Statement of Basis
Concrete Batch Plant General Permit

Permit to Construct No. P-2021.0002
Project ID 62557

Sunroc Corporation 00626
Portable

Facility ID 777-00626

Final

April 30, 2021
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Permit Writer

CD

The purpose of this Statement of Basis is to satisfy the requirements of IDAPA 58.01.01.et seq, Rules for the Control of Air Pollution in Idaho, for issuing air permits.

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ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE

AAC	acceptable ambient concentrations
AACC	acceptable ambient concentrations for carcinogens
acfm	actual cubic feet per minute
bhp	break horsepower
CBP	concrete batch plant
CFR	Code of Federal Regulations
CI	compression ignition
CO	carbon monoxide
DEQ	Department of Environmental Quality
EL	screening emission levels
EPA	U.S. Environmental Protection Agency
HAP	hazardous air pollutants
hp	horsepower
hr/yr	hours per consecutive 12 calendar month period
ICE	internal combustion engines
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
lb/hr	pounds per hour
MACT	Maximum Achievable Control Technology
MMBtu	million British thermal units
NAAQS	National Ambient Air Quality Standard
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_X	nitrogen oxides
NSPS	New Source Performance Standards
PAH	polyaromatic hydrocarbons
PM	particulate matter
$PM_{2.5}$	particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
POM	polycyclic organic matter
ppm	parts per million
PSD	Prevention of Significant Deterioration
PTC	permit to construct
PTE	potential to emit
PW	process weight rate
Rules	*Rules for the Control of Air Pollution in Idaho*
scf	standard cubic feet
SM	synthetic minor
SM80	synthetic minor facility with emissions greater than or equal to 80% of a major source threshold
SO_2	sulfur dioxide
T/day	tons per calendar day
T/hr	tons per hour
T/yr	tons per consecutive 12 calendar month period
TAP	toxic air pollutants
ULSD	ultra-low sulfur diesel
VOC	volatile organic compounds
yd^3	cubic yards

FACILITY INFORMATION

Description

Sunroc Corporation 00626 has proposed a new portable truck mix concrete batch plant consisting of aggregate stockpiles, a cement storage silo, a cement supplement (fly ash) storage silo, a weigh batcher, and conveyors. The facility combines aggregate, sand, fly ash, and cement and then transfers the mixture into a truck mixer, along with water, for in-transit mixing of the concrete. In addition, water heater(s) are used to heat the water in cold weather prior to use for the mixing of concrete.

The concrete batch plant will be fed a mixture of aggregates from a collocated crusher. The rock crusher will be permitted independently from the concrete batch plant. In the case of collocation of a concrete batch plant with an additional rock crushing plant (secondary to the one rock crushing plant allowed by the permit), the modeling completed by DEQ requires a minimum separation distance of 1,000 ft.

The process begins with materials being fed via front end loader to a compartment bin feeder system and then dispensed in metered proportions to a collecting conveyor. The material will pass over a scalping screen before being conveyed into the truck mixer.

Particulate emissions will be controlled by maintaining the moisture content at 1.5% by weight for all ¼ in and smaller aggregate feed materials via water sprays. In addition, all particulate emissions from the truck mixer will be collected and vented to a high efficiency baghouse with a minimum control efficiency of 99% as proposed by the Applicant.

The Applicant has proposed concrete production rate throughput limits of 275 cubic yards per hour, 2,500 cubic yards per day, and 300,000 cubic yards per year.

The Applicant has also proposed that one compression ignition IC engines powering an electrical generator will be used to provide electricity for the facility when line power is not available.

Permitting History

This is the initial PTC for a new facility thus there is no permitting history.

Application Scope

This is the initial PTC for a new facility.

Application Chronology

January 7, 2021	DEQ received an application and an application and processing fee.
January 13 – 28, 2021	DEQ provided an opportunity to request a public comment period on the application and proposed permitting action.
January 8, 2021	DEQ determined that the application was complete.
March 26, 2021	DEQ made available the draft permit and statement of basis for peer and regional office review.
April 1, 2021	DEQ made available the draft permit and statement of basis for applicant review.
April 30, 2021	DEQ issued the final permit and statement of basis.

TECHNICAL ANALYSIS

Emissions Units and Control Equipment

Table 1 EMISSIONS UNIT AND CONTROL EQUIPMENT INFORMATION

Source ID No.	Sources	Control Equipment	Emission Point ID No.
Materials Handling	Material Transfer Points: Materials handling Concrete aggregate transfers Truck unloading of aggregate Aggregate conveyor transfers Aggregate handling	Maintaining the moisture content in ¼" or smaller aggregate material at 1.5% by weight, using water sprays, using shrouds, or other emissions controls	N/A
Concrete Mixer	Concrete Batch Plant – Truck Mix: Manufacturer: Cemco Model: 275 Manufacture Date: 2019 Max. production: 275 yd^3/hr, 2,500 yd^3/day, and 300,000 yd^3/yr Cement Storage Silo: Storage capacity: 75 cubic yards (yd^3) Bin Vent Filter/Baghouse Manufacturer[(a)]: WAM Model: Silotop Zero Second Cement Storage Silo: Storage capacity: 37.5 cubic yards (yd^3) Bin Vent Filter/Baghouse Manufacturer[(a)]: WAM Model: Silotop Zero Fly Ash Storage Silo: Storage capacity: 37.5 cubic yards (yd^3) Bin Vent Filter/Baghouse Manufacturer[(a)]: WAM Model: Silotop Zero	Weigh Batcher Baghouse: Manufacturer: WAM Model: WAM Hopperjet $PM_{10}/PM_{2.5}$ control efficiency: 99.99% Cement Storage Silo Bin Vent Filter/Baghouse: Manufacturer: WAM Model: Silotop Zero $PM_{10}/PM_{2.5}$ control efficiency: 99.9% Second Cement Storage Silo Bin Vent Filter/Baghouse: Manufacturer: WAM Model: Silotop Zero $PM_{10}/PM_{2.5}$ control efficiency: 99.9% Fly Ash Storage Silo Bin Vent Filter/Baghouse: Manufacturer: WAM Model: Silotop Zero $PM_{10}/PM_{2.5}$ control efficiency: 99.9% Truck Load-out: Control: Baghouse $PM_{10}/PM_{2.5}$ control efficiency: 99% Material Transfer Points: Control: Water sprays $PM_{10}/PM_{2.5}$ control efficiency: 75%	Weigh Batcher Baghouse Exhaust: Exit height: 20 ft (6.1 m) Exit dimensions: 24" x 6" (61.0 cm x 15.2 cm) Exit flow rate: 118 acfm Cement Storage Silo Bin Vent Filter/Baghouse Exhaust: Exit height: 35 ft (10.7 m) Exit dimensions: 24" x 6" (61.0 cm x 15.2 cm) Exit flow rate: 880 acfm Second Cement Storage Silo Bin Vent Filter/Baghouse Exhaust: Exit height: 35 ft (10.7 m) Exit dimensions: 24" x 6" (61.0 cm x 15.2 cm) Exit flow rate: 880 acfm Fly Ash Storage Silo Bin Vent Filter/Baghouse Exhaust: Exit height: 35 ft (10.7 m) Exit dimensions: 24" x 6" (61.0 cm x 15.2 cm) Exit flow rate: 880 acfm Truck Load-out Baghouse Exhaust: Exit height: 30 ft (9.14 m) Exit diameter: 8" x 12" (20.3 cm x 30.5 cm) Exit flow rate: 5,000 acfm
Boiler	Boiler: Manufacturer: TBD Model: TBD Manufacture Date: TBD Heat input rating: 9.9 MMBtu/hr Fuel: ULSD (0.0015% S by weight), Natural Gas, LPG/Propane	N/A	Boiler Exhaust: Exit height: 15 ft (4.57 m) Exit diameter: 1 ft (0.305 m) Exit temperature: 60 °F (15.6 ºC)
IC Engine	IC Engine: Manufacturer: John Deere Model: 4045HFC09 Manufacture Date: 2019 EPA Certification: Tier 4 Max. power rating: 173 bhp Fuel: ULSD (0.0015% S by weight) Daily use limit: 24 hrs/day Annual use limit: 3,200 hrs/yr	N/A	Primary IC Engine Exhaust: Exit height: 8 ft (2.44 m) Exit diameter: 3 in (7.62 cm) Exit flow rate: 699 acfm Exit temperature: 887 °F (475 ºC)

a) Both the storage silo baghouse and supplement storage silo flyash baghouse are considered process equipment and therefore there is no associated control efficiency. Controlled PM_{10} emission factors were used when determining PTE and for modeling purposes.

Emissions Inventories

Potential to Emit

IDAPA 58.01.01 defines Potential to Emit as the maximum capacity of a facility or stationary source to emit an air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the facility or source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is state or federally enforceable. Secondary emissions do not count in determining the potential to emit of a facility or stationary source.

Using this definition of Potential to Emit an emission inventory was developed for the concrete batch plant operations at the facility associated with this proposed project using the DEQ developed CBP EI spreadsheet (see Appendix A). Emissions estimates of criteria pollutant PTE were based on the following assumptions:

- Maximum concrete throughput does not exceed 275 yd^3/hour, 2,500 yd^3/day, and 300,000 yd^3/year (per the Applicant).
- Baghouse/cartridge filter control efficiencies were assumed to be 99.0%.
- Fugitive emissions of particulate matter (PM), PM_{10}, and $PM_{2.5}$ from the concrete batch plant material transfer points were assumed to be controlled by manual water sprays, sprinklers, or spray bars, or an equivalent method that reduce PM emissions by an estimated 75%. The assumed 75% control efficiency is based on the Western Regional Air Partnership Fugitive Dust Handbook. According to the Handbook, water suppressant of material handling can range from 50-90% control. Assuming the average of 70% and including another 5% due to Best Management Practices required by the permit allow for 75% control to be a conservative estimate.
- Aggregate is washed before delivery to the concrete batch plant site, and water is used on-site to control the temperature of the aggregate. Particulate matter and PM_{10} emissions from the weigh batcher transfer point are controlled by a baghouse/cartridge filter, and truck mix load-out emissions are controlled by a boot. Capture efficiency of the truck mix load-out baghouse or equivalent was estimated at 99%.
- Controlled emissions of particulate toxic air pollutants (TAPs) were estimated based on the presence of bin vent filters/baghouse controlling emissions from the cement/cement supplement silos, a baghouse controlling emissions from the weigh batcher, and 99% control for truck load-out emissions. Hexavalent chromium content was estimated at 20% of total chromium for cement, and 30% of total chromium for the cement supplement/fly ash. The hexavalent chromium percentages were taken from a University of North Dakota study, by the Energy and Environmental Research Center, Center for Air Toxic Metals. Detailed emissions calculations can be found in Appendix A of this document.
- Determining emissions from a concrete batch plant also includes transfer emissions from the number of drop points throughout the process. The PM_{10} emissions from truck-mix loading operations are defined by an equation which includes the wind speed at each drop point and the moisture content of cement and cement supplement and a number of exponents and constants defined by AP-42 Equation 11.12-1 (6/06). An average value of wind speed and moisture content are 7 mph, 4.17%, and 1.77%, respectively[1]. The following equation of particulate emissions is specific to PM_{10}. The resulting emissions were used to determine a factor to help evaluate wind speed variations in AERMOD modeling.

[1] 7 mph was the average wind speed obtained from an average of 19 Idaho airports throughout the state from 1996-2006. This data is from the Western Regional Climate Center (http://www.wrcc.dri.edu/htmlfiles/westwind.final.html#IDAHO). 4.17 % and 1.77% were the average percentages for sand and aggregate respectively. These values are based on EPA tests conducted at Cheney Enterprises. The percentages used in AP-42 are typical for most concrete batching operations.

$$E = k(0.0032) * \left[\frac{U^a}{M^b} \right] + c$$

Where:
k = particle size multiplier
a = exponent
b = exponent
c = constant
U = mean wind speed
M = moisture content

- The second transfer emissions calculations were used to determine conveyor emissions. For both coarse and fine aggregate to a conveyor. It was assumed that 82%, which for this facility is 225.5 yd^3/hr (0.82 x 275 yd^3/hr), of the concrete produced was aggregate. This percentage was based on 1,865 lb coarse aggregate, 1,428 lb sand, 564 lb cement/supplement and 167 lb water for a total of 4,024 lb concrete as defined by AP-42 Table 11.12-5 (06/06). The fine and coarse aggregate contributions were separated into 36% and 46% of the total concrete production[2]. Employing emission factors from AP-42 Table 11.12-5 (6/06) for conveyor transfer and assuming 75% control efficiency as stated earlier for conveyor transfer PM_{10} emissions were calculated for each transfer point. For both fine and coarse aggregate the facility has 9 transfer points.
- Emissions from a portable rock crusher were included in the emissions modeling analysis with the assumption that when the collocated rock crusher is operating, the concrete batch plant is operating at <u>half</u> its maximum capacity.
- Any emissions unit outside a 1,000 ft radius from the concrete batch plant was not included in the emissions modeling analysis for this project.
- Since the applicant has proposed to fire the boiler using natural gas, LPG/propane, and diesel, emissions were estimated for each fuel usage scenario and the greatest emission rate for each pollutant was selected as PTE.
- The primary IC engine powering a generator has a maximum brake-horsepower rating of less than less than or equal to 173 bhp, and proposed operation of up to 24 hour/day and 3,200 hour/year (per the Applicant).

<u>Uncontrolled Potential to Emit</u>

Using the definition of Potential to Emit, uncontrolled Potential to Emit is then defined as the maximum capacity of a facility or stationary source to emit an air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the facility or source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall **<u>not</u>** be treated as part of its design **<u>since</u>** the limitation or the effect it would have on emissions **<u>is not</u>** state or federally enforceable.

The uncontrolled Potential to Emit is used to determine if a facility is a "Synthetic Minor" source of emissions. Synthetic Minor sources are facilities that have an uncontrolled Potential to Emit for regulated air pollutants or HAP above the applicable Major Source threshold without permit limits.

