PARR BROWN GEE & LOVELESS

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VIA Email

July 29, 2025

Marina V. Thomas
Assistant Attorney General
Utah Attorney General Office
marinathomas@agutah.gov

Re: **Stipulated Agreement Relating to Air Permitting**

Dear Marina:

This letter is in follow-up to our previous discussions relating to Granite Construction's ("Granite") ongoing air permitting process for its proposed I-80 South Quarry. As you know, on October 17, 2022, Granite submitted its Notice of Intent/air quality permit application ("Pending Application"), and on May 25, 2023, the Utah Division of Air Quality ("UDAQ") issued its Intent to Approve: New I-80 South Quarry ("Intent to Approve"). As we have recently discussed, Granite contemplates submitting in the near term a new Notice of Intent/air quality permit application reflecting a reduced throughput for the Quarry ("New Application"). This letter agreement is intended to memorialize the stipulated understanding between Granite and UDAQ with respect to the Pending Application and the New Application, as follows: Granite hereby agrees that if and as soon as the New Application is approved and issued, Granite will promptly withdraw or cancel the Pending Application; and UDAQ hereby agrees that it will not cancel, terminate, or withdraw the Pending Application or its Intent to Approve based upon its receipt or review of the New Application. UDAQ may cancel or terminate the Pending Application for other causes, or when the New Application is approved and issued.

By their signature below and being authorized by their respective parties to sign this letter agreement on its behalf, Granite and UDAQ hereby agree to the above-referenced terms of this stipulated letter agreement.

Best regards,

PARR BROWN GEE & LOVELESS

/s/ Martin K. Banks
Martin K. Banks

UTAH DIVISION OF AIR QUALITY

/s/ Marina V. Thomas
Digitally signed by Marina V. Thomas
Date: 2025.08.04 14:04:52 -06'00'
Marina V. Thomas

July 28, 2025

Alan Humphries
Utah Department of Air Quality
195 North 1950 West
Salt Lake City, UT 84114-4820

Re: Notice of Intent: I-80 South Quarry Reduced Annual Throughput
Granite Construction Company/Tree Farm, LLC.
Parley's Canyon, Salt Lake County, Utah.

Dear Mr. Humphries,

On behalf of Granite Construction Company and Tree Farm, LLC (collectively, the "Applicant"), we are pleased to submit this Notice of Intent (NOI) to permit and operate an aggregate processing facility ("I-80 South Quarry") located near I-80 East Exit 132 in Parley's Canyon, Salt Lake County, Utah. This NOI has been prepared in accordance with all applicable Utah Division of Air Quality (UDAQ) requirements and has been submitted through the UDAQ NOI Submittable portal.

As you are aware, the Applicant has an existing air quality permit application ("Pending Application") (Project # N161200001) for this location submitted in October 2022. An Intent to Approve (ITA) for that application was issued by UDAQ on May 25, 2023. In support of future air dispersion modeling and consistent with EPA guidance, the Applicant installed a meteorological station on-site to collect at least one year of in-situ meteorological data.

The Applicant and UDAQ have discussed and mutually agreed to proceed with a phased permitting approach, which includes the following key elements:

- The Applicant will submit a new NOI for a reduced annual throughput (the "New Application"), separate from the Pending Application.
- Upon approval and issuance of a permit for this New Application, the Applicant will withdraw the Pending Application.
- UDAQ will maintain the status of the Pending Application, including the ITA, and will not terminate, withdraw, or cancel it unless and until the New Application is approved and issued.

This mutual understanding is further documented in the "Stipulated Agreement Relating to Air Permitting" signed by the Applicant and UDAQ on August 4, 2025, and included here as **Attachment A**.

We appreciate UDAQ's collaborative effort in coordinating this permitting path and look forward to continued cooperation. Should you have any questions or require additional information, please do not hesitate to contact me at (801) 526-6050 or via email at

quin.bingham@gcinc.com.

Regards,

Quin Bingham
Environmental Manager

Granite Construction
1000 North Warm Springs Rd
Salt Lake City, UT 84116
P: (801) 526-6050
E: quin.bingham@gcinc.com

cc: John Persons

List of Attachments

- **Attachment A** – Stipulated Agreement Relating to Air Permitting

I-80 South Quarry NOI

September 30, 2025

Prepared by:

Quin Bingham
Region Environmental Manager
Granite Construction Company
1000 North Warm Springs Rd
Salt Lake City, UT 84116

Contents

1. EXECUTIVE SUMMARY

Granite Construction Inc. (Granite) is a diversified construction and construction materials company. Granite is proposing to operate a permanent aggregate mining operation at its I-80 South Quarry (Quarry) site east of Salt Lake City, Utah in Salt Lake County. The proposed Quarry is located within an area of Salt Lake County designated as serious nonattainment of the National Ambient Air Quality Standards (NAAQS) for particulate matter (PM) with an aerodynamic diameter of 2.5 microns or less ($PM_{2.5}$), moderate nonattainment for the 2015 8-hour ozone standard, and nonattainment for sulfur dioxide (SO_2).

This Notice of Intent (NOI) air quality permit application is submitted to the Utah Division of Air Quality (UDAQ) to obtain an air quality Approval Order (AO) for the Small Mine Operation (SMO) permitted by the Division of Oil, Gas and Mining (SMO No. S/035/0055). The NOI application is for mining, crushing, and screening operations, and sales to be conducted at the site.

Emissions from the Quarry will consist of PM with an aerodynamic diameter of 10 microns or less (PM_{10}) and filterable $PM_{2.5}$ fugitives. Fugitive dust controls will be implemented through the use of water and/or chemical suppressants throughout the processes. The Quarry is proposed to be permitted as a minor source and will be subject to 40 Code of Federal Regulations (CFR) Part 60, New Source Performance Standards (NSPS) Subpart OOO Standards of Performance for Nonmetallic Mineral Processing Plant(s) (NMPP). The level of calculated emissions did not trigger impact analysis.

Emission calculations were performed for Quarry installation and operations to determine the emissions of criteria pollutants (see **Appendix B**). The proposed potential to emit (PTE) of the Quarry, given in tons per year (tpy) are as follows and representative of the activities: PM_{10} = 4.03, $PM_{2.5}$ = 0.98, NO_X = 0.23, CO = 0.02, SO_2 = 0.01, VOC = 0.44, CO_2 Equivalent = 1,485 and HAPs = 0.04.

This NOI application has been developed pursuant Utah Administrative Code (UAC) R307-401-5 and Utah's application guidance including, but not limited to:

- NOI Forms and Fees;
- Process Description;
- Site Plan;
- Potential Emission Calculations;
- Best Available Control Technology (BACT) Analysis; and
- Applicable Requirements.

2. GENERAL INFORMATION

Description of Installation

The Quarry installation will be a standalone, aggregate mining, crushing, and screening operation located off Exit 132, Ranch Exit of Interstate I-80, east of Salt Lake City, Utah. The Quarry will conduct drilling and blasting operations within the mining area to produce rock in a manageable range of sizes. Rock will then be transported to the crushing and screening operations. Stripping of overburden soil and stone is typically required to prepare an area for mining. Bulldozing emissions have been accounted for in overburden removal, although this activity is anticipated to be minimal for the proposed mining operation.

The Quarry is proposed to be permitted as a minor source. The Standard Industrial Classification (SIC) code for the Quarry operation is 1422, Construction Sand and Gravel.

The Universal Transverse Mercator (UTM) coordinates for the Quarry are as follows:

- Easting: 437048.00 meters (m)
- Northing: 4509436 m
- Zone: 12T
- 1984 World Geodetic System

All correspondence regarding this submission should be addressed to:

Quinten G. Bingham
Granite Construction Inc.
Utah Environmental Manager
1000 N Warm Springs Rd
Salt Lake City, UT 84116
quin.bingham@gcinc.com

Brad Sweet
Granite Construction Inc.
Utah Mine Manager
1000 N Warm Springs Rd
Salt Lake City, UT 84116
brad.sweet@gcinc.com

Fees

It is understood that UDAQ's Payment Portal will be used to prepay the following UDAQ NOI fees associated with this submittal:

- "Application Filing Fee" for the "New Minor Source and Major (not PSD) Source" source type = $575
- "Application Review Fee" for the "New Minor Source" source type = $2,500
- Total UDAQ fees = $3,075

It is understood that the total permit review fees are based on the actual total time spent by UDAQ staff processing this NOI. Upon issuance of the AO, if the total review time is more than twenty (20) standard hours, UDAQ will invoice the Applicant at $125 per hour for the additional time above twenty (20) standard hours.

Forms

The following UDAQ forms have been included in **Appendix A** of this application:

- Form 1: Notice of Intent (NOI) Application Checklist
- Form 2: Company Information/Notice of Intent
- Form 3: Process Information
- Form 5: Emissions Information
- Form 11: Internal Combustion Engines (3)
- Form 15: Rock Crushing and Screening

3. DESCRIPTION OF PROJECT AND PROCESS

Description of Project

Utah Division of Oil, Gas, and Mining (DOGM) Small Mine Operation (SMO) Permit No. S/035/0055 allows installation of the Quarry on Route I-80 east of Salt Lake City, Utah. This NOI air quality permit application is submitted to UDAQ to obtain an AO for the mining of aggregate and crushing and screening operations. The crushing and screening equipment is track-mounted, portable units that are mobile in nature and powered by internal combustion engines. Installations and the associated emission sources are as shown below. Site-wide emission projections based on this equipment are detailed in Section 4.

Mining Operations

- Drilling and Blasting (not concurrent); and
- Off-Highway Equipment for loading and tramming aggregate.

Crushing and Screening Operations

- One (1) Feeder;
- One (1) Primary Crusher
- One (1) Secondary Crusher
- One (1) Triple-deck Screen;
- Approximately eight (8) Various Conveyors;
- Four (4) of the eight (8) are Stackers;
- Four (4) Active Stockpiles; and
- Additional Acreage of Storage Stockpiles.

Description of Process

Material is dozed off or blasted from the portion of the resource currently located within the mine area, wetted (as necessary), and then transported to the primary feeder. Aggregate then proceeds through the crushing and screening process (see **Figure 3-1 & 3-2**). The aggregate is first passed through the primary crusher for size reduction. Crushed aggregate is then screened separating the aggregate by size. Properly sized aggregates passing though the screen are stacked in two (2) stockpiles. Aggregates that remain on the top of the screen (i.e., "overs") are conveyed to a secondary crusher to further reduce the size of the aggregates, before it is recirculated through the screen. The portable crushing and screening plant will process 150,000 tons per year (tpy) of mined rock.

Emission calculations were developed as follows:

A two-way paved road that enters the facility, has a round-trip length of 0.33-miles.

A two-way unpaved road, which connects the paved road to the stockpile areas and other Quarry operations, which has a round-trip length of 0.22 miles. It was assumed that the Quarry would loadout trucks 24 hours per day.

Emission calculations for all fugitive material handling emission and emission rates can be found in **Appendix B**.

Figure 3-1. Crushing and Screening Unit Profile

- K1- Crushing Unit
- J1 – Secondary Crushing Unit
- AI – Screening and Stockpiling Unit

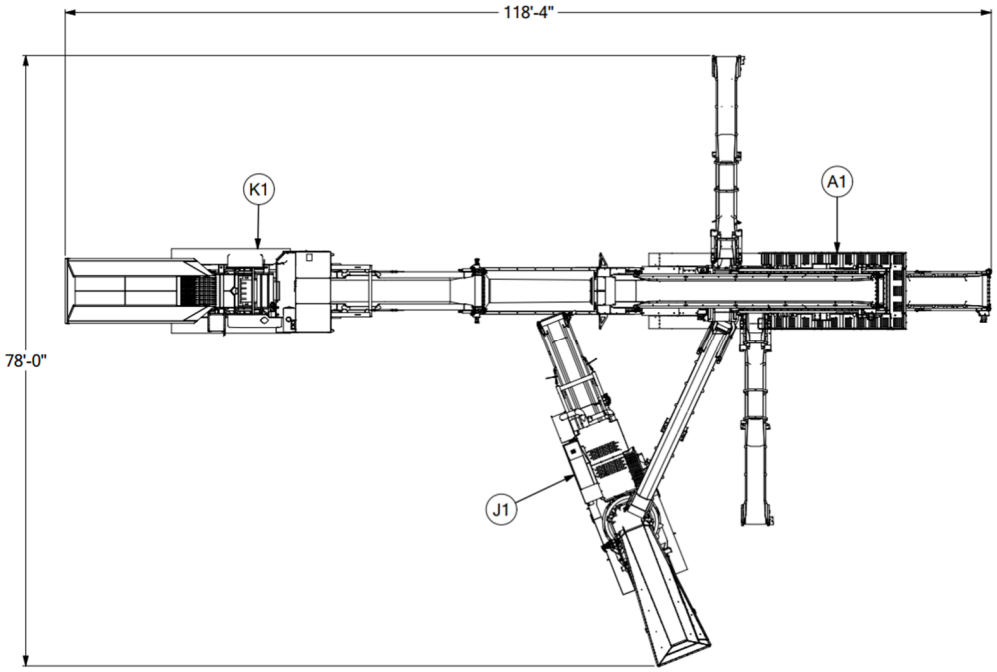
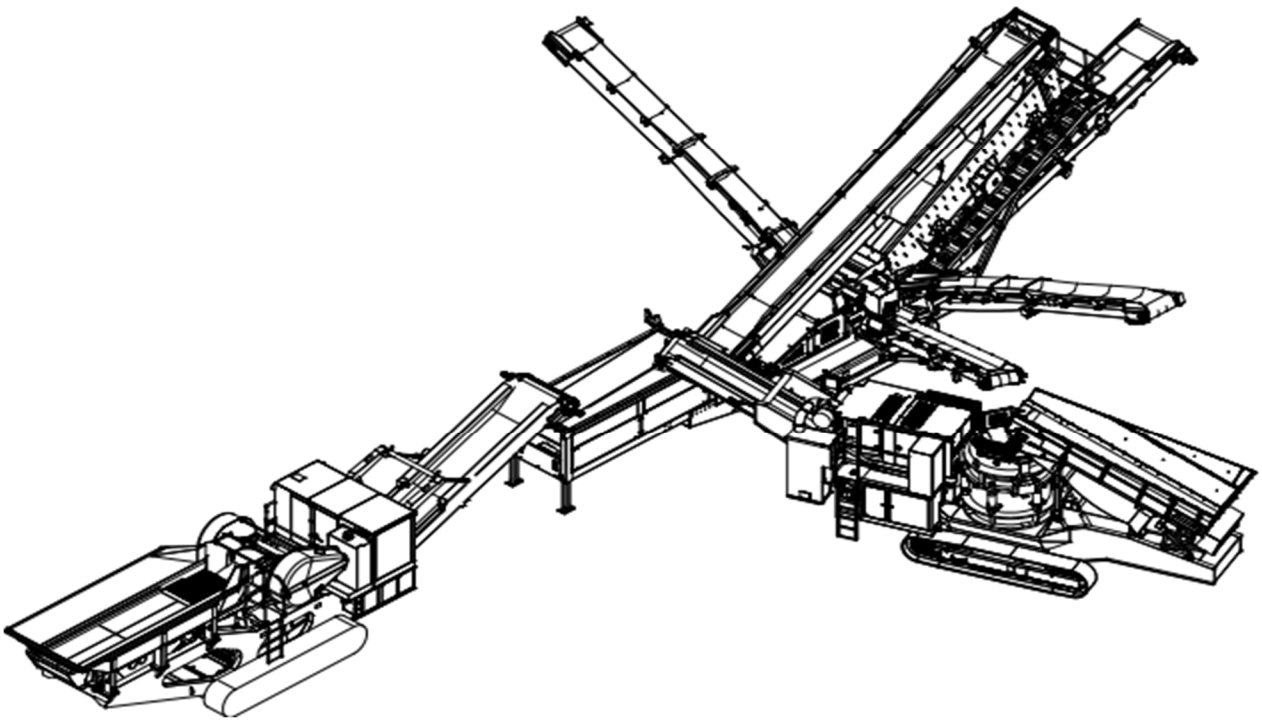


Figure 3-2 Crushing and Screening Unit Layout



Site Plan

Figure 3-3, shown below, provides a vicinity map of the Quarry. The property boundaries are shown in red. **Figure 3-4** provides a closer view of the site boundaries.

Figure 3-3. Site Vicinity

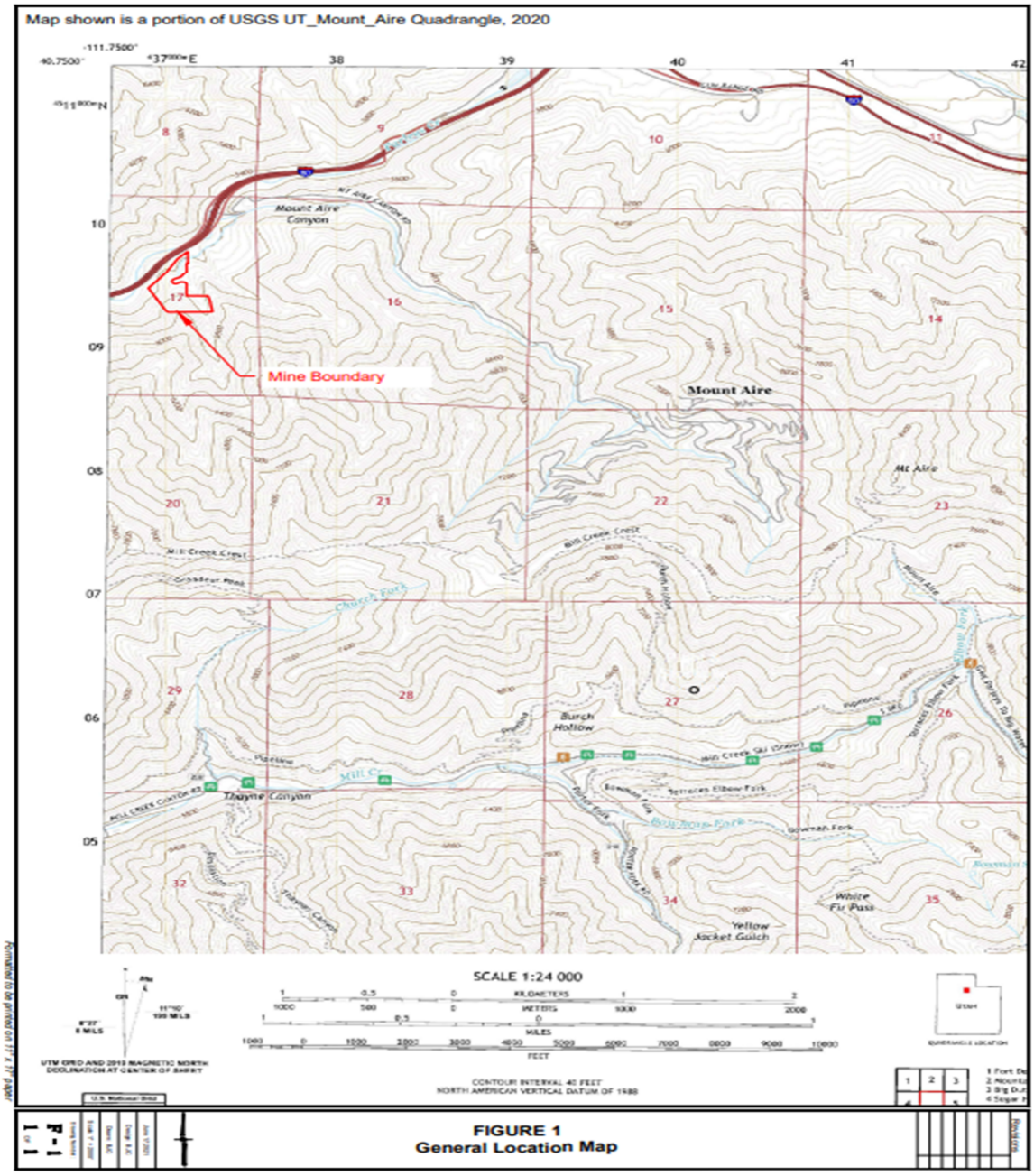
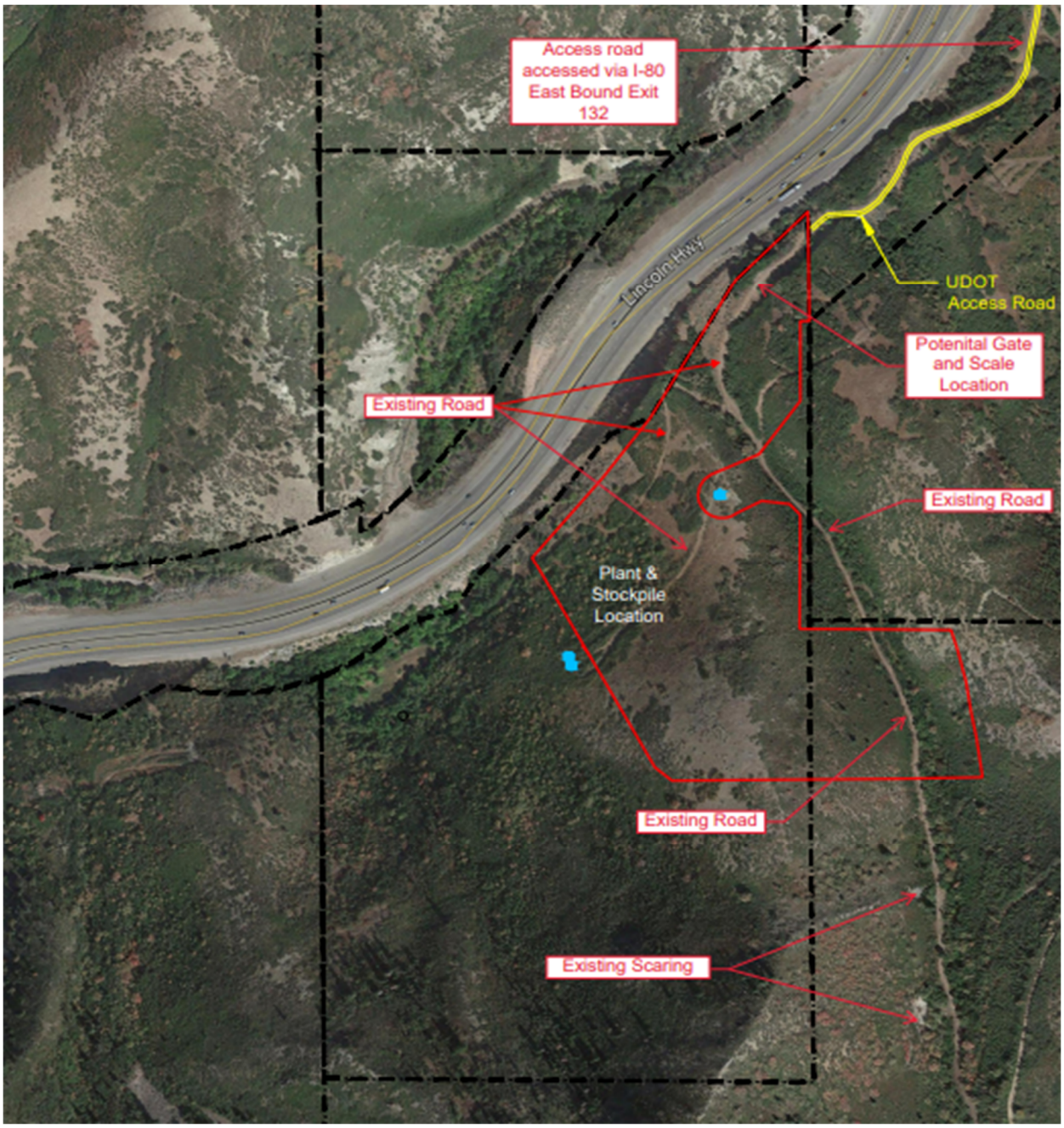


Figure 3-4 Site Map



4. EMISSIONS RELATED INFORMATION

This section details the methodology used to calculate controlled and uncontrolled emissions for criteria pollutants, greenhouse gases, and hazardous air pollutants (HAPs) associated with each new unit and its associated fugitives as regulated by R307-401-5(2)(b). Additionally, a comparison to major source thresholds is conducted. Detailed emission calculation tables are included in **Appendix B**.

