicle Rules

In 2004, CARB adopted an Airborne Toxic Control Measure (ATCM) to limit heavy-duty diesel motor vehicle idling in order to reduce public exposure to diesel PM and other TACs (Title 13 California Code of Regulations [CCR], Section 2485). The measure applies to diesel-fueled commercial vehicles with gross vehicle weight ratings greater than 10,000 pounds that are licensed to operate on highways, regardless of where they are registered. This measure does not allow diesel-fueled commercial vehicles to idle for more than five minutes at any given time.

In 2008 CARB approved the Truck and Bus regulation to reduce NO_X, PM_{10}, and $PM_{2.5}$ emissions from existing diesel vehicles operating in California (13 CCR, Section 2025). The requirements were amended to apply to nearly all diesel-fueled trucks and buses with a gross vehicle weight rating (GVWR) greater than 14,000 pounds. For the largest trucks in the fleet, those with a GVWR greater than 26,000 pounds, there are 2 methods to comply with the requirements. The first method is for the fleet owner to retrofit or replace engines, starting with the oldest engine model year, to meet 2010 engine standards, or better. This is phased over 8 years, starting in 2015 and would be fully implemented by 2023, meaning that all trucks operating in the state subject to this option would meet or exceed the 2010 engine emission standards for NO_{10} and $PM_{2.5}$ by 2023. The second method, if chosen, required fleet owners, starting in 2012, to retrofit a portion of their fleet with diesel particulate filters achieving at least 85 percent removal efficiency, with installation of diesel particulate filters (DPFs) for their entire fleet by January 1, 2016. However, DPFs do not typically lower NO_X emissions. Thus, fleet owners choosing the second option had until 2020 to comply with the 2010 engine emission standards for their trucks and buses.

In addition to limiting exhaust from idling trucks, CARB also promulgated emission standards for off-road diesel construction equipment of greater than 25 horsepower such as bulldozers, loaders, backhoes and forklifts, as well as many other self-propelled off-road diesel vehicles. The regulation adopted by the CARB on July 26, 2007, aims to reduce emissions by the installation of diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission-controlled models (13 CCR, Section 2449). Implementation is staggered based on fleet size (which is the total of all off-road horsepower under common ownership or control), with the largest fleets to begin compliance in 2014, medium fleets in 2017, and small fleets in 2019. Each fleet must demonstrate compliance through one of two methods. The first option is to calculate and maintain fleet average emissions targets, which encourages the retirement or repowering of older equipment and rewards the introduction of newer cleaner units into the fleet. The second option is to meet the Best Available Control Technology (BACT) requirements by turning over or installing Verified Diesel Emission Control Strategies (VDECS) on a certain percentage of its total fleet horsepower. The compliance schedule requires that BACT turn overs or retrofits (VDECS installation) be fully implemented by 2023 in all equipment for large and medium fleets and by 2028 for small fleets.

Toxic Air Contaminants

The California Air Toxics Program was established in 1983, when the California Legislature adopted Assembly Bill (AB) 1807 to establish a two-step process of risk identification and risk management to address potential health effects from exposure to toxic substances in the air. In the risk identification step, CARB and OEHHA determine if a substance should be formally identified, or "listed", as a TAC in California. inception of the program, a number of such substances have been listed (https://ww2.arb.ca.gov/resources/documents/carb-identified-toxicair-contaminants). In 1993, the California Legislature amended the program to identify the 189 federal HAPs as TACs.

In the risk management step, CARB reviews emission sources of an identified TAC to determine whether regulatory action is needed to reduce risk. Based on the results of that review, CARB has promulgated a number of ATCMs, both for mobile and stationary sources. As discussed above, in 2004, CARB adopted an ATCM to limit heavy-duty diesel motor vehicle idling in order to reduce public exposure to diesel particulate matter and other TACs. The measure applies to diesel-fueled commercial vehicles with gross vehicle weight ratings greater than 10,000 pounds that are licensed to operate on highways, regardless of where they are registered. This measure does not allow diesel-fueled commercial vehicles to idle for more than five minutes at any given time.

In addition to limiting exhaust from idling trucks, as discussed above, CARB promulgated emission standards for off-road diesel construction equipment such as bulldozers, loaders, backhoes, and forklifts, as well as many other self-propelled off-road diesel vehicles. The regulation, adopted by CARB on July 26, 2007, aims to reduce emissions by the installation of diesel particulate filters and encouraging the replacement of older, dirtier engines with newer emission controlled models. Reduction over time with occur as implementation is staggered based on fleet size, with the largest operators beginning compliance in 2014 with full implementation by 2023 for large and medium fleets and 2028 for small fleets.

The AB 1807 program is supplemented by the AB 2588 Air Toxics "Hot Spots" program, which was established by the California Legislature in 1987. Under this program, facilities are required to report their air toxics emissions, assess health risks, and notify nearby residents and workers of significant risks if present. In 1992, the AB 2588 program was amended by Senate Bill (SB) 1731 to require facilities that pose a significant health risk to the community to reduce their risk through implementation of a risk management plan.

California State Implementation Plan

The CAA (and its subsequent amendments) requires each state to prepare an air quality control plan referred to as the SIP. The SIP is a living document that is periodically modified to reflect the latest emissions inventories, plans, and rules and regulations of air basins as reported by the agencies with jurisdiction over them. The CAA Amendments dictate that states containing areas violating the NAAQS revise their SIPs to include extra control measures to reduce air pollution. The SIP includes strategies and control measures to attain the NAAQS by deadlines established by the CAA. The EPA has the responsibility to review all State Implementation Plans to determine if they conform to the requirements of the CAA. State law makes CARB the lead agency for all purposes related to the SIP. Local air districts and other agencies prepare SIP elements and submit them to CARB for review and approval. CARB then forwards SIP revisions to the EPA for approval and publication in the Federal Register. As discussed below, the *EKAPCD 2017 Ozone Attainment Plan* informs the EKAPCD's portion of the SIP.

Regional

Eastern Kern Air Pollution Control District

The project site is located within the Mojave Desert Air Basin which encompasses the desert portions of Kern, Los Angeles, Riverside, and San Bernardino Counties. The Basin has four air districts which regulate air quality. The project site lies within the EKAPCD. EKAPCD is responsible for air quality planning in its portion of the Air Basin and developing rules and regulations to bring the area into attainment of the ambient air quality standards. This is accomplished though air quality monitoring, evaluation, education, implementation of control measures to reduce emissions from stationary sources, permitting and inspection of pollution sources, enforcement of air quality regulations, and by supporting and implementing measures to reduce emissions from motor vehicles. The EKAPCD has established the following rules and regulations which apply to the project to ensure compliance with local, State, and federal air quality regulations:

Rule *201*

Rule 201 establishes permitting requirements for stationary sources to operate. The proposed project must obtain Authority to Construct and Permit to Operate approval under Rule 201.

Rule 201.1

Rule 201.1 implements the requirements of Title V of the CAA for permits to operate for certain sources emitting regulated air pollutants, including attainment and non-attainment pollutants. This rule covers Title I requirements of the CAA, including: New Source Review, PSD, New Source Performance Standards; NAAQS; NESHAPs; Maximum Achievable Control Technologies; Risk Management Plan Preparation and Registration Requirements; Solid Waste Incineration requirements, Consumer and Commercial requirements; Tank Vessel requirements; District prohibitory rules approved by the SIP; Standards or regulation promulgated to a Federal Implementation Plan, and Enhanced Monitoring and Compliance Certification requirements.

Rule 208.2

This Rule establishes criteria by which a project under review by EKAPCD can be found to have no potential for causing a significant environmental impact, and, thus, be granted a general rule exemption pursuant to Section 15061(b)(3) of the State CEQA Guidelines.

For purposes of determining whether a proposed projects has no potential to cause a significant effect on the environment, a new or modified emissions unit (as defined in Rule 210.1, Subsection II.L.) at a facility shall be found to have no potential for causing a significant effect on the environment if the new or modified emissions unit meets all of the following requirements:

A. All answers to the KCAPCD "Environmental Information Form and Initial Study Evaluation" are "No";

B. The proposed new or modified emissions unit will comply with all applicable requirements and limits established in Regulation IV of the Kern County Air Pollution Control District Rules and Regulations, and all provisions of state and federal law and regulations which the Kern County Air Pollution Control District has authority to enforce;

C. Expected emissions from the proposed new or modified emissions unit are calculated using:

1. Standardized emission factors from published CARB or U.S. EPA sources;
2. Source tests for the same or similar facilities conducted in accordance with CARB or U.S. EPA test methods;
3. Recognized formulas from published engineering and scientific handbooks, material safety data sheets, or other similar published literature;
4. Manufacturer's guarantees; and/or
5. Other fixed standards;

D. Best Available Control Technology (BACT) as required by Rule 210.1, Subsection III.A., is proposed and BACT is established based on:

1. The latest edition of the CARB/U.S. EPA BACT/LAER Clearinghouse;
2. The EKAPCD’s own compilations of BACT for specific types of sources; or
3. A more stringent BACT proposed by the project proponent;

E. Any emission reduction offsets required by Rule 210.1, Subsection III.B., are provided solely from emissions units within the facility at which the new or modified emissions unit is proposed to be constructed and the emission reductions from those units can be determined from source tests, production data, or other existing District records;

F. Any increase in the quantity or type of toxic air contaminants emitted from the facility is shown by a risk assessment prepared in accordance with current Cal-EPA guidelines to have increased cancer risk at any receptor outside the facility perimeter less than one in one million (1 x 10-6) and total hazard index at any receptor outside the facility perimeter less than 0.2; and G. The proposed project will not have a significant impact due to cumulative effects of successive projects of the same type at the same location.

Rule 210.1

Rule 210.1 is EKAPCD's New and Modified Stationary Source Review rule and establishes stationary source offset levels for new and modified stationary sources of air pollutants. Under this rule, the EKAPCD has established required offsets for when the emissions from a source exceed the following trigger levels:

- PM_{10} – 15 tons/year
- SO_X (as SO_2) – 27 tons/year
- VOCs – 25 tons/year
- NO_X (as NO_2) – 25 tons/year.

Additionally, this rule requires BACT for all affected pollutants expected to be emitted from a new emissions unit. Offsets are required for PM_{10}, SO_X, NO_X, and VOC in federal or state designated PM_{10}, SO_X, NO_X, or ozone non-attainment areas. After a stationary sources New Source Review (NSR) balance and/or stationary source potential to emit equals or exceeds these trigger levels and offsets have been provided fully offsetting the NSR balance or the stationary source potential to emit, any additional future increase shall be offset.

Rule 210.4

The purpose of this Rule is to include the federal Prevention of Significant Deterioration rule requirements into the EKAPCD Rules and Regulations by incorporating the federal requirements by reference. The PSD program is a construction permitting program for new major source facilities and major modifications to existing major source facilities located in areas classified as attainment or in areas that are unclassifiable for any criteria air pollutant.

Rule 210.5

This rule prevents adverse impacts to Federal Class I areas. For any new major stationary source or major modification which would have the potential to emit NO_X, SO_X, or particulate matter in significant amounts and is required to utilize BACT for such pollutants, EKAPCD shall not issue an Authority to Construct unless the analysis required by this Rule demonstrates that an adverse impact on visibility will not occur.

Rule 401

Rule 401 states that a person shall not discharge into the atmosphere, from any single source of emissions whatsoever, any air contaminant from any single emissions source for a period of periods aggregating more than 3 minutes in any one hour which is:

- As dark or darker in shade as that designated as No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines, or
- Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in Subsection A [of the Rules].

Rule 402

Rule 402 of the EKAPCD's rules and regulations addresses significant man-made dust sources from active operations. An active operation is defined as "Activity capable of generating fugitive dust, including any open storage pile, earth-moving activity, construction/demolition activity, disturbed surface area, and nonemergency movement of motor vehicles on unpaved roadways and any parking lot served by an unpaved road subject to this Rule." Rule 402 applies to specified bulk storage, earthmoving, construction and demolition, and man-made conditions resulting in wind erosion, and includes the following requirements:

- A person shall not cause or allow emissions of fugitive dust from any active operation to remain visible in the atmosphere beyond the property line of the emission source.
- A person shall utilize one or more Reasonably Available Control Measures (RACM) or Bulk Material Control Measures (BMCM) to minimize fugitive dust emissions from each source type that is part of any active operation, including unpaved roadways.
- No person shall conduct a large operation without filing for and obtaining an approved fugitive dust emission control plan. Large operation is defined as "Any construction activity on any site involving 10 or more contiguous acres of disturbed surface area, or any earthmoving activity exceeding a daily volume of 10,000 cubic yards or relocating more than 2,500 cubic yards per day of bulk materials at least three days per year."
- EKAPCD may require onsite PM_{10} monitoring for any large operation that causes downwind PM_{10} ambient concentrations to increase more than 50 micrograms per cubic meter above upwind concentrations as determined by utilizing high-volume particulate matter samplers, or other EPA approved equivalent method(s).

Rule 404.1

Rule 404.1 pertains to Particulate Matter Concentrations – Desert Basin and states:

- A person shall not discharge into the atmosphere from any single source operation, in service on the date this Rule is adopted, particulate matter in excess of 0.2 grains per cubic foot of gas at standard conditions.
- A person shall not discharge into the atmosphere from any single source operation, the construction or modification of which commenced after the adoption of this Rule, particulate matter in excess of 0.1 grains per cubic foot of gas at standard conditions.

Rule 410.1

This rule limits VOC emissions from architectural coatings by specifying VOC content limits, storage, cleanup, and labeling requirements.

Rule 410.4

The purpose of this rule is to limit VOC emissions from the coating of metal parts and products, large appliances parts and products, metal furniture, plastic parts and products, automotive/transportation and business machine plastic parts and products, and pleasure crafts, and from cleaning, storage, and disposal of organic solvents and waste solvent materials associated with such coating operations.

Rule 414

Rule 414 states that a person shall not use any compartment of any vessel or device operated for the recovery of oil or tar from effluent water, from any equipment which processes, refines, stores or handles petroleum or coal tar products unless such compartments is equipped with one of the following:

- A solid cover with all openings sealed and totally enclosing the liquid contents of the compartment, except for such breathing vents as are structurally necessary; or
- A floating pontoon or double-deck type cover, equipped with closure seals that have no holes or tears, installed and maintained so that gaps between the compartment wall and seal shall not exceed 0.32 centimeters (1/8 inch) for an accumulative length of 97 percent of the perimeter of the tank, and shall not exceed 1.3 centimeters (1/2 inch) for an accumulative length of the remaining 3 percent of the perimeter of the tank. No gap between the compartment wall and the seal shall exceed 1.3 centimeters (1/2 inch); or a vapor recovery system with a combined collection and control efficiency of at least 90 percent by weight.

Rule 419

Rule 419 states that a person shall not discharge from any source whatsoever such quantities of contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or that endanger the comfort, repose, health, or safety of such persons or the public or that cause or have a natural tendency to cause injury or damage to business or property.

Rule 423

Rule 423 adopts the EPA's National Emissions Standards for Hazardous Air Pollutants by reference, which grants EKAPCD the ability to ensure that all sources of hazardous air pollution would comply with applicable standards, criteria, and requirements set forth in Title 40, Chapter 1, Parts 61 and 63, of the Code of Federal Regulations that are in effect as of October 10, 2017.

2023 Ozone Air Quality Attainment Plan

In 2008, USEPA adopted a more stringent 8-hour ozone NAAQS of 0.075 ppm, and in 2015, adopted the 8-hour ozone NAAQS of 0.070 ppm. Although EKAPCD attained the 1997 8-hour ozone NAAQS, and the Indian Wells Valley planning area met the new (2008) ozone NAAQS, the EKAPCD's Design Value was higher than 0.075 ppm. In 2012, a portion of the EKAPCD was classified "marginal" nonattainment pursuant to the 2008, 8-hour Ozone NAAQS Air Quality Designations. However, EKAPCD failed to meet the 0.075 ppm standard by the applicable attainment date and was reclassified as "moderate" nonattainment, effective June 3, 2016. As a result, EKAPCD was required to submit a SIP revision for the nonattainment area by January 1, 2017, which showed compliance with statutory and regulatory conditions applicable to the "moderate" designation (EKAPCD, 2023).

EKAPCD, in partnership with CARB, conducted photochemical modeling along with supplemental analyses to determine whether the EKAPCD could attain the 2008 ozone NAAQS by the "moderate" nonattainment deadline. Modeling indicated EKAPCD would not meet the 0.075 ppm standard by the moderate deadline but could attain it by 2020, which is the attainment date for "serious" nonattainment areas. Pursuant to Section 181(b)(3) of the CAA "Voluntary Reclassification," EKAPCD requested CARB formally submit a request to USEPA asking for voluntary reclassification of EKAPCD from "moderate" to "serious" nonattainment for the 2008, 8-hour ozone NAAQS, and revise the attainment date to December 31, 2020 (EKAPCD, 2023).

In response, on May 15, 2021, the EKAPCD requested CARB submit documentation to the USEPA to reclassify the EKAPCD's nonattainment area from Serious to Severe pursuant to the 2008 ozone NAAQS. On June 25, 2021, the USEPA approved/conditionally approved, all elements of the 2017 Eastern Kern Ozone SIP, with the exception of deferred action on the Severe nonattainment redesignation request and reasonably available control measures (RACM) demonstrations. On July 7, 2021, the USEPA reclassified the EKAPCD's nonattainment area to Severe nonattainment pursuant to the 2008 ozone NAAQS, with an attainment date of July 2027 (EKAPCD, 2023).

The 2023 Ozone Air Quality Attainment Plan (2023 AQAP) was adopted by EKAPCD on May 4, 2023. The 2023 AQMP includes required elements of an attainment plan, as well as the emissions reductions and control measures necessary to demonstrate attainment with the 2008 and 2016 8-hour ozone NAAQS. Modeling completed by EKAPCD indicates that EKAPCD would not attain the 2015, 8-hour ozone NAAQS (0.070 ppm) by 2027, attainment deadline for the Serious nonattainment designation, but could attain it by 2033, the attainment deadline for the Severe nonattainment designation. Pursuant to CAA Section 181(b)(3) "Voluntary Reclassification", EKAPCD is petitioning CARB in the 2023 AQAQP to formally submit a request to the USEPA asking for the voluntary reclassification from "Serious" to "Severe" for the 2015 8-hour ozone NAAQS. The voluntary reclassification would extend the attainment deadline to August 27, 2033. As of June 1, 2023, neither CARB nor the USEPA have approved the 2023 AQAP (EKAPCD, 2023).

EKAPCD Air Quality Guidance Documents

The EKAPCD published the *Guidelines For Preparing An Air Quality Assessment For Use In Environmental Impact Reports* (EKAPCD, 2006) to assist with the preparation of the air quality assessments for use as a technical document in Environmental Impact Reports. These guidelines are intended to ensure that the assumptions and methodology used in the County's environmental documents are uniform from one project to the next to facilitate the comparison of air quality environmental effects. The *Guidelines For Preparing An Air Quality Assessment For Use In Environmental Impact Reports* provides standards, methodologies, and procedures for conducting air quality analyses in EIRs and was used extensively in the preparation of this analysis. EKAPCD recommends using the latest version of all models for the appropriate application.

Kern Council of Governments

Kern Council of Governments (KCOG) is the Metropolitan Planning Organization (MPO) for the region in which the project is located. In addition, on September 23, 2010, CARB adopted the GHG emissions reduction targets of 5 percent per capita reduction by 2020 and 10 percent per capita reduction by 2035 relative to 2005 levels for KCOG (CARB, 2020). Under SB 375, the reduction target must be incorporated within that region's Regional Transportation Plan (RTP), which is used for long-term transportation planning, in a Sustainable Communities Strategy (SCS). Certain transportation planning and programming activities would then need to be consistent with the SCS; however, Senate Bill 375 expressly provides that the SCS does not regulate the use of land, and further provides that local land use plans and policies (e.g., general plan) are not required to be consistent with either the RTP or SCS.

Pursuant to Health & Safety Code Section 40460, KCOG is responsible for preparing and approving the portions of the AQMP relating to regional demographic projections and integrated regional land use, housing, employment and transportation programs, measures and strategies. With regard to air quality planning, KCOG adopted the 2018 Regional Transportation Plan and Sustainable Communities Strategy (2018 RTP/SCS) (KCOG, 2018), which is an update to the previous 2014 RTP/SCS, on August 16, 2018. The 2018 RTP/SCS seeks to: improve economic vitality, improve air quality, improve the health of communities, improve transportation and public safety, promote the conservation of natural resources and undeveloped land, increase regional access to community services, increase regional and local energy independence and increase opportunities to help shape the communities' future, while successfully achieving the GHG-emission-reduction targets set by CARB. CARB approved that the KCOG 2018 RTP/SCS would achieve the 2020 and 2035 GHG reduction targets (CARB, 2020). Kern COG makes conformity findings for each air basin. Kern County recently prepared a draft 8-hour ozone air quality conformity analysis to analyze Kern County's federally approved Federal Transportation Improvement Program (FTIP) and the 2018 RTP/SCS. The conformity findings conclude that all air quality conformity requirements have been met (DOT, 2018).

KCOG adopted the 2022 RTP/SCS (KCOG, 2022a) on December 16, 2022. The 2022 RTP serves as a blueprint that establishes a set of regional transportation goals, policies, and actions intended to guide development of the planned multimodal transportation systems in Kern County. The 2022 SCS includes land use planning strategies and policies to reduce air emissions from passenger and light duty truck travel by better coordinating transportation expenditures with forecasted development patterns in order to meet the GHG emissions reduction target for the region by achieving a 9 percent reduction in per capita transportation GHG emissions by 2020 and a 15 percent reduction in per capita transportation emissions by 2035 compared to the 2005 level (KCOG, 2022a). Compliance with and implementation of the 2022 RTP/SCS policies and strategies would have co-benefits of reducing per capita criteria air pollutant emissions (e.g., nitrogen dioxide, carbon monoxide, etc.) associated with reduced per capita vehicle miles traveled (VMT).

The 2022 RTP/SCS states that Kern County region was home to approximately 927,500 people in 2020 and included approximately 272,900 homes and 341,000 jobs (KCOG, 2022a). By 2050, the integrated growth forecast projects that these figures will increase by 299,700 people, with approximately 89,200 more homes and 61,200 more jobs (KCOG, 2022a). KCOG’s 2022 RTP/SCS provides specific strategies for implementation. These strategies include supporting projects that encourage diverse job opportunities for a variety of skills and education, recreation and cultures and a full-range of shopping, entertainment and services all within a relatively short distance; encouraging employment development around current and planned transit stations and neighborhood commercial centers; encouraging the implementation of a “Complete Streets” policy that meets the needs of all users of the streets, roads and highways including bicyclists, children, persons with disabilities, motorists, electric vehicles, movers of commercial goods, pedestrians, users of public transportation, and seniors; and supporting alternative fueled vehicles (KCOG, 2022a).

In addition, the 2022 RTP/SCS includes strategies to promote active transportation; support local planning and projects that serve short trips; promote transportation investments, investments in active transportation, more walkable and bikeable communities that will result in improved air quality and public health and reduced GHG emissions; and support building physical infrastructure such as local and regional bikeways, sidewalk and safe routes to schools pedestrian improvements, regional greenways and first-last mile connections to transit, including to light rail and bus stations. The 2022 RTP/SCS aligns active transportation investments with land use and transportation strategies, increases competitiveness of local agencies for federal and state funding, and expands the potential for all people to use active transportation. CARB is in the process of reviewing the KCOG GHG quantification determination in the 2022 RTP/SCS for future GHG emission reduction targets. Although there are GHG emission reduction targets for passenger vehicles set by CARB for 2045, the 2022 RTP/SCS GHG emission reduction trajectory shows that more aggressive GHG emission reductions are needed for 2045. By meeting and exceeding the SB 375 targets for 2035, as well as achieving an additional 0.4 percent reduction in GHG from transportation-related sources in the ten years between 2035 and 2045, the 2022 RTP/SCS is expected to fulfill and exceed its portion of SB 375 compliance with respect to meeting the state’s future GHG emission reduction goals (KCOG, 2022a). The conformity findings conclude that all air quality conformity requirements have been met (KCOG, 2022b).

Local

Kern County General Plan

The Kern County General Plan was originally adopted on June 15, 2004 and was last amended on September 22, 2009. It contains the following policies that relate to air quality. The policies and implementation measures in the Kern County General Plan for air quality emissions that are applicable to the project are provided below. The Kern County General Plan contains additional policies, goals, and implementation measures that are more general in nature and are not specific to development such as the proposed project. Therefore, they are not listed below, but all policies, goals, and implementation measures in the Kern County General Plan are incorporated by reference.

Chapter 1. Land Use, Conservation, and Open Space Element

1.10.2 Air Quality

Policies

Policy 18: The air quality implications of new discretionary land use proposals shall be considered in approval of major developments. Special emphasis will be placed on minimizing air quality degradation in the desert to enable effective military operations and in the valley region to meet attainment goals.

Policy 19: In considering discretionary projects for which an Environmental Impact Report must be prepared pursuant to the California Environmental Quality Act, the appropriate decision-making body, as part of its deliberations, will ensure that:

(a) All feasible mitigation to reduce significant adverse air quality impacts have been adopted; and

(b) The benefits of the proposed project outweigh any unavoidable significant adverse effects on air quality found to exist after inclusion of all feasible mitigation. This finding shall be made in a statement of overriding considerations and shall be supported by factual evidence to the extent that such a statement is required pursuant to the California Environmental Quality Act.

Policy 20: The County shall include fugitive dust control measures as a requirement for discretionary projects and as required by the adopted rules and regulations of the San Joaquin Valley Unified Air Pollution Control District and the Kern County Air Pollution Control District on ministerial permits.

Implementation Measures

Measure F: All discretionary permits shall be referred to the appropriate air district for review and comment.

Measure G: Discretionary development projects involving the use of tractor-trailer rigs shall incorporate diesel exhaust reduction strategies including, but not limited to:

a. Minimizing idling time.

b. Electrical overnight plug-ins.

Measure H: Discretionary projects may use one or more of the following to reduce air quality effects:

a. Pave dirt roads within the development.

b. Pave outside storage areas.

c. Provide additional low Volatile Organic Compounds (VOC) producing trees on landscape plans.

d. Use of alternative fuel fleet vehicles or hybrid vehicles.

e. Use of emission control devices on diesel equipment.

f. Develop residential neighborhoods without fireplaces or with the use of EPA certified low emission natural gas fireplaces.

g. Provide bicycle lockers and shower facilities on site

h. Increasing the amount of landscaping beyond what is required in the Zoning Ordinance (Chapter 19.86).

i. The use and development of park and ride facilities in outlying areas.

j. Other strategies that may be recommended by the local Air Pollution Control Districts.

Measure J: The County should include PM_{10} control measures as conditions of approval for subdivision maps, site plans, and grading permits.

Chapter 5. Energy Element

5.4.5 Solar Energy Development

Policies

Policy 1: The County shall encourage domestic and commercial solar energy uses to conserve fossil fuels and improve air quality.

Policy 2: The County should attempt to identify and remove disincentives to domestic and commercial solar energy development.

Policy 3: The County should permit solar energy development in the desert and valley planning regions that does not pose significant environmental or public health and safety hazards.

Policy 4: The County should encourage solar development in the desert and valley regions previously disturbed, and discourage development of energy projects on undisturbed land supporting State or federally protected plant and wildlife species.

Implementation Measures

Implementation Measure A: The County shall continue to maintain, and update as necessary, provisions in the Kern County Zoning Ordinance to provide adequate development standards for commercial solar energy development.

Implementation Measure B: The County should work with affected state and federal agencies and interest groups to establish consistent policies for solar energy development.

Kern County Best Management Practices for Dust Management

In 2013, solar developers and planners from Los Angeles and Kern Counties began a series of meetings to discuss the best practices for protecting air quality and minimizing construction impacts from solar projects. The process incorporated feedback from the Mojave Air and Space Port, members of the Mojave Chamber of Commerce, Rosamond Municipal Advisory Council, and numerous other community leaders. Subsequent to these meetings, Kern County has developed a new approach to best control fugitive dust emissions and improve air quality in the high desert. The County's approach recognizes that effective dust control management must be site-specific and cannot be "one-size-fits-all" because standard methods do not adequately meet the challenges of such a unique environment as the Mojave Desert region. An effective strategy has to be based on soil conditions, topography, adjacent land uses, and wind direction.

Conditions imposed on the new solar projects in Kern County are more extensive and rigorous than ever before. These include:

- Development of a Site Specific Dust Control Plan that considers ongoing community stakeholder input, to the extent feasible and practicable.
- Use of Global Positioning System (GPS) or lasers to level posts, generally avoiding grading except when elevation changes exceed design requirements.
- When grading is unavoidable, it is to be phased and done with the application of approved chemical dust palliatives (chemical substances applied to a road surface to reduce airborne dust) that stabilize the earth.
- Use of dust suppression measures during road surface preparation activities, including grading and compaction.
- Final road surfaces must be stabilized to achieve a measurable threshold friction velocity (TFV – the wind speed at which erosion starts) equal to or greater than 100 centimeters per second.
- If ground is cleared, plant roots must be left in place where possible.
- Expanded onsite watering processes.
- Vehicle speed for all construction vehicles shall not exceed 15 mph on any unpaved (i.e., without asphalt) surface at the construction site.
- All trucks hauling dirt, sand, soil, or other loose materials shall be covered or shall maintain at least 2 feet of freeboard.
- Sending mailings to residents within 1,000 feet of a project site.

Kern County is also carefully monitoring all solar construction activities to ensure that all mitigation measures are followed and are adequate to minimize dust-related health concerns.

4.3.5 Impacts and Mitigation Measures

This section describes the impact analysis relating to air quality for the project. It describes the methods used to determine the impacts of the project and lists the thresholds used to conclude whether an impact would be significant. Where warranted, measures to mitigate (i.e., avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany each impact discussion.

Methodology

The air quality significance criteria were developed considering the CEQA significance criteria developed by the local air quality district in the project area, approved CEQA air quality checklists, and considering other federal criteria. The analysis presented within this section is based on both qualitative and quantitative approaches for determining air quality impacts associated with construction, operation, and maintenance of the project. The findings in the *Air Quality Technical Report* and the *Air Quality Analysis of Off-Site Utilities Memorandum* prepared for the project (located respectively in Appendix C and Appendix D), which was prepared in accordance with Kern County Planning Department's *Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports* documents were relied upon for the following analysis

Air Quality Plan Consistency

The EKAPCD is required, pursuant to the CAA, to reduce emissions of criteria pollutants for which the Air Basin is in non-attainment of the NAAQS (e.g., ozone). The EKAPCD's 2023 AQAP contains a comprehensive list of RACM's directed at reducing emissions and achieving NAAQS related to these pollutants (EKAPCD, 2023). EKAPCD's Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports states that the following should be included in the consistency determination for existing air quality plans:

- Discuss project in relation to Kern COG conformity and traffic analysis zones (TAZs).
- Quantify the emissions from similar projects in the Ozone Attainment Plan for the applicable basin. Discuss the Ozone Attainment Plan for the applicable air district, development, and relation to regional basin, Triennial Plan, and SIP.

Emissions

Existing Site Emissions

As previously discussed, the project site currently vacant. Thus, there are no existing site emissions.

Project Emissions

The construction and operational emissions were estimated from several emission models, emissions factors, and references, depending on the source type and data availability. Project impacts were quantitatively assessed using the following:

Construction equipment horsepower, load factors, and emission factors from the California Emissions Estimator Model (CalEEMod) model, version 2020.4.0.

- Vehicle emission factors using EMFAC2021.
- Fugitive dust emission factors for grading, truck loading/dumping, and paved road travel from the CalEEMod model and particulate matter control efficiencies based on

watering for construction dust control. Fugitive dust from travel on paved roads was calculated using AP-42 and CARB factors (CARB, 2018).

- USEPA's AP-42 Compilation of Air Pollutant Emission Factors
  - Chapter 3 (Stationary Internal Combustion Sources)
  - Chapter 13 (Miscellaneous Sources)
    - 13.4 Wet Cooling Towers
    - 13.2.2 Unpaved Roads
- Burns & McDonnell, Prevention of Significant Deterioration Air Construction Permit Application, Nucor Steel Florida, Inc. August 2018.
- Kern County, Draft Environmental Impact Report, Aratina Solar Project, May 2021.
- California Public Utilities Commission, Circle City Substation and Mira Loma-Jefferson 66 kV line Project, May 2018.

Construction Emissions

Construction of the project would generate temporary criteria pollutant emissions through the use of heavy-duty construction equipment, such as excavators and loaders, and through worker vehicle trips and haul trucks traveling to and from the project site. In addition, fugitive dust emissions would result from various soil-handling activities. Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of construction activity, and prevailing weather conditions.

Micro Mill

Regional emissions during construction are forecasted by assuming a conservative estimate of construction activities (i.e., assuming all construction occurs at the earliest feasible date) and applying the mobile source and fugitive dust emissions factors. Assuming an early date for construction activities is conservative because emission factors decrease in future years due to improvements in engine technology and the retirement of older, dirtier equipment and vehicles from the fleet.

The emissions have been estimated using the California Emissions Estimator Model (CalEEMod) version 2020.4.0, an emissions inventory software program developed by the California Pollution Control Officers Association (CAPCOA), and using the most recent version of CARB's on-road vehicle emissions factor model (EMFAC2021). Construction phasing would include site preparation, grading/excavation, drainage/utilities/trenching, electrical installation, foundations/concrete pour, building erection, mechanical equipment installation, process piping installation, paving and landscaping. The Applicant provided a resource loaded construction schedule, which included the construction phases with the number of equipment pieces allocated in the various subphases. Therefore, not all equipment would be operated during the entire phase but only during the specified subphase. The resource loaded schedule is provided in Appendix C.

Haul truck trips, worker trips, and vendor truck trip estimates were based on information obtained from the Applicant, and the corresponding on-road emissions were calculated using the EMFAC model and Excel spreadsheets. The CalEEMod model was used with project-specific inputs to determine off-road emissions occurring from construction-related activities. CalEEMod relies on emission factors from CARB's OFFROAD2011 model.

The yearly emissions from these activities were estimated by construction phase and compared to the EKAPCD significance thresholds.

Incidental Solar Array

Construction emissions for the approximate 63-acre, 10 megawatt (MW) solar array were estimated from a similar solar array in the same air district (Kern, 2021b). The emissions from the Aratina Solar project, which is larger in acres than that for the proposed project, were scaled based on its size and the size of the proposed solar array of approximately 63 acres.

Offsite Improvements

Power and Fiber-optic (telecommunication) Lines

Southern California Edison (SCE) is the electricity provider for the project site. To supply power to the site, SCE requires two main components, a power line and a fiber-optic (telecommunication) line. The power line will consist of an upgrade to a portion of the Corum-Goldtown-Rosamond 66 kilovolt (kV) line, which runs from the Rosamond Substation (on the corner of Rosamond Boulevard and 60th Street W) parallel to Rosamond Boulevard before connecting to the north-south 66 kV line at approximately Rosamond Boulevard/Division Street, within the Edwards Air Force Base (EAFB) utility corridor. The connection will continue north within EAFB's utility corridor approximately following the path of Division Street until Sopp Road. From the corner of Sopp Road and Division Street a new 66 kV power line will be erected to the Project Site at 860 Sopp Road. See **Figure 3-14:** *Existing and Proposed Offsite Improvements*.

SCE estimates that the existing 66 kV line from Rosamond Substation to the corner of Sopp Road and Division Street will need to be reconductored (totaling approximately 13 miles), with all existing transmission poles requiring replacement with new poles installed for the section from the corner of Sopp Road and Division Street to the Project Site. This will consist of the installation of new poles and circuits.

There will be two fiber lines connected to the plant. One fiber optic cable will be installed by SCE who will be the electricity provider for the Project Site and it would tie into the existing telecommunications line from approximately Tehachapi Willow Springs Road following the route of Backus Road and routing around the north side of Exit 61 of State Route 14 (SR-14) to Sierra Highway. The other fiber optic cable will be for PSG business and industrial use, and it will be connected from an existing AT&T fiber at Sopp road. Additional information available in the SCE memorandum (Appendix D).

Water Line

The construction activities associated with the water line connection from the Antelope Valley-East Kern Water Agency (AVEK) to the proposed site will be analyzed. The location of the water line connection within the project site will be between the employee and visitor car parking area and the solar fields on the western side of the property, continuing linearly due west under the railroad easement and to the edge of the Sierra Highway right-of-way, connecting at approximately 34°56'09.7"N, 118°08'58.0"W, approximately 1,500 ft in length.

Traffic Improvements

The Traffic Impact Study completed for the Project included traffic improvements including as Traffic Mitigation Projects 1 through 4 (LAV, 2023). The construction activities associated with these traffic improvements will be analyzed. Construction emissions have been estimated using CalEEMod and EMFAC2021. Construction phasing would include site preparation, grading/excavation, electrical installation, and paving. Haul truck trips, worker trips, and vendor truck trip estimates were based on defaults within CalEEMod.

As stated above, fugitive dust emissions would result from various soil-handling activities during construction of the project. Construction contractors are required to comply with the applicable provision of EKAPCD Rule 402 (Fugitive Dust). As discussed previously, EKAPCD Rule 402 requires construction activities to control fugitive dust emissions by complying with reasonably available control measures or bulk material control measures to limit visible dust emissions to more than 20 percent opacity. They must meet the conditions for a stabilized surface by creating a fugitive dust emission control plan (Mitigation Measure MM 4.3-2). Applicable fugitive dust control measures are incorporated into the construction emissions modeling.

Project construction is assumed to start as early as second quarter of 2024 and require up to 24 months with full build-out occurring in the second quarter of 2026. The construction of the solar array is not yet known but expected to occur in the future, after full buildout of the micro mill. The solar array was conservatively assumed to occur over approximately 3 months at the conclusion of the micro mill construction schedule. If construction commences at a later date, construction emissions would be lower than those estimated in this Technical Report due to the use of a more energy-efficient and cleaner burning construction vehicle fleet mix, pursuant to state regulations that require vehicle fleet operators to phase-in less-polluting trucks. As a result, should project construction commence at a later date than analyzed in this Technical Report, air quality impacts would be lower than the impacts disclosed herein.

Operational Emissions

Micro Mill Facility

At the time of the Air Quality Technical Report, the exact equipment for the proposed project was not yet determined. However, the proposed project would include raw (scrap) material handling, the electric arc furnace (EAF), the ladle metallurgy station (LMS), CCS, furnace, casting, rolling, slag, cooling towers, emergency engines, and fuel tanks. Since the exact equipment for the proposed project were not available, emissions for the micro mill were calculated using emissions from a similar facility (Burn, 2018). The emissions from the Nucor facility were scaled based on the anticipated production rate for the project compared to a similar rebar facility's production rate of 450,000 tons of steel produced per year. The emissions from similar processes and equipment were scaled based on the anticipated production rate of 456,000 tons of steel produced per year for the proposed project. It should be noted, the Nucor facility is not an all-electric micro mill but rather utilizes natural gas. The emissions presented herein are considered a conservative estimate (i.e., overestimated) as the all-electric micro mill would result in lower criteria air pollutant emissions, specifically NO_X, VOCs, and SO_2 as well as a small reduction in toxic air containment emissions associated with the project's elimination of natural gas combustion. Additionally, the emissions presented do not account for the reduction of CO_2 that would be captured in the EAF from the CCS or the reduction of NO_X from the selective catalytic reduction unit. The complete Nucor document can be found in Appendix C. Details of the processes and equipment associated with the proposed project are described below.

Raw Material Handling

Recycled scrap metal for the proposed project would be purchased from outside suppliers and transported into the facility by truck. Scrap metal to be received would include un-shredded and shredded scrap largely from crushed automobiles but also may include old appliances, machinery, sheet metal, rectangular bundles, and miscellaneous scrap metal. Un-shredded scrap metal would be processed by suppliers off-site to meet industry-standard size and cleanliness, arriving in a form either suitable for direct use in the steelmaking process or in larger sizes that would require cutting by a torch cutter, located in the scrap storage area, prior to its use in the process. The scrap metal would be stored in the 24,300-square-foot scrap bay or at the overflow scrap storage piles. Scrap would be moved using a front-end loader and loaded into a conveyor system using magnet cranes to the proposed Electric Arc Furnace (EAF). Particulate matter emissions would be generated during the indoor and outdoor scrap handling and storage, from the scrap storage piles and sweepings, and from vehicular traffic on the paved facility roads. A small amount of particulate matter and combustion emissions would also be formed from the torch cutting of larger pieces of scrap.

In addition to the recycled scrap metal, the project would use carbon and fluxing agents as raw materials in the steelmaking process. Raw materials would be delivered to the project site by truck and moved into storage silos. These raw materials would be pneumatically transferred from the silos to the EAF and LMS as needed. Particulate emissions will be generated during the storage and handling of carbon and fluxing agents. The silo would have a dust collector to control dust particles.

Alloy aggregates would be used in the EAF and LMS for refining steel metallurgy. Alloys would be transported by truck, unloaded into storage bins and eventually transferred by front-end loaders or forklift to the EAF/LMS bay for use in the EAF or LMS as needed. Ferro Silicon 75 ((FeSi75) an alloy produced by combining 75 percent silicon and 25 percent iron), Ferro Silicon Manganese (FeC_5H_5MnSi), Silicon Carbide (SiC), Calcium Carbide (CaC_2), Fluorspar (CaF_2), Metallurgical carbon alloys, Ferro Vanadium (FeV), Ferro Chrome (FeCR), and Calcium Silicon (CaSi) alloys may be used as part of the steel making process. Particulate emissions will be generated during the storage and handling of alloy aggregates.

Melt Shop

The melt shop (MS) process includes use of the EAF, LMS, casting operations, ladle and tundish preheaters, and refractory repair. Scrap metal is preheated by the EAF exhaust heat and then fed into the EAF. Chemical and electrical energy would be used to melt the entire batch of scrap metal. The melted steel is then transferred to the LMS via a ladle. The main emission control device for these proposed operations is the fume treatment plant which captures emissions from the EAF and LMS. The following subsections describe each process that occurs during the melt shop process:

- **EAF**: During the first use of the EAF after downtime, loading of scrap metal would be accomplished using charge buckets, which are transported into position over the EAF using overhead electric cranes. Once in position, the charge bucket would open, allowing scrap to fill the EAF. After the first batch of steel is made, scrap for subsequent batches would be fed to the EAF using a continuous conveyor (i.e., the endless charging system (ECS)). The heating and melting of the scrap metal would generate particulate matter emissions.

During the melting, raw materials such as fluxing agents, metallurgic coal or coke, and oxygen would be added to the molten steel in order to achieve the desired product chemistry. Once the desired steel properties are reached in the EAF, the molten steel is poured (i.e., "tapped") into the ladle. The molten steel is then transferred to the LMS via a ladle car. The refining and tapping processes generate emissions of particulate matter.

The slag formed in the EAF would be emptied by tipping the EAF to the side and stored in a stockpile within the EAF/LMS bay. As the slag cools, some limited combustion of residual coke in the slag may occur resulting in emissions of NO_X, CO, and SO_2. The slag would be subsequently removed from the pit using a front-end loader, quenched using process water, and transported to an outdoor storage pile before being processed on-site.

- **LMS**: The ladles filled with molten steel would be transferred from the EAF to the LMS via the ladle car. The molten steel would be further refined with the injection and mixing of raw materials such as fluxing agents, carbon, and alloys into the molten steel. Once the molten steel reaches the desired temperature and composition, the ladle would transport the molten steel to the continuous casting machine. The refining of the molten steel would generate particulate matter emissions. Emissions from the LMS would be captured by the ladle ducts connected to the fume treatment plant. Emissions not captured by the ladle furnace ducts would be captured by the melt shop canopy or the caster canopy.
- **Casting Operations**: The ladle is transported to a continuous casting machine within the caster bay. During casting, steel flows out of the bottom of the ladle via a slide gate into a tundish. From the tundish, the steel flows into a single mold. In the mold, the steel is water-cooled and formed into bars (billets). Emissions from the process would be emitted through the caster canopy and captured by the fume treatment plant.
- **Ladle and Tundish Preheaters**: Refractory materials would line the ladles and tundishes which must be dried completely prior to steel production. Additionally, the ladles and tundishes must be preheated prior to the transfer of molten steel in order to prevent heat losses. Electrical ladle and tundish preheaters and dryers would be installed. The tundish would also use a refractory material that does not require curing.

Rolling Mill Process

The rolling mill process is a metal forming process in which metal stock is passed through one or more pairs of rolls to reduce the thickness and to make the thickness of the metal uniform. The rolling mill process includes an induction furnace located between the caster and the rolling mill for temperature elevation and stabilization, then a series of rolling mill stands that reduce the cross sectional area and hot-form final rolled steel reinforcing bar. The products are water quenched for tempering and directed to the cooling beds to cool in the ambient air. The rolled steel is then sheared to length, cooled on a natural convection cooling bed, bundled and stored or fed directly into spooler machines which roll the reinforcing bar into a spool. Particulate emissions in the form of water droplets will be created from the water quenching, as well as VOC and HAP from the oil and grease contamination of the contact water. Rolling mill emissions will vent through the roll mill vent.

Cooling Towers

Two non-contact cooling towers and one contact cooling tower would be used to remove heat from the cooling water used in the proposed project. Cooling towers reduce the temperature of the system by relying on the latent heat of water evaporation to exchange heat between the cooling water and the air passing through the cooling tower. Because cooling towers provide direct contact between the cooling water and the air passing through the tower, some of the liquid water may be entrained in the air stream and be carried out of the tower into the atmosphere as "drift" droplets. The dissolved solids within these water droplets are a source of particulate matter emissions.

Ancillary Buildings

Operational emission associated with the ancillary buildings part of the project were also calculated. The proposed project includes ancillary structures for storeroom and vehicle maintenance, water pre-treatment building, office building, locker room, slag processing office building, containerized power control room, guard shack/scale house, and a trucker restroom facility. Emissions and energy consumption from the ancillary buildings were calculated using CalEEMod version 2020.4.0. Additional sources of emissions would include: 63 acres of ground-mounted solar panels, substation to support solar panels, and a water treatment plant. Mobile source emissions would be generated by vehicle trips traveling to and from the project site. Operational impacts were assessed for the proposed project buildout year of 2026 (i.e., as early as 2025 assuming construction begins at the earliest possible time in 2024).

The project's operational emissions for the ancillary buildings were estimated using CalEEMod to project regional emissions from area and energy sources that would occur during long-term project operations. Mobile source emissions were estimated based on CARB's EMFAC2021 to generate Air Basin-specific vehicle fleet emission factors in units of pounds per mile, and daily trip rates from the project's traffic study (LAV, 2023).

Area source emissions for the ancillary buildings, including landscaping equipment and consumer products, such as solvents used in non-industrial applications which emit VOCs during their product use and cleaning supplies including aerosols, were calculated using the CalEEMod software. Energy source emissions for the buildings are based on an all-electric consumption (building heating and water heaters). Natural gas would not be utilized at the project site and therefore emission from natural gas combustion are not included for the project.

Incidental Solar Array

The exact equipment for the solar array project have yet to be determined. Therefore, emissions from the approximate 63-acre solar array were calculated using emissions from a similar facility and would use similar construction equipment (i.e., excavators, graders, forklifts, etc.) (Kern, 2021b). The solar array would consist of solar panels and a substation. No structures or emergency generators would be present on the solar array. In addition, workers from the Micro Mill Facility would perform routine maintenance such as washing of the solar panels. As such, no area or additional mobile sources are included. Energy sources would be limited to water conveyance required for panel washing. Operational air quality impacts are assessed based on the incremental increase in emissions compared to baseline conditions.

Health Risk Assessment

The proposed project would emit TACs from several construction and operational sources. Diesel particulate matter (DPM) would be emitted from construction equipment and diesel trucks, and various toxic compounds from VOCs and metals would be emitted from the micro mill processing. An HRA was conducted to estimate cancer, non-cancer chronic (long-term), and noncancer acute (short-term) impacts from the proposed project.

The HRA predicted the above health risks using a dispersion model to calculate ground-level concentrations of TACs based on the proposed project's TAC emissions and toxicity and exposure factors provided by the California Office of Environmental Health Hazard Assessment (OEHHA) (OEHHA, 2015).

EPA's AERMOD atmospheric dispersion model was used to simulate physical conditions and predict pollutant concentrations from construction and operational sources at sensitive receptors near the project site. AERMOD is EPA's preferred air dispersion model for near-field modeling from vented and non-vented sources. The model uses hourly meteorological observations and emission rates to determine hourly average concentrations from which other averaging periods (e.g., 24-hour, annual averages) are determined.

Cancer risk is quantified based on the OEHHA methodology, the residential inhalation cancer risk from the annual average DPM concentrations is calculated by multiplying the daily inhalation or oral dose, by a cancer potency factor, the age sensitivity factor (ASF), the frequency of time spent at home (for residents only), and the exposure duration divided by averaging time, to yield the excess cancer risk. It is important to note that exposure duration is based on a one-year construction period. Cancer risk must be separately calculated for specified age groups, because of age differences in sensitivity to carcinogens and age differences in intake rates (per kg body weight). Separate risk estimates for these age groups provide a health-protective estimate of cancer risk by accounting for greater susceptibility in early life, including both age-related sensitivity and amount of exposure.