The following table presents the uncontrolled Potential to Emit for regulated air pollutants from all emissions units at the facility as determined by DEQ staff using the DEQ Concrete Batch Plant EI spreadsheet. See Appendix A for a detailed presentation of the calculations and the assumptions used to determine emissions for each emissions unit. For this operation uncontrolled Potential to Emit is calculated with 0% control efficiency for the Concrete Batch Plant itself, as well as unlimited operation of the boiler and IC engine.

[2] The percentages of coarse and fine aggregate are based on the AP-42 concrete composition. One cubic yard of concrete as defined by AP-42 is 4024 total pounds. Similarly, coarse aggregate is 1865 pounds or 46% of the total and sand (fine) aggregate is 1428 pounds or 36%.

Table 2 UNCONTROLLED POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Source	$PM_{10}/PM_{2.5}$	SO_2	NO_X	CO	VOC
	T/yr	T/yr	T/yr	T/yr	T/yr
Point Sources					
Concrete batch plant[(a)]	6.32E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Boiler	1.02E+00	7.01E-01	7.11E+00	3.98E+00	5.21E-01
IC Engine	2.49E-02	8.04E-03	4.98E-01	6.23E+00	2.37E-01
Total, Point Sources	**1.68**	**0.709**	**7.61**	**10.21**	**0.76**

a) $PM_{10}/PM_{2.5}$ emissions from the concrete batch plant are considered "fugitive emissions" and therefore are not included in the Potential to Emit.

The following table presents the uncontrolled Potential to Emit for HAP pollutants from all emissions units at the facility as determined by DEQ staff using the DEQ Concrete Batch Plant EI spreadsheet. See Appendix A for a detailed presentation of the calculations and the assumptions used to determine emissions for each emissions unit. For this operation uncontrolled Potential to Emit is calculated with 0% control efficiency for the Concrete Batch Plant itself, as well as unlimited operation of the boiler and IC engine.

Table 3 UNCONTROLLED POTENTIAL TO EMIT FOR HAZARDOUS AIR POLLUTANTS

IDAPA Listing	Hazardous Air Pollutants	PTE (T/yr)
585	Acrolein	4.19E-04
	Chromium metal (II and III)	4.05E-03
	Cobalt metal dust, and fume	1.34E-06
	Ethyl benzene	7.39E-06
	Hexane	2.09E-01
	Manganese as Mn (fume)	2.09E-02
	Mercury (alkyl compounds as Hg)	4.88E-05
	Methyl chloroform	0.00
	Naphthalene	5.30E-04
	Phosphorous	1.67E-02
	Propionaldehyde	0.00
	Quinone	0.00
	Selenium	1.14E-03
	Toluene	2.89E-03
	Xylene	1.51E-03
586	Acetaldehyde	4.07E-03
	Arsenic	4.23E-03
	Benzene	4.97E-03
	Benzo(a)pyrene	1.01E-06
	Beryllium and compounds	1.17E-07
	1,3-Butadiene	2.07E-04
	Cadmium and compounds	1.11E-04
	Chromium (VI)	3.24E-06
	Formaldehyde	8.59E-03
	3-Methylcholanthrene	1.75E-08
	Nickel	4.18E-03
Not listed	Acenaphthene	9.02E-06
	Acenaphthylene	2.69E-05
	Anthracene	1.00E-05
	Benzo(b)fluoranthene	6.30E-07
	Benzo(k)fluoranthene	8.40E-07
	Benzo(e)pyrene	0.00
	Benzo(g,h,i)perylene	2.75E-06
	Chrysene	2.04E-06
	Dibenzo(a,h)anthracene	3.21E-06
	Isooctane	0.00
	Total	**0.2836**

Pre-Project Potential to Emit

Pre-project Potential to Emit is used to establish the change in emissions at a facility as a result of this project. This is a new facility. Therefore, pre-project emissions are set to zero for all criteria pollutants.

Post Project Potential to Emit

Post project Potential to Emit is used to establish the change in emissions at a facility and to determine the facility's classification as a result of this project. Post project Potential to Emit includes all permit limits resulting from this project.

The following table presents the post project Potential to Emit for criteria pollutants from all emissions units at the facility as determined by DEQ staff using the DEQ Concrete Batch Plant EI spreadsheet. See Appendix A for a detailed presentation of the calculations of these emissions for each emissions unit.

Table 4 POST PROJECT POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Source	$PM_{2.5}/PM_{10}$		SO_2		NO_X		CO		VOC	
	lb/hr[(a)]	T/yr[(b)]	lb/hr[(a)]	T/yr[(b)]	lb/hr[(a)]	T/yr[(b)]	lb/hr[(a)]	T/yr[(b)]	lb/hr[(a)]	T/yr[(b)]
Concrete batch plant	1.13E-01	1.63E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Boiler	2.33E-01	2.92E-01	1.60E-01	2.00E-01	1.62E+00	2.03E+00	9.09E-01	1.14E+00	1.19E-01	1.49E-01
IC Engine	5.69E-03	9.10E-03	1.83E-03	2.94E-03	1.14E-01	1.82E-01	1.42E+00	2.28E+00	5.40E-02	8.65E-02
Post Project Totals	**0.352**	**0.464**	**0.162**	**0.203**	**1.73**	**2.21**	**2.33**	**3.42**	**0.173**	**0.236**

a) Controlled average emission rate in pounds per hour is a daily average, based on the proposed daily operating schedule and daily limits.
b) Controlled average emission rate in tons per year is an annual average, based on the proposed annual operating schedule and annual limits.

Change in Potential to Emit

The change in facility-wide potential to emit is used to determine if a public comment period may be required and to determine the processing fee per IDAPA 58.01.01.225. The following table presents the facility-wide change in the potential to emit for criteria pollutants.

Table 5 CHANGES IN POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Source	$PM_{2.5}/PM_{10}$		SO_2		NO_X		CO		VOC	
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Pre-Project Potential to Emit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Post Project Potential to Emit	0.352	0.464	0.162	0.203	1.73	2.21	2.33	3.42	0.173	0.236
Changes in Potential to Emit	**0.352**	**0.464**	**0.162**	**0.203**	**1.73**	**2.21**	**2.33**	**3.42**	**0.173**	**0.236**

Non-Carcinogenic TAP Emissions

Pre- and post-project, as well as the change in, non-carcinogenic TAP emissions are presented in the following table:

Table 6 PRE- AND POST PROJECT POTENTIAL TO EMIT FOR NON-CARCINOGENIC TOXIC AIR POLLUTANTS

Non-Carcinogenic Toxic Air Pollutants	Pre-Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Post Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Change in 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Non-Carcinogenic Screening Emission Level (lb/hr)	Exceeds Screening Level? (Y/N)
Acrolein	0.0	4.20E-05	4.20E-05	**0.017**	No
Barium	0.0	1.60E-05	1.60E-05	**2**	No
Chromium metal (II and III)	0.0	4.64E-05	4.64E-05	**0.033**	No
Cobalt metal dust, and fume	0.0	3.06E-07	3.06E-07	**0.0033**	No
Copper (fume)	0.0	2.23E-05	2.23E-05	**0.013**	No
Ethyl benzene	0.0	1.69E-06	1.69E-06	**29**	No
Hexane	0.0	4.77E-02	4.77E-02	**12**	No
Manganese as Mn (fume)	0.0	4.98E-05	4.98E-05	**0.067**	No
Mercury (alkyl compounds as Hg)	0.0	1.11E-05	1.11E-05	**0.001**	No
Methyl chloroform	0.0	0.00	0.00	**127**	No
Methyl ethyl ketone (MEK)	0.0	0.00	0.00	**39.3**	No
Molybdenum (soluble)	0.0	4.00E-06	4.00E-06	**0.333**	No
Naphthalene (24-hour)	0.0	8.32E-03	8.32E-03	**3.33**	No
Pentane	0.0	5.82E-03	5.82E-03	**118**	No
Phosphorous	0.0	1.02E-04	1.02E-04	**0.007**	No
Propionaldehyde	0.0	0.00	0.00	**0.0287**	No
Quinone	0.0	0.00	0.00	**0.027**	No
Selenium	0.0	5.67E-05	5.67E-05	**0.013**	No
Toluene	0.0	3.50E-04	3.50E-04	**25**	No
Vanadium as V_2O_5, (respirable dust and fume)	0.0	8.37E-06	8.37E-06	**0.003**	No
Xylene	0.0	1.29E-04	1.29E-04	**29**	No
Zinc metal	0.0	1.06E-04	1.06E-04	**0.667**	No

None of the PTEs for non-carcinogenic TAP were exceeded as a result of this project. Therefore, modeling is not required for any non-carcinogenic TAP because none of the 24-hour average carcinogenic screening ELs identified in IDAPA 58.01.01.586 were exceeded.

Carcinogenic TAP Emissions

Pre- and post-project, as well as the change in, carcinogenic TAP emissions are presented in the following table:

Table 7 PRE- AND POST PROJECT POTENTIAL TO EMIT FOR CARCINOGENIC TOXIC AIR POLLUTANTS

Carcinogenic Toxic Air Pollutants	Pre-Project Annual Average Emissions Rates for Units at the Facility (lb/hr)	Post Project Annual Average Emissions Rates for Units at the Facility (lb/hr)	Change in Annual Average Emissions Rates for Units at the Facility (lb/hr)	Carcinogenic Screening Emission Level (lb/hr)	Exceeds Screening Level? (Y/N)
Acetaldehyde	0.0	3.39E-04	3.39E-04	3.0E-03	No
Arsenic	0.0	**1.38E-05**	**1.38E-05**	**1.5E-06**	**Yes**
Benzene	0.0	4.19E-04	4.19E-04	8.0E-04	No
Benzo(a)pyrene	0.0	8.65E-08	8.65E-08	2.0E-06	No
Beryllium and compounds	0.0	8.62E-06	8.62E-06	2.8E-05	No
1,3-Butadiene	0.0	1.73E-05	1.73E-05	2.4E-05	No
Cadmium and compounds	0.0	**1.04E-05**	**1.04E-05**	**3.7E-06**	**Yes**
Chromium (VI)	0.0	**7.41E-07**	**7.41E-07**	**5.6E-07**	**Yes**
Formaldehyde	0.0	**1.19E-03**	**1.19E-03**	**5.1E-04**	**Yes**
3-Methylcholanthrene	0.0	4.99E-09	4.99E-09	2.5E-06	No
Nickel	0.0	1.28E-05	1.28E-05	2.7E-05	No
POM Total	0.0	1.75E-06	1.75E-06	2.0E-06	No
Non-Listed (in 586) PAHs					
2-Methylnaphthalene	0.0	6.65E-08	6.65E-08	9.10E-05	No
Acenaphthene	0.0	1.05E-06	1.05E-06	9.10E-05	No
Acenaphthylene	0.0	2.24E-06	2.24E-06	9.10E-05	No
Anthracene	0.0	8.52E-07	8.52E-07	9.10E-05	No
Benzo(g,h,i)perylene	0.0	2.62E-07	2.62E-07	9.10E-05	No
Dichlorobenzene	0.0	3.32E-06	3.32E-06	9.10E-05	No
Fluoranthene	0.0	3.46E-06	3.46E-06	9.10E-05	No
Fluorene	0.0	1.30E-05	1.30E-05	9.10E-05	No
Naphthalene (Annual)	0.0	6.03E-05	6.03E-05	9.10E-05	No
Phenanathrene	0.0	2.33E-06	2.33E-06	9.10E-05	No
Pyrene	0.0	8.58E-08	8.58E-08	9.10E-05	No

a) Polycyclic Organic Matter (POM) is considered as one TAP comprising: benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, chrysene, indeno(1,2,3-cd)pyrene, benzo(a)pyrene. The total is compared to benzo(a)pyrene.

Some of the PTEs for carcinogenic TAP were exceeded as a result of this project. Therefore, modeling is required for Arsenic, Cadmium and compounds, Chromium (VI), and Formaldehyde because the annual average carcinogenic screening ELs identified in IDAPA 58.01.01.586 were exceeded.

Post Project HAP Emissions

The following table presents the post project potential to emit for HAP pollutants from all emissions units at the facility as submitted by the Applicant and verified by DEQ staff. See Appendix A for a detailed presentation of the calculations of these emissions for each emissions unit.

Table 8 HAZARDOUS AIR POLLUTANTS EMISSIONS POTENTIAL TO EMIT SUMMARY

IDAPA Listing	Hazardous Air Pollutants	PTE (T/yr)
585	Acrolein	1.79E-04
	Chromium metal (II and III)	2.65E-05
	Cobalt metal dust, and fume	3.82E-07
	Ethyl benzene	2.11E-06
	Hexane	**5.97E-02**
	Manganese as Mn (fume)	5.94E-05
	Mercury (alkyl compounds as Hg)	1.39E-05
	Methyl chloroform	0.00E+00
	Naphthalene	1.71E-04
	Phosphorous	3.56E-05
	Propionaldehyde	0.00E+00
	Quinone	0.00E+00
	Selenium	7.11E-05
	Toluene	9.98E-04
	Xylene	5.52E-04
586	Acetaldehyde	1.49E-03
	Arsenic	1.40E-05
	Benzene	1.81E-03
	Benzo(a)pyrene	3.65E-07
	Beryllium and compounds	3.04E-06
	1,3-Butadiene	7.58E-05
	Cadmium and compounds	1.11E-05
	Chromium (VI)	3.24E-06
	Formaldehyde	2.48E-03
	3-Methylcholanthrene	1.42E-09
	Nickel	2.15E-05
Not listed	Acenaphthene	2.87E-06
	Acenaphthylene	9.81E-06
	Anthracene	3.63E-06
	Benzo(b)fluoranthene	2.01E-07
	Benzo(k)fluoranthene	3.02E-07
	Benzo(e)pyrene	0.00E+00
	Benzo(g,h,i)perylene	9.61E-07
	Chrysene	6.98E-07
	Dibenzo(a,h)anthracene	1.14E-06
	Isooctane	0.00E+00
	Total	**0.0677**

The estimated PTE for all federally listed HAPs combined is below 25 T/yr and no PTE for a federally listed HAP exceeds 10 T/yr. Therefore, this facility is not a Major Source for HAPs.