Crushing and Screening

PM, PM_{10}, and $PM_{2.5}$ emissions generated from the crushing and screening of aggregate are estimated by multiplying the material throughput by the appropriate emission factor (EF). Uncontrolled EFs for screening and crushing were obtained from AP-42, Section 11.19.2 (Crushed Stone Processing and Pulverized Mineral Processing), August 2004.The equation used is as follows:

$$\text{Annual Emissions (tpy)} = \text{EF}\left(\frac{\text{lb}}{\text{ton}}\right) \times \text{Annual Throughput (tpy)} \times \left(\frac{\text{ton}}{2{,}000\ \text{lb}}\right) \times \text{Equipment Quantity}$$

Crushing and screening operations are three (3) pieces of equipment operated as one (1). The emissions are calculated to crush and screen all 150,000 tpy of mined material. Water will be used in addition to the inherent moisture content of mined material to contain fugitive dust emissions.

Material Loading, Unloading and Transfer

For conveyor transfer points, EFs from AP-42, Section 11.19.2 were used. For Crushing and Screening, dropped material transfer, including stacker drops resulting from the crushing and screening unit, material loading in both unit, and material unloading in the Crushing and Screening unit, stockpiling, the uncontrolled PM_{10} and $PM_{2.5}$ EFs were obtained from the "drop equation" in AP-42, Section 13.2.4 (November 2006). The equation for all emitting drops is:

$$\text{E} = \text{k}(0.0032) \times \frac{\left(\frac{\text{U}}{5}\right)^{1.3}}{\left(\frac{\text{M}}{2}\right)^{1.4}}$$

where:

E = emission factors (lb/ton)
k = particle size multiplier (dimensionless)
U = mean wind speed (mph)
M = material moisture content (%)

Parameter "U" is determined from historical data retrieved from the Salt Lake City Airport in Salt Lake City, UT over the past five (5) years (January 2015 – January 2020). The material moisture content used in this equation for the crushing and screening unit is based on values previously recommended by UDAQ.

Material throughput for transfer will incorporate the maximum site-wide throughput of 150,000 tpy and the appropriate equipment throughput ratio for each process. The annual PM emissions rate for the crushing and screening unit, given in tpy, is given by the equation below. The EF corresponds to the annual emissions of the criteria pollutant in question at the time of use of the equation; namely, PM_{10} or $PM_{2.5}$.

$$\text{Annual Crushing and Screening PTE (tpy)} = \text{Potential Annual Throughput (tpy)} \times \text{EF}\left(\frac{\text{lb}}{\text{ton}}\right) \times \text{Number of Units or Drop Points} \times \text{Conversion}\left(\frac{1\ \text{ton}}{2{,}000\ \text{lb}}\right)$$

Bulldozer Use

PM_{10}, and $PM_{2.5}$ emissions generated from bulldozing were calculated assuming one (1) bulldozer operating 1,000 hours per year. Bulldozer emissions are multiplied by the EFs given in AP-42, Section 11.9 (October 1998). AP-42 Table 11.9-1 provides the following equations for calculating EFs for total suspended solids (TSP) and PM_{15} from bulldozing operation:

$$\text{TSP} = \frac{5.7(\text{s})^{1.2}}{(\text{M})^{1.3}}$$

$$\text{PM}_{15} = \frac{1.0(\text{s})^{1.5}}{(\text{M})^{1.4}}$$

where:

TSP and PM_{15} = emission factors (lb/hr)
s = material silt content (%),
M = material moisture content (%),

The material silt content was provided by the Applicant while the material moisture content was suggested by UDAQ. Note that the silt content for bulldozing is lower than those values given for bulldozing of overburden in AP-42 Section 11.9. This is due to the highly exposed nature of the consolidated calcium carbonate and minimal overburden covering areas where bulldozing operations will occur. As AP-42 Section 11.9 only accounts for Western Surface Coal Mining, and as the given silt value is particular to the Quarry location, this value is deemed more appropriate for estimating bulldozing emissions than the AP-42 coal mine overburden default value. AP-42 Section 11, Table 11.9-1, provides scaling factors that are applied to TSP and/or PM_{15} EFs to obtain PM_{10}, and $PM_{2.5}$ EFs. PM_{10} and $PM_{2.5}$ EFs were calculated as follows:

- PM10 = 0.75 x PM_{15}; and
- $PM_{2.5}$ = 0.105 x TSP.

The annual PM emissions generated by bulldozer use are estimated by utilizing the EFs stated above. The EF is multiplied by the maximum annual operating hours, the application of the control efficiency, the number of bulldozers, and the conversion factor of pounds to tons.

$$\text{Annual Dozing Emissions (tpy)} = \text{EF}\left(\frac{\text{lb}}{\text{hr}}\right) \times \text{Max. Operating Hours}\left(\frac{\text{hr}}{\text{yr}}\right) \times [1 - \text{Control Efficiency (\%)}] \times \text{Number of Dozers} \times \text{Conversion}\left(\frac{1\ \text{ton}}{2{,}000\ \text{lb}}\right)$$

Haul Roads

The haul roads at the Quarry consist of paved and unpaved roads. PM_{10} and $PM_{2.5}$ emissions were derived using the guidance found in UDAQ's March 10, 2008 memorandum regarding EFs for unpaved haul roads[1]. Emissions from these roads were calculated using the following equation:

$$PM = k \times \left(\frac{s}{12}\right)^{a} \times \left(\frac{W}{3}\right)^{b} \times D \times \frac{1\ ton}{2{,}000\ lb} \times (1 - \eta)$$

Where:

PM	=	$PM/PM_{10}/PM_{2.5}$ emissions (tpy)
k	=	$PM/PM_{10}/PM_{2.5}$ k-Factor (lb/VMT)
s	=	Average silt content (%)
W	=	Mean vehicle weight (tons)
D	=	Distance traveled (VMT/yr)
a	=	Constant for equation (varies for $PM/PM_{10}/PM_{2.5}$) (unit less)
b	=	Constant for equation (varies for $PM/PM_{10}/PM_{2.5}$) (unit less)
η	=	Control efficiency (%)

Parameter (W) is determined for each vehicle type by taking the average of the mean loaded and unloaded weights of the different types of vehicles; in this case, tractor trailers, medium front-end loaders, and large front-end loaders.[2,3] Parameter (D) is determined by using the product throughput divided by the difference in full and empty vehicle weight to determine the total number of hauls required. This value is multiplied by the round-trip distance traveled by the customer trucks. The average silt content used in this equation was given by the Applicant based on engineering estimates.

As a means of control, a watering truck regularly applies water to suppress fugitive PM emissions at the Quarry for loader travel. The entrance road will be paved into the mine including watering and sweeping for a control factor of 95%. In addition, chemical suppressant is applied as necessary to the main haul route within the mine. Therefore, using guidance from the memorandum issued by UDAQ regarding emission factors for paved and unpaved haul roads, a control factor of 85% chemical suppressant application and watering, a control factor of 75% for road base and watering and were used for fugitive emissions related to vehicle traffic. Loader tram lengths are conservatively estimated to account for an average hourly throughput of 225 tons per hour, as the majority of loader operations serve to load equipment or vehicles in distinct areas. Emissions were projected based on the haul road layouts, vehicle weights, and hauling capacity and based on an average of the control factors.

Blasting

Drilling and blasting operations will be conducted within the mining area to produce rock in a manageable size. The following assumptions were made for blasting operations:

- At most, a blasting event will occur 5 times per year;
- The maximum area affected per blast is 7,890 square feet (ft^2); and
- During a blasting day, hours of excavation for the mine area will be reduced by 4 hours per day eliminating from 10 AM-2 PM so that blasting can occur.

[1] Per memorandum issued by UDAQ; "Emission Factors for Paved and Unpaved Haul Roads" dated January 12, 2015.
[2] National Academy of Sciences, Technologies and Approaches to Reducing the Fuel Consumption of Medium and Heavy-Duty Vehicles, prepublication copy, March 2010, pp. 2-2 and 5-42. Table 5.13.
[3] Per UAC R909-2-5. Table 2.

The blasting SO_2 emission factor is obtained from AP-42 Section 13.3-1. The SO_2 EF was developed using a mass balance that assumes a 6% fuel oil mixture with 500 ppm sulfur content, consistent with EPA non-road standards.

$$\mathrm{EF}_{\mathrm{SO}_2}\left(\frac{\mathrm{lb}}{\mathrm{ton}}\right) = \text{Sulfur Content (ppm)} \times \%_{\text{Fuel Oil Mixture}} \times \text{Conversion}$$

Both the NO_X and CO EF is that of the ANFO blasting agent factor from AP-42 Section 13.3; and PM_{10} and $PM_{2.5}$ EFs were based on the blasting PM EF given in AP-42 11.9, where a maximum blasting depth of 70 feet is used, by the following equation:

$$\mathrm{EF}_{\mathrm{PM}}\left(\frac{\mathrm{lb}}{\mathrm{blast}}\right) = 1.4 \times 10^{-5} \times \mathrm{A}(\mathrm{ft}^2)^{1.5}$$

Where EF_{PM} is the EF of PM in pounds per blast, and A is the average daily blast area in square feet. Scaling factors were applied to the TSP EF to calculate PM_{10} and $PM_{2.5}$ EFs, respectively, per AP-42 Table 11.9, as seen below. It is conservatively assumed that the PM EF is equal to the TSP EF.

$$\mathrm{EF}_{\mathrm{PM}_{10}}\left(\frac{\mathrm{lb}}{\mathrm{blast}}\right) = \mathrm{EF}_{\mathrm{PM}}\left(\frac{\mathrm{lb}}{\mathrm{blast}}\right) \times 0.52$$

$$\mathrm{EF}_{\mathrm{PM}_{2.5}}\left(\frac{\mathrm{lb}}{\mathrm{blast}}\right) = \mathrm{EF}_{\mathrm{PM}}\left(\frac{\mathrm{lb}}{\mathrm{blast}}\right) \times 0.03$$

Where EF_{PM10} is the EF of PM_{10} given in pounds per blast and $EF_{PM2.5}$ is the EF of $PM_{2.5}$ given in pounds per blast. Note that, as there is only one (1) blast per day, pounds per blast is equivalent to pounds per day.

Daily fugitive dust (PM, PM_{10}, and $PM_{2.5}$) blasting emissions were calculated using blasting material quantities, which were provided per design basis. Blasting emissions are calculated as follows:

$$\text{Daily Fugitive Dust Emissions}\left(\frac{\mathrm{lbs}}{\mathrm{day}}\right) = \mathrm{EF}\left(\frac{\mathrm{lbs}}{\mathrm{blast}}\right) \times (1 - \%_{\mathrm{control}}) \times \left(\frac{1\ \mathrm{blast}}{\mathrm{day}}\right)$$

Where the EF is that of PM, PM_{10}, or $PM_{2.5}$, whichever is calculated.

Annual fugitive dust (PM, PM_{10}, and $PM_{2.5}$) blasting emissions are given as follows:

$$\text{Annual Emissions (tpy)} = \text{Daily Fugitive Dust Emissions}\left(\frac{\mathrm{lbs}}{\mathrm{day}}\right) \times \text{Annual \# of Blasts} \times \text{Conversion}\left(\frac{\mathrm{tons} \cdot \mathrm{day}}{\mathrm{lb} \cdot \mathrm{year}}\right)$$

Where the *Daily Fugitive Dust Emissions* are those of PM, PM_{10}, or $PM_{2.5}$, whichever is calculated.

Daily emissions for SO_2, NO_X, and CO are calculated for each pollutant as follows:

$$\text{Daily Emissions}\left(\frac{\mathrm{lbs}}{\mathrm{day}}\right) = \mathrm{EF}\left(\frac{\mathrm{lbs}}{\mathrm{ton}}\right) \times \text{Annual ANFO Use (tpy)} \times \text{Conversion}\left(\frac{\mathrm{year}}{\mathrm{days}}\right)$$

Annual emissions for SO_2, NO_X, and CO are calculated for each pollutant as follows:

$$\text{Annual Emissions (tpy)} = \text{EF}\left(\frac{\text{lbs}}{\text{ton}}\right) \times \text{Annual ANFO Use (tpy)} \times \text{Conversion}\left(\frac{\text{tons}}{\text{lb}}\right)$$

Drilling

Drilling operations precede blasting operations, allowing for the placement of explosives beneath the surface of the mine. The drilling PM EF is retrieved from AP-42 Section 11.9, utilizing the conservative drilling PM EF given for overburden material. As no EFs are provided for PM_{10} and $PM_{2.5}$ drilling operations, EFs were calculated using the PM_{10} and $PM_{2.5}$ to TSP ratios for blasting overburden per AP-42 Section 11.9, where the factor for PM_{10} is 0.52 and the factor for $PM_{2.5}$ is 0.03, as shown below.

$$\text{EF}_{\text{PM}_{10}} = \text{EF}_{\text{PM}_{15}} \times 0.52$$

And

$$\text{EF}_{\text{PM}_{2.5}} = \text{EF}_{\text{TSP}} \times 0.03$$

For the purposes of determining the PM_{10} and $PM_{2.5}$ EFs, the EF for PM, PM_{15}, and TSP are considered equivalent.

Fugitive dust emissions from drilling operations will be controlled through the use of wet system. The EPA reports that baghouses can achieve a 95-99.9% control efficiency, while the National Institute for Occupational Safety and Health (NIOSH) reports that wet drilling achieves a control of fugitive emissions between 86-97.[4,5] As wet drilling is selected, it is assumed that the average control efficiency of wet drilling is achieved for drilling operations (88.8%).

The daily emissions of PM, PM_{10}, and $PM_{2.5}$ were calculated as follows:

$$\text{Daily Emissions}\left(\frac{\text{lb}}{\text{day}}\right) = \text{EF}\left(\frac{\text{lb}}{\text{hole}}\right) \times \text{Daily \# of Holes}\left(\frac{\text{holes}}{\text{day}}\right) \times (1 - \%_{\text{control}})$$

Where both the daily emissions and the *EF* are those of the pollutant in question (i.e., PM, PM_{10}, or $PM_{2.5}$).
The annual emissions of PM, PM_{10}, and $PM_{2.5}$ were calculated as follows:

$$\text{Annual Emissions (tpy)} = \text{EF}\left(\frac{\text{lb}}{\text{hole}}\right) \times \text{Annual Holes Drilled}\left(\frac{\text{holes}}{\text{year}}\right) \times (1 - \%_{\text{control}}) \times \text{Conversion}\left(\frac{\text{ton}}{\text{lb}}\right)$$

Where both the annual emissions and the *EF* are those of the pollutant in question (i.e., PM, PM_{10}, or $PM_{2.5}$).

Internal Combustion Engines

The Quarry will be using three (3) diesel-fired internal combustion engines 440 hp, 260 hp, and 175 hp to supply mechanical power to the three (3) units that comprise of the crushing and screening system. The estimate annual operation hours were based on the annual throughput of 150,000 TPY and equipment processing rate of 400 TPH; which equates to 375 operational hours per year. To be conservative, 500 operational hours per year were used to calculate internal combustion engine emissions. EFs are based on EPA AP-42 Table 3.4-1 and were used in the following equation:

[4] From EPA Air Pollution Control Technology Fact Sheet for baghouses: https://www3.epa.gov/ttnchie1/mkb/documents/ff-pulse.pdf (EPA-452/F-03-025).
[5] Summary of NIOSH research completed on dust control methods for surface and underground drilling, Pg 2, December 2008

$$\text{Annual Emissions (tpy)} = \text{Rated Horsepower } (bhp) \times \text{EF } \left(\frac{\text{g}}{\text{bhp} - \text{hr}}\right) \times 0.0222 \left(\frac{\text{lbs}}{\text{g}}\right) \times \text{Hours of Operation } \left(\frac{\text{hr}}{\text{yr}}\right) \times \left(\frac{\text{ton}}{2{,}000\ \text{lb}}\right)$$

In order to standardize and streamline the emission calculations, total annual emissions for VOCs and SO_2 were based on standard EPA EFs based on AP-42 Section 3.3: Gasoline and Diesel Industrial Engines, used in the following equation:

$$\text{Annual Emissions (tpy)} = \text{Heat Input } \left(\frac{\text{MMBtu}}{\text{hr}}\right) * \text{EF } \left(\frac{\text{lb}}{\text{MMBtu}}\right) * \text{Hours of Operation } \left(\frac{\text{hr}}{\text{yr}}\right) * \left(\frac{\text{ton}}{2{,}000\ \text{lb}}\right)$$

The EFs used, and the results of these calculations can be found in Appendix B.

GHG emissions calculations are based on diesel use in the engine planned for addition. In order to calculate total Carbon Dioxide Equivalent (CO_2e, equivalent to GHG) emissions, total fuel usage was multiplied by fuel-specific emission factors and global warming potentials (GWP) provided in 40 CFR 98 Tables A-1, C-1 and C-2.

$$\text{Diesel } CO_2e \text{ Annual Emissions (tpy)} = \left(\text{Emission Factor } CO_2 \left(\frac{\text{kg}}{\text{MMBtu}}\right) + \text{Emission Factor } CH_4 \left(\frac{\text{kg}}{\text{MMBtu}}\right) * \text{GWP } CH_4 + \text{Emission Factor } N_2O \left(\frac{\text{kg}}{\text{MMBtu}}\right) * \text{GWP } N_2O\right) * \text{Heat Input} \left(\frac{\text{MMBtu}}{\text{hr}}\right) * \text{Operating Hours} \left(\frac{\text{hr}}{\text{yr}}\right) * \left(\frac{\text{ton}}{907.185\ \text{kg}}\right)$$

Source Size Determination

The results of criteria pollutant emission calculations done for the Quarry are compared to major source thresholds in **Table 4-1**, below. The Quarry is in an area of nonattainment for $PM_{2.5}$ and ozone, but in attainment area for all other pollutants including PM_{10}. As previously mentioned, NO_X, SO_2, VOCs, and ammonia are all precursors of $PM_{2.5}$. As presented in the table below, emissions at the Quarry are less than major source thresholds (i.e., 100 tpy for any criteria pollutant with exception to direct $PM_{2.5}$ and its precursors for which the major source threshold is 70 tpy, 10 tpy for any HAP, 25 tpy for all HAPs combined, and 100,000 tpy for CO_2e). Therefore, the Quarry is classified as a minor source.

Table 4-1. Quarry Emissions Versus Major Source Thresholds

PROCESS	Annual Emission Rates (TPY)							
	PM_{10} (fugitive)	$PM_{2.5}$	NO_x	CO	SO_2	VOC	Total HAP	CO_2e
Dozer	0.57	0.32	--	--	--	--	--	--
Aggregate Processing Equipment1	0.15	0.02	--	--	--	--	--	--
Loader Routes	0.71	0.07	--	--	--	--	--	--
Storage Piles	0.59	0.3	--	--	--	--	--	--
Material Handling	0.21	0.03	--	--	--	--	--	--
Paved Haul Roads	0.13	0.01	--	--	--	--	--	--
Unpaved Haul Roads	0.44	0.04	--	--	--	--	--	--
Disturbed Area	1.14	0.17	--	--	--	--	--	--
Drill & Blast	0.07	0.02	0.7	2.75	0.08	--	--	--
Genset - Jaw	0.00	0.00	0.04	0.37	0.00	0.16	0.00	75
Genset - Cone	0.00	0.00	0.07	0.63	0.00	0.04	0.00	127
Genset - Screen	0.00	0.00	0.03	0.25	0.00	0.11	0.00	50
PROJECT TOTAL	**4.01**	**0.98**	**0.84**	**4.00**	**0.08**	**0.31**	**0.00**	**252**
Modeling Limit[1]	5	--	40	100	40	--	10/25	--
Modeling Required?	No	No	No	No	No	No	No	No
Major Threshold[2,3,4]	250	70	70	250	70	70	10/25	100,000
Exceeding Major Source Threshold?	No	No	No	No	No	No	No	No

1. Modeling Limit is stated in UDAQ Emissions Impact Assessment Guidelines under Table 1: Total Controlled Emission Rates for New Sources.

2. Major source thresholds defined by 40 CFR section 51.165(a)(1)(iv)(A).

3. Total HAP Threshold is stated in 40 CFR Section 63.2 under definition of a Major Source.

4. 100,000 tons CO2e threshold is for "anyways" sources that are already major source for another pollutant in this table.

5. BEST AVAILABLE CONTROL TECHNOLOGY (BACT) ANALYSIS

In the State of Utah, under R307-401-5(2)(d), Notice of Intent, every facility, operation, or process that proposes any activity that would emit an air contaminant, must consider BACT for the proposed activity. The BACT analysis below was performed pursuant to this rule. It only addresses units which will be modified, installed, or otherwise altered according to this NOI.

Crushing, Screening and Material Handling Aggregate Operations

PM_{10} and $PM_{2.5}$ Emissions

The equipment associated with portable crushing and screening operations include the following classifications:

Crushing
Screening
Conveyor transfer points
Stackers
Stockpiles

This BACT analysis has been completed for all material handling operations within the crushing and screening operations.

Crushing, Screening, and Material Handling PM_{10} and $PM_{2.5}$ Step 1 – Identify All Control Technologies

Control technologies identified for PM_{10} and $PM_{2.5}$ emissions from material handling operations are as follows, based on a May 30, 2022 review of relevant entries in EPA's RACT/BACT/LAER Clearinghouse (RBLC) Section 90.024:

Baghouse/Fabric Filter
Cyclone
Electrostatic Precipitator
Enclosures
Management/Operation Practices
Watering and Material Moisture Content
Wet Scrubber

Crushing, Screening, and Material Handling PM_{10} and $PM_{2.5}$ Step 2 – Eliminate Technically Infeasible Options

Baghouse/Fabric Filter

Fabric filters (baghouses) are used for medium and low gas-flow streams with high particulate concentrations. The typical baghouse has a control efficiency between 95 and 99.9 percent.[6] This is generally accomplished through the installation of ductwork, capture hoods, fans, motors, starters, stacks, and other stationary equipment. Material at the Quarry travels through a series of portable conveyors. The process requires flexibility to alter on-site stockpile configurations and the location of crushing and screening operations. In other words, the crushing and screening equipment must remain mobile. This necessity for

[6] From EPA Air Pollution Control Technology Fact Sheet for baghouses: https://www3.epa.gov/ttnchie1/mkb/documents/ff-pulse.pdf (EPA-452/F-03-025).

mobility is incompatible with the size of stationary baghouse equipment required, and thus renders the use of a baghouse technically infeasible.

Cyclone

A cyclone separator (cyclone) operates on the principle of centrifugal separation. A high-efficiency cyclone designed specifically for $PM_{2.5}$ and PM_{10} removal is likely to achieve between 20% to 70% removal for $PM_{2.5}$ and 60% to 95% removal for PM_{10}, respectively.[7] Like a baghouse, cyclone feasibility is based on routing emissions to a stationary control system via ductwork, capture hoods, fans, etc. This results in a cyclone being technically infeasible for the Quarry, as the crushing and screening equipment used for production is mobile.

Electrostatic Precipitator

A dry electrostatic precipitator (ESP) is a particle control device that uses electrical forces to move coarse particles at high concentrations out of a gas stream and onto collector plates, and then into a hopper. This removal efficiency is typically between 90-99.9%.[8] ESPs are sensitive to variations in gas streams and do not work well with streams that are highly variable, such as those present in crushing and screening.[9] Therefore, implementation of this control technology is considered technically infeasible for all crushing and screening sources.

Enclosures

Enclosures confine emissions to the enclosed area, prohibiting most PM from reaching ambient air. Although effective, industrial enclosures are permanent structures. As discussed, the Quarry is proposed to operate with mobile equipment, which requires flexibility of crushing and screening configurations. Therefore, enclosures are technically infeasible as control technology.

Management/Operation Practices

Management practices during material movement, such as minimizing drop heights, will minimize $PM_{2.5}$ and PM_{10} emissions are considered technically feasible for this project. Best operating practices, such as regular inspection and maintenance, are also considered technically feasible.

Watering and Material Moisture Content

Watering changes the physical properties of the surface material by binding soil particles together such that fugitive emissions are minimized or not generated. Moreover, carryover of material moisture content from water sprays mitigates particulate emissions beyond the initial point of watering. Inherent moisture found in mined aggregate achieves the same effect as wetting by watering controls. Wet suppression is shown to achieve between 50-90% control of emissions[10]. This control measure is considered technically feasible for material handling.

