Statement of Basis

Permit to Construct No. P-2011.0015
Project ID 61692

P4 - South Rasmussen Mine
18 Miles Northeast of Soda Springs, Idaho

Facility ID 029-00038

Proposed for Public Comment

August 2, 2016
Shawnee Chen, P.E.
Senior Air Quality Engineer

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.

ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE

AAC	acceptable ambient concentrations
AACC	acceptable ambient concentrations for carcinogens
acfm	actual cubic feet per minute
ASTM	American Society for Testing and Materials
BACT	Best Available Control Technology
bhp	break horsepower
BMP	best management practices
Btu	British thermal units
CAA	Clean Air Act
CAM	Compliance Assurance Monitoring
CAS No.	Chemical Abstracts Service registry number
CBP	concrete batch plant
CEMS	continuous emission monitoring systems
cfm	cubic feet per minute
CFR	Code of Federal Regulations
CI	compression ignition
CMS	continuous monitoring systems
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	CO_2 equivalent emissions
COMS	continuous opacity monitoring systems
DEQ	Department of Environmental Quality
dscf	dry standard cubic feet
EL	screening emission levels
EPA	U.S. Environmental Protection Agency
FEC	Facility Emissions Cap
fps	feet per second
GEN	generator
GHG	greenhouse gases
gph	gallons per hour
gpm	gallons per minute
gr	grains (1 lb = 7,000 grains)
HAP	hazardous air pollutants
HHV	higher heating value
HMA	hot mix asphalt
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
iwg	inches of water gauge
km	kilometers
kW	kilowatts
lb/hr	pounds per hour
lb/qtr	pound per quarter
m	meters
MACT	Maximum Achievable Control Technology
mg/dscm	milligrams per dry standard cubic meter
MMBtu	million British thermal units
MMscf	million standard cubic feet
NAAQS	National Ambient Air Quality Standard

NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
NSPS	New Source Performance Standards
O&M	operation and maintenance
O_2	oxygen
PAH	polyaromatic hydrocarbons
PC	permit condition
PCB	polychlorinated biphenyl
PERF	Portable Equipment Relocation Form
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
ppmw	parts per million by weight
PSD	Prevention of Significant Deterioration
psig	pounds per square inch gauge
PTC	permit to construct
PTC/T2	permit to construct and Tier II operating permit
PTE	potential to emit
PW	process weight rate
RAP	recycled asphalt pavement
RFO	reprocessed fuel oil
RICE	reciprocating internal combustion engines
Rules	*Rules for the Control of Air Pollution in Idaho*
scf	standard cubic feet
SCL	significant contribution limits
SIP	State Implementation Plan
SM	synthetic minor
SM80	synthetic minor facility with emissions greater than or equal to 80% of a major source threshold
SO_2	sulfur dioxide
SO_x	sulfur oxides
SRM	South Rasmussen Mine
T/day	tons per calendar day
T/hr	tons per hour
T/yr	tons per consecutive 12 calendar month period
T2	Tier II operating permit
TAP	toxic air pollutants
TBD	to be determined
TEQ	toxicity equivalent
T-RACT	Toxic Air Pollutant Reasonably Available Control Technology
ULSD	ultra-low sulfur diesel
U.S.C.	United States Code
VOC	volatile organic compounds
yd^3	cubic yards
$\mu g/m^3$	micrograms per cubic meter

FACILITY INFORMATION

Description

The Horseshoe Generator Project (the "Horseshoe Project") currently comprises four generators at the South Rasmussen Mine, located approximately 18 miles northeast of Soda Springs, in Caribou County, Idaho. After this permitting action, the Horseshoe Project will be permitted to comprise five generators. The generators are used to power the Horseshoe Overburden Pile ("HSOP") pumping system. The mining operations at the South Rasmussen Mine ended in 2013. Reclamation has continued onsite since mine closure and is expected to continue until at least 2022.

Permitting History

The following information was derived from a review of the permit files available to DEQ. Permit status is noted as active and in effect (A) or superseded (S).

April 6, 2011	P-2011.0015, initial PTC to install and operate four generators, permit status (A, but will become S upon issuance of this permit)

Application Scope

This PTC is for a minor modification at an existing minor facility.

The applicant has proposed to make the following modification:

- Relocate the existing Haul Road Pond generator to Smith Pond, a new location, rename the generator as Smith Pond generator, and administratively correct the generator's maximum capacity from 115 kilowatts (kW) to 147 kW, but no physical changes will be made to the generator.
- Change all references of Horseshoe Pond to Horseshoe Dump.
- Administratively correct the existing Primary and Backup Horseshoe Dump generators' maximum capacities from 185 kW to 235 kW, respectively, but no physical changes will be made to the generators.
- Install a new Cummins 234 kW generator at the Horseshoe Dump.
- Remove an existing Horseshoe Pond generator, noted in the old permit as Godwin-Kubota 35 kW generator.
- Install a new Cummins 234 kW generator at the existing Haul Road Pond location to replace the existing Haul Road Pond generator that will be moved to Smith Pond.

Model ID	Generator	Proposed Action	Proposed Name
GEN1	Current Haul Road Pond Generator	Relocate to Smith Pond and update the rating	Smith Pond Generator
GEN2	Current Primary Horseshoe Pond Generator	Update the rating; will be replaced with New Generator (GEN6) at end of life	Primary Horseshoe Dump Generator
GEN3	Current Backup Horseshoe Pond Generator	Update the rating	Backup Horseshoe Dump Generator
GEN4	Current Horseshoe Pond Generator	Remove	-
GEN5	New Haul Road Pond Generator	New Generator	Haul Road Pond Generator
GEN6	New Alternate Horseshoe Dump Generator	New Generator	Alternate Horseshoe Dump Generator

Generators information:

Model ID	Generator	Manufacturer	Model Number	Rating
GEN5	Haul Road Pond Generator	Cummins Inc.	C150D2RE	234 kW (314 hp Standby)
GEN2	Primary Horseshoe Dump Generator	John Deere	6068HF485	235 kW (315 hp Standby)
GEN6	Alternate Horseshoe Dump Generator	Cummins Inc.	C200D2RE	234 kW (314 hp Standby)
GEN3	Backup Horseshoe Dump Generator	John Deere	6068HF485	235 kW (315 hp Standby)
GEN1	Smith Pond Generator	John Deere	6068HF285	147 kW (197 hp Standby)

Application Chronology

April 4, 2016	DEQ received an application fee.
April 5, 2016	DEQ received an application.
April 14 – April 29, 2016	DEQ provided an opportunity to request a public comment period on the application and proposed permitting action.
April 27, 2016	DEQ determined that the application was incomplete.
April 27, May 3, and May 9, 2016	DEQ received supplemental information from the applicant.
May 11, 2016	DEQ determined that the application was complete.
July 5, 2016	DEQ made available the draft permit and statement of basis for peer and regional office review.
July 8, 2016	DEQ made available the draft permit and statement of basis for applicant review.
August 3 – September 2, 2016	DEQ provided a public comment period on the proposed action.
July 18, 2016	DEQ received the permit processing fee.

TECHNICAL ANALYSIS

Emissions Units and Control Equipment

Table 1 EMISSIONS UNIT AND CONTROL EQUIPMENT INFORMATION[1]

Source ID No.	Sources	Control Equipment
GEN5	Haul Road Pond Generator Manufacturer: Cummins Inc. Model: QSB7-G9/C150D2RE Max. Capacity: 234 KW (314 bhp) Date of Construction: to be determined (TBD) Model Year: 2016 EPA Certification: Tier 4 Internal Combustion Engine (ICE) Cylinder Displacement: 6.7 liters per cylinder Fuel: diesel	None

Source ID No.	Sources	Control Equipment
GEN2	Primary Horseshoe Dump Generator Manufacturer: John Deere Model: 6068HF485 Max. Capacity: 235 KW (315 bhp) Date of Construction: June 2010 Model Year: 2010 EPA Certification: Tier 3 ICE Cylinder Displacement: 6.8 liters per cylinder Fuel: diesel	None
GEN6	Alternate Horseshoe Dump Generator Manufacturer: Cummins Inc. Model: QSB7-G9/C200D2RE Max. Capacity: 234 KW (314 bhp) Date of Construction: TBD Model Year: 2016 EPA Certification: Tier 4 ICE Cylinder Displacement: 6.7 liters per cylinder Fuel: diesel	None
GEN3	Backup Horseshoe Dump Generator Manufacturer: John Deere Model: 6068HF485 Max. Capacity: 235 KW (315 bhp) Date of Construction: June 2010 Model Year: 2010 EPA Certification: Tier 3 ICE Cylinder Displacement: 6.8 liters per cylinder Fuel: diesel	None
GEN1	Smith Pond Generator Manufacturer: John Deere Model: 6068HF285 Max. Capacity: 147 KW (197 bhp) Date of Construction: September 2010 Model Year: 2010 EPA Certification: Tier 3 ICE Engine Cylinder Displacement: 6.8 liters per cylinder Fuel: diesel	None

[1] For emissions point information, such as stack parameters, refer to modeling memo in Appendix B. GEN4 is removed.

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 operations at the facility. Refer to Appendix A of this statement of basis for details.

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. It is taken from the statement of basis for PTC No. P-2011.0015 Project 60712 issued on April 6, 2011.

Table 2 PRE-PROJECT POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Emissions Unit	PM_{10} T/yr[1]	SO_2 T/yr[1]	NO_X T/yr[1]	CO T/yr[1]	VOC T/yr[1]
Haul Road Pond Generator – 115 kW	0.38	1.16	5.21	6.43	0.32
Primary Horseshoe Dump Generator – 185 kW	0.46	0.51	9.12	7.91	0.56
Backup Horseshoe Dump Generator – 185 kW	0.46	0.51	9.12	7.91	0.56
Horseshoe Pond Generator – 35 kW	0.11	0.34	2.87	2.10	0..14
Totals	1.41	2.52	26.32	24.35	1.58

[1]Controlled average emission rate in tons per year is an annual average, based on the annual operating schedule and annual limits.

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 and greenhouse gases (GHG) pollutants from all emissions units at the facility as submitted by the applicant and reviewed by DEQ staff. See Appendix A and Section 1.3 of the application for a detailed presentation.

Table 3 POST PROJECT POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Emissions Unit	**CO** T/yr	**NO_X** T/yr	**$PM/PM_{10}/PM_{2.5}$** T/yr	**SO_2** T/yr	**VOC** T/yr	**Pb** T/yr	**GHG** T/yr
Point Sources							
Haul Road Pond Generator (GEN5, 234 kW, new)	7.91	0.91	0.05	0.01	0.42	0.00	1,575.15
Primary Horseshoe Dump Generator (GEN2, update the rating from 185 kW to 235 kW)	7.94	9.07	0.45	0.01	2.95	0.00	1,580.16
Alternate Horseshoe Dump Generator (GEN6, 234 kW, new)	7.91	0.91	0.05	0.01	0.42	0.00	1,575.15
Backup Horseshoe Dump Generator (GEN3, update the rating from 185 kW to 235 kW)	7.94	9.07	0.45	0.01	2.95	0.00	1,580.16
Horseshoe Pond Generator (GEN4, removed)	--	--	--	--	--	--	--
Smith Pond Generator (GEN1, update the rating from 115kW to 147 kW)	4.96	5.67	0.28	0.01	1.84	0.00	988.23
Totals	**36.67**	**25.64**	**1.28**	**0.07**	**8.59**	**0.00**	**7,298.84**

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 4 CHANGES IN POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Emissions Unit	**CO** **T/yr**	**NO_X** **T/yr**	**$PM/PM_{10}/PM_{2.5}$** **T/yr**	**SO_2** **T/yr**	**VOC** **T/yr**
Haul Road Pond Generator	1.48	-4.30	-0.34	-1.14	0.11
Primary Horseshoe Dump Generator	0.03	-0.05	0.00	-0.49	2.39
Alternate Horseshoe Dump Generator	7.91	0.91	0.05	0.01	0.42
Backup Horseshoe Dump Generator	0.03	-0.05	-2.61E-3	-0.49	2.39
Horseshoe Pond Generator	-2.10	-2.87	-0.11	-0.34	-0.14
Smith Pond Generator	4.96	5.67	0.28	0.01	1.84
Totals	**12.32**	**-0.69**	**-0.13**	**-2.44**	**7.01**

Non-Carcinogenic TAP Emissions

Pre- and post-project, as well as the increment of non-carcinogenic toxic air pollutants (TAP) emissions are

presented in the following table:

Table 5 PRE- AND POST PROJECT POTENTIAL TO EMIT FOR NON-CARCINOGENIC TOXIC AIR POLLUTANTS

Non-Carcinogenic Toxic Air Pollutants	Pre-Project	Post Project	Change in	Non-Carcinogenic	
(sum of all emissions)	24-hour Average Emissions Rates for Units at the Facility	24-hour Average Emissions Rates for Units at the Facility	24-hour Average Emissions Rates for Units at the Facility	Screening Emission Level	Exceeds Screening Level?
	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(Y/N)
Acrolein	1.96E-4	9.42E-4	7.46E-4	0.017	NO
Naphthalene	1.80E-4	8.64E-4	6.84E-4	3.33	NO
Toluene	8.66E-4	4.17E-3	3.30E-3	25	NO
Xylenes	6.04E-4	2.90E-3	2.30E-3	29	NO

None of the screening emission levels (EL) for non-carcinogenic TAP was exceeded as a result of this project. Therefore, modeling is not required for any non-carcinogenic TAP.

Carcinogenic TAP Emissions

A summary of the estimated PTE for emissions increase of carcinogenic TAP is provided in the following table:

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

Carcinogenic Toxic Air Pollutants	Pre-Project	Post Project	Change in	Carcinogenic	
(sum of all emissions)	Annual Average Emissions Rates for Units at the Facility	Annual Average Emissions Rates for Units at the Facility	Annual Average Emissions Rates for Units at the Facility	Screening Emission Level	Exceeds Screening Level?
	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(Y/N)
1,3-Butadiene	8.28E-5	3.98E-4	3.15E-4	2.40E-5	YES
Acetaldehyde	1.62E-3	7.81E-3	6.19E-3	3.00E-3	YES
Benzene	1.98E-3	9.50E-3	7.53E-3	8.00E-4	YES
Formaldehyde	2.50E-3	1.20E-2	9.52E-3	5.10E-4	YES
Total 7-PAH Group [a]	7.27E-6	3.50E-5	2.77E-5	2.00E-6	YES

[a] Polycyclic Organic Matter (POM) is considered as one TAP comprised of: 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.

Though the above carcinogenic TAP increments from the engines exceed the ELs, no further procedures for demonstrating preconstruction compliance with these TAP is required in accordance with IDAPA 58.01.01.210.20.b because these TAP are regulated in 40 CFR 60, Subpart IIII for which the engines are subject.

Post Project HAP Emissions

The following table presents the post project potential to emit for hazardous air pollutants (HAP) 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 7 HAZARDOUS AIR POLLUTANTS EMISSIONS POTENTIAL TO EMIT SUMMARY

HAP Pollutants	PTE (ton/yr)
1,3-Butadiene	1.74E-3
Acetaldehyde	3.42E-2

HAP Pollutants	PTE (ton/yr)
Acrolein	4.13E-3
Benzene	4.16E-2
Formaldehyde	5.26E-2
Naphthalene	3.78E-3
Toluene	1.82E-2
Xylenes	1.27E-2
Total	**1.69E-1**

Ambient Air Quality Impact Analyses

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.

An ambient air quality impact analyses 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).

REGULATORY ANALYSIS

Attainment Designation (40 CFR 81.313)

The facility is located in Caribou County, which is designated as attainment or unclassifiable for $PM_{2.5}$, PM_{10}, SO_2, NO_2, CO, and Ozone. Refer to 40 CFR 81.313 for additional information.

Facility Classification

The AIRS/AFS facility classification codes are as follows:

For THAPs (Total Hazardous Air Pollutants) Only:

A = Use when any one HAP has actual or potential emissions $\geq$ 10 T/yr or if the aggregate of all HAPS (Total HAPs) has actual or potential emissions $\geq$ 25 T/yr.

SM80 = Use if a synthetic minor (potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable limitations) and the permit sets limits $\geq$ 8 T/yr of a single HAP or $\geq$ 20 T/yr of THAP.

SM = Use if a synthetic minor (potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable limitations) and the potential HAP emissions are limited to < 8 T/yr of a single HAP and/or < 20 T/yr of THAP.

B = Use when the potential to emit without permit restrictions is below the 10 and 25 T/yr major source threshold

UNK = Class is unknown

For All Other Pollutants:

A = Actual or potential emissions of a pollutant are $\geq$ 100 T/yr.

SM80 = Use if a synthetic minor for the applicable pollutant (potential emissions fall below 100 T/yr if and only if the source complies with federally enforceable limitations) and potential emissions of the pollutant are $\geq$ 80 T/yr.

SM = Use if a synthetic minor for the applicable pollutant (potential emissions fall below 100 T/yr if and only if the source complies with federally enforceable limitations) and potential emissions of the pollutant are < 80 T/yr.

B = Actual and potential emissions are < 100 T/yr without permit restrictions.

UNK = Class is unknown.

Table 8 REGULATED AIR POLLUTANT FACILITY CLASSIFICATION

Pollutant	Uncontrolled PTE (T/yr)	Permitted PTE (T/yr)	Major Source Thresholds (T/yr)	AIRS/AFS Classification
PM	< 100	< 100	**100**	B
$PM_{10}/PM_{2.5}$	< 100	< 100	**100**	B
SO_2	< 100	< 100	**100**	B
NO_X	< 100	< 100	**100**	B
CO	< 100	< 100	**100**	B
VOC	< 100	< 100	**100**	B
HAP (single)	< 10	< 10	**10**	B
HAP (Total)	< 25	< 25	**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 sources and modified emissions sources. 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.

Visible Emissions (IDAPA 58.01.01.625)

IDAPA 58.01.01.625 ..... Visible Emissions

The sources of PM emissions at this facility are subject to the State of Idaho visible emissions standard of 20% opacity. This requirement is assured by Permit Condition 2.3.

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 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 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)

The facility is subject to the requirements of 40 CFR 60 Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. Detailed analysis can be found in Appendix E. DEQ is the administrator for this subpart as this subpart has been delegated to DEQ.

NESHAP Applicability (40 CFR 61)

The facility is not an affected source subject to NESHAP in 40 CFR 61.

MACT Applicability (40 CFR 63)

The National Emissions Standards for Hazardous Air Pollutants (NESHAP), 40 CFR 63, Subpart ZZZZ, applies to all stationary reciprocating internal combustion engines (RICE) operated at an area source of HAP emissions. For new stationary RICE (constructed after June 12, 2006, per 40 CFR 63.6590(a)(2)(iii)) operated at an area source of HAP emissions, the compliance requirements of 40 CFR 63, Subpart ZZZZ, are met by complying with the requirements of 40 CFR 60, Subpart IIII.

All stationary RICE located at the facility will be classified as new sources per this subpart and therefore will be subject to the compliance requirements of 40 CFR 60, Subpart IIII.

Permit Conditions Review

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

Permit Condition 1.1

Permit Condition 1.1 states the purpose of this permitting action.

Permit Condition 1.2

Permit Condition 1.2 states that those permit conditions that have been modified or revised by this permitting action are identified by the permit issue date citation located directly under the permit condition and on the right-hand margin.

Permit Condition 1.3

Permit Condition 1.3 states that this PTC replaces Permit to Construct No. P-2011.0015 Project 60712 issued on April 6, 2011.