Ambient Air Quality Impact Analyses

As presented in the Modeling Memo in Appendix B, the estimated emission rates of TAP from this project were exceeded applicable screening emission levels (EL) and published DEQ modeling thresholds established in IDAPA 58.01.01.585-586 and in the State of Idaho Air Quality Modeling Guideline[3]. Refer to the Emissions Inventories section for additional information concerning the emission inventories.

[3] Criteria pollutant thresholds in Table 1, State of Idaho Air Quality Modeling Guideline, Doc ID AQ-011, rev. 1, December 31, 2002.

The applicant has demonstrated pre-construction compliance to DEQ's satisfaction that emissions from this facility will not cause or significantly contribute to a violation of any ambient air quality standard. The applicant has also demonstrated pre-construction compliance to DEQ's satisfaction that the emissions increase due to this permitting action will not exceed any acceptable ambient concentration (AAC) or acceptable ambient concentration for carcinogens (AACC) for toxic air pollutants (TAP). A summary of the Ambient Air Impact Analysis for TAP is provided in Appendix B.

An ambient air quality impact analysis document has been crafted by DEQ based on a review of the modeling analysis submitted in the application. That document is part of the final permit package for this permitting action (see Appendix B).

As a result of the ambient air quality impact analysis, as well as information submitted by the Applicant for specific operating scenarios, the following conditions (along with corresponding monitoring and record keeping requirements) were placed in the permit:

- The Emissions Limits permit condition,
- The Concrete Production Limits permit condition,
- The Reduced Concrete Production Limits permit condition,
- The Concrete Operation Setback Distance Requirements permit condition,

REGULATORY ANALYSIS

Attainment Designation (40 CFR 81.313)

This modeling analysis for this facility demonstrates compliance with applicable standards in attainment areas. However, because a separate modeling analysis was not provided to demonstrate compliance with applicable standards in non-attainment areas, this portable facility is not permitted for operation in non-attainment areas. This requirement is assured by Permit Conditions 2.5.

Facility Classification

The AIRS/AFS facility classification codes are as follows:

For HAPs (Hazardous Air Pollutants) Only:

A = Use when any one HAP has permitted emissions > 10 T/yr or if the aggregate of all HAPS (Total HAPs) has permitted emissions > 25 T/yr.

SM80 = Use if a synthetic minor (uncontrolled HAPs emissions are > 10 T/yr or if the aggregate of all uncontrolled HAPs (Total HAPs) emissions are > 25 T/yr and permitted emissions fall below applicable major source thresholds) and the permit sets limits > 8 T/yr of a single HAP or ≥ 20 T/yr of Total HAPs.

SM = Use if a synthetic minor (uncontrolled HAPs emissions are > 10 T/yr or if the aggregate of all uncontrolled HAPs (Total HAPs) emissions are > 25 T/yr and permitted emissions fall below applicable major source thresholds) and the permit sets limits < 8 T/yr of a single HAP and/or < 20 T/yr of Total HAPs.

B = Use when the potential to emit (i.e. uncontrolled emissions and permitted emissions) are below the 10 and 25 T/yr HAP major source thresholds.

UNK = Class is unknown.

For All Other Pollutants:

A = Use when permitted emissions of a pollutant are > 100 T/yr.

SM80 = Use if a synthetic minor for the applicable pollutant (uncontrolled emissions are > 100 T/yr and permitted emissions fall below 100 T/yr) and permitted emissions of the pollutant are ≥ 80 T/yr.

SM = Use if a synthetic minor for the applicable pollutant (uncontrolled emissions are > 100 T/yr and permitted emissions fall below 100 T/yr) and permitted emissions of the pollutant are < 80 T/yr.

B = Use when the potential to emit (i.e. uncontrolled emissions and permitted emissions) are below the 100 T/yr major source threshold.

UNK = Class is unknown.

Table 9 REGULATED AIR POLLUTANT FACILITY CLASSIFICATION

Pollutant	Uncontrolled PTE (T/yr)	Permitted PTE (T/yr)	Major Source Thresholds (T/yr)	AIRS/AFS Classification
PM	1.68	0.464	**100**	B
PM_{10}	1.68	0.464	**100**	B
$PM_{2.5}$	1.68	0.464	**100**	B
SO_2	0.709	0.203	**100**	B
NO_X	7.61	2.21	**100**	B
CO	10.21	3.42	**100**	B
VOC	0.76	0.236	**100**	B
HAP (single)	0.209	0.0597	**10**	B
Total HAPs	0.284	0.0677	**25**	B

Permit to Construct (IDAPA 58.01.01.201)

IDAPA 58.01.01.201…….. Permit to Construct Required

The permittee has requested that a PTC be issued to the facility for the proposed new emissions source. Therefore, a permit to construct is required to be issued in accordance with IDAPA 58.01.01.220. This permitting action was processed in accordance with the procedures of IDAPA 58.01.01.200-228.

Tier II Operating Permit (IDAPA 58.01.01.401)

IDAPA 58.01.01.401…….. Tier II Operating Permit

The application was submitted for a permit to construct (refer to the Permit to Construct section), and an optional Tier II operating permit has not been requested. Therefore, the procedures of IDAPA 58.01.01.400–410 were not applicable to this permitting action.

Registration Procedures and Requirements for Portable Equipment (IDAPA 58.01.01.500)

IDAPA 58.01.01.500…….. Registration Procedures and Requirements for Portable Equipment

Section 01 requires that all existing portable equipment shall be registered within ninety (90) days after the original effective date of this Section 500 and at least ten (10) days prior to relocating, using forms provided by the Department, except that no registration is required for mobile internal combustion engines, marine installations and locomotives. This requirement is assured by Permit Condition 2.4.

Visible Emissions (IDAPA 58.01.01.625)

IDAPA 58.01.01.624……Visible Emissions

The sources of PM_{10} emissions at this facility are subject to the State of Idaho visible emissions standard of 20% opacity. This requirement is assured by Permit Conditions 3.4 and 4.4.

Fugitive Emissions (IDAPA 58.01.01.650)

IDAPA 58.01.01.650…….. Rules for the Control of Fugitive Emissions

The sources of fugitive emissions at this facility are subject to the State of Idaho fugitive emissions standards. These requirements are assured by Permit Conditions 2.1, 2.2, and 2.7.

Particulate Matter – New Equipment Process Weight Limitations (IDAPA 58.01.01.701)

IDAPA 58.01.01.701……Particulate Matter – New Equipment Process Weight Limitations

IDAPA 58.01.01.700 through 703 set PM emission limits for process equipment based on when the piece of equipment commenced operation and the piece of equipment's process weight (PW) in pounds per hour (lb/hr). IDAPA 58.01.01.701 and IDAPA 58.01.01.702 establish PM emission limits for equipment that commenced operation on or after October 1, 1979 and for equipment operating prior to October 1, 1979, respectively.

For equipment that commenced operation on or after October 1, 1979, the PM allowable emission rate (E) is based on one of the following four equations:

- IDAPA 58.01.01.701.01.a: If PW is < 9,250 lb/hr; $E = 0.045 (PW)^{0.60}$
- IDAPA 58.01.01.701.01.b: If PW is ≥ 9,250 lb/hr; $E = 1.10 (PW)^{0.25}$

For equipment that commenced prior to October 1, 1979, the PM allowable emission rate is based on one of the following equations:

- IDAPA 58.01.01.702.01.a: If PW is < 17,000 lb/hr; $E = 0.045 (PW)^{0.60}$
- IDAPA 58.01.01.702.01.b: If PW is ≥ 17,000 lb/hr; $E = 1.12 (PW)^{0.27}$

As discussed previously in the Emissions Inventory Section, concrete has a density of 4,024 lb per cubic yard. Thus, for the new Concrete Batch Plant proposed to be installed as a result of this project with a proposed throughput of 275 y^3/hr, E is calculated as follows:

- Proposed throughput = 4,024 lb per cubic yard x 275 y^3/hr = 1,106,600 lb/hr

Therefore, E is calculated as:

- $E = 0.045 \times PW^{0.60} = 0.045 \times (1{,}106{,}600)^{0.60} = 190$ lb-PM/hr

As presented previously in the Emissions Inventories Section of this evaluation the post project PTE for this emissions unit is 0.352 lb-PM_{10}/hr. Assuming PM is 50% PM_{10} means that PM emissions will be 0.704 lb-PM/hr (0.352 lb-PM_{10}/hr ÷ 0.5 lb-PM_{10}/lb-PM). Therefore, compliance with this requirement has been demonstrated.

Rules for Control of Odors (IDAPA 58.01.01.775)

IDAPA 58.01.01.750…… Rules for Control of Odors

Section 776.01 states that no person shall allow, suffer, cause, or permit the emission of odorous gases, liquids, or solids into the atmosphere in such quantities as to cause air pollution. These requirements are assured by Permit Conditions 2.6 and 2.9.

Title V Classification (IDAPA 58.01.01.300, 40 CFR Part 70)

IDAPA 58.01.01.301……... Requirement to Obtain Tier I Operating Permit

Post project facility-wide emissions from this facility do not have a potential to emit greater than 100 tons per year for all criteria pollutants or 10 tons per year for any one HAP or 25 tons per year for all HAP combined as demonstrated previously in the Emissions Inventories Section of this analysis. Therefore, the facility is not a Tier I source in accordance with IDAPA 58.01.01.006 and the requirements of IDAPA 58.01.01.301 do not apply.

PSD Classification (40 CFR 52.21)

40 CFR 52.21……... Prevention of Significant Deterioration of Air Quality

The facility is not a major stationary source as defined in 40 CFR 52.21(b)(1), nor is it undergoing any physical change at a stationary source not otherwise qualifying under paragraph 40 CFR 52.21(b)(1) as a major stationary source, that would constitute a major stationary source by itself as defined in 40 CFR 52. Therefore in accordance with 40 CFR 52.21(a)(2), PSD requirements are not applicable to this permitting action. The facility is/is not a designated facility as defined in 40 CFR 52.21(b)(1)(i)(a), and does not have facility-wide emissions of any criteria pollutant that exceed 250 T/yr.

NSPS Applicability (40 CFR 60)

Because the facility has a compression ignition IC engine the following NSPS Subpart is applicable:

- 40 CFR 60, Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

DEQ has been delegated authority to this subpart.

Those sections that are applicable are highlighted.

40 CFR 60, Subpart IIII **Standards of Performance for Stationary Compression Ignition Internal Combustion Engines**

This permitting action is for a new concrete batch plant. Included in the proposed permitted equipment is a single diesel-fired IC engine. Therefore, the requirements of this subpart may apply.

§ 60.4200……Am I subject to this subpart?

(a) The provisions of this subpart are applicable to manufacturers, owners, and operators of stationary compression ignition (CI) internal combustion engines (ICE) as specified in paragraphs (a)(1) through (3) of this section. For the purposes of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator.

(1) Manufacturers of stationary CI ICE with a displacement of less than 30 liters per cylinder where the model year is:

(i) 2007 or later, for engines that are not fire pump engines,

(ii) The model year listed in table 3 to this subpart or later model year, for fire pump engines.

(2) Owners and operators of stationary CI ICE that commence construction after July 11, 2005 where the stationary CI ICE are:

(i) Manufactured after April 1, 2006 and are not fire pump engines, or

(ii) Manufactured as a certified National Fire Protection Association (NFPA) fire pump engine after July 1, 2006.

(3) Owners and operators of stationary CI ICE that modify or reconstruct their stationary CI ICE after July 11, 2005.

(4) The provisions of §60.4208 of this subpart are applicable to all owners and operators of stationary CI ICE that commence construction after July 11, 2005.

(b) The provisions of this subpart are not applicable to stationary CI ICE being tested at a stationary CI ICE test cell/stand.

(c) If you are an owner or operator of an area source subject to this subpart, you are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71, provided you are not required to obtain a permit under 40 CFR 70.3(a) or 40 CFR 71.3(a) for a reason other than your status as an area source under this subpart. Notwithstanding the previous sentence, you must continue to comply with the provisions of this subpart applicable to area sources.

(d) Stationary CI ICE may be eligible for exemption from the requirements of this subpart as described in 40 CFR part 1068, subpart C (or the exemptions described in 40 CFR part 89, subpart J and 40 CFR part 94, subpart J, for engines that would need to be certified to standards in those parts), except that owners and operators, as well as manufacturers, may be eligible to request an exemption for national security.

(e) Owners and operators of facilities with CI ICE that are acting as temporary replacement units and that are located at a stationary source for less than 1 year and that have been properly certified as meeting the standards that would be applicable to such engine under the appropriate nonroad engine provisions, are not required to meet any other provisions under this subpart with regard to such engines.

This facility includes the installation of one CI stationary engine at a facility that will be constructed after July 11, 2005, that were manufactured after April 1, 2006, and that are not fire pump engines.

§ 60.4201……Emissions Standards for Manufacturers

This Section of the Subpart applies to manufacturers of IC engines. However, the Applicant is not a manufacturer of the IC engines proposed for this project. Therefore, the requirements of this Section of the Subpart are not applicable.

§ 60.4202……What emission standards must I meet for emergency engines if I am a stationary CI internal combustion engine manufacturer?

This Section of the Subpart applies to manufacturers of IC engines. However, as discussed previously, the Applicant is not a manufacturer of the IC engines proposed for this project. Therefore, the requirements of this Section of the Subpart are not applicable.

§ 60.4203……How long must my engines meet the emission standards if I am a manufacturer of stationary CI internal combustion engines?

Engines manufactured by stationary CI internal combustion engine manufacturers must meet the emission standards as required in §§60.4201 and 60.4202 during the certified emissions life of the engines.

This Section of the Subpart applies to manufacturers of IC engines. However, as discussed previously, the Applicant is not a manufacturer of the IC engines proposed for this project. Therefore, the requirements of this Section of the Subpart are not applicable.

§ 60.4204……What emission standards must I meet for non-emergency engines if I am an owner or operator of a stationary CI internal combustion engine?

(a) Owners and operators of pre-2007 model year non-emergency stationary CI ICE with a displacement of less than 10 liters per cylinder must comply with the emission standards in table 1 to this subpart. Owners and operators of pre-2007 model year non-emergency stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder must comply with the emission standards in 40 CFR 94.8(a)(1).