[7] From Air Pollution Control Technology Fact Sheet for cyclones: https://www3.epa.gov/ttn/catc/dir1/fcyclon.pdf (EPA-452/F-03-005)
[8] From EPA Air Pollution Control Technology Fact Sheet for Crushing and Screening Electrostatic Precipitators: https://www3.epa.gov/ttn/catc/dir1/fdespwpi.pdf (EPA-452/F-03-028)
[9] Ibid.
[10] From Western Regional Air Partnership, *Fugitive Dust Handbook*; Executive Summary, p. 3, September 2006.

Wet Scrubber

Wet gas scrubbers can achieve 50-95% control of PM emissions.[11] However, this control technology faces the same difficulties in mobile mining facilities as other stationary control technologies. Namely, they rely on stationary ductwork and other equipment to route emissions to the scrubber itself. Due to the nature of mining, conveyors leading to crushing, screening, and drop points will be moved. The incompatibility between the mobile crushing and screening equipment and stationary wet scrubber equipment renders the use of a wet scrubber technically infeasible.

Crushing, Screening, and Material Handling Material Handling PM_{10} and $PM_{2.5}$ Step 3 – Rank Remaining Control Technologies by Control Effectiveness

Table 5-1 ranks, in order of control effectiveness, the control technologies that were considered technically feasible in Step 2 of the analysis.

Table 5-1. Summary of PM_{10} and $PM_{2.5}$ for Material Handling

Control Technologies	Rank	Percent Control	Feasible	BACT
Water Spray/Inherent Properties	1	50 – 90%	Yes	Yes
Best Management/Operational Practices	2	Variable	Yes	Yes

Crushing, Screening, and Material Handling PM_{10} and $PM_{2.5}$ Step 4 – Evaluate Most Effective Controls and Document Results

These operations are subject to NSPS Subpart OOO. These NSPS standards were updated by U.S. Environmental Protection Agency (EPA) in 2008.[12] Section 111 of the Clean Air Act (CAA) requires that NSPS reflect the application of the best system of emission reductions, taking into consideration the cost of achieving such reductions, non-air quality health impact, environmental impact, and energy requirements. In this amendment, EPA made revisions to the emission limits for NMPP-affected facilities which commence construction, modification, or reconstruction after publishing the revised rules. EPA's review of permits and other available information when revising these standards of performance did not reveal any new or emerging pollution-prevention measures or PM control technologies as best demonstrated technologies (BDT). EPA found that the NSPS Subpart OOO fugitive emission limits are most commonly met through use of wet suppression (as needed) and water carryover. Wet dust suppression remains the method of choice for control for the vast majority of crushing and screening facilities.

The BDT control systems identified in EPA's NSPS evaluations achieve a reduction in PM_{10} and $PM_{2.5}$, along with reduction in larger PM particles required to meet NSPS Subpart OOO emission standards. Additionally, as the Quarry is located in a $PM_{2.5}$ nonattainment area, it is subject to R307-309 Aggregate Processing Operations. Therefore, the Applicant proposes to implement both water spray/inherent properties and best management/operational practices. Furthermore, since all technically feasible control technologies are proposed for implementation, a cost analysis is unnecessary.

[11] From EPA Air Pollution Control Technology Fact Sheet for Packed-Bed/Packed-Tower Wet Scrubber (EPA-452/F-03-015)

[12] U.S. EPA revised NSPS, Subpart OOO in 73 Federal Register (FR) 78, April 22, 2008.

Crushing, Screening, and Material Handling PM_{10} and $PM_{2.5}$ Step 5 – Select BACT

This application proposes that BACT consist of restricting fugitive emissions to opacity standards set forth by NSPS Subpart OOO, namely 7% opacity for belt conveyors, transfer points, screens, and enclosed trucks; and 12% opacity for crushing operations. Like many crushing and screening facilities, this will be done by water application and material moisture content controls. This includes, but is not limited to:

- Application of water to stockpiles via water spray from stackers and/or the water truck;
- Application of water spray to crushing operations; and
- Moisture content carryover during transportation on conveyors and screens.

Furthermore, management and best operational practices will be applied. These include, but are not limited to:

- Minimizing drop distance for material transfers; and
- Periodic inspections of material handling equipment.

Road Emissions

Fugitive PM_{10} and $PM_{2.5}$ Emissions

Fugitive emissions are generated from road use by customer trucks, support vehicles, and heavy equipment used in mining operations. Fugitive dust from production activities such as loading, unloading, storage of bulk materials, and material transporting may cause PM to be deposited on plant roads. There is one (1) paved, primary entrance road for offsite shipments which extends from the exterior of the property to the scale and loading areas. Haul routes within the mine will be unpaved. Unpaved tram routes for front-end loader movement are also included in these emissions. Vehicular traffic in these areas may then disturb dust deposited on plant roads, resulting in more PM emissions.

Roads PM_{10} and $PM_{2.5}$ Step 1 - Identify All Control Technologies

Control technologies identified for PM_{10} and $PM_{2.5}$ emissions from roads are as follows:

- Chemical Treatment (Applicable to Unpaved Roads Only)
- Reduced Speed (Applicable to Unpaved Roads Only)
- Road Paving (Applicable to Unpaved Roads Only)
- Silt Content Reduction (Applicable to Unpaved Roads Only)
- Street Sweeping (Applicable to Paved Roads Only)
- Watering and Material Moisture Content

Roads PM_{10} and $PM_{2.5}$ Step 2 – Eliminate Technically Infeasible Options

Chemical Treatment

Applying chemical treatment to unpaved roads binds surface particles together and inhibits fugitive emissions by up to 85%.[13] This is feasible for haul roads, but not for paths on which bulldozers and/or front-end loaders operate. Chemical treatment applied in such areas may contaminate mined aggregate and cause technical problems during the crushing and screening process. Furthermore, product stockpiles may

[13] UDAQ Guidelines: Emission Factors for Paved and Unpaved Haul Roads, January 2015

become contaminated, and the effects of chemical treatment are reduced due to the frequent turning of aggregate by front-end loaders while loading customer haul trucks. Therefore, this control method is considered technically feasible for haul roads, but not technically feasible for roads where bulldozers and front-end loaders operate or for storage piles.

Reduced Speed

Reducing the speed on plant roads reduces the generation of fugitive dust. The Western Regional Air Partnership (WRAP) Fugitive Dust Handbook reports that a 57% reduction in emissions occurs when speeds are restricted to less than fifteen miles per hour (15 mph), and a 44% reduction in emissions when speeds are restricted to 25 mph.[14] This control method is considered technically feasible.

Road Paving

Paving provides effective controls on fugitive road emissions. Guidelines from UDAQ indicate that paved roadways, combined with sweeping and watering, provide a 90% control efficiency for particulate emissions.[15] The entrance road, which is used for product export will be paved.

Paving mine roads interior to the mine operations is not technically feasible near dynamic mining operations at the Quarry, as route configurations are subject to change according to mine development. Furthermore, emissions from paved roads in disrepair due to impact from heavy equipment are higher than properly treated unpaved roads. Similarly, the benefits of applying chemical dust suppressants are negated in areas where trucks turn and tracked equipment is used because those activities cause chemical dust suppressants to deteriorate more quickly than is useful. Travel of this sort rapidly deteriorates paved road surfaces, which is an accepted, significant concern for paved roads. If the main haul road were paved, the frequent re-paving and road construction that would be necessary due to its regular deterioration would hinder haul truck travel and subsequently obstruct the selling of processed aggregate. The application of chemical suppressant and regular watering that will be done maintained.[16] As such, paving of the main haul road inside mine operations is considered technically infeasible.

Silt Content Reduction

Silt content reduction involves covering unpaved road surfaces with material that has a lower silt content than what is naturally present, e.g., gravel or stone. Combined with watering, this method achieves up to 75% control efficiency.[17] This control method is considered technically feasible.

Street Sweeping

Street sweeping is a method of PM control that utilizes a mobile street sweeping unit to remove loose material from paved road surfaces. For the paved entrance road, street sweeping is feasible. This control technology is technically infeasible to adequately maintain unpaved roads within the mine area.

Watering and Material Moisture Content

Watering of haul roads reduces fugitive $PM_{2.5}$ and PM_{10} emissions by binding soil particles together and increasing their weight, thus retarding movement such as being picked up by wind or vehicles. Water is applied on a scheduled basis and supplemented as needed based on driver observation of dust conditions.

[14] Western Regional Air Partnership, *Fugitive Dust Handbook*. Executive Summary, p. 3, September 2006.
[15] UDAQ Guidelines: Emission Factors for Paved and Unpaved Haul Roads, January 2015
[16] Western Regional Air Partnership (WRAP) Fugitive Dust Handbook, 2006.
[17] UDAQ Guidelines: Emission Factors for Paved and Unpaved Haul Roads, January 2015

Basic watering results in a dust control efficiency of up to 70%.[18] This control technology is considered technically feasible.

Roads PM_{10} and $PM_{2.5}$ Step 3 – Rank Remaining Control Technologies by Control Effectiveness

Table 5-2. Fugitive PM_{10} and $PM_{2.5}$ Control Technologies and Efficiencies for Paved Roads

Control Method	Control Efficiency (%)
Paving with Vacuum Sweeping and Watering[1]	95

1 Control factor is consistent with UDAQ's January 12, 2015 Emission Factors for Paved and Unpaved Roads.

Table 5-3 Fugitive PM_{10} and $PM_{2.5}$ Control Technologies and Efficiencies for Unpaved Roads

Control Method	Control Efficiency (%)
Chemical Suppressant and Watering	85
Basic Watering and Road Base	75
Basic Watering	70
Reduced Speed	44

For the technologies applied to unpaved roads, any grouping of silt-content reduction, chemical suppressant, watering, and speed reduction can be applied together, as they are not competitive. Note that variable control technologies include:

Silt Content Reduction: Varies with current, uncontrolled road conditions, per AP-42 13.2.2.

Roads PM_{10} and $PM_{2.5}$ Step 4 – Evaluate Most Effective Controls and Document Results

Paving will be applied to the main entrance road and all technically available controls including chemical suppression, road watering, speed reduction, and silt content reduction on unpaved roads will be implemented, no detailed economic, energy, or environmental impact evaluations were conducted.

Roads PM_{10} and $PM_{2.5}$ Step 5 – Select BACT

BACT has been established for three scenarios:

- Pave the permanent entrance road into the Quarry.
- Use chemical application, watering, and/or silt-content reduction to minimize fugitive dust from unpaved haul roads.
- Use watering and/or silt content reduction to minimize fugitive dust from non-permanent roads and unpaved surfaces (e.g., roads in proximity to the mining face).

The Quarry will implement these controls.

[18] Ibid.

Drilling and Blasting

NO_X and SO_2 – Blasting

Blasting operations incorporate combustion of compounds containing ammonium nitrate in order to loosen material in the mining area. Blasting operations will produce fugitive NO_X and SO_2 emissions. However, there are no control technologies that can be used to mitigate NO_X and SO_2 emissions associated with blasting. As such, no BACT analysis has been conducted for these emissions.

PM_{10} and $PM_{2.5}$ – Drilling and Blasting

Drilling and blasting methods loosen raw materials in the mining area in order to access the desired aggregate embedded in the ground. These activities create fugitive dust.

Drilling and Blasting PM_{10} and $PM_{2.5}$ Step 1 – Identify All Control Technologies

Control technologies identified for PM_{10} and $PM_{2.5}$ emissions from drilling and blasting have been identified using the following sources:

Utah Division of Air Quality Fugitive Dust Control Plans (Revised 1/13) BMP 02;
Dust Control Handbook for Industrial Minerals Mining and Processing, NIOSH, January 2012
WRAP Fugitive Dust Handbook, Countess Environmental, September 2006

The following methods have been identified as control technologies to reduce fugitive dust emissions from drilling and blasting:

- Apply a shroud to the drilling equipment;
- Apply best management and operational practices for drilling and blasting;
- Install a dust collection system on drilling equipment; and
- Install a water spray on drilling equipment, i.e., use of wet drilling practices.

Drilling and Blasting PM_{10} and $PM_{2.5}$ Step 2 – Eliminate Technically Infeasible Options

Shroud Application to Drilling Equipment

Installing a shroud at the drilling location is one common method for controlling fugitive dust emissions from drilling operations. Shrouds can vary in shape (rectangular vs. circular) and complexity in order to adapt to mining operations. When installed and replaced correctly, shrouds can control 88% of fugitive dust emissions.[19] Using a shroud during drilling operations is technically feasible.

Best Management and Operational Practices for Drilling and Blasting

Best management and operational practices for blasting operations includes the following: using sufficient stem length and refraining from blasting operations during high winds.[20] Best management and operational practices for drilling operations includes conducting routine inspections of drilling control technologies. This may include repairing and/or replacing shrouds when they become damaged. Best management and operational practices for controlling both drilling and blasting operations are technically feasible.

[19] Dust Control Handbook for Industrial Minerals Mining and Processing, pg. 137. NIOSH, March, 2019
[20] The Office of Surface Mining, U.S. Department of Interior, Controlling the Adverse Effects of Blasting, Methods to Reduce Airblast

Dust Collection System on Drilling Equipment

Dust control is often accomplished using a fan-powered dust-collection system. For drilling operations, these collection systems are mounted on the drill. If properly maintained, these systems can be up to 99% efficient.[21] For drilling operations, installing a dust collection system is technically feasible.

Water Spray on Drilling Equipment

Fugitive emissions for drilling equipment can be significantly reduced through wet drilling, using a water spray which provides continuous water flow during drilling operations. With a high volumetric flow rate, dust control efficiencies often attain 86-97%. However, when water flow rates approach one (1) gallon per minute (gpm) operational problems such as drill bit plugging, and drill rotation binding often occur. Dust control efficiencies are reduced when water flow rates are reduced.[22] Watering is technically feasible for drilling operations.

Drilling and Blasting PM_{10} and $PM_{2.5}$ Step 3 – Rank Remaining Control Technologies by Control Effectiveness

The most-effective control technologies for fugitive dust generated from drilling operations are provided in the table below, according to effectiveness.

Table 5-3. Summary of $PM_{2.5}$ and PM_{10} Control Methods for Drilling

Control Technologies	Rank	Percent Control	Feasible	BACT
Dust Collection System[23]	1	95-99.9%	Yes	Yes
Using Water Spray (Wet Drilling)[24]	2	86-97%	Yes	Yes
Shroud Use[25]	3	63-88%	Yes	Yes
Best Management and Operational Practices	4	Varies	Yes	Yes

The most-effective control technologies for fugitive dust generated from blasting operations are provided in the table below, according to effectiveness.

Table 5-4. Summary of $PM_{2.5}$ and PM_{10} Control Techniques for Blasting

Control Technologies	Rank	Percent Control	Feasible	BACT
Best Management and Operational Practices	5	Varies	Yes	Yes

[21] Dust Control Handbook for Industrial Minerals Mining and Processing, pg. 124. NIOSH, March, 2019
[22] Dust Control Handbook for Industrial Minerals Mining and Processing, pg. 80-82. NIOSH, January, 2012
[23] Dust Control Handbook for Industrial Minerals Mining and Processing, pg. 124. NIOSH, March, 2019
[24] Summary of NIOSH Research Completed on Dust Control Methods for Surface and Underground Drilling, Pg. 2, December 2008
[25] Dust Control Handbook for Industrial Minerals Mining and Processing, pg. 137. NIOSH, March, 2019

Drilling and Blasting PM_{10} and $PM_{2.5}$ Step 4 – Evaluate Most-Effective Controls and Document Results

Since equivalent technology including wet drilling, and installing a shroud for drilling, and best management and operational practices for drilling and blasting will be implemented, no detailed economic, energy, or environmental impact evaluations were conducted.

Drilling and Blasting PM_{10} and $PM_{2.5}$ Step 5 – Select BACT

BACT for drilling will be accomplished through adhering to best management practices and using a wet drilling practices proposed as BACT for drilling operations which will maintain average of 88.8% controls.

BACT for blasting will be accomplished by applying best management practices, minimizing the blasting area, limiting the size of blasting, and avoiding blasting operations during high winds. Additionally, blasting and drilling events will not occur on the same day. These practices will mitigate fugitive dust from blasting operations.

Diesel Engines Powering Crushing and Screening Units

Emission estimates for engines operation at the Quarry are based on the operation of one (1) 260-hp for the Jaw Crusher, one (1) 175-hp for the screen, and one (1) 440-hp for the cone crusher. These engines will provide power for the crushing, screening and stacking equipment. The engines meet the EPA's Tier IV Nonroad Compression-Ignition Engines: Exhaust Emission Standards. Although the mobile engines are unaffected by stationary source regulations, each engine would meet the applicable National Emission Standards for Hazardous Air Pollutants (NESHAP) Subpart ZZZZ emission limits for reciprocating internal combustion engines (RICE), as well as those in New Source Performance Standards (NSPS) IIII. Ultra-low sulfur diesel (ULSD) fuel will be used to fuel the engines, which is based on a fuel sulfur content of 0.0015% as defined under 40 CFR 80, Subpart I, Section 80.510(c)(1). Nevertheless, requirements in these regulations are inapplicable and the permit conditioning should omit these requirements.

Engine Emissions Step 1 - Identify All Control Technologies

The following sources were reviewed on May 30, 2022, to identify available control technologies:

- EPA's RBLC Database for Diesel Engines;
- EPA's Air Pollution Technology Fact Sheets;
- Bay Area Air Quality Management District (BAAQMD)
- California Air Resources Board (CARB)
- San Diego County Air Pollution Control District (SDCAPCD)
- San Joaquin Valley Air Pollution Control District (SJVAPCD)
- Texas Commission on Environmental Quality (TCEQ)
- South Coast Air Quality Management District Example Permits.

Available control technologies for diesel-fired, non-emergency engines include the following:

- Limited Hours of Operation
- Good Combustion Practices
- Use of Tier-Certified Engines
- Engine Design
- Diesel Particulate Filter (DPF)
- Ultra-Low Sulfur Fuel

- Diesel Oxidation Catalyst (DOC)
- Exhaust Gas Recirculation (EGR)
- Selective Catalyst Reduction (SCR)

The following step evaluates the technical feasibility of each of these options.

Engine Emissions Step 2 – Eliminate Technically Infeasible Options

Limited Hours of Operation

One of the apparent opportunities to control the emissions of all pollutants released from non-emergency engines is to limit the hours of operation to essential hours of operation only. The engine proposed will be limited to 1,000 hours of operation per year, which coincides with the operation of the crushing and screening operation at each set.

Good Combustion Practices

Good combustion practices refer to the operation of engines at high combustion efficiency, which reduces the products of incomplete combustion. The engine proposed is designed to achieve maximum combustion efficiency. The manufacturer has provided operation and maintenance manuals that detail the required methods to achieve the highest levels of combustion efficiency.

Use of an Appropriate Tier Certified Engine

EPA noted that non-road engines were a significant source of emissions and began adopting emission standards for these emission units in 1994. Today, engines are required to meet certain emission limits, or tier ratings, based on the size and model year. Emission standards for these engines have progressively become more stringent over time and are an indicator of good combustion design. The proposed engines have an EPA Tier IV rating.

Diesel Particulate Filters

This technology is placed in the exhaust pathway to prevent the release of particulate and may be coated with a catalyst to further capture hydrocarbon emissions. According to EPA's Response to Public Comments on Notice of Reconsideration of NESHAP for RICE and NSPS for Stationary ICE, "Diesel particulate filters are also proven commercially available technology for retrofit applications to stationary engines…and are capable of reducing diesel PM by 90 percent or more."[26] Additionally, the CA ARB was able to determine that this technology was technically feasible for non-emergency and prime engines through obtaining several vendor quotes.[27]

DPFs were shown to be used on engines meeting at least the Tier 2 engine standards of this size in the aforementioned RBLC search. It was found that the emission rate of PM was lower for the proposed engine than that of those that had DPFs, according to the search. DPFs create backpressure within the engine, effectively reducing the power output. Since the proposed engines are sized appropriately to suit the needs of the operation, it is critical that the power output not be reduced. Since the emission rate is lower than

[26] Response to Public Comments on Notice of Reconsideration of National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines and New Source Performance Standards for Stationary Internal Combustion Engines, EPA Docket EPA-HQ-OAR-2008-0708, June 16, 2014

[27] Response to Public Comments on Notice of Reconsideration of National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines and New Source Performance Standards for Stationary Internal Combustion Engines, EPA Docket EPA-HQ-OAR-2008-0708, June 16, 2014

those of engines with DPFs in the RBLC search, and since the installation of a DPF is considered technically infeasible due to the back pressure, it is concluded that the proposed engine meets BACT.

Ultra-Low Sulfur Diesel

ULSD fuel contains less than 0.0015% sulfur by weight. The reduced sulfur content reduces the potential for SO_2 emissions. Additionally, the low sulfur content results in a lower potential for aggregation of sulfur-containing compounds, and thus reduces PM2.5 emissions. Engines at the Quarry will use ULSD fuel for its diesel-fired engine.

Diesel-Oxidation Catalyst

A DOC utilizes a catalyst such as platinum or palladium to further oxidize the engine's exhaust, which includes hydrocarbons (HC), (i.e., VOC), to carbon dioxide (CO_2) and water. Use of a DOC can result in approximately 90 percent reduction in HC/VOC emissions.[28] In addition to controlling HC/VOC, a DOC also has the potential to reduce PM emissions by 30 percent (based on the concentration of soluble organics) and CO emissions by 50 percent if low sulfur diesel fuel is used.[29]

The use of a DOC reduces the effective power output of RICE and results in a solid waste stream, resulting in more complex environmental treatment than an engine without it. Since the power output of the proposed engine is required as discussed in the DPF section above, it is critical not to reduce it. As such, a DOC is considered technically infeasible.

Although DOC is listed by the BAAQMD, it is not listed as a control in the RBLC search for the EPA size range that the proposed engine falls under. Furthermore, it is not listed as a control technology in the TCEQ, SDAPCD, or SJVAPCD for similarly sized engines.

Exhaust Gas Recirculation

NO_X reduction can be achieved through recirculating exhaust into an engine. EPA tests conducted on mobile engines have demonstrated NO_X reduction up to 50% if the engine timing is retarded, but test results are accompanied by an increase in particulates[30]. Computer-based control schemes can assist in NO_X reduction with associated timing retardation, but EGR can also result in heat rejection, reduced power density and lower fuel economy. The proposed engine is equipped with a manufacturer-installed NO_X reduction system that is effectively equivalent to an EGR.[31] It is for this reason that an EGR is considered technically feasible for the proposed engine.

[28] U.S. EPA, *Alternative Control Techniques Document: Stationary Diesel Engines*, March 5, 2010, p. 41. (https://www.epa.gov/sites/production/files/2014-02/documents/3_2010_diesel_eng_alternativecontrol.pdf)
[29] Response to Public Comments on Notice of Reconsideration of National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines and New Source Performance Standards for Stationary Internal Combustion Engines, EPA Docket EPA-HQ-OAR-2008-0708, June 16, 2014
[30] U.S. EPA Control of Heavy-Duty Diesel NOx Emissions by Exhaust gas recirculation, Office of Mobile Source Air Pollution Emissions Control Technology Division, August 1985
[31] Per manufacturer's guarantee.

Selective Catalytic Reduction

SCR systems introduce a liquid reducing agent such as ammonia or urea into the flue gas stream prior to a catalyst. The catalyst reduces the temperature needed to initiate the reaction between the reducing agent and NO_X to form nitrogen and water. Retrofitting an SCR creates backpressure in the exhaust system which affects the performance and effective power output of an engine. As discussed in previous sections (DPF and DOC), the engine is small, and reducing power output of the engine would compromise the power output required for the process. For these reasons, retrofitting an SCR is considered technically infeasible.

Engine Emissions Step 3 – Rank Remaining Control Technologies by Control Effectiveness

Effective control technologies for diesel engines include limited hours of operation, good combustion practices, use of tier-certified engines, use of EGR, and the use of ULSD fuel. Each of these is currently being proposed as controls.

Engine Emissions Step 4 – Evaluate Most Effective Controls and Document Results

Engines that would meet the Tier 4 Final emissions standards are proposed. Such engines benefit from various emissions control systems listed above and installed by the original equipment manufacturer. Diesel engines that meet the Tier 4 Final emissions standards are the best available and the most effective controls short of electrification which is not technically feasible due to the mobile nature of the engines.