Table 1.1

Table 1.1 is updated to include the two new generators, to remove the existing Horseshoe Pond generator, the Godwin-Kubota 35 kW generator in the old permit, and to update the ratings of three generators.

Permit Condition 2.1

Permit Condition 2.1 is updated to reflect that the Horseshoe Project is permitted to comprise five generators.

New Permit Conditions 2.4 through 2.11

New PCs 2.4 to 2.11 are requirements from 40 CFR 60 Subpart IIII. All five engines are subject to 40 CFR 60 Subpart IIII. Detailed analysis can be found in Appendix E of the statement of basis.

Permit Conditions 3.1 to 3.16

Permit Conditions 3.1 to 3.16 are General Provisions and are updated using the ones taken from the current PTC template.

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. During this time, there were not comments on the application and there was 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

(Refer to a separate PDF doc.)

APPENDIX B – AMBIENT AIR QUALITY IMPACT ANALYSES

(Refer to the modeling memo)

APPENDIX C – FACILITY DRAFT COMMENTS

The following comments were received from the facility on July 18, 20, and August 1, 2016:

Facility Comment:

- Permit Condition 1.1 - This condition should be revised to reference the other changes made by the permit, e.g., "This is a revised permit to construct (PTC) for adding two new diesel generators, removing one generator, relocating one generator, and updating the ratings on three generators."

- Statement of Basis (SOB) Permit Conditions Review (describing changes in Permit Table 1.1) - The section of the Statement of Basis describing changes to Permit Table 1.1 should be revised to note that the ratings on three generators are updated.

- Permit Condition 2 (title), Permit Condition 2.1, Statement of Basis Facility Information/Description, Statement of Basis Permit Conditions Review (describing changes in Permit Condition 2.1 & 2.4) - The sections of the draft permit and statement of basis referencing six generators should be revised to reference five generators.

- Permit Condition 2.6 - The first condition should be revised to include a statement that "This applies to GEN1, GEN2, GEN3, GEN5, and GEN6." The second condition should be revised to include a statement that "40 CFR 89.112 and 40 CFR 89.113 apply to GEN1, GEN2, and GEN3. 40 CFR 1039.101, 40 CFR 1039.105, and 40 CFR 1039.115 apply to GEN5 and GEN6." Please note that 40 CFR 1039.102, 40 CFR 1039.104 and 40 CFR 1039.107 do not apply.

- Permit Condition 2.10 - The requirement to "Meet the requirements of 40 CFR parts 89, 94 and/or 1068, as they apply to the permittee" should be revised to exclude 40 CFR Part 94 (Control of Emissions from Marine Compression-Ignition Engines) as this does not apply. Sections of 40 CFR 89 apply to GENl, GEN2, and GEN3. Sections of 40 CFR 1068 apply to GENS and GEN6.

- Statement of Basis Appendix B at page 15 - The change shown in track changes should be accepted as clean.

DEQ Response: Changes are made as requested.

Facility Comment:

- Statement of Basis Appendix B, Table 4, the exit velocities for GENS and GEN6 should be 221.93 fps.

DEQ Response: A footnote is added to Table 4 of the modeling memo to explain why 164 fps is used instead of 221.93 fps. It reads: “Though actual exit velocities are 221.9 fps, they are modeled at the rates of 50 m/s or 164 ft/sec to be in accordance with DEQ modeling guidance of limiting exit velocities to 50 m/s.”

Facility Comment:

- Statement of Basis Appendix E at page 3 - The 238 kW rating for the Haul Road Pond Generator and the Alienate Horseshoe Dump Generator should have been a rating of 234 kW as stated in the permit and statement of basis.
- Permit Condition 2.6 -- An updated “Appendix E – Federal Regulation Review (40 CFR 60 Subpart IIII)” is provided in Attachment B of this letter with additional explanations regarding the changes to the permit condition proposed in P4’s July 18, 2016 correspondence. See section 60.4201.
- Permit Condition 2.10 -- An updated “Appendix E – Federal Regulation Review (40 CFR 60 Subpart IIII)” is provided in Attachment B of this letter with an additional explanation regarding the change to the permit condition proposed in P4’s July 18, 2016 correspondence. See section 60.4211. In addition, general compliance requirements have been highlighted as requested by DEQ for 40 CFR Part 89 (provided in Attachment C) and in 40 CFR Part 1068 (provided in Attachment D).
- Statement of Basis Appendix E at page 3 - An updated “Appendix E – Federal Regulation Review (40 CFR 60 Subpart IIII)” for your insertion into the Statement of Basis is provided in Attachment B of this letter

showing the changes to the ratings for the Haul Road Pond Generator and the Alternate Horseshoe Dump Generator noted in P4's July 18, 2016 correspondence.

DEQ Response: Appendix E is replaced using the updated one submitted by the applicant on 8/1/2016.

APPENDIX D – PROCESSING FEE

In accordance with IDAPA 58.01.01.225, the applicant is required to pay the PTC processing fee of $5,000 for this permitting action.

Emissions Inventory			
Pollutant	Annual Emissions Increase (T/yr)	Annual Emissions Reduction (T/yr)	Annual Emissions Change (T/yr)
NO_X	0.00	-0.69	-0.69
SO_2	0.00	-2.44	-2.44
CO	12.32		12.32
PM10	0.00	-0.13	-0.13
VOC	7.01		7.01
TAPS/HAPS	0.17	0.00	0.17
Total:	19.50	-3.26	16.25
Fee Due	**$ 5,000.00**		

PENDIX E – FEDERAL REGULATION REVIEW (40 CFR 60 SUBPART IIII)

Regulatory Analysis

The following regulatory analysis is for P4 Production LLC's South Rasmussen Mine.

Highlighted text indicates applicability to the source.

Struck-out text indicates inapplicability to the source.

Blue italic text is annotation describing why the source is or is not subject to the section.

ELECTRONIC CODE OF FEDERAL REGULATIONS

e-CFR data is current as of March 3, 2016

Title 40 → Chapter I → Subchapter C → Part 60 → Subpart IIII Title 40: Protection of Environment

PART 60—STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES

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

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SOURCE: 71 FR 39172, July 11, 2006, unless otherwise noted.

WHAT THIS SUBPART COVERS

§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) and other persons as specified in paragraphs (a)(1) through (4) 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 any stationary CI ICE that are modified or reconstructed after July 11, 2005 and any person that modifies or reconstructs any 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.~~

[71 FR 39172, July 11, 2006, as amended at 76 FR 37967, June 28, 2011]

The South Rasmussen Mine stationary CI ICE are all subject to this subpart per §60.4200(a)(2)(i) as they commenced construction after July 11, 2005, were manufactured after April 1, 2006, and are not fire pump engines.

The stationary CI ICE are subject to §60.4200(a)(4) as they commenced construction after July 11, 2005. The three existing engines were installed after December 31, 2008, and therefore meet the 2007 engine standards per §60.4208(a). The two new engines will be installed after December 31, 2012, and will therefore meet the 2011 engine standards per §60.4208(e).

Section §60.4200(b) does not apply to the South Rasmussen Mine because none of the stationary CI ICE are being tested at a stationary CI ICE test cell/stand.

The South Rasmussen Mine is not subject to §60.4200(c) because it is not an area source and is not otherwise required to obtain a permit under Subpart 70.3(a) or 71.3(a).

Section §60.4200(d) does not apply to the South Rasmussen Mine as they are not eligible to request an exemption for national security.

Section §60.4200(e) does not apply to the South Rasmussen Mine because none of the stationary CI ICE are acting as temporary replacement units.

There will be five stationary CI ICE that are subject to §60.4200:

(1) South Rasmussen Mine – Haul Road Pond Generator (New generator)

Manufacturer: Cummins Inc.

Model No: Cummins Inc. QSB7-G9, C150D2RE

Constructed: 2016 or later – Construction to commence following the receipt of all permits, licensing, and authorization.

Maximum Capacity: 314 hp (234 kW) Standby

This generator is subject to this subpart because it meets the applicable criteria under §60.4200(a)(2)(i).

(2) South Rasmussen Mine – Primary Horseshoe Dump Generator (Existing generator)

Manufacturer: John Deere

Model No: 6068HF485

Constructed: 2010

Installed: April 2011

Maximum Capacity: 315 hp (235 kW) Standby

This generator is subject to this subpart because it meets the applicable criteria under §60.4200(a)(3).

(3) South Rasmussen Mine – Alternate Horseshoe Dump Generator (New generator)

Manufacturer: Cummins Inc.

Model No: Cummins Inc. QSB7-G9, C200D2RE

Constructed: 2016 or later – Construction to commence following the receipt of all permits, licensing, and authorization.

Maximum Capacity: 314 hp (234 kW) Standby

This generator is subject to this subpart because it meets the applicable criteria under §60.4200(a)(2)(i).

(4) South Rasmussen Mine – Back-up Horseshoe Dump Generator (Existing generator)

Manufacturer: John Deere

Model No: 6068HF485

Constructed: 2010

Installed: April 2011

Maximum Capacity: 315 hp (235 kW) Standby

This generator is subject to this subpart because it meets the applicable criteria under §60.4200(a)(2)(i).

(5) South Rasmussen Mine – Smith Pond Generator (Existing generator)

Manufacturer: John Deere

Model No: 6068HF285

Constructed: 2010

Installed: April 2011

Maximum Capacity: 197 hp (147 kW) Standby

This generator is subject to this subpart because it meets the applicable criteria under §60.4200(a)(2)(i).

EMISSION STANDARDS FOR MANUFACTURERS

1. **§60.4201 What emission standards must I meet for non-emergency engines if I am a stationary CI internal combustion engine manufacturer?**

(a) Stationary CI internal combustion engine manufacturers must certify their 2007 model year and later non- emergency stationary CI ICE with a maximum engine power less than or equal to 2,237 kilowatt (KW) (3,000 horsepower (HP)) and a displacement of less than 10 liters per cylinder to the certification emission standards for new nonroad CI engines in 40 CFR 89.112, 40 CFR 89.113, 40 CFR 1039.101, ~~40 CFR 1039.102, 40 CFR 1039.104,~~ 40 CFR 1039.105, ~~40 CFR 1039.107,~~ and 40 CFR 1039.115, as applicable, for all pollutants, for the same model year and maximum engine power.

(b) ~~Stationary CI internal combustion engine manufacturers must certify their 2007 through 2010 model year non-emergency stationary CI ICE with a maximum engine power greater than 2,237 KW (3,000 HP) and a displacement of less than 10 liters per cylinder to the emission standards in table 1 to this subpart, for all pollutants, for the same maximum engine power.~~

(c) ~~Stationary CI internal combustion engine manufacturers must certify their 2011 model year and later non-emergency stationary CI ICE with a maximum engine power greater than 2,237 KW (3,000 HP) and a displacement of less than 10 liters per cylinder to the certification emission standards for new nonroad CI engines in 40 CFR 1039.101, 40 CFR 1039.102, 40 CFR 1039.104, 40 CFR 1039.105, 40 CFR 1039.107, and 40 CFR 1039.115, as applicable, for all pollutants, for the same maximum engine power.~~

(d) ~~Stationary CI internal combustion engine manufacturers must certify the following non-emergency stationary CI ICE to the certification emission standards for new marine CI engines in 40 CFR 94.8, as applicable, for all pollutants, for the same displacement and maximum engine power:~~

(1) ~~Their 2007 model year through 2012 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;~~

(2) ~~Their 2013 model year non-emergency stationary CI ICE with a maximum engine power greater than or equal to 3,700 KW (4,958 HP) and a displacement of greater than or equal to 10 liters per cylinder and less than 15 liters per cylinder; and~~

(3) ~~Their 2013 model year non-emergency stationary CI ICE with a displacement of greater than or equal to 15 liters per cylinder and less than 30 liters per cylinder.~~

(e) ~~Stationary CI internal combustion engine manufacturers must certify the following non-emergency stationary CI ICE to the certification emission standards and other requirements for new marine CI engines in 40 CFR 1042.101, 40 CFR 1042.107, 40 CFR 1042.110, 40 CFR 1042.115, 40 CFR 1042.120, and 40 CFR 1042.145, as applicable, for all pollutants, for the same displacement and maximum engine power:~~

(1) ~~Their 2013 model year non-emergency stationary CI ICE with a maximum engine power less than 3,700 KW (4,958 HP) and a displacement of greater than or equal to 10 liters per cylinder and less than 15 liters per cylinder; and~~

(2) ~~Their 2014 model year and later 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.~~

(f) ~~Notwithstanding the requirements in paragraphs (a) through (c) of this section, stationary non-emergency CI ICE identified in paragraphs (a) and (c) may be certified to the provisions of 40 CFR part 94 or, if Table 1 to 40 CFR 1042.1 identifies 40 CFR part 1042 as being applicable, 40 CFR part 1042, if the engines will be used solely in either or both of the following locations:~~

(1) ~~Areas of Alaska not accessible by the Federal Aid Highway System (FAHS); and~~

(2) ~~Marine offshore installations.~~

(g) ~~Notwithstanding the requirements in paragraphs (a) through (f) of this section, stationary CI internal combustion engine manufacturers are not required to certify reconstructed engines; however manufacturers may elect to do so. The reconstructed engine must be certified to the emission standards specified in paragraphs (a) through (e) of this section that are applicable to the model year, maximum engine power, and displacement of the reconstructed stationary CI ICE.~~

[71 FR 39172, July 11, 2006, as amended at 76 FR 37967, June 28, 2011]

P4 Production, LLC is not the engine manufacturer of the stationary CI ICE; therefore, this section is not applicable. However, as required by §60.4201(a), the South Rasmussen Mine must have certified generators.

40 CFR 89.112 applies to the three existing generators which are all Tier 3. The Primary and Back-up Horseshoe Dump generators are 235 kW each, therefore must meet the 225≤kW≤450, Tier 3 standards in 89.112 Table 1. The Smith Pond Generator is 147 kW, therefore must meet the 130≤kW<225, Tier 3 standards in 89.112 Table 1.

40 CFR 89.113 (Smoke emission standard) applies to the three existing generators which are all Tier 3. Pursuant to 40 CFR 89.1(a)&(b)(6), Part 89 applies to all compression-ignition nonroad engines except Tier 4 engines subject to emission standards under 40 CFR part 1039.

40 CFR 1039.101 (Exhaust emission standards for engines after 2014 model year) applies to the two new generators which will be Tier 4. The Haul Road Pond and Alternate Horseshoe Dump generators will be 234 kW each, therefore must meet the 130≤kW≤560, Tier 4 standards in 1039.101 Table 1.

40 CFR 1039.102 (Exhaust emission standards and phase-in allowances for engine model year 2014 and earlier) does not apply because the three existing model year 2010 generators are 147 kW (Smith Pond Generator), and 235 kW (Primary and Back-up Horseshoe Dump generators), and Table 6's regulations for engines between 130 kW and 560 kW does not establish exhaust emission standards for model 2010 engines.

40 CFR 1039.104 (Interim provisions) does not apply because (a) the engines were not certified early; (b) the three existing 2010 model year generators and the new two 2016 model year generators have a maximum power between 130 kW and 560 kW and the adjustments for engines with that maximum power only apply to 2011-2015 model year engines; (c) P4 is not a small-volume manufacturer; (d) the engines fully meet the specific requirements; (e) the engines are not fueled by diesel test fuels and P4 is not subject to labeling requirements; (f) P4 is not an equipment manufacturer; (g) P4 is not seeking application of an alternate FEL cap; and (h) P4 is not seeking delayed compliance with labeling requirements.

40 CFR 1039.105 (Smoke standards) does not apply to the two new generators are certified to a PM emission standard of 0.02 g/kW-hr (0.015 g/hp-hr, as seen on the manufacture specification sheet and Table 1 of 1039.101), this limit is less than 0.07 g/kw-hr, therefore 40 CFR 1039.105(a)(3) applies to GEN5 and GEN6 and they are exempt from 1039.105 Smoke Standards.

40 CFR 1039.107 (Evaporative emission standards) does not apply because there are no evaporative emission standards for diesel-fueled engines.

40 CFR 1039.115 (Other requirements) applies to the two new generators. Pursuant to 40 CFR 1039.1(b)(1) & Table 1, Part 1039 applies to 130≤kW≤560 engines starting with model year 2011.

2. **§60.4202 What emission standards must I meet for emergency engines if I am a stationary CI internal combustion engine manufacturer?**

~~(a) Stationary CI internal combustion engine manufacturers must certify their 2007 model year and later emergency stationary CI ICE with a maximum engine power less than or equal to 2,237 KW (3,000 HP) and a displacement of less than 10 liters per cylinder that are not fire pump engines to the emission standards specified in paragraphs (a)(1) through (2) of this section.~~

~~(1) For engines with a maximum engine power less than 37 KW (50 HP):~~

~~(i) The certification emission standards for new nonroad CI engines for the same model year and maximum engine power in 40 CFR 89.112 and 40 CFR 89.113 for all pollutants for model year 2007 engines, and~~

~~(ii) The certification emission standards for new nonroad CI engines in 40 CFR 1039.104, 40 CFR 1039.105, 40 CFR 1039.107, 40 CFR 1039.115, and table 2 to this subpart, for 2008 model year and later engines.~~

~~(2) For engines with a maximum engine power greater than or equal to 37 KW (50 HP), the certification emission standards for new nonroad CI engines for the same model year and maximum engine power in 40 CFR 89.112 and 40 CFR 89.113 for all pollutants beginning in model year 2007.~~

~~(b) Stationary CI internal combustion engine manufacturers must certify their 2007 model year and later emergency stationary CI ICE with a maximum engine power greater than 2,237 KW (3,000 HP) and a displacement of less than 10 liters per cylinder that are not fire pump engines to the emission standards specified in paragraphs (b)(1) through (2) of this section.~~

~~(1) For 2007 through 2010 model years, the emission standards in table 1 to this subpart, for all pollutants, for the same maximum engine power.~~

~~(2) For 2011 model year and later, the certification emission standards for new nonroad CI engines for engines of the same model year and maximum engine power in 40 CFR 89.112 and 40 CFR 89.113 for all pollutants.~~

~~(c) [Reserved]~~

~~(d) Beginning with the model years in table 3 to this subpart, stationary CI internal combustion engine manufacturers must certify their fire pump stationary CI ICE to the emission standards in table 4 to this subpart, for all pollutants, for the same model year and NFPA nameplate power.~~

~~(e) Stationary CI internal combustion engine manufacturers must certify the following emergency stationary CI ICE that are not fire pump engines to the certification emission standards for new marine CI engines in 40 CFR 94.8, as applicable, for all pollutants, for the same displacement and maximum engine power:~~

~~(1) Their 2007 model year through 2012 emergency stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder;~~

~~(2) Their 2013 model year and later emergency stationary CI ICE with a maximum engine power greater than or equal to 3,700 KW (4,958 HP) and a displacement of greater than or equal to 10 liters per cylinder and less than 15 liters per cylinder;~~

~~(3) Their 2013 model year emergency stationary CI ICE with a displacement of greater than or equal to 15 liters per cylinder and less than 30 liters per cylinder; and~~

~~(4) Their 2014 model year and later emergency stationary CI ICE with a maximum engine power greater than or equal to 2,000 KW (2,682 HP) and a displacement of greater than or equal to 15 liters per cylinder and less than 30 liters per cylinder.~~

~~(f) Stationary CI internal combustion engine manufacturers must certify the following emergency~~

stationary CI ICE to the certification emission standards and other requirements applicable to Tier 3 new marine CI engines in 40 CFR 1042.101, 40 CFR 1042.107, 40 CFR 1042.115, 40 CFR 1042.120, and 40 CFR 1042.145, for all pollutants, for the same displacement and maximum engine power:

(1) Their 2013 model year and later emergency stationary CI ICE with a maximum engine power less than 3,700 KW (4,958 HP) and a displacement of greater than or equal to 10 liters per cylinder and less than 15 liters per cylinder; and

(2) Their 2014 model year and later emergency stationary CI ICE with a maximum engine power less than 2,000 KW (2,682 HP) and a displacement of greater than or equal to 15 liters per cylinder and less than 30 liters per cylinder.