(b) Owners and operators of 2007 model year and later non-emergency stationary CI ICE with a displacement of less than 30 liters per cylinder must comply with the emission standards for new CI engines in §60.4201 for their 2007 model year and later stationary CI ICE, as applicable.

The Subpart requires that the Permittee comply with Table 1 of IIII if the engine is pre-2007 and has a displacement of less than 10 liters/cylinder. By installing a Tier certified 2007 or later model year IC engine, as proposed by the Applicant, the emissions requirements of this Section of the Subpart have been met. These requirements are assured by Permit Condition 4.5.

§ 60.4205……What emission standards must I meet for emergency engines if I am an owner or operator of a stationary CI internal combustion engine?

Emergency stationary CI internal combustion engines must meet the emission standards as required in §§60.4205.

This Section of the Subpart applies to emergency IC engines. However, this application is for full-time IC engines, not emergency IC engines. Therefore, the requirements of this Section of the Subpart are not applicable.

§ 60.4206……How long must my engines meet the emission standards if I am an owner or operator of a stationary CI internal combustion engine?

Owners and operators of stationary CI ICE must operate and maintain stationary CI ICE that achieve the emission standards as required in §§60.4204 and 60.4205 over the entire life of the engine.

This requirement is assured by Permit Condition 4.8.

§ 60.4207……What fuel requirements must I meet if I am an owner or operator of a stationary CI internal combustion engine subject to this subpart?

(a) Beginning October 1, 2007, owners and operators of stationary CI ICE subject to this subpart that use diesel fuel must use diesel fuel that meets the requirements of 40 CFR 80.510(a).

(b) Beginning October 1, 2010, owners and operators of stationary CI ICE subject to this subpart with a displacement of less than 30 liters per cylinder that use diesel fuel must purchase diesel fuel that meets the requirements of 40 CFR 80.510(b) for nonroad diesel fuel.

(c) [Reserved]

(d) Beginning June 1, 2012, owners and operators of stationary CI ICE subject to this subpart with a displacement of greater than or equal to 30 liters per cylinder are no longer subject to the requirements of paragraph (a) of this section, and must use fuel that meets a maximum per-gallon sulfur content of 1,000 parts per million (ppm).

(e) Stationary CI ICE that have a national security exemption under §60.4200(d) are also exempt from the fuel requirements in this section.

The Applicant has stated that they will fuel the IC engines with diesel fuel with a maximum sulfur content of 15 ppm or 0.0015% by weight which meets the requirements of this Section of the Subpart. This requirement is assured by Permit Condition 4.7.

§ 60.4208……What is the deadline for importing or installing stationary CI ICE produced in previous model years?

(a) After December 31, 2008, owners and operators may not install stationary CI ICE (excluding fire pump engines) that do not meet the applicable requirements for 2007 model year engines.

(b) After December 31, 2009, owners and operators may not install stationary CI ICE with a maximum engine power of less than 19 KW (25 HP) (excluding fire pump engines) that do not meet the applicable requirements for 2008 model year engines.

(c) After December 31, 2014, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power of greater than or equal to 19 KW (25 HP) and less than 56 KW (75 HP) that do not meet the applicable requirements for 2013 model year non-emergency engines.

(d) After December 31, 2013, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power of greater than or equal to 56 KW (75 HP) and less than 130 KW (175 HP) that do not meet the applicable requirements for 2012 model year non-emergency engines.

(e) After December 31, 2012, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power of greater than or equal to 130 KW (175 HP), including those above 560 KW (750 HP), that do not meet the applicable requirements for 2011 model year non-emergency engines.

(f) After December 31, 2016, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power of greater than or equal to 560 KW (750 HP) that do not meet the applicable requirements for 2015 model year non-emergency engines.

(g) After December 31, 2018, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power greater than or equal to 600 KW (804 HP) and less than 2,000 KW (2,680 HP) and a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder that do not meet the applicable requirements for 2017 model year non-emergency engines.

(h) In addition to the requirements specified in §§60.4201, 60.4202, 60.4204, and 60.4205, it is prohibited to import stationary CI ICE with a displacement of less than 30 liters per cylinder that do not meet the applicable requirements specified in paragraphs (a) through (g) of this section after the dates specified in paragraphs (a) through (g) of this section.

(i) The requirements of this section do not apply to owners or operators of stationary CI ICE that have been modified, reconstructed, and do not apply to engines that were removed from one existing location and reinstalled at a new location.

For the Primary IC Engine the Applicant has proposed to install a 2019 model Tier 4 certified engine that meets the applicable requirements of this Section of the Subpart for that model year IC engine. In addition, for the Secondary IC Engine the Applicant has proposed to install a 2019 model Tier 4 certified engine that meets the applicable requirements of this Section of the Subpart for that model year IC engine. These requirements are assured by Permit Condition 4.5.

§ 60.4209……What are the monitoring requirements if I am an owner or operator of a stationary CI internal combustion engine?

If you are an owner or operator, you must meet the monitoring requirements of this section. In addition, you must also meet the monitoring requirements specified in §60.4211.

(a) If you are an owner or operator of an emergency stationary CI internal combustion engine that does not meet the standards applicable to non-emergency engines, you must install a non-resettable hour meter prior to startup of the engine.

(b) If you are an owner or operator of a stationary CI internal combustion engine equipped with a diesel particulate filter to comply with the emission standards in §60.4204, the diesel particulate filter must be installed with a backpressure monitor that notifies the owner or operator when the high backpressure limit of the engine is approached.

The Applicant has not proposed an emergency IC engine. Therefore, the hour meter is not required. In addition, the Applicant has not proposed to install an IC engine with a diesel particulate filter. Therefore, the back pressure monitor is not required.

§ 60.4210……What are my compliance requirements if I am a stationary CI internal combustion engine manufacturer?

This Section of the Subpart applies to manufacturers of IC engines. However, as discussed previously, the Applicant is not a manufacturer of the IC engines proposed for this project. Therefore, the requirements of this Section of the Subpart are not applicable.

§ 60.4211……What are my compliance requirements if I am an owner or operator of a stationary CI internal combustion engine?

(a) If you are an owner or operator and must comply with the emission standards specified in this subpart, you must do all of the following, except as permitted under paragraph (g) of this section:

(1) Operate and maintain the stationary CI internal combustion engine and control device according to the manufacturer's emission-related written instructions;

(2) Change only those emission-related settings that are permitted by the manufacturer; and

(3) Meet the requirements of 40 CFR parts 89, 94 and/or 1068, as they apply to you.

(b) If you are an owner or operator of a pre-2007 model year stationary CI internal combustion engine and must comply with the emission standards specified in §§60.4204(a) or 60.4205(a), or if you are an owner or operator of a CI fire pump engine that is manufactured prior to the model years in table 3 to this subpart and must comply with the emission standards specified in §60.4205(c), you must demonstrate compliance according to one of the methods specified in paragraphs (b)(1) through (5) of this section.

(1) Purchasing an engine certified according to 40 CFR part 89 or 40 CFR part 94, as applicable, for the same model year and maximum engine power. The engine must be installed and configured according to the manufacturer's specifications.

(2) Keeping records of performance test results for each pollutant for a test conducted on a similar engine. The test must have been conducted using the same methods specified in this subpart and these methods must have been followed correctly.

(3) Keeping records of engine manufacturer data indicating compliance with the standards.

(4) Keeping records of control device vendor data indicating compliance with the standards.

(5) Conducting an initial performance test to demonstrate compliance with the emission standards according to the requirements specified in §60.4212, as applicable.

(c) If you are an owner or operator of a 2007 model year and later stationary CI internal combustion engine and must comply with the emission standards specified in §60.4204(b) or §60.4205(b), or if you are an owner or operator of a CI fire pump engine that is manufactured during or after the model year that applies to your fire pump engine power rating in table 3 to this subpart and must comply with the emission standards specified in §60.4205(c), you must comply by purchasing an engine certified to the emission standards in §60.4204(b), or §60.4205(b) or (c), as applicable, for the same model year and maximum (or in the case of fire pumps, NFPA nameplate) engine power. The engine must be installed and configured according to the manufacturer's emission-related specifications, except as permitted in paragraph (g) of this section.

(d) If you are an owner or operator and must comply with the emission standards specified in §60.4204(c) or §60.4205(d), you must demonstrate compliance according to the requirements specified in paragraphs (d)(1) through (3) of this section.

(1) Conducting an initial performance test to demonstrate initial compliance with the emission standards as specified in §60.4213.

(2) Establishing operating parameters to be monitored continuously to ensure the stationary internal combustion engine continues to meet the emission standards. The owner or operator must petition the Administrator for approval of operating parameters to be monitored continuously. The petition must include the information described in paragraphs (d)(2)(i) through (v) of this section.

(i) Identification of the specific parameters you propose to monitor continuously;

(ii) A discussion of the relationship between these parameters and NO_X and PM emissions, identifying how the emissions of these pollutants change with changes in these parameters, and how limitations on these parameters will serve to limit NO_X and PM emissions;

(iii) A discussion of how you will establish the upper and/or lower values for these parameters which will establish the limits on these parameters in the operating limitations;

(iv) A discussion identifying the methods and the instruments you will use to monitor these parameters, as well as the relative accuracy and precision of these methods and instruments; and

(v) A discussion identifying the frequency and methods for recalibrating the instruments you will use for monitoring these parameters.

(3) For non-emergency engines with a displacement of greater than or equal to 30 liters per cylinder, conducting annual performance tests to demonstrate continuous compliance with the emission standards as specified in §60.4213.

(e) If you are an owner or operator of a modified or reconstructed stationary CI internal combustion engine and must comply with the emission standards specified in §60.4204(e) or §60.4205(f), you must demonstrate compliance according to one of the methods specified in paragraphs (e)(1) or (2) of this section.

(1) Purchasing, or otherwise owning or operating, an engine certified to the emission standards in §60.4204(e) or §60.4205(f), as applicable.

(2) Conducting a performance test to demonstrate initial compliance with the emission standards according to the requirements specified in §60.4212 or §60.4213, as appropriate. The test must be conducted within 60 days after the engine commences operation after the modification or reconstruction.

(f) Emergency stationary ICE may be operated for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by Federal, State or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Maintenance checks and readiness testing of such units is limited to 100 hours per year. There is no time limit on the use of emergency stationary ICE in emergency situations. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that Federal, State, or local standards require maintenance and testing of emergency ICE beyond 100 hours per year. Emergency stationary ICE may operate up to 50 hours per year in non-emergency situations, but those 50 hours are counted towards the 100 hours per year provided for maintenance and testing. The 50 hours per year for non-emergency situations cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply non-emergency power as part of a financial arrangement with another entity. For owners and operators of emergency engines, any operation other than emergency operation, maintenance and testing, and operation in non-emergency situations for 50 hours per year, as permitted in this section, is prohibited.

(g) If you do not install, configure, operate, and maintain your engine and control device according to the manufacturer's emission-related written instructions, or you change emission-related settings in a way that is not permitted by the manufacturer, you must demonstrate compliance as follows:

(1) If you are an owner or operator of a stationary CI internal combustion engine with maximum engine power less than 100 HP, you must keep a maintenance plan and records of conducted maintenance to demonstrate compliance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, if you do not install and configure the engine and control device according to the manufacturer's emission-related written instructions, or you change the emission-related settings in a way that is not permitted by the manufacturer, you must conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of such action.

(2) If you are an owner or operator of a stationary CI internal combustion engine greater than or equal to 100 HP and less than or equal to 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of startup, or within 1 year after an engine and control device is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions, or within 1 year after you change emission-related settings in a way that is not permitted by the manufacturer.

(3) If you are an owner or operator of a stationary CI internal combustion engine greater than 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of startup, or within 1 year after an engine and control device is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions, or within 1 year after you change emission-related settings in a way that is not permitted by the manufacturer. You must conduct subsequent performance testing every 8,760 hours of engine operation or 3 years, whichever comes first, thereafter to demonstrate compliance with the applicable emission standards.

By installing a Tier certified 2007 or later model year IC engine, as proposed by the Applicant, the emissions requirements of this Section of the Subpart have been met. These requirements are assured by Permit Condition 4.5.

§ 60.4212…… What test methods and other procedures must I use if I am an owner or operator of a stationary CI internal combustion engine with a displacement of less than 30 liters per cylinder?

Owners and operators of stationary CI ICE with a displacement of less than 30 liters per cylinder who conduct performance tests pursuant to this subpart must do so according to paragraphs (a) through (e) of this section.

However, the Applicant is not required to source test the IC engines proposed for this project because they are Tier certified. Therefore, the requirements of this Section of the Subpart are not applicable.

§ 60.4213……What test methods and other procedures must I use if I am an owner or operator of a stationary CI internal combustion engine with a displacement of greater than or equal to 30 liters per cylinder?

Owners and operators of stationary CI ICE with a displacement of greater than or equal to 30 liters per cylinder must conduct performance tests according to paragraphs (a) through (f) of this section.

However, as discussed previously the Applicant is not required to source test the IC engines proposed for this project because they are Tier certified. Therefore, the requirements of this Section of the Subpart are not applicable.

§ 60.4214……What are my notification, reporting, and recordkeeping requirements if I am an owner or operator of a stationary CI internal combustion engine?

(a) Owners and operators of non-emergency stationary CI ICE that are greater than 2,237 KW (3,000 HP), or have a displacement of greater than or equal to 10 liters per cylinder, or are pre-2007 model year engines that are greater than 130 KW (175 HP) and not certified, must meet the requirements of paragraphs (a)(1) and (2) of this section.

(1) Submit an initial notification as required in §60.7(a)(1). The notification must include the information in paragraphs (a)(1)(i) through (v) of this section.

(i) Name and address of the owner or operator;

(ii) The address of the affected source;

(iii) Engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement;

(iv) Emission control equipment; and

(v) Fuel used.

(2) Keep records of the information in paragraphs (a)(2)(i) through (iv) of this section.

(i) All notifications submitted to comply with this subpart and all documentation supporting any notification.

(ii) Maintenance conducted on the engine.

(iii) If the stationary CI internal combustion is a certified engine, documentation from the manufacturer that the engine is certified to meet the emission standards.

(iv) If the stationary CI internal combustion is not a certified engine, documentation that the engine meets the emission standards.