Non-cancer chronic impacts are calculated by dividing the annual average concentration by the Reference Exposure level (REL) for that substance. REL is defined as the concentration at which no adverse noncancer health effects are anticipated. Based off OEHHA guidance, the current REL for DPM is 5 $\mu g/m^3$.

For construction health risk, concentration outputs obtained from AERMOD were used with Microsoft Excel workbooks to calculate health risk at the nearby sensitive receptors. For operational health risk, the Hotspots Analysis and Reporting Program Version 2 (HARP2) Air Dispersion & Risk Tool (ADMRT) version 19121 was employed to calculate the health risks at nearby sensitive receptors. Dispersion modeling assumptions and results are provided in Appendix C.

While the project site is relatively isolated, there are sensitive receptors located in the vicinity. The nearest residence is approximately 1,000 feet to the northwest along Dobbs Road. There are other potential sensitive receptors as much greater distances that would observe lesser health risk impacts than the nearest residence.

Ambient Air Quality Analysis

The Kern County Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports (EKAPCD, 2006) require a dispersion modeling analysis of the maximum 24-hour average concentrations of PM_{10} and $PM_{2.5}$ resulting from construction and operation in comparison to applicable ambient air quality standards and thresholds. The purpose of the AAQA is to determine whether the project's construction and operational emissions would cause or contribute to exceedances of any CAAQS or NAAQS during construction.

CO Hotspot

Heavy traffic congestion can contribute to high levels of CO. Individuals exposed to these CO "hot-spots" may have a greater likelihood of developing adverse health effects. The potential for the proposed project to result in localized CO impacts at intersections resulting from addition of its traffic volumes is assessed based on Kern County's suggested criteria, which recommends performing a localized CO impact analysis for intersections operating at or below level of service (LOS) E.

Visibility Impacts

The County guidance states that potential impacts to visibility should be evaluated for all industrial projects and any other projects, such as mining projects, that have components that could generate dust or emissions related to visibility.

The project's emissions to the Class I areas will be below the significance threshold established by USEPA and Federal Land Managers. The analysis will be demonstrated initially by the screening level Q/D approach. In this approach, all visibility-related emissions (SO_2, NO_X, PM_{10}, and sulfuric acid mist) from the project based on 24-hour maximum allowable emissions prorated to annual emissions in units of tons per year will be summed (Q). The sum will be divided by the distance in km (D) from the site to the nearest receptor for each Class I area. If the ratio (Q/D) is less than 10, the project will be presumed to have negligible impact on Class I area visibility and no further analysis will be required. If the Q/D ratio is greater than 10, then long range transport modeling will be conducted to demonstrate that the 98th percentile change in light extinction is less than 5 percent for each of the 3 years modeled, when compared to the annual average natural condition value for that Class I area.

Valley Fever (Coccidioides immitis Exposure)

While there are no specific thresholds for the evaluation of potential *Coccidioides immitis* (Valley Fever) exposure, the potential for workers or area residents contracting Valley Fever as a result of the project is evaluated based on the anticipated earth-moving activities, and considers measures such as the development and implementation of a dust control plan to help control the release of the *Coccidioides immitis* fungus during construction activities.

Asbestos

There are no quantitative thresholds related to receptor exposure to asbestos. However, EKAPCD Rule 423 (National Emission Standards for Hazardous Air Pollutants and Source Categories) requires all projects to comply with the provisions of Title 40, Chapter I, Parts 61 and 63, of the Code of Federal Regulations.

Thresholds of Significance

The significance thresholds below are derived from the Environmental Checklist question in Appendix G of the State CEQA Guidelines and EKAPCD's Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports. Pursuant to the State CEQA Guidelines (Section 15064.7), a lead agency may consider using, when available, the significance criteria established by the applicable air quality management district or air pollution control district when making determinations of significance. The proposed project would be under the EKAPCD's jurisdiction, and they use air quality significance thresholds in the Kern County Planning Department Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports. Projects that produce emissions that exceed these thresholds shall be considered significant for a project level and/or cumulatively for impacts to air quality. These thresholds will be used to evaluate the significance of the impacts listed below.

A significant air quality impact would occur if the project would:

a) Conflict with or obstruct implementation of the applicable air quality plan;

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard;

c) Expose sensitive receptors to substantial pollutant concentrations;

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Project Impacts

Impact 4.3-1: Implementation of the proposed project would conflict with or obstruct implementation of the applicable air quality plan.

Consistency with Air Quality Plan

EKAPCD's most recently adopted air quality management plan is its 2023 AQAP. This AQAP covers the project area since it is located within the boundaries of the EKAPCD. The 2023 AQAP is a road map that demonstrates how the region will, in accordance with the requirements of the California Clean Air Act, implement all feasible measures to reduce ozone precursors (ROG/VOC and NO_X) and reduce the transport of ozone and its precursors to neighboring air basins, in order to achieve the 2008 and 2015 8-hour ozone NAAQS.

Air quality impacts are controlled through policies and provisions of the EKAPCD, the Kern County General Plan, and the Kern County Code of Building Regulations. The California CAA requires air pollution control districts with severe or extreme air quality problems to provide for a 5 percent reduction in nonattainment emissions per year. The Attainment Plans prepared for the

EKAPCD complies with this requirement. CARB reviewers approve or amend the document and forward the plan to USEPA for final review and approval within the SIP.

In determining consistency with the 2023 AQAP, this analysis considers whether the proposed project would (1) support the primary goals of the 2023 AQAP, and (2) include applicable control measures from the 2023 AQAP. The primary goals of the 2023 AQAP are: to protect air quality and public health at the regional and local scale by reducing regional ROG/VOC and NO_X emissions and ozone concentrations and reducing local air-quality-related health risks by meeting the 2008 and 2015 8-hour ozone NAAQS. Applicable control measures in the 2023 AQAP include the RACM from EKAPCD Rule 425.2 for boilers, steam generators, and process heaters.

In general, a project would not interfere with the applicable air quality plan if it is consistent with growth assumptions used to form the 2023 AQAP. The land uses designated in the Kern County General Plan and the KCOG 2022 RTP/SCS form the basis for the growth assumptions in the 2023 AQAP. The proposed project proposes changing the general land use designation from resource management to heavy industrial and the zone classification from limited agricultural to heavy industrial –precise development combining. This change in land use designation and zone classification would bring additional jobs to the area.

Implementation of the proposed project is consistent with the goals of the Kern County General Plan in providing an adequate and geographically balanced supply of land designated for a range of industrial purposes. The proposed project site is geographically isolated from sensitive uses with the nearest residence located approximately 1,000 feet to the northwest of the project site promoting compatibility with land uses that may be affected by industrial operations while ensuring economic strength for Kern County and its residents. Furthermore, the Project would not include any new residential growth or dwelling units and thus would not include a substantial increase in passenger vehicle and light duty truck trips and be consistent with the goals of the 2022 RTP/SCS.

2023 AQAP Rules

The proposed project, as a steel mill plant, would be considered a new major stationary source and would be subject to EKAPCD's NSR rule. This rule requires new major stationary sources that increase emissions in amounts exceeding specified thresholds to provide emission reduction offsets to mitigate their emissions growth. The applicability threshold for NO_X and VOC in Rule 210.1 is 50 tons per year with an offset ratio of 1.2-to-1.0. As such, there should be no net effect on emissions inventories from future construction or modifications at major stationary sources due to offset requirements. To ensure construction or modification of major sources has no net effect on emission inventories used for demonstrating attainment, banked ERCs, which otherwise would not be included as emissions in the baseline and subsequent inventories, must be added back into the inventories, pursuant to federal requirements. The 2023 AQAP includes a list of banked ERCs currently in the EKAPCD's credit bank as of 2022 . The banked ERCS would lead to an increase of 0.005 ppb in attainment year ozone design values and would not affect the attainment status. Thus, with compliance of EKAPCD Rule 210.1, construction and operation of the proposed project would comply with the 2023 AQAP.

Although the proposed project emissions were not included in the projections for the 2023 AQAP, compliance with EKAPCD's Rule 210.1, NSR would render the proposed project consistent with growth projections of the 2023 AQAP, since they would not increase emissions, over those allowed by the NSR, and would not jeopardize attainment of the AQAP. Therefore, the proposed project is consistent with the goals of the 2023 AQAP.

Proposed Project Emissions

Construction

On-Site

The construction emissions for the proposed project within the project site boundary were estimated for each construction phase and are discussed further below, under Impact 4.3-2. As shown in Table 4.3-6, with implementation of Mitigation Measure 4.3-1, construction emissions would be reduced to below the significance thresholds. See Impact 4.3-2 below for additional information regarding the proposed project emissions.

Off-Site Improvements

Construction of off-site improvements related to the water line, traffic improvements, and SCE powerlines would entail a minimal amount of ROG, NO_X, CO, SO_X, PM_{10}, $PM_{2.5}$ emissions and would comply with applicable EKAPCD rules and regulations. Haul truck, vendor truck, and worker vehicle trips would be generated during the proposed construction activities but would cease after construction is completed. This off-site improvement work would not be anticipated to conflict with any applicable air quality management plan, such that impacts would be less than significant.

Operation

As previously stated, the proposed project would include development of an approximate 489,200 square-foot micro mill facility and with an additional 61,721 square feet of accessory buildings, and an approximate 63-acre accessory solar array. Operation of the proposed project has the potential to generate emissions from the micro mill portion of the proposed project, including raw (scrap) material handling, the electric arc furnace (EAF), the ladle metallurgy station (LMS), furnace, casting, rolling, slag, cooling towers, emergency engines, and fuel tanks. Operational emissions would also be generated from the ancillary buildings and the solar array. Mobile source emissions would be generated by vehicle trips traveling to and from the project site.

The solar facility portion of the proposed project could also function to reduce the air pollutant emissions within the MDAB to the extent that the power generated is used to offset power production from fossil fueled power plants within (or contributory to) the MDAB. This power production is not projected within the existing air quality plans, and so the solar array could further aid in reducing air pollutant emissions and increase the potential for attainment of the 2023 AQAP.

The off-site improvement work would not result in a substantial increase in long-term trips or vehicle miles traveled in the areas and would not require additional employees to maintain or operate the approximate 13 mile reconductored lines. Therefore, no additional off-site improvement specific operation analysis is included herein.

As shown below in Impact 4.3-2, in **Table 4.3-7:** *Unmitigated Proposed Project Long-term Operational Emissions*, the proposed project's long-term operational emissions would exceed EKAPCD's applicable significance thresholds. Implementation of Mitigation Measure MM 4.3-1 would reduce operational emissions from off-road equipment. However, emissions would still exceed the significance thresholds.

Mitigation Measures MM 4.3-2 would reduce construction emissions by implementing exhaust reduction measures and a Fugitive Dust Control Plan. In addition, compliance with all applicable EKAPCD NSR rules would reduce operational emissions. However as shown in **Table 4.3-8:** *Mitigated Proposed Project Long-term Operational Emissions*, operational emissions of the project would still exceed EKAPCD CEQA significance thresholds; therefore, impacts would be significant and unavoidable.

Mitigation Measures

MM 4.3-1: To control NO_X and PM emissions during construction and operation, the project proponent/operator and/or its contractor(s) shall implement the following measures during construction and operation of the project, subject to verification by the County:

a. Off-road equipment engines over 25 horsepower shall be equipped with EPA Tier 4 or higher.

b. All equipment shall be maintained in accordance with the manufacturer's specifications.

c. Heavy-duty equipment, motor vehicles, and portable equipment, shall be turned off when not in use for more than 5 minutes.

d. Notification shall be provided to trucks and vehicles in loading or unloading queues that their engines shall be turned off when not in use for more than 5 minutes.

e. Electric equipment shall be used to the extent feasible in lieu of diesel or gasoline powered equipment.

f. All vehicles shall be equipped with proper emissions control equipment and kept in good and proper running order to substantially reduce NO_X emissions.

g. Existing electric power sources shall be used to the extent feasible. This measure would minimize the use of higher polluting gas or diesel generators.

h. The hours of operation of heavy-duty equipment and/or the quantity of equipment in use shall be limited to the extent feasible.

MM 4.3-2: To control fugitive PM emissions during construction, prior to the issuance of grading or building permits and any earthwork activities, the project proponent shall prepare a comprehensive Fugitive Dust Control Plan for review and approval by the Eastern Kern Air Pollution Control District and submitted to the Kern County Planning and Natural Resources Department. The plan shall include all Eastern Kern Air Pollution Control District recommended measures, including but not limited to, the following:

a. All soil being actively excavated or graded shall be sufficiently watered to prevent excessive dust. Watering shall occur as needed with complete coverage of disturbed soils areas. Watering shall take place a minimum of three times daily where soil is being actively disturbed, unless dust is otherwise controlled by rainfall or use of a dust suppressant.

b. Vehicle speed for all on site (i.e., within the project boundary) construction vehicles shall not exceed 15 mph on any unpaved surface at the construction site. Signs identifying construction vehicle speed limits shall be posted along onsite roadways, at the site entrance/exit, and along unpaved site access roads.

c. Vehicle speeds on all offsite unpaved project-site access roads (i.e., outside the project boundary) construction vehicles shall not exceed 25 mph. Signs identifying vehicle speed limits shall be posted along unpaved site access roads and at the site entrance/exit.

d. All onsite unpaved roads and offsite unpaved public project-site access road(s) shall be effectively stabilized of dust emissions using water or Eastern Kern Air Pollution Control District approved dust suppressants/palliatives, sufficient to prevent wind-blown dust exceeding 20 percent opacity at nearby residences or public roads. If water is used, watering shall occur a minimum of three times daily, sufficient to keep soil moist along actively used roadways. During the dry season, unpaved road surfaces and vehicle parking/staging areas shall be watered immediately prior to periods of high use (e.g., worker commute periods, truck convoys). Reclaimed (non-potable) water shall be used to the extent available and feasible.

e. The amount of the disturbed area (e.g., grading, excavation) shall be reduced and/or phased where possible.

f. All disturbed areas shall be sufficiently watered or stabilized by Eastern Kern Air Pollution Control District approved methods to prevent excessive dust. On dry days, watering shall occur a minimum of three times daily on actively disturbed areas. Watering frequency shall be increased whenever wind speeds exceed 15 mph or, as necessary, to prevent wind-blown dust exceeding 20 percent opacity at nearby residences or public roads. Reclaimed (nonpotable) water shall be used to the extent available and feasible.

g. All clearing, grading, earth moving, and excavation activities shall cease during periods when dust plumes of 20 percent or greater opacity affect public roads or nearby occupied structures.

h. All disturbed areas anticipated to be inactive for periods of 30 days or more shall be treated to minimize wind-blown dust emissions. Treatment may include, but is not limited to, the application of an Eastern Kern Air Pollution Control District-approved chemical dust suppressant, gravel, hydro-mulch, revegetation/seeding, or wood chips.

i. All active and inactive disturbed surface areas shall be stabilized, where feasible.

j. Equipment and vehicle access to disturbed areas shall be limited to only those vehicles necessary to complete the construction activities.

k. Where applicable, permanent dust control measures shall be implemented as soon as possible following completion of any soil-disturbing activities.

l. Stockpiles of dirt or other fine loose material shall be stabilized by watering or other appropriate methods sufficient to reduce visible dust emissions to a limit of 20 percent opacity. If necessary and where feasible, three-sided barriers shall be constructed around storage piles and/or piles shall be covered by use of tarps, hydro-mulch, woodchips, or other materials sufficient to minimize windblown dust.

m. Water shall be applied prior to and during the demolition of onsite structures sufficient to minimize wind-blown dust.

n. Where acceptable to the fire department and feasible, weed control shall be accomplished by mowing instead of disking, thereby leaving the ground undisturbed and with a mulch covering.

o. All trucks hauling dirt, sand, soil, or other loose materials shall be covered or shall maintain at least six inches of freeboard (minimum vertical distance between top of the load and top of the trailer) in accordance with California Vehicle Code Section 23114.

p. Gravel pads, grizzly strips, or other material track-out control methods approved for use by Eastern Kern Air Pollution Control District shall be installed where vehicles enter or exit unpaved roads onto paved roadways.

q. Haul trucks and off-road equipment leaving the site shall be washed with water or high pressure air, and/or rocks/grates at the project entry points shall be used, when necessary, to remove soil deposits and minimize the track out/deposition of soil onto nearby paved roadways.

r. During construction paved road surfaces adjacent to the site access road(s), including adjoining paved aprons, shall be cleaned, as necessary, to remove visible accumulations of track-out material. If dry sweepers are used, the area shall be sprayed with water prior to sweeping to minimize the entrainment of dust. Reclaimed water shall be used to the extent available.

s. Portable equipment, 50 horsepower or greater, used during construction activities (e.g., portable generators) shall require California statewide portable equipment registration (issued by California Air Resources Board) or an Eastern Kern Air Pollution Control District permit.

t. The Fugitive Dust Control Plan shall identify a designated person or persons to monitor the fugitive dust emissions and enhance the implementation of the measures, as necessary, to minimize the transport of dust off site and to ensure compliance with identified fugitive dust control measures. Contact information for a hotline shall be posted on site should any complaints or concerns be received during working hours and holidays and weekend periods when work may not be in progress. The names and telephone numbers of such persons shall be provided to the Eastern Kern Air Pollution Control District Compliance Division prior to the start of any grading or earthwork.

u. Signs shall be posted at the project site entrance and written notifications shall be provided a minimum of 30 days prior to initiation of project construction to residential land uses located within 1,000 feet of the project site. The signs and written notifications shall include the following information: (a) Project Name; (b) Anticipated Construction Schedule(s); and (c) Telephone Number(s) for designated construction activity monitor(s) or, if established, a complaint hotline.

v. The designated construction monitor shall document and immediately notify Eastern Kern Air Pollution Control District of any air quality complaints received. If necessary, the project operator and/or contractor will coordinate with Eastern Kern Air Pollution Control District to identify any additional feasible measures and/or strategies to be implemented to address public complaints.

w. The solar array shall obtain a permit from the Eastern Kern Air Pollution Control District and implement phased removal of vegetation from the site to ensure dust control during construction.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.3-1 and MM 4.3-2, construction impacts would be less than significant, but operational impacts would remain significant and unavoidable.

Impact 4.3-2: Implementation of the project would result in a cumulatively considerable net increase of any criteria pollutant for which the project region in non-attainment under an applicable federal or state ambient air quality standard.

Emissions

The proposed project is located within the Kern County portion of the MDAB, which is an area that is designated as non-attainment for federal and state ozone standards as well as state PM_{10} standards and is under the jurisdiction of the EKAPCD. The EKAPCD's approach for assessing cumulative impacts is based on the forecasts of attainment and ambient air quality standards in accordance with requirements of the federal and state clean air acts. With respect to determining the significance of a project's contribution to regional emissions, Kern County, in its Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports document, states that projects that produce emissions that exceed the adopted thresholds of the EKAPCD for ROG, NO_X, and PM_{10} shall be considered significant for a project level and/or cumulatively for impacts to air quality. Thus, based on Kern County's guidance, if an individual project results in air pollutant emissions of ROG, NO_X, and PM_{10} that exceed the EKAPCD's thresholds for project-specific impacts, then it would also result in a cumulatively considerable net increase of these pollutants for which the project region is in non-attainment under an applicable federal or state ambient air quality standard.

Construction

On-Site

Construction of the proposed project would result in the temporary addition of pollutants to the local airshed caused by off-road construction equipment, soil disturbance and on-road haul trucks, vendor trucks, and worker vehicle trips. Criteria air pollutant emissions associated with temporary construction activity were quantified using a combination of emission factors and methodologies from CalEEMod and EMFAC2021. Construction schedule assumptions, including phase type, duration, and sequencing, were based on information provided by the project Applicant and is intended to represent a reasonable scenario based on the best information available.

Off-Site Improvements

In addition, emissions from the construction of the off-site water line, traffic improvements, and the reconductoring and re-poling of approximately 13 miles of existing SCE 66kV power lines were also included in the whole-project analysis. Default values provided in CalEEMod were used where detailed project information was not available. Details of the emission calculations are provided in Appendix D. Details regarding the SCE improvements can be found in the SCE Memorandum prepared for the proposed project and can be found in Appendix D.

Table 4.3-5: *Unmitigated Proposed Project Construction Emissions*, presents the annual construction emission generated during construction of the project. As shown, construction-related unmitigated NO_X emissions would exceed the EKAPCD numeric significance. Therefore, impacts would be potentially significant before mitigation. As discussed previously, the project would implement Mitigation Measure MM 4.3-1 for on-site construction activities, which would reduce NO_X emissions by implementing diesel exhaust reduction measures including equipment maintenance, Tier 4 equipment, idling restrictions, and alternative fueled equipment. While it is possible Mitigation Measure 4.3-1 could be implemented for the off-site improvements, since construction activities would be implemented by a third-party, Mitigation Measure MM 4-3.1 was conservatively excluded from the analysis for the off-site improvements.

As shown in **Table 4.3-5**, temporary unmitigated emissions during construction would exceed the thresholds adopted by EKAPCD for NO_X.

Table 4.3-5: Unmitigated Proposed Project Construction Emissions

Phase and Year	ROG/VOC	NO_X	SO_2	PM_{10}	$PM_{2.5}$
On-Site					
Micro Mill [A]					
2024	3.95	33.27	0.18	1.76	1.19
2025	8.76	66.64	0.33	3.19	2.31
2026	0.91	7.07	0.03	0.32	0.24
Solar Array [B]					
2026	0.09	0.64	0.005	1.05	0.17
Off-Site					
Traffic Improvement Project 1[C]					
2026	0.02	0.08	0.001	0.01	0.01
Traffic Improvement Project 2 [C]					
2041	0.02	0.03	0.001	0.01	0.003

Traffic Improvement Project 3 [C]					
2026	0.04	0.08	0.003	0.01	0.01
Traffic Improvement 4 [C]					
2041	0.06	0.13	0.005	0.01	0.01
Water Line Project [C]					
2026	0.03	0.23	0.001	0.02	0.01
Power and Telecommunication 2026	0.55	4.51	0.03	0.21	0.15
Maximum Annual Emissions	**8.76**	**66.64**	**0.33**	**3.19**	**2.31**
EKAPCD Threshold (TPY)	**25**	**25**	**27**	**15**	--
Exceeds Thresholds?	No	Yes	No	No	--

Notes:
[A] Micro mill emissions calculations using information provided to ESA and CalEEMod software.
[B] Solar Array emissions were estimated using the Aratina Solar Project EIR and scaled relative to the size of the solar array for this project.
[C] Emissions calculated using information provided to ESA, conservative assumptions and CalEEMod software.
Source: ESA, 2023d

Mitigation Measures MM 4.3-1 and MM 4.3-2 would be required to reduce fugitive dust emissions by implementing exhaust reduction measures and a Fugitive Dust Control Plan, respectively. Diesel exhaust reduction measures include equipment maintenance, Tier 4 equipment, idling restrictions, alternative fueled equipment, and compliance with CARB and EKAPCD rules. As depicted in **Table 4.3-6:** *Mitigated Proposed Project Construction Emissions*, Mitigation Measure MM 4.3-1 would reduce NO_X construction emissions to below significance thresholds. Therefore, emissions from construction of the proposed project would be less than significant

Table 4.3-6: Mitigated Proposed Project Construction Emissions

Phase and Year	ROG/VOC	NO_X	SO_2	PM_{10}	$PM_{2.5}$
On-Site					
Micro Mill [A]					
2024	1.22	6.78	0.18	0.67	0.26
2025	2.76	13.92	0.32	1.31	0.54
2026	0.28	1.35	0.03	0.12	0.05
Solar Array [B]					
2026	0.09	0.64	0.005	1.05	0.17
Off-Site [C]					
Traffic Improvement Project 1[D]					
2026	0.02	0.08	0.001	0.01	0.01
Traffic Improvement Project 2 [D]					
2041	0.02	0.03	0.001	0.01	0.003
Traffic Improvement Project 3 [D]					
2026	0.04	0.08	0.003	0.01	0.01
Traffic Improvement Project 4 [D]					
2041	0.06	0.13	0.005	0.01	0.01
Water Line Project [D]					
2026	0.03	0.23	0.001	0.02	0.01
Power and Telecommunication 2026	0.55	4.51	0.03	0.21	0.15
Maximum Annual Emission	**2.76**	**13.92**	**0.32**	**1.31**	**0.54**
EKAPCD (TPY)	**25**	**25**	--	**15**	--
Exceeds Threshold?	No	No	No	No	--

Notes:
[A] Micro mill emissions calculations were calculated using information provided to ESA and CalEEMod software.
[B] Solar Array emissions were estimated using the Aratina Solar project EIR and scaled relative to the size of the solar array for this project.
[C] Since construction of the water line, traffic improvements, and power and telecommunication lines would be constructed by a third-party, the exact mitigation measures are unknown and no mitigation measures were applied.
[D] Emissions calculated using information provided to ESA, conservative assumptions and CalEEMod software.
Source: ESA, 2023d.

Operation

Operation of the proposed project would generate criteria air pollutants, which were analyzed according to the methodology described above. **Table 4.3-7:** *Unmitigated Proposed Project Long-Term Operational Emissions*, provides the annual operational emissions for the project. As stated in *Section 4.3.6* Methodology, the emissions presented for the Meltshop were scaled from another steel mill facility which included natural gas. The proposed project would be all-electric and would not utilize natural gas. Therefore, the emission presented herein are considered a conservative estimate (i.e., overestimated) as the all-electric micro mill would result in lower criteria air pollutant emissions, specifically NO_X, VOCs, and SO_2 as well as a small reduction in toxic air containment emissions associated with the project's elimination of natural gas combustion. Additionally, the emissions presented do not account for the reduction of CO_2 that would be captured in the EAF from the CCS or for the reduction of NO_X from the selective catalytic reduction unit. The control efficiency of the CCS is estimated to reduce CO_2 by up to 78 percent (Sgro, 2023). The control efficiency of the SCR is estimated to reduce NOx emissions by up to 90 percent (RF MacDonald Co., 2023). These emissions are above the EKAPCD criteria pollutant mass emissions thresholds, and the impact would be significant.

Table 4.3-7: Unmitigated Proposed Project Long-Term Operational Emissions

Operational Source	ROG/VOC	NO_X	PM_{10}	$PM_{2.5}$
Industrial Sources				
Meltshop[A]	85.47	95.85	125.24	118.43
Scrap Storage and Handling[A]	0.01	0.22	0.58	0.10
Silos and Material Storage[A]	0.00	0.00	2.38	2.30
Slag Yard[A]	0.00	0.00	1.78	0.16
Cooling Towers[B]	0.00	0.00	3.79	2.28
Emergency Equipment[B]	1.67	0.29	0.02	0.02
Off-road Equipment[B]	1.19	9.65	0.39	0.35
Auxiliary Sources				
Building Energy	0.00	0.00	0.00	0.00
Site Area	0.32	0.00	0.00	0.00
Mobile	1.35	21.55	41.52	6.78
Maximum Annual Emissions [C D]	**90.01**	**127.56**	**175.70**	**130.42**
EKAPCD Threshold (TPY)	**25**	**25**	**15**	--
Exceeds Threshold?	Yes	Yes	Yes	--

[A] Emissions were calculated based in Nucor Florida Permit Application and scaled to represent operational conditions for the proposed project. As such, the emissions presented assume a highly conservative estimate.
[B] ESA calculated emissions based on Applicant provided project specifics included in Appendix D.
[c] No new operational activities are assumed with the off-site improvements; therefore no operational emissions were assumed.
[D] The CCS is anticipated to have a control efficiency of up to 78%.
Source: ESA, 2023d. Sgro, 2023.

Table 4.3-8, provides the annual operational emissions for the project after implementation of Mitigation Measure MM 4.3-1. These emissions are above the EKAPCD criteria pollutant mass emissions thresholds, and the impact would be significant.

Table 4.3-8: Mitigated Proposed Project Long-Term Operational Emissions

Operational Source	ROG/VOC	NOx	PM_{10}	$PM_{2.5}$
Industrial Sources				
Meltshop[A]	85.47	92.85	125.24	118.43
Scrap Storage and Handling[A]	0.01	0.22	0.58	0.10
Silos and Material Storage[A]	0.00	0.00	2.38	2.30
Slag Yard[A]	0.00	0.00	1.78	0.16
Cooling Towers[B]	0.00	0.00	3.79	2.28
Emergency Equipment[B]	1.67	0.29	0.02	0.02
Off-road Equipment[B]	0.32	1.71	0.06	0.06
Auxiliary Sources				
Building Energy	0.00	0.00	0.00	0.00
Site Area	0.32	0.00	0.00	0.00
Transportation/Mobile	1.35	21.55	41.52	6.78
Maximum Annual Emissions [D]	**89.14**	**116.62**	**175.37**	**130.13**
EKAPCD Threshold (TPY)	**25**	**25**	**15**	--
Exceeds Thresholds?	Yes	Yes	Yes	--

Notes:
[A] Emissions were calculated based in Nucor Florida Permit Application and scaled to represent operational conditions for the project. As such, the emissions presented assume a highly conservative estimate.
[B] ESA calculated emissions based on Applicant provided project specifics included in workbooks included in Appendix D.
[C] No new operational activities are assumed with the off-site improvements, therefore no operational emissions were assumed.
[D] The CCS is anticipated to have a control efficiency of up to 78 percent and the SCR has an anticipated control efficiency of up to 90 percent (RF MacDonald Co., 2023).
Source: ESA, 2023d. Sgro, 2023.

Eastern Kern County is currently in nonattainment for the ozone CAAQS and NAAQS, and the PM_{10} CAAQS. Certain individuals residing in areas that do not meet the CAAQS or NAAQS could be exposed to pollutant concentrations that cause or aggregative acute and/or chronic health conditions (e.g., asthmas, lost work days, premature mortality). A description of the health effects of criteria pollutants can be found in Section 4.3.2, Existing Air Quality Conditions.

Mitigation Measures

Implement Mitigation Measures MM 4.3-1 and MM 4.3-2.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.3-1 and MM 4.3-2, construction impacts would be less than significant, but operational impacts would remain significant and unavoidable.

Impact 4.3-3: Implementation of the project would not expose sensitive receptors to substantial pollutant concentrations.

Health Risk Assessment

Sensitive receptors are particularly sensitive to air pollution because they are persons that are ill, elderly, or have lungs that are not fully developed. Locations where such persons reside, spend considerable amount of time, or engage in strenuous activities are also referred to as sensitive receptors. Typical sensitive receptors include inhabitants of long-term healthcare facilities, rehabilitation centers, convalescent centers, retirement homes, residences, schools, playgrounds, childcare centers, and athletic facilities. As detailed in the sensitive receptors discussion under Section 4.3.4, the closest sensitive receptors are approximately 1,000 feet from the project borders. Implementation of Mitigation Measure MM 4.3-1 would ensure that all readily available and feasible air quality control measures would be implemented to reduce emissions associated with construction and operation.

Toxic Air Contaminants

Projects are evaluated for potential health risk impacts when a new or modified source of TACs is proposed for a location near an existing residential area or other sensitive receptor. An HRA was conducted following OEHHA guidance, as discussed above. The HRA analyzed exposure to TACs starting with the construction period and continuing during operations, for a 30-year exposure period, per the guidance (OEHHA, 2015).

The primary TAC concerns during project construction would be DPM emitted within the project site. During operation of the micro mill, DPM from on-road and off-road equipment and other TACs emitted during metal processing are of concern. Operation of the project processes would follow strict compliance with EKAPCD and CARB rules and regulations to limit emissions. The anticipated construction and operational emissions from the proposed project were quantified in the HRA.

Construction plus Operation

Construction of on-site facilities and off-site improvements would generate short-term DPM air quality impacts, which were evaluated in the HRA. Detailed assumptions and calculations are included in the project-specific Health Risk Assessment Data (Appendix C) and the SCE improvements in the *Air Quality Analysis of Off-Site Power Utilities Memorandum* (Appendix D). The HRA evaluated cancer and non-cancer chronic health risks from construction. DPM is the primary TAC associated with construction, and it does not have an acute REL; therefore, acute hazard index was not quantified for construction impacts.

Exposure to TACs during the construction period was assumed to start with a fetus in the third trimester and continue for the 24 months of construction. Breathing rates and age sensitivity factors from the OEHHA guidance were assumed for the age bin from third-trimester fetus to 2 years of age.

Operation of the proposed project once construction is completed would also generate TAC emissions, as described above. Because cancer risk accumulates over time, the HRA evaluated cancer risk from the proposed project's operations with exposure starting at the end of construction.

Exposure to TACs during the operational period was assumed to start with a 2-year old child and continue for 28 years, resulting in a total exposure period of 30 years. Breathing rates and age sensitivity factors from the OEHHA guidance for the 2-16 year and 16-30 year age bins were used for the operational exposure period.

The results of the HRA for the construction plus operational period for the unmitigated cancer risk at the maximally exposed individual resident (MEIR) is shown in **Table 4.3-9:** *Maximum Unmitigated Health Risk Impacts for Off-Site Sensitive Receptors*. The unmitigated cancer risk level would exceed the 10 in one million threshold established by the EKAPCD (OEHHA, 2015). The MEIR is located to the northwest of the project site. The non-carcinogenic chronic hazard index associated with construction activities was also quantified for proposed project. The unmitigated chronic hazard index at the same MEIR as the cancer impact would be below the EKAPCD chronic hazard index threshold of 1.0.

Table 4.3-9: Maximum Unmitigated Health Risk Impacts for Off-site Sensitive Receptors

Exposure Scenario	Maximum Cancer Risk (# in one million)	Chronic Hazard Index [a]
Unmitigated Construction	10.53	0.26
Traffic Improvement [b]	0.27	0.057
Water Line [b]	0.03	0.003
Power and Telecommunication	4.5	0.01
Unmitigated Operations	3.29	NA
TOTAL	18.62	0.26[c]
Maximum Individual Risk Threshold	10	1.0
Exceeds Threshold?	**Yes**	**No**

[a]DPM is the primary TAC associated with construction, and it does not have an acute REL; therefore, acute hazard was not quantified for the construction period.

[b] The maximum risk impacts from these construction studies are added to the maximum risk from Micro Mill construction and operation. This is inherently conservative because the maximum impacts may occur at different receptors than those from the Micro Mill.

[c]The hazard index is not additive as it is not a cumulative impact as operations begin after completion of construction. The maximum chronic hazard index occurs in construction year 2024.

Source: ESA, 2023d.

Implementation of Mitigation Measure MM 4.3-1 would reduce TAC emissions such that the cancer risk would be reduced to below the 10 in one million significance threshold. The maximum mitigated chronic hazard index at the MEIR would be further reduced below the significance threshold of 1.0. The mitigated risks are presented in **Table 4.3-10:** *Maximum Mitigated Health Risk Impacts for Off-Site Sensitive Receptors*.

Table 4.3-10: Maximum Mitigated Health Risk Impacts for Off-site Sensitive Receptors

Exposure Scenario	Maximum Cancer Risk (# in one million)	Chronic Hazard Index
Mitigated Construction	4.98	0.043
Traffic Improvement [b]	0.27	0.057
Water Line [b]	0.03	0.003
Power and Telecommunication		
Mitigated Operation	1.93	NA
TOTAL	7.17	0.06[c]
Maximum Individual Risk Threshold	10	1.0

Exceeds Threshold?	**No**	**No**

[a] The DPM is the primary TAC associated with construction, and it does not have an acute REL; therefore, acute hazard was not quantified for the construction period.
[b] The maximum risk impacts from these construction studies are added to the maximum risk from Micro Mill construction and operation. This is inherently conservative because the maximum impacts may occur at different receptors than those from the Micro Mill.
[c] The hazard index is not additive as it is not a cumulative impact.
Source: ESA, 2023d.

Operations

The HRA also evaluated the health risks from the 30-year exposure period of operations, with exposure starting once construction is completed. This was done to capture the effect of a 30-year exposure starting with the most vulnerable population in the third trimester fetus to 2-year age bin. Breathing rates and age sensitivity factors from the OEHHA guidance were assumed for the age bins including fetus to 2 years, 2 years to 16 years, and 16 years to 30 years. Detailed assumptions and calculations are included in the project specific Health Risk Assessment Data, (Appendix C).

The modeled cancer risk at the MEIR would be 9.97 in one million and is located northwest of the project site. This risk level would not exceed the 10 in one million significance threshold. The non-carcinogenic chronic and acute hazard impacts associated with project operations were also quantified. The chronic hazard index at the same MEIR as the cancer impact would be 0.03 and would not exceed the significance threshold of 1.0. The acute hazard index at the MEIR would be 0.21 and would not exceed the significance threshold of 1.0. The acute MEIR is located northwest of the project site. The unmitigated results are shown in **Table 4.3-11:** *Maximum Unmitigated 30-Year Operational Health Risk Impacts for Off-Site Sensitive Receptors*.

Table 4.3-11: Maximum Unmitigated 30-Year Operational Health Risk Impacts for Off-site Sensitive Receptors

Exposure Scenario	Maximum Cancer Risk (# in one million)	Chronic Hazard Index	Acute Hazard Index
30-Year Operation	9.97	0.03	0.21
Maximum Individual Risk Threshold	10	1.0	1.0
Exceeds Threshold?	**No**	**No**	**No**
Source: ESA, 2023d.			

Implementation of Mitigation Measure MM 4.3-1 would further reduce TAC emissions by requiring use of Tier 4 on-site heavy equipment such that the cancer risk would be reduced to 5.28 in one million, which would be below the 10 in one million significance threshold. The mitigated results are shown in **Table 4.3-12:** *Maximum Mitigated 30-Year Operational Health Risk Impacts for Off-Site Sensitive Receptors*.

Table 4.3-12: Maximum Mitigated 30-Year Operational Health Risk Impacts for Off-site Sensitive Receptors

Exposure Scenario	Maximum Cancer Risk (#one in one million)	Chronic Hazard Index	Acute Hazard Index
Operation	5.28	0.02	0.21
Maximum Individual Threshold	10	1.0	1.0
Exceeds Thresholds?	**No**	**No**	**No**
Source: ESA, 2023d.			

As shown in **Table 4.3-11**, the cancer risk impacts related to project operations would not exceed the 10 in one million significance threshold at the MEIR and thus would also not exceed the significance threshold at other nearby sensitive receptors.

Additionally, non-carcinogenic and acute hazards at the MEIR are also below EKAPCD thresholds. As such, the health risk impact attributed to the operation of the proposed project would be less than significant.

Ambient Air Quality Analysis

The proposed project would be required to comply with EKAPCD and USEPA permitting requirements. The project would require a permit application for an Authority to Construction with the EKAPCD, which would require purchase of offsets for non-attainment pollutants greater than the NSR thresholds. In addition, the proposed project would require a PSD application with the USEPA and undergo a PSD impact analysis of attainment pollutants. To obtain both of these permits, an ambient air quality analysis must show less than significant impacts to the CAAQS and NAAQS.

CO Hotspots

A CO “hotspot” can occur when vehicles are idling at highly congested intersections. CO hotspots can adversely affect nearby sensitive receptors. The Kern County Planning and Natural Resources Department’s, Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports (2006) states that CO hotspots must be analyzed when one of the following conditions occur: (a) a project increases traffic at an intersection or roadway that operates at a Level of Service (LOS) E or worse; (b) a project involves adding signalization and/or channelization to an intersection; or (c) sensitive receptors such as residences, schools, hospitals, etc., are located in the vicinity of the affected intersection or signalization.

The proposed project is not located in the vicinity of an intersection that is currently operating at level of service (LOS) C or worse. The project would have trip generation associated with construction worker vehicles and vendor trucks. As construction is only expected to last approximately 24 months, it would be considered temporary and would not result in a long-term source of CO emissions.

With the addition of project-generated traffic, the intersections of Backus Road and Sierra Highway, and Sopp Road and Sierra Highway, would all maintain an LOS of C or better through 2042 and improvements are not warranted (LAV, 2023). Highway 14 ramp intersections with Backus Road are anticipated to degrade to a LOS of F with project traffic. However, with implementation of Mitigation Measure MM 4.17-3, installation of a traffic signal and expansion of the intersection at full buildout, LOS would be improved to a C or better. Additionally, under year 2042 estimated traffic volumes the State Route 14 southbound ramp intersection with Backus Road is anticipated to degrade to a LOS of F. With implementation of MM 4.17-3, a traffic signal at State Route 14 and the southbound ramp, the LOS would improve the LOS to better than C. Additionally, as previously noted, the traffic study used in the LOS determination includes both passenger vehicle and diesel trucks. However, passenger vehicles, which are predominantly gasoline-fueled, are the primary source of CO emissions at congested intersections. Regardless, with mitigation, the project would not result in intersections operating at or below LOS E.

Therefore, the project would not have CO hotspot–related impact with MM 4.17-3 and would not contribute a significant level of CO such that localized air quality and human health would be substantially degraded. Therefore, impacts would be less than significant, and a CO hotspot analysis is not required.

Visibility Impacts

Visibility at offsite locations may be impacted by emissions of airborne PM from short-term construction activities and long-term operation of the project. Federally designated Class I areas are of particular concern. These include many wilderness areas and national parks. The nearest Class I areas within 100 kilometers (km) of the proposed site include Domeland, San Gabriel, and the Cucamonga Wilderness areas.

Visibility impact analyses are intended for stationary sources of emissions which are subject to the PSD requirements in 40 CFR Part 60. To ensure visibility at offsite locations are not impacted by project emissions, Mitigation Measure 4.3-3 would be required, so that the 98th percentile change in light extinction is less than 5 percent for each year modeled, when compared to the annual average natural condition value for that Class I area. Emissions reductions pursuant to Mitigation Measures MM 4.3-1 and MM 4.3-2 would also be implemented to reduce the potential for adverse visibility impacts.

Valley Fever

During the proposed ground disturbing activities associated with the project, the potential exists that such activities could disturb dust particles and, if present, Coccidioides immitis (CI) spores, which could then be released into the air and potentially be inhaled by on-site workers and nearby sensitive receptors; exposure to these spores can cause an illness in some individuals known as Valley Fever. Because dust can be an indicator that increased efforts are needed to control other airborne particulates (including CI spores, if any), the project is required to control dust and the potential for exposure to any CI spores as well as provide training and awareness of Valley Fever via Mitigation Measures MM 4.3-2, and MM 4.3-4 and MM 4.3-5.

Mitigation Measure MM 4.3-2 requires the project to have comprehensive site construction controls in place to proactively control the generation of fugitive dust as required and regulated by the EKAPCD Rule 402. This Rule also requires the site to have a designated dust monitor, as well as visible signage for nearby residents with the phone number for the site construction management and the EKAPKD for nearby residents use if they see blowing dust.

Mitigation Measure MM 4.3-4 requires the project to provide training to construction workers on measures they must take to proactively control and reduce fugitive dust and the potential for the release of CI spores during their ground disturbing activities, training on specific worker/task safety procedures, and general information regarding symptoms testing and treatment options for Valley Fever. All workers are trained in and are expected to use their "stop work" authority if their activities are deemed to be causing the release of fugitive dust. This Mitigation Measure also requires the project to develop an educational Valley Fever Training Handout for distribution to onsite workers and nearby residents. This handout contains general information about the causes, symptoms, and treatment instructions regarding Valley Fever, including contact information of local health departments and clinics knowledgeable about Valley Fever. Additionally, MM 4.3-5 would require a one-time fee to Kern County Public Health Services Department for Valley Fever public awareness programs.

With the implementation of Mitigation Measures MM 4.3-2 and MM 4.3-4 through 4.3-5, the potential for the release of CI spores, if present, and the associated potential for workers or nearby residents to contract Valley Fever would be minimized; accordingly, the project would not add significantly to the existing exposure level of construction workers or nearby residences to the CI fungus.

Asbestos

Naturally occurring asbestos can be released from serpentinite and ultramafic rocks when the rock is broken or crushed. At the point of release, the asbestos fibers may become airborne, causing air quality and human health hazards. These rocks have been commonly used for unpaved gravel roads, landscaping, fill projects, and other improvement projects in some localities. Asbestos may be released to the atmosphere due to vehicular traffic on unpaved roads, during grading of development projects, and at mining operations.

Serpentinite and/or ultramafic rock are known to be present in 44 of California's 58 counties. These rocks are particularly abundant in the counties associated with the Sierra Nevada foothills, the Klamath Mountains, and Coast Ranges. However, according to information provided by the Department of Conservation Division of Mines and Geology, the project site is not located in an area where naturally occurring asbestos is likely to be present (CDOC, 2000). Therefore, impacts associated with exposure of construction workers and nearby sensitive receptors to asbestos would be less than significant.

Off-site Improvements

The off-site improvements including the reconductoring and re-poling of existing SCE transmission lines from the Rosamond Substation to the corner of Sopp Road and Division Street will result in approximately 13 miles of existing transmission poles and circuits being replaced. Compliance with the required dust control plan would reduce fugitive dust impacts to less than significant for construction, which would so minimize release of Coccidiodides immitis fungus from construction activities. Consequently, impacts from this off-site improvement work during the construction phase will be less than significant.

Project Health Effects of Criteria Air Pollutants

The EPA and CARB have established AAQS at levels above which concentrations could be harmful to human health and welfare, with an adequate margin of safety. Further, California air districts, like the EKAPCD, have established emission-based thresholds that provide project-level estimates of criteria air pollutant quantities that air basins can accommodate without affecting the attainment dates for the AAQS. Accordingly, elevated levels of criteria air pollutants as a result of a project’s emissions could cause adverse health effects associated with these pollutants. The EKAPCD is designated as attainment area for ozone (one hour), PM_{10} and $PM_{2.5}$ and nonattainment for ozone (eight hours) under the NAAQS, and nonattainment for ozone, PM_{10} and $PM_{2.5}$ under the CAAQS.

Regarding health effects of criteria air pollutants, implementation of Mitigation Measures MM 4.3-1 through MM 4.3-4 would reduce the projects potential to result in regional health effects associated with ROG, NO_X, PM_{10} and $PM_{2.5}$; however, localized health effects associated with NO_X, PM_{10}, and $PM_{2.5}$ could occur. However, implementation of the mitigation measures would reduce both localized and regional project generated construction and operational emissions.

In *Sierra Club v. County of Fresno* (S219783) (Sierra Club) the Supreme Court held that CEQA requires environmental impact reports to either (i) make a “reasonable effort” to substantively connect the estimated amount of a given air pollutant a project will produce and the health effects associated with that pollutant, or (ii) explain why such an analysis is infeasible (6 Cal.5th at 1165-66). However, the Court also clarified that that CEQA “does not mandate” that EIRs include “an in-depth risk assessment” that provides “a detailed comprehensive analysis … to evaluate and predict the dispersion of hazardous substances in the environment and the potential for exposure of human populations and to assess and quantify both the individual and population wide health risks associated with those levels of exposure.” Id. at 1665. However, correlating the project’s criteria air pollutant to specific health impacts, particularly with respect to ozone is not possible because there is no feasible or established scientific method to perform such analysis. This conclusion is supported by both the SJVAPCD and the South Coast Air Quality Management District (SCAQMD) who have determined that this type of analysis is speculative and infeasible and there are no unique issues for the EKAPCD that would make this analysis invalid.

Writing as amicus curiae in *Sierra Club*, the SJVAPCD explained that “[t]he health impact of a particular criteria pollutant is analyzed on a regional and not a facility level based on how close the area is to complying with (attaining) the National Ambient Air Quality Standards (NAAQS). Accordingly, while the type of individual facility/health impact analysis that the Court of Appeal has required is a customary practice for TACs, it is not feasible to conduct a similar analysis for criteria air pollutants because currently available computer modeling tools are not equipped for this task” (Appendix C).

Instead, the SJVAPCD explained that it assesses a project’s potential to exceed AAQS by evaluating the project’s compliance with district thresholds of significance, which are measured in mass emissions (Appendix C). As explained by SJVAPCD, its thresholds are based on factual, scientific data and have been set at a level that ensures that AAQS will not be exceeded, taking into consideration all cumulative emission sources (Appendix C). The SJVAPCD explained that attempting to connect criteria pollutant emissions to localized health impacts will “not yield reliable information because currently available modeling tools are not well suited for this task” (Appendix C). Available models are only equipped to model the impact of all emissions sources on an air basin-wide or regional basis, not on a project-level basis, and “[r]unning the photochemical grid model used for predicting ozone attainment with emissions solely from one project would thus not be likely to yield valid information given the relative scale involved” (Appendix C).