(g) Notwithstanding the requirements in paragraphs (a) through (d) of this section, stationary emergency CI internal combustion engines identified in paragraphs (a) and (c) may be certified to the provisions of 40 CFR part 94 or, if Table 2 to 40 CFR 1042.101 identifies Tier 3 standards as being applicable, the requirements applicable to Tier 3 engines in 40 CFR part 1042, if the engines will be used solely in either or both of the following locations:

(1) Areas of Alaska not accessible by the FAHS; and

(2) Marine offshore installations.

(h) Notwithstanding the requirements in paragraphs (a) through (f) of this section, stationary CI internal combustion engine manufacturers are not required to certify reconstructed engines; however manufacturers may elect to do so. The reconstructed engine must be certified to the emission standards specified in paragraphs (a) through (f) of this section that are applicable to the model year, maximum engine power and displacement of the reconstructed emergency stationary CI ICE.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37968, June 28, 2011]

P4 Production, LLC is not the engine manufacturer of the stationary CI ICE; therefore, this section is not applicable.

3. **§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.

[76 FR 37968, June 28, 2011]

P4 Production, LLC is not the engine manufacturer of the stationary CI ICE; therefore, this section is not applicable.

EMISSION STANDARDS FOR OWNERS AND OPERATORS

4. **§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.

(c) ~~Owners and operators of non-emergency stationary CI engines with a displacement of greater than or equal to 30 liters per cylinder must meet the following requirements:~~

~~(1) For engines installed prior to January 1, 2012, limit the emissions of NO_x in the stationary CI internal combustion engine exhaust to the following:~~

~~(i) 17.0 grams per kilowatt-hour (g/KW-hr) (12.7 grams per horsepower-hr (g/HP-hr)) when maximum engine speed is less than 130 revolutions per minute (rpm);~~

~~(ii) $45 \cdot n^{-0.2}$ g/KW-hr ($34 \cdot n^{-0.2}$ g/HP-hr) when maximum engine speed is 130 or more but less than 2,000 rpm, where n is maximum engine speed; and~~

~~(iii) 9.8 g/KW-hr (7.3 g/HP-hr) when maximum engine speed is 2,000 rpm or more.~~

~~(2) For engines installed on or after January 1, 2012 and before January 1, 2016, limit the emissions of NO_x in the stationary CI internal combustion engine exhaust to the following:~~

~~(i) 14.4 g/KW-hr (10.7 g/HP-hr) when maximum engine speed is less than 130 rpm;~~

~~(ii) $44 \cdot n^{-0.23}$ g/KW-hr ($33 \cdot n^{-0.23}$ g/HP-hr) when maximum engine speed is greater than or equal to 130 but less than 2,000 rpm and where n is maximum engine speed; and~~

~~(iii) 7.7 g/KW-hr (5.7 g/HP-hr) when maximum engine speed is greater than or equal to 2,000 rpm.~~

~~(3) For engines installed on or after January 1, 2016, limit the emissions of NO_x in the stationary CI internal combustion engine exhaust to the following:~~

~~(i) 3.4 g/KW-hr (2.5 g/HP-hr) when maximum engine speed is less than 130 rpm;~~

~~(ii) $9.0 \cdot n^{-0.20}$ g/KW-hr ($6.7 \cdot n^{-0.20}$ g/HP-hr) where n (maximum engine speed) is 130 or more but less than 2,000 rpm; and~~

~~(iii) 2.0 g/KW-hr (1.5 g/HP-hr) where maximum engine speed is greater than or equal to 2,000 rpm.~~

~~(4) Reduce particulate matter (PM) emissions by 60 percent or more, or limit the emissions of PM in the stationary CI internal combustion engine exhaust to 0.15 g/KW-hr (0.11 g/HP-hr).~~

(d) ~~Owners and operators of non-emergency stationary CI ICE with a displacement of less than 30 liters per cylinder who conduct performance tests in-use must meet the not-to-exceed (NTE) standards as indicated in §60.4212.~~

(e) ~~Owners and operators of any modified or reconstructed non-emergency stationary CI ICE subject to this subpart must meet the emission standards applicable to the model year, maximum engine power, and displacement of the modified or reconstructed non-emergency stationary CI ICE that are specified in paragraphs (a) through (d) of this section.~~

[71 FR 39172, July 11, 2006, as amended at 76 FR 37968, June 28, 2011]

The South Rasmussen Mine generators are subject to §60.4204(b), and will comply with the emission standards for new CI engines in §60.4201. Compliance will be demonstrated by using certified generators in accordance with §60.4211(c).

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?**

~~(a) Owners and operators of pre-2007 model year emergency stationary CI ICE with a displacement of less than 10 liters per cylinder that are not fire pump engines must comply with the emission standards in Table 1 to this subpart. Owners and operators of pre-2007 model year emergency stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder that are not fire pump engines must comply with the emission standards in 40 CFR 94.8(a)(1).~~

~~(b) Owners and operators of 2007 model year and later emergency stationary CI ICE with a displacement of less than 30 liters per cylinder that are not fire pump engines must comply with the emission standards for new nonroad CI engines in §60.4202, for all pollutants, for the same model year and maximum engine power for their 2007 model year and later emergency stationary CI ICE.~~

~~(c) Owners and operators of fire pump engines with a displacement of less than 30 liters per cylinder must comply with the emission standards in table 4 to this subpart, for all pollutants.~~

~~(d) Owners and operators of emergency stationary CI engines with a displacement of greater than or equal to 30 liters per cylinder must meet the requirements in this section.~~

~~(1) For engines installed prior to January 1, 2012, limit the emissions of NO_x in the stationary CI internal combustion engine exhaust to the following:~~

~~(i) 17.0 g/KW-hr (12.7 g/HP-hr) when maximum engine speed is less than 130 rpm;~~

~~(ii) $45 \cdot n^{-0.2}$ g/KW-hr ($34 \cdot n^{-0.2}$ g/HP-hr) when maximum engine speed is 130 or more but less than 2,000 rpm, where n is maximum engine speed; and~~

~~(iii) 9.8 g/kW-hr (7.3 g/HP-hr) when maximum engine speed is 2,000 rpm or more.~~

~~(2) For engines installed on or after January 1, 2012, limit the emissions of NO_x in the stationary CI internal combustion engine exhaust to the following:~~

~~(i) 14.4 g/KW-hr (10.7 g/HP-hr) when maximum engine speed is less than 130 rpm;~~

~~(ii) $44 \cdot n^{-0.23}$ g/KW-hr ($33 \cdot n^{-0.23}$ g/HP-hr) when maximum engine speed is greater than or equal to 130 but less than 2,000 rpm and where n is maximum engine speed; and~~

~~(iii) 7.7 g/KW-hr (5.7 g/HP-hr) when maximum engine speed is greater than or equal to 2,000 rpm.~~

~~(3) Limit the emissions of PM in the stationary CI internal combustion engine exhaust to 0.40 g/KW-hr (0.30 g/HP-hr).~~

~~(e) Owners and operators of emergency stationary CI ICE with a displacement of less than 30 liters per cylinder who conduct performance tests in-use must meet the NTE standards as indicated in §60.4212.~~

~~(f) Owners and operators of any modified or reconstructed emergency stationary CI ICE subject to this subpart must meet the emission standards applicable to the model year, maximum engine power, and displacement of the modified or reconstructed CI ICE that are specified in paragraphs (a) through (e) of this section.~~

[71 FR 39172, July 11, 2006, as amended at 76 FR 37969, June 28, 2011]

The South Rasmussen Mine is not subject to §60.4205 because the generators are not emergency generators.

6. **§60.4206 How long must I 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.

[76 FR 37969, June 28, 2011]

As required by §60.4206, P4 Production, LLC will operate and maintain the five stationary CI ICE so they achieve the 2007 and later emission standards, for the entire life of the engines.

FUEL REQUIREMENTS FOR OWNERS AND OPERATORS

7. **§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 use diesel fuel that meets the requirements of 40 CFR 80.510(b) for nonroad diesel fuel, except that any existing diesel fuel purchased (or otherwise obtained) prior to October 1, 2010, may be used until depleted.

(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.~~

[71 FR 39172, July 11, 2006, as amended at 76 FR 37969, June 28, 2011; 78 FR 6695, Jan. 30, 2013]

The South Rasmussen Mine generators are subject to §60.4207(a) and (b), and compliance will be demonstrated by using diesel fuel that meets the requirements of 40 CFR 80.510(b). The fuel sulfur content cannot exceed 15 ppm or 0.0015% by weight.

OTHER REQUIREMENTS FOR OWNERS AND OPERATORS

8. **§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.~~

[71 FR 39172, July 11, 2006, as amended at 76 FR 37969, June 28, 2011]

The South Rasmussen Mine existing generators are subject to §60.4208(a) as they were installed after December 31, 2008, and before December 31, 2012. These existing generators meet the 2007 or later model year requirements.

The South Rasmussen Mine new generators are subject to §60.4208(e) as they will be installed after December 31, 2012, and are greater than 175 hp. These new generators will meet the 2011 or later model year requirements.

9. **§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.~~

[71 FR 39172, July 11, 2006, as amended at 76 FR 37969, June 28, 2011]

The South Rasmussen Mine generators are not subject §60.4209(a) because they are not emergency stationary CI ICE and are not subject to §60.4209(b) because they are not equipped with a diesel particulate filter.

COMPLIANCE REQUIREMENTS

10. **§60.4210 What are my compliance requirements if I am a stationary CI internal combustion engine manufacturer?**

(a) Stationary CI internal combustion engine manufacturers must certify their stationary CI ICE with a displacement of less than 10 liters per cylinder to the emission standards specified in §60.4201(a) through (c) and §60.4202(a), (b) and (d) using the certification procedures required in 40 CFR part 89, subpart B, or 40 CFR part 1039, subpart C, as applicable, and must test their engines as specified in those parts. For the purposes of this subpart, engines certified to the standards in table 1 to this subpart shall be subject to the same requirements as engines certified to the standards in 40 CFR part 89. For the purposes of this subpart, engines certified to the standards in table 4 to this subpart shall be subject to the same requirements as engines certified to the standards in 40 CFR part 89, except that engines with NFPA nameplate power of less than 37 KW (50 HP) certified to model year 2011 or later standards shall be subject to the same requirements as engines certified to the standards in 40 CFR part 1039.

(b) Stationary CI internal combustion engine manufacturers must certify their stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder to the emission standards specified in §60.4201(d) and (e) and §60.4202(e) and (f) using the certification procedures required in 40 CFR part 94, subpart C, or 40 CFR part 1042, subpart C, as applicable, and must test their engines as specified in 40 CFR part 94 or 1042, as applicable.

(c) Stationary CI internal combustion engine manufacturers must meet the requirements of 40 CFR 1039.120, 1039.125, 1039.130, and 1039.135, and 40 CFR part 1068 for engines that are certified to the emission standards in 40 CFR part 1039. Stationary CI internal combustion engine manufacturers must meet the corresponding provisions of 40 CFR part 89, 40 CFR part 94 or 40 CFR part 1042 for engines that would be covered by that part if they were nonroad (including marine) engines. Labels on such engines must refer to stationary engines, rather than or in addition to nonroad or marine engines, as appropriate. Stationary CI internal combustion engine manufacturers must label their engines according to paragraphs (c)(1) through (3) of this section.

(1) Stationary CI internal combustion engines manufactured from January 1, 2006 to March 31, 2006 (January 1, 2006 to June 30, 2006 for fire pump engines), other than those that are part of certified engine families under the nonroad CI engine regulations, must be labeled according to 40 CFR 1039.20.

(2) Stationary CI internal combustion engines manufactured from April 1, 2006 to December 31, 2006 (or, for fire pump engines, July 1, 2006 to December 31 of the year preceding the year listed in table 3 to this subpart) must be labeled according to paragraphs (c)(2)(i) through (iii) of this section:

(i) Stationary CI internal combustion engines that are part of certified engine families under the nonroad regulations must meet the labeling requirements for nonroad CI engines, but do not have to meet the labeling requirements in 40 CFR 1039.20.

(ii) Stationary CI internal combustion engines that meet Tier 1 requirements (or requirements for fire pumps) under this subpart, but do not meet the requirements applicable to nonroad CI engines must be labeled according to 40 CFR 1039.20. The engine manufacturer may add language to the label clarifying that the engine meets Tier 1 requirements (or requirements for fire pumps) of this subpart.

(iii) Stationary CI internal combustion engines manufactured after April 1, 2006 that do not meet Tier 1 requirements of this subpart, or fire pumps engines manufactured after July 1, 2006 that do not meet the requirements for fire pumps under this subpart, may not be used in the U.S. If any such engines are manufactured in the U.S. after April 1, 2006 (July 1, 2006 for fire pump engines), they must be exported or must be brought into compliance with the appropriate standards prior to initial operation. The export provisions of 40 CFR

1068.230 would apply to engines for export and the manufacturers must label such engines according to 40 CFR 1068.230.

(3) Stationary CI internal combustion engines manufactured after January 1, 2007 (for fire pump engines, after January 1 of the year listed in table 3 to this subpart, as applicable) must be labeled according to paragraphs (c)(3)(i) through (iii) of this section.

(i) Stationary CI internal combustion engines that meet the requirements of this subpart and the corresponding requirements for nonroad (including marine) engines of the same model year and HP must be labeled according to the provisions in 40 CFR parts 89, 94, 1039 or 1042, as appropriate.

(ii) Stationary CI internal combustion engines that meet the requirements of this subpart, but are not certified to the standards applicable to nonroad (including marine) engines of the same model year and HP must be labeled according to the provisions in 40 CFR parts 89, 94, 1039 or 1042, as appropriate, but the words "stationary" must be included instead of "nonroad" or "marine" on the label. In addition, such engines must be labeled according to 40 CFR 1039.20.

(iii) Stationary CI internal combustion engines that do not meet the requirements of this subpart must be labeled according to 40 CFR 1068.230 and must be exported under the provisions of 40 CFR 1068.230.

(d) An engine manufacturer certifying an engine family or families to standards under this subpart that are identical to standards applicable under 40 CFR parts 89, 94, 1039 or 1042 for that model year may certify any such family that contains both nonroad (including marine) and stationary engines as a single engine family and/or may include any such family containing stationary engines in the averaging, banking and trading provisions applicable for such engines under those parts.

(e) Manufacturers of engine families discussed in paragraph (d) of this section may meet the labeling requirements referred to in paragraph (c) of this section for stationary CI ICE by either adding a separate label containing the information required in paragraph (c) of this section or by adding the words "and stationary" after the word "nonroad" or "marine," as appropriate, to the label.

(f) Starting with the model years shown in table 5 to this subpart, stationary CI internal combustion engine manufacturers must add a permanent label stating that the engine is for stationary emergency use only to each new emergency stationary CI internal combustion engine greater than or equal to 19 KW (25 HP) that meets all the emission standards for emergency engines in §60.4202 but does not meet all the emission standards for non-emergency engines in §60.4201. The label must be added according to the labeling requirements specified in 40 CFR 1039.135(b). Engine manufacturers must specify in the owner's manual that operation of emergency engines is limited to emergency operations and required maintenance and testing.

(g) Manufacturers of fire pump engines may use the test cycle in table 6 to this subpart for testing fire pump engines and may test at the NFPA certified nameplate HP, provided that the engine is labeled as "Fire Pump Applications Only".

(h) Engine manufacturers, including importers, may introduce into commerce uncertified engines or engines certified to earlier standards that were manufactured before the new or changed standards took effect until inventories are depleted, as long as such engines are part of normal inventory. For example, if the engine manufacturers' normal industry practice is to keep on hand a one-month supply of engines based on its projected sales, and a new tier of standards starts to apply for the 2009 model year, the engine manufacturer may manufacture engines based on the normal inventory requirements late in the 2008 model year, and sell those engines for installation. The engine manufacturer may not circumvent the provisions of §60.4201 or §60.4202 by stockpiling engines that are built before new or changed standards take effect. Stockpiling of such engines beyond normal industry practice is a violation of this subpart.

(i) The replacement engine provisions of 40 CFR 89.1003(b)(7), 40 CFR 94.1103(b)(3), 40 CFR 94.1103(b)(4) and 40 CFR 1068.240 are applicable to stationary CI engines replacing existing equipment that is less than 15 years old.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37969, June 28, 2011]

P4 Production, LLC is not the engine manufacturer of the stationary CI ICE; therefore, this section is not applicable.

11. **§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) If you own or operate an emergency stationary ICE, you must operate the emergency stationary ICE according to the requirements in paragraphs (f)(1) through (3) of this section. In order for the engine to be considered an emergency stationary ICE under this subpart, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year, as described in paragraphs (f)(1) through (3) of this section, is prohibited. If you do not operate the engine according to the requirements in paragraphs (f)(1) through (3) of this section, the engine will not be considered an emergency engine under this subpart and must meet all requirements for non-emergency engines.

(1) There is no time limit on the use of emergency stationary ICE in emergency situations.

(2) You may operate your emergency stationary ICE for any combination of the purposes specified in paragraphs (f)(2)(i) through (iii) of this section for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraph (f)(3) of this section counts as part of the 100 hours per calendar year allowed by this paragraph (f)(2).

(i) Emergency stationary ICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. 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 calendar year.

(ii) Emergency stationary ICE may be operated for emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard

~~EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see §60.17), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.~~

(iii) ~~Emergency stationary ICE may be operated for periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.~~

(3) ~~Emergency stationary ICE may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in paragraph (f)(2) of this section. Except as provided in paragraph (f)(3)(i) of this section, the 50 hours per calendar year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity.~~

(i) ~~The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met:~~

(A) ~~The engine is dispatched by the local balancing authority or local transmission and distribution system operator;~~

(B) ~~The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.~~

(C) ~~The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.~~

(D) ~~The power is provided only to the facility itself or to support the local transmission and distribution system.~~

~~(E) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.~~

~~(ii) [Reserved]~~

(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.~~

[71 FR 39172, July 11, 2006, as amended at 76 FR 37970, June 28, 2011; 78 FR 6695, Jan. 30, 2013]

The South Rasmussen Mine generators are subject to §60.4211(a), (c), and (g)(2), will be in accordance to this subpart, and will be operated, maintained, installed, and configured according to manufacturer specifications according to this subpart.

The South Rasmussen Mine generators are subject to §60.4211(a)(3) and must meet the requirements of 40 CFR parts 89 and 1068, as they apply. 40 CFR part 94 does not apply as this is for the control of emissions from marine compression-ignition engines.