(b) If the stationary CI internal combustion engine is an emergency stationary internal combustion engine, the owner or operator is not required to submit an initial notification. Starting with the model years in table 5 to this subpart, if the emergency engine does not meet the standards applicable to non-emergency engines in the applicable model year, the owner or operator must keep records of the operation of the engine in emergency and non-emergency service that are recorded through the non-resettable hour meter. The owner must record the time of operation of the engine and the reason the engine was in operation during that time.

(c) If the stationary CI internal combustion engine is equipped with a diesel particulate filter, the owner or operator must keep records of any corrective action taken after the backpressure monitor has notified the owner or operator that the high backpressure limit of the engine is approached

The IC engines proposed to be installed by the Applicant are Tier certified 2007 or later model year IC engines. Therefore, the requirements of this Section of the Subpart are not applicable.

§ 60.4218……What parts of the General Provisions apply to me?

Table 8 to this subpart shows which parts of the General Provisions in §§60.1 through 60.19 apply to you.

These requirements are assured by Permit Condition 4.11.

NESHAP Applicability (40 CFR 61)

The facility is not subject to any NESHAP requirements in 40 CFR 61.

MACT Applicability (40 CFR 63)

Because the facility has a compression ignition IC engine the following NESHAP Subpart may be applicable:

- 40 CFR 63, Subpart ZZZZ - National Emission Standard for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

However, as discussed previously in the NSPS Applicability (40 CFR 60) section, Subpart IIII applies to the proposed Tier certified IC engine. Therefore, the requirements of NESHAP Subpart ZZZZ do not apply to the IC engine proposed for this project.

Permit Conditions Review

This section describes the permit conditions for this initial permit or only those permit conditions that have been added, revised, modified or deleted as a result of this permitting action.

Permit Condition 1.1 establishes the permit to construct scope.

Permit Condition, Table 1.1, provides a description of the purpose of the permit and the regulated sources, the process, and the control devices used at the facility.

FACILITY-WIDE CONDITIONS

As discussed previously, Permit Condition 2.1 establishes that the permittee shall take all reasonable precautions to prevent fugitive particulate matter (PM) from becoming airborne and provides examples of the controls in accordance with IDAPA 58.01.01.650-651.

As discussed previously, Permit Condition 2.2 establishes that the concrete batch plant shall employ efficient fugitive dust controls and provides examples of the controls in accordance with IDAPA 58.01.01.808.01 and 808.02.

Permit Condition 2.3 establishes that the concrete batch plant may collocate with one rock crushing plant and shall not locate with 1,000 ft. of another rock crushing plant or a concrete batch plant as requested by the Applicant.

As discussed previously, Permit Condition 2.4 establishes that the permittee notify DEQ when the permitted portable equipment is relocated. This requirement is based upon imposing reasonable permit conditions for portable concrete batch plants.

Permit Condition 2.5 establishes a restriction on locating the portable concrete batch plant to non-attainment areas. The location restrictions are based upon parameters used during the ambient air quality modeling analysis performed for this project.

As discussed previously, Permit Condition 2.6 establishes that there are to be no emissions of odorous gases, liquids, or solids from the permit equipment into the atmosphere in such quantities that cause air pollution.

As discussed previously, Permit Condition 2.7 establishes that the permittee shall monitor fugitive dust emissions on a daily basis to demonstrate compliance with the facility-wide permit requirements.

Permit Condition 2.8 establishes that the permittee measure and record the distances to equipment that will be collocated with the concrete batch plant to demonstrate compliance with the Collocation Restrictions permit condition.

As discussed previously, Permit Condition 2.9 establishes that the permittee monitor and record odor complaints to demonstrate compliance with the facility-wide permit requirements.

Permit Condition 2.10 establishes that the permittee shall maintain records as required by the Recordkeeping General Provision.

CONCRETE BATCH PLANT EQUIPMENT

Permit Condition 3.1 provides a process description of the concrete production process at this facility.

Permit Condition 3.2 provides a description of the control devices used on the concrete production equipment at this facility.

Permit Condition 3.3 establishes hourly and annual emissions limits for $PM_{2.5}$, SO_2, NO_X, CO, and VOC emissions from the concrete production operation at this facility.

As discussed previously, Permit Condition 3.4 establishes a 20% opacity limit for the concrete batch plant baghouse and the boiler stacks or functionally equivalent openings associated with the concrete production operation.

Permit Condition 3.5 establishes an hourly, a daily, and an annual concrete production limit for the concrete production operation as proposed by the applicant.

Permit Condition 3.6 establishes a daily concrete production limit for the concrete production operation when operated on days when a collocated portable rock crusher is operated. This requirement was based upon the air quality modeling analysis performed for this application.

Permit Condition 3.7 establishes setback distance restrictions for the concrete production operation when the IC engines are operating and not operating. The setback distance restrictions are based upon the results of the Ambient Air Quality Modeling Analysis performed for this project.

Permit Condition 3.8 requires that the applicant employ a baghouse filter to control emissions from the weigh batcher loadout operation as proposed by the applicant.

Permit Condition 3.9 requires that the applicant employ a baghouse to control emissions from the truck loadout operation as proposed by the applicant.

Permit Condition 3.10 requires that the applicant employ a baghouse to control emissions from the fly ash silo operation as proposed by the applicant.

Permit Condition 3.11 requires that the applicant employ industry specific water sprays on material transfer points to control fugitive emissions as proposed by the applicant.

Permit Condition 3.12 establishes that the boiler will only operate a limited number of hours per year. This operational limit was included because it limited emissions from the boiler.

Permit Condition 3.13 establishes the specifications of the fuel combusted in the boiler. This operational limit was included because it limited emissions from the boiler.

Permit Condition 3.14establishes that the permittee monitor and record hourly and daily concrete production to demonstrate compliance with the Concrete Production Limits permit condition.

Permit Condition 3.15 establishes that the permittee measure and record concrete production equipment setback distances to demonstrate compliance with operating permit requirements.

Permit Condition 3.16 establishes that the permittee shall establish procedures for operating the weigh batcher and truck loadout baghouses. This is a DEQ imposed standard requirement for operations using baghouses to control particulate emissions.

Permit Condition 3.17 establishes that the permittee shall record monthly operation of the boiler to demonstrate compliance with the Boiler Operation Limits permit requirement.

Permit Condition 3.18 establishes that the permittee shall record the fuel specifications of the fuel delivered for the boiler to demonstrate compliance with the Boiler Fuel Specification permit requirement.

Permit Condition 3.19 establishes that the permittee shall maintain records as required by the Recordkeeping General Provision.

INTERNAL COMBUSTION ENGINES

Permit Condition 4.1 provides a process description of the IC engines process at this facility.

Permit Condition 4.2 provides a description of the control devices used on the IC engines at this facility.

Permit Condition 4.3 establishes hourly and annual emissions limits for $PM_{10}/PM_{2.5}$, SO_2, NO_X, CO, and VOC emissions from the IC engines at this facility.

As discussed previously, Permit Condition 4.4 establishes a 20% opacity limit for the Primary IC Engine exhaust stacks or functionally equivalent openings associated with the IC engine operation.

Permit Condition 4.5 establishes that the IC engine shall be EPA Tier certified to the certification proposed by the applicant.

Permit Condition 4.6 establishes an annual operation limit for the IC Engine as proposed by the applicant.

Permit Condition 4.7 establishes fuel use restrictions for combustion in the IC Engine. These fuel use restrictions were based on the fuel proposed by the Applicant to be combusted in the Primary IC Engine.

As discussed previously, Permit Condition 4.8 establishes operation and maintenance requirements for the IC Engine as required by 40 CFR 60, Subpart IIII for Stationary Compression Ignition Internal Combustion Engines.

As discussed previously, Permit Condition 4.9 establishes where the notifications for the IC engine as required by 40 CFR 60, Subpart IIII for Stationary Compression Ignition Internal Combustion Engines should be sent.

Permit Condition 4.10 establishes that the federal requirements of 40 CFR Part 60, Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines are incorporated by reference into the requirements of this permit per current DEQ guidance.

Permit Condition 4.11 incorporates 40 CFR 60, Subpart A – General Provisions as required by 40 CFR Part 60, Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines.

Permit Condition 4.12 establishes that the permittee monitor and record daily operation of the IC Engine to demonstrate compliance with the IC Engine Operating Limits permit condition.

Permit Condition 4.13 establishes that the permittee monitor distillate fuel oil shipments to demonstrate compliance with the distillate fuel oil requirements of the permit.

Permit Condition 4.14 establishes that the permittee shall maintain records as required by the Recordkeeping General Provision.

PUBLIC REVIEW

Public Comment Opportunity

An opportunity for public comment period on the application was provided in accordance with IDAPA 58.01.01.209.01.c or IDAPA 58.01.01.404.01.c. During this time, there were no comments on the application and there was not a request for a public comment period on DEQ's proposed action. Refer to the chronology for public comment opportunity dates.

APPENDIX A – EMISSIONS INVENTORIES

Final Concrete Batch Plant Emissions Inventory

Listed Below are the emissions estimates for the units selected.

Company:	**Sunroc Corporation 00626**
Facility ID:	**777-00626**
Permit No.:	**P-2021.0002 Project 62557**
Source Type:	**Portable Concrete Batch Plant**
Manufacturer/Model:	**Cemco 275**

Production

Maximum Hourly Production Rate:	275	cy/hr
Proposed Daily Production Rate:	2500	cy/day
Proposed Maximum Annual Production Rate:	300000	cy/year

Tons/year

Emissions Units		$PM_{2.5}$	PM_{10}	SO_2	NO_x	CO	VOC	Lead	THAPs	CO_2e
CBP Type:	**Truck Mix**	8.40E-02	1.63E-01	NA	NA	NA	NA	2.61E-05		N/A
Water Heater #1:	**9.9 MMBtu/hr Propane Heater**	1.08E-01	1.08E-01	2.00E-01	2.03E+00	1.14E+00	1.49E-01	0.00E+00		1299
Water Heater #2:	**No water heater**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0
Small Diesel Engine(s) *:	**173 bhp, Tier 4 engine**	9.10E-03	9.10E-03	2.94E-03	1.82E-01	2.28E+00	8.65E-02	NA		318
Large Diesel Engine *:	**No Large Engine**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA		0
	Annual Totals (T/yr)	**0.20**	**0.28**	**2.03E-01**	**2.21**	**3.41**	**0.24**	**2.61E-05**	**7.80E-03**	**1617**

Pounds/hour

		$PM_{2.5}$	PM_{10}	SO_2	NO_x	CO	VOC	Lead	THAPs
CBP Type:	**Truck Mix**	5.83E-02	1.13E-01	NA	NA	NA	NA	8.76E-06	
Water Heater #1:	**9.9 MMBtu/hr Propane Heater**	8.66E-02	8.66E-02	1.60E-01	1.62E+00	9.09E-01	1.19E-01	0.00E+00	
Water Heater #2:	**No water heater**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Small Diesel Engine(s) *:	**173 bhp, Tier 4 engine**	5.69E-03	5.69E-03	1.83E-03	1.14E-01	1.42E+00	5.40E-02	NA	
Large Diesel Engine*:	**No Large Engine**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	
	Daily Totals (lb/hr)	**0.15**	**0.21**	**1.62E-01**	**1.74**	**2.33**	**0.17**	**8.76E-06**	**1.90E-03**

* The Large engine may run : **There is no large engine.** hr/yr
* The Small engine(s) may run : **3200** hr/yr