Engine Emissions Step 5 - Select BACT

The following control technologies will be implemented and are considered BACT: limited hours of operation, good combustion practices, use of tier-certified engines, use of EGR, and the use of ULSD fuel.

6. EMISSION IMPACT ANALYSIS

Table 4-1 compares proposed total criteria pollutant emissions to applicable thresholds contained in R307-403-4 through 7, and R307-410-4. As shown in **Tables 4-1**, emissions do not exceed the "modeling" limit established for each pollutant. Thus, modeling criteria pollutants shown in **Tables 4-1** is unwarranted. Utah Admin. Code R307-410-5 - Documentation of Ambient Air Impacts for Hazardous Air Pollutants (HAPs) describes how UDAQ calculates Emissions Threshold Values (ETVs) for HAPs. Pre-calculated ETVs are provided in a spreadsheet by UDAQ. If the mass of emissions exceeds the ETVs then additional analysis is necessary. Total HAPs emitted by the Quarry is presented in **Appendix B**. Total HAPs emissions for the Quarry are less than each of the ETVs. The Quarry HAP emissions are much less than the ETVs and additional analysis is unwarranted.

7. NONATTAINMENT/MAINTENANCE AREAS - OFFSETTING

Per UDAQ's Form 1 for NOI and R307-420 and R307-421, this section should include offset requirements for nonattainment and maintenance areas. The Quarry is located within a $PM_{2.5}$ nonattainment area.

Offset Applicability

$PM_{2.5}$ Offsets

$PM_{2.5}$ offsets are applicable to major sources located within or impacting a $PM_{2.5}$ nonattainment area of the NAAQS. A major source in a serious nonattainment area is defined in R307-403-5(2)(b) as "any stationary source of air pollutants which emits or has the potential to emit 70 [TPY] or more of direct $PM_{2.5}$ or any individual $PM_{2.5}$ precursor as defined in R307-403-1(4)(c) [i.e., SO_2, NO_X, VOCs, and ammonia]." The Quarry emits less than a major source, and it is therefore not subject to the offset requirements of R307-403.

PM_{10} Offsets

PM_{10} offsets requirements are described in UAC R307-421-2. They apply to new or modified sources of SO_2 or NO_X that are located in or impact Salt Lake County or Utah County. Any new source that has the potential to emit, or any modified source that would increase SO_2 or NO_X in an amount equal to or greater than 25 tons/year are subject to the PM_{10} offset requirements of R307-421. As the SO_2 and NO_X emissions from the Quarry are less than 25 tpy, PM_{10} offsets are unnecessary.

Ozone Offsets

NO_X and VOC offset requirements recorded in UAC R307-420-3(2) are applicable to significant sources located within or impacting an ozone nonattainment area of the NAAQS. In summary, significant sources located in Davis County or Salt Lake County shall offset the proposed increase in VOC emissions by a ratio of 1.2:1 before the Director may issue an AO to construct, modify, or relocate under R307-401. As the Quarry is located in Salt Lake County, NO_X and VOC offsets are applicable.

Furthermore, "significant" means, for the purposes of determining what is a significant emission increase or a significant net emission increase and therefore a major modification, a rate of emissions that would equal or exceed any of the following rates:

(1) for volatile organic compounds, 25 tons per year,
(2) for nitrogen oxides, 40 tons per year.

The PTE of the Quarry presented in **Appendix B** is less than 25 tpy of VOCs and less than 40 tpy of NO_X. Thus, offsets for ozone precursors established in R307-420-3 are inapplicable.

8. APPLICABLE REGULATIONS

General Introduction – Utah Regulations

Granite has evaluated the applicability of each rule under the UAC Title R307. Rules generally applicable to the Quarry, but not associated with operational compliance for the facility will not be discussed in this section, while all other applicable rules associated with the project described in this NOI will be discussed in the subsequent subsections.

Table 8-1. Evaluation of UDAQ Air Quality Rules

Reference	Regulation Name	Applicability	
		Yes	No
R307-101	General Requirements	X	
R307-102	[1] General Requirements: Broadly Applicable Requirements	X	
R307-103	[1] Administrative Procedures	X	
R307-104	[1] Conflict of Interest		X
R307-105	[1] General Requirements: Emergency controls	X	
R307-107	General Requirements: Breakdowns	X	
R307-110	[1] General Requirements: State Implementation Plan	X	
R307-115	[1] General Conformity	X	
R307-120	General Requirements: Tax Exemption for Air Pollution Control Equipment	X	
R307-121	General Requirements: Clean Air and Efficient Vehicle Tax Credit		X
R307-122	General Requirements: Heavy Duty Vehicle Tax Credit		X
R307-123	General Requirements: Clean Fuels and Vehicle Technology Grant and Loan Program		X
R307-124	General Requirements: Conversion to Alternative Fuel Grant Program		X
R307-125	Clean Air Retrofit, Replacement, and Off-Road Technology Program		X
R307-130	[1] General Penalty Policy	X	
R307-135	Enforcement Policy for Asbestos Hazard Emergency Response Act		X
R307-150	[1] Emission Inventories	X	
R307-165	Emission Testing		X
R307-170	Continuous Emission Monitoring Program		X

Reference	Regulation Name	Applicability	
		Yes	No
R307-201	Emission Standards: General Emission Standards	X	
R307-202	Emission Standards: General Burning		X
R307-203	Emission Standards: Sulfur Content of Fuels	X	
R307-204	Emission Standards: Smoke Management		X
R307-205	Emission Standards: Fugitive Emissions and Fugitive Dust	X	
R307-206	Emission Standards: Abrasive Blasting		X
R307-207	Residential Fireplaces and Solid Fuel Burning Devices		X
R307-208	Outdoor Wood Boilers		X
R307-210	[2] Standards of Performance for New Stationary Sources	X	
R307-214	[2] National Emission Standards for Hazardous Air Pollutants	X	
R307-220	Emission Standards: Plan for Designated Facilities		X
R307-221	Emission Standards: Emission Controls for Existing Municipal Solid Waste Landfills		X
R307-222	Emission Standards: Existing Incinerator for Hospital, Medical, Infectious Waste		X
R307-223	Emission Standards: Existing Small Municipal Waste Combustion Units		X
R307-224	Mercury Emission Standards: Coal Fired Electric Generating Units		X
R307-230	NO_X Emission Limits for Natural Gas-Fired Water Heaters		X
R307-250	Western Backstop Sulfur Dioxide Trading Program		X
R307-301	Utah and Weber Counties: Oxygenated Gasoline Program as a Contingency Measure		X
R307-302	Solid Fuel Burning Devices		X
R307-303	Commercial Cooking		X
R307-304	Solvent Cleaning		X
R307-305	Nonattainment and Maintenance Areas for PM_{10}: Emission Standards	X	
R307-306	PM_{10} Nonattainment and Maintenance Areas: Abrasive Blasting		X
R307-307	[1] Road Salting and Sanding	X	

Reference	Regulation Name	Applicability	
		Yes	No
R307-309	Nonattainment and Maintenance Areas for PM_{10} and $PM_{2.5}$: Fugitive Emissions and Fugitive Dust	X	
R307-310	Salt Lake County: Trading of Emission Budgets for Transportation Conformity		X
R307-311	Utah County: Trading of Emission Budgets for Transportation Conformity		X
R307-312	Aggregate Processing Operations for $PM_{2.5}$ Nonattainment Areas	X	
R307-313	VOC and Blue Smoke Controls for Hot Mix Asphalt Plants		X
R307-320	Ozone Maintenance Areas and Ogden City: Employer Based Trip Reduction		X
R307-325	Ozone Nonattainment and Maintenance Areas: General Requirements		X
R307-326	Ozone Nonattainment and Maintenance Areas: Control of Hydrocarbon Emissions in Petroleum Refineries		X
R307-327	Ozone Nonattainment and Maintenance Areas: Petroleum Liquid Storage		X
R307-328	Gasoline Transfer and Storage		X
R307-335	Degreasing		X
R307-341	Ozone Nonattainment and Maintenance Areas: Cutback Asphalt		X
R307-342	Adhesives and Sealants		X
R307-343	Wood Furniture Manufacturing Operations		X
R307-344	Paper, Film, and Foil Coatings		X
R307-345	Fabric and Vinyl Coatings		X
R307-346	Metal Furniture Surface Coatings		X
R307-347	Large Appliance Surface Coatings		X
R307-348	Magnet Wire Coatings		X
R307-349	Flat Wood Panel Coating		X
R307-350	Misc. Metal Parts and Product Coating		X
R307-351	Graphic Arts		X
R307-352	Metal Container, Closure, and Coil Coatings		X
R307-353	Plastic Parts Coatings		X

Reference	Regulation Name	Applicability	
		Yes	No
R307-354	Automotive Refinishing Coatings		X
R307-355	Aerospace Manufacture and Rework Facilities		X
R307-356	Appliance Pilot Light		X
R307-357	Consumer Products		X
R307-361	Architectural Coatings		X
R307-401	Permit: New and Modified Sources	X	
R307-403	Permits: New and Modified Sources in Nonattainment and Maintenance Areas		X
R307-405	Permits: Major Sources in Attainment or Unclassified Areas (PSD)		X
R307-406	Visibility		X
R307-410	Permits: Emission Impact Analysis		X
R307-414	Permits: Fees for Approval Orders	X	
R307-415	Permits: Operating Permit Requirements		X
R307-417	Permits: Acid Rain Sources		X
R307-420	Permits: Ozone Offset Requirements in Salt Lake County and Davis County		X
R307-421	Permits: PM_{10} Offset Requirements in Salt Lake County and Utah County		X
R307-424	Permits: Mercury Requirements for Electric Generating Units		X
R307-501 to 505	Oil and Gas Industry		X
R307-801	Utah Asbestos Rule		X
R307-840	Lead-Based Paint Program Purpose, Applicability, and Definitions		X
R307-841	Residential Property and Child-Occupied Facility Renovation		X
R307-842	Lead-Based Paint Activities		X

1. The subject rule is or could be applicable to the Quarry; however, this rule is not specific to operational compliance requirements, and is therefore not discussed in the enclosed NOI.

2. Applicable NSPS and NESHAP regulations are detailed under appropriate project headings

UAC R307-101 General Requirements

The Quarry will comply and conform to the definitions, terms, abbreviations, and references used in the UAC R307-101 and 40 CFR.

UAC R307-107 General Requirements: Breakdowns

The Quarry will report breakdowns within 24 hours via telephone, electronic mail, fax, or other similar method and provide detailed written description within 14 days of the onset of the incident to UDAQ.

UAC R307-150 Emission Inventories

Every third year, the Quarry will report its emissions inventory in accordance with R307-150-6. The emissions inventory shall include all criteria pollutants, including filterable and condensable PM, hazardous air pollutants not exempted in R307-150-8 and chargeable pollutants in accordance with R307-150-6.

UAC R307-201 Emission Standards: General Emission Standards

All rules applicable to the Quarry are incorporated by reference from 40 CFR Part 60. Applicability and requirements for these rules are outlined in Section 8.2 of this submittal.

UAC R307-203 Emission Standards: Sulfur Content of Fuels

Sulfur emissions shall be no more than 0.85 pounds sulfur per million gross BTU heat input for any oil. The following specifications for each purchase of fuel oil are recorded: weight percent sulfur, gross heating value (Btu per unit volume), and density. These parameters shall be determined in accordance with the methods of the American Society for Testing and Materials (ASTM). Records of fuel sulfur content shall be kept for all periods when the plant is in operation and shall be made available to the Director upon request and shall include a period of two years ending with the date of the request.

The Quarry will record the following specifications for each purchase of fuel oil in the event that it will be used: weight percent sulfur, gross heating value (Btu per unit volume), and density. In doing so, Granite will meet the emission standards for sulfur content of fuel as described in R307-203)(1)(a).

UAC R307-205 Emission Standards: Fugitive Emissions and Fugitive Dust

UAC R307-205-4 Emission Standards – Fugitive Emissions

The Quarry is located in Salt Lake County, which is a nonattainment area for $PM_{2.5}$. Fugitive emissions from sources shall not exceed 20% opacity.

UAC R307-205-5 Emission Standards - Fugitive Dust

Owning, operating, or maintaining a new or existing material storage, handling, or hauling operation shall take measures to minimize fugitive dust from such activities. Such control may include enclosures, covers, stabilization or other equivalent methods or techniques as approved by the director.

The Quarry will comply with minimization techniques as described in R307-205-5. Steps will be taken to minimize fugitive dusts.

UAC R307-205-7 Emission Standards – Roads

The Quarry will supply traffic count information as determined necessary and clean any deposited materials that may create fugitive dust.

UAC R307-205-7 Emission Standards – Mining Activities

Minimizing fugitive dust shall be an integral part of site preparation mining activities and reclamation operations. Fugitive dust control measures include: periodic watering of unpaved roads and application of chemical suppressant to unpaved roads, and prompt removal of coal, rock minerals, soil, and other dust-forming debris from roads. Additional controls include: frequent scraping and compaction of unpaved roads to stabilize the road surface, restricting the speed of vehicles in and around the mining operation and restricting the travel of vehicles on other than established roads. Enclosing, covering, watering, or otherwise treating loaded haul trucks to minimize loss of material to wind and spillage is a viable means to control fugitive dust from haul trucks. Substitution of conveyor systems for haul trucks and the covering of conveyor systems are subject to wind erosion. Additionally, minimizing the disturbed grounds and engaging in activities such as revegetation, mulching, or otherwise stabilizing the surface of all areas adjoining roads that are source of fugitive dust.

The Quarry will comply with minimization techniques described in R307-205-7 and engage in various techniques aimed to reduce fugitive dust from mining activities. Techniques include, but are not limited to, the following: water controls, maintaining both paved and unpaved roads, restricting the speed of vehicles in and around mining operations, and control of dust from storage piles.

UAC R307-305 Nonattainment and Maintenance Areas for PM_{10}: Emission Standards:

Emissions from diesel engines, except locomotives, shall be of a shade or density no darker than 20% opacity, except for starting motion no farther than 100 yards or for stationary operation not exceeding three minutes in any hour. Visible emissions shall be measured using EPA Method 9.

Visible emissions exceeding the opacity standards for short time periods as the result of initial warm-up, soot blowing, cleaning of grates, building of boiler fires, cooling, etc., caused by start-up or shutdown of a facility, installation or operation, or unavoidable combustion irregularities which do not exceed three minutes in length are not to be deemed in violation provided that the director finds that adequate control technology has been applied. The owner or operator shall minimize visible and non-visible emissions during start-up or shutdown of a facility, installation, or operation through the use of adequate control technology and proper procedures.

The Quarry is located in Salt Lake County, which is currently in maintenance for PM_{10}. Granite will comply with the requirements described in UAC R307-305 and limitations as addressed in the SIP.

UAC R307-309 Nonattainment and Maintenance Areas for PM_{10} and $PM_{2.5}$: Fugitive Emissions and Fugitive Dust

Fugitive emissions from any individual source shall not exceed 15% opacity for more than three (3) minutes in any one-hour period.

Fugitive dust shall not exceed the following opacity limits:

(a) 10% at the property boundary for more than three (3) minutes in any one-hour period; and
(b) 20% on site for more than three (3) minutes in any one-hour period.

Any person responsible for construction or maintenance of any existing road or having right-of-way easement or possessing the right to use the same whose activities result in fugitive dust from the road shall

minimize fugitive dust to the maximum extent possible. Any such person who deposits materials that may create fugitive dust on a public or private paved road shall clean the road promptly.

The Quarry will minimize fugitive dust created from the construction and maintenance of the existing paved road to the extent both practical and possible.

UAC R307-312 Aggregate Processing Operations for $PM_{2.5}$ Nonattainment Areas

R307-312-4 Visible Emissions

(1) Visible emissions from aggregate processing operations shall not exceed opacity limits as described in Appendix Table 8-2.

Table 8-2. Aggregate Processing Operations Visible Emissions

Category	Opacity Limit
Crushers	12%
Screens	7%
Conveyor Transfer Points	7%

The Quarry will comply with visible emissions for aggregate processing operations described in R307-312.

UAC R307-325 Ozone Nonattainment and Maintenance Areas: General Requirements

The Quarry is located in the Northern Wasatch Front Ozone Nonattainment area and emits VOCs from some operations. This rule is therefore applicable. Granite will ensure that VOC containing products are not spilled, discarded, stored in open containers, or handled in any other manner that would result in greater evaporation of VOCs than would have if reasonably available control technology (RACT) had been applied.

UAC R307-401-8 Approval Order

The director will issue an AO if all conditions and regulations have been met.

(a) The degree of pollution control for emissions, to include fugitive emissions and fugitive dust, is at least best available control technology. When determining best available control technology for a new or modified source in an ozone nonattainment or maintenance area that will emit VOC or NO_X, best available control technology shall be at least as stringent as any Control Technique Guidance document that has been published by EPA that is applicable to the source.

(b) The proposed installation will meet the applicable requirements of:

(i) R307-403, Permits: New and Modified Sources in Nonattainment Areas and Maintenance Areas;
(ii) R307-405, Permits: Major Sources in Attainment or Unclassified Areas (PSD);
(iii) R307-406, Visibility;
(iv) R307-410, Emissions Impact Analysis;
(v) R307-420, Permits: Ozone Offset Requirements in Davis and Salt Lake Counties;
(vi) R307-210, National Standards of Performance for New Stationary Sources;
(vii) National Primary and Secondary Ambient Air Quality Standards;

(viii) R307-214, National Emission Standards for Hazardous Air Pollutants;
(ix) R307-110, Utah State Implementation Plan; and
(x) All other provisions of R307.

(2) The AO requires that all pollution control equipment be adequately and properly maintained.

(3) Receipt of an AO does not relieve any owner or operator of the responsibility to comply with the provisions of R307 or the State Implementation Plan.

The Quarry will establish and maintain compliance through the following:

(1) Pollution control equipment will be properly maintained; and
(2) Relevant provisions of R307 or SIP will be followed.

BACT provisions specified in UAC R307-401 will be applied through installation of control equipment and compliance with monitoring conditions.

UAC R307-410 Permits: Emission Impact Analysis

Emission impacts associated with the Quarry are addressed in Section 9 of this submittal.

UAC R307-414 Permits: Fees for Approval Orders

Fees associated with the submission of this NOI are addressed in Section 2 of this submittal.

Federal Rules: New Source Performance Standards

NSPS requires new, modified, or reconstructed sources to control emissions to the level achievable by the best demonstrated technology as specified in the applicable provisions. Moreover, any source subject to NSPS is also subject to the general provisions of NSPS Subpart A, except as noted. The following section details the applicability of NSPS regulations to the facility operations.

NSPS Subpart A (General Provisions)

All affected sources subject to an NSPS are also subject to the general provisions of NSPS Subpart A unless specifically excluded by the source specific NSPS. NSPS Subpart A requires the following of facilities subject to a source specific NSPS:

- Initial construction/reconstruction notification
- Initial startup notification
- Performance tests
- Performance test date initial notification
- General monitoring requirements
- General recordkeeping requirements
- Semiannual monitoring system and/or excess emission reports

NSPS Subpart OOO (Standards of Performance for Nonmetallic Mineral Processing Plants)

NSPS Subpart OOO, provide standards of performance for affected facilities located at fixed or portable nonmetallic mineral processing plants that are constructed, modified, or reconstructed after August 31, 1983. The following are considered affected facilities under NSPS Subpart OOO:

- Crusher
- Screening Operation
- Belt Conveyors

The proposed project will involve the installation of nonmetallic mineral affected facilities under NSPS Subpart OOO (e.g., crushers, screens, belt conveyors, etc.). Per 40 CFR 60.672(b), the affected facilities must meet the emission limits and compliance requirements in Table 3 of the standard within 60 days after achieving maximum production rate but no later than 180 days after initial startup. Monitoring must be conducted in accordance with 40 CFR 60.674(b). Finally, testing, recordkeeping, and reporting must be met in accordance with 40 CFR 60.675 through 60.676. The Quarry will demonstrate compliance with the requirements upon completion of construction of the affected facilities.

Table 8-3. NSPS Subpart OOO Visible Emissions

Requirement	Opacity Limit	Regulatory Citation
I. Fugitive Emission Limits Crushers	Opacity must be less than 12% for crushers for which a capture system is not used.	60.672(b) Table 3
II. Additional Fugitive Emission Limits (Excluding Crushing)	Opacity must be less than 7% for screening operations, transfer points on belt conveyors, or from any other affected facility.	60.670 60.671 Table 3

NSPS Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

40 CFR 60, Subpart IIII establishes standards for owners and operators of stationary compression ignition, internal combustion engines which commenced construction after July 11, 2005, and were manufactured after April 1, 2006. However, the engines are mounted on tracks and self-propelled. Accordingly, the engines are mobile sources and would be unaffected by the requirements of Subpart IIII.

Federal Rules: National Emission Standards for Hazardous Air Pollutants

The NESHAP federal regulations found in Title 40 Part 61 and 63 of the CFR are emission standards for HAPs. NESHAP are applicable to both major sources of HAPs (facilities that exceed the major source thresholds of 10 tpy of a single HAP and 25 tpy of any combination of HAPs from stationary sources) as well as non-major sources (termed "minor sources"). NESHAP apply to sources in specifically regulated industrial source classifications (Clean Air Act Section 112(d)) or on a case-by-case basis (Clean Air Act Section 112(g)) for facilities not regulated as a specific industrial source type.

The Facility is a minor source under the NSR program. As such, this document only addresses regulatory applicability for area sources and does not include standards for major sources.

NESHAP Subpart A (General Provisions)

All affected sources are subject to the general provisions of Part 63 NESHAP Subpart A unless specifically excluded by the source-specific NESHAP. These provisions include initial notification and performance testing, recordkeeping, and monitoring requirements for all other subparts as applicable.

NESHAP SUBPART ZZZZ (NESHAP for Stationary Reciprocating Internal Combustion Engines)

NESHAP Subpart ZZZZ, *National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*, applies to stationary RICE at major and area sources of HAPs. Per 40 CFR 63.6590(a)(2)(iii), a stationary RICE at an area source of HAPs is new if construction commenced after June 12, 2006. Thus, the proposed engine is considered a new stationary RICE under NESHAP Subpart ZZZZ. Per 40 CFR 63.6590(c) and 40 CFR 63.6590(c)(1), new stationary RICE located at an area source of HAPs may show compliance with NESHAP ZZZZ by being in compliance with NSPS IIII.[32] Granite Construction is not a major source of HAP, as total HAP emissions amount to less than ten (10) tons per year for an individual HAP, and less than twenty-five (25) tons per year of total HAP.

However, the engines are mounted on tracks and self-propelled. Accordingly, the engines are mobile sources and would be unaffected by the requirements of NESHAP ZZZZ.

[32] NESHAP Subpart 40 CFR 63.6675

Appendix A. FORMS

Form 1
Notice of Intent (NOI) Application Checklist

Date July 28, 2025

Company Granite Construction

Utah Division of Air Quality
New Source Review Section

Source Identification Information [R307-401-5]

1. Company name, mailing address, physical address and telephone number ☑
2. Company contact (Name, mailing address, and telephone number) ☑
3. Name and contact of person submitting NOI application (if different than 2) ☑
4. Source Universal Transverse Mercator (UTM) coordinates ☑
5. Source Standard Industrial Classification (SIC) code ☑
6. Area designation (attainment, maintenance, or nonattainment) ☑
7. Federal/State requirement applicability (NAAQS, NSPS, MACT, SIP, etc.) ☑
8. Source size determination (Major, Minor, PSD) ☑
9. Current Approval Order(s) and/or Title V Permit numbers ☑

NOI Application Information: [R307-401]

1. Detailed description of the project and source process ☑
2. Discussion of fuels, raw materials, and products consumed/produced ☑
3. Description of equipment used in the process and operating schedule ☑
4. Description of changes to the process, production rates, etc. ☑
5. Site plan of source with building dimensions, stack parameters, etc. ☑

6. Best Available Control Technology (BACT) Analysis [R307-401-8]
   A. BACT analysis for all new and modified equipment ☑

7. Emissions Related Information: [R307-401-2(b)]
   A. Emission calculations for each new/modified unit and site-wide (Include PM_{10}, $PM_{2.5}$, NO_x, SO_2, CO, VOCs, HAPs, and GHGs) ☑
   B. References/assumptions, SDS, for each calculation and pollutant ☑
   C. All speciated HAP emissions (list in lbs/hr) ☑

8. Emissions Impact Analysis – Approved Modeling Protocol [R307-410]
   A. Composition and physical characteristics of effluent (emission rates, temperature, volume, pollutant types and concentrations) ☑

9. Nonattainment/Maintenance Areas – Major NSR/Minor (offsetting only) [R307-403]
   A. NAAQS demonstration, Lowest Achievable Emission Rate, Offset requirements ☐ N/A ☑
   B. Alternative site analysis, Major source ownership compliance certification ☐ N/A ☑

10. Major Sources in Attainment or Unclassified Areas (PSD) [R307-405, R307-406]
    A. Air quality analysis (air model, met data, background data, source impact analysis) ☐ N/A ☑
    B. Visibility impact analysis, Class I area impact ☐ N/A ☑
11. Signature on Application ☑

Note: The Division of Air Quality will not accept documents containing confidential information or data. Documents containing confidential information will be returned to the Source submitting the application.