Testing Requirements for Owners and Operators

12. **§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.~~

~~(a) The performance test must be conducted according to the in-use testing procedures in 40 CFR part 1039, subpart F, for stationary CI ICE with a displacement of less than 10 liters per cylinder, and according to 40 CFR part 1042, subpart F, for stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder.~~

~~(b) Exhaust emissions from stationary CI ICE that are complying with the emission standards for new CI engines in 40 CFR part 1039 must not exceed the not-to-exceed (NTE) standards for the same model year and maximum engine power as required in 40 CFR 1039.101(e) and 40 CFR 1039.102(g)(1), except as specified in 40 CFR 1039.104(d). This requirement starts when NTE requirements take effect for nonroad diesel engines under 40 CFR part 1039.~~

~~(c) Exhaust emissions from stationary CI ICE that are complying with the emission standards for new CI engines in 40 CFR 89.112 or 40 CFR 94.8, as applicable, must not exceed the NTE numerical requirements, rounded to the same number of decimal places as the applicable standard in 40 CFR 89.112 or 40 CFR 94.8, as applicable, determined from the following equation:~~

~~NTE requirement for each pollutant = (1.25) × (STD) (Eq. 1)~~

~~Where:~~

~~STD = The standard specified for that pollutant in 40 CFR 89.112 or 40 CFR 94.8, as applicable.~~

~~Alternatively, stationary CI ICE that are complying with the emission standards for new CI engines in 40 CFR 89.112 or 40 CFR 94.8 may follow the testing procedures specified in §60.4213 of this subpart, as appropriate.~~

~~(d) Exhaust emissions from stationary CI ICE that are complying with the emission standards for pre-2007 model year engines in §60.4204(a), §60.4205(a), or §60.4205(c) must not exceed the NTE numerical requirements, rounded to the same number of decimal places as the applicable standard in §60.4204(a), §60.4205(a), or §60.4205(c), determined from the equation in paragraph (c) of this section.~~

~~Where:~~

~~STD = The standard specified for that pollutant in §60.4204(a), §60.4205(a), or §60.4205(c).~~

~~Alternatively, stationary CI ICE that are complying with the emission standards for pre-2007 model year engines in §60.4204(a), §60.4205(a), or §60.4205(c) may follow the testing procedures specified in §60.4213, as appropriate.~~

~~(e) Exhaust emissions from stationary CI ICE that are complying with the emission standards for new CI engines in 40 CFR part 1042 must not exceed the NTE standards for the same model year and maximum engine power as required in 40 CFR 1042.101(c).~~

[71 FR 39172, July 11, 2006, as amended at 76 FR 37971, June 28, 2011]

P4 Production, LLC does not conduct performance tests pursuant to this subpart; therefore, this section is not applicable.

13. **§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.~~

~~(a) Each performance test must be conducted according to the requirements in §60.8 and under the specific conditions that this subpart specifies in table 7. The test must be conducted within 10 percent of 100 percent peak (or the highest achievable) load.~~

~~(b) You may not conduct performance tests during periods of startup, shutdown, or malfunction, as specified in §60.8(c).~~

~~(c) You must conduct three separate test runs for each performance test required in this section, as specified in §60.8(f). Each test run must last at least 1 hour.~~

~~(d) To determine compliance with the percent reduction requirement, you must follow the requirements as specified in paragraphs (d)(1) through (3) of this section.~~

~~(1) You must use Equation 2 of this section to determine compliance with the percent reduction requirement:~~

$$\frac{C_i - C_o}{C_i} \times 100 = R \qquad \text{(Eq. 2)}$$

~~Where:~~

~~C_i = concentration of NO_x or PM at the control device inlet,~~

~~C_o = concentration of NO_x or PM at the control device outlet, and~~

~~R = percent reduction of NO_x or PM emissions.~~

~~(2) You must normalize the NO_x or PM concentrations at the inlet and outlet of the control device to a dry basis and to 15 percent oxygen (O_2) using Equation 3 of this section, or an equivalent percent carbon dioxide (CO_2) using the procedures described in paragraph (d)(3) of this section.~~

$$C_{adj} = C_d \frac{5.9}{20.9 - \%\ O_2} \qquad \text{(Eq. 3)}$$

~~Where:~~

~~C_{adj} = Calculated NO_x or PM concentration adjusted to 15 percent O_2.~~

~~C_d = Measured concentration of NO_x or PM, uncorrected.~~

~~5.9 = 20.9 percent O_2−15 percent O_2, the defined O_2 correction value, percent.~~

~~$\%O_2$ = Measured O_2 concentration, dry basis, percent.~~

~~(3) If pollutant concentrations are to be corrected to 15 percent O_2 and CO_2 concentration is measured in lieu of O_2 concentration measurement, a CO_2 correction factor is needed. Calculate the CO_2 correction factor as described in paragraphs (d)(3)(i) through (iii) of this section.~~

~~(i) Calculate the fuel-specific F_o value for the fuel burned during the test using values obtained from Method 19, Section 5.2, and the following equation:~~

$$F_o = \frac{0.209 F_d}{F_c} \qquad \text{(Eq. 4)}$$

~~Where:~~

F_o = Fuel factor based on the ratio of O_2 volume to the ultimate CO_2 volume produced by the fuel at zero percent excess air.

0.209 = Fraction of air that is O_2, percent/100.

F_d = Ratio of the volume of dry effluent gas to the gross calorific value of the fuel from Method 19, dsm^3/J ($dscf/10^6$ Btu).

F_c = Ratio of the volume of CO_2 produced to the gross calorific value of the fuel from Method 19, dsm^3/J ($dscf/10^6$ Btu).

(ii) Calculate the CO_2 correction factor for correcting measurement data to 15 percent O_2, as follows:

$$X_{CO_2} = \frac{5.9}{F_o} \quad \text{(Eq. 5)}$$

Where:

X_{CO2} = CO_2 correction factor, percent.

5.9 = 20.9 percent O_2−15 percent O_2, the defined O_2 correction value, percent.

(iii) Calculate the NO_X and PM gas concentrations adjusted to 15 percent O_2 using CO_2 as follows:

$$C_{adj} = C_d \frac{X_{CO_2}}{\%CO_2} \quad \text{(Eq. 6)}$$

Where:

C_{adj} = Calculated NO_X or PM concentration adjusted to 15 percent O_2.

C_d = Measured concentration of NO_X or PM, uncorrected.

$\%CO_2$ = Measured CO_2 concentration, dry basis, percent.

(e) To determine compliance with the NO_X mass per unit output emission limitation, convert the concentration of NO_X in the engine exhaust using Equation 7 of this section:

$$ER = \frac{C_d \times 1.912 \times 10^{-3} \times Q \times T}{\text{KW-hour}} \quad \text{(Eq. 7)}$$

Where:

ER = Emission rate in grams per KW-hour.

C_d = Measured NO_X concentration in ppm.

$1.912x10^{-3}$ = Conversion constant for ppm NO_X to grams per standard cubic meter at 25 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meter per hour.

T = Time of test run, in hours.

KW-hour = Brake work of the engine, in KW-hour.

(f) To determine compliance with the PM mass per unit output emission limitation, convert the concentration of PM in the engine exhaust using Equation 8 of this section:

$$ER = \frac{C_{adj} \times Q \times T}{\text{KW-hour}} \quad \text{(Eq. 8)}$$

Where:

ER = Emission rate in grams per KW-hour.

~~C_{adj} = Calculated PM concentration in grams per standard cubic meter.~~

~~Q = Stack gas volumetric flow rate, in standard cubic meter per hour.~~

~~T = Time of test run, in hours.~~

~~KW-hour = Energy output of the engine, in KW.~~

[71 FR 39172, July 11, 2006, as amended at 76 FR 37971, June 28, 2011]

The engines at the South Rasmussen Mine do not have a displacement of greater than 30 liters per cylinder; therefore, this section is not applicable.

NOTIFICATION, REPORTS, AND RECORDS FOR OWNERS AND OPERATORS

14. **§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.~~

~~(d) If you own or operate an emergency stationary CI ICE with a maximum engine power more than 100 HP that operates or is contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §60.4211(f)(2)(ii) and (iii) or that operates for the purposes specified in §60.4211(f)(3)(i), you must submit an annual report according to the requirements in paragraphs (d)(1) through (3) of this section.~~

~~(1) The report must contain the following information:~~

~~(i) Company name and address where the engine is located.~~

~~(ii) Date of the report and beginning and ending dates of the reporting period.~~

~~(iii) Engine site rating and model year.~~

~~(iv) Latitude and longitude of the engine in decimal degrees reported to the fifth decimal place.~~

~~(v) Hours operated for the purposes specified in §60.4211(f)(2)(ii) and (iii), including the date, start time, and end time for engine operation for the purposes specified in §60.4211(f)(2)(ii) and (iii).~~

~~(vi) Number of hours the engine is contractually obligated to be available for the purposes specified in §60.4211(f)(2)(ii) and (iii).~~

~~(vii) Hours spent for operation for the purposes specified in §60.4211(f)(3)(i), including the date, start time, and end time for engine operation for the purposes specified in §60.4211(f)(3)(i). The report must also identify the entity that dispatched the engine and the situation that necessitated the dispatch of the engine.~~

~~(2) The first annual report must cover the calendar year 2015 and must be submitted no later than March 31, 2016. Subsequent annual reports for each calendar year must be submitted no later than March 31 of the following calendar year.~~

~~(3) The annual report must be submitted electronically using the subpart specific reporting form in the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (*www.epa.gov/cdx*). However, if the reporting form specific to this subpart is not available in CEDRI at the time that the report is due, the written report must be submitted to the Administrator at the appropriate address listed in §60.4.~~

[71 FR 39172, July 11, 2006, as amended at 78 FR 6696, Jan. 30, 2013]

The South Rasmussen Mine generators are not subject §60.4214(a) because they do not meet the criteria listed, they are not subject to §60.4214(b) or (d) because they are not emergency stationary CI ICE and they are not subject to §60.4214(c) because they are not equipped with a diesel particulate filter.

SPECIAL REQUIREMENTS

15. **§60.4215 What requirements must I meet for engines used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands?**

~~(a) Stationary CI ICE with a displacement of less than 30 liters per cylinder that are used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands are required to meet the applicable emission standards in §§60.4202 and 60.4205.~~

~~(b) Stationary CI ICE that are used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands are not required to meet the fuel requirements in §60.4207.~~

~~(c) Stationary CI ICE with a displacement of greater than or equal to 30 liters per cylinder that are used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands are required to meet the following emission standards:~~

~~(1) For engines installed prior to January 1, 2012, limit the emissions of NO_x in the stationary CI internal combustion engine exhaust to the following:~~

~~(i) 17.0 g/KW-hr (12.7 g/HP-hr) when maximum engine speed is less than 130 rpm;~~

~~(ii) $45 \cdot n^{-0.2}$ g/KW-hr ($34 \cdot n^{-0.2}$ g/HP-hr) when maximum engine speed is 130 or more but less than 2,000 rpm, where n is maximum engine speed; and~~

~~(iii) 9.8 g/KW-hr (7.3 g/HP-hr) when maximum engine speed is 2,000 rpm or more.~~

~~(2) For engines installed on or after January 1, 2012, limit the emissions of NO_x in the stationary CI internal combustion engine exhaust to the following:~~

~~(i) 14.4 g/KW-hr (10.7 g/HP-hr) when maximum engine speed is less than 130 rpm;~~

~~(ii) $44 \cdot n^{-0.23}$ g/KW-hr ($33 \cdot n^{-0.23}$ g/HP-hr) when maximum engine speed is greater than or equal to 130 but less than 2,000 rpm and where n is maximum engine speed; and~~

~~(iii) 7.7 g/KW-hr (5.7 g/HP-hr) when maximum engine speed is greater than or equal to 2,000 rpm.~~

~~(3) Limit the emissions of PM in the stationary CI internal combustion engine exhaust to 0.40 g/KW-hr (0.30 g/HP-hr).~~

[71 FR 39172, July 11, 2006, as amended at 76 FR 37971, June 28, 2011]

This section does not apply because the engines are not located in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands.

16. **§60.4216 What requirements must I meet for engines used in Alaska?**

~~(a) Prior to December 1, 2010, owners and operators of stationary CI ICE with a displacement of less than 30 liters per cylinder located in areas of Alaska not accessible by the FAHS should refer to 40 CFR part 69 to determine the diesel fuel requirements applicable to such engines.~~

~~(b) Except as indicated in paragraph (c) of this section, manufacturers, owners and operators of stationary CI ICE with a displacement of less than 10 liters per cylinder located in areas of Alaska not accessible by the FAHS may meet the requirements of this subpart by manufacturing and installing engines meeting the requirements of 40 CFR parts 94 or 1042, as appropriate, rather than the otherwise applicable requirements of 40 CFR parts 89 and 1039, as indicated in sections §§60.4201(f) and 60.4202(g) of this subpart.~~

~~(c) Manufacturers, owners and operators of stationary CI ICE that are located in areas of Alaska not accessible by the FAHS may choose to meet the applicable emission standards for emergency engines in~~

§§60.4202 and 60.4205, and not those for non-emergency engines in §60.4201 and §60.4204, except that for 2014 model year and later non-emergency CI ICE, the owner or operator of any such engine that was not certified as meeting Tier 4 PM standards, must meet the applicable requirements for PM in §§60.4201 and 60.4204 or install a PM emission control device that achieves PM emission reductions of 85 percent, or 60 percent for engines with a displacement of greater than or equal to 30 liters per cylinder, compared to engine-out emissions.

(d) The provisions of §60.4207 do not apply to owners and operators of pre-2014 model year stationary CI ICE subject to this subpart that are located in areas of Alaska not accessible by the FAHS.

(e) The provisions of §60.4208(a) do not apply to owners and operators of stationary CI ICE subject to this subpart that are located in areas of Alaska not accessible by the FAHS until after December 31, 2009.

(f) The provisions of this section and §60.4207 do not prevent owners and operators of stationary CI ICE subject to this subpart that are located in areas of Alaska not accessible by the FAHS from using fuels mixed with used lubricating oil, in volumes of up to 1.75 percent of the total fuel. The sulfur content of the used lubricating oil must be less than 200 parts per million. The used lubricating oil must meet the on-specification levels and properties for used oil in 40 CFR 279.11.

[76 FR 37971, June 28, 2011]

This section does not apply because the engines are not located in Alaska.

17. **§60.4217 What emission standards must I meet if I am an owner or operator of a stationary internal combustion engine using special fuels?**

Owners and operators of stationary CI ICE that do not use diesel fuel may petition the Administrator for approval of alternative emission standards, if they can demonstrate that they use a fuel that is not the fuel on which the manufacturer of the engine certified the engine and that the engine cannot meet the applicable standards required in §60.4204 or §60.4205 using such fuels and that use of such fuel is appropriate and reasonably necessary, considering cost, energy, technical feasibility, human health and environmental, and other factors, for the operation of the engine.

[76 FR 37972, June 28, 2011]

This section does not apply because P4 Production, LLC is not using special fuels at the South Rasmussen Mine.

General Provisions

18. **§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.

P4 Production, LLC acknowledges that this section applies to the generators at the South Rasmussen Mine.

Definitions

19. **§60.4219 What definitions apply to this subpart?**

As used in this subpart, all terms not defined herein shall have the meaning given them in the CAA and in subpart A of this part.

Certified emissions life means the period during which the engine is designed to properly function in terms of reliability and fuel consumption, without being remanufactured, specified as a number of hours of operation or calendar years, whichever comes first. The values for certified emissions life for stationary CI ICE with a displacement of less than 10 liters per cylinder are given in 40 CFR 1039.101(g). ~~The values for certified emissions life for stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder are given in 40 CFR 94.9(a).~~

~~*Combustion turbine* means all equipment, including but not limited to the turbine, the fuel, air, lubrication and exhaust gas systems, control systems (except emissions control equipment), and any ancillary components and sub-components comprising any simple cycle combustion turbine, any regenerative/recuperative cycle combustion turbine, the combustion turbine portion of any cogeneration cycle combustion system, or the combustion turbine portion of any combined cycle steam/electric generating system.~~

Compression ignition means relating to a type of stationary internal combustion engine that is not a spark ignition engine.

Date of manufacture means one of the following things:

(1) For freshly manufactured engines and modified engines, date of manufacture means the date the engine is originally produced.

~~(2) For reconstructed engines, date of manufacture means the date the engine was originally produced, except as specified in paragraph (3) of this definition.~~

~~(3) Reconstructed engines are assigned a new date of manufacture if the fixed capital cost of the new and refurbished components exceeds 75 percent of the fixed capital cost of a comparable entirely new facility. An engine that is produced from a previously used engine block does not retain the date of manufacture of the engine in which the engine block was previously used if the engine is produced using all new components except for the engine block. In these cases, the date of manufacture is the date of reconstruction or the date the new engine is produced.~~

Diesel fuel means any liquid obtained from the distillation of petroleum with a boiling point of approximately 150 to 360 degrees Celsius. One commonly used form is number 2 distillate oil.

~~*Diesel particulate filter* means an emission control technology that reduces PM emissions by trapping the particles in a flow filter substrate and periodically removes the collected particles by either physical action or by oxidizing (burning off) the particles in a process called regeneration.~~

~~*Emergency stationary internal combustion engine* means any stationary reciprocating internal combustion engine that meets all of the criteria in paragraphs (1) through (3) of this definition. All emergency stationary ICE must comply with the requirements specified in §60.4211(f) in order to be considered emergency stationary ICE. If the engine does not comply with the requirements specified in §60.4211(f), then it is not considered to be an emergency stationary ICE under this subpart.~~

~~(1) The stationary ICE is operated to provide electrical power or mechanical work during an emergency situation. Examples include stationary ICE used to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility (or the normal power source, if the facility runs on its own power production) is interrupted, or stationary ICE used to pump water in the case of fire or flood, etc.~~

~~(2) The stationary ICE is operated under limited circumstances for situations not included in paragraph (1) of this definition, as specified in §60.4211(f).~~

~~(3) The stationary ICE operates as part of a financial arrangement with another entity in situations not included in paragraph (1) of this definition only as allowed in §60.4211(f)(2)(ii) or (iii) and §60.4211(f)(3)(i).~~

Engine manufacturer means the manufacturer of the engine. See the definition of "manufacturer" in this section.

~~*Fire pump engine* means an emergency stationary internal combustion engine certified to NFPA requirements that is used to provide power to pump water for fire suppression or protection.~~

Freshly manufactured engine means an engine that has not been placed into service. An engine becomes freshly manufactured when it is originally produced.

Installed means the engine is placed and secured at the location where it is intended to be operated.

Manufacturer has the meaning given in section 216(1) of the Act. In general, this term includes any person who manufactures a stationary engine for sale in the United States or otherwise introduces a new stationary engine into commerce in the United States. This includes importers who import stationary engines for sale or resale.

Maximum engine power means maximum engine power as defined in 40 CFR 1039.801.

Model year means the calendar year in which an engine is manufactured (see "date of manufacture"), except as follows:

(1) Model year means the annual new model production period of the engine manufacturer in which an engine is manufactured (see "date of manufacture"), if the annual new model production period is different than the calendar year and includes January 1 of the calendar year for which the model year is named. It may not begin before January 2 of the previous calendar year and it must end by December 31 of the named calendar year.

(2) For an engine that is converted to a stationary engine after being placed into service as a nonroad or other non-stationary engine, model year means the calendar year or new model production period in which the engine was manufactured (see "date of manufacture").

~~*Other internal combustion engine* means any internal combustion engine, except combustion turbines, which is not a reciprocating internal combustion engine or rotary internal combustion engine.~~

Reciprocating internal combustion engine means any internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work.