HAPS & TAPS Emissions Inventory

Metals	HAP	TAP	lb/hr	T/yr	Averaging Period	EL lb/hr	Exceeded?
Arsenic	X	X	**2.46E-06**	**1.08E-05**	Annual	1.50E-06	**Yes**
Barium		X	**0.00E+00**	**0.00E+00**	24-hour	3.30E-02	**No**
Beryllium	X	X	**1.41E-07**	**6.16E-07**	Annual	2.80E-05	**No**
Cadmium	X	X	**1.97E-06**	**8.63E-06**	Annual	3.70E-06	**No**
Cobalt	X	X	**0.00E+00**	**0.00E+00**	24-hour	3.30E-03	**No**
Copper		X	**0.00E+00**	**0.00E+00**	24-hour	1.30E-02	**No**
Chromium	X	X	**3.53E-05**	**1.26E-05**	24-hour	3.30E-02	**No**
Manganese	X	X	**2.75E-05**	**3.16E-05**	24-hour	3.33E-01	**No**
Mercury	X	X	**0.00E+00**	**0.00E+00**	24-hour	N/A	**No**
Molybdenum (soluble)		X	**0.00E+00**	**0.00E+00**	24-hour	3.33E-01	**No**
Nickel	X	X	**4.35E-06**	**1.91E-05**	Annual	2.70E-05	**No**
Phosphorus	X	X	**1.02E-04**	**3.56E-05**	24-hour	7.00E-03	**No**
Selenium	X	X	**1.04E-06**	**1.50E-06**	24-hour	1.30E-02	**No**
Vanadium		X	**0.00E+00**	**0.00E+00**	24-hour	3.00E-03	**No**
Zinc		X	**0.00E+00**	**0.00E+00**	24-hour	6.67E-01	**No**
Chromium VI	X	X	**7.41E-07**	**3.24E-06**	Annual	5.60E-07	**Yes**
Non PAH Organic Compunds							
Pentane		X	**0.00E+00**	**0.00E+00**	24-hour	118	**No**
Methyl Ethyl Ketone	X	X	**0.00E+00**	**0.00E+00**	24-hour	39.3	**No**
Non-PAH HAPs							
Acetaldehyde	X	X	**3.39E-04**	**1.49E-03**	Annual	3.00E-03	**No**
Acrolein	X	X	**4.20E-05**	**1.79E-04**	24-hour	1.70E-02	**No**
Benzene	X	X	**4.13E-04**	**1.81E-03**	Annual	8.00E-04	**No**
1,3 - Butadiene	X	X	**1.73E-05**	**7.58E-05**	Annual	2.40E-05	**No**
Ethyl Benzene	X	X	**0.00E+00**	**0.00E+00**	24-hour	29	**No**
Formaldehyde	X	X	**5.22E-04**	**2.29E-03**	Annual	5.10E-04	**Yes**
Hexane	X	X	**0.00E+00**	**0.00E+00**	24-hour	12	**No**
Methyl Chloroform	X	X	**0.00E+00**	**0.00E+00**	24-hour	127	**No**
Propionaldehyde	X	X	**0.00E+00**	**0.00E+00**	24-hour	2.87E-02	**No**
Quinone	X	X	**0.00E+00**	**0.00E+00**	24-hour	2.70E-02	**No**
Toluene	X	X	**1.86E-04**	**7.92E-04**	24-hour	25	**No**
o-Xylene	X	X	**1.29E-04**	**5.52E-04**	24-hour	29	**No**
PAH HAPs							
2-Methylnaphthalene	X	X	**0.00E+00**	**0.00E+00**	Annual	9.10E-05	**No**
3-Methylcholanthrene	X	X	**0.00E+00**	**0.00E+00**	Annual	2.50E-06	**No**
7,12-Dimethylbenz(a)anthracene	X		**0.00E+00**	**0.00E+00**	N/A	N/A	**N/A**
Acenaphthene	X	X	**6.28E-07**	**2.75E-06**	Annual	9.10E-05	**No**
Acenaphthylene	X	X	**2.24E-06**	**9.80E-06**	Annual	9.10E-05	**No**
Anthracene	X	X	**8.27E-07**	**3.62E-06**	Annual	9.10E-05	**No**
Benzo(a)anthracene	X	X	**7.43E-07**	**3.26E-06**	Annual	9.10E-05	**No**
Benzo(a)pyrene	X	X	**8.32E-08**	**3.64E-07**	Annual	2.00E-06	**No**
Benzo(b)fluoranthene	X	X	**4.38E-08**	**1.92E-07**	Annual	2.00E-06	**No**
Benzo(e)pyrene	X	X	**0.00E+00**	**0.00E+00**	Annual	2.00E-06	**No**
Benzo(g,h,i)perylene	X	X	**2.16E-07**	**9.47E-07**	Annual	9.10E-05	**No**
Benzo(k)fluoranthene	X	X	**6.86E-08**	**3.00E-07**	Annual	2.00E-06	**No**
Chrysene	X	X	**1.56E-07**	**6.84E-07**	Annual	2.00E-06	**No**
Dibenzo(a,h)anthracene	X	X	**2.58E-07**	**1.13E-06**	Annual	2.00E-06	**No**
Dichlorobenzene	X	X	**0.00E+00**	**0.00E+00**	Annual	9.10E-05	**No**
Fluoranthene	X	X	**3.37E-06**	**1.47E-05**	Annual	9.10E-05	**No**
Fluorene	X	X	**1.29E-05**	**5.66E-05**	Annual	9.10E-05	**No**
Indeno(1,2,3-cd)pyrene	X	X	**1.66E-07**	**7.27E-07**	Annual	2.00E-06	**No**
Naphthalene (24-hour)	X	X	**0.00E+00**	**1.64E-04**	24-hour	3.33	**No**
Naphthalene (Annual)	X	X	**3.75E-05**	**1.64E-04**	Annual	9.10E-05	**No**
Perylene	X		**1.30E-05**	**5.70E-05**	N/A	N/A	**N/A**
Phenanathrene	X	X	**2.11E-06**	**9.26E-06**	Annual	9.10E-05	**No**
Pyrene	X	X	**0.00E+00**	**0.00E+00**	Annual	9.10E-05	**No**
PAH HAPs Total	X	X	**1.52E-06**		Annual	2.00E-06	**No**
Polycyclic Organic Matter (POM)	X	X	**1.52E-06**	**6.65E-06**	Annual	2.00E-06	**No**
PAH TAPs Total (except 7-PAH)			2.24E-05	3.20E-04			

Total HAPs Emissions (lb/hr) and (T/yr): 1.90E-03 7.80E-03

APPENDIX B – AMBIENT AIR QUALITY IMPACT ANALYSES

M E M O R A N D U M DRAFT

DATE: February 23, 2021

TO: Chris Duerschner, Permit Writer, Air Program

FROM: Kevin Schilling, Air Quality Dispersion Modeling Supervisor, Air Program

PROJECT: P-2021.0002 Project 62557 – Sunroc Corporation initial Permit to Construct for a portable Concrete Batch Plant

SUBJECT: Demonstration of Compliance with IDAPA 58.01.01.203.02 (NAAQS) and 203.03 (TAPs) as it relates to air quality impact analyses.

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Acronyms, Units, and Chemical Nomenclature

AAC	Acceptable Ambient Concentration of a non-carcinogenic TAP
AACC	Acceptable Ambient Concentration of a Carcinogenic TAP
acfm	Actual cubic feet per minute
AERMAP	The terrain data preprocessor for AERMOD
AERMET	The meteorological data preprocessor for AERMOD
AERMOD	American Meteorological Society/Environmental Protection Agency Regulatory Model
Appendix W	40 CFR 51, Appendix W – Guideline on Air Quality Models
As	Arsenic
BPIP	Building Profile Input Program
BRC	Below Regulatory Concern
CBP	Concrete Batch Plant
CFR	Code of Federal Regulations
CMAQ	Community Multi-Scale Air Quality Modeling System
CO	Carbon Monoxide
cy	cubic yards
DEQ	Idaho Department of Environmental Quality
EL	Emissions Screening Level of a TAP
EPA	United States Environmental Protection Agency
GEP	Good Engineering Practice
hr	hours
Idaho Air Rules	Rules for the Control of Air Pollution in Idaho, located in the Idaho Administrative Procedures Act 58.01.01
ISCST3	Industrial Source Complex Short Term 3 dispersion model
K	Kelvin
m	Meters
m/sec	Meters per second
MMBtu	Million British Thermal Units
NAAQS	National Ambient Air Quality Standards
NO	Nitrogen Oxide
NO_2	Nitrogen Dioxide
NOx	Oxides of Nitrogen
NWS	National Weather Service
O_3	Ozone
Pb	Lead
PM_{10}	Particulate matter with an aerodynamic particle diameter less than or equal to a nominal 10 micrometers
$PM_{2.5}$	Particulate matter with an aerodynamic particle diameter less than or equal to a nominal 2.5 micrometers
ppb	parts per million
PRIME	Plume Rise Model Enhancement
PTC	Permit to Construct
PTE	Potential to Emit
SIL	Significant Impact Level

SO_2	Sulfur Dioxide
SRC	Sunroc Corporation
TAP	Toxic Air Pollutant
tpy	tons per year
VOC	Volatile Organic Compounds
$\mu g/m^3$	Micrograms per cubic meter of air

1.0 Summary

Sunroc Corporation (SRC) submitted a Permit to Construct (PTC) application for a portable concrete batch plant (CBP) for operation in Idaho. Idaho Administrative Procedures Act 58.01.01.203.02 and 203.03 (Idaho Air Rules Section 203.02 and 203.03) requires that no permit be issued unless it is demonstrated that applicable emissions do not result in violation of a National Ambient Air Quality Standard (NAAQS) or Toxic Air Pollutant (TAP) increment. NAAQS compliance demonstrations were not required for permit issuance because emissions of criteria pollutants were below levels defined as Below Regulatory Concern (BRC). TAP impact analyses were performed for applicable TAPs, demonstrating compliance with TAP increments. This memorandum provides a summary of the applicability assessments and analyses used to demonstrate compliance with applicable NAAQS and TAP increments, as required by Idaho Air Rules Section 203.02 and 203.03.

SRC prepared the PTC application. DEQ calculated air pollutant emissions associated with the project, evaluated the need to perform air impact analyses, and performed required impact analyses to demonstrate compliance with applicable NAAQS and TAP increments. DEQ review of submitted data and DEQ analyses summarized by this memorandum addressed only the rules, policies, methods, and data pertaining to the air impact analyses used to demonstrate that estimated emissions associated with operation of the facility will not cause or significantly contribute to a violation of any applicable air quality standard. This review did not address/evaluate compliance with other rules or analyses not pertaining to the air impact analyses. Evaluation of emission estimates was the responsibility of the DEQ permit writer and is addressed in the main body of the DEQ Statement of Basis, and emission calculation methods were not evaluated in this modeling review memorandum.

The submitted information and analyses: 1) showed either a) that estimated potential/allowable emissions are at a level defined as BRC and do not require a NAAQS compliance demonstration, or b) that criteria pollutant emissions increases resulting from the proposed project are below site-specific modeling applicability thresholds, developed to assure that emissions below such levels will not result in ambient air impacts exceeding Significant Impact Levels (SILs); 2) showed either a) that TAP emissions increases associated with the project are either below applicable emission screening levels (ELs) or are exempt from the requirement to assess impacts, or b) modeled TAP impacts to ambient air are below TAP increments of Idaho Air Rules.

Table 1 presents key assumptions should be considered in the permit writer's evaluation of the proposed project.

The submitted information and analyses demonstrated to the satisfaction of the Department that operation of the proposed project will not cause or significantly contribute to a violation of any applicable ambient air quality standard, provided the key conditions in Table 1 are representative of facility design capacity or operations as limited by a federally enforceable permit condition. The DEQ permit writer should use Table 1 and other information presented in this memorandum to generate appropriate permit provisions/restrictions to assure emissions do not exceed applicable regulatory thresholds requiring further analyses.

Table 1. KEY ASSUMPTIONS USED IN MODELING ANALYSES	
Criteria/Assumption/Result	**Explanation/Consideration**
Setback from Ambient Air Boundary. A minimum 30-meter (98 feet) separation must be maintained between the storage silo vents and the release point of the truck loadout baghouse and the nearest point of public access (generally the property boundary).	This setback is needed to assure compliance with the TAP AACCs.
Allowable Throughput. An annual throughput restriction of 300,000 cubic yards of concrete was used to demonstrate compliance with TAP increment standards.	An annual throughput restriction is also needed to ensure that annual emissions of criteria pollutants remain below BRC levels.
General Emissions Rates. Emissions rates used in the dispersion modeling analyses, as listed in this memorandum, must represent maximum potential emissions as given by design capacity, inherently limited by the nature of the process or configuration of the facility, or as limited by the issued permit for the specific pollutant and averaging period.	Compliance has not been demonstrated for emissions rates greater than those used in the modeling analyses.
Below Regulatory Concern for Criteria Pollutant Emissions. Maximum stationary, non-fugitive annual emissions of PM_{10}[a], $PM_{2.5}$[b], oxides of nitrogen (NOx), carbon monoxide (CO), sulfur dioxide (SO_2), and lead (Pb) are below levels identified as below regulatory concern (BRC) as per Idaho Air Rules Section 221, and the project would be exempt from permitting if it were not for emissions of TAPs exceeding regulatory exemption criteria.	Idaho Air Rules Section 203.02, requiring air impact analyses demonstrating compliance with NAAQS, is not applicable to pollutants having a project-emissions increase that is less than BRC levels, provided the project would have qualified for a BRC permitting exemption except for the emissions levels of another criteria pollutant exceeding the ton/year BRC threshold.
Location with other pollutant emitting equipment. A rock crushing plant may be operated with the CBP, provided the crushing plant is permitted by a DEQ Permit by Rule (PBR). No other stationary, non-fugitive emission sources may be operated within 1,000 feet of the CBP storage silo vents or the truck loadout baghouse release point.	Emissions from a rock crushing plant are fugitive (as defined by Idaho Air Rules) and, as such, they do not contribute to the CBP potential to emit (PTE) for permit applicability and the requirement to demonstrate compliance with NAAQS. DEQ determined that equipment located beyond 1,000 feet will not be considered as co-contributing and can be excluded from air impact analyses.

[a.] Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
[b.] Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.

2.0 Background Information

This section provides background information applicable to the project and the site where the facility is located. It also provides a brief description of the applicable air impact analyses requirements for the project.

2.1 Project Description

The SRC project is a portable concrete batch plant (CBP). Pollutant-emitting processes conducted at the CBP will include material handling of cement, handling of cement supplements, handling of aggregate, and combustion of fuel in a water heater and a generator powered by a 173 horsepower, EPA Tier 4, diesel internal combustion engine. The PTC addresses all air pollutant emitting activities associated with the CBP.

2.2 Air Impact Analyses Required for All Permits to Construct

Idaho Air Rules Sections 203.02 and 203.03:

> *No permit to construct shall be granted for a new or modified stationary source unless the applicant shows to the satisfaction of the Department all of the following:*

02. NAAQS*. The stationary source or modification would not cause or significantly contribute to a violation of any ambient air quality standard.*

03. Toxic Air Pollutants. *Using the methods provided in Section 210, the emissions of toxic air pollutants from the stationary source or modification would not injure or unreasonably affect human or animal life or vegetation as required by Section 161. Compliance with all applicable toxic air pollutant carcinogenic increments and toxic air pollutant non-carcinogenic increments will also demonstrate preconstruction compliance with Section 161 with regards to the pollutants listed in Sections 585 and 586.*

Atmospheric dispersion modeling, using computerized simulations, is used to demonstrate compliance with both NAAQS and TAPs. Idaho Air Rules Section 202.02 states:

02. Estimates of Ambient Concentrations*. All estimates of ambient concentrations shall be based on the applicable air quality models, data bases, and other requirements specified in 40 CFR 51 Appendix W (Guideline on Air Quality Models).*

2.3 Significant Impact Level and Cumulative NAAQS Impact Analyses

If specific criteria pollutant emission increases associated with the proposed permitting project cannot qualify for a BRC exemption as per Idaho Air Rules Section 221, then the permit cannot be issued unless the application demonstrates that applicable emission increases will not cause or significantly contribute to a violation of NAAQS, as required by Idaho Air Rules Section 203.02.

The first phase of a NAAQS compliance demonstration is to evaluate whether the proposed facility/project could have a significant impact to ambient air. Section 3.1.1 of this memorandum describes the applicability evaluation of Idaho Air Rules Section 203.02. The Significant Impact Level (SIL) analysis for a new facility or proposed modification to a facility involves modeling estimated criteria air pollutant emissions from the facility or modification to determine the potential impacts to ambient air. Air impact analyses are required by Idaho Air Rules to be conducted in accordance with methods outlined in Appendix W. Appendix W requires that facilities be modeled using emissions and operations representative of design capacity or as limited by a federally enforceable permit condition.