Form 2
Company Information/Notice of Intent (NOI)

Date July 28, 2025

Company Granite Construction

Utah Division of Air Quality
New Source Review Section

Application for: ☑ **Initial Approval Order** ☐ **Approval Order Modification**

General Owner and Source Information

1.Company name and mailing address:
Granite Construction Inc.
1000 N Warm Springs Road
Salt Lake City, UT 84116
Phone No.:
Fax No.:

2. Company** contact for environmental matters:
Quinten Bingham
Phone no.: (435) 770-4319
Email: quin.bingham@gcinc.com
** *Company contact only; consultant or independent contractor contact information can be provided in a cover letter*

3. Source name and physical address (if different from above):

Phone no.:
Fax no.:

4. Source Property Universal Transverse Mercator coordinates (UTM), including System and Datum:
UTM: Zone 12. WGS84
X: 437,048 m Easting
Y: 4,509,436 m Northing

5. The Source is located in: Salt Lake City County

6. Standard Industrial Classification Code (SIC)
1 4 2 2

7. If request for modification, AO# to be modified: DAQE #_____ DATED: ____/____/____

8. Brief (50 words or less) description of process.
Install and operate aggregates processing equipment, three (3) diesel-fueled internal combustion engines, and associated area sources at the I-80 South Quarry (SMO S/035/0055)

Electronic NOI
9. A complete and accurate electronic NOI submitted to DAQ Permitting Mangers Jon Black (*jlblack@utah.gov*) or Alan Humpherys (ahumpherys@utah.gov) can expedite review process. Please mark application type.

Hard Copy Submittal ☐ Electronic Copy Submittal ☑ Both ☐

Authorization/Singnature

I hereby certify that the information and data submitted in and with this application is completely true, accurate and complete, based on reasonable inquiry made by me and to the best of my knowledge and belief.

Signature: _____ Title: Environmental Manager

Quinten G. Bingham
Name (Type or print)

Telephone Number:
(801) 526-6050
Email:
quin.bingham@gcinc.com

Date: 07/28/2025

Form 3

Process Information

Utah Division of Air Quality
New Source Review Section

Company Granite Construction

Site I-80 South Quarry

Process Information - For New Permit ONLY	
1. Name of process: Hard rock mining	2. End product of this process: construction sand and gravel
3. Process Description*: Drilling and blasting operations within the mining area will produce rock in a manageable size for transport to the aggregates processing plant feed hopper directly by the machine performing excavation. Bulldozers may be used to strip overburden before blasting and then rip blasted rock to facilitate digging after blasting. Materials produced by the aggregates processing plant will be stockpiled and loaded onto trucks for distribution.	

Operating Data	
4. Maximum operating schedule: 24 hrs/day 7 days/week 52 weeks/year	5. Percent annual production by quarter: Winter _____ Spring _____ Summer _____ Fall _____
6. Maximum Hourly production (indicate units.): N/A	7. Maximum annual production (indicate units): N/A
8. Type of operation: Continuous ☑ Batch ☐ Intermittent ☐	9. If batch, indicate minutes per cycle N/A Minutes between cycles _____

10. Materials and quantities used in process.*

Material	Maximum Annual Quantity (indicate units)
See Attached for Emission Information	

11.Process-Emitting Units with pollution control equipment*

Emitting Unit(s)	Capacity(s)	Manufacture Date(s)
See Attached for Emission Information		

**If additional space is required, please create a spreadsheet or Word processing document and attach to form.*

Form 5
Emissions Information
Criteria/GHGs/ HAP's
Utah Division of Air Quality
New Source Review Section

Company Granite Construction
Site I-80 South Quarry

Potential to Emit* Criteria Pollutants & GHGs			
Criteria Pollutants	**Permitted Emissions (tons/yr)**	**Emissions Increases (tons/yr)**	**Proposed Emissions (tons/yr)**
PM_{10} Total			
PM_{10} Fugitive			
$PM_{2.5}$			
NO_x			
SO_2			
CO			
VOC			
VOC Fugitive			
NH_3			
Greenhouse Gases	**CO_2e**	**CO_2e**	**CO_2e**
CO_2			
CH_4			
N_2O			
HFCs			
PFCs			
SF_6			
Total CO2e			

See Attached for Emission Information

See Attached for Emission Information

**Potential to emit to include pollution control equipment as defined by R307-401-2.*

Hazardous Air Pollutants** *(**Defined in Section 112(b) of the Clean Air Act)*				
Hazardous Air Pollutant***	**Permitted Emissions (tons/yr)**	**Emission Increase (tons/yr)**	**Proposed Emission (tons/yr)**	**Emission Increase (lbs/hr)**
Total HAP				

See Attached for Emission Information

**** Use additional sheets for pollutants if needed*

INTERNAL COMBUSTION ENGINE
FORM 11 (continued)
EMISSION SOURCES

Review of applications and issuance of permits will be expedited by supplying all necessary information requested on this form.

AIR CONTAMINANT DATA						EMISSION POINT DISCHARGE PARAMETERS							
EMISSION POINT (1)		CHEMICAL COMPOSITION OF TOTAL STREAM		AIR CONTAMINANT EMISSION RATE		UTM COORDINATES OF EMISSION PT. (6)			STACK SOURCES (7)				
									HEIGHT ABOVE GROUND (FT)	HEIGHT ABOVE STRUCT. (FT)	EXIT DATA		
NUMBER	NAME	COMPONENT OR AIR CONTAMINANT NAME (2)	CONC. (%V) (3)	LB/HR (4)	TONS/YR (5)	ZONE	EAST (METERS)	NORTH (METERS)			DIA. (FT)	VELO. (FPS)	TEMP. (^{O}F)
1	JAW	Tier 4f Standards				12T	437044	4509470	10		0.4	298	871
2	SCRN	Tier 4f Standards				12T	437044	4509470	10		0.4	298	871
3	CONE	Tier 4f Standards				12T	437044	4509470	10		0.4	298	871

GROUND ELEVATION OF FACILITY ABOVE MEAN SEA LEVEL 5,500 feet.
UTAH AIR CONSERVATION BOARD STANDARD CONDITIONS ARE 68^{O} F AND 14.7 PSIA.

General Instructions for this form.

1. Identify each emission; point with a unique number for this plant site on plot plan, previous permits and emission inventory questionnaire. Limit emission point number to 8 character spaces. For each emission point use as many lines as necessary to list air contaminant data. Typical emission point names are: heater, vent, boiler, tank, reactor, separator, baghouse, fugitive, etc. Abbreviations are OK.
2. Typical component names are: air, H_2O, nitrogen, oxygen, CO_2, CO, NO_x, SO_x, hexane, particulate matter (PM_{10} and $PM_{2.5}$), etc. Abbreviations are OK.
3. Concentration data is required for all gaseous components. Show concentration in volume percent of total gas stream.
4. Pounds per hour. (#/hr) is maximum emission rate expected by applicant.
5. Tons per year (T/Y) is annual maximum emission rate expected by applicant, which takes into account process operating schedule.
6. As a minimum applicant must furnish a facility plot plan drawn to scale showing a plant benchmark, latitude and longitude correct to the nearest second for the benchmark, and all emission points dimensioned with respect to the benchmark. Please show emission point UTM coordinates if known.
7. Supply additional information as follows if appropriate:
   (a) Stack exit configuration other than a round vertical stack. Show length and width for a rectangular stack. Indicate if horizontal discharge with a note.
   (b) Stack's height above supporting or adjacent structures if structure is within three "stack heights above ground" of stack.

Utah Division of Air Quality
New Source Review Section

Form 11
Internal Combustion Engines

Company: Granite Construction
Site/Source: I80 South Quarry
Date: 07/28/25

Equipment Information

1. Manufacturer: TBD
   Model no.: TBD
   The date the engine was constructed or reconstructed: TBD

2. Operating time of Emission Source:

	average	maximum
Hours/day		16
Days/week		6
Weeks/year		235

3. Manufacturer's rated output at baseload, ISO: 440 hp or ____ Kw
   Proposed site operating range: TBD hp or ____ Kw

Gas Firing

4. Are you operating site equipment on pipeline quality natural gas: ☐ Yes ☐ No

5. Are you on an interruptible gas supply:
   ☐ Yes ☐ No
   If "yes", specify alternate fuel: _____

6. Annual consumption of fuel: _____ MMSCF/Year

7. Maximum firing rate: _____ BTU/hr

8. Average firing rate: _____ BTU/hr

Oil Firing

9. Type of oil:
   Grade number ☐ 1 ☑ 2 ☐ 4 ☐ 5 ☐ 6 Other specify _____

10. Annual consumption: 17,000 ____ gallons

11. Heat content: TBD BTU/lb or _____ BTU/gal

12. Sulfur content: 0.0015 % by weight

13. Ash content: TBD % by weight

14. Average firing rate: 17 gal/hr

15. Maximum firing rate: 23 gal/hr

16. Direction of firing: ☐ horizontal ☐ tangential ☐ other: (specify)

Internal Combustion Engine
Form 11 (Continued)

Operation

17. Application:
- ☑ Electric generation
  _____ Base load _____ Peaking
- ☐ Emergency Generator
- ☐ Driving pump/compressor
- ☐ Exhaust heat recovery
- ☐ Other (specify) _____

18. Cycle
- ☐ Simple cycle
- ☐ Regenerative cycle
- ☐ Cogeneration
- ☐ Combined cycle

Emissions Data

19. Manufacturer's Emissions in grams per hour (gr/hp-hr): EPA Tier 4f Standards

20. Attach manufacturer's information showing emissions of NO_x, CO, VOC, SO_x, CH_2O, PM_{10}, $PM_{2.5}$, CO_2, CH_4 and N_2O for each proposed fuel at engine loads and site ambient temperatures representative of the range of proposed operation. The information must be sufficient to determine maximum hourly and annual emission rates. Annual emissions may be based on a conservatively low approximation of site annual average temperature. Provide emissions in pounds per hour and except for PM_{10} and $PM_{2.5}$ parts per million by volume (ppmv) at actual conditions and corrected to dry, 15% oxygen conditions.

Method of Emission Control:

☐ Lean premix combustors ☐ Oxidation catalyst ☐ Water injection ☐ Other (specify)_____

☐ Other low-NO_x combustor ☐ SCR catalyst ☐ Steam injection

Additional Information

21. On separate sheets provide the following:

A. Details regarding principle of operation of emission controls. If add-on equipment is used, provide make and model and manufacturer's information. Example details include: controller input variables and operational algorithms for water or ammonia injection systems, combustion mode versus engine load for variable mode combustors, etc.

B. Exhaust parameter information on attached form.

C. All calculations used for the annual emission estimates must be submitted with this form to be deemed complete.

D. All formaldehyde emissions must be modeled as per Utah Administrative Code R307-410-5 using SCREEN3.

E. If this form is filled out for a new source, forms 1 and 2 must be submitted also.

Utah Division of Air Quality
New Source Review Section

Form 11
Internal Combustion Engines

Company: Granite Construction
Site/Source: I80 South Quarry
Date: 07/28/25

Equipment Information

1. Manufacturer: TBD
   Model no.: TBD
   The date the engine was constructed or reconstructed: TBD

2. Operating time of Emission Source:

	average	maximum
Hours/day		16
Days/week		6
Weeks/year		235

3. Manufacturer's rated output at baseload, ISO: 260 hp or ____ Kw
   Proposed site operating range: TBD hp or ____ Kw

Gas Firing

4. Are you operating site equipment on pipeline quality natural gas: ☐ Yes ☐ No

5. Are you on an interruptible gas supply:
   ☐ Yes ☐ No
   If "yes", specify alternate fuel: _____

6. Annual consumption of fuel: _____ MMSCF/Year

7. Maximum firing rate: _____ BTU/hr

8. Average firing rate: _____ BTU/hr

Oil Firing

9. Type of oil:
   Grade number ☐ 1 ☑ 2 ☐ 4 ☐ 5 ☐ 6 Other specify _____

10. Annual consumption: 10,000 _____ gallons

11. Heat content: TBD _____ BTU/lb or _____ BTU/gal

12. Sulfur content: 0.0015 % by weight

13. Ash content: TBD % by weight

14. Average firing rate: 10 gal/hr

15. Maximum firing rate: 14 gal/hr

16. Direction of firing: ☐ horizontal ☐ tangential ☐ other: (specify)

Internal Combustion Engine
Form 11 (Continued)

Operation

17. Application:
- ☑ Electric generation
  _____ Base load _____ Peaking
- ☐ Emergency Generator
- ☐ Driving pump/compressor
- ☐ Exhaust heat recovery
- ☐ Other (specify) _____

18. Cycle
- ☐ Simple cycle
- ☐ Regenerative cycle
- ☐ Cogeneration
- ☐ Combined cycle

Emissions Data

19. Manufacturer's Emissions in grams per hour (gr/hp-hr): EPA Tier 4f Standards

20. Attach manufacturer's information showing emissions of NO_x, CO, VOC, SO_x, CH_2O, PM_{10}, $PM_{2.5}$, CO_2, CH_4 and N_2O for each proposed fuel at engine loads and site ambient temperatures representative of the range of proposed operation. The information must be sufficient to determine maximum hourly and annual emission rates. Annual emissions may be based on a conservatively low approximation of site annual average temperature. Provide emissions in pounds per hour and except for PM_{10} and $PM_{2.5}$ parts per million by volume (ppmv) at actual conditions and corrected to dry, 15% oxygen conditions.

Method of Emission Control:

☐ Lean premix combustors ☐ Oxidation catalyst ☐ Water injection ☐ Other (specify)_____

☐ Other low-NO_x combustor ☐ SCR catalyst ☐ Steam injection

Additional Information

21. On separate sheets provide the following:

A. Details regarding principle of operation of emission controls. If add-on equipment is used, provide make and model and manufacturer's information. Example details include: controller input variables and operational algorithms for water or ammonia injection systems, combustion mode versus engine load for variable mode combustors, etc.

B. Exhaust parameter information on attached form.

C. All calculations used for the annual emission estimates must be submitted with this form to be deemed complete.

D. All formaldehyde emissions must be modeled as per Utah Administrative Code R307-410-5 using SCREEN3.

E. If this form is filled out for a new source, forms 1 and 2 must be submitted also.

Utah Division of Air Quality
New Source Review Section

Form 11
Internal Combustion Engines

Company: Granite Construction
Site/Source: I80 South Quarry
Date: 07/28/25

Equipment Information

1. Manufacturer: TBD
   Model no.: TBD
   The date the engine was constructed or reconstructed: TBD

2. Operating time of Emission Source:

	average	maximum
Hours/day		16
Days/week		6
Weeks/year		235

3. Manufacturer's rated output at baseload, ISO: 175 hp or ____ Kw
   Proposed site operating range: TBD hp or ____ Kw

Gas Firing

4. Are you operating site equipment on pipeline quality natural gas: ☐ Yes ☐ No

5. Are you on an interruptible gas supply:
   ☐ Yes ☐ No
   If "yes", specify alternate fuel: _____

6. Annual consumption of fuel: _____ MMSCF/Year

7. Maximum firing rate: _____ BTU/hr

8. Average firing rate: _____ BTU/hr

Oil Firing

9. Type of oil:
   Grade number ☐ 1 ☑ 2 ☐ 4 ☐ 5 ☐ 6 Other specify _____

10. Annual consumption: 7,000 _____ gallons

11. Heat content: TBD _____ BTU/lb or _____ BTU/gal

12. Sulfur content: 0.0015 % by weight

13. Ash content: TBD % by weight

14. Average firing rate: 7 gal/hr

15. Maximum firing rate: 9 gal/hr

16. Direction of firing: ☐ horizontal ☐ tangential ☐ other: (specify)

Internal Combustion Engine
Form 11 (Continued)

Operation

17. Application:
- ☑ Electric generation
  _____ Base load _____ Peaking
- ☐ Emergency Generator
- ☐ Driving pump/compressor
- ☐ Exhaust heat recovery
- ☐ Other (specify) _____

18. Cycle
- ☐ Simple cycle
- ☐ Regenerative cycle
- ☐ Cogeneration
- ☐ Combined cycle

Emissions Data

19. Manufacturer's Emissions in grams per hour (gr/hp-hr): EPA Tier 4f Standards

20. Attach manufacturer's information showing emissions of NO_x, CO, VOC, SO_x, CH_2O, PM_{10}, $PM_{2.5}$, CO_2, CH_4 and N_2O for each proposed fuel at engine loads and site ambient temperatures representative of the range of proposed operation. The information must be sufficient to determine maximum hourly and annual emission rates. Annual emissions may be based on a conservatively low approximation of site annual average temperature. Provide emissions in pounds per hour and except for PM_{10} and $PM_{2.5}$ parts per million by volume (ppmv) at actual conditions and corrected to dry, 15% oxygen conditions.

Method of Emission Control:

☐ Lean premix combustors ☐ Oxidation catalyst ☐ Water injection ☐ Other (specify)_____

☐ Other low-NO_x combustor ☐ SCR catalyst ☐ Steam injection

Additional Information

21. On separate sheets provide the following:

A. Details regarding principle of operation of emission controls. If add-on equipment is used, provide make and model and manufacturer's information. Example details include: controller input variables and operational algorithms for water or ammonia injection systems, combustion mode versus engine load for variable mode combustors, etc.

B. Exhaust parameter information on attached form.

C. All calculations used for the annual emission estimates must be submitted with this form to be deemed complete.

D. All formaldehyde emissions must be modeled as per Utah Administrative Code R307-410-5 using SCREEN3.

E. If this form is filled out for a new source, forms 1 and 2 must be submitted also.

Utah Division of Air Quality
New Source Review Section

Date July 28, 2025
Company Granite Construction
Site I-80 South Quarry

Form 15
Aggregate Processing Operations

Equipment Information

1. Check the appropriate crushing operations used in your process:

Type of Unit Mobile Processing Unit
Manufacturer/Model _____
Design Capacity _____ tons/hr
Date Manufactured TBD
_ Primary Crushing type _ Cone X Jaw _ Ball
_ Secondary Crushing type X Cone _ Jaw _ Ball
_ Tertiary Crushing type NA _ Cone _ Jaw _ Ball
Screen Manufacturer _____
Model and Date Manufactured _____
Screen type and size (triple, double, or single deck)
Double Deck

2. Dust sources will be controlled as follows:

	No Control	Pre Soaked	Water Spray	Bag house	Other (explain)
_ Feed hopper	_	_	X	_	_
_ All belt transfer points	_	_	X	_	_
_ Inlet to all crushers	_	X	_	_	_
_ Exit of all crushers	_	_	_	_	_
_ All shaker screens	_	X	_	_	_

3. Water Sprays

Total Water Rate to nozzles (gal/min):	Nozzle pressure (psi):	Quantity of nozzles at each spray bar location:
_____	_____	_____

4. Maximum Plant Production Rate and Operating Hours:

150,000 _____ tons/yr _____ tons/hr
_____ hrs/yr _____ hrs/day

5. Water sprays used on storage piles?
X Yes _ No

Storage pile size: _____

6a. Number of conveyor belt transfer and drop points:

6b. List manufactured dates for all conveyor belts

NOTE:
1. **Submit this form in conjunction with Form 1 and Form 2.**
2. To relocate an Aggregate Plant submit Form 15b.
3. Call the Division of Air Quality (DAQ) at **(801) 536-4000** if you have problems or questions in filling out this form. Ask to speak with a New Source Review engineer. We will be glad to help!
4. Equipment listed on this form may be subject to New Source Performance Standards. If so, additional information may be requested for the engineering review.

Instructions

1. Indicate the type, manufacturer/model, design capacity and manufactured date of the equipment. Mark the appropriate box for the kind of crushing at the facility and indicate the type (cone, ball, jaw) of crushing being done.
2. Mark the appropriate box for the control device for the emission points.
3. List the specifications of the water sprays. Check vendor literature or call sales agent.
4 Indicate the maximum amount of product that will be processed by the facility in tons per hour, the number of hours the facility will be run per day and number of days/year.
5. Are water sprinklers used on storage piles? Indicate the size of the storage piles.
6. Provide the number of belt drop points and list manufactured dates for all your conveyor belts.

Appendix B. EMISSION CALCULATIONS

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
AIR QUALITY

Bulldozing

Bulldozer Hours of Operation		
Hours operated per year	1,000	hours/year

Variables for Bulldozing Overburden		
Material Silt Content	4.8	%
Material Moisture Content	4.0	%

Pollutant	Emission Factor (lb/hr)	Emission Rate (lbs/hr)	Emission Total (tons/year)	Reference
PM_{10}	1.13250	1.13	0.57	AP-42 11.9 Table 11.9-1
$PM_{2.5}$	0.64845	0.65	0.32	

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
AIR QUALITY

Aggregate Processing Equipment

Production Rates		
Hourly Rates	400	tons/hour
Annual Production	150,000	tons/year

Emission Unit	Number of Emission Units	PM_{10} Emission Factor (lb/ton)	$PM_{2.5}$ Emission Factor (lb/ton)	Reference
Crushers	2	0.00054	0.00010	AP-42 Table 11.19.2-2
Screens	1	0.00074	0.00005	
Conveyor Transfer Points	4	4.6E-05	1.3E-05	

Pollutant	Emission Rate (lbs/hr)	Emission Total (tons/year)
PM_{10}	0.80	0.15
$PM_{2.5}$	0.12	0.02

Emission Unit	PM_{10} Emission Rate (lbs/hr)	PM_{10} Emission Total (tons/year)	$PM_{2.5}$ Emission Rate (lbs/hr)	$PM_{2.5}$ Emission Total (tons/year)
Crushers	0.43	0.08	0.08	0.02
Screens	0.30	0.06	0.02	0.00
Conveyors	0.07	0.01	0.02	0.00

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
AIR QUALITY

Loader Routes

Production Rates		
Hourly Rates	400	tons/hour
Annual Production	150,000	tons/year

Loader Information		
Empty Loader Weight	33	tons
Weight of Load	18	tons
Loaded Loader Weight	51	tons

Loader Route\ Information		
Loader Route One-Way Length	700	feet
Hourly Vehicle Miles Traveled	5.9	miles
Annual Vehicle Miles Traveled	2,210	miles
Type of Control	Basic Watering - (70% control)	

Pollutant	Uncontrolled Emission Factor (lb/VMT)	Controlled Emission Factor (lb/VMT)	Emission Rate (lbs/hr)	Emission Total (tons/year)	Reference
PM_{10}	2.16	0.65	3.81	0.71	AP-42 13.2.2 & DAQ
$PM_{2.5}$	0.216	0.065	0.38	0.07	Haul Road Guidance

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
AIR QUALITY

Storage Piles

Storage Pile Area		
Total Area of Storage Piles	2	acres

Control Efficiency		Reference
PM_{10} Control Efficiency	66%	AP-42 Appendix B.2 Tables B.2-2 & B.2-3
$PM_{2.5}$ Control Efficiency	40%	

Pollutant	Uncontrolled Emission Factor (lb/acre-day)	Controlled Emission Factor (lb/acre-day)	Emission Rate (lbs/hr)	Emission Total (tons/year)	Reference
PM_{10}	6.30	2.14	0.13	0.59	AP-42 Fourth Edition Table 8.19.1-1
$PM_{2.5}$	1.85	1.11	0.07	0.30	AP-42 Appendix B.2 Table B.2-2

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
AIR QUALITY

Material Handling

Production Rates		
Hourly Rates	400	tons/hour
Annual Production	150,000	tons/year

Variables		
Number of Transfer Points	3	
Mean Wind Speed	9	mph
Moisture Content	4	%

Pollutant	Emission Factor (lb/ton)	Emission Rate (lbs/hr)	Emission Total (tons/year)	Reference
PM_{10}	0.00091	1.09	0.21	AP-42 13.2.4.3 Equation #1
$PM_{2.5}$	0.00014	0.17	0.03	

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
AIR QUALITY

Haul Roads

Production Rates		
Hourly Rates	400	tons/hour
Annual Production	150,000	tons/year

Truck Information		
Empty Truck Weight	20	tons
Weight of Load	40	tons
Loaded Truck Weight	60	tons

Haul Road Information		
Haul Road One-Way Length	1,742	feet
Hourly Vehicle Miles Traveled	6.6	miles
Annual Vehicle Miles Traveled	2,475	miles
Type of Control	Paving with Vacuum Sweeping & Watering - (95% control)	

Pollutant	Uncontrolled Emission Factor (lb/VMT)	Controlled Emission Factor (lb/VMT)	Emission Rate (lbs/hr)	Emission Total (tons/year)	Reference
PM_{10}	2.11	0.11	0.70	0.13	AP-42 13.2.2 & DAQ
$PM_{2.5}$	0.211	0.011	0.07	0.01	Haul Road Guidance

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
AIR QUALITY

Haul Roads

Production Rates		
Hourly Rates	400	tons/hour
Annual Production	150,000	tons/year

Truck Information		
Empty Truck Weight	20	tons
Weight of Load	40	tons
Loaded Truck Weight	60	tons

Haul Road Information		
Haul Road One-Way Length	1,162	feet
Hourly Vehicle Miles Traveled	4.4	miles
Annual Vehicle Miles Traveled	1,650	miles
Type of Control	Road Base with Watering - (75% control)	

Pollutant	Uncontrolled Emission Factor (lb/VMT)	Controlled Emission Factor (lb/VMT)	Emission Rate (lbs/hr)	Emission Total (tons/year)	Reference
PM_{10}	2.11	0.53	2.32	0.44	AP-42 13.2.2 & DAQ
$PM_{2.5}$	0.211	0.053	0.23	0.04	Haul Road Guidance

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
AIR QUALITY

Disturbed Ground

Wind Erosion of Exposed Area		
Total Area of Disturbed Ground	6	acres

Emission Factors & Distribution		Reference
TSP Emission Factor	0.38	AP-42 Table 11.9-4
PM_{10} Content	50%	AP-42 Section 13.2.5.3
$PM_{2.5}$ Content	7.5%	

Pollutant	Emission Factor (tons/acre-year)	Emission Rate (lbs/hr)	Emission Total (tons/year)
PM_{10}	0.19	0.26	1.14
$PM_{2.5}$	0.03	0.04	0.17

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
AIR QUALITY

Drilling and Blasting

Variables		
Average Area per Blast	7,890	ft^2
Average Hole Spacing	10	ft
Blasts per Year	5	
ANFO used per blast	16.4	tons
Drill Shroud Control Efficiency	60%	

Assumes a maximum of one blast per day.

Pollutant	Emission Rate (lbs/hr)	Emission Total (tons/year)
NO_X	11.65	0.70
CO	45.90	2.75
PM_{10}	1.08	0.07
$PM_{2.5}$	0.27	0.02
SO_2	1.37	0.08

Emission Source	TSP Emission Factor	PM_{10} Emission Factor	$PM_{2.5}$ Emission Factor	Reference
Drilling (lb/hole)	1.3	0.663	0.195	AP-42 Table 11.9-1, Table 11.9-4 & Appendix B.2 Table B.2-2
Blasting (lb/blast)	9.812	5.102	0.294	

Emission Source	CO Emission Factor	NO_X Emission Factor	SO_2 Emission Factor	Reference
ANFO (lb/ton)	67.00	17.00	2.00	AP-42 Table 13.3-1

Emission Source	PM_{10} Emission Rate (lbs/hr)	PM_{10} Emission Total (tons/year)	$PM_{2.5}$ Emission Rate (lbs/hr)	$PM_{2.5}$ Emission Total (tons/year)
Drilling	0.87	0.05	0.26	0.02
Blasting	0.21	0.01	0.01	0.00

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
AIR QUALITY

Diesel-Fired Engines

Equipment Details			
Rating	260	hp = (194.1 kw)	Emergency Engines should equal 100 hours of operation per year
Operational Hours	500	hours/year	
Sulfur Content	15	ppm or 0.0015%	

Criteria Pollutant	Emission Standards (g/hp-hr)	Emission Factor (lb/hp-hr)	Emission Rate (lbs/hr)	Emission Total (tons/year)	Reference
NO_X	5.896696		3.38	0.84	Manufacturer Data, AP-42 Table 3.3-1, & Table 3.4-1
CO	2.494756		1.43	0.36	
PM_{10}	0.32		0.18	0.05	
$PM_{2.5}$	0.32		0.18	0.05	
VOC		2.51E-03	0.65	0.16	
SO_2		1.21E-05	0.00	0.00	AP-42 Table 3.4-1
HAP			0.01	0.00	See Below

Green House Gas Pollutant	Global Warming Potential	Emission Factor (lb/hp-hr)	Emission Rate (lbs/hr)	Emission Total (tons/year)	Reference
CO_2 (mass basis)	1	1.15	299	75	AP-42 Table 3.3-1 & Table 3.4-1
Methane (mass basis)	25		0	0	
CO_2e				75	

Hazardous Air Pollutant	Emission Factor (lb/MMBtu)	Emission Rate (lbs/hr)	Emission Total (tons/year)	Reference
Benzene	9.33E-04	1.70E-03	4.25E-04	AP-42 Table 3.3-2, Table 3.4-3, & Table 3.4-4 (1,3-Butadiene will not popluate if the engine size is greater than 600 hp. AP-42 does not list 1,3-Butadiene for engines greater than 600 hp.)
Toluene	4.09E-04	7.44E-04	1.86E-04	
Xylenes	2.85E-04	5.19E-04	1.30E-04	
1,3-Butadiene	3.91E-05	7.12E-05	1.78E-05	
Formaldehyde	1.18E-03	2.15E-03	5.37E-04	
Acetaldehyde	7.67E-04	1.40E-03	3.49E-04	
Acrolein	9.25E-05	1.68E-04	4.21E-05	
Naphthalene	8.48E-05	1.54E-04	3.86E-05	
Acenaphthylene	5.06E-06	9.21E-06	2.30E-06	
Acenaphthene	1.42E-06	2.58E-06	6.46E-07	
Fluorene	2.92E-05	5.31E-05	1.33E-05	
Phenanthrene	2.94E-05	5.35E-05	1.34E-05	
Anthracene	1.87E-06	3.40E-06	8.51E-07	
Fluoranthene	7.61E-06	1.39E-05	3.46E-06	
Pyrene	4.78E-06	8.70E-06	2.17E-06	
Benz(a)anthracene	1.68E-06	3.06E-06	7.64E-07	
Chrysene	3.53E-07	6.42E-07	1.61E-07	
Benzo(b)fluoranthene	9.91E-08	1.80E-07	4.51E-08	
Benzo(k)fluoranthene	1.55E-07	2.82E-07	7.05E-08	
Benzo(a)pyrene	1.88E-07	3.42E-07	8.55E-08	
Indeno(1,2,3-cd)pyrene	3.75E-07	6.83E-07	1.71E-07	
Dibenz(a,h)anthracene	5.83E-07	1.06E-06	2.65E-07	
Benzo(g,h,I)perylene	4.89E-07	8.90E-07	2.22E-07	

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
AIR QUALITY

Diesel-Fired Engines

Equipment Details			
Rating	440	hp = (328.4 kw)	Emergency Engines should equal 100 hours of operation per year
Operational Hours	500	hours/year	
Sulfur Content	15	ppm or 0.0015%	

Criteria Pollutant	Emission Standards (g/hp-hr)	Emission Factor (lb/hp-hr)	Emission Rate (lbs/hr)	Emission Total (tons/year)	Reference
NO_X	5.896696		5.72	1.43	Manufacturer Data, AP-42 Table 3.3-1, & Table 3.4-1
CO	2.494756		2.42	0.60	
PM_{10}	0.32		0.31	0.08	
$PM_{2.5}$	0.32		0.31	0.08	
VOC	0.15		0.15	0.04	
SO_2		1.21E-05	0.01	0.00	AP-42 Table 3.4-1
HAP			0.01	0.00	See Below

Green House Gas Pollutant	Global Warming Potential	Emission Factor (lb/hp-hr)	Emission Rate (lbs/hr)	Emission Total (tons/year)	Reference
CO_2 (mass basis)	1	1.15	506	127	AP-42 Table 3.3-1 & Table 3.4-1
Methane (mass basis)	25		0	0	
CO_2e				127	

Hazardous Air Pollutant	Emission Factor (lb/MMBtu)	Emission Rate (lbs/hr)	Emission Total (tons/year)	Reference
Benzene	9.33E-04	2.87E-03	7.18E-04	AP-42 Table 3.3-2, Table 3.4-3, & Table 3.4-4 (1,3-Butadiene will not popluate if the engine size is greater than 600 hp. AP-42 does not list 1,3-Butadiene for engines greater than 600 hp.)
Toluene	4.09E-04	1.26E-03	3.15E-04	
Xylenes	2.85E-04	8.78E-04	2.19E-04	
1,3-Butadiene	3.91E-05	1.20E-04	3.01E-05	
Formaldehyde	1.18E-03	3.63E-03	9.09E-04	
Acetaldehyde	7.67E-04	2.36E-03	5.91E-04	
Acrolein	9.25E-05	2.85E-04	7.12E-05	
Naphthalene	8.48E-05	2.61E-04	6.53E-05	
Acenaphthylene	5.06E-06	1.56E-05	3.90E-06	
Acenaphthene	1.42E-06	4.37E-06	1.09E-06	
Fluorene	2.92E-05	8.99E-05	2.25E-05	
Phenanthrene	2.94E-05	9.06E-05	2.26E-05	
Anthracene	1.87E-06	5.76E-06	1.44E-06	
Fluoranthene	7.61E-06	2.34E-05	5.86E-06	
Pyrene	4.78E-06	1.47E-05	3.68E-06	
Benz(a)anthracene	1.68E-06	5.17E-06	1.29E-06	
Chrysene	3.53E-07	1.09E-06	2.72E-07	
Benzo(b)fluoranthene	9.91E-08	3.05E-07	7.63E-08	
Benzo(k)fluoranthene	1.55E-07	4.77E-07	1.19E-07	
Benzo(a)pyrene	1.88E-07	5.79E-07	1.45E-07	
Indeno(1,2,3-cd)pyrene	3.75E-07	1.16E-06	2.89E-07	
Dibenz(a,h)anthracene	5.83E-07	1.80E-06	4.49E-07	
Benzo(g,h,I)perylene	4.89E-07	1.51E-06	3.77E-07	

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
AIR QUALITY

Diesel-Fired Engines

Equipment Details			
Rating	175	hp = (130.6 kw)	Emergency Engines should equal 100 hours of operation per year
Operational Hours	500	hours/year	
Sulfur Content	15	ppm or 0.0015%	

Criteria Pollutant	Emission Standards (g/hp-hr)	Emission Factor (lb/hp-hr)	Emission Rate (lbs/hr)	Emission Total (tons/year)	Reference
NO_X	5.896696		2.27	0.57	Manufacturer Data, AP-42 Table 3.3-1, & Table 3.4-1
CO	2.494756		0.96	0.24	
PM_{10}	0.32		0.12	0.03	
$PM_{2.5}$	0.32		0.12	0.03	
VOC		2.51E-03	0.44	0.11	
SO_2		1.21E-05	0.00	0.00	AP-42 Table 3.4-1
HAP			0.00	0.00	See Below

Green House Gas Pollutant	Global Warming Potential	Emission Factor (lb/hp-hr)	Emission Rate (lbs/hr)	Emission Total (tons/year)	Reference
CO_2 (mass basis)	1	1.15	201	50	AP-42 Table 3.3-1 & Table 3.4-1
Methane (mass basis)	25		0	0	
CO_2e				50	

Hazardous Air Pollutant	Emission Factor (lb/MMBtu)	Emission Rate (lbs/hr)	Emission Total (tons/year)	Reference
Benzene	9.33E-04	1.14E-03	2.86E-04	AP-42 Table 3.3-2, Table 3.4-3, & Table 3.4-4 (1,3-Butadiene will not popluate if the engine size is greater than 600 hp. AP-42 does not list 1,3-Butadiene for engines greater than 600 hp.)
Toluene	4.09E-04	5.01E-04	1.25E-04	
Xylenes	2.85E-04	3.49E-04	8.73E-05	
1,3-Butadiene	3.91E-05	4.79E-05	1.20E-05	
Formaldehyde	1.18E-03	1.45E-03	3.61E-04	
Acetaldehyde	7.67E-04	9.40E-04	2.35E-04	
Acrolein	9.25E-05	1.13E-04	2.83E-05	
Naphthalene	8.48E-05	1.04E-04	2.60E-05	
Acenaphthylene	5.06E-06	6.20E-06	1.55E-06	
Acenaphthene	1.42E-06	1.74E-06	4.35E-07	
Fluorene	2.92E-05	3.58E-05	8.94E-06	
Phenanthrene	2.94E-05	3.60E-05	9.00E-06	
Anthracene	1.87E-06	2.29E-06	5.73E-07	
Fluoranthene	7.61E-06	9.32E-06	2.33E-06	
Pyrene	4.78E-06	5.86E-06	1.46E-06	
Benz(a)anthracene	1.68E-06	2.06E-06	5.15E-07	
Chrysene	3.53E-07	4.32E-07	1.08E-07	
Benzo(b)fluoranthene	9.91E-08	1.21E-07	3.03E-08	
Benzo(k)fluoranthene	1.55E-07	1.90E-07	4.75E-08	
Benzo(a)pyrene	1.88E-07	2.30E-07	5.76E-08	
Indeno(1,2,3-cd)pyrene	3.75E-07	4.59E-07	1.15E-07	
Dibenz(a,h)anthracene	5.83E-07	7.14E-07	1.79E-07	
Benzo(g,h,I)perylene	4.89E-07	5.99E-07	1.50E-07	

Bulldozing

Bulldozer Hours of Operation		
Hours operated per year	1,000	hours/year

Variables for Bulldozing Overburden		
Material Silt Content	4.8	%
Material Moisture Content	4.0	%

Pollutant	Emission Factor (lb/hr)	Emission Rate (lbs/hr)	Emission Total (tons/year)	Reference
PM_{10}	1.13250	1.13	0.57	AP-42 11.9
$PM_{2.5}$	0.64845	0.65	0.32	Table 11.9-1

Aggregate Processing Equipment

Production Rates		
Hourly Rates	400	tons/hour
Annual Production	150,000	tons/year

Emission Unit	Number of Emission Units	PM_{10} Emission Factor (lb/ton)	$PM_{2.5}$ Emission Factor (lb/ton)	Reference
Crushers	2	0.00054	0.00010	AP-42 Table 11.19.2-2
Screens	1	0.00074	0.00005	
Conveyor Transfer Points	4	4.6E-05	1.3E-05	

Pollutant	Emission Rate (lbs/hr)	Emission Total (tons/year)
PM_{10}	0.80	0.15
$PM_{2.5}$	0.12	0.02

Emission Unit	PM_{10} Emission Rate (lbs/hr)	PM_{10} Emission Total (tons/year)	$PM_{2.5}$ Emission Rate (lbs/hr)	$PM_{2.5}$ Emission Total (tons/year)
Crushers	0.43	0.08	0.08	0.02
Screens	0.30	0.06	0.02	0.00
Conveyors	0.07	0.01	0.02	0.00

Loader Routes

Production Rates		
Hourly Rates	400	tons/hour
Annual Production	150,000	tons/year

Loader Information		
Empty Loader Weight	33	tons
Weight of Load	18	tons
Loaded Loader Weight	51	tons

Loader Route\ Information		
Loader Route One-Way Length	700	feet
Hourly Vehicle Miles Traveled	5.9	miles
Annual Vehicle Miles Traveled	2,210	miles
Type of Control	Basic Watering - (70% control)	

Pollutant	Uncontrolled Emission Factor (lb/VMT)	Controlled Emission Factor (lb/VMT)	Emission Rate (lbs/hr)	Emission Total (tons/year)	Reference
PM_{10}	2.16	0.65	3.81	0.71	AP-42 13.2.2 & DAQ Haul Road Guidance
$PM_{2.5}$	0.216	0.065	0.38	0.07	

Storage Piles

Storage Pile Area		
Total Area of Storage Piles	2	acres

Control Efficiency		Reference
PM_{10} Control Efficiency	66%	AP-42 Appendix B.2
$PM_{2.5}$ Control Efficiency	40%	Tables B.2-2 & B.2-3

Pollutant	Uncontrolled Emission Factor (lb/acre-day)	Controlled Emission Factor (lb/acre-day)	Emission Rate (lbs/hr)	Emission Total (tons/year)	Reference
PM_{10}	6.30	2.14	0.13	0.59	AP-42 Fourth Edition Table 8.19.1-1
$PM_{2.5}$	1.85	1.11	0.07	0.30	AP-42 Appendix B.2 Table B.2-2

Material Handling

Production Rates		
Hourly Rates	400	tons/hour
Annual Production	150,000	tons/year

Variables		
Number of Transfer Points	3	
Mean Wind Speed	9	mph
Moisture Content	4	%

Pollutant	Emission Factor (lb/ton)	Emission Rate (lbs/hr)	Emission Total (tons/year)	Reference
PM_{10}	0.00091	1.09	0.21	AP-42 13.2.4.3
$PM_{2.5}$	0.00014	0.17	0.03	Equation #1

Haul Roads

Production Rates		
Hourly Rates	400	tons/hour
Annual Production	150,000	tons/year

Truck Information		
Empty Truck Weight	20	tons
Weight of Load	40	tons
Loaded Truck Weight	60	tons

Haul Road Information		
Haul Road One-Way Length	1,742	feet
Hourly Vehicle Miles Traveled	6.6	miles
Annual Vehicle Miles Traveled	2,475	miles
Type of Control	Paving with Vacuum Sweeping & Watering - (95% control)	

Pollutant	Uncontrolled Emission Factor (lb/VMT)	Controlled Emission Factor (lb/VMT)	Emission Rate (lbs/hr)	Emission Total (tons/year)	Reference
PM_{10}	2.11	0.11	0.70	0.13	AP-42 13.2.2 & DAQ Haul Road Guidance
$PM_{2.5}$	0.211	0.011	0.07	0.01	

Haul Roads

Production Rates		
Hourly Rates	400	tons/hour
Annual Production	150,000	tons/year

Truck Information		
Empty Truck Weight	20	tons
Weight of Load	40	tons
Loaded Truck Weight	60	tons

Haul Road Information		
Haul Road One-Way Length	1,162	feet
Hourly Vehicle Miles Traveled	4.4	miles
Annual Vehicle Miles Traveled	1,650	miles
Type of Control	Road Base with Watering - (75% control)	

Pollutant	Uncontrolled Emission Factor (lb/VMT)	Controlled Emission Factor (lb/VMT)	Emission Rate (lbs/hr)	Emission Total (tons/year)	Reference
PM_{10}	2.11	0.53	2.32	0.44	AP-42 13.2.2 & DAQ Haul Road Guidance
$PM_{2.5}$	0.211	0.053	0.23	0.04	

Disturbed Ground

Wind Erosion of Exposed Area		
Total Area of Disturbed Ground	6	acres

Emission Factors & Distribution		Reference
TSP Emission Factor	0.38	AP-42 Table 11.9-4
PM_{10} Content	50%	AP-42 Section 13.2.5.3
$PM_{2.5}$ Content	7.5%	

Pollutant	Emission Factor (tons/acre-year)	Emission Rate (lbs/hr)	Emission Total (tons/year)
PM_{10}	0.19	0.26	1.14
$PM_{2.5}$	0.03	0.04	0.17

Drilling and Blasting

Variables		
Average Area per Blast	7,890	ft^2
Average Hole Spacing	10	ft
Blasts per Year	5	
ANFO used per blast	16.4	tons
Drill Shroud Control Efficiency	60%	

Assumes a maximum of one blast per day.

Pollutant	Emission Rate (lbs/hr)	Emission Total (tons/year)
NO_X	11.65	0.70
CO	45.90	2.75
PM_{10}	1.08	0.07
$PM_{2.5}$	0.27	0.02
SO_2	1.37	0.08

Emission Source	TSP Emission Factor	PM_{10} Emission Factor	$PM_{2.5}$ Emission Factor	Reference
Drilling (lb/hole)	1.3	0.663	0.195	AP-42 Table 11.9-1, Table 11.9-4 & Appendix B.2 Table B.2-2
Blasting (lb/blast)	9.812	5.102	0.294	

Emission Source	CO Emission Factor	NO_X Emission Factor	SO_2 Emission Factor	Reference
ANFO (lb/ton)	67.00	17.00	2.00	AP-42 Table 13.3-1

Emission Source	PM_{10} Emission Rate (lbs/hr)	PM_{10} Emission Total (tons/year)	$PM_{2.5}$ Emission Rate (lbs/hr)	$PM_{2.5}$ Emission Total (tons/year)
Drilling	0.87	0.05	0.26	0.02
Blasting	0.21	0.01	0.01	0.00

Diesel-Fired Engines

Equipment Details			
Rating	260	hp = (194.1 kw)	Emergency Engines should equal 100 hours of operation per year
Operational Hours	500	hours/year	
Sulfur Content	15	ppm or 0.0015%	

Criteria Pollutant	Emission Standards (g/hp-hr)	Emission Factor (lb/hp-hr)	Emission Rate (lbs/hr)	Emission Total (tons/year)	Reference
NO_X	0.3		0.17	0.04	Manufacturer Data, AP-42 Table 3.3-1, & Table 3.4-1
CO	2.6		1.49	0.37	
PM_{10}	0.02		0.01	0.00	
$PM_{2.5}$	0.02		0.01	0.00	
VOC		2.51E-03	0.65	0.16	
SO_2		1.21E-05	0.00	0.00	AP-42 Table 3.4-1
HAP			0.01	0.00	See Below

Green House Gas Pollutant	Global Warming Potential	Emission Factor (lb/hp-hr)	Emission Rate (lbs/hr)	Emission Total (tons/year)	Reference
CO_2 (mass basis)	1	1.15E+00	299	75	AP-42 Table 3.3-1 & Table 3.4-1
Methane (mass basis)	25		0	0	
CO_2e				75	

Hazardous Air Pollutant	Emission Factor (lb/MMBtu)	Emission Rate (lbs/hr)	Emission Total (tons/year)	Reference
Benzene	9.33E-04	1.70E-03	4.25E-04	AP-42 Table 3.3-2, Table 3.4-3, & Table 3.4-4 (1,3-Butadiene will not popluate if the engine size is greater than 600 hp. AP-42 does not list 1,3-Butadiene for engines greater than 600 hp.)
Toluene	4.09E-04	7.44E-04	1.86E-04	
Xylenes	2.85E-04	5.19E-04	1.30E-04	
1,3-Butadiene	3.91E-05	7.12E-05	1.78E-05	
Formaldehyde	1.18E-03	2.15E-03	5.37E-04	
Acetaldehyde	7.67E-04	1.40E-03	3.49E-04	
Acrolein	9.25E-05	1.68E-04	4.21E-05	
Naphthalene	8.48E-05	1.54E-04	3.86E-05	
Acenaphthylene	5.06E-06	9.21E-06	2.30E-06	
Acenaphthene	1.42E-06	2.58E-06	6.46E-07	
Fluorene	2.92E-05	5.31E-05	1.33E-05	
Phenanthrene	2.94E-05	5.35E-05	1.34E-05	
Anthracene	1.87E-06	3.40E-06	8.51E-07	
Fluoranthene	7.61E-06	1.39E-05	3.46E-06	
Pyrene	4.78E-06	8.70E-06	2.17E-06	
Benz(a)anthracene	1.68E-06	3.06E-06	7.64E-07	
Chrysene	3.53E-07	6.42E-07	1.61E-07	
Benzo(b)fluoranthene	9.91E-08	1.80E-07	4.51E-08	
Benzo(k)fluoranthene	1.55E-07	2.82E-07	7.05E-08	
Benzo(a)pyrene	1.88E-07	3.42E-07	8.55E-08	
Indeno(1,2,3-cd)pyrene	3.75E-07	6.83E-07	1.71E-07	
Dibenz(a,h)anthracene	5.83E-07	1.06E-06	2.65E-07	
Benzo(g,h,I)perylene	4.89E-07	8.90E-07	2.22E-07	