~~*Rotary internal combustion engine* means any internal combustion engine which uses rotary motion to convert heat energy into mechanical work.~~

~~*Spark ignition* means relating to a gasoline, natural gas, or liquefied petroleum gas fueled engine or any other type of engine with a spark plug (or other sparking device) and with operating characteristics significantly similar to the theoretical Otto combustion cycle. Spark ignition engines usually use a throttle to regulate intake air flow to control power during normal operation. Dual-fuel engines in which a liquid fuel (typically diesel fuel) is used for CI and gaseous fuel (typically natural gas) is used as the primary fuel at an annual average ratio of less than 2 parts diesel fuel to 100 parts total fuel on an energy-equivalent basis are spark ignition engines.~~

Stationary internal combustion engine means any internal combustion engine, except combustion turbines, that converts heat energy into mechanical work and is not mobile. Stationary ICE differ from mobile ICE in that a stationary internal combustion engine is not a nonroad engine as defined at 40 CFR 1068.30 (excluding paragraph (2)(ii) of that definition), and is not used to propel a motor vehicle, aircraft, or a vehicle used solely for competition. Stationary ICE include reciprocating ICE, rotary ICE, and other ICE, except combustion turbines.

Subpart means 40 CFR part 60, subpart IIII.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37972, June 28, 2011; 78 FR 6696, Jan. 30, 2013]

P4 Production, LLC has read and understands these definitions and used them in providing this regulatory analysis.

20. **Table 1 to Subpart IIII of Part 60 – Emission Standards for Stationary Pre-2007 Model Year Engines With a Displacement of <10 Liters per Cylinder and 2007-2010 Model Year Engines >2,237 KW (3,000 HP) and With a Displacement of <10 Liters per Cylinder**

[As stated in §§60.4201(b), 60.4202(b), 60.4204(a), and 60.4205(a), you must comply with the following emission standards]

Maximum engine power	Emission standards for stationary pre-2007 model year engines with a displacement of <10 liters per cylinder and 2007-2010 model year engines >2,237 KW (3,000 HP) and with a displacement of <10 liters per cylinder in g/KW-hr (g/HP-hr)				
	$NMHC + NO_X$	HC	NO_X	CO	PM
KW<8 (HP<11)	10.5 (7.8)			8.0 (6.0)	1.0 (0.75)
8≤KW<19 (11≤HP<25)	9.5 (7.1)			6.6 (4.9)	0.80 (0.60)
19≤KW<37 (25≤HP<50)	9.5 (7.1)			5.5 (4.1)	0.80 (0.60)
37≤KW<56 (50≤HP<75)			9.2 (6.9)		
56≤KW<75 (75≤HP<100)			9.2 (6.9)		
75≤KW<130 (100≤HP<175)			9.2 (6.9)		
130≤KW<225 (175≤HP<300)		1.3 (1.0)	9.2 (6.9)	11.4 (8.5)	0.54 (0.40)
225≤KW<450 (300≤HP<600)		1.3 (1.0)	9.2 (6.9)	11.4 (8.5)	0.54 (0.40)
450≤KW≤560 (600≤HP≤750)		1.3 (1.0)	9.2 (6.9)	11.4 (8.5)	0.54 (0.40)
KW>560 (HP>750)		1.3 (1.0)	9.2 (6.9)	11.4 (8.5)	0.54 (0.40)

This table does not apply because the generators at the South Rasmussen Mine are not Pre-2007, or 2007-2010 and greater than 2,237 KW (3,000 HP).

21. **Table 2 to Subpart IIII of Part 60 – Emission Standards for 2008 Model Year and Later Emergency Stationary CI ICE <37 KW (50 HP) With a Displacement of <10 Liters per Cylinder**

[As stated in §60.4202(a)(1), you must comply with the following emission standards]

Engine power	Emission standards for 2008 model year and later emergency stationary CI ICE <37 KW (50 HP) with a displacement of <10 liters per cylinder in g/KW-hr (g/HP-hr)			
	Model year(s)	$NO_X + NMHC$	CO	PM
KW<8 (HP<11)	2008 +	7.5 (5.6)	8.0 (6.0)	0.40 (0.30)
8≤KW<19 (11≤HP<25)	2008 +	7.5 (5.6)	6.6 (4.9)	0.40 (0.30)
19≤KW<37 (25≤HP<50)	2008 +	7.5 (5.6)	5.5 (4.1)	0.30 (0.22)

This table does not apply because the generators at the South Rasmussen Mine are not emergency stationary CI ICE.

22. **Table 3 to Subpart IIII of Part 60 – Certification Requirements for Stationary Fire Pump Engines**

As stated in §60.4202(d), you must certify new stationary fire pump engines beginning with the following model years:

Engine power	Starting model year engine manufacturers must certify new stationary fire pump engines according to §60.4202(d)[1]
KW<75 (HP<100)	2011
75≤KW<130 (100≤HP<175)	2010
130≤KW≤560 (175≤HP≤750)	2009
KW>560 (HP>750)	2008

[1]Manufacturers of fire pump stationary CI ICE with a maximum engine power greater than or equal to 37 kW (50 HP) and less than 450 KW (600 HP) and a rated speed of greater than 2,650 revolutions per minute (rpm) are not required to certify such engines until three model years following the model year indicated in this Table 3 for engines in the applicable engine power category.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37972, June 28, 2011]

This table does not apply because the engines at the South Rasmussen Mine are not stationary fire pump engines.

23. **Table 4 to Subpart IIII of Part 60 – Emission Standards for Stationary Fire Pump Engines**

[As stated in §§60.4202(d) and 60.4205(c), you must comply with the following emission standards for stationary fire pump engines]

Maximum engine power	Model year(s)	NMHC + NO_x	CO	PM
KW<8 (HP<11)	2010 and earlier	10.5 (7.8)	8.0 (6.0)	1.0 (0.75)
	2011 +	7.5 (5.6)		0.40 (0.30)
8≤KW<19 (11≤HP<25)	2010 and earlier	9.5 (7.1)	6.6 (4.9)	0.80 (0.60)
	2011 +	7.5 (5.6)		0.40 (0.30)
19≤KW<37 (25≤HP<50)	2010 and earlier	9.5 (7.1)	5.5 (4.1)	0.80 (0.60)
	2011 +	7.5 (5.6)		0.30 (0.22)
37≤KW<56 (50≤HP<75)	2010 and earlier	10.5 (7.8)	5.0 (3.7)	0.80 (0.60)
	2011 +[1]	4.7 (3.5)		0.40 (0.30)
56≤KW<75 (75≤HP<100)	2010 and earlier	10.5 (7.8)	5.0 (3.7)	0.80 (0.60)
	2011 +[1]	4.7 (3.5)		0.40 (0.30)
75≤KW<130 (100≤HP<175)	2009 and earlier	10.5 (7.8)	5.0 (3.7)	0.80 (0.60)
	2010 +[2]	4.0 (3.0)		0.30 (0.22)
130≤KW<225 (175≤HP<300)	2008 and earlier	10.5 (7.8)	3.5 (2.6)	0.54 (0.40)
	2009 +[3]	4.0 (3.0)		0.20 (0.15)
225≤KW<450 (300≤HP<600)	2008 and earlier	10.5 (7.8)	3.5 (2.6)	0.54 (0.40)
	2009 +[3]	4.0 (3.0)		0.20 (0.15)
450≤KW≤560 (600≤HP≤750)	2008 and earlier	10.5 (7.8)	3.5 (2.6)	0.54 (0.40)
	2009 +	4.0 (3.0)		0.20 (0.15)
KW>560 (HP>750)	2007 and earlier	10.5 (7.8)	3.5 (2.6)	0.54 (0.40)
	2008 +	6.4 (4.8)		0.20 (0.15)

[1]For model years 2011-2013, manufacturers, owners and operators of fire pump stationary CI ICE in this engine power category with a rated speed of greater than 2,650 revolutions per minute (rpm) may comply with the emission limitations for 2010 model year engines.

[2]For model years 2010-2012, manufacturers, owners and operators of fire pump stationary CI ICE in this engine power category with a rated speed of greater than 2,650 rpm may comply with the emission limitations for 2009 model year engines.

[3]In model years 2009-2011, manufacturers of fire pump stationary CI ICE in this engine power category with a rated speed of greater than 2,650 rpm may comply with the emission limitations for 2008 model year engines.

This table does not apply because the generators at the South Rasmussen Mine are not stationary fire pump engines.

~~24. **Table 5 to Subpart IIII of Part 60—Labeling and Recordkeeping Requirements for New Stationary Emergency Engines**~~

[You must comply with the labeling requirements in §60.4210(f) and the recordkeeping requirements in §60.4214(b) for new emergency stationary CI ICE beginning in the following model years:]

Engine power	Starting model year
19≤KW<56 (25≤HP<75)	2013
56≤KW<130 (75≤HP<175)	2012
KW≥130 (HP≥175)	2011

This table does not apply because the generators at the South Rasmussen Mine are not stationary emergency engines.

~~25. **Table 6 to Subpart IIII of Part 60—Optional 3 Mode Test Cycle for Stationary Fire Pump Engines**~~

[As stated in §60.4210(g), manufacturers of fire pump engines may use the following test cycle for testing fire pump engines:]

Mode No.	Engine speed[1]	Torque (percent)[2]	Weighting factors
1	Rated	100	0.30
2	Rated	75	0.50
3	Rated	50	0.20

[1]Engine speed: ±2 percent of point.

[2]Torque: NFPA certified nameplate HP for 100 percent point. All points should be ±2 percent of engine percent load value.

This table does not apply because the generators at the South Rasmussen Mine are not stationary fire pump engines.

~~26. **Table 7 to Subpart IIII of Part 60—Requirements for Performance Tests for Stationary CI ICE With a Displacement of ≥30 Liters per Cylinder**~~

As stated in §60.4213, you must comply with the following requirements for performance tests for stationary CI ICE with a displacement of ≥30 liters per cylinder:

Each	Complying with the requirement to	You must	Using	According to the following requirements

Each	Complying with the requirement to	You must	Using	According to the following requirements
1. Stationary CI internal combustion engine with a displacement of ≥ 30 liters per cylinder	a. Reduce NO_X emissions by 90 percent or more;	i. Select the sampling port location and number/location of traverse points at the inlet and outlet of the control device;		(a) For NO_X, O_2, and moisture measurement, ducts ≤6 inches in diameter may be sampled at a single point located at the duct centroid and ducts >6 and ≤12 inches in diameter may be sampled at 3 traverse points located at 16.7, 50.0, and 83.3% of the measurement line ('3-point long line'). If the duct is >12 inches in diameter *and* the sampling port location meets the two and half-diameter criterion of Section 11.1.1 of Method 1 of 40 CFR part 60, appendix A-1, the duct may be sampled at '3-point long line'; otherwise, conduct the stratification testing and select sampling points according to Section 8.1.2 of Method 7E of 40 CFR part 60, appendix A-4.
		ii. Measure O_2 at the inlet and outlet of the control device;	(1) Method 3, 3A, or 3B of 40 CFR part 60, appendix A-2	(b) Measurements to determine O_2 concentration must be made at the same time as the measurements for NO_X concentration.
		iii. If necessary, measure moisture content at the inlet and outlet of the control device; and	(2) Method 4 of 40 CFR part 60, appendix A-3, Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03 (incorporated by reference, see §60.17)	(c) Measurements to determine moisture content must be made at the same time as the measurements for NO_X concentration.
		iv. Measure NO_X at the inlet and outlet of the control device.	(3) Method 7E of 40 CFR part 60, appendix A-4, Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03 (incorporated by reference, see §60.17)	(d) NO_X concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.
	b. Limit the concentration of NO_X in the stationary CI internal combustion engine exhaust.	i. Select the sampling port location and number/location of traverse points at the exhaust of the stationary internal combustion engine;		(a) For NO_X, O_2, and moisture measurement, ducts ≤6 inches in diameter may be sampled at a single point located at the duct centroid and ducts >6 and ≤12 inches in diameter may be sampled at 3 traverse points located at 16.7, 50.0, and 83.3% of the measurement line ('3-point long line'). If the duct is >12 inches in diameter *and* the sampling port location meets the two and half-diameter criterion of Section 11.1.1 of Method 1 of 40 CFR part 60, appendix A-1, the duct may be sampled at '3-point long line'; otherwise, conduct the stratification testing and select sampling points according to Section 8.1.2 of Method 7E of 40 CFR part 60, appendix A-4.
		ii. Determine the O_2 concentration of the stationary internal combustion engine exhaust at the sampling port location;	(1) Method 3, 3A, or 3B of 40 CFR part 60, appendix A-2	(b) Measurements to determine O_2 concentration must be made at the same time as the measurement for NO_X concentration.
		iii. If necessary, measure moisture content of the stationary internal combustion engine exhaust at the sampling port location; and	(2) Method 4 of 40 CFR part 60, appendix A-3, Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03 (incorporated by reference, see §60.17)	(c) Measurements to determine moisture content must be made at the same time as the measurement for NO_X concentration.
		iv. Measure NO_X at the exhaust of the stationary internal combustion engine; if using a control device, the sampling site must be located at the outlet of the control device.	(3) Method 7E of 40 CFR part 60, appendix A-4, Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03 (incorporated by reference, see §60.17)	(d) NO_X concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.
	c. Reduce PM emissions by 60 percent or more	i. Select the sampling port location and the number of traverse points;	(1) Method 1 or 1A of 40 CFR part 60, appendix A-1	(a) Sampling sites must be located at the inlet and outlet of the control device.

Each	Complying with the requirement to	You must	Using	According to the following requirements
		ii. Measure O_2 at the inlet and outlet of the control device;	(2) Method 3, 3A, or 3B of 40 CFR part 60, appendix A-2	(b) Measurements to determine O_2 concentration must be made at the same time as the measurements for PM concentration.
		iii. If necessary, measure moisture content at the inlet and outlet of the control device; and	(3) Method 4 of 40 CFR part 60, appendix A-3	(c) Measurements to determine and moisture content must be made at the same time as the measurements for PM concentration.
		iv. Measure PM at the inlet and outlet of the control device.	(4) Method 5 of 40 CFR part 60, appendix A-3	(d) PM concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.
	d. Limit the concentration of PM in the stationary CI internal combustion engine exhaust	i. Select the sampling port location and the number of traverse points;	(1) Method 1 or 1A of 40 CFR part 60, appendix A-1	(a) If using a control device, the sampling site must be located at the outlet of the control device.
		ii. Determine the O_2 concentration of the stationary internal combustion engine exhaust at the sampling port location;	(2) Method 3, 3A, or 3B of 40 CFR part 60, appendix A-2	(b) Measurements to determine O_2 concentration must be made at the same time as the measurements for PM concentration.
		iii. If necessary, measure moisture content of the stationary internal combustion engine exhaust at the sampling port location; and	(3) Method 4 of 40 CFR part 60, appendix A-3	(c) Measurements to determine moisture content must be made at the same time as the measurements for PM concentration.
		iv. Measure PM at the exhaust of the stationary internal combustion engine.	(4) Method 5 of 40 CFR part 60, appendix A-3	(d) PM concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.

[79 FR 11251, Feb. 27, 2014]

This table does not apply because the generators at the South Rasmussen Mine have a displacement of ≤10 liters per cylinder.

27. **Table 8 to Subpart IIII of Part 60—Applicability of General Provisions to Subpart IIII**

[As stated in §60.4218, you must comply with the following applicable General Provisions:]

General Provisions citation	Subject of citation	Applies to subpart	Explanation
§60.1	General applicability of the General Provisions	Yes	
§60.2	Definitions	Yes	Additional terms defined in §60.4219.
§60.3	Units and abbreviations	Yes	
§60.4	Address	Yes	
§60.5	Determination of construction or modification	Yes	
§60.6	Review of plans	Yes	
§60.7	Notification and Recordkeeping	Yes	Except that §60.7 only applies as specified in §60.4214(a).
§60.8	Performance tests	Yes	Except that §60.8 only applies to stationary CI ICE with a displacement of (≥30 liters per cylinder and engines that are not certified.
§60.9	Availability of information	Yes	
§60.10	State Authority	Yes	
§60.11	Compliance with standards and maintenance requirements	No	Requirements are specified in subpart IIII.
§60.12	Circumvention	Yes	
§60.13	Monitoring requirements	Yes	Except that §60.13 only applies to stationary CI ICE with a displacement of (≥30 liters per cylinder.
§60.14	Modification	Yes	
§60.15	Reconstruction	Yes	
§60.16	Priority list	Yes	
§60.17	Incorporations by reference	Yes	
§60.18	General control device requirements	No	
§60.19	General notification and reporting requirements	Yes	

P4 Production, LLC acknowledges that this table applies to the generators at the South Rasmussen Mine.

NSR Pollutant PTE Summaries

Table 1: PRE-PROJECT POTENTIAL TO EMIT FOR NSR REGULATED POLLUTANTS[a]

Emissions Unit	CO T/yr	NO_X T/yr	$PM/PM_{10}/PM_{2.5}$ T/yr	SO_2 T/yr	VOC T/yr	Pb[b] T/yr	GHG[b] T/yr
Point Sources							
Haul Road Pond Generator	6.43	5.21	0.38	1.16	0.32	--	--
Primary Horseshoe Pond Generator	7.91	9.13	0.46	0.51	0.56	--	--
Backup Horseshoe Pond Generator	7.91	9.13	0.46	0.51	0.56	--	--
Horseshoe Pond Generator	2.10	2.87	0.11	0.34	0.14	--	--
Smith Pond Generator	--	--	--	--	--	--	--
Totals	**24.35**	**26.33**	**1.41**	**2.51**	**1.58**	--	--

[a] For permitted emissions units provide the PTE under the existing permit conditions, for unpermitted emissions units provide the PTE based on the operational design capacity of the sources that are part of the project.
[b] Lead (Pb) and Greenhouse Gas (GHG) emissions were not calculated in the 2011 Statement of Basis, therefore not provided here.

Table 2: POST PROJECT POTENTIAL TO EMIT FOR NSR REGULATED POLLUTANTS[a]

Descrip COLT NOXLT PM10LT SO2LT VOCLT PbLT CO2eLT

Emissions Unit	CO T/yr	NO_X T/yr	$PM/PM_{10}/PM_{2.5}$ T/yr	SO_2 T/yr	VOC T/yr	Pb T/yr	GHG T/yr
Point Sources							
Haul Road Pond Generator	7.91	0.91	4.55E-2	1.49E-2	0.42	2.79E-4	1,575.15
Primary Horseshoe Dump Generator	7.94	9.07	0.45	1.49E-2	2.95	2.80E-4	1,580.16
Alternate Horseshoe Dump Generator	7.91	0.91	4.55E-2	1.49E-2	0.42	2.79E-4	1,575.15
Backup Horseshoe Dump Generator	7.94	9.07	0.45	1.49E-2	2.95	2.80E-4	1,580.16
Horseshoe Pond Generator	--	--	--	--	--	--	--
Smith Pond Generator	4.96	5.67	0.28	9.32E-3	1.84	1.75E-4	988.23
Totals	**36.67**	**25.64**	**1.28**	**6.89E-2**	**8.59**	**1.29E-3**	**7,298.84**

[a] Provide the requested permitted emission rates as the PTE.

Table 3: CHANGES IN POTENTIAL TO EMIT FOR NSR REGULATED POLLUTANTS

Emissions Unit	CO T/yr	NO_X T/yr	$PM/PM_{10}/PM_{2.5}$ T/yr	SO_2 T/yr	VOC T/yr	Pb T/yr	GHG T/yr
Point Sources							
Haul Road Pond Generator	1.48	-4.30	-0.34	-1.14	0.11	--	--
Primary Horseshoe Dump Generator	0.03	-0.05	0.00	-0.49	2.39	--	--
Alternate Horseshoe Dump Generator	7.91	0.91	0.05	0.01	0.42	--	--
Backup Horseshoe Dump Generator	0.03	-0.05	-2.61E-3	-0.49	2.39	--	--
Horseshoe Pond Generator	-2.10	-2.87	-0.11	-0.34	-0.14	--	--
Smith Pond Generator	4.96	5.67	0.28	0.01	1.84	--	--
Totals	**12.32**	**-0.69**	**-0.13**	**-2.44**	**7.01**	--	--

Table 4: Emission Increase/Actual Emissions/Proposed Emissions/Existing Allowable Emissions

PM25ST PM25LT NOXST NOXLT

Emissions Unit	Stack or Emissions Point ID	PM_{10}	$PM_{2.5}$		SO_2		NO_X		CO		Lead	
		lb/hr 24-hr Avg.	lb/hr 24-hr Avg.	lb/hr Annual Avg.	lb/hr Max.	lb/hr 3-hr Avg.	lb/hr Max.	lb/hr Annual Avg.	lb/hr Max.	lb/hr 8-hr Avg.	lb/hr monthly Avg.	lb/hr 1/4ly Avg.
Point Sources												
Haul Road Pond Generator	GEN5	N/A	1.04E-2	1.04E-2	N/A	N/A	0.21	0.21	N/A	N/A	N/A	N/A
Primary Horseshoe Dump Generator	GEN2	N/A	0.10	0.10	N/A	N/A	2.07	2.07	N/A	N/A	N/A	N/A
Alternate Horseshoe Dump Generator	GEN6	N/A	1.04E-2	1.04E-2	N/A	N/A	0.21	0.21	N/A	N/A	N/A	N/A
Backup Horseshoe Dump Generator	GEN3	N/A	0.10	0.10	N/A	N/A	2.07	2.07	N/A	N/A	N/A	N/A
Smith Pond Generator	GEN1	N/A	6.48E-2	6.48E-2	N/A	N/A	1.30	1.30	N/A	N/A	N/A	N/A

2,000 lb/ton
8,760 hr/yr

Toxic Air Pollutant Emissions Inventory

Table 5: PRE- AND POST PROJECT NON-CARCINOGENIC TAP EMISSIONS SUMMARY POTENTIAL TO EMIT

Non-Carcinogenic Toxic Air Pollutants (sum of all emissions)	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	1.96E-4	9.42E-4	7.46E-4	0.017	NO
Naphthalene	1.80E-4	8.64E-4	6.84E-4	3.33	NO
Toluene	8.66E-4	4.17E-3	3.30E-3	25	NO
Xylenes	6.04E-4	2.90E-3	2.30E-3	29	NO

Table 6: PRE- AND POST PROJECT CARCINOGENIC TAP EMISSIONS SUMMARY POTENTIAL TO EMIT

Carcinogenic Toxic Air Pollutants (sum of all emissions)	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)
1,3-Butadiene	8.28E-5	3.98E-4	3.15E-4	2.40E-5	YES
Acetaldehyde	1.62E-3	7.81E-3	6.19E-3	3.00E-3	YES
Benzene	1.98E-3	9.50E-3	7.53E-3	8.00E-4	YES
Formaldehyde	2.50E-3	1.20E-2	9.52E-3	5.10E-4	YES
Total 7-PAH Group [a]	7.27E-6	3.50E-5	2.77E-5	2.00E-6	YES

[a] Polycyclic Organic Matter (POM) is considered as one TAP comprised of: 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.

Facility Wide Hazardous Air Pollutant Potential to Emit

Table 7: HAP POTENTIAL TO EMIT EMISSIONS SUMMARY

HAP Pollutants	PTE (ton/yr)
1,3-Butadiene	1.74E-3
Acetaldehyde	3.42E-2
Acrolein	4.13E-3
Benzene	4.16E-2
Formaldehyde	5.26E-2 [a]
Naphthalene	3.78E-3
Toluene	1.82E-2
Xylenes	1.27E-2
Total	1.69E-1

[a] Maximum Individual HAP

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EMISSIONS SUMMARY

Permitted		Haul Road Pond Generator	Primary Horseshoe Pond Generator	Backup Horseshoe Pond Generator	Horseshoe Pond Generator	Total
Total Output	*hp*	180	315	315	53	**-**
CO	*lb/hr*	1.47	1.81	1.81	0.48	**5.56**
	ton/yr	6.43	7.91	7.91	2.10	**24.35**
NO_X	*lb/hr*	1.19	2.08	2.08	0.65	**6.01**
	ton/yr	5.21	9.13	9.13	2.87	**26.33**
$PM/PM_{10}/PM_{2.5}$	*lb/hr*	0.09	0.10	0.10	0.03	**0.32**
	ton/yr	0.38	0.46	0.46	0.11	**1.41**
SO_2	*lb/hr*	0.26	0.12	0.12	0.08	**0.57**
	ton/yr	1.16	0.51	0.51	0.34	**2.51**
VOC	*lb/hr*	0.07	0.13	0.13	0.03	**0.36**
	ton/yr	0.32	0.56	0.56	0.14	**1.58**

Modification		Haul Road Pond Generator[a]	Primary Horseshoe Dump Gens[a, b]	Alternate Horseshoe Dump Gens[a, b]	Backup Horseshoe Dump Gens[a, b]	Horseshoe Pond Generator	Smith Pond Generator[c]	Total
		GEN5	GEN2	GEN6	GEN3	GEN4	GEN1	
Total Output	*hp*	314	315	314	315	REMOVED	197	**-**
CO	*lb/hr*	1.81	1.81	1.81	1.81	-	1.13	**8.37**
	ton/yr	7.91	7.94	7.91	7.94	-	4.96	**36.67**
NO_X	*lb/hr*	0.21	2.07	0.21	2.07	-	1.30	**5.85**
	ton/yr	0.91	9.07	0.91	9.07	-	5.67	**25.64**
$PM/PM_{10}/PM_{2.5}$	*lb/hr*	1.04E-2	0.10	1.04E-2	0.10	-	6.48E-2	**0.29**
	ton/yr	4.55E-2	0.45	4.55E-2	0.45	-	0.28	**1.28**
SO_2	*lb/hr*	3.39E-3	3.40E-3	3.39E-3	3.40E-3	-	2.13E-3	**1.57E-2**
	ton/yr	1.49E-2	1.49E-2	1.49E-2	1.49E-2	-	9.32E-3	**6.89E-2**
VOC	*lb/hr*	9.69E-2	0.67	9.69E-2	0.67	-	0.42	**1.96**
	ton/yr	0.42	2.95	0.42	2.95	-	1.84	**8.59**
Pb	*lb/hr*	6.37E-5	6.39E-5	6.37E-5	6.39E-5	-	4.00E-5	**2.95E-4**
	ton/yr	2.79E-4	2.80E-4	2.79E-4	2.80E-4	-	1.75E-4	**1.29E-3**

[a] *GEN5 and GEN6 are new engines*

[b] *GEN2 and GEN3 are existing engines*

[c] *GEN1 is an existing engine, moved to new location*

Modeling Applicability	CO	NO_X		PM_{10}	$PM_{2.5}$		SO_2		Pb
	lb/hr	*lb/hr*	*ton/yr*	*lb/hr*	*lb/hr*	*ton/yr*	*lb/hr*	*ton/yr*	*lb/month*
Haul Road Pond Generator - NEW ENGINE	1.81	0.21	0.91	1.04E-2	1.04E-2	4.55E-2	3.39E-3	1.49E-2	4.65E-2
Alternate Horseshoe Dump Gen - NEW ENGINE	1.81	0.21	0.91	1.04E-2	1.04E-2	4.55E-2	3.39E-3	1.49E-2	4.65E-2
Smith Pond Generator - NEW LOCATION	1.13	1.30	5.67	6.48E-2	6.48E-2	0.28	2.13E-3	9.32E-3	2.92E-2
Total Emissions for Modeling Applicability [a]	4.75	1.71	7.49	8.55E-2	8.55E-2	0.37	8.92E-3	3.90E-2	0.12
Level I Thresholds [b]	15	0.20	1.20	0.22	0.054	0.35	0.21	1.2	14
Modeling Triggered?	No	**Yes**	**Yes**	No	**Yes**	**Yes**	No	No	No

[a] *The Primary and Backup Horseshoe Dump Generators are not included because they are existing sources.*

[b] *IDEQ, Guideline for Performing Air Quality Impact Analyses Table 2, September-2013*

Conversions	
453.592	*g/lb*
2,000	*lb/ton*
1.34	*hp/kW*
3.281	*ft/m*
1,000,000	*Btu/MMBtu*

Assumptions		Reference
Ultra Low Sulfur Diesel (ULSD)	15 *ppm*	*Sulfur Content*
Distillate Oil Density	7.05 *lb/gal*	*AP-42, Appendix A*
Brake Specific Fuel Consumption	7,000 *Btu/hp-hr*	*AP-42, Table 3.3-1, Footnote a*
Diesel Fuel Heat Rate	137,000 *Btu/gal*	*AP-42, Appendix A*

SO_2 Emission Factor Calculation

SO_2 0.0049 *g/hp-hr* 0.0066 *g/kW-hr*

0.00490 *g/hp-hr* = 15 ~~*part S*~~ / 1.00E+06 ~~*parts*~~ × 7.05 ~~*lb Fuel*~~ / ~~*gal Fuel*~~ × 7,000 ~~*Btu*~~ / *hp-hr* / 137,000 ~~*Btu*~~ × ~~*gal Fuel*~~ / 2 ~~*lb*~~ -SO_2 × ~~*lb S*~~ / 453.6 *g* / ~~*lb*~~

Numbers in blue are direct entries.

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HAUL ROAD POND GENERATOR

CURRENT ENGINE **MOVED TO THE SMITH POND SEE PAGE 6**

Make/Model		John Deere/6068HF285		
Output (gross)	*Prime*	180 *hp*	*PTC No. P-2011.0015*	
Model ID		GEN1		

NEW ENGINE

Make/Model		Cummins Inc. QSB7-G9, C150D2RE		
Output (gross)	*Standby*	314 *hp*	*Man. Spec. Sheet: Cummins Power Generation, Exhaust Emission Data Sheet, C150D2RE*	
		234 *kW*		
EPA Tier Rating		4		
Heat Input Rate		2.2 *MMBtu/hr*		
Fuel Type		Ultra Low Sulfur Diesel (ULSD)		
Fuel Consumption	*Standby*	11 *gal/hr*	*Man. Spec. Sheet*	
		96,360 *gal/yr*		
Operation		24 *hr/day*		
		8,760 *hr/yr*		
Control		None		
Model Year:		2016		

Emission Factors			Reference
CO	2.61	*g/hp-hr*	*Man. Spec. Sheet*
NO_X	0.30	*g/hp-hr*	*Man. Spec. Sheet*
$PM_{2.5}/PM_{10}/PM$	0.015	*g/hp-hr*	*Man. Spec. Sheet*
VOC	0.14	*g/hp-hr*	*Man. Spec. Sheet*
SO_2	0.00490	*g/hp-hr*	*SO_2 Emission Factor Calculation*
Pb	2.90E-5	*lb/MMBtu*	*EPA, L & E for Lead*[a]

[a] *EPA 454/R-98-006, Locating and Estimating Air Emissions from Sources of Lead and Lead Compounds, Section 5.2.2, May 1998*

Modification Emissions	*lb/hr*	*lb/day*	*ton/yr*
CO	1.81	43.36	7.91
NO_X	0.21	4.98	0.91
$PM_{2.5}/PM_{10}/PM$	1.04E-2	0.25	4.55E-2
VOC	9.69E-2	2.33	0.42
SO_2	3.39E-3	8.14E-2	1.49E-2
Pb	6.37E-5	1.53E-3	2.79E-4

Modeling Parameters					Reference
Model ID	GEN5				
Discharge Height	8	*ft*	2.44	*m*	*Austin Hildebrandt email 3/1/2016*
Exhaust Gas Temp	836	*F*	719.8	*K*	*Man. Spec. Sheet*
Exhaust Gas Flow	1,162	*CFM*	33	*ACMM*	*Man. Spec. Sheet*
Exhaust Velocity	221.9	*ft/s*	67.64	*m/s*	
Stack Direction	Vertical				
Stack Shape	Circular				
Stack Diameter	0.33	*ft*	0.10	*m*	*Austin Hildebrandt email 3/1/2016*

Sample Calculations

NO_X Emissions

$$0.21\ lb/hr = \frac{0.30\ g}{\cancel{hp\text{-}hr}} \times \frac{314\ \cancel{hp\text{-}hr}}{hr} \times \frac{lb}{453.6\ g}$$

Numbers in blue are direct entries.

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PRIMARY HORSESHOE DUMP GENERATOR

CURRENT ENGINE — **HIGHLIGHTED ITEMS ARE BEING UPDATED**

Make/Model		John Deere/6068HF485		
Output (gross)	*Standby*	315 *hp*	*Man. Spec. Sheet: John Deere, 6068HF485, Nov-2007*	
	Standby	235 *kW*		As Information Only:
EPA Tier Rating		3		*From Permit PTC No. P-2011.0015*
Heat Input Rate		2.2 *MMBtu/hr*		*Prime* 315 *hp*
Fuel Type		Ultra Low Sulfur Diesel (ULSD)		*Max Capacity* 185 *kW*
Fuel Consumption	*Standby*	110 *lb/hr*	*Man. Spec. Sheet*	
		16 *gal/hr*	*Using density of 7.05 lb/gal*	*From John Deere, 6068HF485, Nov-2007*
		136,681 *gal/yr*		*Prime* 286 *hp*
Operation		24 *hr/day*		*Prime* 213 *kW*
		8,760 *hr/yr*		
Control		None		
Date Manufactured:		June-2010		
Model Year:		2010		
Installation Date:		April-2011		

Emission Factors			Reference
CO	3.5	*g/kW-hr*	*40 CFR 89.112, Table 1*
NO_X	4.0	*g/kW-hr*	*40 CFR 89.112, Table 1*
$PM_{2.5}/PM_{10}/PM$	0.20	*g/kW-hr*	*40 CFR 89.112, Table 1*
VOC	1.3	*g/kW-hr*	*40 CFR 89.112, Table 1*
SO_2	0.0066	*g/kW-hr*	*SO_2 Emission Factor Calculation*
Pb	2.90E-5	*lb/MMBtu*	*EPA, L & E for Lead*[a]

[a] *EPA 454/R-98-006, Locating and Estimating Air Emissions from Sources of Lead and Lead Compounds, Section 5.2.2, May 1998*

Current EF, From SOB, 4/5/2011				
CO	2.6	*g/hp-hr*	3.49	*g/kW-hr*
NO_X	3.0	*g/hp-hr*	4.02	*g/kW-hr*
PM_{10}	0.150	*g/hp-hr*	0.20	*g/kW-hr*
VOC	0.1836	*g/hp-hr*	0.25	*g/kW-hr*
SO_X	0.166	*g/hp-hr*	0.22	*g/kW-hr*
$PM_{2.5}$	0.1455	*g/hp-hr*	0.20	*g/kW-hr*
SO_X EF Calculated				
SO_X	0.6651	*g/hp-hr*	0.89	*g/kW-hr*
Sulfur	2,000	ppm		

$PM_{2.5}$ emissions were assumed to be 97% of PM_{10}

Modification Emissions	*lb/hr*	*lb/day*	*ton/yr*
CO	1.81	43.50	7.94
NO_X	2.07	49.71	9.07
$PM_{2.5}/PM_{10}/PM$	0.10	2.49	0.45
VOC	0.67	16.16	2.95
SO_2	3.40E-3	8.17E-2	1.49E-2
Pb	6.39E-5	1.53E-3	2.80E-4

Modeling Parameters				Reference
Model ID	GEN2			
Discharge Height	5.67 *ft*	1.73	*m*	*Shaun Smith confirmed on 3/2/2016*
Exhaust Gas Temp	905 *F*	758.2	*K*	*Man. Spec. Sheet*
Exhaust Gas Flow	1,514 *CFM*	43	*ACMM*	*Man. Spec. Sheet*
Exhaust Velocity	128.5 *ft/s*	39.17	*m/s*	
Stack Direction	Vertical			*Shaun Smith confirmed on 3/2/2016*
Stack Shape	Circular			*Shaun Smith confirmed on 3/2/2016*
Stack Diameter	0.50 *ft*	0.15	*m*	*Shaun Smith confirmed on 3/2/2016*

Sample Calculations

NO_X Emissions

$$2.1\ lb/hr = \frac{4.00\ g}{kW\text{-}hr} \times \frac{235\ kW\text{-}hr}{hr} \times \frac{lb}{453.6\ g}$$

Numbers in blue are direct entries.

Air Sciences Inc.	PROJECT TITLE: South Rasmussen Mine	BY: S. Pryor		
	PROJECT NO: 303-3-1	PAGE: 4	OF: 6	SHEET: Criteria
AIR EMISSION CALCULATIONS	SUBJECT: South Rasmussen Mine	DATE: March 24, 2016		

ALTERNATE HORSESHOE DUMP GENERATOR

THIS ENGINE WILL BE AN ALTERNATE TO THE PRIMARY AND THEN BECOME THE MAIN PRIMARY AFTER THE END OF THE LIFE OF THE EXISTING JOHN DEERE PRIMARY HORSESHOE DUMP GENERATOR

NEW ENGINE

Make/Model		Cummins Inc. QSB7-G9, C200D2RE		
Output (gross)	*Standby*	314 *hp*		*Man. Spec. Sheet: Cummins Power Generation, Exhaust Emission Data Sheet, C200D2RE*
		234 *kW*		
EPA Tier Rating		4		
Heat Input Rate		2.2 *MMBtu/hr*		
Fuel Type		Ultra Low Sulfur Diesel (ULSD)		
Fuel Consumption	*Standby*	11 *gal/hr*		*Man. Spec. Sheet*
		96,360 *gal/yr*		
Operation		24 *hr/day*		
		8,760 *hr/yr*		
Control		None		
Model Year:		2016		

Emission Factors		Reference
CO	2.61 *g/hp-hr*	*Man. Spec. Sheet*
NO_X	0.30 *g/hp-hr*	*Man. Spec. Sheet*
$PM_{2.5}/PM_{10}/PM$	0.015 *g/hp-hr*	*Man. Spec. Sheet*
VOC	0.14 *g/hp-hr*	*Man. Spec. Sheet*
SO_2	0.00490 *g/hp-hr*	*SO_2 Emission Factor Calculation*
Pb	2.90E-5 *lb/MMBtu*	*EPA, L & E for Lead*[a]

[a] *EPA 454/R-98-006, Locating and Estimating Air Emissions from Sources of Lead and Lead Compounds, Section 5.2.2, May 1998*

Modification Emissions	*lb/hr*	*lb/day*	*ton/yr*
CO	1.81	43.36	7.91
NO_X	0.21	4.98	0.91
$PM_{2.5}/PM_{10}/PM$	1.04E-2	0.25	4.55E-2
VOC	9.69E-2	2.33	0.42
SO_2	3.39E-3	8.14E-2	1.49E-2
Pb	6.37E-5	1.53E-3	2.79E-4

Maximum Emissions (Horseshoe Dump Generator)

	lb/hr	*ton/yr*
CO	1.81	7.94
NO_X	2.07	9.07
$PM_{2.5}/PM_{10}/PM$	0.10	0.45
VOC	0.67	2.95
SO_2	3.40E-3	1.49E-2
Pb	6.39E-5	2.80E-4

Modeling Parameters				Reference
Model ID	GEN6			
Discharge Height	8 *ft*	2.44	*m*	*Austin Hildebrandt email 3/1/2016*
Exhaust Gas Temp	836 *F*	719.8	*K*	*Man. Spec. Sheet*
Exhaust Gas Flow	1,162 *CFM*	33	*ACMM*	*Man. Spec. Sheet*
Exhaust Velocity	221.9 *ft/s*	67.64	*m/s*	
Stack Direction	Vertical			
Stack Shape	Circular			
Stack Diameter	0.33 *ft*	0.10	*m*	*Austin Hildebrandt email 3/1/2016*

Sample Calculations

NO_X Emissions

$$0.21\ lb/hr = \frac{0.30\ g}{\cancel{hp\text{-}hr}} \times \frac{314\ \cancel{hp\text{-}hr}}{hr} \times \frac{lb}{453.6\ g}$$

Numbers in blue are direct entries.

Air Sciences Inc.	PROJECT TITLE: South Rasmussen Mine	BY: S. Pryor		
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BACKUP HORSESHOE DUMP GENERATOR

CURRENT ENGINE		**HIGHLIGHTED ITEMS ARE BEING UPDATED**		
Make/Model		John Deere/6068HF485		
Output (gross)	*Standby*	315 *hp*	*Man. Spec. Sheet: John Deere, 6068HF485, Nov-2007*	
	Standby	235 *kW*		As Information Only:
EPA Tier Rating		3		*From Permit PTC No. P-2011.0015*
Heat Input Rate		2.2 *MMBtu/hr*		*Prime* 315 *hp*
Fuel Type		Ultra Low Sulfur Diesel (ULSD)		*Max Capacity* 185 *kW*
Fuel Consumption	*Standby*	110 *lb/hr*	*Man. Spec. Sheet*	
		16 *gal/hr*	*Using density of 7.05 lb/gal*	*From John Deere, 6068HF485, Nov-2007*
		136,681 *gal/yr*		*Prime* 286 *hp*
Operation		24 *hr/day*		*Prime* 213 *kW*
		8,760 *hr/yr*		
Control		None		
Date Manufactured:		June-2010		
Model Year:		2010		
Installation Date:		April-2011		

Emission Factors		**Reference**
CO	3.5 *g/kW-hr*	*40 CFR 89.112, Table 1*
NO_X	4.0 *g/kW-hr*	*40 CFR 89.112, Table 1*
$PM_{2.5}/PM_{10}/PM$	0.20 *g/kW-hr*	*40 CFR 89.112, Table 1*
VOC	1.3 *g/kW-hr*	*40 CFR 89.112, Table 1*
SO_2	0.0066 *g/kW-hr*	*SO_2 Emission Factor Calculation*
Pb	2.90E-5 *lb/MMBtu*	*EPA, L & E for Lead*[a]

[a] *EPA 454/R-98-006, Locating and Estimating Air Emissions from Sources of Lead and Lead Compounds, Section 5.2.2, May 1998*

Current EF, From SOB, 4/5/2011		
CO	2.6 *g/hp-hr*	3.49 *g/kW-hr*
NO_X	3.0 *g/hp-hr*	4.02 *g/kW-hr*
PM_{10}	0.150 *g/hp-hr*	0.20 *g/kW-hr*
VOC	0.1836 *g/hp-hr*	0.25 *g/kW-hr*
SO_X	0.166 *g/hp-hr*	0.22 *g/kW-hr*
$PM_{2.5}$	0.1455 *g/hp-hr*	0.20 *g/kW-hr*
SO_X EF Calculated		
SO_X	0.6651 *g/hp-hr*	0.89 *g/kW-hr*
Sulfur	2,000 ppm	

$PM_{2.5}$ emissions were assumed to be 97% of PM_{10}

Modification Emissions	***lb/hr***	***lb/day***	***ton/yr***
CO	1.81	43.50	7.94
NO_X	2.07	49.71	9.07
$PM_{2.5}/PM_{10}/PM$	0.10	2.49	0.45
VOC	0.67	16.16	2.95
SO_2	3.40E-3	8.17E-2	1.49E-2
Pb	6.39E-5	1.53E-3	2.80E-4

Modeling Parameters			**Reference**
Model ID	GEN3		
Discharge Height	5.67 *ft*	1.73 *m*	*Shaun Smith confirmed on 3/2/2016*
Exhaust Gas Temp	905 *F*	758.2 *K*	*Man. Spec. Sheet*
Exhaust Gas Flow	1,514 *CFM*	43 *ACMM*	*Man. Spec. Sheet*
Exhaust Velocity	128.5 *ft/s*	39.17 *m/s*	
Stack Direction	Vertical		*Shaun Smith confirmed on 3/2/2016*
Stack Shape	Circular		*Shaun Smith confirmed on 3/2/2016*
Stack Diameter	0.50 *ft*	0.15 *m*	*Shaun Smith confirmed on 3/2/2016*

Sample Calculations

NO_X Emissions

$$2.1\ lb/hr = \frac{4.00\ g}{\cancel{kW\text{-}hr}} \times \frac{235\ \cancel{kW\text{-}hr}}{hr} \times \frac{lb}{453.6\ g}$$

Numbers in blue are direct entries.

Air Sciences Inc.	PROJECT TITLE: South Rasmussen Mine	BY: S. Pryor		
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SMITH POND GENERATOR

CURRENT ENGINE		**NEW AT THIS LOCATION, CURRENTLY PERMITTED AT HAUL ROAD POND**		As Information Only:	
Make/Model		John Deere/6068HF285			
Output (gross)	*Prime*	180 *hp*	*PTC No. P-2011.0015*	*From Permit PTC No. P-2011.0015*	
	Prime	134 *kW*		*Prime*	180 *hp*
EPA Tier Rating		3		*Prime*	134 *kW*
				Max Capacity	115 *kW*

REVISED ENGINE		**HIGHLIGHTED ITEMS ARE BEING MODIFIED**			
Make/Model		John Deere/6068HF285			
Output (gross)	*Standby*	197 *hp*	*Man. Spec. Sheet: John Deere, 6068HF285, March-2008*		
	Standby	147 *kW*		*From John Deere, 6068HF285, March-2008*	
EPA Tier Rating		3		*Standby*	197 *hp*
Heat Input Rate		1.4 *MMBtu/hr*		*Standby*	147 *kW*
Fuel Type		Ultra Low Sulfur Diesel (ULSD)		*Standby*	70 *lb/hr*
Fuel Consumption	*Standby*	70 *lb/hr*	*Man. Spec. Sheet*	*Prime*	180 *hp*
		10 *gal/hr*	*Using density of 7.05 lb/gal*	*Prime*	134 *kW*
		86,979 *gal/yr*		*Prime*	66 *lb/hr*
Operation		24 *hr/day*			
		8,760 *hr/yr*			
Control		None			
Date Manufactured:		Sep-2010			
Model Year:		2010			
Installation Date:		April-2011			

Emission Factors			**Reference**
CO	3.5	*g/kW-hr*	*40 CFR 89.112, Table 1*
NO_X	4.0	*g/kW-hr*	*40 CFR 89.112, Table 1*
$PM_{2.5}/PM_{10}/PM$	0.20	*g/kW-hr*	*40 CFR 89.112, Table 1*
VOC	1.3	*g/kW-hr*	*40 CFR 89.112, Table 1*
SO_2	0.00657	*g/kW-hr*	*SO_2 Emission Factor Calculation*
Pb	2.90E-5	*lb/MMBtu*	*EPA, L & E for Lead*[a]

[a] *EPA 454/R-98-006, Locating and Estimating Air Emissions from Sources of Lead and Lead Compounds, Section 5.2.2, May 1998*

Current EF, From SOB, 4/5/2011				
CO	3.7	*g/hp-hr*	4.96	*g/kW-hr*
NO_X	3.0	*g/hp-hr*	4.02	*g/kW-hr*
PM_{10}	0.220	*g/hp-hr*	0.30	*g/kW-hr*
VOC	0.1836	*g/hp-hr*	0.25	*g/kW-hr*
SO_X	0.6651	*g/hp-hr*	0.89	*g/kW-hr*
$PM_{2.5}$	0.2134	*g/hp-hr*	0.29	*g/kW-hr*
Sulfur	2,000	ppm		

$PM_{2.5}$ emissions were assumed to be 97% of PM_{10}

Modification Emissions	***lb/hr***	***lb/day***	***ton/yr***
CO	1.13	27.20	4.96
NO_X	1.30	31.09	5.67
$PM_{2.5}/PM_{10}/PM$	6.48E-2	1.55	0.28
VOC	0.42	10.10	1.84
SO_2	2.13E-3	5.11E-2	9.32E-3
Pb	4.00E-5	9.60E-4	1.75E-4

Modeling Parameters				**Reference**
Model ID	GEN1			
Discharge Height	5.67 *ft*	1.73	*m*	*Shaun Smith confirmed on 3/2/2016*
Exhaust Gas Temp	982 *F*	800.9	*K*	*Man. Spec. Sheet*
Exhaust Gas Flow	985 *CFM*	28	*ACMM*	*Man. Spec. Sheet*
Exhaust Velocity	83.6 *ft/s*	25.48	*m/s*	
Stack Direction	Vertical			*Shaun Smith confirmed on 3/2/2016*
Stack Shape	Circular			*Shaun Smith confirmed on 3/2/2016*
Stack Diameter	0.50 *ft*	0.15	*m*	*Shaun Smith confirmed on 3/2/2016*

Sample Calculations

NO_X Emissions

$$1.30\ lb/hr = \frac{4.00\ \cancel{g}}{\cancel{kW\text{-}hr}} \times \frac{147\ \cancel{kW\text{-}hr}}{hr} \times \frac{lb}{453.6\ \cancel{g}}$$

Numbers in blue are direct entries.

Model ID	Description	Heat Input (MMBtu/hr)	Heat Input (MMBtu/yr)
GEN5	Haul Road Pond Generator	2.2	19,254
GEN2	Primary Horseshoe Dump Generator	2.2	19,316
GEN6	Alternate Horseshoe Dump Generator	2.2	19,254
GEN3	Backup Horseshoe Dump Generator	2.2	19,316
GEN1	Smith Pond Generator	1.4	12,080
Total		**10.2**	**89,221**

TOXIC AIR POLLUTANT (TAP) AND HAZARDOUS AIR POLLUTANT (HAP) EMISSIONS

TAP/HAP Emission Factors

CAS. No.	Pollutant [a]	Emission Factor [b] (lb/MMBtu)	PAH	HAP	TAP	Non-Carcinogenic EL[c] (lb/hr)	Carcinogenic EL[c] (lb/hr)
106990	1,3-Butadiene	3.91E-5		HAP	TAP		2.4E-05
75070	Acetaldehyde	7.67E-4		HAP	TAP		3.0E-03
107028	Acrolein	9.25E-5		HAP	TAP	0.017	
71432	Benzene	9.33E-4		HAP	TAP		8.0E-04
56553 [d]	Benzo(a)anthracene	1.68E-6	PAH		TAP		
50328 [d]	Benzo(a)pyrene	1.88E-7	PAH		TAP		2.0E-06
205992 [d]	Benzo(b)fluoranthene	9.91E-8	PAH		TAP		
207089 [d]	Benzo(k)fluoranthene	1.55E-7	PAH		TAP		
218019 [d]	Chrysene	3.53E-7	PAH		TAP		
53703 [d]	Dibenz(a,h)anthracene	5.83E-7	PAH		TAP		
50000	Formaldehyde	1.18E-3		HAP	TAP		5.1E-04
193395 [d]	Indeno(1,2,3-cd)pyrene	3.75E-7	PAH		TAP		
91203	Naphthalene	8.48E-5		HAP	TAP	3.33	
115071	Propylene	2.58E-3					
108883	Toluene	4.09E-4		HAP	TAP	25	
1330207	Xylenes	2.85E-4		HAP	TAP	29	

[a] *Only pollutants with IDEQ Screening emission levels (EL) and the 7-PAH pollutants are listed in this table*

[b] *AP-42, Tab. 3.3-2 (10/96), diesel engines (≤ 600 hp)*

[c] *Screening Emission Levels listed in IDAPA 58.01.01.585 and 586*

[d] *These PAHs are considered together as one TAP, equivalent in potency to benzo(a)pyrene*

Conversions	
2,000	*lb/ton*
907.185	*kg/ton*

Numbers in blue are direct entries.

TAP/HAP Emissions

	PAH	HAP	TAP	Total Emissions (lb/hr)	Total Emissions (ton/yr)
1,3-Butadiene		HAP	TAP	3.98E-4	1.74E-3
Acetaldehyde		HAP	TAP	7.81E-3	3.42E-2
Acrolein		HAP	TAP	9.42E-4	4.13E-3
Benzene		HAP	TAP	9.50E-3	4.16E-2
Benzo(a)anthracene	PAH		TAP	1.71E-5	7.49E-5
Benzo(a)pyrene	PAH		TAP	1.91E-6	8.39E-6
Benzo(b)fluoranthene	PAH		TAP	1.01E-6	4.42E-6
Benzo(k)fluoranthene	PAH		TAP	1.58E-6	6.91E-6
Chrysene	PAH		TAP	3.60E-6	1.57E-5
Dibenz(a,h)anthracene	PAH		TAP	5.94E-6	2.60E-5
Formaldehyde		HAP	TAP	1.20E-2	5.26E-2
Indeno(1,2,3-cd)pyrene	PAH		TAP	3.82E-6	1.67E-5
Naphthalene		HAP	TAP	8.64E-4	3.78E-3
Propylene				2.63E-2	1.15E-1
Toluene		HAP	TAP	4.17E-3	1.82E-2
Xylenes		HAP	TAP	2.90E-3	1.27E-2
PAH Subtotal		-	-	*3.50E-5*	*1.53E-4*
HAP Subtotal		-	-	*3.86E-2*	*1.69E-1*
TAP Total		**-**	**-**	**3.86E-2**	**1.69E-1**

GREENHOUSE GAS (GHG) EMISSIONS

Diesel CO_{2e} Emission Factors	73.96	*kg CO_2/MMBtu*	*40 CFR Part 98, Table C-1 to Subpart C (11/13) Distillate Fuel Oil #2*
	3.00E-03	*kg CH_4/MMBtu*	*40 CFR Part 98, Table C-2 to Subpart C (11/13) Petroleum*
	6.00E-04	*kg N_2O/MMBtu*	*40 CFR Part 98, Table C-2 to Subpart C (11/13) Petroleum*
Total Diesel Heat Input	89,221	*MMBtu/yr*	

Diesel CO_{2e} Emissions:

Greenhouse Gas	Global Warming Potential[a]	GEN5 CO_{2e} (ton/yr)	GEN2 CO_{2e} (ton/yr)	GEN6 CO_{2e} (ton/yr)	GEN3 CO_{2e} (ton/yr)	GEN1 CO_{2e} (ton/yr)	Total CO_{2e} (ton/yr)
CO_2	1	1,570	1,575	1,570	1,575	984.8	7,274
CH_4	25	1.6	1.6	1.6	1.6	1.0	7
N_2O	298	3.8	3.8	3.8	3.8	2.4	18
Total	-	1,575	1,580	1,575	1,580	988.2	7,299

[a] *40 CFR 98, Table A-1 (12/14)*

Numbers in blue are direct entries.

M E M O R A N D U M /

DATE: **June 15**, 2016

TO: **Shawnee Chen**, Permit Writer, Air Program

FROM: Thomas Swain, Air Quality Modeler, Analyst 3, Air Program

PROJECT: **P4** South Rasmussen Mine Facility (SRM), near Soda Springs, Idaho, modification to Permit to Construct (PTC), P-2011.0015, Facility ID No. 61692

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

Contents

1.0 Summary

South Rasmussen Mine, P4, (SRM), submitted an application for a modification to an existing Permit to Construct (PTC) in April 2016 for a facility located approximately 20 miles northeast of Soda Springs, Idaho.

The SRM was producing phosphate until 2013. Currently only reclamation and remediation activities are occurring onsite. The proposed changes mainly deal with reconfiguration of the diesel generators being used in the current activities. This application is proposing the following modifications:

- Relocate GEN1 to Smith Pond
- Update the rating of GEN2, replacing with GEN6,(designated as the primary Horseshoe Dump generator)
- Update GEN3, (backup Horseshoe Dump generator)
- Remove GEN4 (Horseshoe Pond Generator)
- Install GEN5 (Haul Road Pond generator)
- Install GEN6 (replacing GEN2)

The entire process is discussed in detail in the main body of the DEQ Statement of Basis supporting the issued proposed PTC. This modeling review memorandum provides a summary and approval of the ambient air impact analyses submitted with the permit application. It also describes DEQ's review of those analyses, DEQ's verification analyses, additional clarifications, and conclusions.

Project-specific air quality impact analyses involving atmospheric dispersion modeling of estimated emissions associated with the facility were submitted to DEQ to demonstrate that the facility would not cause or significantly contribute to a violation of any ambient air quality standard as required by IDAPA 58.01.01.203.02 and 203.03 (Idaho Air Rules Section 203.02 and 203.03).

Air Sciences (AS) performed the ambient air impact analyses for this project on behalf of SRM. The analyses were performed to demonstrate compliance with air quality standards. The DEQ review summarized by this memorandum addressed only the rules, policies, methods, and data pertaining to the air impact analyses used to demonstrate that the estimated emissions increases at the facility associated with the proposed project will not cause or significantly contribute to a violation of any applicable air quality standard. This review did not evaluate compliance with other rules or analyses that do not pertain to the air impact analyses. Evaluation of emissions estimates was the responsibility of the permit writer and is addressed in the main body of the Statement of Basis. Emissions estimates were not reviewed as part of the modeling review described in this modeling review memorandum.

A modeling protocol was submitted for this project on February 5, 2016. This protocol was approved with conditions on March 11, 2016 by DEQ. The application was first submitted on April 4, 2016. DEQ responded with a letter of incompleteness on April 27, 2016. This incompleteness was largely due to missing forms. SRM subsequently provided the forms, and on May 11, 2016, DEQ deemed the application complete.

The final submitted air quality impact analyses: 1) utilized appropriate methods and models; 2) was conducted using reasonably accurate or conservative model parameters and input data (review of emissions estimates was addressed by the DEQ permit writer); 3) adhered to established DEQ guidelines for new source review dispersion modeling; 4) showed either a) that predicted pollutant concentrations from emissions associated with the project as modeled were below Significant Impact Levels (SILs) or other applicable regulatory thresholds; or b) that predicted pollutant concentrations from emissions associated with the project as modeled, when appropriately combined with co-contributing sources and background

concentrations, were below applicable National Ambient Air Quality Standards (NAAQS) at ambient air locations where and when the project has a significant impact; 5) showed that Toxic Air Pollutant (TAP) emissions increases associated with the project will not result in increased ambient air impacts exceeding allowable TAP increments.

Table 1 presents key assumptions and results to be considered in the development of the permit.

Air impact analyses are required by Idaho Air Rules to be conducted according to methods outlined in 40 CFR 51, Appendix W (*Guideline on Air Quality Models*). Appendix W requires that facilities be modeled using emissions and operations representative of design capacity or as limited by a federally enforceable permit condition. The submitted information and analyses demonstrated to the satisfaction of the Department that operation of the proposed facility will not cause or significantly contribute to a violation of any 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.

Table 1. KEY ASSUMPTIONS USED IN MODELING ANALYSES

Criteria/Assumption/Result	Explanation/Consideration
General Emissions Rates. Emissions rates used in the modeling analyses, as listed in this memorandum, represent maximum potential emissions as given by design capacity 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.
Modeling Thresholds for Criteria Pollutant Emissions. Maximum short-term and long-term emissions of $PM_{2.5}$ and oxides of nitrogen (NOx) associated with the proposed project are above level 1 modeling thresholds as found in State of Idaho Modeling Guidelines. Therefore a demonstration of compliance with NAAQS was done.	Project-specific air impact analyses demonstrating compliance with NAAQS, as required by Idaho Air Rules Section 203.02, are required for pollutants having an emissions increase that is greater than Level I level modeling applicability thresholds. These thresholds are set to assure that impacts are below significant impact levels (SILs). Compliance with NAAQS has not been demonstrated for emissions that exceed the emission estimates presented in the application.
NO to NO_2 Conversion. A Tier 1 level of total conversion of NO to NO_2 was used to assess chemical conversion of NO to NO_2.	Air impact analyses demonstrating compliance with NAAQS for NO_2 was not performed with advanced level conversion methodologies.
TAPS Modeling : No emission rates of TAPS per Idaho Air Rules Sections 585 and 586 exceeded Emissions Screening Level (EL) rates.	Air impact analyses demonstrating compliance with TAPS, as required by Idaho Air Rules Section 203.03, is required for pollutants having an emissions rate greater than ELs. Therefore, no demonstration of compliance with TAPs AAC and AACC were required.

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 SRM facility provided phosphate ore for further refining into elemental phosphorous until 2013.At that time mining operations ceased. Today, operations consist largely of reclamation processes and are expected to continue until at least 2022. The current permit (issued in 2011) allows SRM to operate several (4) diesel generators at the facility in support of reclamation activities. The entire process is described in detail in Section 2 of the permit application.

As listed in section 1 of this memorandum, the application is proposing the following modifications:

- Relocate GEN1 to Smith Pond
- Update the rating of GEN2, replacing with GEN6, (designated as the primary Horseshoe Dump generator)
- Update GEN3, (backup Horseshoe Dump generator)
- Remove GEN4 (Horseshoe Pond Generator)
- Install GEN5 (Haul Road Pond generator)
- Install GEN6 (replacing GEN2)

2.2 Proposed Location and Area Classification

The SRM facility is located in the Caribou National Forest about 20 miles northeast of Soda Springs, Idaho, and about 8 miles south of the smaller town of Wayan, Idaho. This area is designated as an attainment or unclassifiable area for sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), lead (Pb), ozone (O_3), particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM_{10}), and particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers ($PM_{2.5}$). The area is not classified as non-attainment for any criteria pollutants.

2.3 Air Impact Analyses Required for All Permits to Construct

Criteria Pollutant and TAP Impact Analyses for a PTC are addressed in 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:

> ***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).*

2.4 Significant Impact Level and Cumulative NAAQS Impact Analyses

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

according to methods outlined in 40 CFR 51, Appendix W (Guideline on Air Quality Models). 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 emissions 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.

DEQ has developed modeling applicability thresholds that effectively assure that project-related emissions increases below stated values will result in ambient air impacts below the applicable SILs. The threshold levels and dispersion modeling analyses supporting those levels are presented in the *State of Idaho Guideline for Performing Air Quality Impact Analyses*[1] (*Idaho Air Modeling Guideline*). Use of a modeling threshold represents the use of conservative modeling, performed in support of the threshold, as a project SIL analysis. Project-specific modeling applicability for this project is addressed in Section 3.1.1 of this memorandum.

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 facility-wide emissions, and emissions from any nearby co-contributing sources, 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.

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. This evaluation is made specific to both time and space. If the SIL analysis indicates the facility/modification has an impact exceeding the SIL, the facility might not have a significant contribution to a violation if impacts are below the SIL at the specific receptor showing the violation during the time periods when a modeled violation occurred.

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	0.3	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]	75 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. The O_3 standard was revised (the notice was signed by the EPA Administrator on October 1, 2015) to 70 ppb. However, this standard will not be applicable for permitting purposes until it is incorporated by reference *sine die* into Idaho Air Rules.

Compliance with Idaho Air Rules Section 203.02 is generally demonstrated if: a) all modeled impacts of the SIL analysis are below the applicable SIL or other level determined to be inconsequential to NAAQS compliance; or b) 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 c) 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.

2.5 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 Idaho Air Rules Section 210, if the total project-wide emissions 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 emissions 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 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.

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.

3.1 Emission Source Data

Emissions rates of criteria pollutants and TAPs for the proposed SRM modification were provided by the applicant for various applicable averaging periods. Review and approval of estimated emissions was the responsibility of the DEQ permit writer, and is not addressed in this modeling memorandum. DEQ modeling review included verification that the application's potential emissions rates were properly used in the model. The rates listed must represent the maximum allowable rate as averaged over the specified period.

Emissions rates used in the dispersion modeling analyses submitted by AS should be reviewed by the DEQ permit writer against those in the emissions inventory of the permit application. All modeled criteria air pollutant and TAP emissions rates should be equal to or greater than the facility's emissions calculated in other sections of the PTC application or requested permit allowable emission rates.

3.1.1 Criteria Pollutant Emissions Rates and Modeling Applicability

If facility-wide potential to emit (PTE) values for a specific criteria pollutants would qualify for a below regulatory concern (BRC) permit exemption as per Idaho Air Rules Section 221 if it were not for some pollutants exceeding BRC thresholds, then an air impact analysis for that pollutant may not be required for permit issuance. DEQ's regulatory interpretation policy of exemption provisions of Idaho Air Rules (Policy on NAAQS Compliance Demonstration Requirements, DEQ policy memorandum, July 11, 2014) 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." The interpretation policy also states that the exemption criteria of uncontrolled 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.

An impact analysis must be performed for pollutant increases that would not qualify for the BRC exemption from an impact analysis. SRM elected to not compare project emissions with BRC exemption levels but rather apply them to DEQ defined modeling thresholds. It is likely that existing permitted conditions of the emissions units modified would exclude the modification from a BRC exemption.

DEQ has generated non-site-specific project modeling thresholds for those projects that cannot use the BRC exemption from an impact analysis (if there are specific permitted emissions limits that require changing, etc.). Modeling applicability thresholds are provided in the *Idaho Air Modeling Guideline*. These thresholds were based on assuring an ambient impact of less than established SIL for that specific pollutant and averaging period.

If project-specific total emissions rates are below Level I Modeling Thresholds, project-specific air impact analyses are not necessary for permitting. Use of level II modeling thresholds are conditional, requiring DEQ approval. Table 3 provides the emissions-based modeling applicability summary. SRM compared emission estimates with Level I modeling thresholds, and determined that modeling is necessary for $PM_{2.5}$ (24-hour and annual) and NO_2 (1-hour and annual).

Table 3. MODELING APPLICABILITY ANALYSIS RESULTS

Pollutant	Averaging Period	Emissions	BRC Threshold (ton/year)	Level I Modeling Thresholds (lb/hour or ton/year)	Level II Modeling Thresholds (lb/hour or ton/year)	Modeling Required
$PM_{2.5}$	Annual	0.37 tpy	1	0.350	4.1	Yes
	24-hour	0.09 lb/hr	1.5	0.054	0.63	Yes
PM10	24-hour	0.09 lb/hr		0.22	2.6	No
NOx	Annual	7.49 ton/yr	4	1.2	14	Yes
	1-hour	1.71 lb/hr		0.2	2.4	Yes
SO_2	Annual	0.04 ton/yr	4	1.2	14	No
	1-hour	0.01 lb/hr		0.21	2.5	No
CO	Short term	4.75 lb/hr	10	15	175	No

Ozone (O_3) differs from other criteria pollutants in that it is not typically emitted directly into the atmosphere. O_3 is formed in the atmosphere through reactions of VOCs, NOx, and sunlight. Atmospheric dispersion models used in stationary source air permitting analyses (see Section 3.3.3) cannot be used to estimate O_3 impacts resulting from VOC and NOx emissions from an industrial facility. O_3 concentrations resulting from area-wide emissions are predicted by using more complex airshed models such as the Community Multi-Scale Air Quality (CMAQ) modeling system. Use of the CMAQ model is very resource intensive and DEQ asserts that performing a CMAQ analysis for a particular permit application is not typically a reasonable or necessary requirement for air quality permitting.

Addressing secondary formation of O_3 has been somewhat addressed in EPA regulation and policy. As stated in a letter from Gina McCarthy of EPA to Robert Ukeiley, acting on behalf of the Sierra Club (letter from Gina McCarthy, Assistant Administrator, United States Environmental Protection Agency, to Robert

Ukeiley, January 4, 2012):

> *. . . footnote 1 to sections 51.166(I)(5)(I) of the EPA's regulations says the following: "No de minimis air quality level is provided for ozone. However, any net emission increase of 100 tons per year or more of volatile organic compounds or nitrogen oxides subject to PSD would be required to perform an ambient impact analysis, including the gathering of air quality data."*
>
> *The EPA believes it unlikely a source emitting below these levels would contribute to such a violation of the 8-hour ozone NAAQS, but consultation with an EPA Regional Office should still be conducted in accordance with section 5.2.1.c. of Appendix W when reviewing an application for sources with emissions of these ozone precursors below 100 TPY."*

Allowable emissions estimates of VOCs and NOx are below the 100 tons/year threshold, and DEQ determined it was not appropriate or necessary to require a quantitative source specific O_3 impact analysis.

Secondary Particulate Formation

The impact from secondary particulate formation resulting from emissions of NOx, SO_2, and/or VOCs was assumed by DEQ to be negligible on the basis of the magnitude of emissions and the short distance from emissions sources to modeled receptors where maximum PM_{10} and $PM_{2.5}$ impacts would be anticipated.

3.1.2 Toxic Air Pollutant Emissions Rates

TAP emissions regulations under Idaho Air Rules Section 220 are only applicable for new or modified sources constructed after July 1, 1995. All the sources in the emissions inventory in the March 2016 application are regulated by 40 CFR part 60, Subpart IIII, and therefore are exempt from modeling demonstrations to show compliance (IDAPA 58.01.01.210.20.b)

3.1.3 Emission Release Parameters

Table 4 provides emissions release parameters, including stack height, stack diameter, exhaust temperature, and exhaust velocity for point sources as used in the final modeling assessment. Stack parameters used in the modeling analyses were largely documented/justified in the prior submitted applications, and have been approved in those modeling memoranda. The parameters for the new generators, GEN5 and GEN6, were taken from specification sheets provided by the vendors, and are included in the application. DEQ confirmed with AS that flows for the new generators were in units of ACFM, which is required by the AERMOD model.

Table 4. STACK PARAMETERS USED IN MODELING

Source ID	Easting (X) (m)	Northing (Y) (m)	Base Elevation (m)	Stack Height (ft)	Temperature (°F)	Exit Velocity (fps)	Stack Diameter (ft)
GEN1	469964.4	4745038	2153.7	5.68	982.00	83.60	0.49
GEN3	470938.8	4745230	2084.3	5.68	905.00	128.51	0.49
GEN5	470257.5	4745363	2107.7	8.01	836.01	164.04 [1]	0.33
GEN2	470938.8	4745230	2084.3	5.68	905.00	128.51	0.49
GEN6	470938.8	4745230	2084.3	8.01	836.01	164.04 [1]	0.33

[1]Though actual exit velocities are 221.9 fps, they are modeled at the rates of 50 m/s or 164 ft/sec to be in accordance with DEQ modeling guidance of limiting exit velocities to 50 m/s.

3.2 Background Concentrations

Background concentrations were originally provided to AS by DEQ and were obtained from the Northwest International Air Quality Environmental Science and Technology Consortium (NW AIRQUEST) *Lookup 2009-2011 Design Values of Criteria Pollutants*[2]. These design value air pollutant levels are based on regional scale air pollution modeling of Washington, Oregon, and Idaho, with values influenced by monitoring data as a function of distance from the monitor. DEQ has determined that the NW AIRQUEST background values are reasonably representative of the facility locale. NW AIRQUEST background concentration values are provided in Table 7 along with results of the air impact analyses.

3.3 Impact Modeling Methodology

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

3.3.1 General Overview of Analyses

SRM, performed project-specific air impact analyses that were determined by DEQ to be reasonably representative of the proposed facility as described in the application. Results of the submitted 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.

Table 5 provides a brief description of parameters used in the modeling analyses.

Table 5. MODELING PARAMETERS

Parameter	Description/Values	Documentation/Addition Description
General Facility Location	20 miles northeast of Soda Springs, ID	The facility is located in an area that is attainment or unclassified for all criteria air pollutants
Model	AERMOD	AERMOD with the PRIME downwash algorithm.
Meteorological Data	2004-2008 Soda Springs onsite, NWS from Pocatello ID(24156), and upper air data from Boise, ID	The meteorological model input files for this project were provided by and recommended as most representative for this project by IDEQ, as described in the IDEQ modeling protocol and verified by IDEQ's approval of that protocol.
Terrain	Considered	See section 5.3 below
Building Downwash	Considered	BPIP-PRIME was used to evaluate building dimensions for consideration of downwash effects in AERMOD.
Receptor Grid	**Significant Impact Analyses**	
	Grid 1	25-meter spacing along the ambient air boundary and the county road southwest of the facility
	Grid 2	50-meter spacing for distances out to 2,500 meters of facility in elevated terrain
	Grid 3	100-meter spacing for distances out to 2,500 meters from the facilityin non elevated terrain
	Grid 4	500-meter spacing out to 10,000 meters from facility
	Grid 5	1,000-meter spacing out to 50,000 meters from facility

3.3.2 Modeling protocol and Methodology

SRM submitted a modeling protocol to DEQ prior to submitting this application in February, 2016. This protocol was approved with conditions on March 11, 2016 by DEQ. The application was first submitted on April 4, 2016. DEQ responded with a letter of incompleteness on April 27, 2016. This incompleteness was largely due to missing forms. SRM subsequently provided the forms, and on May 11, 2016, DEQ deemed the application complete. AS followed the procedures outlined in the submitted modeling protocol. Project-specific modeling and other required impact analyses were generally conducted using data and methods discussed in pre-application correspondence and in the *Idaho Air Quality Modeling Guideline*[1].

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 40 CFR 51, Appendix W (Guideline on Air Quality Models). 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 15181 was used by the applicant for the modeling analyses to evaluate impacts of the facility. This version is the current version at the time the application was received by DEQ.

3.3.4 Meteorological Data

As was done with the previous submitted applications, SRM used meteorological data collected onsite in Soda Springs by P4 for the period 2004-2008, and supplemented it with NWS data from the Pocatello Idaho, airport, (ID 24156). Upper air data was taken from the Boise, Idaho airport. This data has been approved by DEQ previously, and is deemed representative for modeling in the locale of SRM.

3.3.5 Effects of Terrain on Modeled Impacts

Terrain data were extracted from United States Geological Survey (USGS) National Elevation Dataset (NED) files in the WGS84 datum (approximately equal to the NAD83 datum). SRM used 1/3-Arc-Second resolution data, which is adequate for this analysis.

The terrain preprocessor AERMAP Version 11103 was used to extract the elevations from the NED files and assign them to receptors in the modeling domain in a format usable by AERMOD. AERMAP also determined the hill-height scale for each receptor. The hill-height scale is an elevation value based on the surrounding terrain which has the greatest effect on that individual receptor. AERMOD uses those heights to evaluate whether the emissions plume has sufficient energy to travel up and over the terrain or if the plume will travel around the terrain.

DEQ reviewed the area surrounding the facility by using the web-based mapping program Google Earth, which uses the WGS84 datum. DEQ also overlaid modeling files with a digital photograph background images acquired from the 2013 ARCGIS NAIP (National Agriculture Imagery Program) data base. The immediate area is effectively flat with regard to dispersion modeling affects. Elevations in the modeling domain matched those indicated by the background images

3.3.6 Facility Layout

DEQ verified proper identification of buildings on the site by comparing a graphical representation of the

modeling input file to provided site plans in the application, and compared site locations to those in aerial photographs on Google Earth. The modeled location matched well with aerial photographs in Google Earth as well as from those in the ARCGIS 2013 NAIP database.

3.3.7 Effects of Building Downwash on Modeled Impacts

Potential downwash effects on emissions plumes are usually accounted for in the model by using building dimensions and locations (locations of building corners, base elevation, and building heights). Dimensions and orientation of proposed buildings were not needed as input to the Building Profile Input Program for the Plume Rise Model Enhancements downwash algorithm (BPIP-PRIME) because there are no existing structures effecting the proposed and existing sources.

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." SRM has a well-defined facility boundary which clearly precludes public access to the facility by means of patrol, gates, and signs. The boundary is consistent with that utilized on the prior 2010 modeling analysis accepted by DEQ.

3.3.9 Receptor Network

Table 5 describes the receptor grid used in the submitted analyses. The receptor grid met the minimum recommendations specified in the *Idaho Air Quality Modeling Guideline*[1]. DEQ determined this grid assured maximum impacts were reasonably resolved by the model considering: 1) types of sources modeled; 2) modeled impacts and the modeled concentration gradient; 3) conservatism of the methods and data used as inputs to the analyses; 4) potential for continual exposures or exposure to sensitive receptors. Additionally, DEQ performed sensitivity analyses using a finer grid spaced receptor network to assure that maximum concentrations were below all 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.

No buildings exist in the vicinity for all point sources modeled. Therefore, consideration of downwash caused by nearby buildings was not required.

4.0 Impact Modeling Results

4.1 Results for NAAQS Significant Impact Level Analyses

AS performed dispersion modeling for those criteria pollutants having emissions exceeding level I modeling thresholds ($PM_{2.5}$ and NO_2). For comparison to SILs, modeling was run utilizing emissions from the proposed sources (new and modified) for all pollutants and averaging time. The results as listed in Table 6 show that only impacts for NO_2 are above the SILs. Therefore, cumulative NAAQS impact analyses were not needed for $PM_{2.5}$. Results of the cumulative NAAQS impact analyses for NO_2, assessing all sources of NO_2, are listed in Table 7 and shows compliance with NAAQS. Conservatively, a Tier 1 method of total conversion of NO to NO_2 was used by AS in this analysis.

Table 6 Significant Impact Analyses for Criteria Pollutants

Pollutant	Averaging Period	Maximum Modeled Concentration (*u*g/m^3)	Significant Impact Level (*u*g/m^3)	Cumulative NAAQS Modeling Analysis needed?
$PM_{2.5}$	24-hour	0.4	1.2	No
	Annual	0.1	0.3	No
NO_2	1-hour	22.2	7.5	Yes
	Annual	1.3	1.0	Yes

Table 7 Cumulative NAAQS Impact Analyses Impact Analyses for Criteria Pollutants

Pollutant	Averaging Period	Maximum Modeled Concentration (*u*g/m^3)	Background Concentration (*u*g/m^3)	Total Impact (*u*g/m^3)	NAAQS (*u*g/m^3)
NO_2	1-hour	85.3	20.7	106.0	188
	Annual	4.5	1.9	6.4	100

4.2 Results for TAPs Impact Analyses

Dispersion modeling is required to demonstrate compliance with TAP increments specified by Idaho Air Rules Section 585 and 586 for those TAPs with project-specific emission increases exceeding emissions screening levels (ELs). Because there are no TAPs emissions that exceed the ELs, no modeling analyses were needed to demonstrate compliance with AAC and AAAC.

5.0 Conclusions

The ambient air impact analyses and other air quality analyses submitted with the PTC application demonstrated to DEQ's satisfaction that emissions from the proposed modification to the SRM project will not cause or significantly contribute to a violation of any ambient air quality standard.

References:

1. *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.

2. Air Quality Environmental Science and Technology Consortium (NW AIRQUEST). *Lookup 2009-2011 Design Values of Criteria Pollutants.* Available at: http://lar.wsu.edu/nw-airquest/lookup.html.