A facility or modification is considered to have a significant impact on air quality if maximum modeled impacts to ambient air exceed the established SIL listed in Idaho Air Rules Section 006 (referred to as a "significant contribution" in Idaho Air Rules) or as incorporated by reference as per Idaho Air Rules Section 107.03.b. Table 2 lists the applicable SILs.

If modeled maximum pollutant impacts to ambient air from the emission sources associated with a new facility or modification exceed the SILs, then a cumulative NAAQS impact analysis is necessary to demonstrate compliance with NAAQS and Idaho Air Rules Section 203.02.

A cumulative NAAQS impact analysis for attainment area pollutants involves assessing ambient impacts (typically the design values consistent with the form of the standard) from potential/allowable emissions resulting from the project and emissions from any nearby co-contributing sources (including existing emissions from the facility that are unrelated to the project, and then adding a DEQ-approved background concentration value to the modeled result that is appropriate for the criteria pollutant/averaging-period at the facility location and the area of significant impact. The resulting pollutant concentrations in ambient air are then compared to the NAAQS listed in Table 2. Table 2 also lists SILs and specifies the modeled

design value that must be used for comparison to the NAAQS. NAAQS compliance is evaluated on a receptor-by-receptor basis for the modeling domain.

Table 2. APPLICABLE REGULATORY LIMITS

Pollutant	Averaging Period	Significant Impact Levels[a] ($\mu g/m^3$)[b]	Regulatory Limit[c] ($\mu g/m^3$)	Modeled Design Value Used[d]
PM_{10}[e]	24-hour	5.0	150[f]	Maximum 6th highest[g]
$PM_{2.5}$[h]	24-hour	1.2	35[i]	Mean of maximum 8th highest[j]
	Annual	0.2	12[k]	Mean of maximum 1st highest[l]
Carbon monoxide (CO)	1-hour	2,000	40,000[m]	Maximum 2nd highest[n]
	8-hour	500	10,000[m]	Maximum 2nd highest[n]
Sulfur Dioxide (SO_2)	1-hour	3 ppb[o] (7.8 $\mu g/m^3$)	75 ppb[p] (196 $\mu g/m^3$)	Mean of maximum 4th highest[q]
	3-hour	25	1,300[m]	Maximum 2nd highest[n]
	24-hour	5	365[m]	Maximum 2nd highest[n]
	Annual	1.0	80[r]	Maximum 1st highest[n]
Nitrogen Dioxide (NO_2)	1-hour	4 ppb (7.5 $\mu g/m^3$)	100 ppb[s] (188 $\mu g/m^3$)	Mean of maximum 8th highest[t]
	Annual	1.0	100[r]	Maximum 1st highest[n]
Lead (Pb)	3-month[u]	NA	0.15[r]	Maximum 1st highest[n]
	Quarterly	NA	1.5[r]	Maximum 1st highest[n]
Ozone (O_3)	8-hour	40 TPY VOC[v]	70 ppb[w]	Not typically modeled

a. Idaho Air Rules Section 006 (definition for significant contribution) or as incorporated by reference as per Idaho Air Rules Section 107.03.b.
b. Micrograms per cubic meter.
c. Incorporated into Idaho Air Rules by reference, as per Idaho Air Rules Section 107.
d. The maximum 1st highest modeled value is always used for the significant impact analysis unless indicated otherwise. Modeled design values are calculated for each ambient air receptor.
e. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
f. Not to be exceeded more than once per year on average over 3 years.
g. Concentration at any modeled receptor when using five years of meteorological data.
h. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
i. 3-year mean of the upper 98th percentile of the annual distribution of 24-hour concentrations.
j. 5-year mean of the 8th highest modeled 24-hour concentrations at the modeled receptor for each year of meteorological data modeled. For the SIL analysis, the 5-year mean of the 1st highest modeled 24-hour impacts at the modeled receptor for each year.
k. 3-year mean of annual concentration.
l. 5-year mean of annual averages at the modeled receptor.
m. Not to be exceeded more than once per year.
n. Concentration at any modeled receptor.
o. Interim SIL established by EPA policy memorandum.
p. 3-year mean of the upper 99th percentile of the annual distribution of maximum daily 1-hour concentrations.
q. 5-year mean of the 4th highest daily 1-hour maximum modeled concentrations for each year of meteorological data modeled. For the significant impact analysis, the 5-year mean of 1st highest modeled 1-hour impacts for each year is used.
r. Not to be exceeded in any calendar year.
s. 3-year mean of the upper 98th percentile of the annual distribution of maximum daily 1-hour concentrations.
t. 5-year mean of the 8th highest daily 1-hour maximum modeled concentrations for each year of meteorological data modeled. For the significant impact analysis, the 5-year mean of maximum modeled 1-hour impacts for each year is used.
u. 3-month rolling average.
v. An annual emissions rate of 40 ton/year of VOCs is considered significant for O_3.
w. Annual 4th highest daily maximum 8-hour concentration averaged over three years.

If the cumulative NAAQS impact analysis indicates a violation of the standard, the permit may not be issued if the proposed project has a significant contribution (exceeding the SIL) to the modeled violation. If project-specific impacts are below the SIL, then the project does not have a significant contribution to the specific violations.

Compliance with Idaho Air Rules Section 203.02 is generally demonstrated if: a) applicable specific criteria pollutant emission increases are at a level defined as BRC, using the criteria established by DEQ

regulatory interpretation[1]; or b) all modeled impacts of the SIL analysis are below the applicable SIL or other level determined to be inconsequential to NAAQS compliance; or c) modeled design values of the cumulative NAAQS impact analysis (modeling all emissions from the facility and co-contributing sources, and adding a background concentration) are less than applicable NAAQS at receptors where impacts from the proposed facility/modification exceeded the SIL or other identified level of consequence; or d) if the cumulative NAAQS analysis showed NAAQS violations, the impact of proposed facility/modification to any modeled violation was inconsequential (typically assumed to be less than the established SIL) for that specific receptor and for the specific modeled time when the violation occurred.

2.4 Toxic Air Pollutant Analyses

Emissions of toxic substances are generally addressed by Idaho Air Rules Section 161:

> *Any contaminant which is by its nature toxic to human or animal life or vegetation shall not be emitted in such quantities or concentrations as to alone, or in combination with other contaminants, injure or unreasonably affect human or animal life or vegetation.*

Permitting requirements for toxic air pollutants (TAPs) from new or modified sources are specifically addressed by Idaho Air Rules Section 203.03 and require the applicant to demonstrate to the satisfaction of DEQ the following:

> *Using the methods provided in Section 210, the emissions of toxic air pollutants from the stationary source or modification would not injure or unreasonably affect human or animal life or vegetation as required by Section 161. Compliance with all applicable toxic air pollutant carcinogenic increments and toxic air pollutant non-carcinogenic increments will also demonstrate preconstruction compliance with Section 161 with regards to the pollutants listed in Sections 585 and 586.*

Per Section 210, if the total project-wide emission increase of any TAP associated with a new source or modification exceeds screening emission levels (ELs) of Idaho Air Rules Section 585 or 586, then the ambient impact of the emission increase must be estimated. If ambient impacts are less than applicable Acceptable Ambient Concentrations (AACs) for non-carcinogens of Idaho Air Rules Section 585 and Acceptable Ambient Concentrations for Carcinogens (AACCs) of Idaho Air Rules Section 586, then compliance with TAP requirements has been demonstrated.

Idaho Air Rules Section 210.20 states that if TAP emissions from a specific source are regulated or addressed by the Department or EPA under 40 CFR 60, 61, or 63, then a TAP impact analysis under Section 210 is not required for that TAP. The DEQ permit writer evaluates the applicability of specific TAPs to the Section 210.20 exclusion.

3.0 Analytical Methods and Data

This section describes the methods and data used in analyses to demonstrate compliance with applicable air quality impact requirements. The DEQ Statement of Basis provides a discussion of the methods and data used to estimate criteria and TAP emission rates.

3.1 Emissions Source Data

Emissions increases of criteria pollutants and TAPs resulting from the proposed project were estimated by DEQ for the applicable averaging periods using a DEQ-developed emission calculation spreadsheet for CBPs. The calculation of potential emissions is the responsibility of the DEQ permit writer, and the representativeness and accuracy of emission estimates is not addressed in this modeling memorandum. DEQ air impact analysts are responsible for assuring that potential emission rates provided in the emission inventory are properly used in the modeling applicability assessment. The rates listed must represent the maximum allowable rate as averaged over the specified period.

Emission rates used in the impact modeling applicability analyses, as listed in this memorandum, should be reviewed by the DEQ permit writer and compared with those in the final emission inventory. All criteria air pollutant and TAP emission rates must be equal to or greater than the facility's potential emissions calculated in the PTC emission inventory or proposed permit allowable emission rates.

3.1.1 Modeling Applicability and Modeled Criteria Pollutant Emissions Rates

If project-specific emission increases for criteria pollutants would qualify for a BRC permit exemption as per Idaho Air Rules Section 221 if it were not for potential emissions of one or more pollutants exceeding the BRC threshold of 10 percent of emissions defined by Idaho Air Rules as significant, then a NAAQS compliance demonstration may not be required for those pollutants with emissions below BRC levels. DEQ's regulatory interpretation policy of exemption provisions of Idaho Air Rules is that: "A DEQ NAAQS compliance assertion will not be made by the DEQ modeling group for specific criteria pollutants having a project emissions increase below BRC levels, provided the proposed project would have qualified for a Category I Exemption for BRC emissions quantities except for the emissions of another criteria pollutant.[1]" The interpretation policy also states that the exemption criteria of uncontrolled potential to emit (PTE) not to exceed 100 ton/year (Idaho Air Rules Section 220.01.a.i) is not applicable when evaluating whether a NAAQS impact analyses is required. A permit will be issued limiting PTE below 100 ton/year, thereby negating the need to maintain calculated uncontrolled PTE under 100 ton/year. The BRC exemption cannot be used to exempt a project from a pollutant-specific NAAQS compliance demonstration in cases where a PTC is required for the action regardless of emissions quantities, such as the modification of an existing emissions or throughput limit.

A NAAQS compliance demonstration is generally required to be performed for pollutant increases that would not qualify for the BRC exemption from the requirement to demonstrate compliance with NAAQS. Site-specific air impact modeling analyses may not be necessary for some pollutants, even where such emissions do not qualify for the BRC exemption. DEQ has developed modeling applicability thresholds, below which a site-specific modeling analysis is not required. DEQ generic air impact modeling analyses that were used to develop the modeling thresholds provide a conservative SIL analysis for projects with emissions below identified threshold levels. Project-specific modeling applicability thresholds are provided in the *Idaho Air Modeling Guideline*[2]. These thresholds were based on assuring an ambient impact of less than the established SIL for specific pollutants and averaging periods.

NAAQS compliance demonstrations were not required for this project. The project qualified for the BRC NAAQS compliance demonstration exemption because the project's potential emission increases are below the BRC thresholds and the project would qualify for a BRC exemption if it were not for emissions of TAPs.

Table 3 provides results of the NAAQS compliance requirement applicability analysis.

Table 3. NAAQS COMPLIANCE DEMONSTRATION APPLICABILITY ANALYSIS RESULTS			
Pollutant	**Annual Allowable Emissions[a] (tons/year)**	**BRC Level (tons/year)[b]**	**NAAQS Compliance Demonstration Required**
$PM_{2.5}$[c]	0.25	1.0	No
PM_{10}[d]	0.47	1.5	No
Oxides of Nitrogen (NOx)	1.95	4	No
Carbon Monoxide (CO)	2.7	10	No
Sulfur Dioxide (SO_2)	0.022	4	No
Lead (Pb)	1.16 E-4	0.06	No
Ozone[e] (O_3)	0.116	4.0[c]	No

a. As calculated by DEQ for applicable emission sources.
b. BRC exemptions are based solely on annual emissions rates.
c. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
d. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
e. Volatile organic compounds (VOCs) emissions are regulated to control O_3. BRC level is for VOC emissions.

3.1.2 Toxic Air Pollutant Emissions Rates

TAP emissions regulations under Idaho Air Rules Section 210 are only applicable for new or modified sources constructed after July 1, 1995. TAP compliance for the SRC CBP was demonstrated on a facility-wide basis.

Emission of TAPs from the generator engine and water heater were excluded from consideration because they are addressed by federal rule, as per Idaho Air Rules Section 210.20.

Facility-wide potential emissions of arsenic (As) and Chromium^{6+} (Cr^{6+}) exceed the applicable ELs of Idaho Air Rules Section 586. Air impact modeling analyses were then required to demonstrate that maximum impacts of As and Cr^{6+} are below applicable ambient increment standards expressed in Idaho Air Rules Section 585 and 586 as AACs and AACCs.

Table 4 lists the TAP modeled emissions rates for As and Cr^{6+}.

Table 4. EMISSIONS RATES MODELED FOR TAP IMPACT ANALYSES			
Source ID	**Description**	**Annual Averaged Emission Rates (lb/hr[a])**	
		Arsenic	**Chromium^{6+}**
SILO	Cement storage silo filling	3.565 E-8	4.876 E-8
SUPSILO	Cement supplement (fly ash) storage silo filling	1.250 E-6	4.575 E-7
TRKLDBAG	Truck loadout baghouse emissions release point	1.178 E-6	2.344 E-7

a. Pounds per hour for annual averaging period.

Emissions of As and Cr^{6+} occur from the handling of both dry cement and fly ash. Emissions from the filling of storage silos are controlled by a filtration system and emissions from truck loadout are captured and then controlled by a baghouse.

As and Cr^{6+} are carcinogenic TAPs that are regulated on a long-term basis. Therefore, the appropriate emission rates for impact analyses are maximum annual emissions, expressed as an average pound/hour value over an 8,760-hour period.

3.1.3 Emissions Release Parameters

Table 5 lists emissions release parameters, including stack height, stack diameter, exhaust temperature, and exhaust velocity for emissions sources modeled in the air impact analyses.