Diesel-Fired Engines

Equipment Details			
Rating	440	hp = (328.4 kw)	Emergency Engines should equal 100 hours of operation per year
Operational Hours	500	hours/year	
Sulfur Content	15	ppm or 0.0015%	

Criteria Pollutant	Emission Standards (g/hp-hr)	Emission Factor (lb/hp-hr)	Emission Rate (lbs/hr)	Emission Total (tons/year)	Reference
NO_X	0.3		0.29	0.07	Manufacturer Data, AP-42 Table 3.3-1, & Table 3.4-1
CO	2.6		2.52	0.63	
PM_{10}	0.02		0.01	0.00	
$PM_{2.5}$	0.02		0.01	0.00	
VOC	0.15		0.15	0.04	
SO_2		1.21E-05	0.01	0.00	AP-42 Table 3.4-1
HAP			0.01	0.00	See Below

Green House Gas Pollutant	Global Warming Potential	Emission Factor (lb/hp-hr)	Emission Rate (lbs/hr)	Emission Total (tons/year)	Reference
CO_2 (mass basis)	1	1.15E+00	506	127	AP-42 Table 3.3-1 & Table 3.4-1
Methane (mass basis)	25		0	0	
CO_2e				127	

Hazardous Air Pollutant	Emission Factor (lb/MMBtu)	Emission Rate (lbs/hr)	Emission Total (tons/year)	Reference
Benzene	9.33E-04	2.87E-03	7.18E-04	AP-42 Table 3.3-2, Table 3.4-3, & Table 3.4-4 (1,3-Butadiene will not popluate if the engine size is greater than 600 hp. AP-42 does not list 1,3-Butadiene for engines greater than 600 hp.)
Toluene	4.09E-04	1.26E-03	3.15E-04	
Xylenes	2.85E-04	8.78E-04	2.19E-04	
1,3-Butadiene	3.91E-05	1.20E-04	3.01E-05	
Formaldehyde	1.18E-03	3.63E-03	9.09E-04	
Acetaldehyde	7.67E-04	2.36E-03	5.91E-04	
Acrolein	9.25E-05	2.85E-04	7.12E-05	
Naphthalene	8.48E-05	2.61E-04	6.53E-05	
Acenaphthylene	5.06E-06	1.56E-05	3.90E-06	
Acenaphthene	1.42E-06	4.37E-06	1.09E-06	
Fluorene	2.92E-05	8.99E-05	2.25E-05	
Phenanthrene	2.94E-05	9.06E-05	2.26E-05	
Anthracene	1.87E-06	5.76E-06	1.44E-06	
Fluoranthene	7.61E-06	2.34E-05	5.86E-06	
Pyrene	4.78E-06	1.47E-05	3.68E-06	
Benz(a)anthracene	1.68E-06	5.17E-06	1.29E-06	
Chrysene	3.53E-07	1.09E-06	2.72E-07	
Benzo(b)fluoranthene	9.91E-08	3.05E-07	7.63E-08	
Benzo(k)fluoranthene	1.55E-07	4.77E-07	1.19E-07	
Benzo(a)pyrene	1.88E-07	5.79E-07	1.45E-07	
Indeno(1,2,3-cd)pyrene	3.75E-07	1.16E-06	2.89E-07	
Dibenz(a,h)anthracene	5.83E-07	1.80E-06	4.49E-07	
Benzo(g,h,I)perylene	4.89E-07	1.51E-06	3.77E-07	

Diesel-Fired Engines

Equipment Details			
Rating	175	hp = (130.6 kw)	Emergency Engines should equal 100 hours of operation per year
Operational Hours	500	hours/year	
Sulfur Content	15	ppm or 0.0015%	

Criteria Pollutant	Emission Standards (g/hp-hr)	Emission Factor (lb/hp-hr)	Emission Rate (lbs/hr)	Emission Total (tons/year)	Reference
NO_X	0.3		0.12	0.03	Manufacturer Data, AP-42 Table 3.3-1, & Table 3.4-1
CO	2.6		1.00	0.25	
PM_{10}	0.02		0.01	0.00	
$PM_{2.5}$	0.02		0.01	0.00	
VOC		2.51E-03	0.44	0.11	
SO_2		1.21E-05	0.00	0.00	AP-42 Table 3.4-1
HAP			0.00	0.00	See Below

Green House Gas Pollutant	Global Warming Potential	Emission Factor (lb/hp-hr)	Emission Rate (lbs/hr)	Emission Total (tons/year)	Reference
CO_2 (mass basis)	1	1.15E+00	201	50	AP-42 Table 3.3-1 & Table 3.4-1
Methane (mass basis)	25		0	0	
CO_2e				50	

Hazardous Air Pollutant	Emission Factor (lb/MMBtu)	Emission Rate (lbs/hr)	Emission Total (tons/year)	Reference
Benzene	9.33E-04	1.14E-03	2.86E-04	AP-42 Table 3.3-2, Table 3.4-3, & Table 3.4-4 (1,3-Butadiene will not popluate if the engine size is greater than 600 hp. AP-42 does not list 1,3-Butadiene for engines greater than 600 hp.)
Toluene	4.09E-04	5.01E-04	1.25E-04	
Xylenes	2.85E-04	3.49E-04	8.73E-05	
1,3-Butadiene	3.91E-05	4.79E-05	1.20E-05	
Formaldehyde	1.18E-03	1.45E-03	3.61E-04	
Acetaldehyde	7.67E-04	9.40E-04	2.35E-04	
Acrolein	9.25E-05	1.13E-04	2.83E-05	
Naphthalene	8.48E-05	1.04E-04	2.60E-05	
Acenaphthylene	5.06E-06	6.20E-06	1.55E-06	
Acenaphthene	1.42E-06	1.74E-06	4.35E-07	
Fluorene	2.92E-05	3.58E-05	8.94E-06	
Phenanthrene	2.94E-05	3.60E-05	9.00E-06	
Anthracene	1.87E-06	2.29E-06	5.73E-07	
Fluoranthene	7.61E-06	9.32E-06	2.33E-06	
Pyrene	4.78E-06	5.86E-06	1.46E-06	
Benz(a)anthracene	1.68E-06	2.06E-06	5.15E-07	
Chrysene	3.53E-07	4.32E-07	1.08E-07	
Benzo(b)fluoranthene	9.91E-08	1.21E-07	3.03E-08	
Benzo(k)fluoranthene	1.55E-07	1.90E-07	4.75E-08	
Benzo(a)pyrene	1.88E-07	2.30E-07	5.76E-08	
Indeno(1,2,3-cd)pyrene	3.75E-07	4.59E-07	1.15E-07	
Dibenz(a,h)anthracene	5.83E-07	7.14E-07	1.79E-07	
Benzo(g,h,I)perylene	4.89E-07	5.99E-07	1.50E-07	

State of Utah

SPENCER J. COX
Governor

DEIDRE HENDERSON
Lieutenant Governor

Department of
Environmental Quality

Tim Davis
Executive Director

DIVISION OF AIR QUALITY
Bryce C. Bird
Director

RN161200002

December 8, 2025

Quin Bingham
Granite Construction Company
1000 North Warm Springs Rd.
Salt Lake City, UT 84116
quin.bingham@gcinc.com

Dear Quin Bingham,

Re: Engineer Review: New I-80 Aggregate Mining Facility
Project Number: N161200002

The DAQ requests a company representative review and sign the attached Engineer Review (ER). This ER identifies all applicable elements of the New Source Review permitting program. Granite Construction Company should complete this review within **10 business days** of receipt.

Granite Construction Company should contact **John Persons** at (385) 306-6503 if there are questions or concerns with the review of the draft permit conditions. Upon resolution of your concerns, please email **John Persons** at **jpersons@utah.gov** the signed cover letter. Upon receipt of the signed cover letter, the DAQ will prepare an ITA for a 30-day public comment period. At the completion of the comment period, the DAQ will address any comments and will prepare an Approval Order (AO) for signature by the DAQ Director.

If Granite Construction Company does not respond to this letter within **10 business days,** the project will move forward without source concurrence. If Granite Construction Company has concerns that cannot be resolved and the project becomes stagnant, the DAQ Director may issue an Order prohibiting construction.

Approval Signature _____
(Signature & Date)

UTAH DIVISION OF AIR QUALITY
ENGINEER REVIEW

SOURCE INFORMATION

Project Number	N161200002
Owner Name	Granite Construction Company
Mailing Address	1000 North Warm Springs Rd. Salt Lake City, UT, 84116
Source Name	Granite Construction Company- I-80 South Quarry
Source Location	Off Exit 132, Ranch Exit of Interstate I-80 East of Salt Lake City Salt Lake County, UT
UTM Projection	437,048 m Easting, 4,509,436 m Northing
UTM Datum	NAD83
UTM Zone	UTM Zone 12
SIC Code	1422 (Limestone, Crushed & Broken)
Source Contact	Quin Bingham
Phone Number	(801) 526-6050
Email	quin.bingham@gcinc.com
Billing Contact	Quin Bingham
Phone Number	801-526-6050
Email	quin.bingham@gcinc.com
Project Engineer	John Persons, Engineer
Phone Number	(385) 306-6503
Email	jpersons@utah.gov
Notice of Intent (NOI) Submitted	August 5, 2025
Date of Accepted Application	September 30, 2025

SOURCE DESCRIPTION

General Description
The Granite Construction Company has requested to operate a new aggregate mining facility at its I-80 South Quarry located in Salt Lake County. The facility will act as a standalone aggregate mining, crushing, and screening operation. This facility will produce up to 150,000 tons of aggregate per year.

NSR Classification:
New Minor Source

Source Classification
Located in the Northern Wasatch Front O3 NAA, Salt Lake City UT $PM_{2.5}$ NAA, and Salt Lake County SO_2 NAA
Salt Lake County
Airs Source Size: B

Applicable Federal Standards
NSPS (Part 60), A: General Provisions
NSPS (Part 60), OOO: Standards of Performance for Nonmetallic Mineral Processing Plants
NSPS (Part 60), IIII: Standards of Performance for Stationary Compression Ignition Internal Combustion Engines
MACT (Part 63), A: General Provisions
MACT (Part 63), ZZZZ: National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

Project Proposal
New I-80 Aggregate Mining Facility

Project Description
The Granite Construction Company (GCC) has requested to install and operate an aggregate mining, crushing, and screening facility. This new facility will consist of one (1) feeder, two (2) crushers, three (3) diesel-fired generator engines, one (1) triple-deck screen, and eight (8) conveyors.

EMISSION IMPACT ANALYSIS

The criteria pollutant emissions from GCC's new I-80 South Quarry are below the criteria pollutant modeling thresholds listed in R307-410-4. The hazardous air pollutant (HAP) emissions from GCC's new I-80 South Quarry are below the HAP modeling thresholds listed in R307-410-5. As a result no modeling is required for this new minor source. [Last updated December 4, 2025]

SUMMARY OF EMISSIONS

The emissions listed below are an estimate of the total potential emissions from the source. Some rounding of emissions is possible.

Criteria Pollutant	Change (TPY)	Total (TPY)
CO_2 Equivalent		252.00
Carbon Monoxide		4.00
Nitrogen Oxides		0.84
Particulate Matter - PM_{10}		4.01
Particulate Matter - $PM_{2.5}$		0.98
Sulfur Dioxide		0.08
Volatile Organic Compounds		0.31

Hazardous Air Pollutant	Change (lbs/yr)	Total (lbs/yr)
Generic HAPs (CAS #GHAPS)		20
	Change (TPY)	**Total (TPY)**
Total HAPs		0.01

Note: Change in emissions indicates the difference between previous AO and proposed modification.

Review of BACT for New/Modified Emission Units

1. **BACT review regarding Facility Emissions**

Granite Construction Company (GCC) has researched the best available control technology (BACT) for the emissions from its new aggregate processing plant located near I-80 in Salt Lake County. This facility will emit PM_{10}, NO_x, CO, SO_2, VOCs, and HAPs. This BACT analysis will discuss technologies and methods to control emissions from the processing of aggregate, disturbed and exposed areas, haul roads, drilling and blasting, fuel storage tanks, and the diesel-fired generator engines. [Last updated November 12, 2025]

2. **BACT review regarding PM_{10} and $PM_{2.5}$ Emissions from the Processing of Aggregate**

Fugitive particulate matter (PM) in the form of PM_{10} and $PM_{2.5}$ is emitted during the processing of aggregates. Processing of aggregate consists of mining, crushing, screening, conveying, and transferring material. The crushing, screening, and conveying are subject to 40 CFR 60 (NSPS) Subpart OOO. There are several options for controlling these types of emissions. These options include baghouses/fabric filters, cyclones, electrostatic precipitators (ESPs), wet scrubbers, enclosures, watering, and best management practices.

The use of baghouses/fabric filters, cyclones, ESPs, wet scrubbers, and enclosures are technically feasible. However, GCC will be moving the processing equipment around to various locations on site as different areas of the site are processed. This mobile work makes setting up an enclosure to capture PM emissions economically infeasible. The use of baghouses/fabric filters, cyclones, ESPs, and wet scrubbers all rely on an enclosure to capture the PM emissions so that the emissions can be routed to them. Because the source operates this equipment outside and has to routinely move the equipment around the site, the use of constantly constructing and deconstructing a full enclosure is not economically feasible. Because enclosures are infeasible, all of these options are infeasible as well. The use of watering and best management practices is feasible. Watering is between 50-90% effective at controlling PM_{10} emissions from the processing of aggregate. Best management practices consist of minimizing drop heights and regular inspection and maintenance.

The use of watering and best management practices is economically feasible. Additionally, overburden can be positioned to serve as a windbreak to help minimize fugitive dust emissions. Therefore, this will also be included in the BACT.

The Selected BACT is as follows:
The source will operate water sprayers to apply water on all crushers, screens, conveyor transfer points, and conveyor drop points throughout the facility.
The source will operate all crushers, screens, and conveyors using best management practices.
The source will minimize conveyor drop heights where possible to ensure that opacity limits are not breached.
The use of water sprayers will be used to meet the visible emission limitations outlined in Utah's Administrative Code.
The source will not allow visible emissions from all screens and conveyor transfer points to exceed 7% opacity.
The source will not allow visible emissions from all crushers to exceed 12% opacity.
In addition, the source will not allow visible emissions from all conveyor drop points to exceed 20% opacity.
The owner/operator shall position all overburden removed before the commencement of mining operations in locations that will serve as windbreaks to help minimize fugitive dust emissions .
[Last updated December 8, 2025]

3. **BACT review regarding Fugitive PM_{10} and $PM_{2.5}$ Emissions from Haul Roads**

Truck and Loader traffic on haul roads creates significant PM_{10} and $PM_{2.5}$ emissions. There are several options for controlling these emissions. These options include road paving, road sweeping, chemical treatment, watering, and silt content reduction.

The use of road paving is feasible for the entrance road to the quarry but infeasible for the interior roads in the quarry due to the dynamic nature of the work. Road sweeping is technically feasible on paved roads but infeasible on unpaved roads. The use of chemical suppressants and watering is feasible on roads that are used by haul trucks but not on roads used exclusively by loaders. Using chemical suppressants on loader interior mine roads could contaminate the aggregate being moved around by the loaders. The use of Basic watering with silt reduction is feasible on unpaved haul roads.

The control options are listed below in order of effectiveness (1 - most effective):
Road Paving with Vacuum Sweeping and Watering (95% effective)
Road Paving with Sweeping and Watering (90% effective)
Chemical Suppressants and Watering (85% effective)
Basic Watering and Silt Reduction (75% effective)
Basic Watering (70% effective)

It is technically feasible to pave the entrance road to the quarry. Therefore, this road should be paved and controlled with street sweeping and watering. The most effective control for unpaved haul roads is the use of chemical suppressants, watering, and road base. Using all these controls is economically feasible and should be considered BACT.

The Selected BACT is as follows:
The source will pave the entrance road to the quarry.
The source will use road vacuum sweeping and watering to minimize fugitive dust on all paved haul roads.
The source will use chemical suppressants, watering, and road base to minimize fugitive dust on all unpaved roads.
The source shall use watering and road base to minimize fugitive dust on all non-permanent roads and unpaved surfaces (ex. Roads in proximity to the mining face).
The source will not allow visible emissions from haul roads to exceed 20% opacity on-site and 10% at the property boundary.
[Last updated December 8, 2025]

4. **BACT review regarding PM_{10} and $PM_{2.5}$ Emissions from Drilling and Blasting**

Drilling and Blasting have the potential to emit PM_{10} and $PM_{2.5}$ emissions. There are several options for controlling these emissions. These options include: dust collection systems, wet drilling and blasting, drilling shrouds, and best management practices.

The use of a dust collection system is up to 99% effective at controlling PM_{10} emissions from drilling. The use of wet drilling or drilling shrouds is around 88% effective at controlling PM_{10} emissions. Dust collection systems, wet drilling, and drilling shrouds are all technically feasible. The use of wet blasting and best management practices are both technically feasible. In the emissions calculations, the source set the maximum number of blasts per year to five (5). Therefore, this will be included as a condition in the AO.

For controlling the PM_{10} emissions from drilling the control options are listed below in order of effectiveness (1 - most effective):

Dust Collection Systems (95 - 99% effective)
Wet drilling (88% effective)
Drilling Shrouds (88% effective)
Best Management Practices

The use of a dust collection system is the most effective control option and it is both technically and economically feasible. Therefore, a dust collection system should be used to control PM_{10} emissions from drilling. The use of wet blasting is both technically and economically feasible. Additionally, due to the windy nature of the proposed location, limiting blasting times to when wind speeds are lower can also help control PM_{10} emissions from blasting. Therefore this will also be included in the BACT.

Therefore, wet blasting should be used to control PM_{10} emissions from blasting.

The Selected BACT is as follows:
The source shall use a dust collection system to control all emissions from drilling.
The source will apply water to any drilling or blasting area before blasting or drilling when the area is not already naturally wet.
The source will not allow visible emissions from any fugitive dust source to exceed 20% opacity on-site and 10% at the property boundary. The owner/operator shall not conduct any blasting when wind speeds are greater than 25 mph.
[Last updated December 8, 2025]

5. **BACT review regarding PM_{10} and $PM_{2.5}$ Emissions from Disturbed and Exposed Areas**

Disturbed and exposed areas generate fugitive emissions by wind and continued activity on the disturbed soil. There are two different controls for controlling these emissions: water sprayers and minimum disturbance.

Both the use of water sprayers and minimum disturbance are technologically feasible. Water sprayers are 70-95% effective at reducing PM_{10} and $PM_{2.5}$ emissions. Using a minimum disturbance strategy is up to 50% effective at reducing PM_{10} and $PM_{2.5}$ emissions. The use of water sprayers is not economically feasible because of the large volume of water that would be needed to keep the entire area wet during operation. This is also not an environmentally friendly option due to the large amount of water consumption in an already drought-stricken area.

The selected BACT is as follows:
The source will operate using a minimal disturbance strategy. This will include leaving natural vegetation in for as long as possible and allowing natural vegetation to grow back as soon as possible.
The source will not allow visible emissions from disturbed and exposed areas to exceed 20% opacity on-site and 10% at the property boundary.

The storage piles at this facility have the potential to emit fugitive $PM_{10}/PM_{2.5}$. There are several ways to control these emissions. These control options include water application and enclosures.

The use of water application via water trucks, spray bars, and water cannons is technically and economically feasible. The use of enclosures (full or partial) is also technically feasible. However, the use of enclosures is not economically feasible. The cost of enclosing the acres of storage piles is not economically feasible due to the large size of the piles.

The use of water application via water trucks, spray bars, and water cannons is 75 percent effective

at controlling these emissions.

The selected BACT is as follows:
The source shall use water application via water trucks, spray bars, and water cannons to control PM_{10} emissions from the storage piles.
[Last updated December 8, 2025]

6. **BACT review regarding Diesel-fired Generator Engines**

GCC will install and operate three (3) diesel-fired generator engines (440 hp, 260 hp, and 175 hp). These engines will have the potential to emit NO_x, CO, PM, SO_2, and VOCs. These engines will be evaluated by pollutant below.

NO_x emissions from Diesel Generator Engines
The three (3) generator engines have the potential to emit a large amount of NO_x. There are several

options for controlling NO_x emissions. These options include Tier 4 engines, Selective Catalytic Reduction (SCR), limited hours of operation, and Exhaust Gas Recirculation (EGR).

The selected engines will be Tier 4 engines. These engines will also be equipped with EGR systems and be limited to 500 hours of operation per year (each). The only further control that could be used to further limit NO_x emissions is an SCR system. However, the use of SCR on the engines is infeasible because retrofitting the relatively small engines with an SCR system would create back pressure causing a power reduction. Furthermore, because the engines are already Tier 4 the cost analysis of retrofitting the engines with SCR systems will not be cost-effective.

The Selected BACT is as follows:
The source shall install diesel engines that meet the Tier 4 standards.
The source shall install Exhaust Gas Recirculation (EGR) systems on all engines.
The source will not allow the opacity of the emissions from the generator engines to exceed 20%.

PM, CO, SO_2, and VOC Emissions from Diesel Generator Engines

The diesel generator engines will also emit PM, CO, SO_2, and VOCs. Various control technologies could be used to limit these pollutants. These technologies include Tier 4 engines, diesel particulate filters (DPF), ultra-low sulfur diesel, a diesel oxidation catalyst, and exhaust gas recirculation (EGR).

The engines being installed are Tier 4 engines with EGR systems. Each engine will also have a limited run time of 500 hours per year. The use of diesel particulate filters and a diesel oxidation catalyst are both technically infeasible options due to the back pressure and reduced power they would have on the relatively small engines. The use of ultra-low sulfur diesel is feasible and required under MACT Subpart ZZZZ.

The Selected BACT is as Follows:
The source shall only use ultra-low sulfur diesel (<15 ppm) in all generator engines.
The source shall install diesel engines that meet the Tier 4 standards.
The source shall install Exhaust Gas Recirculation (EGR) systems on all engines.
The source will not allow the opacity of the emissions from the generator engines to exceed 20%.
The source shall operate the diesel-fired generator engines according to the manufactures operational and maintenance guidelines.
[Last updated November 12, 2025]

7. **BACT review regarding VOC and HAP Emissions**

GCC will have three (3) 250-gallon diesel storage tanks onsite. These tanks will throughput a maximum of 10,000 gallons of diesel per year. These tanks have the potential to emit a very small amount of VOCs and HAPs (1.5 lbs per year). Due to the very small size of these tanks, the only control options available are the use of submerged loading and best management practices. Best management practices consist of minimizing working and breathing losses.

The Selected BACT is as follows:
The source will only fill the diesel storage tanks using submerged loading.
The source will operate the diesel storage tanks in a way to minimize working and breathing losses from the tanks.
[Last updated November 12, 2025]

SECTION I: GENERAL PROVISIONS

The intent is to issue an air quality AO authorizing the project with the following recommended conditions and that failure to comply with any of the conditions may constitute a violation of the AO. **(New or Modified conditions are indicated as "New" in the Outline Label):**

I.1	All definitions, terms, abbreviations, and references used in this AO conform to those used in the UAC R307 and 40 CFR. Unless noted otherwise, references cited in these AO conditions refer to those rules. [R307-101]
I.2	The limits set forth in this AO shall not be exceeded without prior approval. [R307-401]
I.3	Modifications to the equipment or processes approved by this AO that could affect the emissions covered by this AO must be reviewed and approved. [R307-401-1]
I.4	All records referenced in this AO or in other applicable rules, which are required to be kept by the owner/operator, shall be made available to the Director or Director's representative upon request, and the records shall include the two-year period prior to the date of the request. Unless otherwise specified in this AO or in other applicable state and federal rules, records shall be kept for a minimum of two (2) years. [R307-401-8]
I.5	At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any equipment approved under this AO, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Director which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. All maintenance performed on equipment authorized by this AO shall be recorded. [R307-401-4]

I.6	The owner/operator shall comply with UAC R307-107. General Requirements: Breakdowns. [R307-107]
I.7	The owner/operator shall comply with UAC R307-150 Series. Emission Inventories. [R307-150]
I.8	The owner/operator shall submit documentation of the status of construction or modification to the Director within 18 months from the date of this AO. This AO may become invalid if construction is not commenced within 18 months from the date of this AO or if construction is discontinued for 18 months or more. To ensure proper credit when notifying the Director, send the documentation to the Director, attn.: NSR Section. [R307-401-18]

SECTION II: PERMITTED EQUIPMENT

The intent is to issue an air quality AO authorizing the project with the following recommended conditions and that failure to comply with any of the conditions may constitute a violation of the AO. **(New or Modified conditions are indicated as "New" in the Outline Label):**

II.A THE APPROVED EQUIPMENT

II.A.1 NEW	**Aggregate Mining Facility**
II.A.2 NEW	**One (1) Feeder** 40 CFR 60 (NSPS) Applicability: Subpart OOO
II.A.3 NEW	**One (1) Primary Crusher** Crusher Type: Jaw Crusher 40 CFR 60 (NSPS) Applicability: Subpart OOO
II.A.4 NEW	**One (1) Secondary Crusher** Crusher Type: Cone Crusher 40 CFR 60 (NSPS) Applicability: Subpart OOO
II.A.5 NEW	**One (1) Triple Deck Screen** 40 CFR 60 (NSPS) Applicability: Subpart OOO
II.A.6 NEW	**Various Conveyors and Stacker** 40 CFR 60 (NSPS) Applicability: Subpart OOO
II.A.7 NEW	**One (1) Diesel-Fired Generator Engine** Power: 440 hp (329 kW) Annual Runtime: 500 hours Controls: Tier 4 and EGR 40 CFR 60 (NSPS) Applicability: Subpart IIII 40 CFR 63 (MACT) Applicability: Subpart ZZZZ

II.A.8 NEW	**One (1) Diesel-Fired Generator Engine** Power: 260 hp (194 kW) Annual Runtime: 500 hours Controls: Tier 4 and EGR 40 CFR 60 (NSPS) Applicability: Subpart IIII 40 CFR 63 (MACT) Applicability: Subpart ZZZZ
II.A.9 NEW	**One (1) Diesel-Fired Generator Engine** Power: 175 hp (131 kW) Annual Runtime: 500 hours Controls: Tier 4 and EGR 40 CFR 60 (NSPS) Applicability: Subpart IIII 40 CFR 63 (MACT) Applicability: Subpart ZZZZ
II.A.10 NEW	**Three (3) Diesel Storage Tanks** Capacity: 250 gallons each
II.A.11 NEW	**One (1) Dust Collection System**
II.A.12 NEW	**Off Highway Mobile Equipment**

SECTION II: SPECIAL PROVISIONS

The intent is to issue an air quality AO authorizing the project with the following recommended conditions and that failure to comply with any of the conditions may constitute a violation of the AO. **(New or Modified conditions are indicated as "New" in the Outline Label):**

II.B REQUIREMENTS AND LIMITATIONS

II.B.1.a NEW	Unless otherwise specified in this AO, the owner/operator shall not allow visible emissions from any source on site to exceed 20% opacity. [R307-305-3]
II.B.1.a.1 NEW	Unless otherwise specified in this AO, opacity observations of emissions from stationary sources shall be conducted according to 40 CFR 60, Appendix A, Method 9. [R307-305-3]
II.B.1.b NEW	The owner/operator shall not produce more than 150,000 tons of aggregate per rolling 12-month period. [R307-401-8]

II.B.1.b.1 NEW	The owner/operator shall: A. Determine production by belt scale records or scale house records B. Record production on a daily basis C. Use this data to calculate a new rolling 12-month total by the 20th day of each month using data from the previous 12 months D. Keep these records for all periods the plant is in operation. [R307-401-8]
II.B.1.c NEW	The owner/operator shall not operate more than One (1) bulldozer onsite. [R307-401-8]
II.B.1.d NEW	The owner/operator shall not operate the bulldozer on site for more than 1,000 hours per rolling 12-month period. [R307-401-8]
II.B.1.d.1 NEW	The owner/operator shall: A. Determine hours of operation by keeping an operational hours log B. Record hours of operation on a daily basis C. Use the hours of operation data to calculate a new rolling 12-month total by the 20th day of each month using data from the previous 12 months D. Keep the production records for all periods the plant is in operation. [R307-401-8]
II.B.1.e NEW	The owner/operator shall only fill the diesel storage tanks using submerged filling. [R307-401-8]
II.B.2 NEW	**Aggregate Processing Equipment Requirements**
II.B.2.a NEW	The owner/operator shall install water sprays on each crusher, screen, conveyor transfer point, and conveyor drop point on site to control emissions. Water sprays shall operate as necessary to prevent visible emissions from exceeding the opacity limits listed in this AO. [R307-401-8]
II.B.2.b NEW	The owner/operator shall perform monthly periodic inspections to check that water is flowing to water sprays associated with each crusher, screen, and conveyor. If the owner/operator finds that water is not flowing properly during an inspection of the water sprays, the owner/operator shall initiate corrective action within 24 hours and complete corrective action as expediently as practical. [40 CFR 60 Subpart OOO, R307-401-8]

II.B.2.b.1 NEW	Records of the water spray inspections shall be maintained in a logbook for all periods when the plant is in operation. The records shall include the following items: A. Date the inspections were made B. Any corrective actions taken C. Control mechanism used if sprays are not operating. [R307-401-8]
II.B.2.c NEW	The owner/operator shall not exceed the following opacity limits for the indicated emission units. A. Crushers - 12% Opacity B. Screens - 7% Opacity C. Conveyor Transfer Points - 7% Opacity D. Conveyor Drop Points - 20% Opacity. [R307-401-8]
II.B.3 NEW	**All NSPS Subpart OOO Equipment on Site Shall be Subject to the Following:**
II.B.3.a NEW	The owner/operator shall conduct an initial performance test for all crushers, screens, and conveyor transfer points. Performance tests shall meet the limitations specified in Table 3 to Subpart OOO. Records of initial performance tests shall be kept and maintained on-site for the life of the equipment. [40 CFR 60 Subpart OOO]
II.B.3.b NEW	Initial performance tests for fugitive emissions limits shall be conducted according to 40 CFR 60.675(c). The owner or operator may use methods and procedures specified in 40 CFR 60.675(e) as alternatives to the reference methods and procedures specified in 40 CFR 60.675(c). [40 CFR 60 Subpart OOO]
II.B.3.c NEW	The owner/operator shall submit written reports to the Director of the results of all performance tests conducted to demonstrate compliance with the standards set forth in 40 CFR 60.672. [40 CFR 60 Subpart OOO]
II.B.4 NEW	**Paved Haul Road Requirements**
II.B.4.a NEW	The owner/operator shall pave the entrance road to the quarry with concrete or asphalt. The total length of all paved haul roads on-site shall not be less than 0.46 miles combined. [R307-401-8]
II.B.4.a.1 NEW	The owner/operator shall: A. Record the length of all paved haul roads using satellite imagery or measurement equipment, or other methods acceptable to the Director B. Keep a record of the total paved haul road length on site at all times the facility is in operation. [R307-401-8]

II.B.4.b NEW	The owner/operator shall vacuum sweep and use water to flush all paved haul roads on-site to maintain the opacity limits listed in the AO. If the temperature is below freezing, the owner/operator shall continue to vacuum sweep the road but may stop flushing the paved haul roads with water. If the haul roads are covered in snow and ice, the owner/operator may stop vacuum sweeping and flushing the paved haul roads. [R307-401-8]
II.B.4.b.1 NEW	Records of vacuum sweeping and water application shall be kept for all periods when the plant is in operation. The records shall include the following items: A. Date and time treatments were made B. Number of treatments made and quantity of water applied C. Rainfall amount received, if any D. Records of temperature, if the temperature is below freezing E. Records shall note if the paved haul roads are covered with snow or ice. [R307-401-8]
II.B.5 NEW	**Unpaved Roads and Surfaces**
II.B.5.a NEW	The owner/operator shall cover all unpaved haul roads with road base material to reduce fugitive dust emissions from unpaved haul roads. [R307-401-8]
II.B.5.b NEW	The owner/operator shall use a chemical suppressant, water application, or other control options contained in R307-309 to minimize emissions from fugitive dust and fugitive emissions sources, including haul roads, storage piles, and unpaved areas where mobile equipment is operating. Controls shall be applied as needed to ensure the opacity limits in this AO are not exceeded. [R307-401-8]
II.B.5.b.1 NEW	Records of water and chemical treatment shall be kept for all periods when the plant is in operation. The records shall include the following items: A. Date of treatment B. Number of treatments made, dilution ratio, and quantity C. Rainfall received, if any, and approximate amount D. Time of day treatments were made E. Records of temperature if the temperature is below freezing. [R307-401-8]
II.B.6 NEW	**Fugitive Dust Source Requirements**
II.B.6.a NEW	The owner/operator shall not conduct more than 5 blasts per rolling 12-month period. [R307-401-8]

II.B.6.a.1 NEW	The owner/operator shall: A. Record the time and date of each blast on an operations log B. Use the blast data to calculate a new rolling 12-month total by the 20th day of each month using the blasting data from the previous 12-months. C. Keep blasting records onsite at all times the facility is in operation. [R307-401-8]
II.B.6.b NEW	The owner/operator shall not conduct any blasting when wind speeds are greater than 25 mph. [R307-401-8]
II.B.6.b.1 NEW	The owner/operator shall: A. Record the wind speed at the time of each blast through the use of anemometer. B. Keep wind speed data onsite at all times the facility is in operation. [R307-401-8]
II.B.6.c NEW	The owner/operator shall not allow visible emissions from haul roads and fugitive dust sources on-site to exceed 20% opacity on site and 10% opacity at the property boundary. [R307-401-8]
II.B.6.c.1 NEW	Opacity observations of fugitive dust from intermittent sources shall be conducted according to 40 CFR 60, Appendix A, Method 9; however, the requirement for observations to be made at 15-second intervals over a six-minute period shall not apply. The number of observations and the time period shall be determined by the length of the intermittent source. For fugitive dust generated by mobile sources, visible emissions shall be measured at the densest point of the plume but at a point not less than one-half vehicle length behind the vehicle and not less than one-half the height of the vehicle. [R307-401-8]
II.B.6.d NEW	The owner/operator shall control particulate emissions from storage piles using water trucks and/or water cannons. The water trucks and/or water cannons shall operate as required to ensure the opacity limits in this AO are not exceeded. [R307-401-8]
II.B.6.d.1 NEW	Records of water application to the storage piles shall be kept for all periods when the plant is in operation. The records shall include the following items: A. The date, time, and location of applications B. The volume of water applied. [R307-401-8]
II.B.6.e NEW	The owner/operator shall install, operate, and maintain a fan-powered dust collection system on all drilling operations that achieves a minimum of 95 percent control efficiency for PM_{10} emissions. [R307-401-8]
II.B.6.e.1 NEW	The owner/operator shall maintain onsite records for all drill dust-control systems, including documentation of each system's PM_{10} emission control efficiency. Such records shall be kept current and available for inspection at all times during facility operation. [R307-401-8]

II.B.6.f NEW	The owner/operator shall apply water to any drilling or blasting area before blasting or drilling when the area is not already naturally wet. [R307-401-8]
II.B.6.f.1 NEW	Records of water application shall be kept for all periods that the plant is in operation. The records should include the following: A. Date and time treatments were made B. Number of treatments made and quantity of water applied C. Rainfall amount received, if any. [R307-401-8]
II.B.6.g NEW	The owner/operator shall comply with the applicable requirements of UAC Rule R307-309 for Fugitive Emission and Fugitive Dust sources on site. This shall include the requirement to submit a Fugitive Dust Control Plan (FDCP) under UAC Rule R307-309-6. [R307-401-8]
II.B.6.h NEW	The owner/operator shall not allow the disturbed and exposed area to exceed 6 acres in size. [R307-401-8]
II.B.6.h.1 NEW	The owner/operator shall measure the size of the disturbed and exposed area using aerial photographs, land surveys, on-site measurements, or other methods acceptable to the Director at least once per month. [R307-401-8]
II.B.6.i NEW	The owner/operator shall not allow the total storage pile area to exceed 2 acres in size. [R307-401-8]
II.B.6.i.1 NEW	The owner/operator shall measure the total storage pile area using aerial photographs, land surveys, on-site measurements, or other methods acceptable to the Director at least once per month. [R307-401-8]
II.B.6.j NEW	The owner/operator shall revegetate, mulch, or use other stabilization methods approved by the director along all paved haul roads to control fugitive dust. [R307-401-8]
II.B.6.k NEW	The owner/operator shall position all overburden removed before the commencement of mining operations in locations that will serve as windbreaks to help minimize fugitive dust emissions. [R307-401-8]
II.B.7 NEW	**Diesel Engine Requirements**
II.B.7.a NEW	The owner/operator shall not operate any engine on-site for more than 500 hours per rolling 12-month period. [R307-401-8]

II.B.7.a.1 NEW	The owner/operator shall: A. Determine hours of operation by supervisor monitoring and maintaining an operational hours log B. Records hours of operation each day C. Use the hours of operation to calculate a new rolling 12-month total by the 20th day of each month using data from the previous 12 months D. Keep hours of operation records for all periods the plant is in operation. [R307-401-8]
II.B.7.b NEW	The owner/operator shall install and operate exhaust gas recirculation (EGR) systems on each of the diesel-fired generator engines. [R307-401-8]
II.B.7.b.1 NEW	The owner/operator shall operate the EGR system on each engine according to the manufacturer's operational and maintenance guidelines. [R307-401-8]
II.B.7.c NEW	The owner/operator shall only install Tier 4 diesel-fired generator engines that are certified to meet a NO_x emission rate of 0.30 g/hp-hr (0.40 g/kW-hr) or less, a CO emission rate of 2.6 g/hp-hr (3.5 g/kW-hr), and a PM emission rate of 0.015 g/hp-hr (0.02 g/kW-hr). [R307-401-8]
II.B.7.c.1 NEW	To demonstrate compliance with these emission rates, the owner/operator shall keep a record of the manufacturer's certification of each emission rate for each engine onsite at all times the facility is in operation. The record shall be kept for the life of the equipment. [R307-401-8]
II.B.7.d NEW	The owner/operator shall not allow visible emissions from the diesel-fired generator engines on-site to exceed 20% opacity. [R307-401-8]
II.B.7.d.1 NEW	Unless otherwise specified in this AO, opacity observations of emissions from stationary sources shall be conducted according to 40 CFR 60, Appendix A, Method 9. [R307-305-3]
II.B.7.e NEW	The owner/operator shall only combust diesel fuel that meets the definition of ultra-low sulfur diesel (ULSD), which has a sulfur content of 15 ppm or less. [R307-401-8]
II.B.7.e.1 NEW	To demonstrate compliance with the ULSD fuel requirement, the owner/operator shall maintain records of diesel fuel purchase invoices or obtain certification of sulfur content from the diesel fuel supplier. The diesel fuel purchase invoices shall indicate that the diesel fuel meets the ULSD requirements. [R307-401-8]
II.B.7.f NEW	The owner/operator shall operate the diesel-fired generator engines according to the manufacturer's operational and maintenance guidelines. [R307-401-8]

PERMIT HISTORY

When issued, the approval order shall supersede (if a modification) or will be based on the following documents:

Is Derived From	NOI dated August 5, 2025
Incorporates	Additional Information dated August 15, 2025
Incorporates	Additional Information dated September 22, 2025
Incorporates	Additional Information dated September 24, 2025
Incorporates	Additional Information dated September 30, 2025

REVIEWER COMMENTS

1. **Comment regarding Emissions Estimates:**
There are various sources of emissions at this facility including emissions from crushing, screening, dozing, loading, drilling, blasting, disturbed land, fugitive road, engines, and tanks. The basis for these emission calculations is briefly listed below.

   The emissions from crushing, screening and conveying aggregate were calculated using the emissions factors per "EPA Potential to Emit Calculator for Stone, Quarrying, Crushing, and Screening Plants" (November 2013) and from AP-42 11.19.2.

   The emissions from the operation of bulldozers was calculated using emissions factors from AP-42 Section 1109 Table 11.9-1.

   The drop emissions from loading aggregate onto crushers and haul trucks was calculated with uncontrolled emissions factors using the "drop equation" contained in AP-42 Section 13.2.4 (November 2006).

   The emissions from the wind erosion of storage piles was calculated using the stockpile wind erosion factor for active storage piles from AP-42 4th edition Table 8-19.1.1 and AP-42 Appendix B.2 Table B.2-2.

   The emissions from drilling and blasting were calculated using emissions factors from AP-42 Table 11.9-1, AP-42 Table 11.9-4, Ap-42 Table 13.3-1, and AP-42 Appendix B.2 Table B.2-2.

   The emissions from disturbed ground were calculated using emissions factors for "Wind Erosion of Exposed Areas" from AP-42 Table 11.9-4 and AP-42 Section 13.2.5.3.

   The emissions from paved and unpaved haul roads from the "UDAQ guidelines: Emissions Factors for Paved and Unpaved Haul Roads" (January 2015) and from Ap-42 Section 13.2.2 (November 2006).

   The emissions from the diesel generator engines were calculated based on manufacturer data and emissions factors from AP-42 in Table 3.3-1, Table 3.4-1, Table 3.3-2, Table 3.4-3, and Table 3.4-4. [Last updated November 12, 2025]

2. **Comment regarding MACT and NSPS Applicability:**
This source is subject to 40 CFR 63 (MACT) Subpart ZZZZ and 40 CFR 60 (NSPS) Subparts OOO and IIII.

40 CFR 63 Subpart ZZZZ applies to "hazardous air pollutants (HAP) emitted from stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions". Because this source is an area source and has a RICE that produces HAPs, this source is subject to Subpart ZZZZ.

40 CFR 60 Subpart OOO applies to "the following affected facilities in fixed or portable nonmetallic mineral processing plants: each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck or railcar loading station." Because this source is a mineral processing plant with crushers and screening operations, Subpart OOO applies to this source.

40 CFR 60 Subpart IIII applies to owners and operators of a stationary compression-ignition internal combustion engine that was manufactured after April 1, 2006. Because this source has engines that fit these criteria, Subpart IIII applies to this source.
[Last updated November 12, 2025]

3. **Comment regarding Title V Applicability::**
Title V of the 1990 Clean Air Act (Title V) applies to the following:

1. Any major source
2. Any source subject to a standard, limitation, or other requirement under Section 111 of the Act, Standards of Performance for New Stationary Sources;
3. Any source subject to a standard or other requirement under Section 112 of the Act, Hazardous Air Pollutants.
4. Any Title IV affected source.

This source is not a major source or a Title IV affected source. The source is subject to 40 CFR 60 (NSPS) Subparts A, IIII, and OOO under Section 111 and 40 CFR 63 (MACT) Subparts A and ZZZZ under Section 112. MACT Subpart ZZZZ and NSPS Subpart IIII exempt sources from the obligation to obtain a permit under 40 CFR part 70 (Title V permit) if the source is not otherwise required by law to obtain a permit. NSPS Subpart OOO includes opacity limitations applicable to equipment at this source. Therefore, Title V is applicable to the facility as an area source. There is no requirement for this source to apply for an initial Title V operating permit under current UDAQ and EPA rules. The source will be charged applicable Title V fees and Title V funds may be used for inventory and compliance inspections of this source.
[Last updated December 8, 2025]

ACRONYMS

The following lists commonly used acronyms and associated translations as they apply to this document:

40 CFR	Title 40 of the Code of Federal Regulations
AO	Approval Order
BACT	Best Available Control Technology
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CDS	Classification Data System (used by EPA to classify sources by size/type)
CEM	Continuous emissions monitor
CEMS	Continuous emissions monitoring system
CFR	Code of Federal Regulations
CMS	Continuous monitoring system
CO	Carbon monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent - 40 CFR Part 98, Subpart A, Table A-1
COM	Continuous opacity monitor
DAQ/UDAQ	Division of Air Quality
DAQE	This is a document tracking code for internal UDAQ use
EPA	Environmental Protection Agency
FDCP	Fugitive dust control plan
GHG	Greenhouse Gas(es) - 40 CFR 52.21 (b)(49)(i)
GWP	Global Warming Potential - 40 CFR Part 86.1818-12(a)
HAP or HAPs	Hazardous air pollutant(s)
ITA	Intent to Approve
LB/HR	Pounds per hour
LB/YR	Pounds per year
MACT	Maximum Achievable Control Technology
MMBTU	Million British Thermal Units
NAA	Nonattainment Area
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standards for Hazardous Air Pollutants
NOI	Notice of Intent
NO_x	Oxides of nitrogen
NSPS	New Source Performance Standard
NSR	New Source Review
PM_{10}	Particulate matter less than 10 microns in size
$PM_{2.5}$	Particulate matter less than 2.5 microns in size
PSD	Prevention of Significant Deterioration
PTE	Potential to Emit
R307	Rules Series 307
R307-401	Rules Series 307 - Section 401
SO_2	Sulfur dioxide
Title IV	Title IV of the Clean Air Act
Title V	Title V of the Clean Air Act
TPY	Tons per year
UAC	Utah Administrative Code
VOC	Volatile organic compounds

Emission Source	PM10		PM2.5	
	Emission Rate	Emission Total	Emission Rate	Emission Total
Dozer	1.13	0.57	0.65	0.32
Aggregate Processing Equipment[1]	0.8	0.15	0.12	0.02
Loader Routes	3.81	0.71	0.38	0.07
Storage Piles	0.13	0.59	0.07	0.3
Material Handling	1.09	0.21	0.17	0.03
Paved Haul Roads	0.7	0.13	0.07	0.01
Unpaved Haul Roads	2.32	0.44	0.23	0.04
Disturbed Area	0.26	1.14	0.03	0.17
Drill & Blast	1.08	0.07	0.27	0.02
Genset - Jaw	0.18	0.05	0.18	0.05
Genset - Cone	0.31	0.08	0.31	0.08
Genset - Screen	0.012	0.03	0.12	0.03
PROJECT TOTAL	11.822	4.17	2.6	1.14

Notes

[1] Two (2) Crushers, One (1) Screen, and Four (4) Transfer Points

PROCESS	Annual Emission Rates (TPY)							
	PM_{10}	$PM_{2.5}$	NO_x	CO	SO_2	VOC	Total HAP	CO_2e
Dozer	0.57	0.32	--	--	--	--	--	--
Aggregate Processing Equipment1	0.15	0.02	--	--	--	--	--	--
Loader Routes	0.71	0.07	--	--	--	--	--	--
Storage Piles	0.59	0.3	--	--	--	--	--	--
Material Handling	0.21	0.03	--	--	--	--	--	--
Paved Haul Roads	0.13	0.01	--	--	--	--	--	--
Unpaved Haul Roads	0.44	0.04	--	--	--	--	--	--
Disturbed Area	1.14	0.17	--	--	--	--	--	--
Drill & Blast	0.07	0.02	0.7	2.75	0.08	--	--	--
Genset - Jaw	0.00	0.00	0.04	0.37	0.00	0.16	0.00	75
Genset - Cone	0.00	0.00	0.07	0.63	0.00	0.04	0.00	127
Genset - Screen	0.00	0.00	0.03	0.25	0.00	0.11	0.00	50
PROJECT TOTAL	**4.01**	**0.98**	**0.84**	**4.00**	**0.08**	**0.31**	**0.00**	**252**
Modeling Limit[1]	5	--	40	100	40	--	10/25	--
Modeling Required?	No	No	No	No	No	No	No	No
Major Threshold[2,3,4]	250	70	70	250	70	70	10/25	100,000
Exceeding Major Source Threshold?	No	No	No	No	No	No	No	No

1. Modeling Limit is stated in UDAQ Emissions Impact Assessment Guidelines under Table 1: Total Controlled Emission Rates for New Sources.

2. Major source thresholds defined by 40 CFR section 51.165(a)(1)(iv)(A).

3. Total HAP Threshold is stated in 40 CFR Section 63.2 under definition of a Major Source.

4. 100,000 tons CO2e threshold is for "anyways" sources that are already major source for another pollutant in this table.