This inability to “accurately ascertain local increases in concentration” of mass emissions and then to further link emissions with health effects is particularly true for ozone and its precursors NO_X and ROG/VOC; ozone is not directly emitted into the air, but is instead formed as ozone precursors undergo complex chemical reactions through sunlight exposure (Appendix C). Given the complex nature of this process, and the fact that ozone can be transported by wind over long distances, “a specific tonnage amount of NO_X or VOCs emitted in a particular area does not equate to a particular concentration of ozone in that area” (Appendix C). For this reason, the photochemical analysis for ozone is done on a regional scale and it is inappropriate to analyze ozone impacts at a local or project-level basis because a localized analysis would at most be speculative, and at worst be misleading. Speculative analysis is not required by CEQA (CEQA Guidelines Section 15145; *Laurel Heights Improvement Association v. Regents of the University of California 1988*).

The SJVAPCD also explained that the disconnect between the tonnage of precursor pollutants and the concentration of ozone or particulate matter formed in a particular area is especially important to understand in considering potential health effects because it is the concentration, not the tonnage, that causes health effects (Appendix C). The SJVAPCD explained that even if a model were developed that could accurately assess local increases in concentrations of pollutants like ozone and particulates, it would still be "impossible, using today's models, to correlate that increase in concentration to a specific health impact" (Appendix C). The SJVAPCD stated that even a project with criteria pollutant emissions above its CEQA thresholds does not necessarily cause localized human health impacts as, even with relatively high levels of emissions, the SJVAPCD cannot determine "whether and to what extent emissions from an individual project directly impact human health in a particular area" (Appendix C). The SJVAPCD explained that this is particularly true for development projects like the proposed project, where most of the criteria pollutants derive from mobile and area sources and not stationary sources. The SCAQMD also, as amicus curiae in *Sierra Club*, made similar points, reiterating that "an agency should not be required to perform analyses that do not produce reliable or meaningful results" (Appendix C). SCAQMD agrees that it is very difficult to quantify health impacts with regard to ozone, opining that the only possible means of successfully doing so is for a project so large that emissions would essentially amount to *all* regional increases (Appendix C). With regard to particulate matter, the SCAQMD noted that while the CARB has created a methodology to predict expected mortality from large amount of $PM_{2.5}$, the primary author of the methodology has reported that it "may yield unreliable results due to various uncertainties" and CARB staff has been directed by its Governing Board to reassess and improve it, which factor "also counsels against setting any hard-and-fast rule" about conducting this type of analysis. The amicus briefs filed by SJVAPCD and SCAQMD in *Sierra Club* are included in Appendix C.

Mitigation Measures

Implement MM 4.3-1, MM 4.3-2, and MM 4.17-3, see Section 4.17, *Transportation and Traffic*

MM 4.3-3: Complete a screening procedure approved by the Federal Land Manager that demonstrates the 98th percentile change in light extinction is less than 5 percent for each modeled year, when compared to the annual average natural condition value for the Class I areas within 100 km of the proposed site.

MM 4.3-4: To minimize personnel and public exposure to potential Valley Fever–containing dust on and off site, the following control measures shall be implemented during project construction:

a. Equipment, vehicles, and other items shall be thoroughly cleaned of dust before they are moved off site to other work locations.

b. Wherever possible, grading and trenching work shall be phased so that earthmoving equipment is working well ahead or downwind of workers on the ground.

c. The area immediately behind grading or trenching equipment shall be sprayed with water before ground workers move into the area.

d. In the event that a water truck runs out of water before dust is sufficiently dampened, ground workers being exposed to dust shall leave the area until a truck can resume water spraying.

e. To the greatest extent feasible, heavy-duty earth-moving vehicles shall be closed-cab and equipped with a HEP-filtered air system.

f. Workers shall receive training in procedures to minimize activities that may result in the release of airborne Coccidioides immitis (CI) spores, to recognize the symptoms of Valley Fever, and shall be instructed to promptly report suspected symptoms of work related Valley Fever to a supervisor. Evidence of training shall be provided to the Kern County Planning and Natural Resources Department within 5 days of the training session.

g. A Valley Fever informational handout shall be provided to all onsite construction personnel. The handout shall, at a minimum, provide information regarding the symptoms, health effects, preventative measures, and treatment. Additional information and handouts can be obtained by contacting the Kern County Public Health Services Department.

h. Onsite personnel shall be trained on the proper use of personal protective equipment, including respiratory equipment. National Institute for Occupational Safety and Health–approved respirators shall be provided to onsite personal, upon request. When exposure to dust is unavoidable, provide appropriate NIOSH-approved respiratory protection to affected workers. If respiratory protection is deemed necessary, employers must develop and implement a respiratory protection program in accordance with Cal/OSHA's Respiratory Protection standard (8 CCR 5144).

MM 4.3-5: Prior to the issuance of any grading permit, a one-time fee shall be paid to the Kern County Public Health Services Department in the amount of $3,200 for Valley Fever public awareness programs.

Level of Significance

With the implementation of Mitigation Measures MM 4.3-1 through MM 4.3-5 and MM 4.17-3 from Section 4.17, *Transportation and Traffic*, impacts would be less than significant.

Impact 4.3-4: Implementation of the project would not result in other emissions (such as those leading to odors adversely affecting a substantial number of people).

Other Emissions (Such as Odors)

Land uses typically producing objectionable odors include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The proposed project is a large industrial facility. However, the majority of the operations would be indoors. Water that has direct contact with contaminants in the steel making process (contact water) would be treated in a wastewater treatment plant. Water that has run through the steel making process would flow to a settling basin where settleable matter is dropped out. An oil skimmer would remove oils from the water in the basin then pumped to a sand filter for further treatment. Treated water would then be stored in a clarified water tank where chemical dosing units are used to balance the water's chemistry. Sewage water would not be treated at the treatment plant. The proposed project would follow EKAPCD rules, including Rule 414 (Wastewater Separators) and 419 (Nuisance) during project operations.

Additionally, the operation of the water line, traffic improvements, and the SCE power and telecommunication lines are not land uses that produce objectionable odors. During operation of the off-site improvements minimal amounts of emissions could be generated from periodic inspections and maintenance. Most regular operation and maintenance activities of the traffic improvements and overhead facilities are performed from service vehicles. For these reasons, impacts from the operations of the off-site improvements would be less than significant. During construction, odors would come predominantly from construction equipment, which would cease immediately after construction is complete. Furthermore, the project would be required to comply with California Code of Regulations, Title 13, Sections 2449(d)(3) and 2485, which minimizes the idling time of construction equipment either by shutting it off when not in use or by reducing the time of idling to no more than five minutes. This would further reduce the detectable odors from heavy-duty equipment exhaust. Additionally, the project would follow all applicable EKAPCD rules and regulation to keep odors minimal. Given the large project area and strong prevailing winds at the project site, these odors would be dispersed and would not create significant objectionable odors. As discussed, construction-related odors would be short-term and cease upon project completion.

Sparse residences are located in the vicinity of the project site; therefore, short term fueling odors during construction and periodic refueling during long-term operations would not impact a substantial number of people. As such, the proposed project is not expected to result in adverse emissions affecting a substantial number of people.

Off-site Improvements

The reconductoring and re-poling of approximately 13 miles of existing SCE transmission lines would not result in emissions adversely affecting a substantial number of people. As discussed previously, to supply power to the site, SCE requires two main components, a power line and a fiber-optic (telecommunication) line. Given the existing, built out transmission lines, project-related improvements would not result in newly disturbed land or creation of new routes that would affect nearby sensitive receptors. For these reasons, impacts from the construction and installation of off-site improvements standing alone would be less than significant.

Mitigation Measures

No mitigation would be required.

Level of Significance

Impacts would be less than significant.

Cumulative Setting Impacts and Mitigation Measures

Local Air Quality Impacts

By definition, regional air pollution is largely a cumulative impact in that no single project is sufficient in size, by itself, to cause nonattainment of air quality standards. The contribution of a project's air emissions to regional air quality impacts is, by its nature, a cumulative effect. Emissions from cumulative projects in the vicinity could also contribute to cumulative air quality conditions and potentially adverse regional air quality impacts. The project-level thresholds for criteria air pollutants identify levels of emissions for new sources that are not anticipated to result in a considerable net increase in nonattainment criteria air pollutants. Therefore, if a project's emissions are below the project-level thresholds, the project would not result in a considerable contribution to cumulative regional air quality impacts. However, if the project contribution is above the thresholds, then the project would contribute a considerable amount to the cumulative impact. This analysis was conducted under Impact 4.3-2, and the project contribution (due to operations) was found to exceed significance thresholds, resulting in a considerable contribution.

Cumulative Projects

There are a total of 35 projects within a six-mile radius of the project site. Of the 35 projects, 16 have been approved, 15 are in the application phase, 3 are in the process stage, and 1 is completed/constructed. Since thresholds were exceeded with one approved project from each the 1-mile and the 6-mile, one of the 16 approved projects, and the completed/constructed were selected to demonstrate the localized construction impacts. The Edwards Air Force Base Solar Project is located adjacent and the east of the project site and has been completed and the Bellefield Solar Project (approved) located approximately 4.6 miles north of the project site are included in **Table 4.3-13:** *Cumulative Construction Emissions within 1-Mile and 6-Mile Radius*. As shown in **Table 4.3-13**, the combined construction emissions from the project and other potential projects within 1-mile and 6-miles from the project site would exceed EKAPCD's significance thresholds for NO_X and PM_{10}. Under a conservative scenario where construction schedules for all projects would overlap with each other and with the project, the localized effect would result in cumulatively significant construction NO_X and PM_{10} emissions.

With regard to operations, several of the cumulative projects are renewable energy, residential, and some commercial projects. During operation of the proposed project, the only likely sources of emissions for renewable facilities would be limited to vehicular emissions associated with routine employee vehicle trips for maintenance and monitoring activities, the energy storage system facilities, and emergency backup generators. Additionally, employee trips may also be made for the washing of solar PV panels, which may only occur seasonally throughout the year. During operation of the residential and commercials uses, sources would include vehicular emissions associated with residents, visitors, and delivery vehicle trips to and from the residential uses. Additional emissions from on-site sources such as natural gas combustion, landscaping equipment, and use of consumer products would also be emitted. However, as shown in **Table 4.3-8**, operational emissions of the project, even with mitigation, would exceed EKAPCD thresholds. As such, the project's contribution to the cumulative impact would be considerable.

Table 4.3-13: Cumulative Construction Emissions within 1-Mile and 6-Mile Radius

Project	VOC	NOx	SOx	PM_{10}
Proposed Project[a]	2.81	16.03	0.38	1.59
Project within 1-Mile Radius				
Edwards Air Force Base Solar	2.57	23.31	0.08	17.57
Projects within 6-Mile Radius				
Bellefield Solar Project	3.4	23.6	0.1	13.9
EKAPCD Threshold (TPY)	**25**	**25**	-	**15**
Exceeds Threshold?	No	Yes	-	Yes

Notes:
[a] Micro mill emissions calculations were calculated using information provided to ESA and CalEEMod software.
Source: ESA, 2022.

Toxic Air Contaminants

TACs from the proposed project would be considered significant and unavoidable if project specific risk exceeded cancer, chronic, and acute thresholds listed above. As discussed previously, mitigated TAC impacts from construction and operation would result in less-than significant cancer and non-cancer risk. Therefore, the contribution to health risk from project TAC emissions would not be cumulatively considerable, and impacts would be less than significant.

CO Hotspots

The project level discussion of CO hotspots, above, is in itself a cumulative analysis. There is no additional information to present for cumulative impacts. Therefore, as stated above, CO impacts would not be cumulatively considerable and impacts would be less than significant.

Cumulative Impacts Summary

As discussed in Impact Statement 4.3-1, the construction emissions generated by the project individually, but inclusive of both on-site facilities and off-site improvements, would not exceed EKAPCD thresholds. With regard to project level construction emissions, Mitigation Measures MM 4.3-1 and MM 4.3-5 would reduce impacts related to NO_X and PM_{10} from diesel emissions, reduce dust generation, and address potential Valley Fever risk by implementing fugitive dust control measures, establishing a public complaint protocol for excessive dust generation, and requiring Valley Fever-related training for construction workers. However, assuming on a worst-case basis that the construction schedules for all cumulative projects would overlap with each other and with the proposed project, cumulative impacts during construction could be significant and unavoidable related to NO_X and PM_{10} emissions.

Operation of the proposed project would result in an overall net reduction of emissions by providing electricity that could displace energy produced from fossil fuels. Operation of the project exceeds the project level regulatory thresholds and, therefore, would contribute to a long-term cumulative increase in criteria pollutants. The project's incremental contribution to operational impacts would be cumulatively considerable.

Mitigation Measures

Implement Mitigation Measures MM 4.3-1 through MM 4.3-5.

Level of Significance after Mitigation

Despite implementation of Mitigation Measures MM 4.3-1 through MM 4.3-5, construction emissions generated by the project and related projects could cumulatively combine and result in a temporary significant and unavoidable cumulative impact. Cumulative operational impacts would also be significant and unavoidable.

Chapter 3.0, *Project Description*, Page 3-30

Offsite Improvements

SCE is the electricity provider for the project site. To supply power to the site, SCE requires two main components, a power line and a fiber-optic (telecommunication) line. The power line will consist of an upgrade to a portion of the Corum-Goldtown-Rosamond 66 kilovolt (kV) line, which runs from the Rosamond Substation (on the corner of Rosamond Boulevard and 60th Street W) parallel to Rosamond Boulevard before connecting to the north-south 66 kV line at approximately Rosamond Boulevard/Division Street, within the Edwards Air Force Base (EAFB) utility corridor. The connection will continue north within EAFB's utility corridor approximately following the path of Division Street until Sopp Road. From the corner of Sopp Road and Division Street a new 66 kV power line will be erected to the Project Site at Sopp Road. See **Figure 3-14:** *Existing and Proposed Offsite Improvements*.

SCE estimates that the existing 66 kV line from Rosamond Substation to the corner of Sopp Road and Division Street will need to be reconductored (totaling approximately 13 miles), with all existing transmission poles requiring replacement with new poles installed for the section from the corner of Sopp Road and Division Street to the Project Site. This will consist of the installation of new poles and circuits.

There will be two fiber optic lines connected to the plant. One fiber optic cable will be installed by SCE who will be the electricity provider for the project site. The fiber op it would tie into the existing telecommunications line from approximately Tehachapi Willow Springs Road following the route of Backus Road and routing around the north side of Exit 61 of SR-14 to Sierra Highway. The other fiber optic cable will be for PSG business and industrial use, and it will be connected from an existing AT&T fiber at Sopp road.

The Antelope Valley-East Kern Water Agency (AVEK) water main is located on the eastern side of Sierra Highway, approximately 200' feet from the boundary of the project site. For operations, a new water line would be installed from the project site, underneath the railroad, connecting to the 36~~0~~-inch main AVEK line via an existing 10-inch turnout that is currently capped with a blind flange. For construction, water will be trucked to the project site and the project proponent will also use the existing water well at the plant. Two trucks per day were assumed during the construction phase.

Section 4.3, *Air Quality*, Page 4.3-29

Rule 210.A

The purpose of this Rule is to provide for preconstruction review of any new major stationary source, or major modification of an existing major stationary source of a nonattaintment pollutant, insure BACT has been proposed for each emission unit included in each new major stationary source, and provide offsets for any significant net emissions increases of a nonattainment pollutant from any new major stationary source.

Section 4.3, *Air Quality*, Page 4.3-30

Rule 422

Rule 422 adopts the EPA's New Source Performance Standards by reference, which grants EKAPCD the ability to ensure that all new and modified sources shall comply with applicable standards, criteria, and requirements set forth in Title 40, Chapter 1, Part 60, of the Code of Federal Regulations that are in effect as of October 10, 2017.

Section 4.3, *Air Quality*, Page 4.3-31

The 2023 Ozone Air Quality Attainment Plan (2023 AQAP) was adopted by EKAPCD on May 4, 2023. The 2023 AQMP includes required elements of an attainment plan, as well as the emissions reductions and control measures necessary to demonstrate attainment with the 2008 and 20156 8-hour ozone NAAQS. Modeling completed by EKAPCD indicates that EKAPCD would not attain the 2015, 8-hour ozone NAAQS (0.070 ppm) by 2027, attainment deadline for the Serious nonattainment designation, but could attain it by 2033, the attainment deadline for the Severe nonattainment designation. Pursuant to CAA Section 181(b)(3) "Voluntary Reclassification", EKAPCD is petitioning CARB in the 2023 AQAQP to formally submit a request to the USEPA asking for the voluntary reclassification from "Serious" to "Severe" for the 2015 8-hour ozone NAAQS. The voluntary reclassification would extend the attainment deadline to August 27, 2033. As of June 1, 2023, neither CARB nor the USEPA have approved the 2023 AQAP (EKAPCD, 2023).

Section 4.3, *Air Quality*, Page 4.3-46

COVID-19

There are no definitive quantitative thresholds related to receptor exposure to Coronavirus Disease 2019 (COVID-19), and the relationship to exposure to $PM_{2.5}$.

Section 4.3, *Air Quality*, Page 4.3-47

2023 AQAP Rules

The proposed project, as a steel mill plant, would be considered a new major stationary source and would be subject to EKAPCD's MNSR rule. As such, the emissions limits under Rule 210.1A would apply. ~~This rule~~ Rule 210.1A requires new major stationary sources that increase emissions in amounts exceeding specified thresholds to provide emission reduction offsets to mitigate their emissions growth. The applicability threshold ~~for NO_X and VOC~~ in Rule 210.1A is ~~50~~ 25 tons per year for NO_x and VOC, 15 tons per year for PM_{10}, and 27 tons per year for SO_x, with an offset ratio of 1.~~2~~3-to-1.0 for emission offsets generated within the Mojave Desert Air Basin. If emission offsets generated from outside the Air Basin are utilized, the offset ratio may need to be increased to ensure the District maintains "reasonable further progress" in accordance with the AQAP. As such, there should be no net effect on emissions inventories from future construction or modifications at major stationary sources due to offset requirements. To ensure construction or modification of major sources has no net effect on emission inventories used for demonstrating attainment, banked ERCs, which otherwise would not be included as emissions in the baseline and subsequent inventories, must be added back into the inventories, pursuant to federal requirements. The 2023 AQAP includes a list of banked ERCs currently in the EKAPCD's credit bank as of 2022. The banked ERCS would lead to an increase of 0.005 ppb in attainment year ozone design values and would not affect the attainment status. Thus, with compliance of EKAPCD Rule 210.1A, construction and operation of the proposed project would comply with the 2023 AQAP.

Section 4.3, *Air Quality*, Page 4.3-48

The proposed project, as a steel mill plant, would be considered a new major stationary source and would be subject to EKAPCD's MNSR rule. This rule requires new major stationary sources that increase emissions in amounts exceeding specified thresholds to provide emission reduction offsets to mitigate their emissions growth. The applicability threshold for NOX and VOC in Rule 210.1A is 25~~50~~ tons per year with an offset ratio of 1.~~2~~3-to-1.0. As such, there should be no net effect on emissions inventories from future construction or modifications at major stationary sources due to offset requirements. To ensure construction or modification of major sources has no net effect on emission inventories used for demonstrating attainment, banked ERCs, which otherwise would not be included as emissions in the baseline and subsequent inventories, must be added back into the inventories, pursuant to federal requirements. The 2023 AQAP includes a list of banked ERCs currently in the EKAPCD’s credit bank as of 2022. The banked ERCS would lead to an increase of 0.005 ppb in attainment year ozone design values and would not affect the attainment status. Thus, with compliance of EKAPCD Rule 210.1A, construction and operation of the proposed project would comply with the 2023 AQAP.

Although the proposed project emissions were not included in the projections for the 2023 AQAP, compliance with EKAPCD’s Rule 210.1A, MNSR would render the proposed project consistent with growth projections of the 2023 AQAP, since they would not increase emissions, over those allowed by the MNSR, and would not jeopardize attainment of the AQAP. Therefore, the proposed project is consistent with the goals of the 2023 AQAP.

Section 4.3, *Air Quality*, Page 4.3-49 through 4.3-52

MM 4.3-2: To control fugitive PM emissions during construction, prior to the issuance of grading or building permits and any earthwork activities, the project proponent shall prepare a comprehensive Fugitive Dust Control Plan for review and approval by the Eastern Kern Air Pollution Control District and submitted to the Kern County Planning and Natural Resources Department. The plan shall include all Eastern Kern Air Pollution Control District recommended measures, including but not limited to, the following:

a. All soil being actively excavated or graded shall be sufficiently watered to prevent excessive dust. Watering shall occur as needed with complete coverage of disturbed soils areas. Watering shall take place a minimum of three times daily where soil is being actively disturbed, unless dust is otherwise controlled by rainfall or use of a dust suppressant.

b. Vehicle speed for all on site (i.e., within the project boundary) construction vehicles shall not exceed 15 mph on any unpaved surface at the construction site. Signs identifying construction vehicle speed limits shall be posted along onsite roadways, at the site entrance/exit, and along unpaved site access roads.

c. Vehicle speeds on all offsite unpaved project-site access roads (i.e., outside the project boundary) construction vehicles shall not exceed 25 mph. Signs identifying vehicle speed limits shall be posted along unpaved site access roads and at the site entrance/exit.

d. All onsite unpaved roads ~~and offsite unpaved public project-site access road(s)~~ shall be effectively stabilized of dust emissions using water or Eastern Kern Air Pollution Control District approved dust suppressants/palliatives, sufficient to prevent wind-blown dust from exceeding 20 percent opacity for more than three minutes in an hour and to ensure fugitive dust would not be visible beyond the property line ~~at nearby residences or public roads.~~ If water is used, watering shall occur a minimum of three times daily, sufficient to keep soil moist along actively used roadways. During the dry season, unpaved road surfaces and vehicle parking/staging areas shall be watered immediately prior to periods of high use (e.g., worker commute periods, truck convoys). Reclaimed (non-potable) water shall be used to the extent available and feasible.

e. The amount of the disturbed area (e.g., grading, excavation) shall be reduced and/or phased where possible.

f. All disturbed areas shall be sufficiently watered or stabilized by Eastern Kern Air Pollution Control District approved methods to prevent excessive dust. On dry days, watering shall occur a minimum of three times daily on actively disturbed areas. Watering frequency shall be increased whenever wind speeds exceed 15 mph or, as necessary, to prevent wind-blown dust exceeding 20 percent opacity at nearby residences or public roads. Reclaimed (nonpotable) water shall be used to the extent available and feasible.

g. All clearing, grading, earth moving, and excavation activities shall cease during periods when dust plumes of 20 percent or greater opacity affect public roads or nearby occupied structures.

h. All disturbed areas anticipated to be inactive for periods of 30 days or more shall be treated to minimize wind-blown dust emissions. Treatment may include, but is not limited to, the application of an Eastern Kern Air Pollution Control District-approved chemical dust suppressant, gravel, hydro-mulch, revegetation/seeding, or wood chips.

i. All active and inactive disturbed surface areas shall be stabilized, where feasible.

j. Equipment and vehicle access to disturbed areas shall be limited to only those vehicles necessary to complete the construction activities.

k. Where applicable, permanent dust control measures shall be implemented as soon as possible following completion of any soil-disturbing activities.

l. Stockpiles of dirt or other fine loose material shall be stabilized by watering or other appropriate methods sufficient to reduce visible dust emissions to a limit of 20 percent opacity. If necessary and where feasible, three-sided barriers shall be constructed around storage piles and/or piles shall be covered by use of tarps, hydro-mulch, woodchips, or other materials sufficient to minimize windblown dust.

m. Water shall be applied prior to and during the demolition of onsite structures sufficient to minimize wind-blown dust.

n. Where acceptable to the fire department and feasible, weed control shall be accomplished by mowing instead of disking, thereby leaving the ground undisturbed and with a mulch covering.

o. All trucks hauling dirt, sand, soil, or other loose materials shall be covered or shall maintain at least six inches of freeboard (minimum vertical distance between top of the load and top of the trailer) in accordance with California Vehicle Code Section 23114.

p. Gravel pads, grizzly strips, or other material track-out control methods approved for use by Eastern Kern Air Pollution Control District shall be installed where vehicles enter or exit unpaved roads onto paved roadways.

q. Haul trucks and off-road equipment leaving the site shall be washed with water or high pressure air, and/or rocks/grates at the project entry points shall be used, when necessary, to remove soil deposits and minimize the track out/deposition of soil onto nearby paved roadways.

r. During construction paved road surfaces adjacent to the site access road(s), including adjoining paved aprons, shall be cleaned, as necessary, to remove visible accumulations of track-out material. If dry sweepers are used, the area shall be sprayed with water prior to sweeping to minimize the entrainment of dust. Reclaimed water shall be used to the extent available.

s. Portable equipment, 50 horsepower or greater, used during construction activities (e.g., portable generators) shall require California statewide portable equipment registration (issued by California Air Resources Board) or an Eastern Kern Air Pollution Control District permit.

t. The Fugitive Dust Control Plan shall identify a designated person or persons to monitor the fugitive dust emissions and enhance the implementation of the measures, as necessary, to minimize the transport of dust off site and to ensure compliance with identified fugitive dust control measures. Contact information for a hotline shall be posted on site should any complaints or concerns be received during working hours and holidays and weekend periods when work may not be in progress. The names and telephone numbers of such persons shall be provided to the Eastern Kern Air Pollution Control District Compliance Division prior to the start of any grading or earthwork.

u. Signs shall be posted at the project site entrance and written notifications shall be provided a minimum of 30 days prior to initiation of project construction to residential land uses located within 1,000 feet of the project site. The signs and written notifications shall include the following information: (a) Project Name; (b) Anticipated Construction Schedule(s); and (c) Telephone Number(s) for designated construction activity monitor(s) or, if established, a complaint hotline.

v. The designated construction monitor shall document and immediately notify Eastern Kern Air Pollution Control District of any air quality complaints received. If necessary, the project operator and/or contractor will coordinate with Eastern Kern Air Pollution Control District to identify any additional feasible measures and/or strategies to be implemented to address public complaints.

w. The solar array shall obtain a permit from the Eastern Kern Air Pollution Control District and implement phased removal of vegetation from the site to ensure dust control during construction.

Section 4.3, *Air Quality*, Page 4.3-64

COVID-19

COVID-19 is a new disease, caused by a novel (or new) human coronavirus that has not previously been seen in humans. The first known case of COVID-19 was confirmed in the United States on January 20, 2020 (Holshue et al., 2020). There are many types of human coronaviruses, including some that commonly cause mild upper-respiratory tract illnesses. COVID-19 is a respiratory illness that can spread from person to person. According to the Center for Disease Control (CDC), older adults and people who have severe underlying medical conditions like heart or lung disease or diabetes seem to be at higher risk for developing more serious complications from COVID-19 illness. Symptoms may appear 2 to 14 days after the exposure to the virus and may include, but are not limited to: fever or chills, cough, shortness of breath or difficulty breathing, fatigue, muscle or body aches, headache, loss of taste or smell, sore throat, congestion or runny nose, nausea or vomiting, and diarrhea (CDC, 2020a). According to the CDC, COVID-19 is believed to spread between people who are in close contact with one another (within about 6 feet) through respiratory droplets produced when an infected person coughs, sneezes, or talks (CDC, 2020b). COVID-19 research and causality is still in the beginning stages. A nationwide study by Harvard University found a linkage between long term exposure to PM2.5 (averaged from 2000 to 2016) as air pollution and statistically significant increased risk of COVID-19 death in the United States (Harvard, 2020).

Regarding health effects of criteria air pollutants, the project's potential to result in regional health effects associated with ROG, NO_X, PM_{10} and $PM_{2.5}$ on specific vulnerable populations cannot be calculated given existing scientific constraints. A scientific method to calculate the exact number of individuals in a vulnerable population that will get sick has not been developed and therefore, it is assumed localized health effects associated with NO_x, PM_{10}, and $PM_{2.5}$ emissions from project implementation could occur. The project proposes the construction and operation of a large-scale utility solar project that would require dust-generating construction activities such as pile-driving, mowing, and grading, over a large area. Due to the open nature of the project site, blowing dust could occur and result in the dispersal of criteria air pollutants such as $PM_{2.5}$ and potentially contribute to the transmission of respiratory diseases like COVID-19.

Since COVID-19 is understood to spread as result of close, person-to-person contact, especially within poorly ventilated indoor spaces, the likelihood of emissions from the proposed project directly increasing the spread of COVID-19 is remote. However, a nationwide study by Harvard University found a linkage between long term exposure to $PM_{2.5}$ as air pollution and statistically significant increased risk of COVID-19 death in the United States (Harvard, 2020). Though construction dust suppression measures would be implemented as a requirement of Mitigation Measure MM 4.3-2, exposure to dust during construction could still occur which could increase the severity of the disease project employees and nearby residents to COVID-19 should they contract it. However, the vaccines for COVID-19 drastically reduce the likelihood of hospitalization, much less death, as a result of contracting COVID-19. In spite of a readily available COVID-19 vaccine supply in the United States, the COVID-19 pandemic is on-going as a result of low vaccination rates and mask compliance by unvaccinated individuals. People of color may also have a higher risk of getting sick or dying from COVID-19 (California Department of Public Health 2020) and may live in areas already burdened by air pollution (NRDC 2014). On-site workers and residents near project activities potentially could be exposed to increased levels of $PM_{2.5}$ from project activities due to the emissions of $PM_{2.5}$ from the project.

Therefore, in addition to implementation of Mitigation Measure MM 4.3-2, the project would implement Mitigation Measure MM 4.3-6, which requires implementation of a COVID-19 Health and Safety Plan in accordance with the Kern County Public Health Services Department and Kern County Health Officer mandates. Implementation of Mitigation Measures MM 4.3-2 and MM 4.3-6 would be required to reduce the project’s regional and localized health effects associated with criteria air pollutants and COVID-19; however, the exact reduction from implementation of these mitigation measures cannot be quantified given existing scientific constraints. Consequently, the United States COVID-19 national health emergency ended on May 11, 2023, rendering COVID-19 as less of a threat to public health as opposed to the previous three years. With implementation of MM 4.3-2 and MM 4.3-6, impacts would be less than significant.

Section 4.3, *Air Quality*, Page 4.3-65

MM 4.3-6: Prior to the issuance of grading or building permits, a COVID Health and Safety Plan shall be prepared in accordance with the California Department of Public Health Guidance. A copy of the COVID Health and Safety Plan shall be submitted to the Kern County Planning and Natural Resources Department for review and approval.

Level of Significance

With the implementation of Mitigation Measures MM 4.3-1 through MM 4.3-~~5~~6 and MM 4.17-3 from Section 4.17, *Transportation and Traffic*, impacts would be less than significant.

Section 4.3, *Air Quality*, Page 4.3-68 through 4.3-69

Cumulative Impacts Summary

As discussed in Impact Statement 4.3-1, the construction emissions generated by the project individually, but inclusive of both on-site facilities and off-site improvements, would not exceed EKAPCD thresholds. With regard to project level construction emissions, Mitigation Measures MM 4.3-1 and MM 4.3-~~5~~6 would reduce impacts related to NO_X and PM_{10} from diesel emissions, reduce dust generation, and address potential Valley Fever risk by implementing fugitive dust control measures, establishing a public complaint protocol for excessive dust generation, ~~and~~ requiring Valley Fever-related training for construction workers, and requiring preparation of a COVID Health and Safety Plan. However, assuming on a worst-case basis that the construction schedules for all cumulative projects would overlap with each other and with the proposed project, cumulative impacts during construction could be significant and unavoidable related to NO_X and PM_{10} emissions.

Mitigation Measures

Implement Mitigation Measures MM 4.3-1 through MM 4.3-~~5~~6.

Level of Significance after Mitigation

Despite implementation of Mitigation Measures MM 4.3-1 through MM 4.3-~~5~~6, construction emissions generated by the project and related projects could cumulatively combine and result in a temporary significant and unavoidable cumulative impact. Cumulative operational impacts would also be significant and unavoidable.

Section 4.5, *Cultural Resources*, Page 4.5-39

MM 4.5-3: During implementation of the project, in the event that archaeological materials are encountered during the course of grading or construction, the project contractor shall cease any ground-disturbing activities within 50 feet of the find. The area of the discovery shall

VIII. EMISSION CALCULATIONS:

A. Assumptions:

1. Scrap & Additive Material Receiving, Handling, & Storage
    a. Maximum scrap operation- 8,760 hr/yr
    b. Scrap throughput- 500,780 ton/yr
    c. Scrap containing fines- 20%
    d. Scrap moisture content- 2%
    e. Scrap silt content- 2%
    f. Threshold Friction Velocity for Scrap- 1.33 m/s (~scoria, AP-42 13.2.5)
    g. Scrap Storage Pile Area- 3.9 acres
    h. Carbon additive- 9,550 ton/yr
    i. Lime additive- 9,550 ton/yr
    j. Dolomite additive- 9,550 ton/yr
    k. Loading time of additives to silos- 500 hr/yr
    l. Silo dust bin vents feed to melt shop dust collection system – no direct emissions
    m. Alloys- 11,902 ton/yr
    n. Alloy Transfer Points: 2
    o. Alloy moisture content- 5.4%
    p. Alloy silt content- 9.5%
    q. Threshold Friction Velocity for Alloy- 1.12 m/s (~uncrusted coal pile, AP-41 13.2.5)
    r. Alloy storage pile area - 140 m^2 (applicant)
    s. Fastest mile (ref. anemometer): 22 m/s (applicant)
    t. Pile surface disturbance events: 365/yr (daily)

2. Melting, Refining, Casting, & Rolling
    a. Steel production- 456,000 ton/yr
    b. Melt Shop Baghouse Flowrate- 677,000 scfm
    c. Caster Pray Vent Stack
        i. 26,486 cfm exhaust
        ii. 98% capture by spray chamber, 2% to melt shop baghouse
        iii. PM10 fraction- 16%
        iv. PM2.5 Fraction- 2%
    d. Roll Mill:
        i. 21,000 gal/yr of lubricant & grease used
        ii. avg. density of 7.5 lb/gal
        iii. Negligible PM
    e. SNCR Ammonia Slip: 10 ppm

3. Slag Yard:
    a. Operating time- 2,920 hr/yr
    b. Maximum slag production- 59,280 ton/yr
    c. Slag crushing & screening- 1,200 ton/yr
    d. Slag moisture content- 3%
    e. Slag silt content- 5.3%
    f. TFV for erodible piles- 1.12 m/s (~uncrusted coal pile, AP-41 13.2.5)
    g. Slag Storage Pile Sizes:
        i. Raw- 278.7 m^2 (applicant)
        ii. Processed Fines- 243.86 m^2 (applicant)
        iii. Processed Intermediates- 55 m^2 (applicant)
    h. Piles are disturbed daily (365 disturbances/yr)

4. Cooling Towers
   a. Cooling water flow rate:
      i. Tower 1- 16,039.65 gal/min
      ii. Tower 2- 3,742.44 gal/min
      iii. Tower 3- 5,723.73 gal/min
      iv. Tower 4- 484.32 gal/min
   b. Drift rate- 0.0005%
   c. Maximum total dissolved solids (TDS): 4000 ppmw
   d. PM10 Fraction - 0.5584 (Reisman and Frisbie Method PM Fractions)
   e. PM2.5 Fraction - 0.0021 (Reisman and Frisbie Method PM Fractions)

5. Internal Combustion Engines
   a. Maximum Operation: 24 hr/day, 200 hr/yr
   b. 100% of PM is $PM_{2.5}$
   c. Fuel Consumption
      i. ‘008- 27.8 gal/hr (applicant)
      ii. ‘009- 9.3 gal/hr (applicant)
      iii. ‘010- 124.4 gal/hr (applicant)

6. Aboveground Fuel Storage & Dispensing
   a. Maximum throughput:
      i. 3,500 gal/yr gasoline, 52,000 gal/yr diesel
      ii. 100 gal/hr fill rate for gasoline
   b. Phase I EVR & Standing Loss EVR emission controls
   c. No Phase II EVR; gasoline hoses & nozzles will be CARB NVR compliant

B. Emission Factors

1. <u>Raw Material Receiving & Handling</u>

   Scrap depositing - Outdoor

   $E = k(0.0032)\frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}}\ \left(\frac{lb}{ton}\right)$; where:

   E = emission factor
   k = particle size multiplier (0.74 for total PM; 0.35 for PM_{10}; 0.053 for $PM_{2.5}$)
   U = mean wind speed (14 mph for Mojave, CA)
   M = material moisture content (2%)

$$E_{TPM} = (0.74) \times 0.0032 \frac{\left(\frac{(14)}{5}\right)^{1.3}}{\left(\frac{(2)}{2}\right)^{1.4}} = 0.0090 \frac{lb - PM}{ton}$$

$$E_{PM10} = (0.35) \times 0.0032 \frac{\left(\frac{(14)}{5}\right)^{1.3}}{\left(\frac{(2)}{2}\right)^{1.4}} = 0.0043 \frac{lb - PM_{10}}{ton}$$

$$E_{PM2.5} = (0.053) \times 0.0032 \frac{\left(\frac{(14)}{5}\right)^{1.3}}{\left(\frac{(2)}{2}\right)^{1.4}} = 0.0006 \frac{lb - PM_{2.5}}{ton}$$

Scrap depositing - Indoor (Control Efficiency 85%, wind speed reduction)
U = mean wind speed (2 mph)
M = material moisture content (2%)

$$E_{TPM} = (0.74) \times 0.0032 \frac{\left(\frac{(2)}{5}\right)^{1.3}}{\left(\frac{(2)}{2}\right)^{1.4}} = 0.0007 \frac{lb - PM}{ton}$$

$$E_{PM10} = (0.35) \times 0.0032 \frac{\left(\frac{(2)}{5}\right)^{1.3}}{\left(\frac{(2)}{2}\right)^{1.4}} = 0.0003 \frac{lb - PM_{10}}{ton}$$

$$E_{PM2.5} = (0.053) \times 0.0032 \frac{\left(\frac{(2)}{5}\right)^{1.3}}{\left(\frac{(2)}{2}\right)^{1.4}} = 0.0001 \frac{lb - PM_{2.5}}{ton}$$

Raw Material Handling Emission Factor Summary:

	Outdoor	Indoor	
PM	0.0090	0.0007	lb/ton
PM10	0.0043	0.0003	lb/ton
PM2.5	0.0006	0.0001	lb/ton

Scrap Pile Wind Erosion:
PM multipliers:
PM10- 0.5
PM2.5- 0.075

$$P = 58(u^* - u_t^*)^2 + 25(u^* - u_t^*);\ \ If\ u^* \le u_t^*; P = 0$$

$$P = erosion\ potential\ \left(\frac{g}{m^2}\right)$$
$$u^* = friction\ velocity\ \left(\frac{m}{s}\right)$$
$$u_t^* = threshold\ friciton\ velocity\ \left(\frac{m}{s}\right); 1.33\frac{m}{s}$$

$$u^* = 0.053 * u_{10}^+$$
$$u_{10}^+ = fastest\ mile\ of\ reference\ anemometer\ for\ period\ between\ disturbances\ \left(\frac{m}{s}\right)$$

$$u^* = 0.053 * 22\frac{m}{s} = 1.166\frac{m}{s}$$

$$u^* \le u_t^*; therefore, wind\ erosion\ emissions\ not\ expected\ from\ scrap\ pile$$

Alloy Material Depositing:

$$E_{TPM} = (0.74) \times 0.0032 \frac{\left(\frac{(14)}{5}\right)^{1.3}}{\left(\frac{(5.4)}{2}\right)^{1.4}} = 0.0022 \frac{lb - PM}{ton}$$

$$E_{PM10} = (0.35) \times 0.0032 \frac{\left(\frac{(14)}{5}\right)^{1.3}}{\left(\frac{(5.4)}{2}\right)^{1.4}} = 0.0011 \frac{lb - PM_{10}}{ton}$$

$$E_{PM2.5} = (0.053) \times 0.0032 \frac{\left(\frac{(14)}{5}\right)^{1.3}}{\left(\frac{(5.4)}{2}\right)^{1.4}} = 0.0002 \frac{lb - PM_{2.5}}{ton}$$

Alloy Pile Wind Erosion

$$u_t^* = 1.12 \frac{m}{s}$$
$$u^* = 0.053 * 22 \frac{m}{s} = 1.166 \frac{m}{s}$$

$$u^* > u_t^*; therefore, wind\ erosion\ emissions\ may\ occur\ from\ alloy\ pile$$

$$P = 58(1.166 - 1.12)^2 + 25(1.166 - 1.12) = 1.27 \frac{g}{m^2}$$

2. Melting, Refining, Casting, & Rolling

Melt Shop Baghouse (MSBH):
- PM/PM10/PM2.5- 0.0467 lb/ton steel
- SOx- 0.101 lb/ton steel
- NOx- 0.090 lb/ton steel
- VOC- 0.075 lb/ton steel
- CO- 1.819 lb/ton steel

Caster Spray Vent:
- Vent Capture Efficiency- 98% (2% to melt shop baghouse)
- PM- 3.03 x 10^{-3} gr/dscf (Nucor SC Stack Test 11/29/2012)
- PM10- 16% of PM (Reisman and Frisbie PM Factors on Spray Vents)
- PM2.5- 2% of PM (Reisman and Frisbie PM Factors on Spray Vents)
- SOx- 3.59 x 10^{-4} lb/ton
- NOx- 1.20 x 10^{-4} lb/ton
- VOC- 3.78 x 10^{-4} lb/ton
- CO- 9.60 x 10^{-3} lb/ton

Roll Mill Vent
- 4.63% of lube oil vaporizes as VOC (applicant)

3. Slag Yard:

Slag processing:

	PM, lb/ton	PM10, lb/ton	PM2.5, lb/ton
Transfer Point	1.40 x 10^{-4}	1.40 x 10^{-4}	1.40 x 10^{-4}
Crushing	1.20 x 10^{-3}	5.40 x 10^{-4}	1.00 * 10^{-4}
Screening	2.20 x 10^{-3}	7.40 x 10^{-4}	5.00 x 10^{-5}
Material Deposit	0.0051	0.0024	0.0004

Pile Erosion Potential- 1.27 g/m^2

4. Cooling Towers

$$16{,}039.65\frac{gal}{min} * 8.345\frac{lb}{gal} * 0.0005\%\ drift * \frac{4000}{1{,}000{,}000}\ TDS = 0.00268\frac{lb}{min}$$

	Water flow gal/min	Density lb/gal	Drift, %	TDS (ppm)	Drift, Total PM lb/min
Tower 1	16,039.65	8.345	0.0005	4000	0.00268
Tower 2	3,742.44	8.345	0.0005	4000	0.00062
Tower 3	5,723.73	8.345	0.0005	4000	0.00096
Tower 4	16,039.65	8.345	0.0005	4000	0.00008

5. Internal Combustion Engines:
   a. $PM/PM_{10}/PM_{2.5}$-5 lb/1000 gal (applicant proposed for propane fuel)
   b. SOx- 0.35 lb/1000 gal (applicant proposed for propane fuel)
   c. NOx- 1.0 g/bhp-hr for <500-bhp; 0.5 g/bhp-hr for ≥500-bhp (BACT requirement)
   d. VOC- 206 ppmv @ 15% O2 (~1.0 g/bhp-hr) (BACT requirement)
   e. CO- 129 lb/1000 gal (~1.6 g/bhp-hr) (applicant proposal)

	NOx (g/bhp-hr)	**VOC (g/bhp-hr)**	**CO (g/bhp-hr)**
‘008	0.5	1.0	1.6
‘009	1.0	1.0	1.6
‘010	0.5	1.0	1.6

PM:

$$\frac{5}{1000}\frac{lb-PM}{gal\ fuel} \times 27.8\frac{gal}{hr} = 0.139\frac{lb}{hr}$$

$$0.139\frac{lb{\cdot}PM}{hr} \times 453.59\frac{g}{lb} \times \frac{1}{600}\frac{1}{bhp} = 0.105\frac{g}{bhp-hr}$$

SO_x:

$$\frac{0.35}{1000}\frac{lb-SOx}{gal\ fuel} \times 27.8\frac{gal}{hr} = 0.010\frac{lb}{hr}$$

$$0.010\frac{lb{\cdot}SO_x}{hr} \times 453.59\frac{g}{lb} \times \frac{1}{600}\frac{1}{bhp} = 0.007\frac{g}{bhp-hr}$$

Engine Emission Factor Summary

g/bhp-hr	PM_{10}	SO_x	NO_x	VOC	CO
‘008	0.105	0.007	0.5	1.0	1.6
‘009	0.105	0.007	1.0	1.0	1.6
‘010	0.105	0.007	0.5	1.0	1.6

6. Gasoline Storage & Dispensing

Emission factors from CARB 1997 industry-wide risk assessment guidelines and 2013 CARB Monitoring & Lab Division Revised Emission Factors for Gasoline Marketing Operation

Emission Source	**Uncontrolled EF (lb/1000-gal)**	**Controlled (EVR) EF (lb/1000-gal)**
Bulk Transfer	8.4	0.17
Pressure-Driven Losses	2.1	0.053
Spillage	0.61	0.24

Refueling (non-ORVR)	8.4	0.42
Refueling (ORVR)	0.42	0.021
Hose Permeation	0.0459	0.009

$$0.17\frac{lb}{1000-gal}+0.053\frac{lb}{1000-gal}+0.42\frac{lb}{1000-gal}+0.24\frac{lb}{1000-gal}+0.009\frac{lb}{1000-gal}=\mathbf{0.890}\frac{\mathbf{lb}}{\mathbf{1000-gal}}$$

C. **Emission Calculations**:

1. Raw Material Receiving & Handling

Scrap

$$500{,}780\frac{ton}{yr}*0.20=100{,}156\frac{ton}{yr}\ PM\ containing\ scrap$$

Scrap Unloading (Outdoor):

$$100{,}156\frac{ton}{yr}*0.50=50{,}078\frac{ton}{yr}\ scrap\ to\ outdoor\ piles\ (worst\ case)$$

$$50{,}078\frac{ton}{yr}*0.0043\frac{lb\ PM10}{ton}*\frac{1}{2000}\frac{ton}{lb}=0.107\frac{ton}{yr}$$

$$50{,}078\frac{ton}{yr}*0.0043\frac{lb\ PM10}{ton}*\frac{1}{355}\frac{yr}{day}=0.59\frac{lb}{day}$$

$$0.59\frac{lb}{day}*\frac{1}{24}\frac{day}{hr}=0.024\frac{lb}{hr}$$

	EF (lb/ton)	Throughput (ton/yr)	Emissions, ton/yr	day/yr	Emissions, lb/day	hr/day	Emissions, lb/hr
PM	0.0090	50,078	0.226	365	1.24	24	0.052
PM10	0.0043	50,078	0.107	365	0.59	24	0.024
PM2.5	0.0006	50,078	0.016	365	0.09	24	0.004

Scrap Unloading (Indoor):

	EF (lb/ton)	Throughput (ton/yr)	Emissions, ton/yr	day/yr	Emissions, lb/day	hr/day	Emissions, lb/hr
PM	0.0007	50,078	0.018	365	0.099	24	0.004
PM10	0.0003	50,078	0.009	365	0.047	24	0.002
PM2.5	0.0001	50,078	0.001	365	0.007	24	0.0003

Scrap Unloading, Total

	lb/hr	lb/day	ton/yr
PM	0.056	1.338	0.244
PM10	0.026	0.633	0.115
PM2.5	0.004	0.096	0.017

Alloys:
Handling

$$11{,}902\frac{ton}{yr}*0.0011\frac{lb-PM_{10}}{ton}*2\ transfer\ points=25.308\frac{lb-PM_{10}}{yr}$$

$$25.308\frac{lb-PM_{10}}{yr} * \frac{1}{2000}\frac{ton}{lb} = 0.010\frac{ton-PM_{10}}{yr}$$

$$25.308\frac{lb-PM_{10}}{yr} * \frac{1}{365}\frac{yr}{day} = 0.07\frac{lb-PM_{10}}{day}$$

$$0.07\frac{lb-PM_{10}}{day} * \frac{1}{24}\frac{day}{hr} = 0.003\frac{lb-PM_{10}}{hr}$$

	EF (lb/ton)	Throughput (ton/yr)	Emissions, ton/yr	day/yr	Emissions, lb/day	hr/day	Emissions, lb/hr
PM	0.0022	11,902	0.027	365	0.15	24	0.006
PM10	0.0011	11,902	0.013	365	0.07	24	0.003
PM2.5	0.0002	11,902	0.002	365	0.01	24	0.0004

Pile Wind Erosion:

$$1.273\frac{g}{m^2} * 140\ m^2 * \frac{1}{453.59}\frac{lb}{g} * 0.5\frac{lb-PM_{10}}{lb-PM} = 0.196\frac{lb-PM_{10}}{event}$$

$$0.196\frac{lb-PM_{10}}{event} * 365\frac{event}{yr} = 71.69\frac{lb-PM_{10}}{yr}$$

$$71.69\frac{lb-PM_{10}}{yr} * \frac{1}{2000}\frac{ton}{lb} = 0.036\frac{ton}{yr}$$

$$71.69\frac{lb-PM_{10}}{yr} * \frac{1}{365}\frac{yr}{day} = 0.196\frac{lb}{day}$$

	multiplier	Erosion Potential (g/m^2)	Pile Size (m^2)	lb/event	Events/year	ton/yr	lb/day
PM	1	1.273	140	0.393	365	0.07	0.39
PM10	0.5	0.635	140	0.196	365	0.04	0.20
PM2.5	0.075	0.095	140	0.029	365	0.01	0.03

Raw Materials Receiving & Handling Emissions Summary

PM10:

	lb/hr	lb/day	ton/yr
Scrap Unloading	0.026	0.63	0.11
Alloys Handling	0.003	0.07	0.01
Pile Erosion	0.008	0.20	0.04
Total	0.037	0.90	0.16

PM2.5:

	lb/hr	lb/day	ton/yr
Scrap Unloading	0.004	0.10	0.017
Alloys Handling	0.0004	0.01	0.002
Pile Erosion	0.001	0.03	0.01
Total	0.006	0.14	0.021

2. Melting, Refining, Casting, & Rolling

Melt Shop Baghouse:
PM/PM10/PM2.5:

$$0.0467\frac{lb}{ton} * 456{,}000\frac{ton}{yr} = 21{,}295.20\frac{lb}{yr}$$

$$21{,}295.20\frac{lb}{yr} * \frac{1}{365}\frac{year}{day} = 58.34\frac{lb}{day}$$

$$21{,}295.20\frac{lb}{yr} * \frac{1}{2000}\frac{ton}{lb} = 10.65\frac{ton}{yr}$$

$$58.34\frac{lb}{day} * \frac{1}{24}\frac{day}{hr} = 2.431\frac{lb}{hr}$$

SOx:

$$0.101\frac{lb}{ton} * 456{,}000\frac{ton}{yr} = 46{,}056.00\frac{lb}{yr}$$

$$46{,}056.00\frac{lb}{yr} * \frac{1}{365}\frac{year}{day} = 126.18\frac{lb}{day}$$

$$46{,}056.00\frac{lb}{yr} * \frac{1}{2000}\frac{ton}{lb} = 23.03\frac{ton}{yr}$$

$$126.18\frac{lb}{day} * \frac{1}{24}\frac{day}{hr} = 5.26\frac{lb}{hr}$$

NOx:

$$0.090\frac{lb}{ton} * 456{,}000\frac{ton}{yr} = 41{,}040.00\frac{lb}{yr}$$

$$41{,}040.00\frac{lb}{yr} * \frac{1}{365}\frac{year}{day} = 112.44\frac{lb}{day}$$

$$41{,}040.00\frac{lb}{yr} * \frac{1}{2000}\frac{ton}{lb} = 20.52\frac{ton}{yr}$$

$$112.44\frac{lb}{day} * \frac{1}{24}\frac{day}{hr} = 4.68\frac{lb}{hr}$$

VOC:

$$0.0750\frac{lb}{ton} * 456{,}000\frac{ton}{yr} = 34{,}200.00\frac{lb}{yr}$$

$$34{,}200.00\frac{lb}{yr} * \frac{1}{2000}\frac{ton}{lb} = 17.10\frac{ton}{yr}$$

$$34{,}200.00\frac{lb}{yr} * \frac{1}{365}\frac{year}{day} = 93.70\frac{lb}{day}$$

$$93.70\frac{lb}{day} * \frac{1}{24}\frac{day}{hr} = 3.90\frac{lb}{hr}$$

CO:

$$1.81989\frac{lb}{ton} * 456{,}000\frac{ton}{yr} = 829{,}418.00\frac{lb}{yr}$$

$$829{,}418.00\frac{lb}{yr} * \frac{1}{2000}\frac{ton}{lb} = 414.73\frac{ton}{yr}$$

$$829{,}418.00\,\frac{lb}{yr} * \frac{1}{365}\frac{year}{day} = 2{,}272.50\,\frac{lb}{day}$$

$$2{,}272.50\,\frac{lb}{day} * \frac{1}{24}\frac{day}{hr} = 94.69\,\frac{lb}{hr}$$

Ammonia Slip (SNCR):

$$10\;ppmw * \frac{1}{1000000} * 17.03\,\frac{lb}{lbmol} * \frac{1}{379}\frac{lbmol}{ft^3} * 677{,}000\;scfm = 0.30\,\frac{lb}{min}$$

$$0.30\,\frac{lb}{min} * 60\,\frac{min}{hr} = 18.25\,\frac{lb}{hr}$$

$$18.25\,\frac{lb}{hr} * 24\,\frac{hr}{day} = 438.05\,\frac{lb}{day}$$

$$438.05\,\frac{lb}{day} * 365\,\frac{day}{yr} = 159{,}889.32\,\frac{lb}{yr}$$

Caster Spray Stack

PM/PM10/PM2.5:

$$3.03 * 10^{-3}\,\frac{gr}{dscf} * 26{,}486\,\frac{ft^3}{min} * \frac{1}{7000}\frac{lb}{gr} * 0.98 = 0.0112\,\frac{lb\;PM}{min}$$

$$0.0112\;\frac{lb\;PM}{min} * 0.16\,\frac{lb\;PM_{10}}{lb\;PM} = 0.0018\,\frac{lb\;PM_{10}}{min}$$

$$0.0112\;\frac{lb\;PM}{min} * 0.02\,\frac{lb\;PM_{2.5}}{lb\;PM} = 0.0002\,\frac{lb\;PM_{2.5}}{min}$$

	lb/min	min/hr	lb/hr	hr/day	lb/day	hr/yr	ton/yr
PM	0.0115	60	0.674	24	16.18	8760	2.95
PM10	0.0018	60	0.108	24	2.59	8760	0.47
PM2.5	0.0002	60	0.013	24	0.32	8760	0.06

SOx:

$$3.59 * 10^{-4}\,\frac{lb}{ton} * 456{,}000\,\frac{ton}{yr} = 163.70\,\frac{lb}{yr}$$

$$163.70\,\frac{lb}{yr} * \frac{1}{2000}\frac{ton}{lb} = 0.08\,\frac{ton}{yr}$$

$$163.70\,\frac{lb}{yr} * \frac{1}{365}\frac{year}{day} = 0.45\,\frac{lb}{day}$$

$$0.45\,\frac{lb}{day} * \frac{1}{24}\frac{day}{hr} = 0.019\,\frac{lb}{hr}$$

NOx:

$$1.20 * 10^{-4}\,\frac{lb}{ton} * 456{,}000\,\frac{ton}{yr} = 54.72\,\frac{lb}{yr}$$

$$54.72\,\frac{lb}{yr} * \frac{1}{2000}\frac{ton}{lb} = 0.03\,\frac{ton}{yr}$$

$$54.72\,\frac{lb}{yr} * \frac{1}{365}\frac{year}{day} = 0.15\,\frac{lb}{day}$$

$$0.15\,\frac{lb}{day} * \frac{1}{24}\,\frac{day}{hr} = 0.006\,\frac{lb}{hr}$$

VOC:

$$3.78 * 10^{-4}\,\frac{lb}{ton} * 456{,}000\,\frac{ton}{yr} = 172.36\,\frac{lb}{yr}$$

$$172.36\,\frac{lb}{yr} * \frac{1}{2000}\,\frac{ton}{lb} = 0.08\,\frac{ton}{yr}$$

$$172.36\,\frac{lb}{yr} * \frac{1}{365}\,\frac{year}{day} = 0.46\,\frac{lb}{day}$$

$$0.47\,\frac{lb}{day} * \frac{1}{24}\,\frac{day}{hr} = 0.02\,\frac{lb}{hr}$$

CO:

$$9.60 * 10^{-3}\,\frac{lb}{ton} * 456{,}000\,\frac{ton}{yr} = 4{,}377.60\,\frac{lb}{yr}$$

$$4{,}377.60\,\frac{lb}{yr} * \frac{1}{2000}\,\frac{ton}{lb} = 2.19\,\frac{ton}{yr}$$

$$4{,}377.60\,\frac{lb}{yr} * \frac{1}{365}\,\frac{year}{day} = 11.99\,\frac{lb}{day}$$

$$11.99\,\frac{lb}{day} * \frac{1}{24}\,\frac{day}{hr} = 0.50\,\frac{lb}{hr}$$

Rolling Mill Vent
VOC:

$$21{,}000\,\frac{gal}{yr} * 7.5\,\frac{lb}{gal} * 0.0463\,\frac{lb\,VOC}{lb\,oil} = 7{,}292.35\,\frac{lb}{yr}$$

$$7{,}292.25\,\frac{lb}{yr} * \frac{1}{2000}\,\frac{ton}{lb} = 3.65\,\frac{ton}{yr}$$

$$7{,}292.25\,\frac{lb}{yr} * \frac{1}{365}\,\frac{yr}{day} = 19.98\,\frac{lb}{day}$$

$$19.98\,\frac{lb}{day} * \frac{1}{24}\,\frac{day}{hr} = 0.83\,\frac{lb}{hr}$$

Melt Shop Emissions Summary:

Melt Shop Baghouse:

	PM_{10}	**SOx**	**NOx**	**VOC**	**CO**
lb/hr:	2.43	5.26	4.68	3.90	94.69
lb/day:	58.34	126.18	112.44	93.70	2,272.50
tons/yr:	10.65	23.03	20.52	17.10	414.73

Caster Spray Stack:

	PM_{10}	SOx	NOx	VOC	CO
lb/hr:	0.11	0.02	0.006	0.02	0.49
lb/day:	2.59	0.44	0.15	0.46	11.75
tons/yr:	0.47	0.08	0.03	0.08	2.15

Roll Mill Vent:

	PM_{10}	SOx	NOx	VOC	CO
lb/hr:	N/A	N/A	N/A	0.83	N/A
lb/day:	N/A	N/A	N/A	19.98	N/A
tons/yr:	N/A	N/A	N/A	3.65	N/A

Total Melt Shop:

	PM_{10}	SOx	NOx	VOC	CO
lb/hr:	2.54	5.28	4.69	4.76	95.17
lb/day:	60.93	126.62	112.59	114.14	2284.13
tons/yr:	11.12	23.11	20.55	20.83	416.85

3. Slag Yard:

Screening & Handling:
Loader to Feed Station (example calculation)

$$59{,}280 \frac{ton}{yr} * 4.60 * 10^{-5} \frac{lb\ PM10}{ton} = 2.727 \frac{lb}{yr}$$

$$2.727 \frac{lb}{yr} * \frac{1}{2000} \frac{ton}{lb} = 0.0014 \frac{ton}{yr}$$

$$2.727 \frac{lb}{yr} * \frac{1}{2920} \frac{yr}{hr} = 0.0009 \frac{lb}{hr}$$

$$0.0009 \frac{lb}{hr} * 24 \frac{hr}{day} = 0.022 \frac{lb}{day}$$

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Handling & Screening	**Throughput, ton/yr**	**PM10 EF, lb/ton**	**PM10, ton/yr**	**PM10, lb/day**	**PM10, lb/hr**	**PM2.5 EF, lb/ton**	**PM2.5, ton/yr**	**PM2.5, lb/day**	**PM2.5, lb/hr**
Loader to Feed Station	59,280	4.60×10^{-5}	0.0014	0.022	0.0009	1.30×10^{-5}	0.00001	0.006	0.0002
Feed Station to Oversize	Negligible	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Feed Station to Conveyor	59,280	4.60×10^{-5}	0.0014	0.022	0.0009	1.30×10^{-5}	0.00001	0.006	0.0002
Conveyor to Magnet	59,280	4.60×10^{-5}	0.0014	0.022	0.0009	1.30×10^{-5}	0.00001	0.006	0.0002
Magnet to Conveyor	11,856	4.60×10^{-5}	0.0003	0.004	0.0002	1.30×10^{-5}	0.0001	0.001	0.00005
Conveyor to Screen	11,856	4.60×10^{-5}	0.0003	0.004	0.0002	1.30×10^{-5}	0.0001	0.001	0.00005
Screen	11,856	7.40×10^{-4}	0.004	0.07	0.003	5.00×10^{-5}	0.00002	0.005	0.0002
Screen to Stockpile	2,964	4.60×10^{-5}	0.0001	0.001	0.00005	1.30×10^{-5}	0.00002	0.0003	0.00001
Screen to Stockpile	2,964	4.60×10^{-5}	0.0001	0.001	0.00005	1.30×10^{-5}	0.00002	0.0003	0.00001
Screen to Conveyor	5,928	4.60×10^{-5}	0.0001	0.002	0.0001	1.30×10^{-5}	0.00004	0.0006	0.00003
Conveyor to Stockpile	5,928	4.60×10^{-5}	0.0001	0.002	0.0001	1.30×10^{-5}	0.00004	0.0006	0.00003
Magnet to Conveyor	47,424	4.60×10^{-5}	0.001	0.018	0.001	1.30×10^{-5}	0.0003	0.005	0.0002
Conveyor to Screen	47,424	4.60×10^{-5}	0.001	0.018	0.001	1.30×10^{-5}	0.0003	0.005	0.0002
Screen	47,424	7.40×10^{-4}	0.018	0.288	0.012	5.00×10^{-5}	0.001	0.019	0.001
Screen to Conveyor	23,712	4.60×10^{-5}	0.001	0.009	0.0004	1.30×10^{-5}	0.0002	0.003	0.0001
Conveyor to Stockpile	23,712	4.60×10^{-5}	0.001	0.009	0.0004	1.30×10^{-5}	0.0002	0.003	0.0001
Screen to Conveyor	11,856	4.60×10^{-5}	0.0003	0.004	0.0002	1.30×10^{-5}	0.0001	0.001	0.0001
Conveyor to Stockpile	11.856	4.60×10^{-5}	0.0003	0.004	0.0002	1.30×10^{-5}	0.0001	0.001	0.0001
Screen to Conveyor	11.856	4.60×10^{-5}	0.0003	0.004	0.0002	1.30×10^{-5}	0.0001	0.001	0.0001
Conveyor to Stockpile	11.856	4.60×10^{-5}	0.0003	0.004	0.0002	1.30×10^{-5}	0.001	0.001	0.0001
		Total:	**0.031**	**0.515**	**0.021**		**0.004**	**0.068**	**0.003**

Crushing	**Throughput, ton/yr**	**PM10 EF, lb/ton**	**PM10, ton/yr**	**PM10, lb/day**	**PM10, lb/hr**	**PM2.5 EF, lb/ton**	**PM2.5, ton/yr**	**PM2.5, lb/day**	**PM2.5, lb/hr**
Loader to Feed Station	1,200	4.60×10^{-5}	0.00003	0.00045	0.00002	1.30×10^{-5}	0.00001	0.0001	0.00001
Feed Station to Crusher	1,200	4.60×10^{-5}	0.00003	0.00045	0.00002	1.30×10^{-5}	0.00001	0.0001	0.00001
Crusher	1,200	5.40×10^{-4}	0.0003	0.00533	0.00022	$1.00 * 10^{-4}$	0.00006	0.001	0.00004
Crusher to Conveyor	1,200	4.60×10^{-5}	0.00003	0.00045	0.00002	1.30×10^{-5}	0.00001	0.0001	0.00001
Conveyor to Stockpile	1,200	4.60×10^{-5}	0.00003	0.00045	0.00002	1.30×10^{-5}	0.00001	0.0001	0.00001
		Total:	**0.0004**	**0.007**	**0.0003**		**0.0001**	**0.001**	**0.0001**

Slag Pile Loading & Unloading:

PM_{10} (Sample Calculation):

Unprocessed Slag:

$$0.0024\frac{lb}{ton}*59{,}280\frac{ton}{yr}=143.52\frac{lb}{yr}$$

$$143.52\frac{lb}{yr}*\frac{1}{2000}\frac{ton}{lb}=0.072\frac{ton}{yr}$$

$$143.52\frac{lb}{yr}*\frac{1}{365}\frac{yr}{day}=0.393\frac{lb}{day}$$

$$0.393\frac{lb}{day}*\frac{1}{24}\frac{day}{hr}=0.016\frac{lb}{hr}$$

	PM10 EF, lb/ton	Throughput, ton/yr	PM10, ton/yr	PM10, lb/day	PM10, lb/hr	PM2.5 EF, lb/ton	PM2.5, ton/yr	PM2.5, lb/day	PM2.5, lb/hr
Unprocessed Slag									
Pile Loading	0.0024	59,280	0.072	0.393	0.016	0.0004	0.011	0.060	0.002
Pile Unloading	0.0024	59,280	0.072	0.393	0.016	0.0004	0.011	0.060	0.002
Processed Slag									
Pile Loading	0.0024	59,280	0.072	0.393	0.016	0.0004	0.011	0.060	0.002
Pile Unloading	0.0024	59,280	0.072	0.393	0.016	0.0004	0.011	0.060	0.002
Total			**0.287**	**1.573**	**0.066**		**0.043**	**0.238**	**0.010**

Wind Erosion:

Raw Slag Pile (example calculation)

$$1.273\frac{g}{m^2}*278.7\,m^2*\frac{1}{453.59}\frac{lb}{g}*0.5\frac{lb-PM_{10}}{lb-PM}=0.391\frac{lb-PM_{10}}{event}$$

$$0.391\frac{lb-PM_{10}}{event}*365\frac{event}{yr}=142.72\frac{lb-PM_{10}}{yr}$$

$$142.72\frac{lb-PM_{10}}{yr}*\frac{1}{2000}\frac{ton}{lb}=0.071\frac{ton}{yr}$$

$$142.72\frac{lb-PM_{10}}{yr}*\frac{1}{365}\frac{yr}{day}=0.391\frac{lb}{day}$$

Raw Slag

	multiplier	Erosion Potential (g/m^2)	Pile Size (m^2)	lb/event	Events/year	ton/yr	lb/day
PM	1	1.273	278.7	0.782	365	0.143	0.782
PM10	0.5	0.635	278.7	0.391	365	0.071	0.391
PM2.5	0.075	0.095	278.7	0.059	365	0.011	0.059

Processed Fines

	multiplier	Erosion Potential (g/m^2)	Pile Size (m^2)	lb/event	Events/year	ton/yr	lb/day
PM	1	1.273	243.9	0.684	365	0.125	0.684
PM10	0.5	0.635	243.9	0.342	365	0.062	0.342
PM2.5	0.075	0.095	243.9	0.051	365	0.009	0.051

Processed Intermediates

	multiplier	Erosion Potential (g/m^2)	Pile Size (m^2)	lb/event	Events/year	ton/yr	lb/day
PM	1	1.273	55	0.154	365	0.028	0.154
PM10	0.5	0.635	55	0.077	365	0.014	0.077
PM2.5	0.075	0.095	55	0.012	365	0.002	0.012

Slag Yard Emissions Summary

PM10:

	lb/hr	lb/day	ton/yr
Screening & Handling	0.02	0.52	0.003
Crushing	0.0003	0.007	0.0004
Pile Loading & Erosion	---	2.38	0.43

PM2.5:

	lb/hr	lb/day	ton/yr
Screening & Handling	0.003	0.068	0.004
Crushing	0.0001	0.001	0.0001
Pile Loading & Erosion	---	0.26	0.07

4. Cooling Towers

$$0.00268\frac{lb\ PM}{min} * 0.5584\frac{lb\ PM10}{lb\ PM} * 60\frac{min}{hr} = 0.090\frac{lb\ PM10}{hr}$$

$$0.090\frac{lb\ PM10}{hr} * 24\frac{hr}{day} = 2.15\frac{lb}{day}$$

$$0.090\frac{lb\ PM10}{hr} * 8760\frac{hr}{yr} * \frac{1}{2000}\frac{ton}{lb} = 0.39\frac{ton}{yr}$$

PM10

	Drift, Total PM lb/min	PM10 Fraction	lb/hr	hr/day	lb/day	hr/yr	ton/yr
Tower 1	0.00268	0.5584	0.090	24	2.15	8760	0.39
Tower 2	0.00062	0.5584	0.021	24	0.50	8760	0.09
Tower 3	0.00096	0.5584	0.032	24	0.77	8760	0.14
Tower 4	0.00008	0.5584	0.003	24	0.06	8760	0.01

PM2.5

	Drift, Total PM lb/min	PM2.5 Fraction	lb/hr	hr/day	lb/day	hr/yr	ton/yr
Tower 1	0.00268	0.0021	0.0003	24	0.008	8760	0.002
Tower 2	0.00062	0.0021	0.0001	24	0.002	8760	0.0003
Tower 3	0.00096	0.0021	0.0001	24	0.003	8760	0.0005
Tower 4	0.00008	0.0021	0.00001	24	0.0002	8760	0.00004

Cooling Tower Emissions Summary

	PM_{10}	**$PM_{2.5}$**
lb/hr:	0.145	0.001
lb/day:	3.49	0.01
tons/yr:	0.64	0.00

5. Internal Combustion Engines

Example Calculation (‘008):

PM_{10}/$PM_{2.5}$: $0.105\frac{g}{bhp-hr}\times\frac{1}{453.59}\frac{lb}{g}\times 600\ bhp = 0.139\frac{lb}{hr}$

$$0.139\frac{lb}{hr}\times 24\frac{hr}{day} = 3.34\frac{lb}{day}$$

$$0.139\frac{lb}{hr}\times 200\frac{hr}{yr}\times\frac{1}{2000}\frac{ton}{lb} = 0.01\frac{ton}{yr}$$

SO_x: $0.007\frac{g}{bhp-hr}\times\frac{1}{453.59}\frac{lb}{g}\times 600\ bhp = 0.010\frac{lb}{hr}$

$$0.010\frac{lb}{hr}\times 24\frac{hr}{day} = 0.23\frac{lb}{day}$$

$$0.010\frac{lb}{hr}\times 200\frac{hr}{yr}\times\frac{1}{2000}\frac{ton}{lb} = 0.001\frac{ton}{yr}$$

NO_x: $0.50\frac{g}{bhp-hr}\times\frac{1}{453.59}\frac{lb}{g}\times 600\ bhp = 0.661\frac{lb}{hr}$

$$0.661\frac{lb}{hr}\times 24\frac{hr}{day} = 15.87\frac{lb}{day}$$

$$0.661\frac{lb}{hr}\times 200\frac{hr}{yr}\times\frac{1}{2000}\frac{ton}{lb} = 0.07\frac{ton}{yr}$$

VOC: $1.0\frac{g}{bhp-hr}\times\frac{1}{453.59}\frac{lb}{g}\times 600\ bhp = 1.323\frac{lb}{hr}$

$$1.323\frac{lb}{hr}\times 24\frac{hr}{day} = 31.75\frac{lb}{day}$$

$$1.323\frac{lb}{hr}\times 200\frac{hr}{yr}\times\frac{1}{2000}\frac{ton}{lb} = 0.13\frac{ton}{yr}$$

CO: $1.6 \frac{g}{bhp-hr} \times \frac{1}{453.59} \frac{lb}{g} \times 600\ bhp = 2.116 \frac{lb}{hr}$

$$2.116 \frac{lb}{hr} \times 24 \frac{hr}{day} = 50.79 \frac{lb}{day}$$

$$2.116 \frac{lb}{hr} \times 200 \frac{hr}{yr} \times \frac{1}{2000} \frac{ton}{lb} = 0.21 \frac{ton}{yr}$$

Engine Emissions Summary

'008

	PM_{10}	**SOx**	**NOx**	**VOC**	**CO**
lb/hr:	0.14	0.01	0.66	1.32	2.12
lb/day:	3.34	0.23	15.87	31.75	50.79
tons/yr:	0.01	0.001	0.07	0.13	0.21

'009

	PM_{10}	**SOx**	**NOx**	**VOC**	**CO**
lb/hr:	0.05	0.003	0.44	0.44	0.71
lb/day:	1.11	0.08	10.58	10.58	16.93
tons/yr:	0.005	0.0003	0.04	0.04	0.07

'010

	PM_{10}	**SOx**	**NOx**	**VOC**	**CO**
lb/hr:	0.62	0.04	2.96	5.91	9.46
lb/day:	14.93	1.04	70.95	141.91	227.05
tons/yr:	0.06	0.004	0.30	0.59	0.95

Total

	PM_{10}	**SOx**	**NOx**	**VOC**	**CO**
lb/hr:	0.81	0.06	4.06	7.68	12.28
lb/day:	19.38	1.36	97.41	184.24	294.78
tons/yr:	0.08	0.01	0.41	0.77	1.23

6. Gasoline Storage & Dispensing

VOC:

$$100 \frac{gal}{hr} \times \frac{0.89}{1000} \frac{lb\ VOC}{gal} = 0.089 \frac{lb}{hr}$$

$$500 \frac{gal}{day} \times \frac{0.89}{1000} \frac{lb\ VOC}{gal} = 0.445 \frac{lb}{day}$$

$$3{,}500 \frac{gal}{year} \times \frac{0.89}{1000} \frac{lb\ VOC}{gal} \times \frac{1}{2000} \frac{ton}{lb} = 0.0016 \frac{tons}{year}$$

Facility Emissions Potential to Emit (PTE) Summary:

lb/day:

	PM_{10}	$PM_{2.5}$	SOx	NOx	VOC	CO
Raw Materials	0.90	0.14	N/A	N/A	N/A	N/A
Steel Melting/ Refining/Casting/ Rolling	60.93	58.67	126.62	112.59	114.14	2,284.13
Slag Yard	2.91	0.33	N/A	N/A	N/A	N/A
Cooling Towers	3.49	0.01	N/A	N/A	N/A	N/A
Internal Combustion Engines	19.38	19.38	1.36	97.41	184.24	294.78
Gasoline Dispensing	N/A	N/A	N/A	N/A	0.45	N/A
Total:	**87.60**	**78.53**	**127.89**	**209.99**	**298.92**	**2,578.91**

ton/yr:

	PM_{10}	$PM_{2.5}$	SOx	NOx	VOC	CO
Raw Materials	0.13	0.02	N/A	N/A	N/A	N/A
Melting/Refining/ Casting/Rolling	11.12	10.71	23.11	20.55	20.83	416.85
Slag Yard	0.47	0.07	N/A	N/A	N/A	N/A
Cooling Towers	0.64	0.002	N/A	N/A	N/A	N/A
Internal Combustion Engines	0.08	0.08	0.01	0.41	0.77	1.23
Gasoline Dispensing	N/A	N/A	N/A	N/A	0.002	N/A
Total:	**12.43**	**10.88**	**23.11**	**20.96**	**21.60**	**418.08**

IX. EMISSION CHANGES:

A. PROJECT'S EMISSION CHANGE:

Sum of emissions changes for all emissions units to be included in the NSR Balances (NSRB) and the Stationary Source Potentials to Emit (SSPE). (See Page 207)

	PM_{10}	SOx	NOx	VOC	CO
lb/day:	68.22	126.62	112.59	114.59	2,284.13
tons/yr	12.35	23.11	20.55	18.02	416.85

Emissions from emergency use equipment operating 200 hours/year or less are not included in NSR Balance & SSPE, pursuant to sections III.B.2, IV.D.3.e, and IV.E.2.d of Rule 210.1.

B. PRE-PROJECT NSR BALANCES AND SSPE:

	NSRB	NSRB	SSPE	SSPE	NSRB
Pollutant:	**PM_{10}**	**SOx**	**NOx**	**VOC**	**CO**
lb/day:	0.00	0.00	0.00	0.00	0.00
tons/yr:	0.00	0.00	0.00	0.00	0.00

C. **POST-PROJECT CUMULATIVE NSR BALANCE AND SSPE**:

Pre-Project NSR Balance/SSPE + Projects Emissions Change

	NSRB	NSRB	SSPE	SSPE	NSRB
Pollutant:	**PM_{10}**	**SOx**	**NOx**	**VOC**	**CO**
lb/day:	68.22	126.62	112.59	114.59	2,284.13
tons/yr:	12.35	23.11	20.55	18.02	416.85

NOTE: A negative NSR balance is not allowed. Reductions causing a negative balance shall be banked (if qualified) pursuant to Rule 210.3.

X. CONCLUSIONS:

A. Rule 210.1 (conclusions based on worst case):

_X_ Satisfies requirements of Subsection III.A. (BACT)

_X_ Project not subject to Subsection, III.B. (offsets), NSR balance for SOx< 27 tons/yr and PM_{10} < 15 tons/yr and SSPE for VOC and NOx < 25 tons/yr,.

___ Project subject to Subsection III.B. (offsets),

___ Project not subject to NSR requirements Sec

B. Rule 210.4: Applicant has performed a control technology review and source impact analysis; BACT for CO an PM2.5 was reviewed and selected by applicant. Modeling indicates that the increase in ambient concentration of CO and PM2.5 would not cause or contribute to a violation of the NAAQS, would not exceed each applicable SIL, and would not adversely impact nearby Class I areas. Additional impacts analysis indicated there would not be adverse impacts to vegetation or soils in the project area; the Federal Land Manager was notified of receipt of the application & provided a copy of the impacts analysis. The Federal Land Manager responded to the District on September 30, 2024, and indicated concurrence with the determination of no significant impact for Class I areas on account of the Q/D ratios being well below 10, and had no further requests or comments. The application, analysis, and draft permits were made available for public review and comment from Sep. 30, 2024 to Oct. 30, 2024. Public comments on the District's evaluation and draft permits were received from the Steel Manufacturer's Association and Baker & Hostetler, LLP. The response to these comments will be included in the final record.

C. Rule 302: Equipment capacity and power information was provided by applicant; Applicable permit fee schedule and annual permit fees are as follows:

'001- Electric Motors 400≤hp<800; Fee Schedule 01-05 ($1,636/yr)
'002- Electrical Motors >1,600-hp; Fee Schedule 01-07 ($2,785/yr)
'003- Electric Motors 200 ≤ hp < 400; Fee Schedule 01-04 ($1,106/yr)
'004- Electric Motors >1,600-hp; Fee Schedule 01-07 ($2,785/yr)
'005- Electric Motors >1,600-hp; Fee Schedule 01-07 ($2,785/yr)
'006- Electric Motors 100 ≤ hp < 200, Fee Schedule 01-03 ($840/yr)
'007- Electric Motors hp ≤ 25, Fee Schedule 01-00 ($220/yr)
'008- Internal Combustion Engine 600≤bhp<700; Fee Schedule 08-03 ($840/yr)
'009- Internal Combustion Engine 100≤bhp<300; Fee Schedule 08-01 ($309/yr)
'010- Internal Combustion Engine 1,000≤bhp<5,000; Fee Schedule 08-07 ($2,785/yr)
'011- Stationary Container ≤5,000-gallons; Fee Schedule 05-00 ($151/yr)

D. Rule 401: Visible emissions from melt shop control device are required not to exceed 3% opacity, melt shop emissions are not to exceed 6% opacity, and dust handling system emissions are not to exceed 10% opacity by 40 CFR Part 60 Subpart AAb standards. Visible emissions from scrap unloading shall be limited to 20% opacity; scrap, alloy, and slag handling are required not to exceed 5% opacity; visible emission from storage piles is not to exceed 10% opacity by BACT requirements. Visible emissions from cooling towers (excluding uncombined water vapor) are limited to 5% opacity by BACT requirements. Internal combustion engines will utilize propane fuel, and visible emissions are prohibited during normal operation. Compliance with Rule 401 is expected.

E. Rule 404.1: PM emissions from melt shop baghouse are required to meet an exhaust concentration of 0.0052 grains per standard cubic foot (gr/scf), per 40 CFR §63.10686; applicant has proposed a PM concentration from the melt shop baghouse lower than this. Caster spray stack PM emissions are expected to be 0.67 lb/hr; with an exhaust flow rate of 26,486 scfm, the resulting PM concentration would be 0.003 gr/scf. Prior District review of gas fueled internal combustion engines determined PM exhaust concentrations well below the 0.1-gr/scf required by the Rule. Compliance with Rule 404.1 is expected.

F. Rule 405: Process weight rates for the facility are as follows:

Material	Throughput	
	ton/yr	ton/hr
Scrap	500,780	52
Carbon Additive	9,550	19.1
Lime	9,550	19.1
Dolomite	9,550	19.1
Specialty Alloys	11,902	4.1
Steel Product	456.000	52.1
Slag	59,280	6.7

PM emissions from each of these processes, as well as the applicable emission limit of Rule 405, are as follows:

Material	PM Emissions (lb/hr)	
	Proposed	Rule Limit
Scrap	0.056	40.00
Carbon Additive	N/A	N/A
Lime	N/A	N/A
Dolomite	N/A	N/A
Specialty Alloys	0.02	8.81
Steel Product	2.43	40.00
Slag	0.27	12.13

Proposed PM emission rates are lower than required by the Rule. Compliance with Rule 405 is expected.

G. Rule 407: SOx emissions from the melt shop operations are expected to be 5.26 lb/hr; given an exhaust flow rate from the baghouse of 677,000 scfm, the exhaust concentration would be 1.3 x 10^{-6} lb/scf. Based on a molecular weight of 64.066 lb/lbmol for SO_2, this correlates to a 0.77 ppm concentration, well below the 0.2% (2,000-ppmv) requirement of the Rule. Caster spray stack SO_2 emissions are expected to be 0.02 lb/hr; with an exhaust flow rate of 26,486 scfm, the resulting SO_2 concentration in the caster spray stack would be 0.07-ppm. Sulfur content of propane fuel for the emergency use internal combustion engines is required not to exceed 15 grains/100 ft^3 (~80 ppm); given known combustion principles, SO_2 emission rate shall be less than 0.2% by volume. Compliance with Rule 407 is expected.

H. Rule 412: The 500-gallon gasoline tank is required to be equipped with Phase I EVR and standing loss control equipment. These requirements will be incorporated into permit operations conditions; Compliance with Rule 412 is expected.

I. Rule 412.1: Gasoline dispensing is non-retail & only vehicles in fleet managed by owner equipped with ORVR will be refueled; therefore, Phase II EVR is not required. Permit conditions will include requirement to use CARB certified enhanced conventional (ECO) dispensing hoses & nozzles to satisfy BACT requirements and CARB Executive Order NVR-1-F. Compliance with Rule 412.1 is expected.

J. Rule 414: Applicant has proposed use of 21,000 gallons per year of lubricating oil; this would correspond to 57.5 gallons/day of use. Lubricating oils are expected to have a Reid vapor pressure well below 0.5 psi; therefore, the wastewater separator meets the criteria for exemption from Section III.A and is exempt from the requirements of District Rule 414.

K. Rule 419 and CH&SC §41700: Raw material and slag processing operations are subject to visible emission limitations, and are required to implement controls or methods to minimize fugitive dust emissions. Facility is also required to obtain & operate in accordance with an approved fugitive dust control plan for fugitive dust emissions for these operations. Proposed controls for steel manufacturing process include fabric filters, a wet scrubber, SNCR, lime injection, and activated carbon injection, which are expected to prevent nuisance emissions from the melting, refining, casting, & rolling operations. The cooling towers are required to have high efficiency drift eliminators & visible emissions (excluding uncombined water vapor plumes) are restricted to 5% opacity. Internal combustion engines are fired on propane fuel and are designated as emergency use, limiting operation time. Gasoline storage & dispensing will have low throughput, and gasoline tank is required to be equipped with CARB certified vapor recovery equipment. Therefore, the proposed facility is not expected to create a nuisance to off-site receptors.

Applicant has provided a health risk assessment conducted in accordance with OEHHA guidelines. MEIR for cancer is exposed greater than 1 in one million, and Acute HI at the PMI is greater than 0.2; therefore, TBACT is required. Review found that BACT for criteria pollutants constituted TBACT for the project. Compliance with Rule 419 and CH&SC §41700 is expected.

L. Rule 422 – 40 CFR Part 60 Subpart JJJJ: Applicant will be required to install engines certified to the emission standards of subpart JJJJ; BACT requirements for proposed engines are more stringent than the emission standards of the subpart. Compliance with Subpart JJJJ is expected.

M. Rule 423 – 40 CFR Part 63 Subpart ZZZZ: Subpart ZZZZ required new emergency use engines located at area sources of HAP to comply with the requirements of Part 60 Subpart JJJJ. BACT requirements for NOx, VOC, & CO emission are at least as stringent as the applicable emission standards of Subpart JJJJ; applicable recordkeeping & reporting requirements shall be incorporated into permit operational conditions. Compliance with Subpart ZZZZ is expected.

N. Rule 423 – 40 CFR Part 63 Subpart YYYYY: Applicant has submitted a scrap management plan with their application describing the methods PSGM3 will utilize to minimize the amount of scrap containing chlorinated plastics, free organic liquids, and lead that is allowed to be fed into the EAF; the plan proposes to require motor vehicle scrap only be accepted from suppliers participating in an EPA approved mercury switch removal program to control mercury from motor vehicle scrap. Proposed emission rate of PM from the PM control device serving the EAF is lower than required by the regulation. Applicant proposal to fully enclose the melt shop building is expected to ensure visible emissions comply with the requirements of Subpart YYYYY. Requirements for visible emissions, monitoring, performance testing, recordkeeping, and reporting will be incorporated into permit conditions. Compliance with Subpart YYYYY is expected.

O. Rule 429.1: PSGM3 has not proposed to utilize cooling water containing hexavalent chromium. This requirement will also be incorporated into permit conditions for each cooling tower. Compliance with Rule 429.1 is expected.

P. 40 CFR Part 60 Subpart AAb: Applicant has proposed for PM emissions from EAF control device to be 0.0467 lb/ton of steel produced, which is significantly less than the 0.16 lb/ton required by the regulation. The facility will utilize a continuous furnace feed in lieu of batch charging of the EAF from an overhead bucket, which is expected to minimize visible emissions from charging. The melt shop building is proposed to be fully enclosed (no openings for fugitive emissions not captured by the control system), and the captured EAF emissions are vented to a multi-device control system including two fabric collectors and wet scrubber; therefore, PM and visible emissions are not expected to exceed the thresholds listed in §60.272b(a). Requirements for monitoring, compliance testing, recordkeeping, and reporting from the Subpart will be incorporated into permit conditions. Compliance with Subpart AAb is expected.

XI. RECOMMENDATIONS:

Issue Authority to Construct No.’s 5024001 – ‘011 with the following conditions:

5024001:
EQUIPMENT DESCRIPTION: Scrap and Additive Material Receiving, Handling, and Storage Operation, including the following equipment and design specifications

A. Scrap Unloading Bay
B. Scrap Storage Piles
C. Supplemental Alloy Storage Area
D. Storage Silos for Lime, Dolomite, and Carbon
E. Endless Charging System (ECS), including two mass charging conveyors (50-hp each), two preheating conveyors (50-hp each), and eccentric mass connecting car (30-hp)
F. ECS Tornado® preheating system with twelve actuators each driven by a 5-hp motor
G. ECS Booster Fan driven by 125-hp motor

DESIGN CONDITIONS:

a. Carbon, dolomite, and lime silos shall be served by bin vent fabric filters with exhaust routed to the melt shop dust collector. (Rule 210.1 BACT Requirement)
b. Supplemental alloy materials shall be stored in an enclosure area to minimize fugitive emissions. (Rule 210.1 BACT Requirement)
c. Area of supplemental alloy piles shall not exceed 140 m^2 (0.03 acres). (Rule 210.1)
d. At least 30 days prior to start-up, owner/operator shall submit to the District an Operational Fugitive Dust Emission Control Plan for District approval. Owner/operator shall operate in accordance with the District approved Fugitive Dust Control Plan for scrap and supplemental alloy material receiving, handling, & storage, as well as vehicle traffic areas. (Rules 210.1 BACT Requirement, 402)
e. At least 30 days prior to start-up, owner/operator shall submit to the District a pollution prevention control plan to allow for District approval prior to start-up. (Rules 209, 423 Subpart YYYYY, 40 CFR § 63.10681).

OPERATIONAL CONDITIONS:

1. Maximum scrap unloading throughput to outdoor piles shall not exceed 250,390 tons/yr and total scrap unloading throughput shall not exceed 500,780 tons/yr, each based on a rolling 12-month period. (Rule 210.1)
2. Maximum supplemental alloy unloading throughput shall not exceed 11,902 ton/yr, based on a rolling 12-month period. (Rule 210.1)
3. Visible emissions from scrap and alloy unloading shall not exceed 20% opacity or Ringelmann 1 for not more than 3 minutes in any one hour. (Rules 210.1 BACT Requirement, 401)
4. Visible emissions from scrap and supplemental material handling and transfer shall not exceed 5% opacity or Ringelmann ¼ for not more than 3 minutes in any one hour. (Rule 210.1 BACT Requirement)
5. There shall be no visible emissions from outdoor scrap storage piles. (Rule 210.1)
6. Visible emissions from supplemental alloy storage piles shall not exceed 10% opacity (Ringlemann ½) for more than 3 minutes in any one hour. (Rule 210.1 BACT Requirement)
7. Loading and unloading operations shall utilize minimum feasible drop height to reduce fugitive dust emissions. (Rule 210.1 BACT Requirement)
8. Carbon, dolomite, & lime shall be pneumatically transferred into & out of storage silos via fully enclosed transfer lines. (Rule 210.1 BACT Requirement)
9. Material removed from bin vent fabric filters serving storage silos shall be disposed of using method preventing entrainment in atmosphere. (Rule 210.1)
10. Operation shall be conducted in accordance with District approved pollution prevention plan at all times to minimize the quantity of chlorinated plastics, lead, free organic liquids, and mercury present in scrap charged to furnace. (Rule 423 Subpart YYYYY, 40 CFR §63.10685(a)(1))
11. Motor vehicle scrap shall only be accepted from providers who participate in a program for removal of mercury switches that has been approved by the USEPA. (Rule 423 Subpart YYYYY)
12. Personnel responsible for the inspection of scrap received shall be trained in the requirements of the pollution prevention plan. (Rule 423 Subpart YYYYY, 40 CFR §63.10685(a)(1))
13. Owner/operator shall maintain copy of District approved pollution prevention plan on site. (Rule 423 Subpart YYYYY)
14. Owner/operator shall maintain records identifying each scrap provider and documenting the scrap provider’s participation in an approved mercury switch removal program. For motor vehicle scrap purchased from a broker, records shall identify each broker and documentation that all scrap provided by the broker was obtained from other scrap providers who participate in an approved mercury switch removal program, (Rule 423 Subpart YYYYY)
15. Owner/operator shall maintain records demonstrating compliance with the approved pollution prevention plan, including documentation of personnel trained on the plan’s requirements. (Rule 423 Subpart YYYYY, 40 CFR §63.10685(c))
16. Owner/operator shall submit semi-annual compliance reports to the District for the control of contaminants from scrap. The report must clearly identify any deviations from the requirements of the pollution prevention plan, and the corrective action(s) taken. (Rule 423 Subpart YYYYY, 40 CFR §63.10685(c)(3))
17. Equipment shall be maintained according to manufacturer’s specifications to ensure compliance with emissions limitations. (Rules 209 and 210.1)
18. Compliance with all operational conditions shall be verified by appropriate record keeping, including records of operational data needed to demonstrate compliance. Such records shall be kept on site in readily available format. (Rule 209)
19. No emission resulting from use of this equipment shall cause injury, detriment, nuisance, annoyance to or endanger comfort, repose, health or safety of any considerable number of persons or public. (Rule 419 and CH&SC §41700)

STATE OF CALIFORNIA AIR TOXICS HOT SPOTS REQUIREMENTS:
Facility shall comply with California Health and Safety Code Sections 44300 through 44384. (Rule 208.1)

<u>COMPLIANCE TESTING REQUIREMENTS</u>:

Should inspection reveal conditions indicative of non-compliance, compliance with any emission limitations shall be verified in accordance with District Rule 108.1 within 60 days of District request. Test results shall be submitted to the District within 30 days after test completion. (Rules 108.1 and 209)

<u>EMISSION LIMITS</u>:
Maximum emissions rate of each air contaminant from this emission unit shall not exceed following limits:

Particulate Matter (PM_{10}):

Steel Scrap Unloading (combined indoor & outdoor)	0.03	lb/hr	
	0.63	lb/day	(24-hr maximum)
	0.12	ton/yr	(12-month rolling avg.)
Lime Unloading, Handling, & Storage	Emissions vented to melt shop dust collector		
Dolomite Unloading, Handling, & Storage	Emissions vented to melt shop dust collector		
Carbon Unloading, Handling, & Storage	Emissions vented to melt shop dust collector		
Supplemental Alloy Unloading & Handling	0.003	lb/hr	
	0.07	lb/day	(24-hr maximum)
	0.01	ton/yr	(12-month rolling avg.)
Outdoor Storage Piles (wind erosion)	0.20	lb/day	(24-hr maximum)
	0.04	ton/yr	(12-month rolling avg.)

Particulate Matter ($PM_{2.5}$):

Steel Scrap Unloading & Handling	0.004	lb/hr	Rule 210.4 PSD
	0.10	lb/day	24-hr maximum)
	0.02	ton/yr	Rule 210.4 PSD (12-month rolling avg.)
Supplemental Alloy Unloading & Handling	0.0004	lb/hr	Rule 210.4 PSD
	0.01	lb/day	24-hr Maximum)
	0.002	ton/yr	Rule 210.4 PSD (12-month rolling avg.)
Outdoor Storage Piles (wind erosion)	0.03	lb/day	(24-hr maximum)
	0.005	ton/yr	Rule 210.4 PSD (12-month rolling avg.)

(Emissions limits established pursuant to Rule 210.1 unless otherwise noted)

Compliance with maximum daily emission limits shall be verified by source operator (with appropriate operational data and recordkeeping to document maximum daily emission rate) each day source is operated, and compliance with the rolling 12-month emissions and material throughput limits shall be verified at the end of each month. Documentation of compliance shall be retained and made readily available to District for a period of five years. (Rule 210.1)

5024002:
EQUIPMENT DESCRIPTION: Steel Melting, Refining, Casting, & Shaping Operation, including the following equipment and design specifications

A. Scrap Cutting Torches (~0.056 MMBtu/hr max)
B. Q-EBT Sand Injection System with rotating base gear motor (3-hp)
C. Electric Arc Furnace (EAF) with three 10,500 kVA electrodes, oxy-lances, and Direct Evacuation Control (DEC) System routed to Item N
D. Ladle Car with two travel drive motors (5-hp each)
E. Ladle Metallurgy Station (LMS) with 7,200-kVA electrode
F. Tundish Dumping Station including capture hood with two 3-hp motors
G. Cyclone Double Clapet Dust Extractor with 0.7-hp motor
H. Cyclone Dust Extractor with 5.4-hp motor
I. Bag Filter Dust Extractor with 4-hp motor
J. 1st Bag Filter Elevator Dust Extractor with5-hp motor
K. 2nd Bag Filter Elevator Dust Extractor with 5-hp motor
L. Dust Stocking Bin Mini Filter with 0.7-hp blower
M. Dust Stocking Bin Extracting Screw Conveyor with 2-hp motor
N. Fume Treatment Plant Primary Emission Control Circuit serving item C, including the following control equipment:
   i. Urea injection system, reagent for selective non-catalytic reduction system (SNCR), including: urea storage tank, urea pump, distribution piping to injection ports at settling chamber, and injection control system
   ii. Primary Melt Shop Dust Collector with two 2,150-hp exhaust fans (fans also serve item Q)
   iii. Wet scrubber with booster fan (422-hp)
O. Fume Treatment Plant Secondary Emission Control Circuit serving melt shop, including hydrated lime injection system
P. Activated carbon sorbent injection system
Q. Secondary Melt Shop Dust Collector
R. Horizontal Preheater Transfer Car with two 5-hp motors and 2-hp cable ring motor
S. Auxiliary Transfer Car with two 5-hp motors and 2-hp cable ring motor
T. Withdrawal and Straightening Unit, including bottom & top extracting rolls and straightening roll (7.5-hp each)
U. Intermediate Roller Table with nine 1-hp rollers, one 1.5-hp roller, and one 1.5-hp pinch roll
V. Hydraulic Vertical Shear outlet roll driven by one 3-hp motor
W. Tundish Tilting Hydraulic unit with 20-hp pump
X. Ladle Slide Gate Hydraulic Unit with two pumps (10-hp each)
Y. FCC Hydraulic Unit, with two 30-hp pumps and two 2-hp recirculation pumps
Z. CCM Hydraulic Unit Container 1 with two recirculation pumps (15-hp each)
AA. CCM Hydraulic Unit Container 2 with five pumps (125-hp)
BB. Open Circuit Spray System with two Cooling Water Pumps (40-hp each)
CC. Traveling Weigh Hopper (TWH01) with 0.9-hp travel motor and 4.8-hp electric cylinder
DD. Caster Spray Vent Stack with steam exhaust fan (60-hp)
EE. Roller Tabler with Heat-Retaining Hoods, including ten roller drives (3.4-hp each)
FF. Roller Table with Heat-Retaining Hood, including roller drive (1-hp)
GG. Induction Heating Roller Table with five roller drives (3.4-hp)
HH. Pinch Roll driven by 84.8-hp motor
II. Stand ESS 685 H 00-1H driven by 335.1-hp motor
JJ. Stand ESS 685 V 00-2V driven by 335.1-hp motor
KK. Stand ESS 685 H 00-3H driven by 335.1-hp motor
LL. Stand ESS 450 V SF-4V driven by 335.1-hp motor
MM. Stand ESS 450 H SF-5H driven by 335.1-hp motor
NN. Stand ESS 450 V SF-6V driven by 469.2-hp motor

OO. Stand ESS 450 V SF-7H driven by 469.2-hp motor
PP. Stand ESS 450 V SF-8V driven by 469.2-hp motor
QQ. Start-Stop Flying Shear CVSB-030-800 driven by 222-hp motor
RR. Stand DOM 4334 FL - 9H driven by 469.2-hp motor
SS. Vertical Looper with two 2.3-hp roller drives
TT. Stand DVM 4334 FL - 10V driven by 469.2-hp motor
UU. Vertical Looper with two 2.3-hp roller drives
VV. STAND DOM 4334 FL - 11H driven by 469.2-hp motor
WW. Vertical Looper with two 2.3-hp roller drives
XX. STAND DVM 4334 FL - 12V driven by 469.2-hp motor
YY. Vertical Looper with two 2.3-hp roller drives
ZZ. STAND DOM 4334 FL - 13H driven by 469.2-hp motor
AAA. Vertical Looper with two 2.3-hp roller drives
BBB. STAND DVM 4334 FL - 14V driven by 469.2-hp motor
CCC. Vertical Looper with two 2.3-hp roller drives
DDD. STAND DOM 4334 FL - 15H driven by 469.2-hp motor
EEE. Vertical Looper with two 2.3-hp roller drives
FFF. STAND DVM 4334 FL - 16V driven by 469.2-hp motor
GGG. Roller Table with two 2.3-hp roller drives
HHH. Water Quenching Line QTB with twelve bypass roller drives each driven by a 2.3-hp motor
III. Pinch Roll at Crop Shear Entry with 69.4-hp motor
JJJ. Crop Shear driven by 120.6-hp motor
KKK. Pinch Roll at “Cut to Length” Shear Entry (69.4-hp)
LLL. “Cut to Length” Shear driven by 160.9-hp motor
MMM. Pinch Roll at Shear Exit Line#1-LH with 69.4-hp roll drive motor
NNN. Pinch Roll at Shear Exit Line#2-RH with 69.4-hp roll drive motor
OOO. Twin Bar Braker Group with two 69.4-hp motors
PPP. Roller Table driven by twelve roll drives (2.3-hp each)
QQQ. Pinch Roll at Combined Shear Entry (69.4-hp)
RRR. Combined Shear CVSM-030-0800 with 315-hp drive motor
SSS. Combined Shear Inlet/Outlet Equipment with 2.3-hp roller drive
TTT. Inlet Roller Table with Four 2.3-hp Roller Drive
UUU. Inlet Roller Table with Three 2.3-hp Roller Drive
VVV. Inlet Roller Table with Three 2.3-hp Roller Drive
WWW. Roller Table with Lifting Aprons driven by five 2.3-hp Roll Drives
XXX. Roller Table with Lifting Aprons driven by twenty 2.3-hp Roll Drives
YYY. Fast Cooling Bed, including 57-hp drive motor and lining up rollers driven by forty-six 0.5-hp motors
ZZZ. Slow Cooling Bed, including 115.6-hp bed drive and lining up rollers driven by twenty-three 0.8-hp motors
AAAA. Layer Chain Transfer with two 4.6-hp motors
BBBB. Lance Group with two 33.9-hp motors
CCCC. Bundle Run Out Roller Table with twenty-four 2.3-hp motors
DDDD. Roller Table with ten roller drive motors (2.3-hp each)
EEEE. Roller Table Drive Section A with ten roller drive motors (2.3-hp each)
FFFF. Roller Table Drive Section B with ten roller drive motors (2.3-hp each)
GGGG. Two Liftable Chain Transfers (one each for Sections A-B & C-D) each driven by 10.8-hp chain drive motor
HHHH. Collecting Chain Transfer Transfers (one each for Sections A-B & C-D) each driven by 46.2-hp chain drive motor
IIII. Pinch Roll at Crop Shear Entry with 115.6-hp drive motor
JJJJ. Crop Shear VR 12 with 115.6-hp shear drive
KKKK. FFB 4 Stands driven by 2010.7-hp main drive
LLLL. Pinch Roll along BGV bypass with 115.6-hp drive motor

MMMM. Pinch Roll at WB#2 Entry with 115.6-hp drive motor
NNNN. Pinch Roll at WB#3 Entry with 115.6-hp drive motor
OOOO. Pinch Roll at Shears Group Entry with 115.6-hp drive motor
PPPP. Crop Shear CVR 025 with 203.5-hp drive motor
QQQQ. Dividing Shear CVR 025 with 203.5-hp drive motor
RRRR. Pinch Roll at Shears Group Exit with 115.6-hp drive motor
SSSS. Pinch Roll at Spoolers Entry with 115.6-hp drive motor
TTTT. Spooler Line 1A, including Pinch Roll #14 (115.6-hp drive motor), Pinch Roll #15 Line 1A (138.7-hp drive motor), Q-VID Fan (0.7-hp motor), Mandrel Cover with 1.5-hp drive, and 1206.4-hp spooler drive motor
UUUU. Spooler Line 1B, including Pinch Roll #16 (115.6-hp drive motor), Pinch Roll #17 Line 1A (138.7-hp drive motor), Q-VID Fan (0.7-hp motor), and 1206.4-hp spooler drive motor
VVVV. Roller Table with 3.4-hp drive motor
WWWW. Weighing Roller Table with 3.4-hp drive motor
XXXX. Three Roller Tables each with 3.4-hp drive motor and Stopper
YYYY. Ten Roller Tables each with 3.4-hp drive motor
ZZZZ. Two Evacuation Roller Tables (Forklift Prelieve) each with 3.4-hp drive motor
AAAAA. Air/Oil Lubrication Unit for Rolling Area with two pump drives (2-hp each)
BBBBB. Air/Oil Lubrication Unit for FFB Area with two pump drives (2-hp each)
CCCCC. Air/Oil Lubrication Unit for Spooler Area with two pump drives (2-hp each)
DDDDD. Three Booster Pumps (147.5-hp each) serving QTB System
EEEEE. Two Booster Pumps (20.1-hp each) serving FFB 4S
FFFFF. Two Sump Pumps (1.3-hp each) for Coil Forming Area
GGGGG. EBT Walkway with 1-hp motor
HHHHH. Hydraulic Unit for ECS, EAF, LF, including three hydraulic pumps (100-hp each) and two recirculating pumps (15-hp each)
IIIII. Carbon Capture System with emission bypass option, including fume cooling system, fume pressure control system, absorption system for CO2 separation from gas stream and CO2 liquification system

DESIGN CONDITIONS:

a. Melt Shop Dust Collectors shall be equipped with pulse-jet cleaning mechanism. (Rule 210.1)
b. Electric Arc Furnace (EAF) shall be served by direct evacuation control (DEC) system routing emissions to the fume treatment plant. (Rule 210.1 BACT Requirement)
c. Melt shop Dust Collector exhaust stack shall be equipped with permanent sampling ports, sampling platform, access ladder, and utilities for sampling equipment. (Rule 108.1)
d. Owner/operator shall install, calibrate, maintain, and operate a continuous emission monitoring system for CO emissions (CO CEMS) from the melt shop dust collector exhaust stack. (Rules 210.1, 210.4, 40 CFR Part 64)
e. Melt shop roof distribution system shall be of enclosed design with no ventilation openings besides designated exhaust stacks (Rule 210.1 BACT)
f. Owner/operator shall install and operate a bag leak detection system (BLDS) in accordance with 40 CFR §60.273b(e) and (f), in conjunction with visible emissions observations conducted in accordance with 40 CFR §60.273b(c). (40 CFR Part 60 Subpart AAb)
g. SNCR system shall be designed such that temperatures, gas residence time, & normalized stoichiometric ratio (NSR) are optimized for control of NO_x emissions. (Rule 210.1)
h. SNCR system shall be equipped with continuous monitors for temperature and reagent flow rate. (Rule 210.1)
i. Melt Shop Dust Collector exhaust stack shall be equipped with continuous monitor/recorder, secured against tampering after calibration, for ammonia, unless the following criteria are satisfied (Rules 210.1, 419):
    i. Urea is utilized as the reagent; and
    ii. The most recent test results determine that ammonia slip from the melt shop dust collector

stack does not exceed 10 ppmvd at the maximum design reagent injection rate for the SNCR system.

j. Wet scrubber shall be designed such that scrubbing liquid flow rate and pH are sufficient for control of SOx emissions. (Rule 210.1)
k. Wet scrubber equipped with operational differential pressure indicator and volumetric scrubbing liquid flow meter. (Rule 210.1)
l. Cutting torches for oversize scrap cutting shall only operate inside the melt shop and emissions shall be vented to the fume treatment plant. (Rule 210.1)

<u>OPERATIONAL CONDITIONS</u>:

1. Process shall be designed and operated as described in application for Authority to Construct and Environmental Impact Report (EIR). (Rules 210.1, 210.4)
2. Maximum steel production shall not exceed 456,000 tons of finished steel product per rolling 12-month period. (Rule 210.1)
3. Visible emissions from melt shop dust collector exhaust stack shall not equal or exceed 3% opacity for more than 6 minutes in any one hour. (Rule 210.1 BACT Requirement, 40 CFR Part 60 Subpart AAb)
4. Visible emissions from caster spray stack shall not exceed 5% opacity for more than 3 minutes in any one hour, not including uncombined water vapor. (Rule 210.1 BACT Requirement)
5. There shall be no visible emissions emanating from melt shop building during periods of melting and refining in the EAF. (Rule 210.1 BACT Requirement, 40 CFR Part 60 Subpart AAb)
6. During periods of charging and tapping of the EAF, visible emissions emanating from the melt shop building shall not equal or exceed 6% opacity. (Rule 210.1 BACT Requirement; Rule 423, Subpart YYYYY, 40 CFR Part 60 Subpart AAb)
7. Visible emissions from dust handling system shall not exceed 10% opacity. (Rule 210.1, 40 CFR Part 60 Subpart AAb)
8. Dust capture system and emission control devices serving melt shop equipment shall be in operation when the EAF, LMS, or other steel processing equipment are in operation. (Rule 210.1)
9. Exhaust gas particulate matter concentration from any stack shall not exceed 0.1 grains/ft^3 of gas at standard conditions. (Rule 404.1)
10. Concentration of sulfur compounds in exhaust gas shall not exceed 0.2% by volume, calculated as sulfur dioxide. (Rule 407)
11. Material removed from fabric dust collectors shall be returned to product stream or otherwise disposed of or recycled using method preventing entrainment in atmosphere. (Rule 210.1)
12. APCO or any authorized representative shall have access to and be provided (upon request) with copies of any record required to be kept under terms and conditions of permit. Furthermore, such persons shall have access to inspect any equipment, operation, or method required in this permit, and to sample, or require sampling, of emissions sources. (Rule 107)
13. There shall be no detectable odors at the property line of the facility. (Rule 419)
14. At all times when equipment is in operation (including periods of startup, shutdown, and malfunction), the owner or operator shall, to the extent practicable, operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety, manufacturer equipment operating guidelines, and good air pollution control practices for minimizing emissions. (Rule 423 Subpart YYYYY, 40 CFR §63.6(e))
15. Breakdown conditions shall be reported in accordance with Sections III and IV of District Rule 111. (Rule 111)
16. No emission resulting from use of this equipment shall cause injury, detriment, nuisance, annoyance to or endanger comfort, repose, health or safety of any considerable number of persons or public. (Rule 419 and CH&SC §41700)

Monitoring Requirements

17. Owner/operator shall monitor the PM capture system and PM control device serving EAF in accordance with the District approved compliance assurance monitoring plan (CAM Plan) and 40 CFR §64.7, commencing no later than 180 days following District approval of the CAM Plan. (Rule 423 Subpart YYYYY, 40 CFR §63.10686(e))
18. Daily visible emission observations of shop opacity shall be conducted in accordance with 40 CFR §60.273b(d). (40 CFR Part 60 Subpart AAb)
19. Owner/operator shall satisfy the following requirements for the BLDS system (Rule 210.4 PSD, 40 CFR Part 60 Subpart AAb):
    a. BLDS shall meet the specifications in 40 CFR §60.273b(e)(1)-(3);
    b. Detection sensor(s) shall be installed downstream of the baghouse or upstream of any wet scrubber;
    c. No later than date of startup, develop and submit to the Administrator or delegated authority for approval a site-specific monitoring plan that addresses the following items;
        i. Installation of the BLDS;
        ii. Initial and periodic adjustment of the BLDS, including how the alarm setpoint will be established;
        iii. Operation of the BLDS, including quality assurance procedures;
        iv. How the BLDS will be maintained including a routine maintenance schedule and spare parts inventory list; and
        v. How the BLDS output shall be recorded and stored
        vi. Identify specific conditions that could lead to an alarm that would not be feasible to alleviate within 24-hours of alarm occurrence, and how additional time will ensure alleviation of the condition as expeditiously as possible
    d. Operate and maintain the bag leak detection system according to the approved site-specific monitoring plan at all times;
    e. Perform initial adjustment of the system in accordance with 40 CFR §60.273b(e)(5);
    f. Only adjust averaging period, alarm set point, or alarm delay in accordance with 40 CFR §60.273b(e)(6)
    g. Initiate procedures to determine the cause of all alarms within 1 hour and alleviate condition causing alarm within 24 hours of the time the alarm occurred (excluding specific conditions identified in monitoring plan) in accordance with 40 CFR §60.273b(f);
20. Observations of the opacity of the visible emissions from the EAF PM control device shall be performed at least once per day by a certified visible emission observer, in accordance with 40 CFR §60.273b(c)(2)-(3). (40 CFR Part 60 Subpart AAb)
21. When the owner or operator of an affected facility is required to demonstrate compliance with the shop opacity standards under §60.272b(a)(3), and at any other time that the Administrator may require (under Section 114 of the CAA, as amended), the owner or operator shall, during all periods in which a hood is operated for the purpose of capturing emissions from the EAF, either (40 CFR Part 60 Subpart AAb, 40 CFR §60.274b(c)):
    a. Install, calibrate, and maintain a monitoring device that continuously records the fan motor amperes at each damper position, and damper position consistent with 40 CFR §60.274b(h)(5); or
    b. Monitor and record at no greater than 15-minute integrated block average basis the volumetric flow rate through each separately ducted hood; or
    c. Install, calibrate, and maintain a monitoring device that continuously records the volumetric flow rate at the PM control device inlet, and monitor and record the damper position consistent with 40 CFR §60.274b(h)(5).

    Excluding damper position, parameters monitored shall be recorded as integrated block averages not to exceed 15 minutes.
22. During performance tests required by 40 CFR §60.272b(d) and/or §63.10686(d) and for any report thereof, or to determine compliance with §60.272b(a)(3), owner/operator shall monitor

and record the following information for all heats covered by the test (Rule 423 Subpart YYYYY, 40 CFR §63.10686(d)(3); 40 CFR Part 60 Subpart AAb, §60.274b(h)):

a. Charge weights and materials, and tap weights and materials;
b. Heat times, including start and stop times, and a log of process operation, including periods of no operation during testing;
c. PM control device operation log;
d. EPA Method 9 data, or, as an alternative to EPA Method 9, according to ASTM D7520-16 (incorporated by reference from 40 CFR §60.17), with the caveats described under the definition of Shop Opacity in 40 CFR §60.271b;
e. All damper positions, no less frequently than performed in the latest melt shop opacity compliance test for a full heat, if selected as a method to demonstrate compliance under §60.274b(b);
f. Fan motor amperes at each damper position, if selected as a method to demonstrate compliance under §60.274b(b);
g. Volumetric air flow rate through each separately ducted hood, if selected as a method to demonstrate compliance under §60.274b(b);
h. Static pressure at each separately ducted hood, if selected as a method to demonstrate compliance under §60.274b(b);
i. Parameters monitored pursuant to conditions 21.f-h above, except damper position, shall be recorded as integrated block averages not to exceed 15 minutes

23. The CO CEMS shall meet the requirements of Performance Specification 4, 4a, or 4b—Specifications and Test Procedures for Carbon Monoxide Continuous Emission Monitoring Systems in Stationary Sources, in Appendix B to 40 CFR Part 60. (Rule 210.4, 40 CFR Part 64)
24. No later than date of start-up, owner/operator shall submit for approval and implement a Quality Assurance/Quality Control Plan for the CO CEMS consistent with Procedure 1: Quality Assurance Requirements for Gas Continuous Emission Monitoring Systems Used for Compliance Determination, contained in Appendix F to 40 CFR Part 60. (Rule 210.4 PSD, 40 CFR Part 64)
25. Except for system breakdowns, repairs, calibration checks, and zero and span adjustments, the CO CEMS shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period. (Rule 210.4 PSD, 40 CFR Part 64)
26. All continuous monitoring systems and monitoring devices shall be installed and operational prior to conducting performance tests under 40 CFR §60.8. Verification of operational status shall, as a minimum, include completion of the manufacturer's written requirements or recommendations for installation, operation, and calibration of the device. (Rule 423 Subpart YYYYY, 40 CFR Part 60 Subpart AAb, 40 CFR Part 64)
27. Owner/operator shall perform operational status inspections of the equipment important to the performance of the PM capture system (i.e. pressure sensors, dampers, & dampers switches) at least monthly. The inspection shall include observations of physical appearance of equipment (presence of holes in ductwork or hoods, flow constrictions from dents or excess dust, fan erosion) and building inspections to ensure the building does not have holes or openings for PM laden air to escape. Deficiencies determined to materially impact efficacy of the PM capture system shall be noted and proper maintenance performed. (40 CFR Part 60 Subpart AAb, 40 CFR §60.274b(d))

Recordkeeping & Reporting

28. Owner/operator shall maintain records of measurements required by 40 CFR §60.274b for a period of at least 5 years following the date of measurement. (40 CFR Part 60 Subpart AAb)
29. Owner/operator shall maintain records of all shop opacity observations made in accordance with §60.273b(d), and all observations in excess of the emission limit specified in §60.272b(a)(3) shall be reported to the Administrator or delegated authority semi-annually in

accordance with 40 CFR §60.7(c). The report shall contain all information specified in 40 CFR §60.276b(g). (40 CFR Part 60 Subpart AAb)

30. Owner/operator shall maintain all records for the BLDS specified in 40 CFR §60.276b(h) for a period of at least 5 years. (40 CFR Part 60 Subpart AAb)
31. Owner/operator shall maintain records of reagent flow rate & reagent injection zone temperature from SNCR system to verify proper operation. (Rules 209 & 210.1)
32. Owner/operator shall collect periodic measurements of scrubbing liquid pH, and shall maintain records of wet scrubber pressure differential, wet scrubber scrubbing liquid flow rate & pH measurements to verify proper operation of the wet scrubber. (Rules 209 & 210.1)
33. Owner/operator shall maintain records of operational data from monitoring equipment utilized for the SNCR system and wet scrubber for a period of five years. (Rule 210.1)
34. No later than date of startup, owner/operator shall develop and maintain a written startup, shutdown, and malfunction plan for the EAF and associated air pollution control and monitoring equipment, consistent with the requirements of 40 CFR §63.6(e)(3), and shall make such plan available for inspection by the District or Administrator upon request. Owner/operator shall maintain records and submit reports in accordance with the requirements of 40 CFR §63.6(e)(3)(iii)-(v). (Rule 423 Subpart YYYYY, 40 CFR §63.6(e))
35. No later than date of startup, owner/operator shall submit to the District for approval a compliance assurance monitoring plan (CAM Plan) for the PM capture system and PM control devices serving the EAF. The CAM Plan shall include monitoring criteria consistent with the requirements of 40 CFR §64.3 and the information required by 40 CFR §64.4. (Rule 423, Subpart YYYYY)
36. Owner/operator shall maintain records of monitoring data, monitor performance data, corrective actions taken, and any written quality improvement plan (QIP) required by the CAM plan and 40 CFR §64.9(b), and shall retain such record for a period of at least 5 years. (Rule 423 Subpart YYYYY, 40 CFR §64.9(b))
37. Owner/operator shall submit compliance assurance monitoring reports no less frequently than every 6 months. Reports shall include information specified in 40 CFR §64.9, including the following: number, duration, and cause of excursions or exceedances and corrective actions taken; a summary of number, duration, and cause of monitor downtime incidents (other than downtime associated with calibration checks). (Rule 423 Subpart YYYYY, 40 CFR §64.9(a))
38. Deviations from permit requirements attributable to breakdown or upset conditions shall be reported to the District within 48 hours of after its detection unless the owner or operator demonstrates, to the satisfaction of the Control Officer, that a longer reporting period was necessary. (Rule 423 Subpart YYYYY, 40 CFR §64.9(a), 40 CFR §70.6(a)(3)(iii)(B))
39. Owner/operator shall furnish the Administrator or delegated authority with a report of the results of the test demonstrating compliance with §60.272b(a) according to paragraph 40 CFR §60.276b(i). The report shall contain the information specified in §60.276b(f). (40 CFR Part 60 Subpart AAb)
40. Within 60 days after the date of completing each performance test or demonstration of compliance required by 40 CFR Part 60 Subpart AAb, owner/operator shall submit the results to the Administrator using the procedures described in 40 CFR §60.276b(i). (40 CFR Part 60 Subpart AAb)
41. Owner/operator shall submit a written report of exceedances (as defined in 40 CFR §60.276b(b)) of PM control device opacity to the Administrator or delegated authority semi-annually. (40 CFR Part 60 Subpart AAb)
42. Reports of excess emissions and monitoring system performance required pursuant to 40 CFR §60.7(c) shall be submitted semi-annually to the EPA via the Compliance and Emissions Data Reporting Interface (CEDRI) (40 CFR Part 60 Subpart AAb)
43. Within 60 days following completion of the performance tests and within 30 days following the completion of opacity or visible emissions observations required by 40 CFR §63.10686(d), owner/operator shall submit to the District a compliance certification notice signed by a responsible official, and the notification shall include the information required by 40 CFR§63.9(h)(2)(i) and 40 CFR §63.10690(b)(1)-(6). (Rule 423 Subpart YYYYY)

44. Owner/operator shall submit results of ammonia testing to District within 30 days of test completion. (Rules 108.1, 209)
45. Compliance with all operational conditions shall be verified by appropriate recordkeeping, including records of operational data needed to demonstrate compliance. Such records shall be kept in readily available format for a period of 5 years and made available upon District request. (Rule 210.1)

STATE OF CALIFORNIA AIR TOXICS HOT SPOTS REQUIREMENTS:

Facility shall comply with California Health and Safety Code Sections 44300 through 44384. (Rule 208.1)

COMPLIANCE TESTING REQUIREMENTS:

Should inspection reveal conditions indicative of non-compliance, compliance with any emission limitations shall be verified in accordance with District Rule 108.1 within 60 days of District request. Test results shall be submitted to the District within 30 days after test completion. (Rules 108.1 and 209)

Performance tests required to show compliance with the emission standards in 40 CFR §60.272b(a) shall be conducted in accordance with the requirements of 40 CFR §60.8 and 40 CFR §60.275b(e) within 180 days of initial startup of facility, and shall be repeated at least every 5 years after the initial performance tests required by 40 CFR §60.8 are conducted (40 CFR Part 60 Subpart AAb §60.272b(d))

During performance tests required in accordance with §60.8 and §60.272b(d), the owner or operator shall not add gaseous diluents to the effluent gas stream after the fabric filter in any pressurized fabric filter collector, unless the amount of dilution is separately determined and considered in the determination of emissions.

Performance tests required to show compliance with the standards listed in 40 CFR §63.10686(b) shall be conducted in accordance with the requirements of 40 CFR §63.7 and the procedures described in 40 CFR §63.10686(d)(1)-(5).

When the owner/operator is required to demonstrate compliance with the applicable standards of 40 CFR §60.272b(a) and/or §63.10686(b), and emissions from the EAF are combined with those from facilities not subject to those standards but controlled by a common PM capture system,, the owner/operator shall provide notice to the Administrator or delegated authority of the procedure(s) that will be used to determine compliance. Notification of the procedure(s) to be used must be postmarked at least 30 days prior to the performance test, and approval must be received prior to conducting the performance test.

Owner/operator shall perform stack testing of the melt shop dust collector stack for PM_{10}, $PM_{2.5}$, NO_x, SO_2, VOC, and CO emissions to show initial compliance with the lb/ton steel and hourly emission limits within 180 days of startup, in accordance with District Rule 108.1. Testing shall be conducted when the EAF is operated at or near its maximum design capacity. Owner/operator shall then conduct subsequent testing annually. Annual testing for PM_{10} & $PM_{2.5}$ may be used to satisfy compliance with 40 CFR §60.272b(a)(1). (Rule 108.1)

Performance tests for compliance with PM_{10} and of $PM_{2.5}$ emission limits from the melt shop dust collector stack shall be conducted using EPA Method 201A in combination with EPA Method 202, as set forth in 40 CFR Part 51 Appendix M, In lieu of Method 201A and with prior approval from the District and the EPA (Attn: ENF-2-1), Method 5 can be used followed by particle size speciation. (Rule 108.1)

The permittee shall measure the following from the melt shop dust collector stack: NO_x in accordance with EPA Method 7E; SO_2 in accordance with EPA Method 6C; CO_2 in accordance with EPA Method 3A; and CO emissions in accordance with EPA Method 10. (Rule 108.1)

The permittee shall measure the total organic compound emissions from the melt shop dust collector stack using EPA Method 25A, from which it will subtract out methane (CH_4) and ethane (C_2H_6) emissions determined using EPA Method 18, to determine VOC emissions for purposes of this permit. Testing shall be conducted when the EAF is operated at or near its maximum design capacity. (Rule 108.1)

The District and the EPA (Attn: ENF-2-1) shall be notified in writing at least 30 days prior performance tests for PM_{10}, $PM_{2.5}$, NOx, SO_2, VOC, and CO emissions to allow time for the development of an approvable performance test plan, and to arrange for an observer to be present at the test. Such prior approval will minimize the possibility of EPA rejection of test results for procedural deficiencies. (Rule 108.1, 40 CFR §60.8, 40 CFR §63.7)

Compliance with District Rule 404.1 shall be verified in accordance with the methods specified in Section IV of the Rule.

Compliance verification for greenhouse gas emissions from the EAF shall be conducted in accordance with Subpart Q to 40 CFR Part 98. (40 CFR Part 98)

Testing for compliance with ammonia slip concentration and hourly limits from the melt shop dust collector exhaust stack shall be conducted in accordance with South Coast AQMD Method 207.1 – Determination of Ammonia Emissions from Stationary Sources. Initial testing shall be completed within 180 days of startup; District shall be notified at least 30 days prior to each test in accordance with District Rule 108.1. Results of tests shall be submitted to the District within 30 days of completion of field testing. Subsequent testing shall be performed quarterly. After two consecutive quarterly tests demonstrating compliance with ammonia slip limits, testing may be performed on an annual basis. Should an annual test determine that ammonia slip exceeds concentration limit, quarterly testing shall be resumed. (Rules 108.1 and 209)

EMISSION LIMITS:
Maximum emissions rate of each air contaminant from this emission unit shall not exceed following limits:

Particulate Matter (PM_{10}):
(Filterable + Condensable):

Melt Shop Fabric Collector Stack	0.0467	lb/ton steel	
	0.16	lb/ton steel	(40 CFR Part 60 Subpart AAb)
	0.0052	gr/scf	(40 CFR Part 63 Subpart YYYYY)
	2.43	lb/hr	
	58.34	lb/day	(24-hr maximum)
	10.65	ton/yr	(12-month rolling avg.)
Caster Spray Vent Stack	0.11	lb/hr	
	2.59	lb/day	(24-hr maximum)
	0.47	ton/yr	(12-month rolling avg.)

Particulate Matter ($PM_{2.5}$)
(Filterable + Condensable):

Melt Shop Fabric Collector Stack	0.0467	lb/ton steel	
	2.43	lb/hr	Rule 210.4 PSD
	58.34	lb/day	(24-hr maximum)
	10.65	ton/yr	Rule 210.4 PSD (12-month rolling avg.)
Caster Spray Vent Stack	0.01	lb/hr	Rule 210.4 PSD
	0.32	lb/day	(24-hr maximum)
	0.06	ton/yr	Rule 210.4 PSD (12-month rolling avg.)
Oxides of Sulfur (as SO_2):			
Melt Shop Fabric Collector Stack	0.101	lb/ton steel	
	5.26	lb/hr	
	126.18	lb/day	(24-hr maximum)
	23.03	ton/yr	(12-month rolling avg.)
Caster Spray Stack	0.02	lb/hr	
	0.44	lb/day	(24-hr Maximum)
	0.08	ton/yr	(12-month rolling avg.)
Oxides of Nitrogen (as NO_2):			
Melt Shop Fabric Collector Stack	0.090	lb/ton steel	
	4.68	lb/hr	
	112.44	lb/day	(24-hr maximum)
	20.52	ton/yr	(12-month rolling avg.)
Caster Spray Stack	0.006	lb/hr	
	0.15	lb/day	(24-hr maximum)
	0.03	ton/yr	(12-month rolling avg.)
Volatile Organic Compounds (VOC): (as defined in Rule 210.1)			
Melt Shop Fabric Collector Stack	0.075	lb/ton steel	
	3.90	lb/hr	
	93.60	lb/day	(24-hr maximum)
	17.10	ton/yr	(12-month rolling avg.)
Caster Spray Stack	0.02	lb/hr	
	0.46	lb/day	(24-hr maximum)
	0.08	ton/yr	(12-month rolling avg.)
Rolling Mill Vent Stack	0.83	lb/hr	
	19.98	lb/day	(24-hr maximum)
	3.65	ton/yr	(12-month rolling avg.)
Carbon Monoxide:			
Melt Shop Fabric Collector Stack	1.819	lb/ton steel	(Rule 210.4 PSD, 30 day rolling avg)
	94.68	lb/hr	
	2,272.38	lb/day	(24-hr maximum)
	414.71	ton/yr	(12-month rolling avg.)

Caster Spray Stack	0.49	lb/hr	
	11.75	lb/day	(24-hr maximum)
	2.15	ton/yr	(12-month rolling avg.)
Greenhouse Gases (as CO2e) :			
Melt Shop Fabric Collector Stack	100,092	ton/yr	Rule 210.4 PSD (12-month rolling avg.)
Ammonia Slip (from SNCR):	10	ppmvd	(1-hr avg) (Rule 419)
Melt Shop Fabric Collector Stack	18.25	lb/hr	(Rule 419)
	438.05	lb/day	(24-hr maximum)
	159,889.32	lb/yr	(12-month rolling avg.)

(Emissions limits established pursuant to Rule 210.1 unless otherwise noted)

Compliance with maximum daily emission limits shall be verified by source operator (with appropriate operational data and recordkeeping to document maximum daily emission rate) each day source is operated and such documentation of compliance shall be retained and made readily available to District for period of five years. (Rule 210.1)

SPECIAL CONDITIONS:

aa. Should initial performance testing determine that applicant proposed emission levels for PM_{10}, $PM_{2.5}$, SOx, NOx, VOC, and/or CO from the melt shop fabric collector stack cannot be achieved, and it can be verified that all equipment was installed and is being operated in accordance with design & operational conditions listed on this ATC and manufacturer’s recommendations, owner/operator shall adjust operating parameters so as to comply with the emission limits listed on this ATC. (Rules 209, 210.1, 210.4)

bb. If the owner/operator is required to adjust any operating parameters for compliance, then beginning no later than 60 days after the date of the test conducted, the owner/operator shall submit to the District, on a monthly basis, a record of adjusted operating parameters and daily records of production sufficient to demonstrate compliance with the permitted emission rates. (Rules 209, 210.1, 210.4)

cc. If changes to potential to emit are necessary, within 120 days after the date of the test conducted, the owner/operator shall also submit an application to modify the ATC to correct the potential to emit from the melt shop fabric collector stack, revise the AQIA and impacts analyses pursuant to 40 CFR §52.21(k), (m), (o), and (p), and shall satisfy applicable emission offset requirements of Section III.B of Rule 210.1 for PM_{10}, SOx, NOx, and/or VOC emissions. (Rules 209, 210.1, 210.4)

5024003:
EQUIPMENT DESCRIPTION: Slag Yard Operation, including the following equipment and design specifications

A. Main Feeder (20-hp motor)
B. Syntron Feeder (5-hp motor)
C. Main Slag Conveyor (20-hp)
D. Slag Screen (25-hp)
E. Three (3) Slag Product Stacker Conveyors (15-hp each)
F. Main Metallics Feed Conveyor (20-hp)
G. Metallics Screen (25-hp)
H. Three (3) Metallics Product Stacker Conveyors (15-hp each)

I. Mill Scale Plant Main Feeder (5-hp)
J. Mill Scale Plant Main Feed Conveyor (10-hp)
K. Mill Scale Single Deck Screen (25-hp)
L. Two (2) Mil Scale Stacker Conveyors (10-hp each)
M. Main Feed belt – Metal recovery Plant (20-hp motor)
N. Magnetic Drum - Metal Recovery Plant (7.5-hp motor)

DESIGN CONDITIONS:

a. Crushers and screening units shall be equipped with water sprays. (Rule 210.1 BACT Requirement)
b. Conveyors shall be covered or equipped with water sprays to control visible emissions. (Rule 210.1 BACT Requirement)
c. There shall be provisions for wetting of slag and mill scale stockpiles. (Rule 210.1 BACT Requirement)
d. At least 30 days prior to startup, owner/operator shall submit to the District an Operational Fugitive Dust Emission Control Plan for District approval. Owner/operator shall operate in accordance with the Fugitive Dust Control Plan for slag handling, processing, outdoor storage piles, and unpaved vehicle traffic areas. (Rule 210.1 BACT Requirement, 402)

OPERATIONAL CONDITIONS:

1. Maximum slag throughput shall not exceed 20.3 tons per hour and 59,280 tons per year; annual throughput limits are based on a rolling 12-month period. (Rule 210.1)
2. Crushing of slag shall not exceed 1,200 tons per year, based on a rolling 12-month period. (Rule 210.1)
3. Stockpiles of raw slag, processed fines, and processed intermediates shall not exceed 577.6 m^2 (0.14 acres). (Rule 210.1)
4. Water sprays shall be in operation when associated equipment is in operation. (Rule 210.1)
5. Visible emissions from crushing shall not exceed 10% opacity. (Rule 210.1 BACT Requirement)
6. Visible emissions from screening, handling, and transfer of slag and mill scale shall not exceed 5% opacity or Ringelmann ¼ for more than 3 minutes in any one hour. (Rule 210.1 BACT Requirement)
7. Visible emissions from slag and mill scale stockpiles shall not exceed 10% opacity or Ringelmann ½ for more than 3 minutes in any one hour. (Rule 210.1 BACT Requirement)
8. Equipment shall be maintained according to manufacturer's specifications to ensure compliance with emissions limitations. (Rules 210.1 BACT Requirement)
9. Compliance with all operational conditions shall be verified by appropriate recordkeeping, including records of operational data needed to demonstrate compliance. Such records shall include at least daily process weight rates and be kept on site in readily available format for a period of at least five years. (Rule 210.1)
10. No emission resulting from use of this equipment shall cause injury, detriment, nuisance, annoyance to or endanger comfort, repose, health or safety of any considerable number of persons or public. (Rule 419 and CH&SC §41700)

CONSTRUCTION ACTIVITY:

All construction phase emissions shall be controlled utilizing reasonably available control provisions, e.g. construction site and unsurfaced roadway dust control, conscientious maintenance of mobile and piston engine-powered equipment, etc.

STATE OF CALIFORNIA AIR TOXICS HOT SPOTS REQUIREMENTS:

Facility shall comply with California Health and Safety Code Sections 44300 through 44384. (Rule 208.1)

COMPLIANCE TESTING REQUIREMENTS:

Should inspection reveal conditions indicative of non-compliance, compliance with any emission limitations shall be verified in accordance with District Rule 108.1 within 60 days of District request. Test results shall be submitted to the District within 30 days after test completion. (Rules 108.1 and 209)

EMISSION LIMITS:
Maximum emissions rate of each air contaminant from this emission unit shall not exceed following limits:

Particulate Matter (PM_{10}):
(Filterable + Condensable):

Crushing	0.0002	lb/hr	
	0.005	lb/day	(24-hr maximum)
	0.003	ton/yr	(12-month rolling avg.)
Screening	0.02	lb/hr	
	0.36	lb/day	(24-hr maximum)
	0.02	ton/yr	(12-month rolling avg.)
Handling & Transfer	0.01	lb/hr	
	0.16	lb/day	(24-hr maximum)
	0.01	ton/yr	(12-month rolling avg.)
Stockpiles	2.38	lb/day	(24-hr maximum)
	0.43	ton/yr	(12-month rolling avg.)
Total:	**0.16**	**lb/hr**	
	2.91	**lb/day**	(24-hr maximum)
	0.47	**ton/yr**	(12-month rolling avg.)

Particulate Matter ($PM_{2.5}$):
(Filterable + Condensable):

Crushing	0.00004	lb/hr	Rule 210.4 PSD
	0.001	lb/day	(24-hr maximum)
	0.0001	ton/yr	Rule 210.4 PSD (12-month rolling avg.)
Screening	0.001	lb/hr	Rule 210.4 PSD
	0.02	lb/day	(24-hr maximum)
	0.001	ton/yr	Rule 210.4 PSD (12-month rolling avg.)
Handling & Transfer	0.002	lb/hr	Rule 210.4 PSD
	0.04	lb/day	(24-hr maximum)
	0.003	ton/yr	Rule 210.4 PSD (12-month rolling avg.)
Stockpiles	0.26	lb/day	(24-hr maximum)

	0.07	ton/yr	Rule 210.4 PSD (12-month rolling avg.)
Total:	**0.01**	**lb/hr**	Rule 210.4 PSD
	0.33	**lb/day**	(24-hr maximum)
	0.07	**ton/yr**	(12-month rolling avg.)

(Emissions limits established pursuant to Rule 210.1 unless otherwise noted)

Compliance with maximum daily emission limits shall be verified by source operator (with appropriate operational data and recordkeeping to document maximum daily emission rate) each day source is operated, and compliance with the rolling 12-month emissions and material throughput limits shall be verified at the end of each month. Documentation of compliance shall be retained and made readily available to District for a period of five years. (Rule 210.1)

5024004:
EQUIPMENT DESCRIPTION: Cooling Tower #1, including the following equipment and design specifications:

A. Melt Shop CW Circuit 1 with four pumps (337.8-hp each) and two booster pumps (115.3-hp each)
B. Melt Shop CW Circuit 2 with Two Pumps (29.5-hp each) and three booster pumps (115.3-hp each)
C. Rolling Mill Circuit 1 with three pumps (138.1-hp each)
D. Secondary Cooling CW Circuit 1 with two pumps (29.5-hp each)
E. Circuit CW Cooling Tower with four Cells each containing a 100.5-hp fan motor (402.1-hp)
F. Circuit CW Emergency System Pump (138.1-hp)

OPERATIONAL CONDITIONS:

1. The Permittee shall install, maintain, and operate drift eliminators on the cooling towers such that the guaranteed design total drift rate does not exceed 0.0005% of circulating water flow.. (Rule 210.1 BACT Requirement)
2. Visible emissions from cooling tower (excluding uncombined water vapor plumes) shall not exceed 5% opacity for more than 3 minutes in any one hour. (Rule 210.1 BACT Requirement)
3. Cooling tower total dissolved solids (TDS) shall not exceed 4000 ppmv by weight. (Rule 210.1)
4. Cooling water volumetric flow rate shall not exceed 16,039-gal/minute. (Rule 210.1)
5. Exhaust gas particulate matter concentration shall not exceed 0.1 grains/ft^3 of gas at standard conditions. (Rule 404.1)
6. Hexavalent chromium containing compounds shall not be added to cooling tower circulating water. (Rule 429.1)
7. Compliance with TDS limit shall be determined by electrical conductivity (EC) measurement or water sample analysis by independent laboratory at cooling tower(s) intake(s) within 60 days of initial operation and quarterly thereafter. (Rule 210.1)
8. Operator shall collect EC measurements and corresponding calculated TDS value; values shall be recorded in a readily available format for District inspection and maintained for a minimum of five years. (Rule 210.1)
9. Equipment, including EC meter, shall be maintained and calibrated according to manufacturer's specifications to ensure compliance with emissions limitations. (Rules 209 and 210.1)

10. No emission resulting from use of this equipment shall cause injury, detriment, nuisance, annoyance to or endanger comfort, repose, health or safety of any considerable number of persons or public. (Rule 419 and CH&SC §41700)

CONSTRUCTION ACTIVITY:

All construction phase emissions shall be controlled utilizing reasonably available control provisions, e.g. construction site and unsurfaced roadway dust control, conscientious maintenance of mobile and piston engine-powered equipment, etc.

STATE OF CALIFORNIA AIR TOXICS HOT SPOTS REQUIREMENTS:
Facility shall comply with California Health and Safety Code Sections 44300 through 44384. (Rule 208.1)

COMPLIANCE TESTING REQUIREMENTS:

Should inspection reveal conditions indicative of non-compliance, compliance with any emission limitations shall be verified in accordance with District Rule 108.1 within 60 days of District request. Test results shall be submitted to the District within 30 days after test completion. (Rules 108.1 and 209)

EMISSION LIMITS:
Maximum emissions rate of each air contaminant from this emission unit shall not exceed following limits:

Particulate Matter (PM_{10}):
(Filterable + Condensable):

0.09	lb/hr	
2.15	lb/day	(24-hr maximum)
0.39	ton/yr	(12-month rolling avg.)

Particulate Matter ($PM_{2.5}$):
(Filterable + Condensable):

0.0003	lb/hr	Rule 210.4 PSD
0.008	lb/day	(24-hr maximum)
0.002	ton/yr	Rule 210.4 PSD (12-month rolling avg.)

(Emissions limits established pursuant to Rule 210.1 unless otherwise noted)

Compliance with maximum daily emission limits shall be verified by source operator (with appropriate operational data and recordkeeping to document maximum daily emission rate) each day source is operated and such documentation of compliance shall be retained and made readily available to District for period of five years. (Rule 210.1)

5024005:
EQUIPMENT DESCRIPTION: Cooling Tower #2, including the following equipment and design specifications:

A. Circuit KW Cooling Tower with Two (2) Cells each containing a 29.5-hp fan motor (59-hp)
B. Melt Shop KW Circuit 1 with two pumps (203.8-hp each)
C. Rolling Mill CW Circuit 1 with two pumps (246.6-hp each)
D. Rolling Mill KW Circuit 2 with four pumps (115.3-hp each)

E. Rolling Mill KW Return Circuit 1 with submersible pump (56.3-hp)
F. Rolling Mill KW Return Circuit 3 with three submersible pumps (33.5-hp each)
G. Circuit KW Treatment Bucket with 10.1-hp motor
H. Three Circuit KW Treatment Pumps (69.7-hp each)
I. Circuit KW Treatment Oil Skimmer with 0.2-hp motor
J. Filter Backwashing with main blower (40.2-hp), hood fan blower (0.3-hp), and two pumps (9.4-hp each)
K. Drain Pit with mixer (5.4-hp) and two submersible pumps (14.7-hp each)

OPERATIONAL CONDITIONS:

1. The Permittee shall install, maintain, and operate drift eliminators on the cooling towers such that the guaranteed design total drift rate does not exceed 0.0005% of circulating water flow.. (Rule 210.1 BACT Requirement)
2. Visible emissions from cooling tower (excluding uncombined water vapor plumes) shall not exceed 5% opacity for more than 3 minutes in any one hour. (Rule 210.1 BACT Requirement)
3. Cooling tower total dissolved solids (TDS) shall not exceed 4000 ppmv by weight. (Rule 210.1)
4. Cooling water volumetric flow rate shall not exceed 3,742-gal/minute. (Rule 210.1)
5. Exhaust gas particulate matter concentration shall not exceed 0.1 grains/ft^3 of gas at standard conditions. (Rule 404.1)
6. Hexavalent chromium containing compounds shall not be added to cooling tower circulating water. (Rule 429.1)
7. Compliance with TDS limit shall be determined by electrical conductivity (EC) measurement or water sample analysis by independent laboratory at cooling tower(s) intake(s) within 60 days of initial operation and quarterly thereafter. (Rule 210.1)
8. Operator shall collect EC measurements and corresponding calculated TDS value; values shall be recorded in a readily available format for District inspection and maintained for a minimum of five years. (Rule 210.1)
9. Equipment, including EC meter, shall be maintained and calibrated according to manufacturer's specifications to ensure compliance with emissions limitations. (Rules 209 and 210.1)
10. There shall be no detectable odors at the property line of the facility. (Rule 419)
11. No emission resulting from use of this equipment shall cause injury, detriment, nuisance, annoyance to or endanger comfort, repose, health or safety of any considerable number of persons or public. (Rule 419 and CH&SC §41700)

CONSTRUCTION ACTIVITY:

All construction phase emissions shall be controlled utilizing reasonably available control provisions, e.g. construction site and unsurfaced roadway dust control, conscientious maintenance of mobile and piston engine-powered equipment, etc.

STATE OF CALIFORNIA AIR TOXICS HOT SPOTS REQUIREMENTS:
Facility shall comply with California Health and Safety Code Sections 44300 through 44384. (Rule 208.1)

COMPLIANCE TESTING REQUIREMENTS:

Should inspection reveal conditions indicative of non-compliance, compliance with any emission limitations shall be verified in accordance with District Rule 108.1 within 60 days of District request. Test results shall be submitted to the District within 30 days after test completion. (Rules 108.1 and 209)

EMISSION LIMITS:
Maximum emissions rate of each air contaminant from this emission unit shall not exceed following limits:

Particulate Matter (PM_{10}): (Filterable + Condensable):

	0.021	lb/hr	
	0.50	lb/day	(24-hr maximum)
	0.09	ton/yr	(12-month rolling avg.)

Particulate Matter ($PM_{2.5}$): (Filterable + Condensable):

	0.0001	lb/hr	Rule 210.4 PSD
	0.002	lb/day	(24-hr maximum)
	0.0003	ton/yr	Rule 210.4 PSD (12-month rolling avg.)

(Emissions limits established pursuant to Rule 210.1 unless otherwise noted)

Compliance with maximum daily emission limits shall be verified by source operator (with appropriate operational data and recordkeeping to document maximum daily emission rate) each day source is operated and such documentation of compliance shall be maintained and made readily available to District for period of five years. (Rule 210.1)

5024006:
EQUIPMENT DESCRIPTION: Cooling Tower #3, including the following equipment and design specifications:

A. Cooling Tower with two Cells each containing a 50-hp fan motor (100-hp)
B. Pumps with TBD quantity and hp ratings (engineering design pending)

OPERATIONAL CONDITIONS:

1. The Permittee shall install, maintain, and operate drift eliminators on the cooling towers such that the guaranteed design total drift rate does not exceed 0.0005% of circulating water flow.. (Rule 210.1 BACT Requirement)
2. Visible emissions from cooling tower (excluding uncombined water vapor plumes) shall not exceed 5% opacity for more than 3 minutes in any one hour. (Rule 210.1 BACT Requirement
3. Cooling tower total dissolved solids (TDS) shall not exceed 4000 ppmv by weight. (Rule 210.1)
4. Cooling water volumetric flow rate shall not exceed 5,723-gal/minute. (Rule 210.1)
5. Exhaust gas particulate matter concentration shall not exceed 0.1 grains/ft^3 of gas at standard conditions. (Rule 404.1)
6. Hexavalent chromium containing compounds shall not be added to cooling tower circulating water. (Rule 429.1)
7. Compliance with TDS limit shall be determined by electrical conductivity (EC) measurement or water sample analysis by independent laboratory at cooling tower(s) intake(s) within 60 days of initial operation and quarterly thereafter. (Rule 210.1)
8. Operator shall collect EC measurements and corresponding calculated TDS value; values shall be recorded in a readily available format for District inspection and maintained for a minimum of five years. (Rule 210.1)

9. Equipment, including EC meter, shall be maintained and calibrated according to manufacturer's specifications to ensure compliance with emissions limitations. (Rules 209 and 210.1)
10. No emission resulting from use of this equipment shall cause injury, detriment, nuisance, annoyance to or endanger comfort, repose, health or safety of any considerable number of persons or public. (Rule 419 and CH&SC §41700)

CONSTRUCTION ACTIVITY:

All construction phase emissions shall be controlled utilizing reasonably available control provisions, e.g. construction site and unsurfaced roadway dust control, conscientious maintenance of mobile and piston engine-powered equipment, etc.

STATE OF CALIFORNIA AIR TOXICS HOT SPOTS REQUIREMENTS:
Facility shall comply with California Health and Safety Code Sections 44300 through 44384. (Rule 208.1)

COMPLIANCE TESTING REQUIREMENTS:

Should inspection reveal conditions indicative of non-compliance, compliance with any emission limitations shall be verified in accordance with District Rule 108.1 within 60 days of District request. Test results shall be submitted to the District within 30 days after test completion. (Rules 108.1 and 209)

EMISSION LIMITS:
Maximum emissions rate of each air contaminant from this emission unit shall not exceed following limits:

Particulate Matter (PM_{10}):
(Filterable + Condensable):

	0.032	lb/hr	
	0.77	lb/day	(24-hr maximum)
	0.14	ton/yr	(12-month rolling avg.)

Particulate Matter ($PM_{2.5}$):
(Filterable + Condensable):

	0.0001	lb/hr	Rule 210.4 PSD
	0.003	lb/day	24-hr maximum)
	0.0005	ton/yr	Rule 210.4 PSD (12-month rolling avg.)

(Emissions limits established pursuant to Rule 210.1 unless otherwise noted)

Compliance with maximum daily emission limits shall be verified by source operator (with appropriate operational data and recordkeeping to document maximum daily emission rate) each day source is operated and such documentation of compliance shall be maintained and made readily available to District for period of five years. (Rule 210.1)

SPECIAL CONDITIONS:

aa. Upon finalization of Cooling Tower #3 engineering designs, owner/operator shall submit such information to the District. Should total electric motor horsepower exceed 200-hp, owner/operator shall submit application to modify ATC. (Rule 302)

5024007:

EQUIPMENT DESCRIPTION: Cooling Tower #4, including the following equipment and design specifications:

A. Cooling Tower with one cell containing a 15-hp fan motor
B. Pumps with TBD quantity and hp ratings (engineering design pending)

OPERATIONAL CONDITIONS:

1. The Permittee shall install, maintain, and operate drift eliminators on the cooling towers such that the guaranteed design total drift rate does not exceed 0.0005% of circulating water flow.. (Rule 210.1 BACT Requirement)
2. Visible emissions from cooling tower (excluding uncombined water vapor plumes) shall not exceed 5% opacity for more than 3 minutes in any one hour. (Rule 210.1 BACT Requirement
3. Cooling tower total dissolved solids (TDS) shall not exceed 4000 ppmv by weight. (Rule 210.1)
4. Cooling water volumetric flow rate shall not exceed 484-gal/minute. (Rule 210.1)
5. Exhaust gas particulate matter concentration shall not exceed 0.1 grains/ft^3 of gas at standard conditions. (Rule 404.1)
6. Hexavalent chromium containing compounds shall not be added to cooling tower circulating water. (Rule 429.1)
7. Compliance with TDS limit shall be determined by electrical conductivity (EC) measurement or water sample analysis by independent laboratory at cooling tower(s) intake(s) within 60 days of initial operation and quarterly thereafter. (Rule 210.1)
8. Operator shall collect EC measurements and corresponding calculated TDS value; values shall be recorded in a readily available format for District inspection and maintained for a minimum of five years. (Rule 210.1)
9. Equipment, including EC meter, shall be maintained and calibrated according to manufacturer's specifications to ensure compliance with emissions limitations. (Rules 209 and 210.1)
10. No emission resulting from use of this equipment shall cause injury, detriment, nuisance, annoyance to or endanger comfort, repose, health or safety of any considerable number of persons or public. (Rule 419 and CH&SC §41700)

CONSTRUCTION ACTIVITY:

All construction phase emissions shall be controlled utilizing reasonably available control provisions, e.g. construction site and unsurfaced roadway dust control, conscientious maintenance of mobile and piston engine-powered equipment, etc.

STATE OF CALIFORNIA AIR TOXICS HOT SPOTS REQUIREMENTS:

Facility shall comply with California Health and Safety Code Sections 44300 through 44384. (Rule 208.1)

COMPLIANCE TESTING REQUIREMENTS:

Should inspection reveal conditions indicative of non-compliance, compliance with any emission limitations shall be verified in accordance with District Rule 108.1 within 60 days of District request. Test results shall be submitted to the District within 30 days after test completion. (Rules 108.1 and 209)

EMISSION LIMITS:

Maximum emissions rate of each air contaminant from this emission unit shall not exceed following limits:

Particulate Matter (PM_{10}): (Filterable + Condensable):			
	0.003	lb/hr	
	0.06	lb/day	(24-hr maximum)
	0.01	ton/yr	(12-month rolling avg.)
Particulate Matter ($PM_{2.5}$): (Filterable + Condensable):			Rule 210.4 PSD
	0.00001	lb/hr	
	0.0002	lb/day	(24-hr maximum)
	0.00004	ton/yr	Rule 210.4 PSD (12-month rolling avg.)

(Emissions limits established pursuant to Rule 210.1 unless otherwise noted)

Compliance with maximum daily emission limits shall be verified by source operator (with appropriate operational data and recordkeeping to document maximum daily emission rate) each day source is operated and such documentation of compliance shall be maintained and made readily available to District for period of five years. (Rule 210.1)

Special Conditions:

aa. Upon finalization of Cooling Tower #4 engineering designs, owner/operator shall submit such information to the District. Should total electric motor horsepower exceed 25-hp, owner/operator shall submit application to modify ATC. (Rule 302)

5024008

EQUIPMENT DESCRIPTION: Emergency Firewater Pump driven by propane engine, including the following equipment and design specifications:

Emergency Firewater Pump driven by <Mfr. TBD> Model <TBD> EPA certified, 600-bhp propane-fueled lean-burn internal combustion engine (S/N TBD)

DESIGN CONDITIONS:

a. Engine shall be of lean-burn design (exhaust gas oxygen content ≥4% by volume). (Rule 210.1 BACT Requirement)
b. Non-resettable hour meter shall be installed and maintained indicating cumulative hours of engine operating time. (Rule 210.1)
c. Engine shall be equipped with a permanently affixed placard readily available for inspection with the following engine information: brake horsepower, make, model, and serial number. (Rule 210.1)

OPERATIONAL CONDITIONS:

1. Engine operation shall not exceed 200 hours per year. (Rules 210.1, 427)
2. Engine shall either be certified by the manufacturer to meet the BACT emission standards listed on this permit, or shall be tested for compliance with those standards in accordance with 40 CFR §60.4243(b)(2)(ii) and the procedures contained in 40 CFR §60.4244. (Rules 210.1 BACT, 423 Subpart ZZZZ, 40 CFR §63.6590(c)(1), §60.4233(e), §60.4243(b))

3. There shall be no visible emissions from engine exhaust after achieving normal operating temperature. (Rule 210.1 BACT Requirement)
4. Exhaust gas particulate matter concentration shall not exceed 0.1 grains/ft^3 of gas at standard conditions. (Rule 404.1)
5. Propane for subject internal combustion engine shall conform to National Propane Gas Association (NPGA) specifications of “Commercial Propane” (including sulfur content not to exceed 15 grains per 100 cubic feet as determined by NPGA Volatile Sulfur Test). (Rule 210.1 BACT Requirement)
6. Equipment shall be operated and maintained according to manufacturer’s emission-related written instructions to ensure compliance with emission limitations. (Rules 210.1, 423 Subpart ZZZZ)
7. Compliance with all operational conditions shall be verified by appropriate recordkeeping, including records of operational data needed to demonstrate compliance. Such records shall be kept on site in readily available format. (Rules 210.1, 423 Subpart ZZZZ)
8. No emission resulting from use of this equipment shall cause injury, detriment, nuisance, annoyance to or endanger comfort, repose, health or safety of any considerable number of persons or public. (Rule 419 and CH&SC §41700)

CONSTRUCTION ACTIVITY:

All construction phase emissions shall be controlled utilizing reasonably available control provisions, e.g. construction site and unsurfaced roadway dust control, conscientious maintenance of mobile and piston engine-powered equipment, etc.

STATE OF CALIFORNIA AIR TOXICS HOT SPOT REQUIREMENTS:

Facility shall comply with California Health and Safety Code Sections 44300 through 44384. (Rule 208.1)

COMPLIANCE TESTING REQUIREMENTS:

Should inspection reveal conditions indicative of non-compliance, compliance with any emission limitations shall be verified in accordance with District Rule 108.1 within 60 days of District request. Test results shall be submitted to the District within 30 days after test completion. (Rule 108.1 and 209)

EMISSION LIMITS:

Maximum emission rate of each air contaminant from this emission unit shall not exceed the following limits:

Particulate Matter (PM_{10} & $PM_{2.5}$): (Filterable + Condensable):			
	0.14	lb/hr	
	3.34	lb/day	(24-hr maximum)
	0.01	ton/yr	(12-month rolling avg.)
Oxides of Sulfur (SOx as SO_2):			
	0.01	lb/hr	
	0.23	lb/day	(24-hr maximum)
	0.001	ton/yr	(12-month rolling avg.)
Oxides of Nitrogen (NOx):	0.50	g/bhp-hr	(BACT Requirement)
	0.66	lb/hr	

	15.87	lb/day	(24-hr maximum)
	0.07	ton/yr	(12-month rolling avg.)
Volatile Organic Compounds (VOC):	1.0	g/bhp-hr	(BACT Requirement)
	1.32	lb/hr	
	31.75	lb/day	(24-hr maximum)
	0.13	ton/yr	(12-month rolling avg.)
Carbon Monoxide (CO):	1.6	g/bhp-hr	(BACT Requirement)
	2.12	lb/hr	
	50.79	lb/day	(24-hr maximum)
	0.21	ton/yr	(12-month rolling avg.)

(Emissions limits established pursuant to Rule 210.1 unless otherwise noted)

Compliance with maximum daily emission limits shall be verified by source operator (with appropriate operational data and recordkeeping to document maximum daily emission rate) each day source is operated and such documentation of compliance shall be maintained and made readily available to District for period of five years. (Rule 210.1)

5024009:
EQUIPMENT DESCRIPTION: Emergency Cooling Water Pump, including the following equipment and design specifications:

Emergency Cooling Water Pump driven by <TBD mfr.> Model <TBD> 200-bhp propane-fueled, lean burn internal combustion engine (S/N TBD)

DESIGN CONDITIONS:

a. Engine shall be of lean-burn design (exhaust gas oxygen content ≥4% by volume). (Rule 210.1 BACT Requirement)
b. Non-resettable hour meter shall be installed and maintained indicating cumulative hours of engine operating time. (Rule 210.1)
c. Engine shall be equipped with a permanently affixed placard readily available for inspection with the following engine information: brake horsepower, make, model, and serial number. (Rule 210.1)

OPERATIONAL CONDITIONS:

1. Engine operation shall not exceed 200 hours per year. (Rules 210.1, 427)
2. Engine shall either be certified by the manufacturer to meet the BACT emission standards listed on this permit, or shall be tested for compliance with those standards in accordance with 40 CFR §60.4243(b)(2)(i) and the procedures contained in 40 CFR §60.4244. (Rules 210.1 BACT, 423 Subpart ZZZZ, 40 CFR §63.6590(c)(1), §60.4233(e), §60.4243(b))
3. There shall be no visible emissions from engine exhaust after achieving normal operating temperature. (Rule 210.1 BACT Requirement)
4. Exhaust gas particulate matter concentration shall not exceed 0.1 grains/ft^3 of gas at standard conditions. (Rule 404.1)
5. Propane for subject internal combustion engine shall conform to National Propane Gas Association (NPGA) specifications of "Commercial Propane" (including sulfur content not to exceed 15 grains per 100 cubic feet as determined by NPGA Volatile Sulfur Test). (Rule 210.1 BACT Requirement)
6. Equipment shall be operated and maintained according to manufacturer's emission-related

written instructions to ensure compliance with emission limitations. (Rules 210.1, 423 Subpart ZZZZ)

7. Compliance with all operational conditions shall be verified by appropriate recordkeeping, including records of operational data needed to demonstrate compliance. Such records shall be kept on site in readily available format. (Rules 210.1, 423 Subpart ZZZZ)
8. No emission resulting from use of this equipment shall cause injury, detriment, nuisance, annoyance to or endanger comfort, repose, health or safety of any considerable number of persons or public. (Rule 419 and CH&SC §41700)

CONSTRUCTION ACTIVITY:

All construction phase emissions shall be controlled utilizing reasonably available control provisions, e.g. construction site and unsurfaced roadway dust control, conscientious maintenance of mobile and piston engine-powered equipment, etc.

STATE OF CALIFORNIA AIR TOXICS HOT SPOT REQUIREMENTS:

Facility shall comply with California Health and Safety Code Sections 44300 through 44384. (Rule 208.1)

COMPLIANCE TESTING REQUIREMENTS:

Should inspection reveal conditions indicative of non-compliance, compliance with any emission limitations shall be verified in accordance with District Rule 108.1 within 60 days of District request. Test results shall be submitted to the District within 30 days after test completion. (Rules 108.1 and 209)

EMISSION LIMITS:

Maximum emission rate of each air contaminant from this emission unit shall not exceed the following limits:

Particulate Matter (PM_{10} & $PM_{2.5}$): (Filterable + Condensable):			
	0.05	lb/hr	
	1.11	lb/day	(24-hr maximum)
	0.005	ton/yr	(12-month rolling avg.)
Oxides of Sulfur (SOx as SO_2):			
	0.003	lb/hr	
	0.08	lb/day	(24-hr maximum)
	0.0003	ton/yr	(12-month rolling avg.)
Oxides of Nitrogen (NOx):	1.0	g/bhp-hr	(BACT Requirement)
	0.44	lb/hr	
	10.58	lb/day	(24-hr maximum)
	0.04	ton/yr	(12-month rolling avg.)
Volatile Organic Compounds (VOC):	1.0	g/bhp-hr	(BACT Requirement)
	0.44	lb/hr	
	10.58	lb/day	(24-hr maximum)
	0.04	ton/yr	(12-month rolling avg.)
Carbon Monoxide (CO):	1.6	g/bhp-hr	(BACT Requirement)

0.71	lb/hr	
16.93	lb/day	(24-hr maximum)
0.07	ton/yr	(12-month rolling avg.)

(Emissions limits established pursuant to Rule 210.1 unless otherwise noted)

Compliance with maximum daily emission limits shall be verified by source operator (with appropriate operational data and recordkeeping to document maximum daily emission rate) each day source is operated and such documentation of compliance shall be maintained and made readily available to District for period of five years. (Rule 210.1)

5024010:
EQUIPMENT DESCRIPTION: Emergency Generator Set, including the following equipment and design specifications:

Emergency Generator Set driven by <TBD mfr.> Model <TBD> 2,682-bhp propane-fueled, lean burn internal combustion engine (S/N TBD)

DESIGN CONDITIONS:

a. Engine shall be of lean-burn design (exhaust gas oxygen content ≥4% by volume). (Rule 210.1 BACT Requirement)
b. Non-resettable hour meter shall be installed and maintained indicating cumulative hours of engine operating time. (Rule 210.1)
c. Engine shall be equipped with a permanently affixed placard readily available for inspection with the following engine information: brake horsepower, make, model, and serial number. (Rule 210.1)

OPERATIONAL CONDITIONS:

1. Engine operation shall not exceed 200 hours per year. (Rules 210.1, 427)
2. Engine shall either be certified by the manufacturer to meet the BACT emission standards listed on this permit, or shall be tested for compliance with those standards in accordance with 40 CFR §60.4243(b)(2)(ii) and the procedures contained in 40 CFR §60.4244. (Rules 210.1 BACT, 423 Subpart ZZZZ; 40 CFR §63.6590(c)(1), §60.4233(e), §60.4243(b))
3. There shall be no visible emissions from engine exhaust after achieving normal operating temperature. (Rule 210.1 BACT Requirement)
4. Exhaust gas particulate matter concentration shall not exceed 0.1 grains/ft^3 of gas at standard conditions. (Rule 404.1)
5. Propane for subject internal combustion engine shall conform to National Propane Gas Association (NPGA) specifications of “Commercial Propane” (including sulfur content not to exceed 15 grains per 100 cubic feet as determined by NPGA Volatile Sulfur Test). (Rule 210.1 BACT Requirement)
6. Equipment shall be operated and maintained according to manufacturer’s emission-related written instructions to ensure compliance with emission limitations. (Rules 210.1, 423 Subpart ZZZZ)
7. Compliance with all operational conditions shall be verified by appropriate recordkeeping, including records of operational data needed to demonstrate compliance. Such records shall be kept on site in readily available format. (Rules 210.1, 423 Subpart ZZZZ)
8. No emission resulting from use of this equipment shall cause injury, detriment, nuisance, annoyance to or endanger comfort, repose, health or safety of any considerable number of persons or public. (Rule 419 and CH&SC §41700)

CONSTRUCTION ACTIVITY:

All construction phase emissions shall be controlled utilizing reasonably available control provisions, e.g. construction site and unsurfaced roadway dust control, conscientious maintenance of mobile and piston engine-powered equipment, etc.

STATE OF CALIFORNIA AIR TOXICS HOT SPOT REQUIREMENTS:

Facility shall comply with California Health and Safety Code Sections 44300 through 44384. (Rule 208.1)

COMPLIANCE TESTING REQUIREMENTS:

Should inspection reveal conditions indicative of non-compliance, compliance with any emission limitations shall be verified in accordance with District Rule 108.1 within 60 days of District request. Test results shall be submitted to the District within 30 days after test completion. (Rules 108.1 and 209)

EMISSION LIMITS:

Maximum emission rate of each air contaminant from this emission unit shall not exceed the following limits:

Particulate Matter (PM_{10} & $PM_{2.5}$): (Filterable + Condensable):			
	0.62	lb/hr	
	14.93	lb/day	(24-hr maximum)
	0.06	ton/yr	(12-month rolling avg.)
Oxides of Sulfur (SOx as SO_2):			
	0.04	lb/hr	
	1.04	lb/day	(24-hr maximum)
	0.004	ton/yr	(12-month rolling avg.)
Oxides of Nitrogen (NOx):	0.50	g/bhp-hr	(BACT Requirement)
	2.96	lb/hr	
	70.95	lb/day	(24-hr maximum)
	0.30	ton/yr	(12-month rolling avg.)
Volatile Organic Compounds (VOC):	1.0	g/bhp-hr	(BACT Requirement)
	5.91	lb/hr	
	141.91	lb/day	(24-hr maximum)
	0.59	ton/yr	(12-month rolling avg.)
Carbon Monoxide (CO):	1.6	g/bhp-hr	(BACT Requirement)
	9.46	lb/hr	
	227.05	lb/day	(24-hr maximum)
	0.95	ton/yr	(12-month rolling avg.)

(Emissions limits established pursuant to Rule 210.1 unless otherwise noted)

Compliance with maximum daily emission limits shall be verified by source operator (with appropriate operational data and recordkeeping to document maximum daily emission rate) each day source is operated and such documentation of compliance shall be maintained and made readily available to District for period of five years. (Rule 210.1)

5024011:

EQUIPMENT DESCRIPTION: Aboveground Gasoline Storage and Dispensing Operation, including the following equipment and design specifications:

A. 500-gallon (Model TBD) regular unleaded gasoline aboveground storage tank (AST) with a permanently affixed fill tube termination no more than six inches from bottom of tank and provisions for collection of gasoline vapors during filling (ATC No. 5024011)

B. Standing Loss Control (CARB Executive Order VR-302), including the following CARB certified components:

Component	Manufacturer/Model Number
Pressure Vacuum Relief Valve	Husky 5885 or Franklin Fueling Systems PV-Zero

C. Phase I (filling of storage tank) vapor recovery system, including one of the following sets of CARB certified components:

	Component	Manufacturer/Model Number	
		Executive Order VR-401	Executive Order VR-402
1.	**Emergency Vent**	OPW 301	Morrison 244O
2.	**Drop Tube**	OPW 61FT	Morrison 419
3.	**Overfill Prevention Valve**	OPW 61fSTOP	Morrison 9095
5.	**Spill Container**	OPW 33 or 53 Series	Morrison 516
6.	**Liquid Fill Adapter**	OPW 161BAN	Morrison 927
7.	**Liquid Fill Cap**	OPW 634B	Morrison 735DC
8.	**Liquid Coupler**	OPW 1711D	Morrison 928
9.	**Vapor Adapter**	OPW 1611AV or 61VSA	Morrison 323
10.	**Vapor Cap**	OPW 1711T	Morrison 323C

D. Model <TBD> gasoline dispenser with one product nozzle; and

E. Phase II (fueling of vehicle tank) without vapor recovery (CARB Executive Order NVR-1-F), including the following CARB certified components:

Component	Manufacturer/Model Number
1. Nozzle	OPW 14E; or VST Enviro-Loc; or Husky 6025
2. Dispensing Hose	Contitech Futura Low Perm; or Parker 7282 Low Perm; or VST V58EC; or VST V34EC; or Husky 6025

DESIGN CONDITIONS:

a. Gasoline storage tank shall be of make & model approved in CARB Executive Order VR-302 (Rule 412)

OPERATIONAL CONDITIONS:

1. Gasoline throughput from tank shall not exceed 3,500 gallons per year. (Rule 210.1)
2. Gasoline shall only be dispensed to vehicles owned by PSGM3 or its authorized partner(s) that are equipped with Onboard Refueling Vapor Recovery (ORVR) equipment. (Rule 210.1 BACT Requirement).

3. Storage/dispensing facility shall be equipped with California Air Resources Board (CARB) "certified" Phase I (filling of storage tanks) gasoline vapor control system. (Rule 412)
4. Phase I vapor control system shall be of CARB certified design and installed, operated, and maintained in accordance with manufacturer's recommendation to prevent at least 98% by weight of all gasoline vapors from entering atmosphere. (Rules 210.1, 412)
5. Gasoline storage tank shall be equipped with pressure/vacuum relief valve set to 2.5 to 6.0 in. H_2O positive pressure and 6.0 to 10.0 in. H_2O negative pressure. (Rule 412)
6. All Phase I (filling of storage tank) vapor recovery equipment shall be used when tanks are filled. (Rule 412)
7. Gasoline flow through any nozzle shall not exceed 10 gallons per minute. (Rule 412.1)
8. Tanks shall be equipped with permanently submerged fill pipe terminating no more than six inches from bottom of tank. (Rule 412)
9. Phase I Vapor Recovery Systems shall be installed, started up, maintained and repaired only by person(s) certified by the system manufacturer(s) to perform such work. A copy of such person's certification shall be kept in the facility's repair log. (Rule 412.1)
10. The vapor recovery systems and their components shall be operated and maintained in accordance with the State certification requirements. (Rules 412 and 412.1)
11. No gasoline delivery vessel shall be operated or be allowed to operate unless valid State of California decals are displayed on the cargo tank which attests to the vapor integrity of the tank. (Rule 412)
12. Vapor recovery systems and gasoline dispensing equipment shall be maintained leak-free. A "leak" is defined as the dripping of liquid volatile organic compounds at a rate of three or more drops per minute, or vapor volatile organic compounds in excess of 10,000-ppm as equivalent methane as determined by EPA Test Method 21. (Rule 412.1)
13. The permittee shall perform the required maintenance as specified in ARB-Approved Installation and Maintenance Manual for the Phase I Vapor Recovery System. (Rule 412)
14. The permittee shall perform and pass a Static Pressure Performance of Vapor Recovery Systems at Gasoline Dispensing Facilities with Aboveground Storage Tanks in accordance with Exhibit 6 of Executive Order VR-401 or VR-402 within 60 days of startup and at least once every three years. (Rule 412)
15. The permittee shall perform and pass a pressure integrity test on all pressure/vent (PV) valves serving gasoline storage tanks in accordance with ARB Test Procedure TP-201.1E at least once every 12 months. (Rule 210.1)
16. The operator shall conduct periodic maintenance inspections of the Phase I vapor recovery systems, as specified in Section IV.D of District Rule 412 based on the amount of gasoline dispensed by the facility in a calendar month as follows:
    a. Less than 2,500 gallons – one day per month
    b. 2,500 to less than 25,000 gallons per month - one day per week;
    b. Greater than or equal to 25,000 gallons per month - five days per week.

    All inspections shall be documented within the O&M manual. (Rule 412.1)
17. The operator shall maintain monthly gasoline throughput records. (Rule 412.1)
18. Owner/operator shall maintain records of all vehicles utilizing gasoline tank dispenser, including make, model, model year, and vehicle identification number. (Rule 210.1)
19. All records required by this permit shall be retained on-site, in a format approved in writing by the District, for a period of at least three years and shall be made available for inspection upon request. (Rules 210.1, 412.1)
20. The operator shall maintain on the premises a log of any repairs made to the certified Phase I or vapor recovery system. The repair log shall include the following:
    a. Date and time of each repair;
    b. Name of the person(s) who performed the repair, and if applicable, the name, address and phone number of the person's employer;
    c. Description of service performed;
    d. Each component that was repaired, serviced, or removed;
    e. Each component that was installed as replacement, if applicable; and

f. Receipts or other documents for parts used in the repair and, if applicable, work orders which shall include the name and signature of the person responsible for performing the repairs. (Rule 412.1)

21. Any tank with vapor recovery system having defect shall not be operated until defect has been repaired, replaced, or adjusted as necessary to correct defect, and District has re-inspected system or has authorized its use pending re-inspection. All such defects shall be tagged “out of service” upon detection. (Rule 412 and 412.1)
22. The District shall be notified by the permittee at least 7 days prior to each performance test. The test results shall be submitted to the District no later than 30 days after test completion. (District Rule 412)
23. The District shall be notified within 24 hours of the facility's pass/fail status after the performance of each test. (District Rules 108.1, 209)
24. No emission resulting from use of this equipment shall cause injury, detriment, nuisance, annoyance to or endanger comfort, repose, health, or safety of any considerable number of persons or public. (Rule 419 and CH&SC §41700)

CONSTRUCTION ACTIVITY:

All construction phase emissions shall be controlled utilizing reasonably available control provisions, e.g. construction site and unsurfaced roadway dust control, conscientious maintenance of mobile and piston engine-powered equipment, etc.

STATE OF CALIFORNIA AIR TOXICS HOT SPOTS REQUIREMENTS:

Facility shall comply with California Health and Safety Code Sections 44300 through 44384. (Rule 208.1)

COMPLIANCE TESTING REQUIREMENTS:

Should inspection reveal conditions indicative of non-compliance, compliance with any emission limitations shall be verified in accordance with District Rule 108.1 within 60 days of District request. Test results shall be submitted to the District within 30 days after test completion. (Rules 108.1 and 209)

EMISSION LIMITS:

Maximum emission rate of each air contaminant from this emission unit shall not exceed the following limits:

Volatile Organic Compounds (VOC):	0.09	lb/hr	
	0.45	lb/day	(24-hr maximum)
	0.002	ton/yr	(12-month rolling avg.)

(Emissions limits established pursuant to Rule 210.1 unless otherwise noted)

Compliance with maximum daily emission limits shall be verified by source operator (with appropriate operational data and recordkeeping to document maximum daily emission rate) each day source is operated and such documentation of compliance shall be maintained and made readily available to District for period of five years. (Rule 210.1)

SPECIAL CONDITIONS:

aa. Vapor-return and/or vapor control systems used to comply with requirements of this Authority to Construct shall comply with all safety, fire, weights and measures, and other applicable codes and/or regulations. (Rule 412)

bb. System and components shall be of California Air Resources Board certified design, any component changes shall be approved in advance by the District. (Rule 412 and 412.1)

Attachment A

TOXIC EMISSIONS HEALTH RISK ASSESSMENT

TAC Emissions

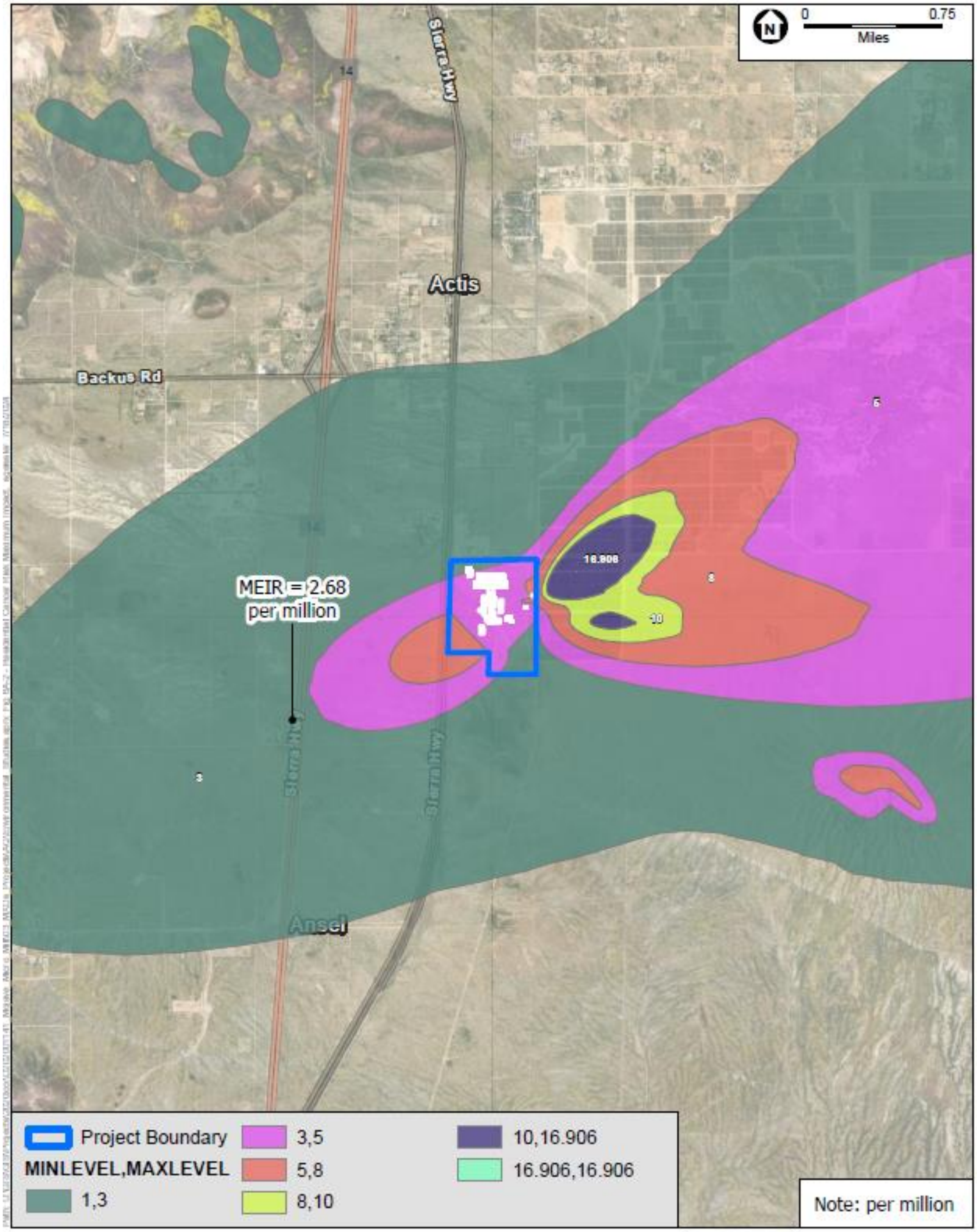
Enter the Max Hourly and Annual Emissions in the yellow highlighted columns below				CAPCOA Method									
							Emisisons and Potency Method			Dispersion Adjustment Method			
Substance	Chemical Abstract Number	Max Hourly Emissions (lb/hr)	Annual Emissions (lb/yr)	Average Hourly (lb/hr)	Acute HQ	Chronic HQ	Acute HQ	Chronic HQ	Max of Acute or Chronic	Acute HQ	Chronic HQ	Max of Acute or Chronic	Cancer Risk
MANGANESE AND COMPOUNDS	7439965 [1132]	4.11E-02	3.60E+02	4.11E-02	0.00E+00	4.57E-01	0.00E+00	6.85E+01	6.85E+01	0.00E+00	1.14E+00	1.14E+00	0.00E+00
ACETALDEHYDE	75070	1.56E-01	3.11E+02	3.55E-02	3.32E-04	2.53E-04	4.98E-01	3.80E-02	4.98E-01	8.31E-03	6.33E-04	8.31E-03	8.39E-04
METHYLENE CHLORIDE (Dichloromethane)	75092	2.61E-02	2.26E+02	2.58E-02	1.86E-06	6.45E-05	2.80E-03	9.68E-03	9.68E-03	4.66E-05	1.61E-04	1.61E-04	2.26E-04
METHYL ETHYL KETONE (2-Butanone)	78933	2.23E-02	1.95E+02	2.23E-02	1.72E-06	0.00E+00	2.57E-03	0.00E+00	2.57E-03	4.29E-05	0.00E+00	4.29E-05	0.00E+00
METHANOL	67561	5.54E-02	1.70E+02	1.94E-02	1.98E-06	4.84E-06	2.97E-03	7.26E-04	2.97E-03	4.95E-05	1.21E-05	4.95E-05	0.00E+00
FORMALDEHYDE	50000	7.80E-01	1.56E+02	1.78E-02	1.42E-02	1.98E-03	2.13E+01	2.97E-01	2.13E+01	3.54E-01	4.95E-03	3.54E-01	9.36E-04
CARBON DISULFIDE	75150	1.68E-02	1.47E+02	1.68E-02	2.70E-06	2.09E-05	4.05E-03	3.14E-03	4.05E-03	6.76E-05	5.24E-05	6.76E-05	0.00E+00
ACROLEIN	107028	8.95E-02	1.34E+02	1.53E-02	3.58E-02	4.37E-02	5.37E+01	6.56E+00	5.37E+01	8.95E-01	1.09E-01	8.95E-01	0.00E+00
LEAD AND COMPOUNDS (inorganic) values also apply to:	7439921 1128 [1130]	1.13E-02	9.94E+01	1.13E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.19E-03
MERCURY AND COMPOUNDS (INORGANIC)	7439976 [1133]	8.70E-03	7.62E+01	8.70E-03	1.45E-02	2.90E-01	2.17E+01	4.35E+01	4.35E+01	3.62E-01	7.25E-01	7.25E-01	0.00E+00
TOLUENE	108883	1.24E-02	5.68E+01	6.48E-03	2.47E-06	1.54E-05	3.71E-03	2.32E-03	3.71E-03	6.19E-05	3.86E-05	6.19E-05	0.00E+00
m-XYLENE	108383	3.20E-03	2.80E+01	3.20E-03	1.45E-07	4.57E-06	2.18E-04	6.85E-04	6.85E-04	3.63E-06	1.14E-05	1.14E-05	0.00E+00
p-XYLENE	106423	3.20E-03	2.80E+01	3.20E-03	1.45E-07	4.57E-06	2.18E-04	6.85E-04	6.85E-04	3.63E-06	1.14E-05	1.14E-05	0.00E+00
BENZENE	71432	8.60E-03	1.96E+01	2.24E-03	3.18E-04	7.47E-04	4.78E-01	1.12E-01	4.78E-01	7.96E-03	1.87E-03	7.96E-03	5.70E-04
COBALT AND COMPOUNDS (insoluble) *values also apply to:*	7440484 [1216]	2.23E-03	1.95E+01	2.23E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.50E-01
NICKEL AND COMPOUNDS values also apply to:	7440020 [1145]	2.07E-03	1.81E+01	2.07E-03	1.03E-02	1.48E-01	1.55E+01	2.21E+01	2.21E+01	2.58E-01	3.69E-01	3.69E-01	4.71E-03
CHLOROFORM	67663	2.24E-03	1.61E+01	1.83E-03	1.50E-05	6.11E-06	2.24E-02	9.17E-04	2.24E-02	3.74E-04	1.53E-05	3.74E-04	8.51E-05
o-XYLENE	95476	1.43E-03	1.25E+01	1.43E-03	6.49E-08	2.04E-06	9.73E-05	3.06E-04	3.06E-04	1.62E-06	5.10E-06	5.10E-06	0.00E+00
CARBON TETRACHLORIDE (Tetrachloromethane)	56235	1.88E-03	1.18E+01	1.35E-03	9.87E-07	3.36E-05	1.48E-03	5.05E-03	5.05E-03	2.47E-05	8.41E-05	8.41E-05	4.95E-04
ETHYL BENZENE	100414	1.82E-03	1.09E+01	1.24E-03	0.00E+00	6.21E-07	0.00E+00	9.31E-05	9.31E-05	0.00E+00	1.55E-06	1.55E-06	2.72E-05
NAPHTHALENE	91203	2.31E-03	1.08E+01	1.24E-03	0.00E+00	1.37E-04	0.00E+00	2.06E-02	2.06E-02	0.00E+00	3.43E-04	3.43E-04	3.68E-04
STYRENE	100425	1.25E-03	7.99E+00	9.12E-04	5.96E-08	1.01E-06	8.94E-05	1.52E-04	1.52E-04	1.49E-06	2.53E-06	2.53E-06	0.00E+00
1,4-DIOXANE; (1,4-Diethylene dioxide)	123911	7.12E-04	6.24E+00	7.12E-04	2.37E-07	2.37E-07	3.56E-04	3.56E-05	3.56E-04	5.94E-06	5.94E-07	5.94E-06	4.80E-05
1,3-BUTADIENE	106990	4.47E-03	5.41E+00	6.18E-04	6.78E-06	3.09E-05	1.02E-02	4.63E-03	1.02E-02	1.69E-04	7.72E-05	1.69E-04	9.20E-04
CADMIUM AND COMPOUNDS	7440439 [1045]	6.14E-04	5.38E+00	6.14E-04	0.00E+00	3.07E-02	0.00E+00	4.61E+00	4.61E+00	0.00E+00	7.68E-02	7.68E-02	2.26E-02
n-HEXANE	110543	1.64E-02	3.27E+00	3.74E-04	0.00E+00	5.34E-08	0.00E+00	8.00E-06	8.00E-06	0.00E+00	1.33E-07	1.33E-07	0.00E+00
SELENIUM AND COMPOUNDS	7782492	2.53E-04	2.22E+00	2.53E-04	0.00E+00	1.27E-05	0.00E+00	1.90E-03	1.90E-03	0.00E+00	3.17E-05	3.17E-05	0.00E+00
CHROMIUM 6+	18540299	2.11E-04	1.85E+00	2.11E-04	0.00E+00	1.06E-03	0.00E+00	1.58E-01	1.58E-01	0.00E+00	2.64E-03	2.64E-03	2.78E-01
ARSENIC AND COMPOUNDS (INORGANIC)	7440382	1.51E-04	1.32E+00	1.51E-04	7.55E-04	1.01E-02	1.13E+00	1.51E+00	1.51E+00	1.89E-02	2.52E-02	2.52E-02	4.36E-03
XYLENES (mixed isomers)	1330207	2.71E-03	5.43E-01	6.20E-05	1.23E-07	8.85E-08	1.85E-04	1.33E-05	1.85E-04	3.08E-06	2.21E-07	3.08E-06	0.00E+00
ETHYLENE DIBROMIDE (1,2-Dibromoethane)	106934	6.55E-04	1.31E-01	1.49E-05	0.00E+00	1.87E-05	0.00E+00	2.80E-03	2.80E-03	0.00E+00	4.67E-05	4.67E-05	9.30E-06
1,1,2,2-TETRACHLOROETHANE	79345	5.91E-04	1.18E-01	1.35E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.85E-06
1,1,2-TRICHLOROETHANE (Vinyl trichloride)	79005	4.70E-04	9.40E-02	1.07E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.50E-06
CHLOROBENZENE	108907	4.49E-04	8.98E-02	1.03E-05	0.00E+00	1.03E-08	0.00E+00	1.54E-06	1.54E-06	0.00E+00	2.56E-08	2.56E-08	0.00E+00
POLYCYCLIC AROMATIC HYDROCARBON (PAH) F	1150 1151	3.97E-04	7.95E-02	9.07E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.74E-05
PHENOL	108952	3.55E-04	7.09E-02	8.09E-06	6.11E-08	4.05E-08	9.17E-05	6.07E-06	9.17E-05	1.53E-06	1.01E-07	1.53E-06	0.00E+00
VINYL CHLORIDE	75014	2.21E-04	4.41E-02	5.03E-06	1.23E-09	0.00E+00	1.84E-06	0.00E+00	1.84E-06	3.06E-08	0.00E+00	3.06E-08	3.44E-06
POLYCHLORINATED DIBENZO-P-DIOXINS (PCDD)	1085 1086	2.54E-07	2.22E-03	2.54E-07	0.00E+00	6.34E-03	0.00E+00	9.51E-01	9.51E-01	0.00E+00	1.59E-02	1.59E-02	8.44E-02
CHRYSENE	218019	1.02E-05	2.05E-03	2.34E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.25E-08
BENZO(B)FLUORANTHENE v	205992	2.45E-06	4.91E-04	5.60E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.40E-08

Prioritization Score Summary

Emissions Potency Method Calculated Prioritization Score for Receptors at Given Distance R (m)							
Non-Carcinogenic Score	2.17E+02	5.43E+01	8.70E+00	2.39E+00	6.52E-01	4.35E-01	2.17E-01
Carcinogenic Score	4.23E+03	1.06E+03	1.69E+02	4.66E+01	1.270E+01	8.47E+00	4.23E+00

Dispersion Adjustment Method Calculated Prioritization Score for Receptors at Given Distance R (m)							
Non-Carcinogenic Score							
H < 20	2.17E+02	5.43E+01	8.70E+00	2.39E+00	6.52E-01	4.35E-01	2.17E-01
20 ≤ H < 45	3.26E+01	2.77E+01	7.17E+00	2.09E+00	5.87E-01	2.93E-01	1.96E-01
H ≥ 45	3.62E+00	3.62E+00	3.26E+00	1.45E+00	4.71E-01	2.39E-01	1.52E-01
Carcinogenic Score							
H < 20	4.22E+03	1.06E+03	1.69E+02	4.64E+01	1.27E+01	8.44E+00	4.22E+00
20 ≤ H < 45	6.33E+02	5.38E+02	1.39E+02	4.05E+01	1.14E+01	5.70E+00	3.80E+00
H ≥ 45	7.04E+01	7.04E+01	6.33E+01	2.81E+01	9.15E+00	4.64E+00	2.96E+00

Table of CAPCOA Method Adjustment Factors								
Release Height (m)	Receptor Proximity Factors for R (m)							Dispersion Adjustment Factor for H
	R < 100	100 ≤ R < 250	250 ≤ R < 500	500 ≤ R < 1000	1000 ≤ R < 1500	1500 ≤ R < 2000	R ≥ 2000	
H < 20	1	0.25	0.04	0.011	0.003	0.002	0.001	60
20 ≤ H < 45	1	0.85	0.22	0.064	0.018	0.009	0.006	9
H ≥ 45	1	1	0.9	0.4	0.13	0.066	0.042	1



SOURCE: ESA, 2024

Mojave Mills Project

Figure 6A-2
Residential Cancer Risk Maximum Impact

ESA

Figure A1: Cancer Risk Contours, Resident

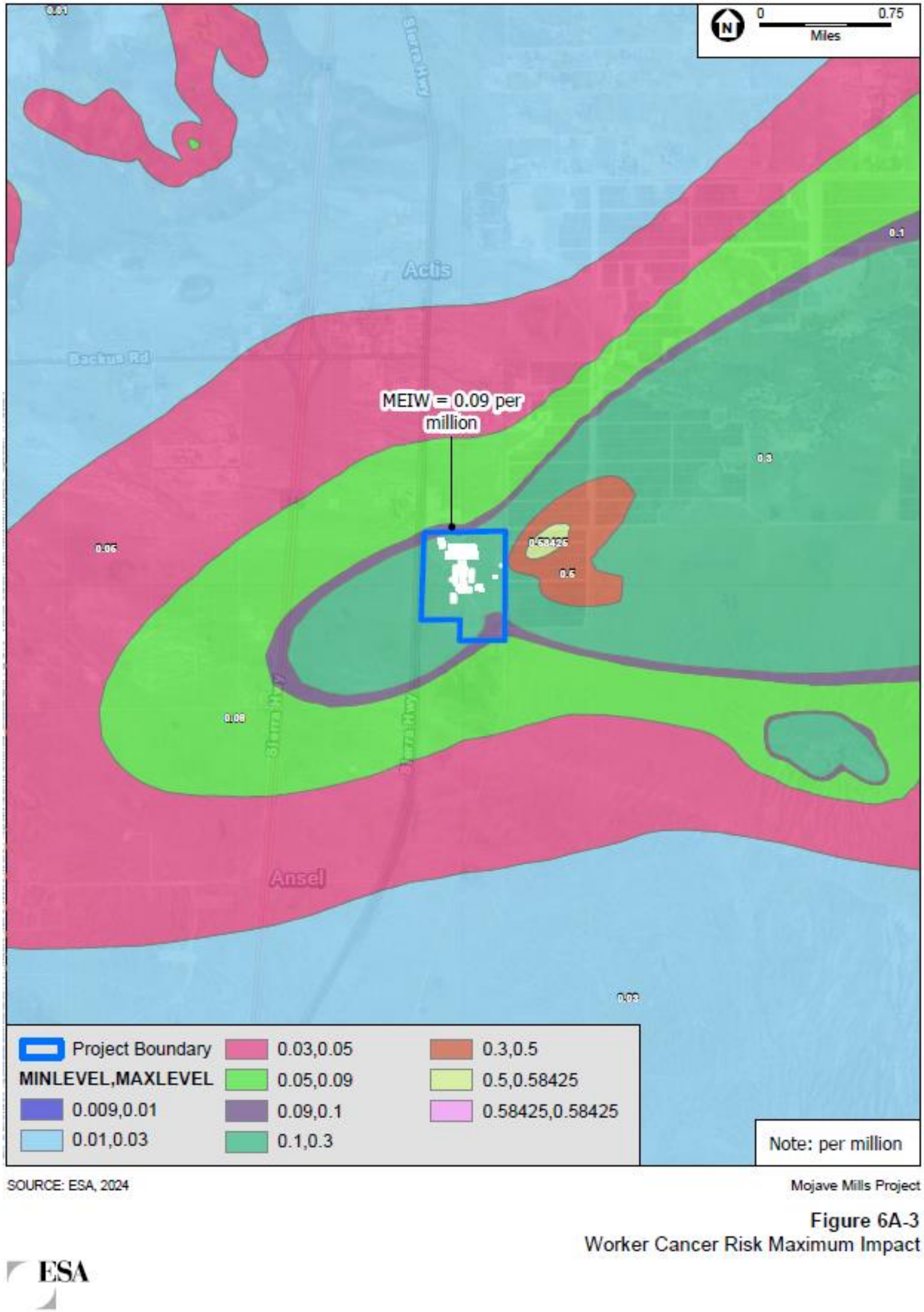
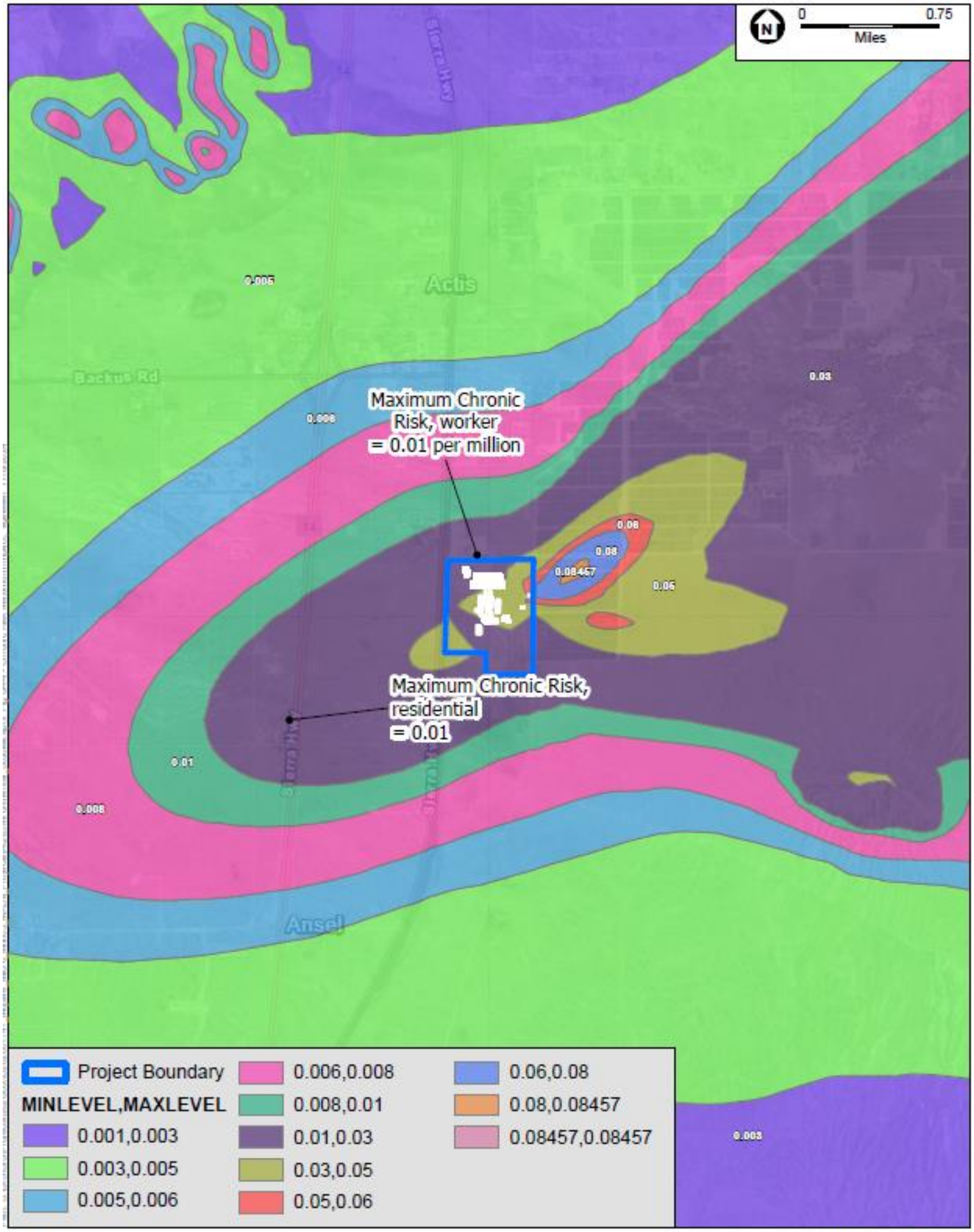


Figure A2: Cancer Risk Contours, Worker



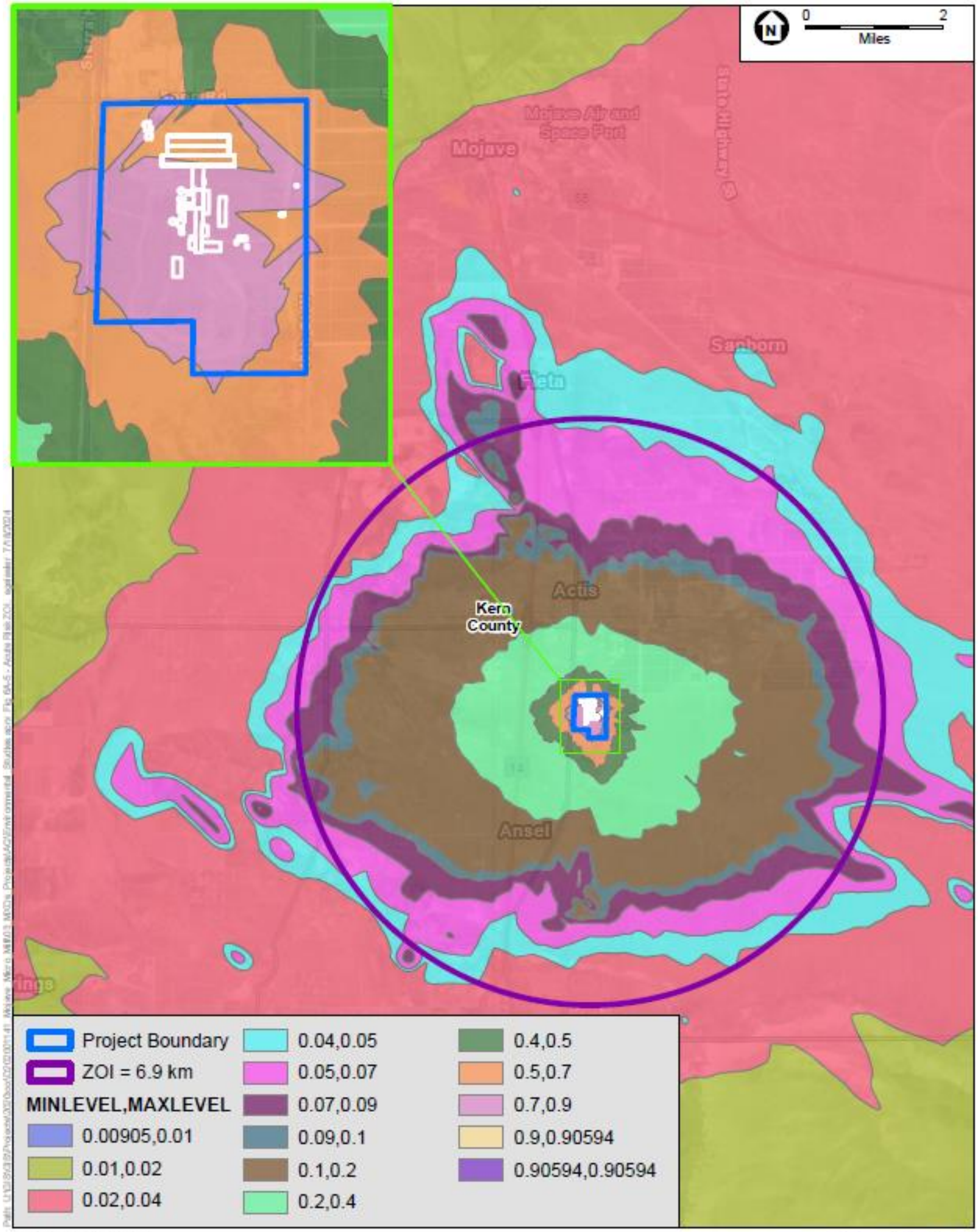
SOURCE: ESA, 2024

Mojave Mills Project

Figure 6A-4
Chronic Risk Maximum Impact

ESA

Figure A3: Noncancer Hazard Index Contours, Chronic



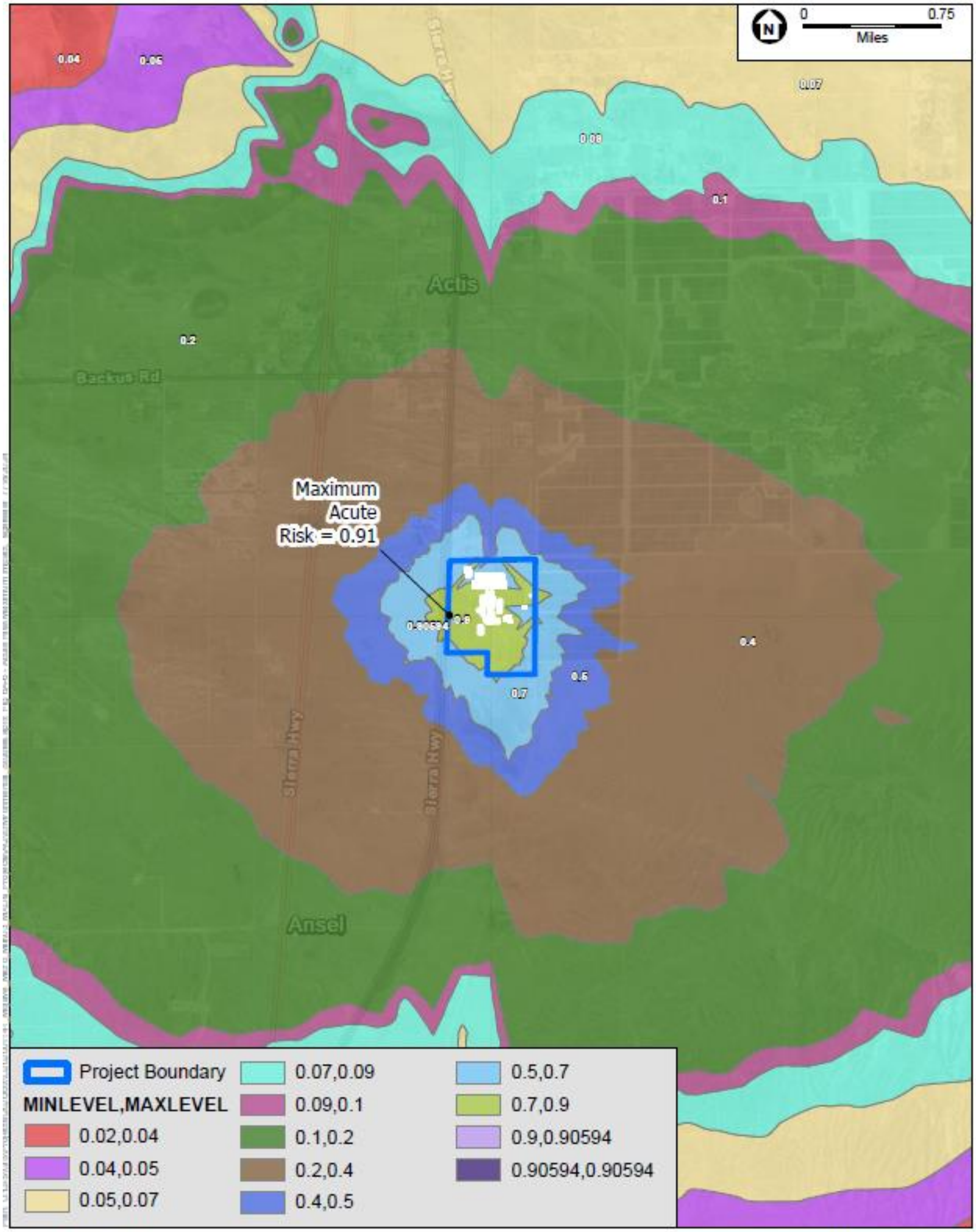
SOURCE: ESA, 2024

Mojave Mills Project

Figure 6A-5
Acute Risk ZOI

ESA

Figure A4: Noncancer Hazard Index Contours, Acute



SOURCE: ESA, 2024

Mojave Mills Project

Figure 6A-6
Acute Risk Maximum Impact

ESA

Figure A4: Noncancer Hazard Index Contours, Acute

Attachment B

MODELING RESULTS FOR PSD

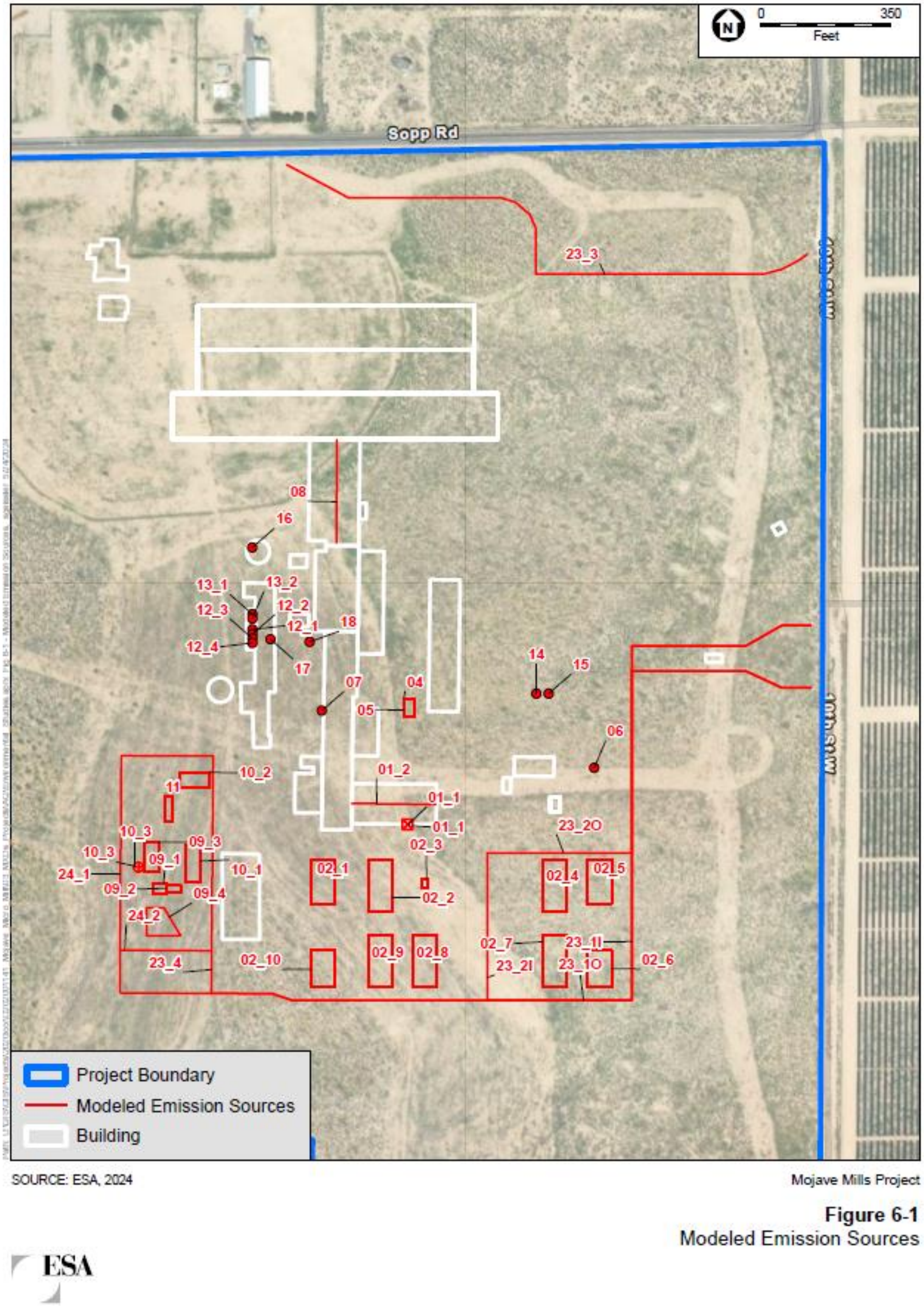
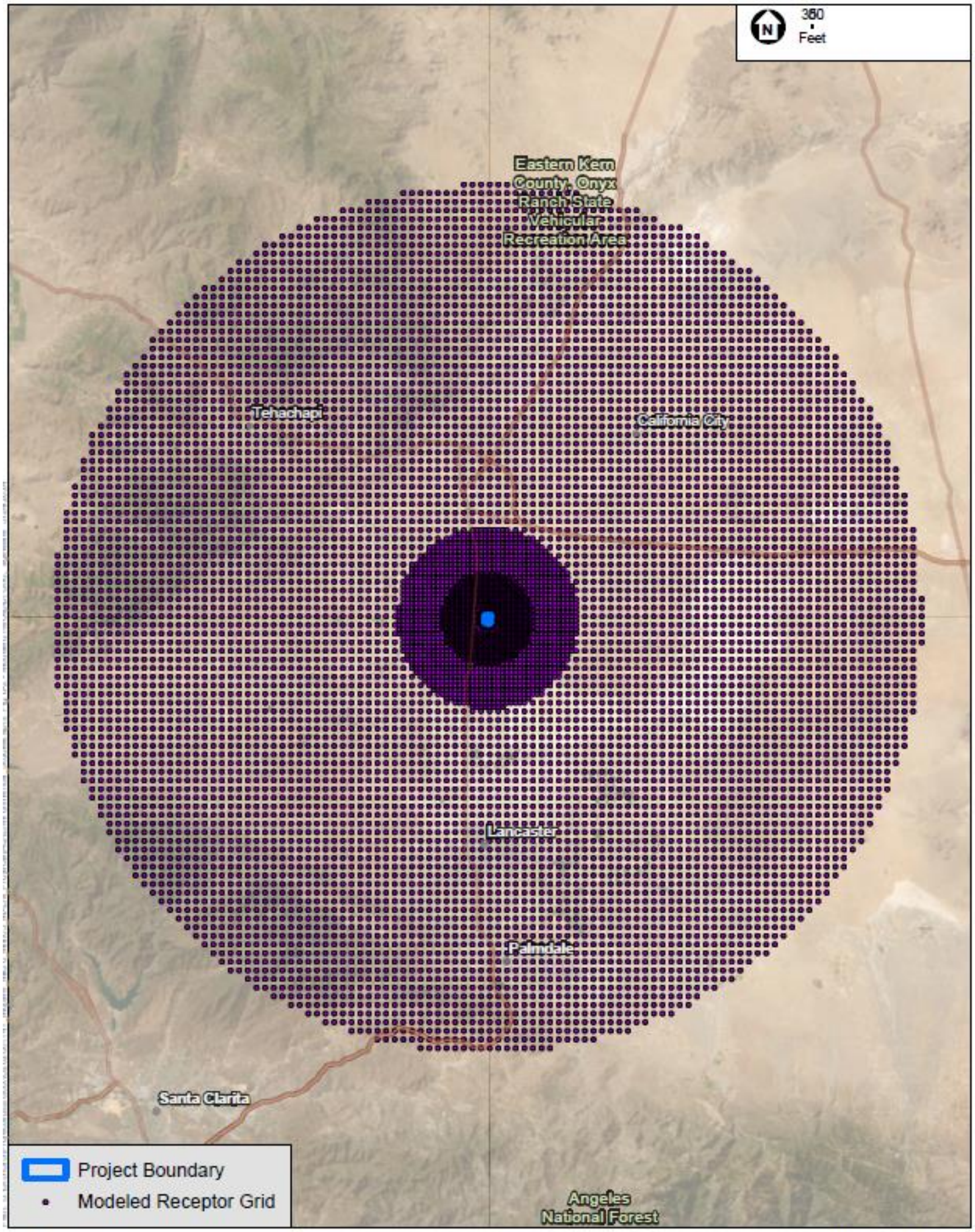


Figure B1: Locations of Modeled Emission Sources & Buildings



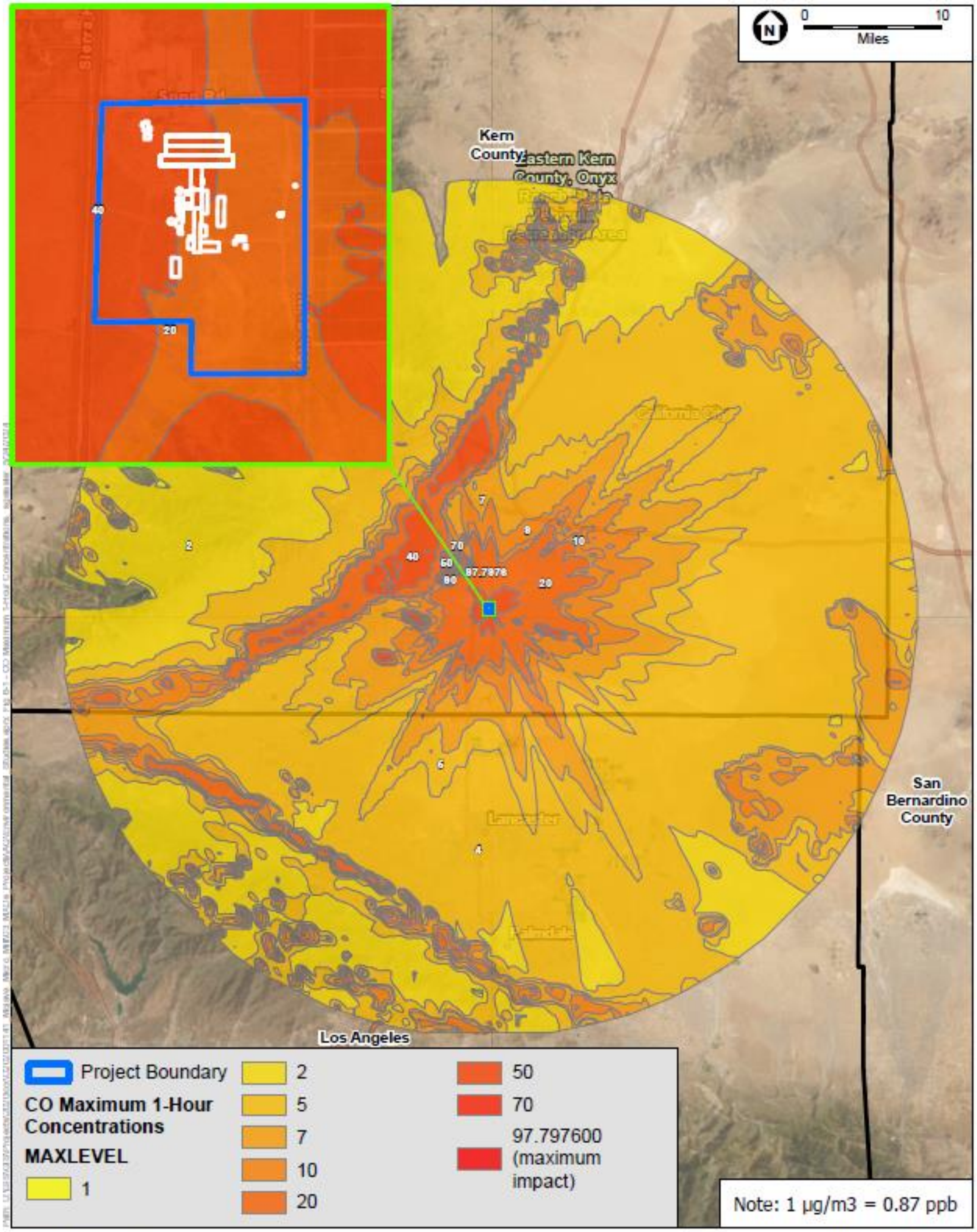
SOURCE: ESA, 2024

Mojave Mills Project

Figure 6-2
Modeled Receptor Grid

ESA

Figure B2: Receptor Grid Layout



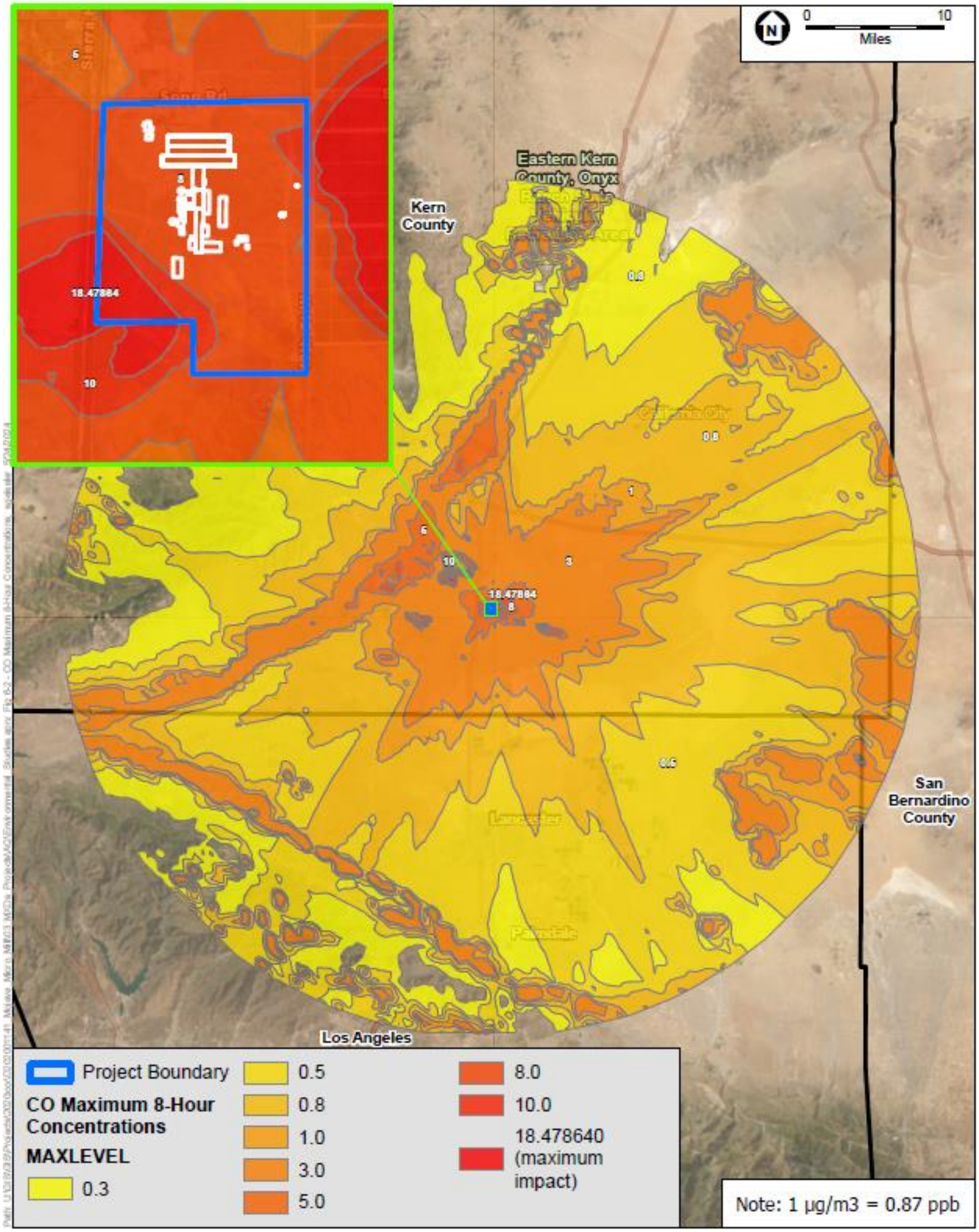
SOURCE: ESA, 2024

Mojave Mills Project

Figure 6-3
CO Maximum 1-Hour Concentrations

ESA

<u>Figure B3: Increase in CO Concentration, 1-hr Maximum</u>



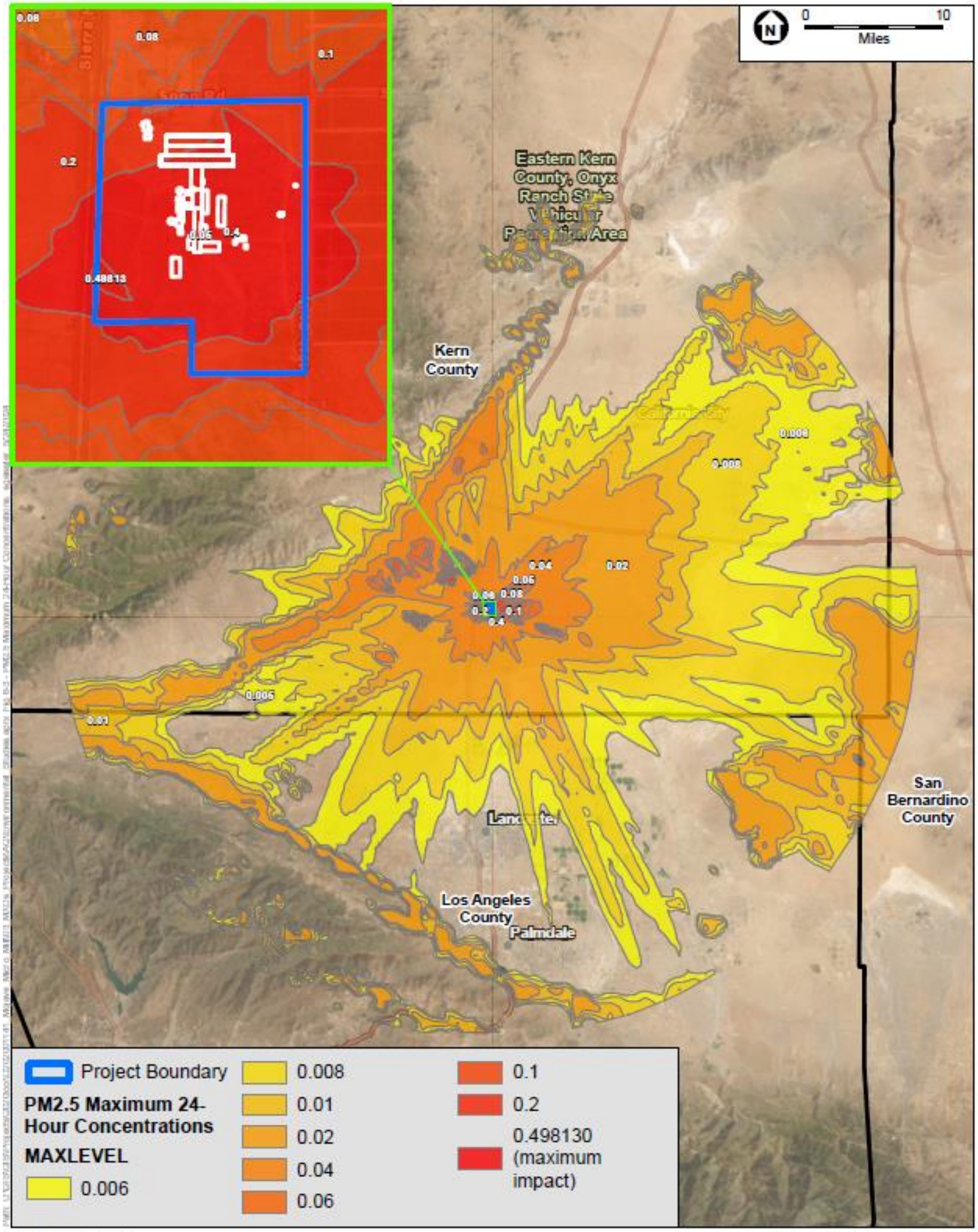
SOURCE: ESA, 2024

Mojave Mills Project

Figure 6-4
CO Maximum 8-Hour Concentrations

ESA

Figure B4: Increase in CO Concentration, 8-Hour Average



SOURCE: ESA, 2024

Mojave Mills Project

Figure 6-5
PM2.5 Maximum 24-Hour Concentrations

ESA

Figure B5: Increase in $PM_{2.5}$ Concentration, 24-hour Average

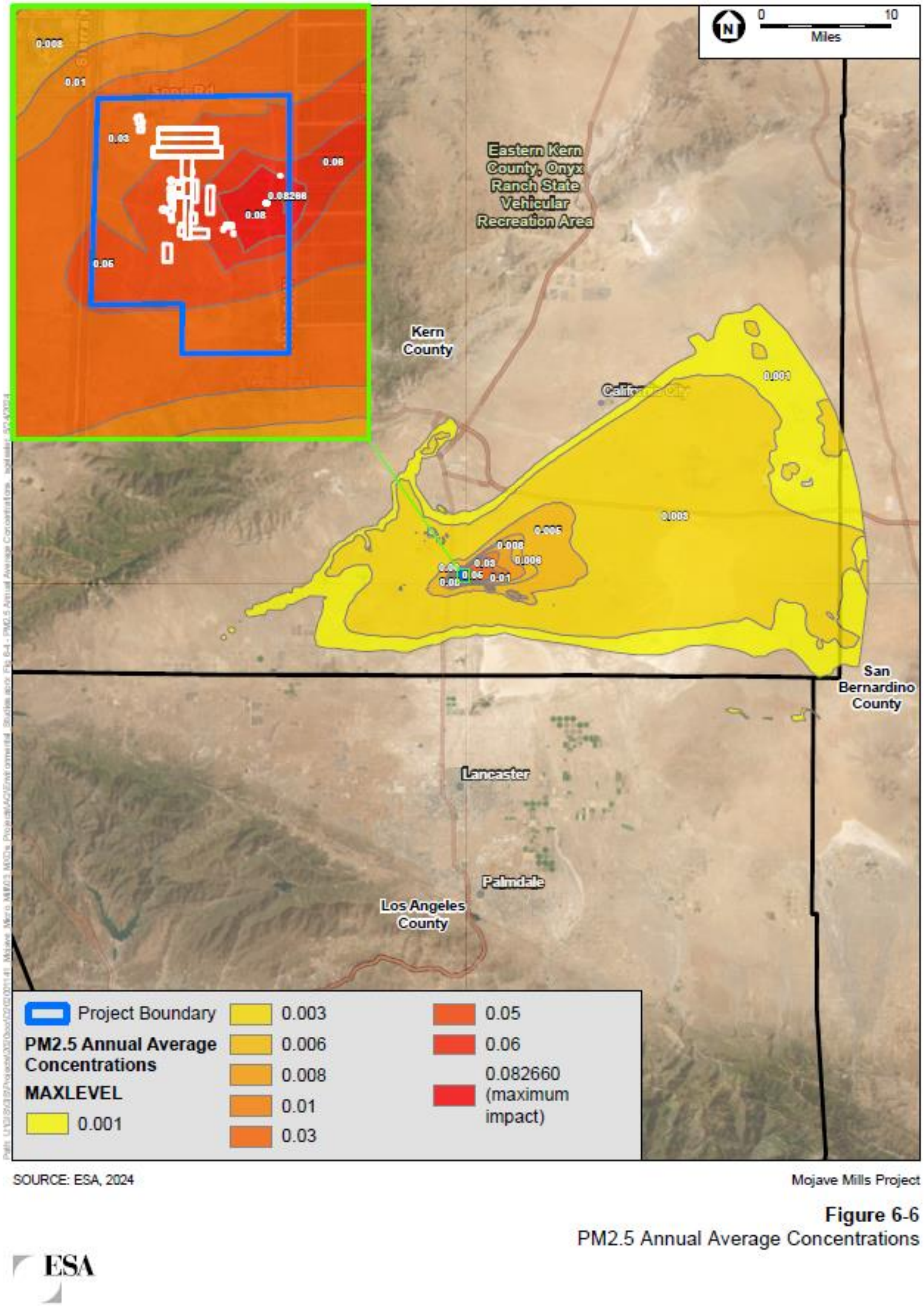


Figure B6: Increase in $PM_{2.5}$ Concentration, Annual Average

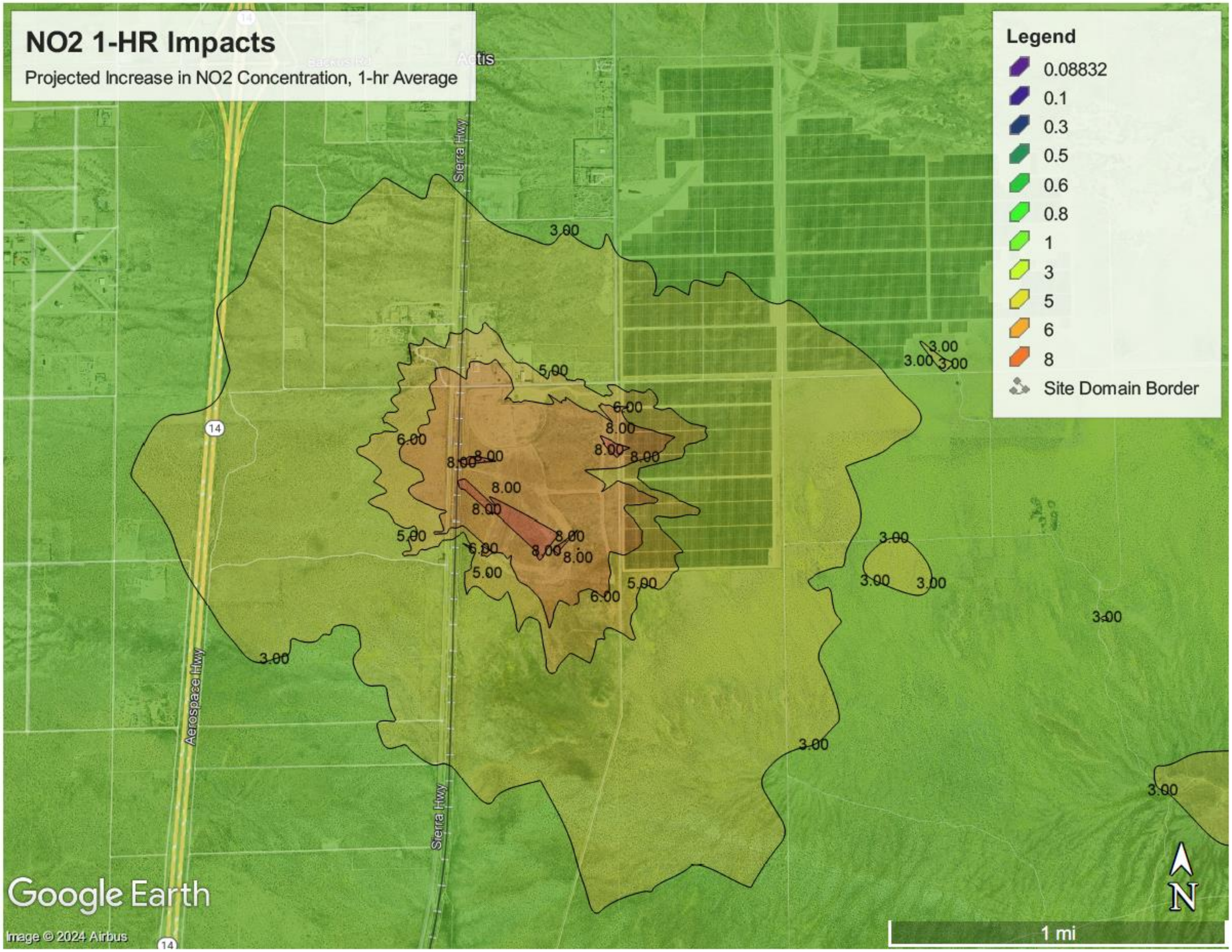


Figure B7: Increase in NO_2 Concentration, 1-hr Average

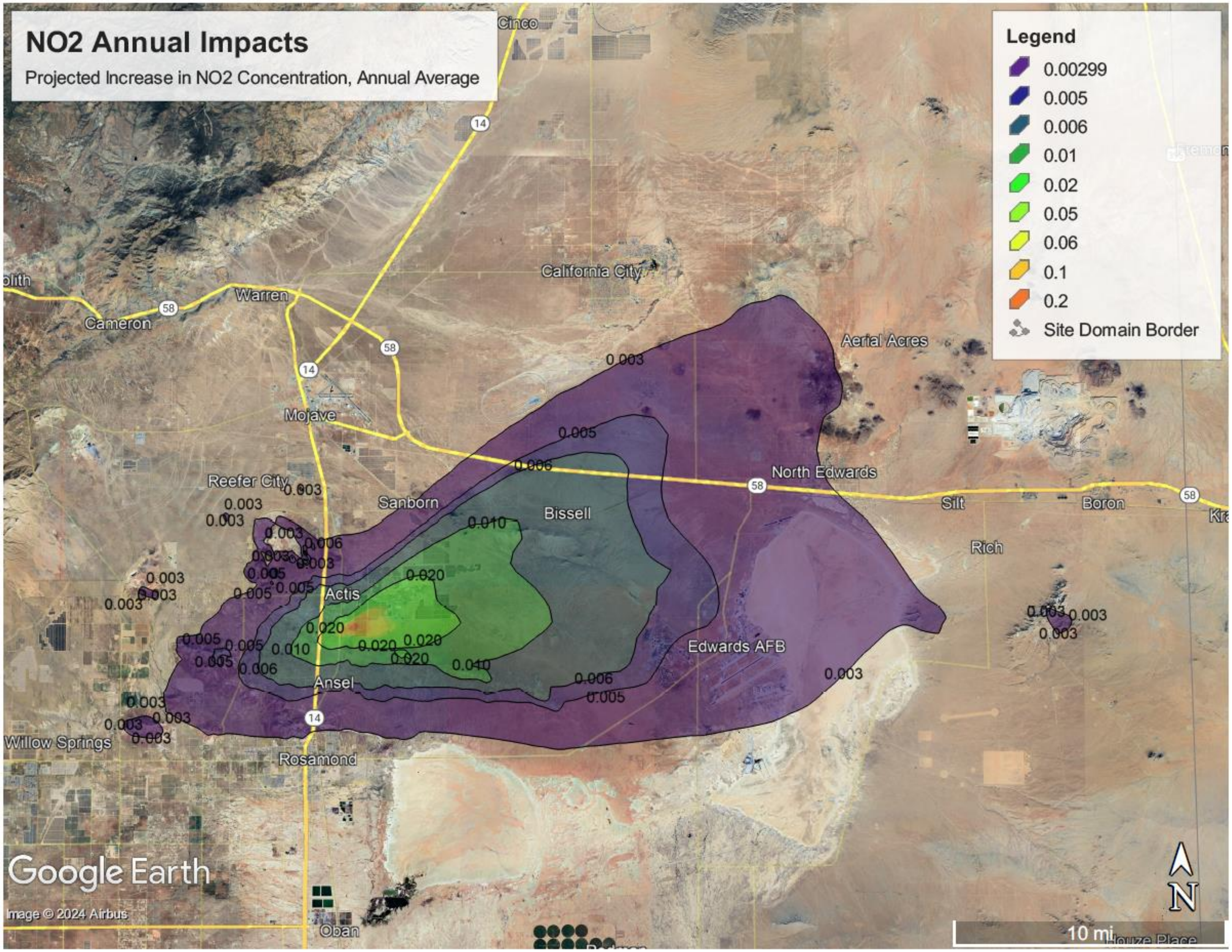


Figure B8: Increase in NO_2 Concentration, Annual Average

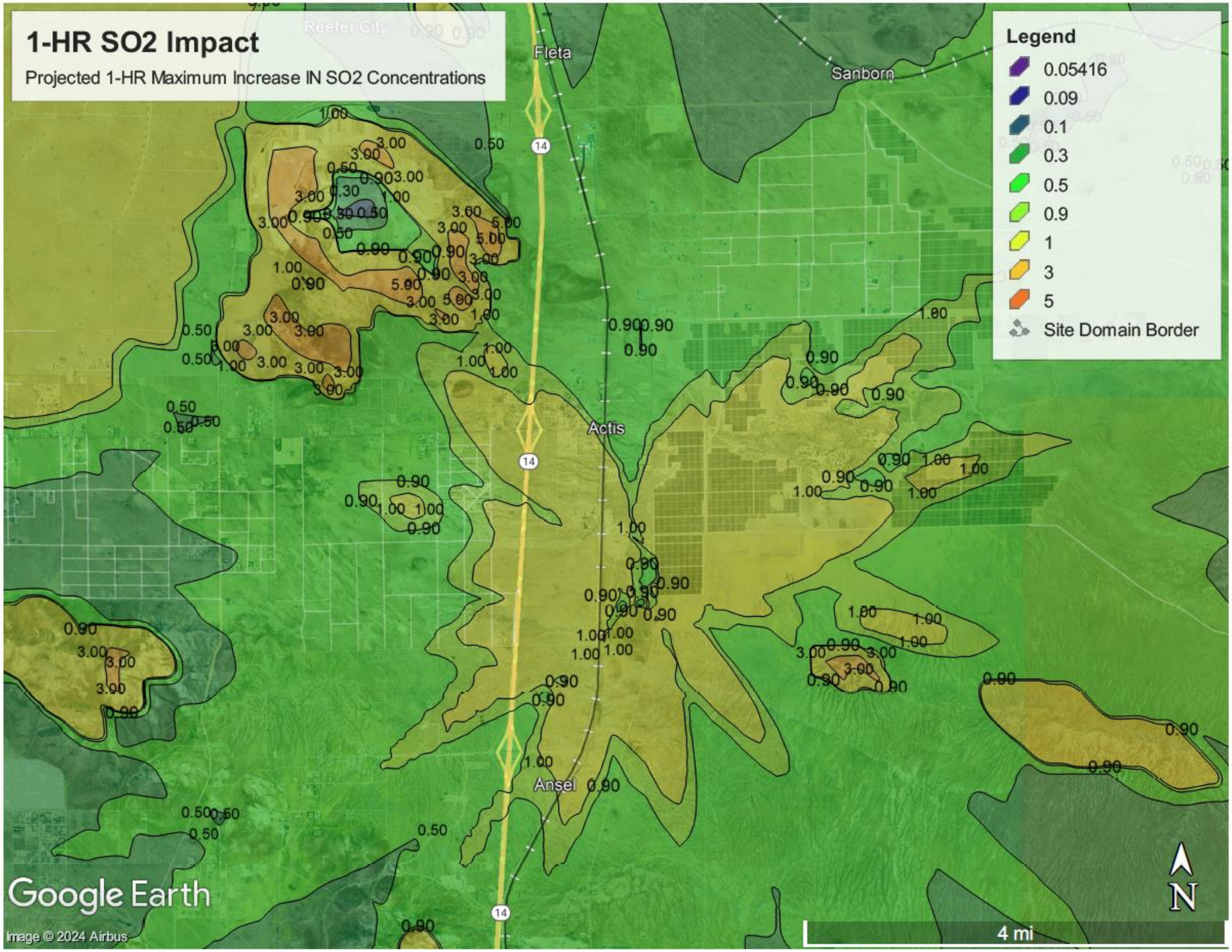


Figure B9: Increase in SO_2 Concentration, 1-hr Average, Site Vicinity

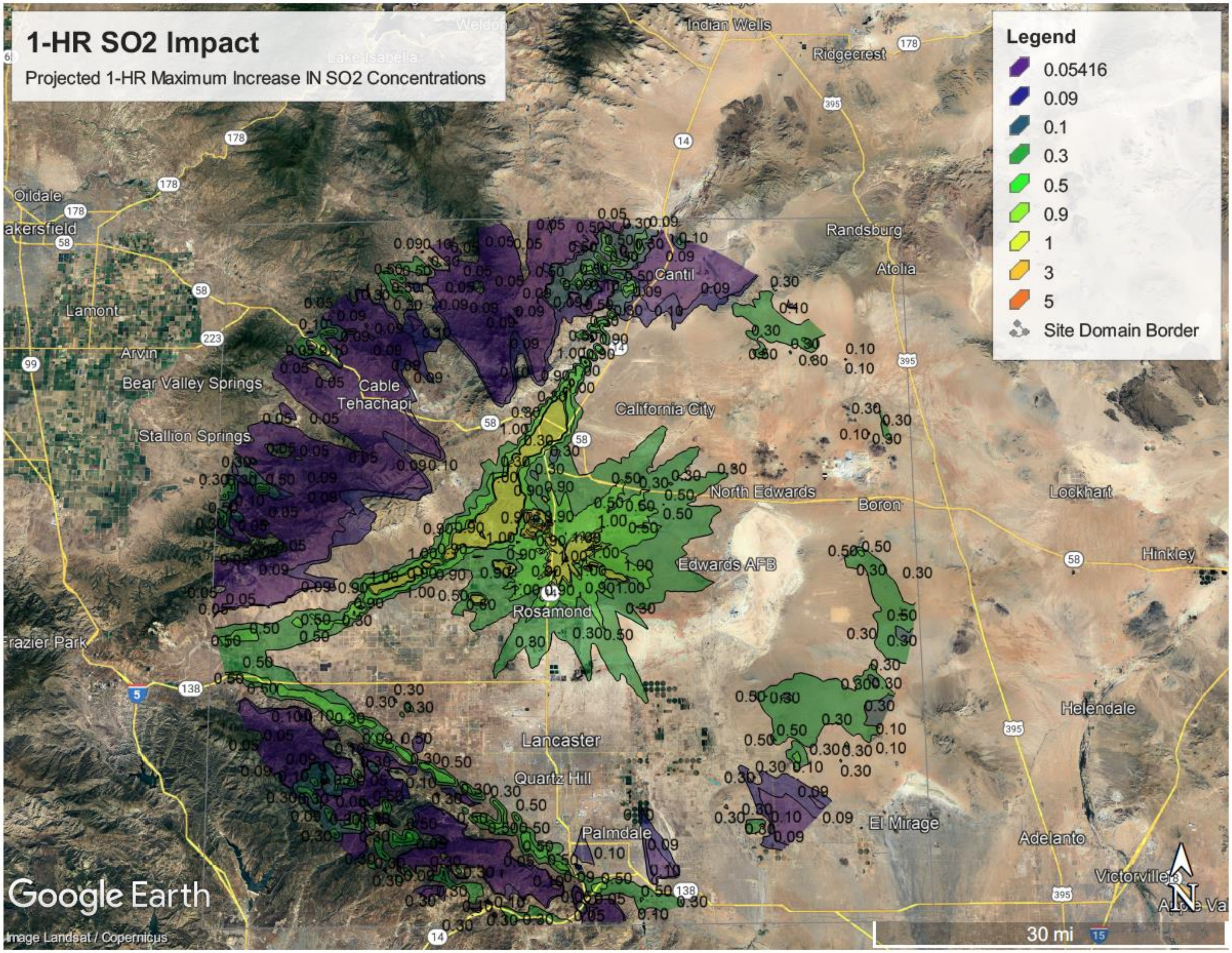


Figure B10: Increase in SO_2 Concentration, 1-hr Average, Full Domain

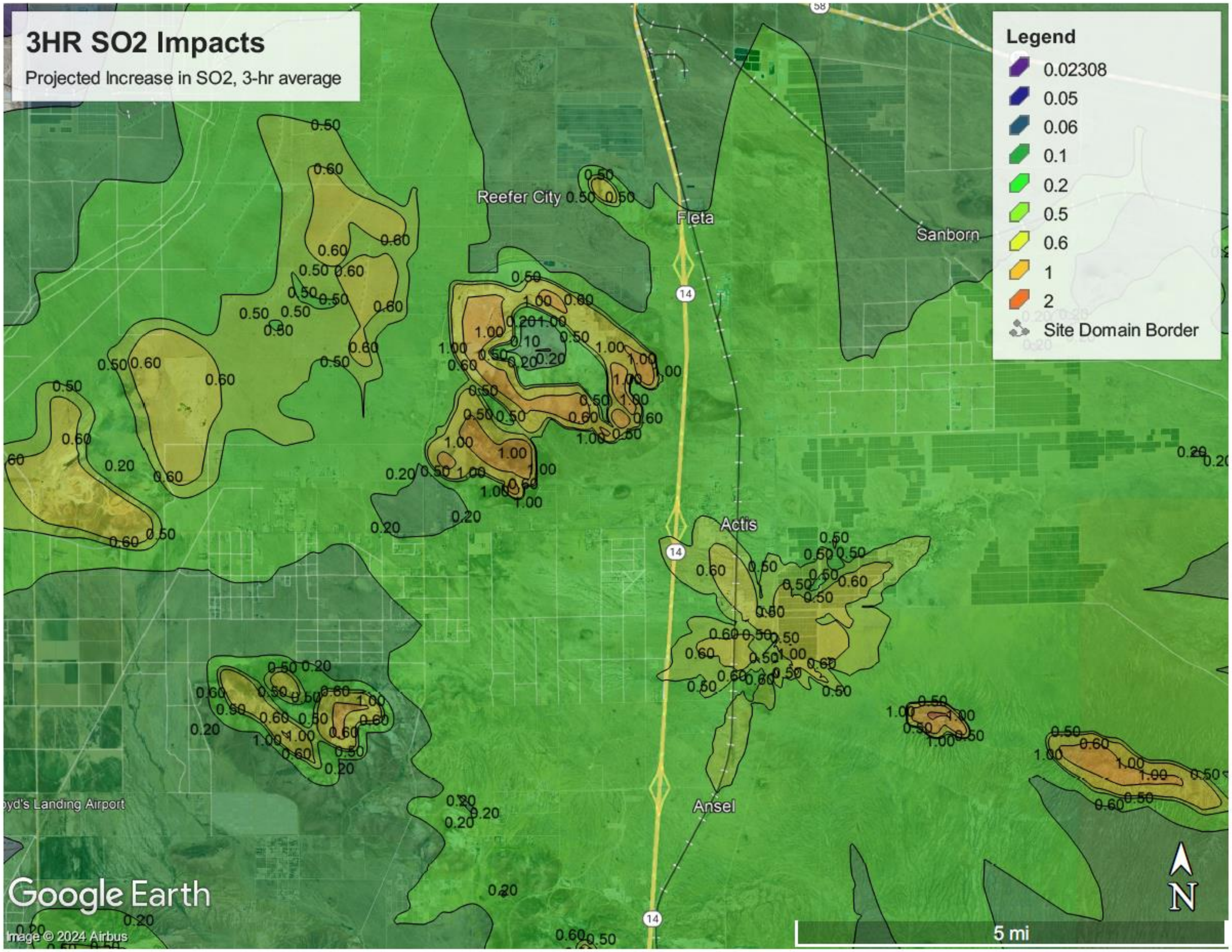


Figure B11: Increase in SO_2 Concentration, 3-hr Average, Site Vicinity

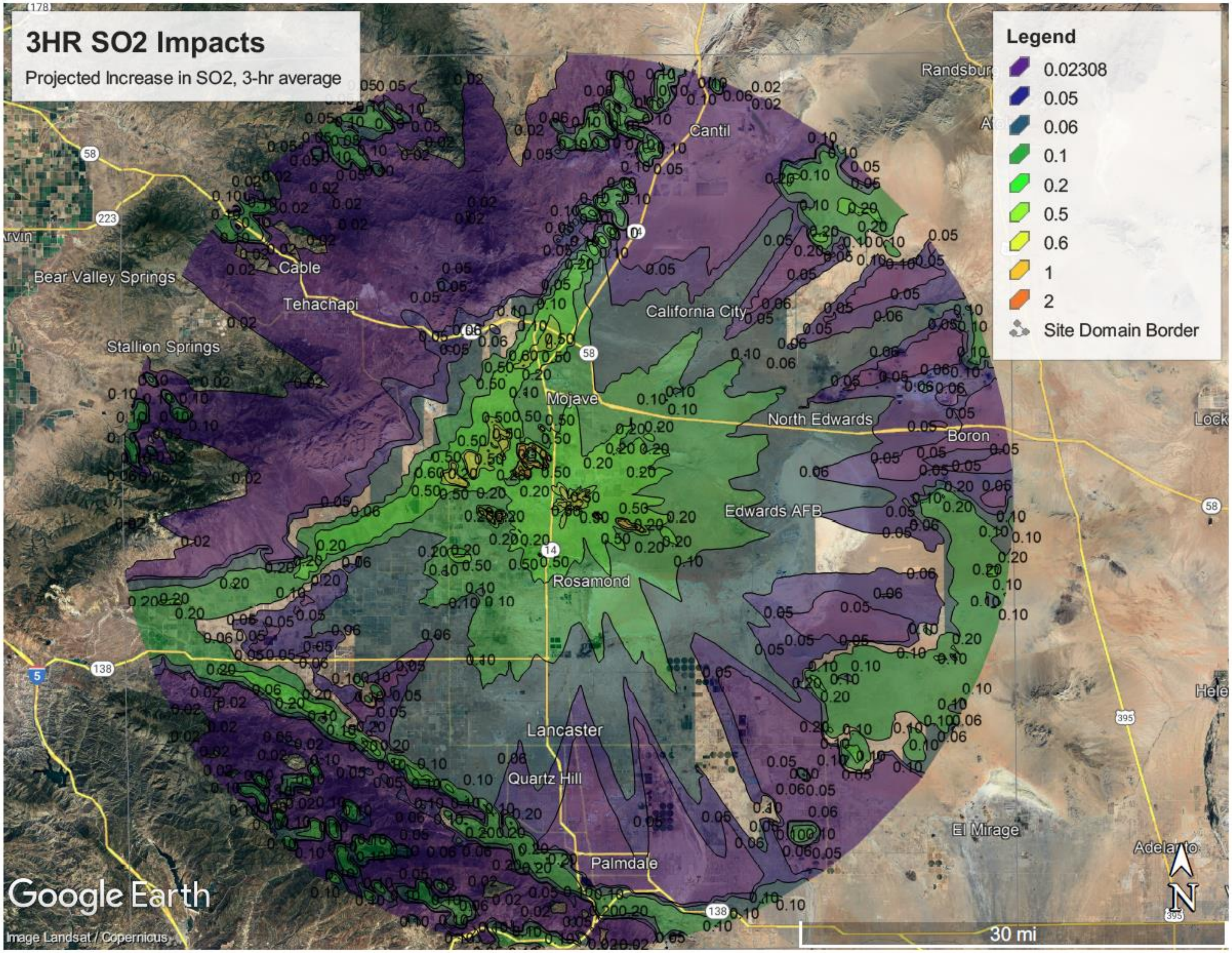
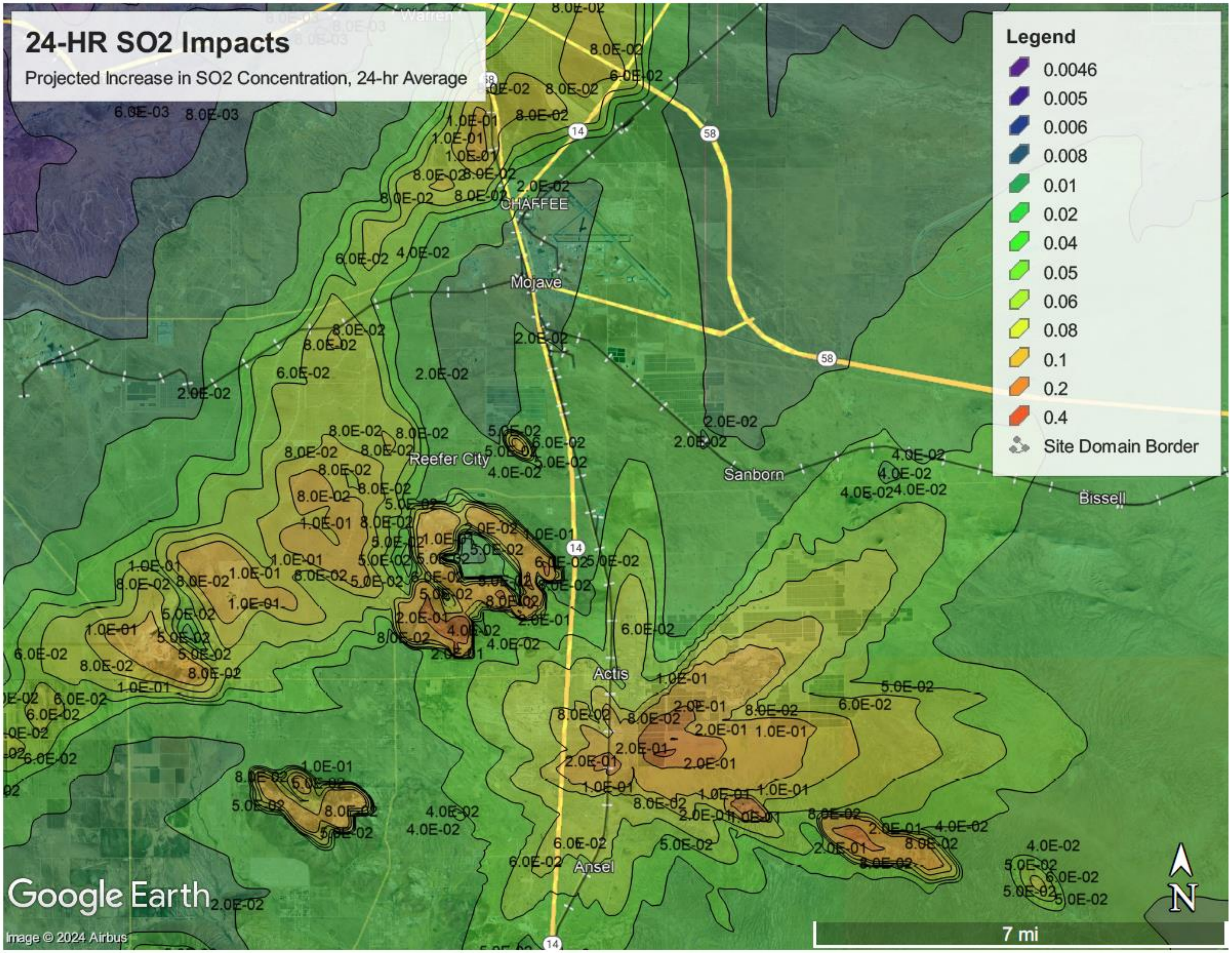


Figure B12: Increase in SO_2 Concentration, 3-hr Average, Full Domain



<u>Figure B13: Increase in SO_2 Concentration, 24-hr Average, Site Vicinity</u>

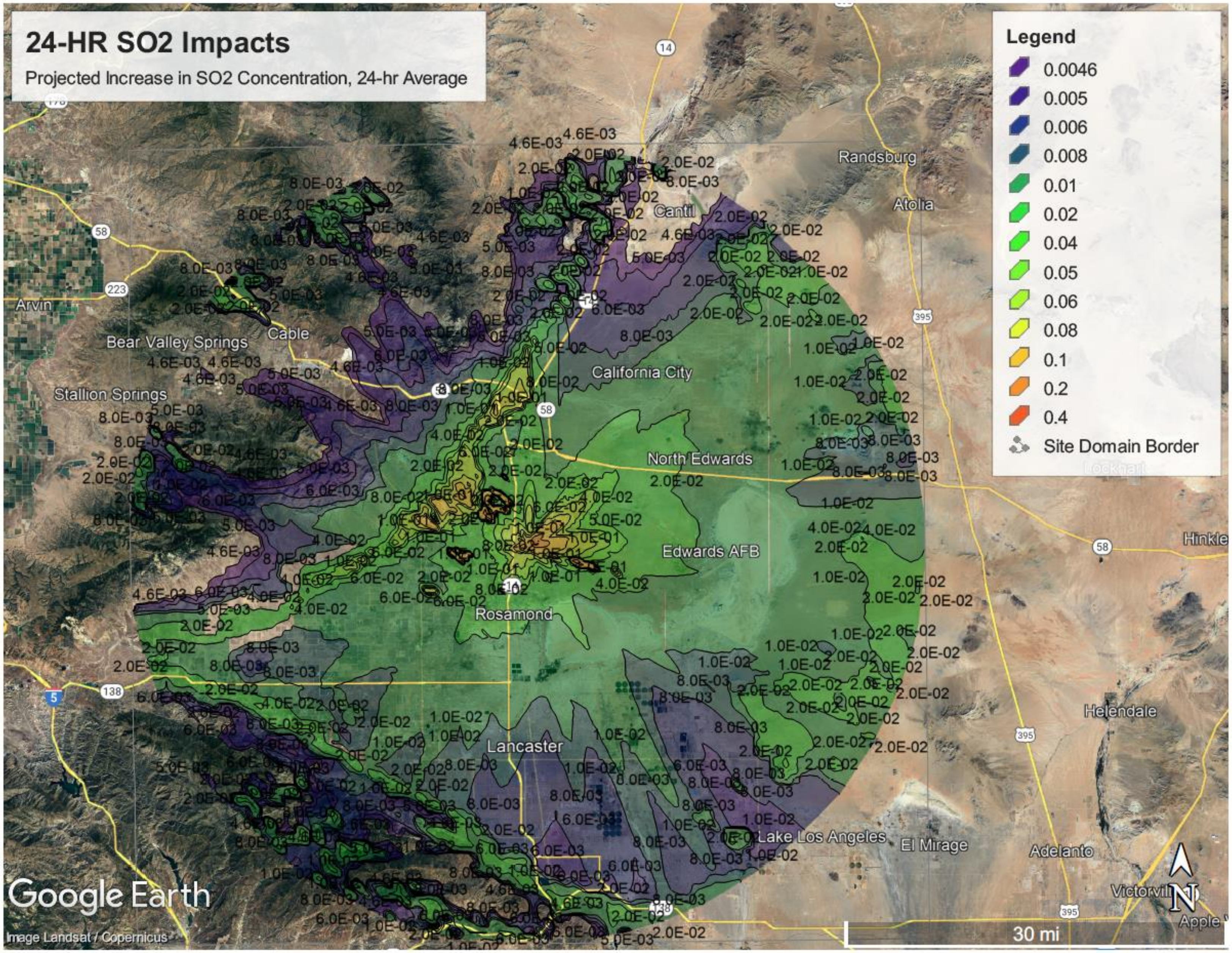


Figure B14: Increase in SO_2 Concentration, 24-hr Average, Full Domain

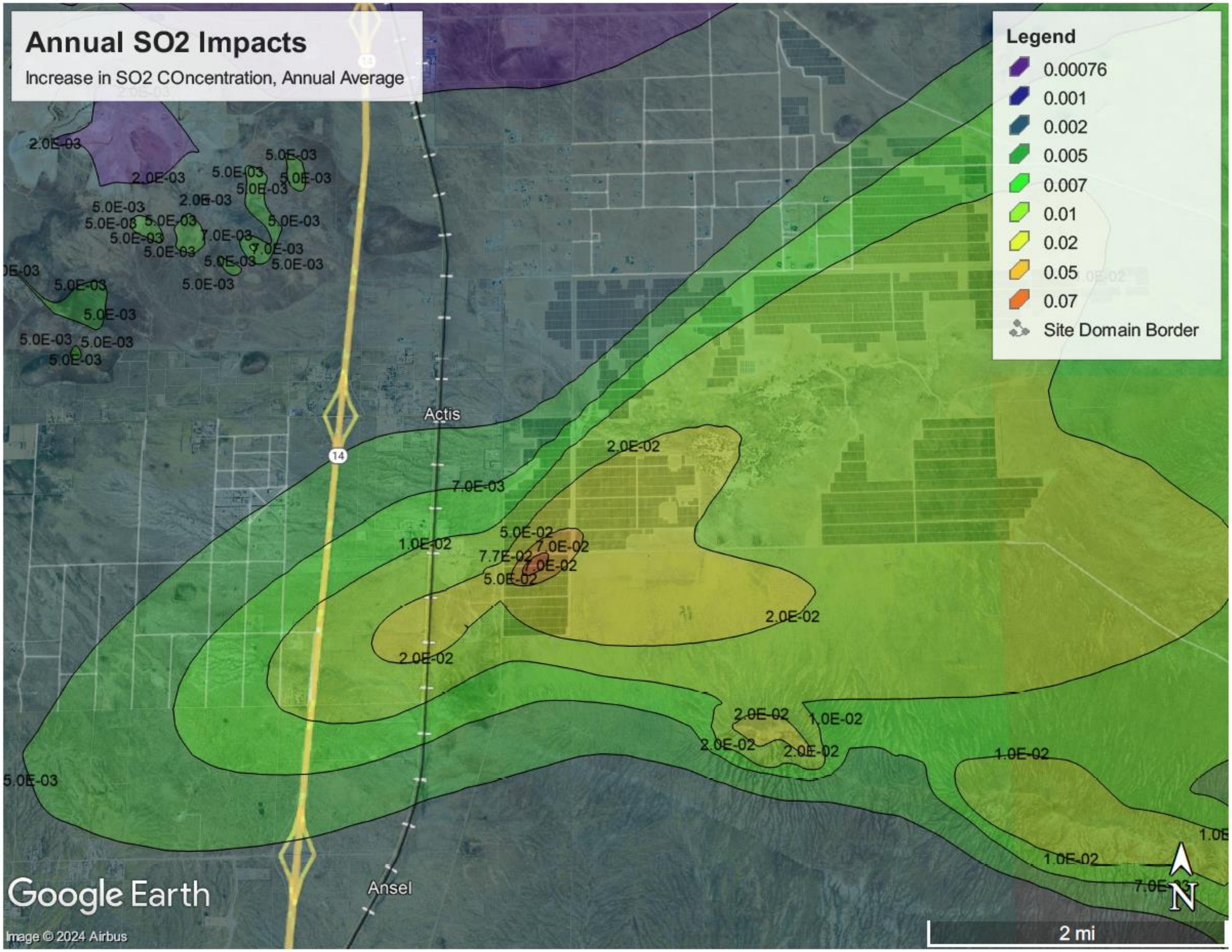


Figure B15: Increase in SO_2 Concentration, Annual Average, Site Vicinity

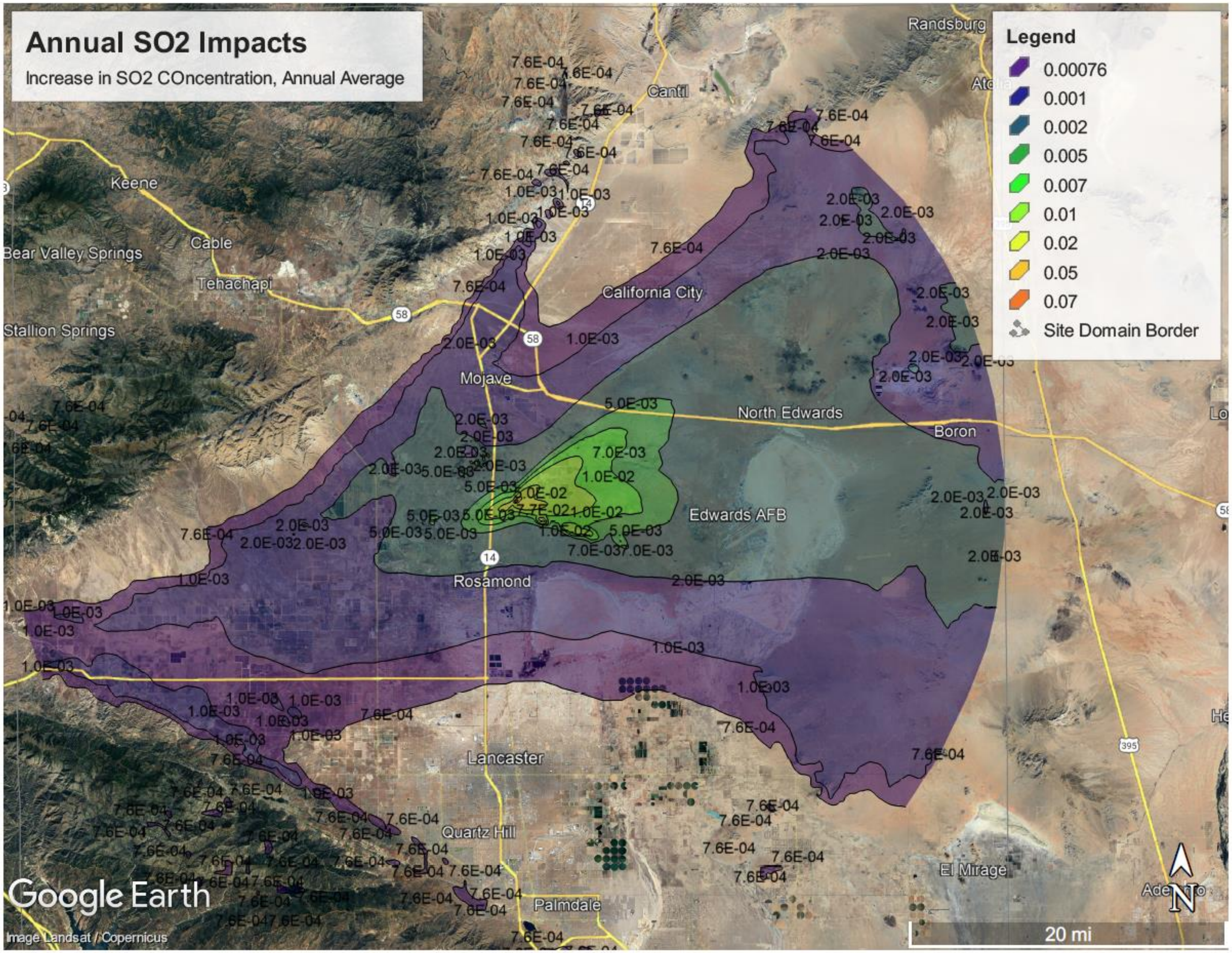


Figure B16: Increase in SO_2 Concentration, Annual Average, Full Domain

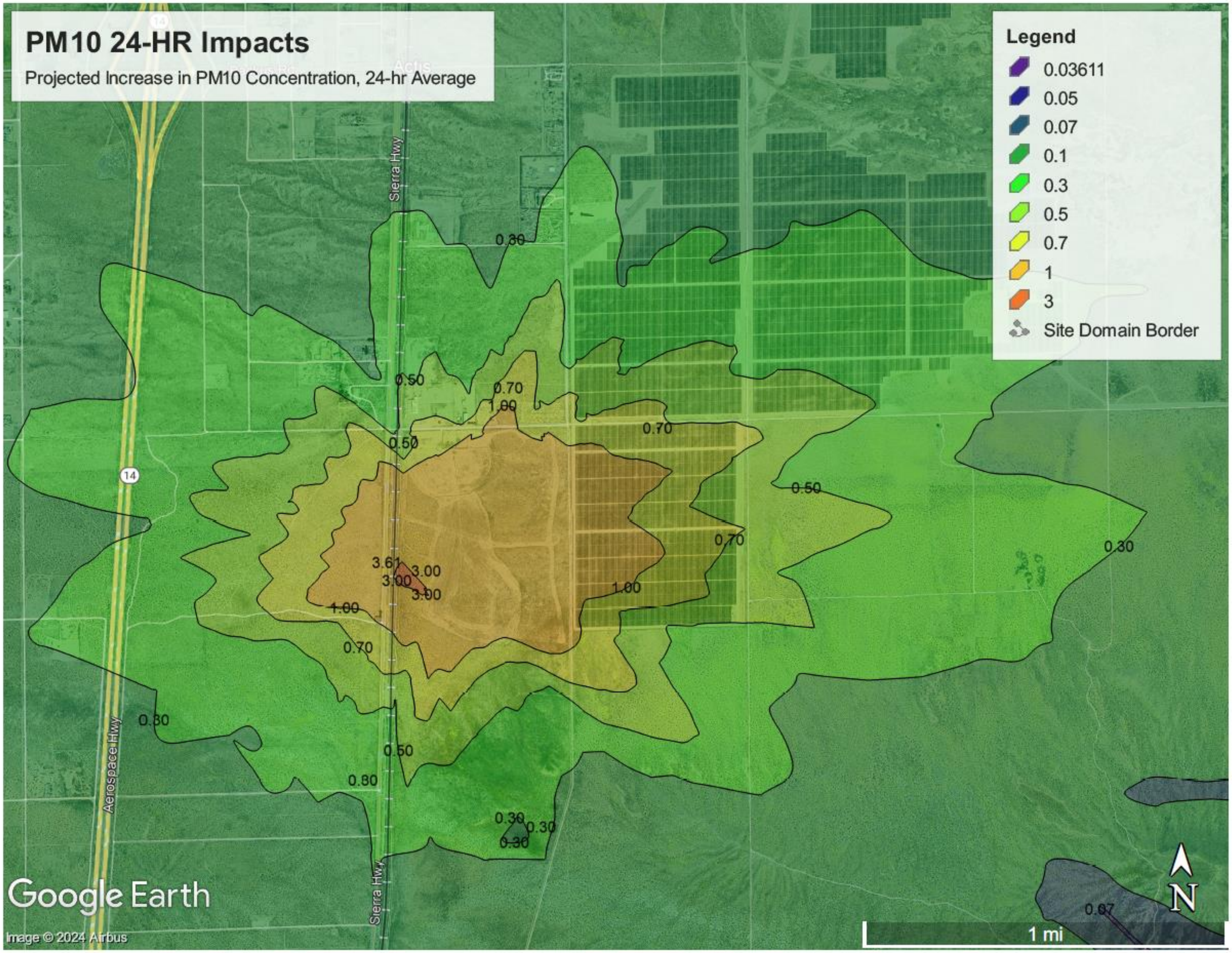


Figure B17: Increase in PM_{10} Concentration, 24-hr Average, Site Vicinity

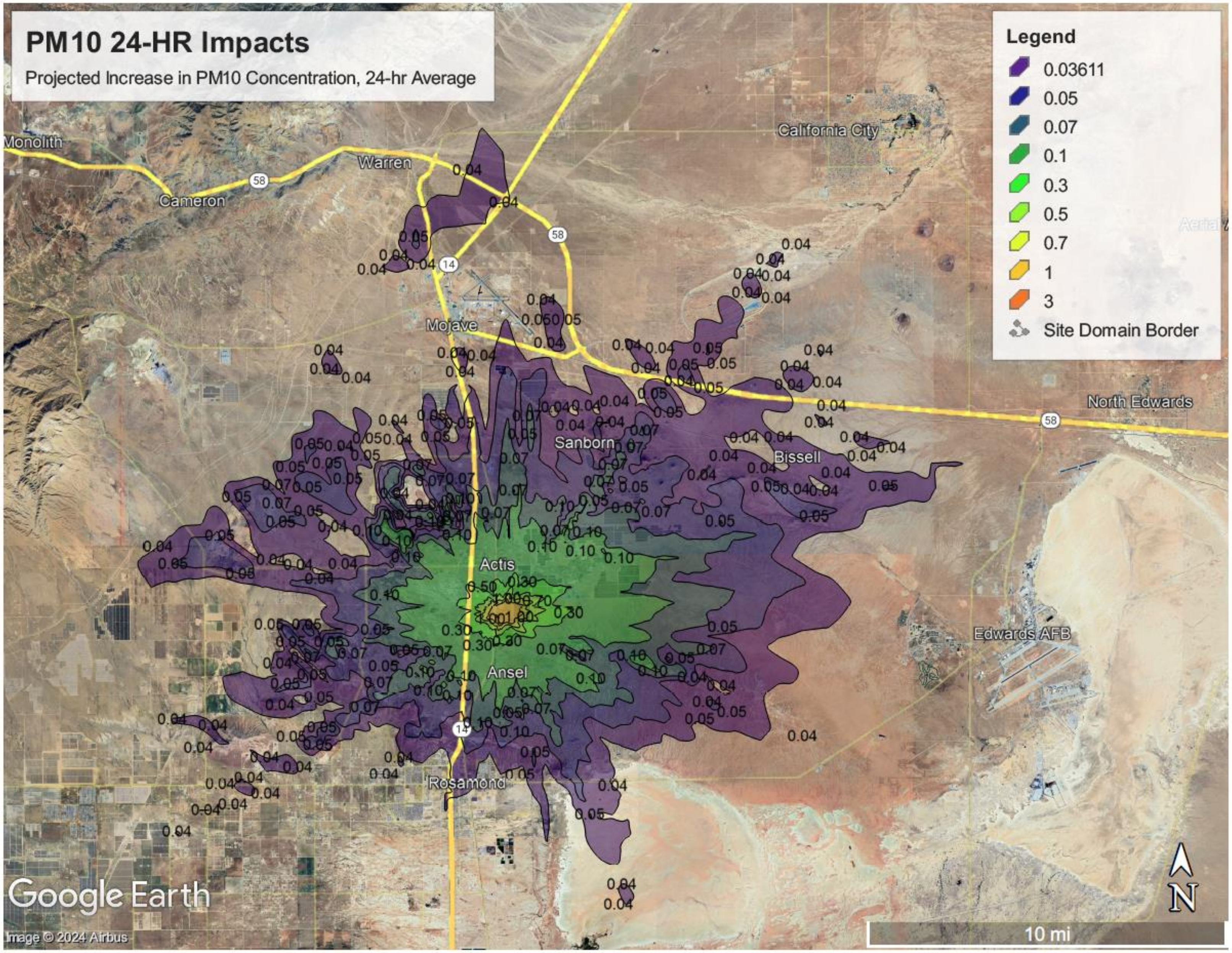


Figure B18: Increase in PM_{10} Concentration, 24-hr Average, Full Domain

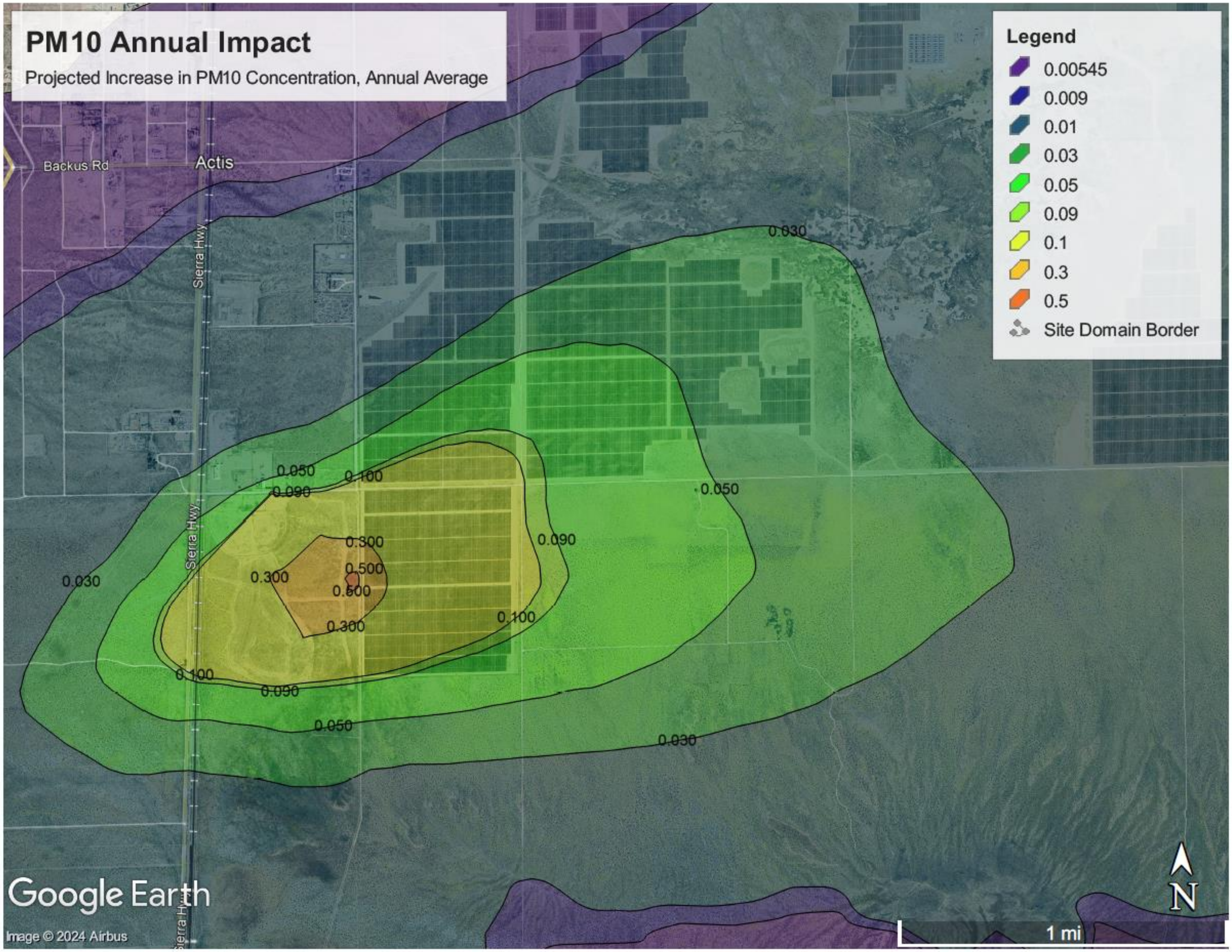


Figure B19: Increase in PM_{10} Concentration, Annual Average, Site Vicinity

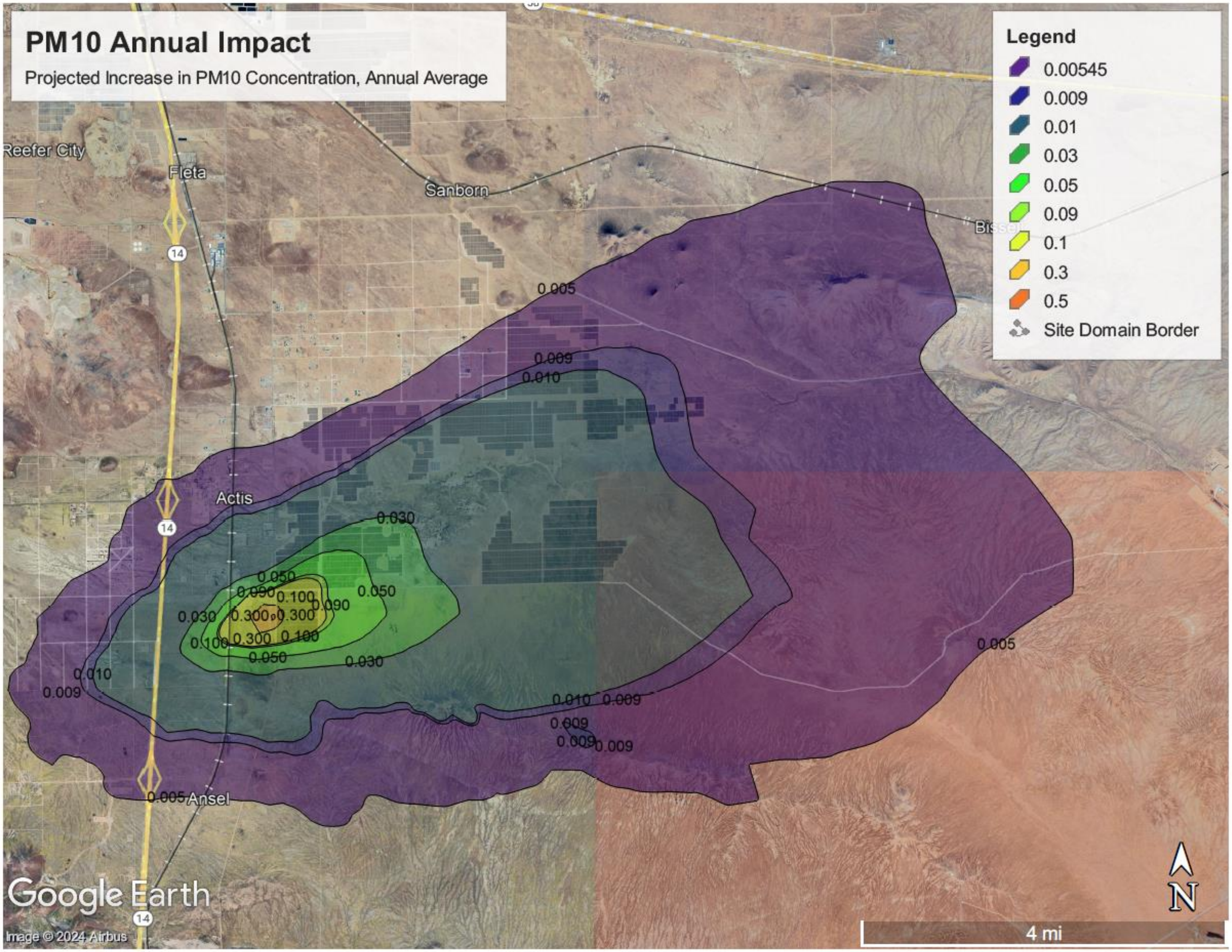


Figure B19: Increase in PM_{10} Concentration, Annual Average, Full Domain

Attachment C

NSR Balance and Stationary Source Potential to Emit (SSPE)

Pacific Steel Group (PSGM3)

PTO/ATC No.	Issue Date	Project Description	PM-10 lb/day	PM-10 tons/yr	SOx lb/day	SOx tons/yr	NOx lb/day	NOx tons/yr	VOC lb/day	VOC tons/yr	CO lb/day	CO tons/yr
5024001	Pending	Raw Material Receiving, Handling, & Storage	0.89	0.13								
5024002	Pending	Melting, Refining, Casting, Rolling Operation	60.93	11.12	126.63	23.11	112.59	20.55	114.15	20.83	2,284.37	416.90
5024003	Pending	Slag Yard Operations	2.91	0.47								
5024004	Pending	Cooling Tower #1	2.15	0.39								
5024005	Pending	Cooling Tower #2	0.50	0.09								
5024006	Pending	Cooling Tower #3	0.77	0.14								
5024007	Pending	Cooling Tower #4	0.06	0.01								
5024008	Pending	Emergency Firewater Pump w/ Propane Engine	Emergency Equipment									
5024009	Pending	Emergency Cooling Water Pump w/ Propane Engine	Emergency Equipment									
5024010	Pending	Emergency Generator w/ Propane Engine	Emergency Equipment									
5024011	Pending	Gasoline Storage & Dispensing Operation							0.45	0.00		
Total Adjustments		NSR Balance	68.21	12.35	126.63	23.11					2,284.37	416.90
since 12/28/1976		Stationary Source Potential to Emit (SSPE)					112.59	20.55	114.60	20.83		
			PM10	**PM10**	**SOx**	**SOx**	**NOx**	**NOx**	**VOC**	**VOC**	**CO**	**CO**
			lb/day	**tons/yr**	**lb/day**	**tons/yr**	**lb/day**	**tons/yr**	**lb/day**	**tons/yr**	**lb/day**	**tons/yr**

ATTACHMENT A

PRELIMINARY BACT
DETERMINATION LIST

(To be completed by application processing engineer as part of determination of completeness review within 30 days of receipt of ATC Application. Submit with standard outline of ATC engineering analysis.)

Reviewed by:______
Date:____/____/_____

APPLICANT: PSGM3, LLC

PROJECT DESCRIPTION: Steel Manufacturing Facility

For each ATC subject to BACT, present a preliminary BACT determination list for administrative review.

ATC NUMBER(S): 5024001 – '011; PSD #240514

* Basic or process equipment type and rating: Scrap & Additive Metal handling equipment totaling 416-hp; steel melting, rolling, shaping, and support operations totaling 71,718-hp; Slag yard operations powered by electric motors totaling 293-hp; Cooling Tower #1 fans & pumps powered by electric motors totaling 3,000-hp; Cooling Tower #2 fans & pumps powered by electric motors totaling 1891-hp; Cooling Tower #3 fans & pumps powered by electric motors totaling 100-hp; Cooling Tower #4 fans & pumps powered by electric motors totaling 25-hp; 600-bhp piston engine; 200-bhp piston engine; 2682-bhp piston engine; 500-gallon aboveground gasoline storage tank

*Applicant Proposed BACT: steel melting & shaping controlled by direct evacuation control (DEC) with baghouses, wet scrubber, selective catalytic reduction (SCR), carbon injection, carbon capture system; Drift eliminators for cooling towers; propane fuel for engines; watering, enclosures, & minimizing drop heights for raw material & slag handling

* Preliminary BACT determination list:

Evaluate for Cost Effectiveness (to be checked by APCO):

_______ 1. (Category 1) DEC, baghouse, wet scrubber; drift eliminators; propane fuel; sufficient moisture & enclosures for fugitive dust activities (raw material & slag handling); enhanced vapor recovery for gasoline storage & dispensing

_______ 2. (Category 2) SCR

_______ 3. (Category 3) Carbon capture (with bypass option); oxy-lances without natural gas combustion

________ 4. (Category_________) ____
(Attach additional list, if needed)

COMMENTS: ____

STANDARD OUTLINE

EASTERN KERN AIR POLLUTION CONTROL DISTRICT

DATE: 06/13/2024

Application Nos.: 5024001 – ‘011; PSD #240514
Project No.: 240514

Deemed Complete On: 06/12/2024

Processing Engineer: Samuel Johnson

Applicant: PSGM3, LLC
Location: 860 Sopp Road, Mojave

Contact: Mark Olson, VP of Mill Operations

I. **Proposed Project:**

Construct a steel manufacturing facility between Mojave & Rosamond. Major facility operations include: raw material receiving, storage, & handling; steel melting, refining, & casting; slag processing operations; four sets of cooling towers; three emergency use piston engines, and; an aboveground gasoline storage & dispensing operations

Emissions of CO & PM2.5 estimated to exceed significant increase threshold of 100 tpy & 10 tpy, respectively; therefore, a prevention of significant deterioration (PSD) permit is required.

II. **APPLICABLE RULES AND REGULATIONS**:

Applicability (Check if Rule applies.)

__ A. Rule 202 (exemptions) - Section(s) providing exemption(s):

____ ____ ____ ____

__ B. Rule 205 (Cancellation of Applications)

X C. Rule 210.1 (New Source Review) - applicable Section(s):

- __ Section II.N. (functionally identical replacement)
- __ Section II.O. (identical replacement)
- __ Section III.A. (BACT)
- X Exempt from BACT by Subsection 2.a
- __ Section III.B. (Offsets)
- X Exempt from offsets by Subsection 3.a
- __ Section III.B.4. (offset ratios)
  (__ 1:1, __ 1.2:1, or __ 2.0:1) or __ 3.0:1)
- __ Subsection III.B.6.c. (interpollutant offsets)
- X Subsection III.C.3. (modeling)
- X Subsection III.C.4 (compliance certification)
- __ Subsection V.A.3. (public notice)
- __ Subsection VI.B. (subject to CEC review)

__ D. Rule 210.3 (Emissions Reductions Banking)

X E. Rule 210.4 (Prevention of Significant Deterioration)

- X Section III.B. (40 CFR §52.21 (j) through (r))
  - X §52.21 (j) (Control Technology Review)
  - X §52.21 (k) (Source Impact Analysis)
  - X §52.21 (l) (Air Quality Models)
  - X §52.21 (m) (Air Quality Analysis)
  - X §52.21 (n) (Source Information)
  - X §52.21 (o) (Additional Impact Analysis)
  - X §52.21 (p) (Sources Impacting Federal Class I Areas)
  - X §52.21 (r) (Source Obligation)
- X Section III.D. (Inclusion of Fugitive Emissions Required)

X F. Rule 401 (Visible Emissions)

X G. Rule 402 (Fugitive Dust) – Outside Indian Wells Valley

X H. Rule 404.1 (PM Concentration) 0.1 gr/scf

X I. Rule 405 (PM Emission Rate)

__ J. Rule 406 (Portland Cement Kiln PM Emission Rate)

II. **APPLICABLE RULES AND REGULATIONS (cont.)**:

_X_ K. Rule 407 (Sulfur Compounds)

__ L. Rule 408 (Disposal of Solids or Liquids)

__ M. Rule 409 (Fuel Burning Equipment - SOx, NOx, and PM Emission Rates)

__ N. Rule 410 (Organic Solvents)

__ O. Rule 410.1A (Architectural Coatings)

__ Q. Rule 410.3 (Organic Solvent Degreasing Operations)

__ R. Rule 410.4 (Metal, Plastic, and Pleasure Craft Parts and Products Coating Operations)

__ S. Rule 410.4A. (Motor Vehicle and Mobile Equipment Refinishing)

__ T. Rule 410.5 (Cutback, Slow Cure, and Emulsified Asphalt, Paving)

__ U. Rule 410.6 (Perchloroethylene Dry Cleaning Systems)

__ V. Rule 410.6A. (Petroleum Solvent Dry Cleaning Operations)

__ W. Rule 410.7 (Graphic Arts)

__ X. Rule 410.8 (Aerospace Assembly and Coating Operations)

__ Y. Rule 410.9 (Wood Products Surface Coating Operations)

__ Z. Rule 411 (Storage of Organic Liquids, tvp> 1.5 psia)
- __ Subsection III.A. (pressure vessel exemption)
- __ Subsection III.B. (emergency standby exemption)
- __ Subsection IV.A.3.a. (welded tank/metallic primary seal)
- __ Subsection IV.A.4.b. (riveted tank/metallic shoe primary seal)
- __ Subsection IV.A.4.c. (resilient toroid primary seal)
- __ Subsection IV.A.4.d. (closure device equivalent to I.A.1.)
- __ Subsection IV.B. (fixed roof with internal floating roof)
- __ Subsection IV.C. (fixed roof with vapor control system)
- __ Subsection IV.D. (above ground gasoline storage tank vapor control requirements)

_X_ AA. Rule 412 (Gasoline Storage Tanks)

_X_ BB. Rule 412.1 (Refueling of Motor Vehicles)

__ CC. Rule 413 (Organic Liquid Loading)

II. **APPLICABLE RULES AND REGULATIONS (cont.)**:

X DD. Rule 414 (Wastewater Separator)

__ EE. Rule 414.1 (Valves, Pressure Relief Valves, and Flanges) (Refineries & Chemical Plants)

__ FF. Rule 414.2 (Soil Decontamination – Volatile Organic Compounds)

__ GG. Rule 414.5 (Pump and Compressor. Seals at Refineries & Chemical Plants)

__ HH. Rule 415 (Reduction of Animal Matter)

__ II. Rule 416 (Open Burning)

__ JJ. Rule 417 (Agricultural Burning)

__ KK. Rule 418 (Incinerator Burning)

__ LL. Rule 418.1 (Medical Waste Incinerators)

X MM. Rule 419 (Nuisance)

__ NN. Rule 420 (Exception)

__ OO. Rule 421 (Orchard Heaters)

X PP. Rule 422 (Federal New Source Performance Standards)
Subpart AAb &JJJJ Standards of Performance for Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Constructed After May 16, 2022; Stationary Spark Ignition Internal Combustion Engines

__ QQ. Rule 422.1 Municipal Solid Waste Landfills (Nonmethane Organic Compounds)

X RR. Rule 423 (National Emission Standards for Hazardous Air Pollutants)
Subparts ZZZZ & YYYYY National Emission Standards for Reciprocating Internal Combustion Engines and Area Source: Electric Arc Furnaces

__ SS. Rule 424 Residential Water Heaters (Oxides of Nitrogen)

__ TT. Rule 425 Cogeneration Gas Turbine Engines (Oxides of Nitrogen)

__ UU. Rule 425.1 Hot Mix Asphalt Paving Plants (Oxides of Nitrogen)

__ VV. Rule 425.2 Boilers, Steam Generator, and Process Heaters (Oxides of Nitrogen)

__ WW. Rule 425.3 Portland Cement Kilns (Oxides of Nitrogen)

__ XX. Rule 426 Experimental Research Operations

II. **APPLICABLE RULES AND REGULATIONS (cont.)**:

__ YY. Rule 427 Stationary Piston Engines (Oxides of Nitrogen)

__ ZZ. Rule 428 (Commercial Offsite Multiuser Hazardous Waste & Nonhazardous Waste Disposal Facilities)

__ AAA. Rule 429 (Decorative and Hard Chrome Plating and Chromic Acid Anodizing)

X BBB. Rule 429.1 (Cooling Towers)

__ CCC. Rule 430 Sterilizers (Ethylene Oxide)

__ DDD. Rule 431 Propellant Combustion and Rocket Testing

__ EEE. Rule 432 Polyester Resin Operations

X FFF. Section 41700 of California Health & Safety Code (Health Risk)

X GGG. (CEQA) California Environmental Quality Act

__ HHH. Other:____________________________

Rule 202 Exempt Equipment:

Diesel fuel storage <19,800 gallons
Gasoline storage tank ≤250 gallons

AIR CONTAMINANTS TO BE CONSIDERED:

X **PM_{10}** **X** **SO_4** **X** **SO_2** **X** **NOx** **X** **VOC**

X **CO** **X** **Odors** **X** **Visible Emissions** **X** **Toxics**

POSSIBLE EMISSION POINTS:

- Fugitives from raw material & slag handling
- Vent dust collectors from material silos
- Fume treatment plant baghouse
- Caster spray stack
- Roll mill vent
- Cooling towers
- Piston engine exhaust stacks
- Gasoline storage tank

NSR CONSIDERATION:

Source's NSR Balance Since 12/28/76

0.00 tons/yr	____ tons/yr	**0.00** tons/yr	**0.00** tons/yr	**0.00** tons/yr	**0.00** tons/yr
PM_{10}	**SO_4**	**SO_2**	**NOx**	**VOC**	**CO**

Source's Potential to Emit: **0.00** tons/yr **NOx** **0.00** tons/yr **VOC**

__X__ BACT required for any new emissions unit or modified emissions unit (except CO, unless PSD applies)

____ New Source Review Balance/Potential to Emit: ____ SOx (as SO_2) $\geq$ 27 tons/year

____ $PM_{10} \geq$ 15 tons/year, ___NOx, ___VOC $\geq$ 25 tons/yr therefore offsets are required

Planned Air Pollution Control Equipment Design Review:
Final review is required.