Table 5. POINT SOURCE STACK PARAMETERS USED IN MODELING

Point Source Parameters					
Release Point	**Description**	**Stack Height (m)[a]**	**Stack Gas Flow Temp. (K)[b]**	**Stack Flow Velocity (m/sec)[c]**	**Stack Dia. (m)[d]**
SILO	Cement storage silo filling	10.7 (35 ft)	0[f]	4.5	0.34
SUPSILO	Cement supplement silo filling	10.7 (35 ft)	0[f]	4.5	0.34
TRKLDBAG[e]	Truck loadout baghouse	9.1 (30 ft)	0[f]	16.9	0.42

a. Height in meters at the point of release. Values in parentheses are in feet.
b. Kelvin.
c. Meters per second.
d. Stack diameter in meters at the point of release to the atmosphere. Values in parentheses are in feet.
e. Modeled as a horizontal release in AERMOD.
f. Set to 0 to direct model to use a release temperature equal to the ambient air temperature specified in the meteorological data input file.

3.2 Background Concentrations

Background concentrations are used if a cumulative NAAQS impact analysis is needed to demonstrate compliance with applicable NAAQS. Cumulative NAAQS analyses were not required for this project because applicable (stationary and non-fugitive) emissions of all criteria pollutants were below levels defined as BRC, and as such, NAAQS compliance demonstrations were not required for permit issuance.

3.3 Impact Modeling Methodology

This section describes the modeling methods used by the applicant and/or DEQ to demonstrate preconstruction compliance with applicable air quality standards.

3.3.1 General Overview of Impact Analyses

DEQ performed the project-specific air pollutant emissions inventory and air impact analyses based on information submitted from the SRC facility. The submitted information/analyses, in combination with results from DEQ's air impact analyses, demonstrate compliance with applicable air quality standards to DEQ's satisfaction, provided the facility is operated as described in the submitted application and in this memorandum.

The SRC CBP is a portable facility that may locate anywhere within Idaho. Therefore, site-specific data/characteristics used in air impact analyses, such as meteorological data, site layout, and terrain, cannot be represented as accurately as can be achieved for one fixed site. This increases the uncertainty in analytical results. DEQ used several methods to account for and offset this increased uncertainty, and these methods are described in subsequent sections of this memorandum. The general method used for portable sources was the following:

1. Use a polar receptor grid with the emission points located at the center in a conservatively tight grouping.

2. Run the model for numerous meteorological datasets, collected throughout Idaho.

3. For each model run and pollutant, identify the controlling receptor. The controlling receptor is the one just beyond (further from the emission points) the most distant receptor showing a concentration value over the applicable standard.

4. Determine the distance between the controlling receptor and the emission points for each model run.

5. The minimum setback requirement distance is the furthest distance between the controlling receptor and emission points, considering all model runs.

6. Compliance with identified applicable standards is assured provided the CBP operates as described and the minimum setback between emission sources and the nearest point of ambient air is maintained.

Table 6 provides a brief description of parameters used in the modeling analyses.

3.3.2 Modeling Methodology

Final project-specific modeling and other required impact analyses were generally conducted using data and methods described in the *Idaho Air Quality Modeling Guideline*[2].

Table 6. MODELING PARAMETERS

Parameter	Description/Values	Documentation/Addition Description
General Facility Location	Portable in Idaho	Air impact modeling was performed to determine a setback distance needed between emission sources and the nearest point of ambient air for any location where the CBP may locate.
Model	AERMOD	AERMOD with the PRIME downwash algorithm, version 19191.
Meteorological Data	Multiple Areas	See Section 3.3.4 of this memorandum for additional details of the meteorological data.
Terrain	Not Considered	Flat terrain was assumed in the analyses.
Building Downwash	Considered	A 10 m X 10 m X 10 m structure was conservatively assumed at the center of the facility. BPIP-PRIME was used to evaluate building dimensions for consideration of downwash effects in AERMOD.
Receptor Grid	Polar Grid	Adequate to resolve maximum modeled impacts

3.3.3 Model Selection

Idaho Air Rules Section 202.02 requires that estimates of ambient concentrations be based on air quality models specified in Appendix W. The refined, steady-state, multiple-source, Gaussian dispersion model AERMOD was promulgated as the replacement model for ISCST3 in December 2005. AERMOD retains the single straight-line trajectory of ISCST3, but includes more advanced algorithms to assess turbulent mixing processes in the planetary boundary layer for both convective and stable stratified layers.

AERMOD version 19191 was used by DEQ for the modeling analyses to evaluate impacts of the facility. This version was the current version at the time the application was received by DEQ.

3.3.4 Meteorological Data

DEQ air impact analyses used processed meteorological data from numerous locations throughout Idaho. DEQ determined that NAAQS compliance is reasonably assured for all areas of Idaho when compliance

is demonstrated by multiple analyses using the following 12 meteorological datasets: Boise, Bonners Ferry, Burley, Coeur d'Alene, Challis, Grangeville, Idaho Falls, INL, Jerome, Lewiston, McCall, Moscow, Mountain Home, Pocatello (NWS), Rexburg, Sandpoint, Spokane, and Twin Falls. All data were processed using the option in AERMET to adjust the surface friction velocity (u*) to address AERMOD's tendency to over-predict concentrations from some sources under stable, low wind speed conditions.

3.3.5 Effects of Terrain on Modeled Impacts

Terrain effects on dispersion were not considered in the non-site-specific analyses. DEQ contends that assuming flat terrain is not a critical limitation of the analyses because most emissions points associated with CBPs are near ground-level and the immediate surrounding area is typically flat for dispersion modeling purposes. Emissions sources near ground-level typically have maximum pollutant impacts near the source, minimizing the potential effect of surrounding terrain to influence the magnitude of maximum modeled impacts.

3.3.6 Facility Layout

DEQ's analyses used a conservative generic facility layout. This was done because the specific layout will vary depending on product needs and specific characteristics of the site and equipment. To provide conservative results, DEQ used a tight grouping of emissions sources. Sources were positioned within 7 meters of the center of the facility. The truck loadout source was placed at the center of the facility. Table 7 lists the modeled coordinates of emission sources.

Table 7. COORDINATES OF MODELED SOURCES

Source Identification Code	Description	Modeled Coordinates (meters)	
		Easting	Northing
TRKLDBAG	Baghouse release for truck loadout emissions	0.0	0.0
SILO	Cement storage silo vent	-5.0	5.0
SUPSILO	Cement supplement storage silo vent	-5.0	-5.0

3.3.7 Effects of Building Downwash on Modeled Impacts

Potential downwash effects on emissions plumes were accounted for in the model by using building dimensions and locations (locations of building corners and building heights). A 10-meter-square building, 10 meters high, was used in the analysis to conservatively account for downwash. Dimensions and orientation of buildings were used as input to the Building Profile Input Program for the Plume Rise Model Enhancements downwash algorithm (BPIP-PRIME) to calculate direction-specific dimensions and Good Engineering Practice (GEP) stack height information for input to AERMOD.

3.3.8 Ambient Air Boundary

Ambient air is defined in Section 006 of the Idaho Air Rules as "that portion of the atmosphere, external to buildings, to which the general public has access." Ambient air is typically considered areas external to the identified property boundary where the facility is located, assuming that reasonable measures will be taken to preclude public access.

DEQ's non-site-specific analysis methods, using a generic facility layout, were used to generate minimum setback distances between emissions points and the property boundary or the established boundary to ambient air (if not the same as the property boundary). Setback distances were specified as the distance

between emission sources and the closest point of potential public access. Compliance with applicable air quality standards and increments is not demonstrated unless setback distances are maintained.

3.3.9 Receptor Network

A polar grid with 10-meter receptor spacing extending out to 100 meters and 25-meter spacing extending out to 325 meters was used in the non-site-specific modeling performed by DEQ. Since maximum impacts from these relatively short stack heights occur very near the sources, a more extensive receptor grid was not necessary to assure compliance with applicable standards.

3.3.10 Good Engineering Practice Stack Height

An allowable good engineering practice (GEP) stack height may be established using the following equation in accordance with Idaho Air Rules Section 512.03.b:

H = S + 1.5L, where:

H = good engineering practice stack height measured from the ground-level elevation at the base of the stack.

S = height of the nearby structure(s) measured from the ground-level elevation at the base of the stack.

L = lesser dimension, height or projected width, of the nearby structure.

All SRC CBP sources are below GEP stack height. Therefore, it is important to account for plume downwash caused by structures at the facility.

3.3.11 Crucial CBP Characteristics Affecting Air Quality Impacts

Table 8 lists characteristics of the CBP that are critical to the TAPs compliance demonstrations.

Table 8. IMPORTANT CHARACTERISTICS OF CBP USED IN DEQ ANALYSES

Parameter	Value or Description
Concrete Production Rates	300,000 cy/year
Truck Loadout	Emissions will be captured and controlled by a baghouse.
Cement and supplement silo	Emissions are controlled by a fabric filter.
Seasonal Restriction	None were assessed.

4.0 NAAQS and TAPs Impact Modeling Results

4.1 Results for NAAQS Analyses

NAAQS analyses were not performed for the SRC CBP facility. Idaho Air Rules Section 203.02, requiring air impact analyses demonstrating compliance with NAAQS, is not applicable to pollutants having a project-emissions increase that is less than BRC levels, provided the project would have qualified for a BRC permitting exemption except for the emissions levels of another criteria pollutant exceeding the ton/year BRC threshold.

4.2 Results for TAPs Impact Analyses

Dispersion modeling was required to demonstrate compliance with TAP increments specified by Idaho Air Rules Section 585 and 586 for those TAPs with facility-wide emissions exceeding emissions ELs. DEQ determined required setback distances from the non-site-specific modeling results for each TAP with emissions exceeding the EL and for each meteorological data set identified in Section 3.3.4. Table 9 lists controlling setback distances for each TAP and meteorological dataset. Setback distances are the closest allowable distance between the property boundary and emission sources (silo vents and the release point of the truck loadout baghouse).

Table 9. SETBACK DISTANCES AS A FUNCTION OF TAP AND METEOROLOGICAL DATASET

Meteorological Dataset	Setback Distance in meters[a]	
	Arsenic	Chromium^{6+}
Boise	30 (98 ft)	<20 (66 ft)
Bonners Ferry	30 (98 ft)	<20 (66 ft)
Burley	<20 (66 ft)	<20 (66 ft)
Coeur d'Alene	<20 (66 ft)	<20 (66 ft)
Challis	<20 (66 ft)	<20 (66 ft)
Grangeville	<20 (66 ft)	<20 (66 ft)
Idaho Falls	<20 (66 ft)	<20 (66 ft)
INL	<20 (66 ft)	<20 (66 ft)
Jerome	<20 (66 ft)	<20 (66 ft)
Lewiston	<20 (66 ft)	<20 (66 ft)
McCall	<20 (66 ft)	<20 (66 ft)
Mountain Home	<20 (66 ft)	<20 (66 ft)
Moscow	30 (98 ft)	<20 (66 ft)
Pocatello (NWS)	<20 (66 ft)	<20 (66 ft)
Rexburg	30 (98 ft)	<20 (66 ft)
Sandpoint	30 (98 ft)	<20 (66 ft)
Spokane, WA	<20 (66 ft)	<20 (66 ft)
Twin Falls	<20 (66 ft)	<20 (66 ft)

[a.] Setback in meters. Value in parentheses are feet.

5.0 Conclusions

The information submitted with the PTC application, combined with DEQ air impact analyses, demonstrated to DEQ's satisfaction that emissions from the SRC CBP facility, as described in this memorandum, will not cause or significantly contribute to a violation of any ambient air quality standard.

References

1. *Policy on NAAQS Compliance Demonstration Requirements.* Idaho Department of Environmental Quality Policy Memorandum. July 11, 2014.

2. *State of Idaho Guideline for Performing Air Quality Impact Analyses.* Idaho Department of Environmental Quality. September 2013. State of Idaho DEQ Air Doc. ID AQ-011. Available at http://www.deq.idaho.gov/media/1029/modeling-guideline.pdf.

3. *User's Guide for the AMS/EPA Regulatory Model – AERMOD*. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Emissions Monitoring and Analysis Division. EPA-454/B-03-001. September 2004. (Section 3.3.2.2).

APPENDIX C – FACILITY DRAFT COMMENTS

The following comments were received from the facility on April 9, 2021:

Facility Comment: Permit Condition 3.11 as written states "The permittee shall install, operate, and maintain industry specific water sprays on material transfer points to control fugitive emissions". SCR proposes adding "or maintain moisture in material sufficient to control fugitive emissions" to this condition. Water sprays on aggregate transfers in the plant can become problematic because we have to account for all water content of the sad and aggregate so the mix doesn't get too much water. We have found pre-watering the material piles is more efficient at controlling emissions and it produces a better product.

DEQ Response: DEQ agrees to incorporate the proposed change.

Facility Comment: SRC proposes removing the daily monitoring condition [in regard to Permit Condition 4.12] as the permit allows for 24 hours of daily usage. In its place, SRC proposes monthly monitoring of generator usage to demonstrate compliance with the 12-month rolling operational limit.

DEQ Response: DEQ agrees to incorporate the proposed change.

APPENDIX D – PROCESSING FEE

PTC Processing Fee Calculation Worksheet

Instructions:
Fill in the following information and answer the following questions with a Y or N. Enter the emissions increases and decreases for each pollutant in the table.

Company:	**Sunroc Corporation 00626**
Address:	**Portable throughout Idaho**
City:	
State:	
Zip Code:	
Facility Contact:	**Kamren Garfield**
Title:	**Environmental Specialist**
AIRS No.:	**327320**

Y	Does this facility qualify for a general permit (i.e. concrete batch plant, hot-mix asphalt plant)? Y/N
Y	Did this permit require engineering analysis? Y/N
N	Is this a PSD permit Y/N (IDAPA 58.01.01.205.04)

Emissions Inventory			
Pollutant	Annual Emissions Increase (T/yr)	Annual Emissions Reduction (T/yr)	Annual Emissions Change (T/yr)
NO_X	2.2	0	2.2
SO_2	0.2	0	0.2
CO	3.4	0	3.4
PM10	0.5	0	0.5
VOC	0.2	0	0.2
Total:	6.5	0	**6.5**
Fee Due	**$ 500.00**		

Comments: