Statement of Basis

Permit to Construct No. P-2016.0051
Project ID 61968

City of Jerome Waste Water Treatment Plant
Jerome, Idaho

Facility ID 053-00038

Final

May 4, 2018
Rakael Pope
Permit Writer

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
Btu	British thermal units
CAA	Clean Air Act
CAS No.	Chemical Abstracts Service registry number
cfm	cubic feet per minute
CFR	Code of Federal Regulations
CI	compression ignition
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	CO_2 equivalent emissions
DEQ	Department of Environmental Quality
dscf	dry standard cubic feet
EL	screening emission levels
EPA	U.S. Environmental Protection Agency
GHG	greenhouse gases
gph	gallons per hour
gpm	gallons per minute
gr	grains (1 lb = 7,000 grains)
HAP	hazardous air pollutants
hp	horsepower
hr/yr	hours per consecutive 12 calendar month period
ICE	internal combustion engines
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
iwg	inches of water gauge
km	kilometers
lb/hr	pounds per hour
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
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
RICE	reciprocating internal combustion engines
Rules	*Rules for the Control of Air Pollution in Idaho*
scf	standard cubic feet
SM	synthetic minor
SM80	synthetic minor facility with emissions greater than or equal to 80% of a major source threshold
SO_2	sulfur dioxide
SO_x	sulfur oxides
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
ULSD	ultra-low sulfur diesel
U.S.C.	United States Code
VOC	volatile organic compounds
$\mu g/m^3$	micrograms per cubic meter

FACILITY INFORMATION

Description

The City of Jerome Wastewater Treatment Plant operates a preexisting wastewater treatment plant which treats city resident, commercial retail, light industrial and industrial wastewater. Existing equipment includes two anaerobic digesters, a natural gas/biogas boiler, biogas-fired boiler, and biogas flare. The existing infrastructure includes headworks (fine screening, grit removal, and flow measurement), trickling filters (two bio-towers), membrane bioreactor (MBR) treatment (two aeration basins, MBR tanks, blowers, and permeate pumps), chemical addition for phosphorus removal, ultraviolet disinfection, solids handling facilities (aerobic digester, pump, belt press, and backup drying beds), eight emergency generators, a lab and a control building.

The City of Jerome WWTP is requesting an increase in the allowable concentration of hydrogen sulfide (H_2S) entering each boiler and the flare from each anaerobic digester. The permitted flare is being replaced with a smaller unit with more accurate as built capacity and stack parameters for the boilers. The changes will result in an increase in facility-wide sulfur dioxide (SO_2) and hydrogen sulfide (H_2S) emissions. Also, the biogas distribution to the boiler and flare is now dependent on the H_2S concentration of the biogas. If the H_2S concentration of the biogas exceeds 100 parts per million by volume (ppmv), the boilers are unable to combust the gas and the boilers will operate on natural gas with all biogas routed to the flare. Also, any excess biogas not needed by the boilers will be routed to the flare.

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).

March 1, 2017	P-2016.0051, Permitting action description, 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:

- Replace an existing permitted flare with a smaller unit.
- Increase allowable concentration of H_2S entering each boiler and flare from each anaerobic digester.
- Correct Burnham Dual-Fired Boiler model and input rating.

Application Chronology

December 11, 2017	DEQ received an application and an application fee.
December 18, 2017 – January 2, 2018	DEQ provided an opportunity to request a public comment period on the application and proposed permitting action.
January 10, 2018	DEQ determined that the application was complete.
March 2, 2018	DEQ made available the draft permit and statement of basis for peer and regional office review.
March 9, 2018	DEQ made available the draft permit and statement of basis for applicant review.
March 29 – April 30, 2018	DEQ provided a public comment period on the proposed action.
March 29, 2018	DEQ received the permit processing fee.
May 4, 2018	DEQ issued the final permit and statement of basis.

TECHNICAL ANALYSIS

Emissions Units and Control Equipment

Table 1 EMISSIONS UNIT AND CONTROL EQUIPMENT INFORMATION

Source ID No.	Sources	Control Equipment	Emission Point ID No.
BIOBOIL	Burnham Dual-Fired Boiler: Manufacturer: Burnham Model: 4FHW-277A-DG Construction Date: 2016 Heat input rating: 2.319 MMBtu/hr Fuel: Biogas or natural gas	N/A	Exit height: 19.98 ft (6.09 m) Exit diameter: 1.0 ft (0.305 m) Exit temperature: 450.0 °F (232.2 °C)
NGBOIL	Dual-Fired Boiler: Manufacturer: Burnham Model: 4F-209 Construction Date: 2016 Heat input rating: 1.95 MMBtu/hr Fuel: Biogas or natural gas	N/A	Exit height: 16.5 ft (5.03 m) Exit diameter: 0.83 ft (0.254 m) Exit temperature: 450.0 °F (232.2 °C)
FLARE	Anaerobic Digester (Two Units): Construction Date: 2017 Capacity: 45,000 gallons each Fuels produced: biogas Biogas is controlled by the flare and boilers	Biogas Flare: Manufacturer: Varec Model: 244W Construction Date: 2017 Max. consumption: 9527 scf/hr	Exit height: 16.5 ft (5.03 m) Exit diameter: 1.84 ft (0.56 m) Exit temperature: 1,832 °F (1,000 °C)
GEN1 GEN2 GEN3 GEN4 GEN5	Emergency IC Engine (5 Identical Units): Manufacturer: Caterpillar Model: DM8521 Manufacture Date: 2016 Maximum Horsepower: 762 bhp Cylinder Displacement: 3.02 L/cylinder Fuel: Distillate fuel oil	Tier Certification: Tier 2	Exit height: 6.83 ft (2.08 m) Exit diameter: 0.67 ft (0.20 m) Exit flow rate: 3,064 acfm Exit temperature: 800 °F (426.7 °C)
GENA GENB GENC	Emergency IC Engine (3 Identical Units): Manufacturer: Generac Model: 826255 Manufacture Date: 2007 Maximum Horsepower: 762 bhp Cylinder Displacement: 2.53 L/cylinder Fuel: Distillate fuel oil	Tier Certification: Tier 2	Exit height: 8.66 ft (2.64 m) Exit diameter: 0.42 ft (0.13 m) Exit flow rate: 1,197 acfm Exit temperature: 800 °F (426.7 °C)
1GUH1 2GUH1 3GUH1 4GUH1 5GUH1 6GUH1	Comfort Heater (Six Units): Manufacturer: Reznor Model: UDBS Manufacture Date: 2016 Heat input rating: 0.06 MMBtu/hr Fuel: natural gas	N/A	Exit height: 10.99 ft (3.35 m) Exit diameter: 0.33 ft (0.10 m) Exit flow rate: 607 cfm Exit temperature: 45.0 °F (7.22 °C)
1GUH2 2GUH2	Comfort Heater (Two Units): Manufacturer: Reznor Model: UDBS Manufacture Date: 2016 Heat input rating: 0.12 MMBtu/hr Fuel: natural gas	N/A	Exit height: 10.99 ft (3.35 m) Exit diameter: 0.33 ft (0.10 m) Exit flow rate: 1,230 cfm Exit temperature: 45.0 °F (7.22 °C)
GUH3	Comfort Heater: Manufacturer: Reznor Model: UDAS Manufacture Date: 2016 Heat input rating: 0.045 MMBtu/hr Fuel: natural gas	N/A	Exit height: 22.2 ft (6.78 m) Exit diameter: 0.33 ft (0.10 m) Exit flow rate: 629 cfm Exit temperature: 55.0 °F (12.78 °C)
GUH4	Comfort Heater: Manufacturer: Reznor Model: UDAS Manufacture Date: 2016 Heat input rating: 0.105 MMBtu/hr Fuel: natural gas		Exit height: 13.3 ft (4.06 m) Exit diameter: 0.33 ft (0.10 m) Exit flow rate: 1,345 cfm Exit temperature: 60.0°F (15.56 °C)

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 wastewater treatment operations at the facility (see Appendix A) associated with this proposed project. Emissions estimates of criteria pollutant, HAP PTE were based on emission factors from AP-42 and manufacturer data, operation of 8760 hours per year, and process information specific to the facility for this proposed project.

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.

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

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

Source	$PM_{10}/PM_{2.5}$		SO_2		NO_X		CO		VOC	
	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]
Biogas Boiler	0.01	0.03	0.002	0.007	0.15	0.66	0.06	0.26	0.01	0.06
Natural Gas Boiler	0.01	0.04	0.002	0.009	0.19	0.82	0.07	0.32	0.02	0.07
Flare – Biogas Combustion	0.10	0.43	0.008	0.034	1.29	5.67	1.09	4.76	0.07	0.31
Flare Pilot Light	0.0004	0.002	0.0000	0.0001	0.01	0.02	0.004	0.02	0.0003	0.001
Emergency Engines	0.52	0.03	0.07	0.004	61.55	3.08	7.23	0.36	1.70	0.08
Comfort Heaters	0.01	0.03	0.0005	0.002	0.07	0.31	0.03	0.13	0.004	0.02
Pre-Project Totals	**0.65**	**0.56**	**0.08**	**0.06**	**63.26**	**10.56**	**8.48**	**5.85**	**1.80**	**0.54**

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

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 PTE for criteria pollutants from all emissions units at the facility as determined by DEQ staff. See Appendix A for a detailed presentation of the calculations of these emissions for each emissions unit.

Table 3 POST PROJECT POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Source	$PM_{10}/PM_{2.5}$		SO_2		NO_X		CO		VOC	
	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]
Burnham Dual-Fired Boiler	0.01	0.05	0.002	0.010	0.22	0.98	0.09	0.38	0.02	0.08
Dual-Fired Boiler	0.01	0.04	0.002	0.009	0.19	0.82	0.07	0.32	0.02	0.07
Flare – Biogas Combustion	0.04	0.17	5.543	24.279	0.51	2.25	0.43	1.89	0.03	0.12
Flare Pilot Light	0.0003	0.001	2.70E-05	1.18E-04	0.005	0.02	0.004	0.02	2.48E-04	0.001
Emergency Engines	0.52	0.03	0.07	0.004	61.55	3.08	7.23	0.36	1.70	0.08
Comfort Heaters	0.01	0.03	0.0005	0.002	0.07	0.31	0.03	0.13	0.004	0.02
Post Project Totals	**0.59**	**0.32**	**5.62**	**24.30**	**62.55**	**7.46**	**7.85**	**3.10**	**1.77**	**0.37**

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

Change in Potential to Emit

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

Table 4 CHANGES IN POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Source	$PM_{10}/PM_{2.5}$		SO_2		NO_X		CO		VOC	
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Pre-Project Potential to Emit	0.65	0.56	0.08	0.06	63.26	10.56	8.48	5.85	1.80	0.54
Post Project Potential to Emit	0.59	0.32	5.62	24.30	62.55	7.46	7.85	3.10	1.77	0.37
Changes in Potential to Emit	**-0.06**	**-0.24**	**5.54**	**24.24**	**-0.71**	**-3.10**	**-0.63**	**-2.75**	**-0.03**	**-0.17**

Non-Carcinogenic TAP Emissions

A summary of the estimated PTE for emissions increase of non-carcinogenic toxic air pollutants (TAP) is provided in the following table.

Pre- and post-project, as well as the change in, non-carcinogenic 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 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)
Toluene	4.42E-03	4.40E-03	0.0000	25	No
Xylene	2.99E-03	2.99E-03	0.0000	29	No
Dichlorobenzene	2.22E-05	1.45E-05	0.0000	30	No
Hexane	3.33E-02	2.17E-02	-0.0116	12	No
Naphthalene	1.13E-05	7.36E-06	0.0000	3.33	No
Pentane	4.82E-02	3.14E-02	-0.0168	118	No
Barium	8.15E-05	5.31E-05	0.0000	0.033	No
Chromium	2.59E-05	1.69E-05	0.0000	0.033	No
Cobalt	1.56E-06	1.01E-06	0.0000	0.0033	No
Copper	1.57E-05	1.03E-05	0.0000	0.067	No
Manganese	7.04E-06	4.58E-06	0.0000	0.333	No
Molybdenum	2.04E-05	1.33E-05	0.0000	0.333	No
Selenium	4.45E-07	2.90E-07	0.0000	0.013	No
Vanadium	4.26E-05	2.78E-05	0.0000	0.003	No
Hydrogen Sulfide	0.00E+00	2.94E-01	0.2940	0.933	No

None of the PTEs for non-carcinogenic TAP were exceeded as a result of this project. Therefore, modeling is not required for any non-carcinogenic TAP because none of the 24-hour average non-carcinogenic screening ELs identified in IDAPA 58.01.01.585 were exceeded.

Carcinogenic TAP Emissions

A summary of the estimated PTE for emissions increase of carcinogenic toxic air pollutants (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 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)
Benzene	3.89E-05	2.53E-05	-1.36E-05	8.00E-04	No
Formaldehyde	1.39E-03	9.05E-04	-4.85E-04	5.10E-04	No
2-Methylnaphthalene	4.45E-07	2.90E-07	-1.55E-07	9.10E-05	No
3-Methylchloranthrene	3.33E-08	2.17E-08	-1.16E-08	9.10E-05	No
7,12-Dimethylbenz(a)anthracene	2.96E-07	1.93E-07	-1.03E-07	9.10E-05	No
Acenaphthylene	3.33E-08	2.17E-08	-1.16E-08	9.10E-05	No
Benzo(a)pyrene	2.22E-08	1.45E-08	-7.72E-09	2.00E-06	No
Benzo(b)fluoranthene	3.33E-08	2.17E-08	-1.16E-08	2.00E-06	No
Benzo(k)fluoranthene	3.33E-08	2.17E-08	-1.16E-08	2.00E-06	No
Dibenzo(a,h)anthracene	2.22E-08	1.45E-08	-7.72E-09	2.00E-06	No
Acenaphthene	3.33E-08	2.17E-08	-1.16E-08	9.10E-05	No
Anthracene	4.45E-08	2.90E-08	-1.55E-08	9.10E-05	No
Benzo(a)anthracene	3.33E-08	2.17E-08	-1.16E-08	2.00E-06	No
Benzo(g,h,i)perylene	2.22E-08	1.45E-08	-7.72E-09	9.10E-05	No
Chrysene	3.33E-08	2.17E-08	-1.16E-08	2.00E-06	No
Fluoranthene	5.56E-08	3.62E-08	-1.94E-08	9.10E-05	No
Fluorene	5.19E-08	3.38E-08	-1.81E-08	9.10E-05	No
Indeno(1,2,3-cd)pyrene	3.33E-08	2.17E-08	-1.16E-08	2.00E-06	No
Phenanthrene	3.15E-07	2.05E-07	-1.10E-07	9.10E-05	No
Pyrene	9.26E-08	6.03E-08	-3.23E-08	9.10E-05	No
Arsenic	3.71E-06	2.41E-06	-1.30E-06	1.50E-06	No
Beryllium	2.22E-07	1.45E-07	-7.72E-08	2.80E-05	No
Cadmium	2.04E-05	1.33E-05	-7.13E-06	3.70E-06	No
Nickel	3.89E-05	2.53E-05	-1.36E-05	2.70E-05	No
POM[a]	2.11E-07	1.38E-07	-7.35E-08	2.00E-06	No

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.

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

Post Project HAP Emissions

The following table presents the post project potential to emit for HAP pollutants from all emissions units at the facility/for the one unit being modified 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

Hazardous Air Pollutants	PTE (lb/hr)	PTE (T/yr)
Benzene	2.53E-05	1.11E-04
Formaldehyde	9.05E-04	3.96E-03
Toluene	4.40E-03	3.98E-04
Xylenes	2.99E-03	1.50E-04
2-Methylnaphthalene[a]	2.90E-07	1.27E-06
3-Methylchloranthrene[a]	2.17E-08	9.51E-08
7,12-Dimethylbenz(a)anthracene[a]	1.93E-07	8.46E-07
Acenaphthylene[a]	2.17E-08	9.51E-08
Benzo(a)pyrene[b]	1.45E-08	6.34E-08
Benzo(b)fluoranthene[b]	2.17E-08	9.51E-08
Benzo(k)fluoranthene[b]	2.17E-08	9.51E-08
Dibenzo(a,h)anthracene[b]	1.45E-08	6.34E-08
Dichlorobenzene[a]	1.45E-05	6.34E-05
Hexane	2.17E-02	9.51E-02
Naphthalene	7.36E-06	3.22E-05
Acenaphthene[a]	2.17E-08	9.51E-08
Anthracene[a]	2.90E-08	1.27E-07
Benzo(a)anthracene[b]	2.17E-08	9.51E-08
Benzo(g,h,i)perylene[a]	1.45E-08	6.34E-08
Chrysene[b]	2.17E-08	9.51E-08
Fluoranthene[a]	3.62E-08	1.59E-07
Fluorene[a]	3.38E-08	1.48E-07
Indeno(1,2,3-cd)pyrene[b]	2.17E-08	9.51E-08
Phenanthrene[a]	2.05E-07	8.98E-07
Pyrene[a]	6.03E-08	2.64E-07
Arsenic	2.41E-06	1.06E-05
Beryllium	1.45E-07	6.34E-07
Cadmium	1.33E-05	5.81E-05
Chromium	1.69E-05	7.40E-05
Cobalt	1.01E-06	4.44E-06
Manganese	4.58E-06	2.01E-05
Nickel	2.53E-05	1.11E-04
Selenium	2.90E-07	1.27E-06
POM	1.38E-07	6.02E-07
Totals	0.03	0.10

a) Poly aromatic hydrocarbons (PAH) which are federally regulated HAPs
b) Polycyclic Organic Matter (POM) which are federally regulated HAPs

Ambient Air Quality Impact Analyses

As presented in the Modeling Memo in Appendix B, the estimated increase in emission rates of SO_2 from this project exceeded published DEQ modeling thresholds established in the State of Idaho Air Quality Modeling Guideline[1]. Refer to the Emissions Inventories section for additional information concerning the emission inventories.

The applicant has demonstrated pre-construction compliance to DEQ's satisfaction that emissions from this facility will not cause or significantly contribute to a violation of any ambient air quality standard. The applicant has also demonstrated pre-construction compliance to DEQ's satisfaction that the emissions increase due to this permitting action will not exceed any TAP emission screening levels (EL's). Therefore, modeling analyses were not needed to demonstrate compliance with those AAC's and AAAC's. A summary of the Ambient Air Impact Analysis for TAP is provided in Appendix A.

[1] Criteria pollutant thresholds in Table 2, State of Idaho Guideline for Performing Air Quality Impact Analyses, Doc ID AQ-011, September 2013.

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 Jerome 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 HAPs (Hazardous Air Pollutants) Only:

A = Use when any one HAP has actual or potential emissions ≥ 10 T/yr or if the aggregate of all HAPS (Total HAPs) has actual or potential emissions ≥ 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 ≥ 8 T/yr of a single HAP or ≥ 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 ≥ 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 ≥ 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	0.42	0.32	**100**	B
PM_{10}	0.42	0.32	**100**	B
$PM_{2.5}$	0.42	0.32	**100**	B
SO_2	24.32	24.30	**100**	B
NO_X	19.77	7.46	**100**	B
CO	4.55	3.10	**100**	B
VOC	0.71	0.37	**100**	B
HAP (single)	0.095	0.095	**10**	B
HAP (total)	0.10	0.10	**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 emission limit and modified emissions source. Therefore, a permit to construct is required to be issued in accordance with IDAPA 58.01.01.220. This permitting action was processed in accordance with the procedures of IDAPA 58.01.01.200-228.

The application was submitted for a Tier II operating permit (refer to the Tier II Operating Permit section). Therefore, the procedures of IDAPA 58.01.01.200–228 are not applicable to this permitting action.

Tier II Operating Permit (IDAPA 58.01.01.401)

IDAPA 58.01.01.401 ..... Tier II Operating Permit

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

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 Conditions 2.5.

Rules for Control of Fugitive Dust Emissions (IDAPA 58.01.01.650-651)

IDAPA 58.01.01.650-651 ..... Rules for Control of Fugitive Dust

All Sources of fugitive dust emissions at the facility are subject to the State of Idaho rules for controlling fugitive dust. Reasonable precautions shall be taken to prevent particulate matter from becoming airborne. This requirement is assured by Permit Conditions 2.12.

Standards for Minor and Existing Sources (IDAPA 58.01.01.677)

IDAPA 58.01.01.677 ..... Standards for New Sources

The fuel burning equipment located at this facility, with a maximum rated input of less than ten (10) million BTU per hour, are subject to a particulate matter limitation of 0.015 gr/dscf of effluent gas corrected to 3% oxygen by volume when combusting gaseous fuels. Fuel-Burning Equipment is defined as any furnace, boiler, apparatus, stack and all appurtenances thereto, used in the process of burning fuel for the primary purpose of producing heat or power by indirect heat transfer. This requirement is assured by Permit Conditions 2.7.

Odors (IDAPA 58.01.01.775-776)

IDAPA 58.01.01.775-776 ..... Rules for Control of Odors

No person shall allow, suffer, cause or permit the emission of odorous gases, liquids or solids into the atmosphere in such quantities as to cause air pollution. The facility is subject to these requirements that are assured by Permit Conditions 2.6.

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 PM_{10}, SO_2, NO_X, CO, and VOC 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)

- 40 CFR 60, Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. DEQ is delegated this Subpart.

The applicable parts are highlighted in yellow.

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

§ 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.

The City of Jerome Wastewater Treatment Plant operates three CI engines that were manufactured and commenced operation in 2007 and has proposed five new CI engines that are manufactured after April 1, 2006 and will commence operation in 2016. Therefore this section is applicable.

(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.

The City of Jerome Wastewater Treatment Plant is an area source of criteria pollutants and HAPs and therefore is

exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71.

(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.

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

The Jerome Wastewater Treatment Plant is not a stationary CI internal combustion engine manufacturer. Therefore, this section does not apply.

§ 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.

The engines operated by the City of Jerome Wastewater Treatment Plant have a maximum engine power of 568 kW that have a displacement of less than 10 liters per cylinder and are not fire pump engines and are therefore required to meet the certification emission standards in 40 CFR 89.112 and 89.113. This is assured by Permit Condition 3.1.

(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) Remote areas of Alaska; 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.

§ 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.

The City of Jerome Wastewater Treatment Plant does not manufacture stationary CI internal combustion engines. Therefore, this section does not apply.

§ 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?

The CI internal combustion engines operated by the City of Jerome Wastewater Treatment Plant are emergency

engines. Therefore, this section does not apply.

§ 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.

The City of Jerome Wastewater Treatment Plant owns and operates eight CI engines that are model year 2007 or later with a displacement of less than 30 Liters per cylinder. This is assured by Permit Condition 3.1.

(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 NOX 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 · n−0.2 g/KW-hr (34 · 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 NOX 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 · n−0.23 g/KW-hr (33 · 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.

§ 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.

The City of Jerome Wastewater Treatment Plant operates eight CI ICE and this section is applicable. This is assured by Permit Condition 3.2.

§ 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.

The City of Jerome Operates eight CI ICE with a displacement of less than 30 liters per cylinder and must meet the requirements of this section. This is assured by Permit Condition 3.3.

(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.

§ 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.

The five engines that will be install in 2016 are required to meet this section. This is assured by Permit Condition 3.4.

(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.

The CI engines operated by this facility are subject to requirements in §60.4208 and these sections apply. This is assured by Permit Condition 3.4.

§ 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.

The CI engines operated by this facility are subject to this subpart and must comply with this section. This is assured by Permit Condition 3.5.

(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.

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

The City of Jerome Wastewater Treatment Plant does not manufacture stationary CI internal combustion engines. Therefore, this section does not apply.

§ 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.

The City of Jerome Wastewater Treatment Plant is an owner or operator of CI emergency engines and therefore this section is applicable. This is assured by Permit Condition 3.6.

(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.

The City of Jerome Wastewater Treatment Plant operates eight engines that are model year 2007 or later and must comply with this section. This is assured by Permit Condition 3.6.

(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 NOX 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 NOX 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]

The city of Jerome Wastewater Treatment Plant operates eight emergency CI internal combustion engines and in order to be classified as an emergency engine must comply with § 60.4211(f)(1) through (3). This is assured by Permit Condition 3.7.

(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.

The City of Jerome Wastewater Treatment Plant operates eight CI emergency engines and if they are not installed, configured, operated, and/or maintained according to manufacturer's emission-related written instructions this section becomes applicable. This is assured by Permit Condition 3.7.

(h) The requirements for operators and prohibited acts specified in 40 CFR 1039.665 apply to owners or operators of stationary CI ICE equipped with AECDs for qualified emergency situations as allowed by 40 CFR 1039.665.

§ 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).

§ 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?

The engines operated by the City of Jerome Wastewater Treatment Plant do not have a displacement of greater than or equal to 30 liters per cylinder. Therefore this section does not apply.

§ 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.

The eight CI engines operated by this facility are emergency engines, therefore this section is applicable. This is assured by Permit Condition 3.8.

(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.

(e) Owners or operators of stationary CI ICE equipped with AECDs pursuant to the requirements of 40 CFR 1039.665 must report the use of AECDs as required by 40 CFR 1039.665(e).

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

The City of Jerome Wastewater Treatment Plant is not located in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands. Therefore, this section does not apply.

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

The City of Jerome Wastewater Treatment Plant is not located in Alaska. Therefore, this section does not apply.

§ 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.

§ 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.

The eight CI engines operated by this facility are emergency engines subject to this Subpart, therefore this section is applicable. This is assured by Permit Condition 3.9.

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

The definitions of this Subpart are applicable and no further discussion is required.

NESHAP Applicability (40 CFR 61)

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

MACT/GACT Applicability (40 CFR 63)

The facility has proposed to operate eight emergency CI internal combustion engines, and is subject to the requirements of 40 CFR 63, Subpart ZZZZ–National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines. DEQ is delegated this Subpart.

The applicable parts are highlighted in yellow.

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

§ 63.6580 ..... What is the purpose of subpart ZZZZ?

Subpart ZZZZ establishes national emission limitations and operating limitations for hazardous air pollutants (HAP) emitted from stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and operating limitations.

§ 63.6585 ..... Am I subject to this subpart?

You are subject to this subpart if you own or operate a stationary RICE at a major or area source of HAP emissions, except if the stationary RICE is being tested at a stationary RICE test cell/stand.

(a) A stationary RICE is any internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work and which is not mobile. Stationary RICE differ from mobile RICE in that a stationary RICE is not a non-road engine as defined at 40 CFR 1068.30, and is not used to propel a motor vehicle or a vehicle used solely for competition.

(b) A major source of HAP emissions is a plant site that emits or has the potential to emit any single HAP at a rate of 10 tons (9.07 megagrams) or more per year or any combination of HAP at a rate of 25 tons (22.68 megagrams) or more per year, except that for oil and gas production facilities, a major source of HAP emissions is determined for each surface site.

(c) An area source of HAP emissions is a source that is not a major source.

(d) If you are an owner or operator of an area source subject to this subpart, your status as an entity subject to a standard or other requirements under this subpart does not subject you to the obligation to obtain a permit under 40 CFR part 70 or 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 as applicable.

(e) If you are an owner or operator of a stationary RICE used for national security purposes, you may be eligible to request an exemption from the requirements of this subpart as described in 40 CFR part 1068, subpart C.

(f) The emergency stationary RICE listed in paragraphs (f)(1) through (3) of this section are not subject to this subpart. The stationary RICE must meet the definition of an emergency stationary RICE in §63.6675, which includes operating according to the provisions specified in §63.6640(f).

(1) Existing residential emergency stationary RICE located at an area source of HAP emissions that do not operate or are not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii) and that do not operate for the purpose specified in §63.6640(f)(4)(ii).

(2) Existing commercial emergency stationary RICE located at an area source of HAP emissions that do not operate or are not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii) and that do not operate for the purpose specified in §63.6640(f)(4)(ii).

(3) Existing institutional emergency stationary RICE located at an area source of HAP emissions that do not operate or are not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii) and that do not operate for the purpose specified in §63.6640(f)(4)(ii).

The City of Jerome Wastewater Treatment Plant operates eight emergency CI internal combustion engines located at an area source of HAP emissions. This section is applicable.

§ 63.6590 ..... What parts of my plant does this subpart cover?

This subpart applies to each affected source.

(a) Affected source. An affected source is any existing, new, or reconstructed stationary RICE located at a major or area source of HAP emissions, excluding stationary RICE being tested at a stationary RICE test cell/stand.

(1) Existing stationary RICE.

(i) For stationary RICE with a site rating of more than 500 brake horsepower (HP) located at a major source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before December 19, 2002.

(ii) For stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before June 12, 2006.

(iii) For stationary RICE located at an area source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before June 12, 2006.

(iv) A change in ownership of an existing stationary RICE does not make that stationary RICE a new or reconstructed stationary RICE.

(2) New stationary RICE.

(i) A stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions is new if you commenced construction of the stationary RICE on or after December 19, 2002.

(ii) A stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions is new if you commenced construction of the stationary RICE on or after June 12, 2006.

(iii) A stationary RICE located at an area source of HAP emissions is new if you commenced construction of the stationary RICE on or after June 12, 2006.

The eight CI emergency engines operated by this facility all commenced construction after June 12, 2006 and are new stationary RICE.

(3) Reconstructed stationary RICE.

(i) A stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions is reconstructed if you meet the definition of reconstruction in §63.2 and reconstruction is commenced on or after December 19, 2002.

(ii) A stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions is reconstructed if you meet the definition of reconstruction in §63.2 and reconstruction is commenced on or after June 12, 2006.

(iii) A stationary RICE located at an area source of HAP emissions is reconstructed if you meet the definition of reconstruction in §63.2 and reconstruction is commenced on or after June 12, 2006.

(b) Stationary RICE subject to limited requirements.

(1) An affected source which meets either of the criteria in paragraphs (b)(1)(i) through (ii) of this section does not have to meet the requirements of this subpart and of subpart A of this part except for the initial notification requirements of §63.6645(f).

(i) The stationary RICE is a new or reconstructed emergency stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions that does not operate or is not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii).

(ii) The stationary RICE is a new or reconstructed limited use stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions.

(2) A new or reconstructed stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis must meet the initial notification requirements of §63.6645(f) and the requirements of §§63.6625(c), 63.6650(g), and 63.6655(c). These stationary RICE do not have to meet the emission limitations and operating limitations of this subpart.

(3) The following stationary RICE do not have to meet the requirements of this subpart and of subpart A of this part, including initial notification requirements:

(i) Existing spark ignition 2 stroke lean burn (2SLB) stationary RICE with a site rating of more than

500 brake HP located at a major source of HAP emissions;

(ii) Existing spark ignition 4 stroke lean burn (4SLB) stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions;

(iii) Existing emergency stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions that does not operate or is not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii).

(iv) Existing limited use stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions;

(v) Existing stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis;

(c) Stationary RICE subject to Regulations under 40 CFR Part 60. An affected source that meets any of the criteria in paragraphs (c)(1) through (7) of this section must meet the requirements of this part by meeting the requirements of 40 CFR part 60 subpart IIII, for compression ignition engines or 40 CFR part 60 subpart JJJJ, for spark ignition engines. No further requirements apply for such engines under this part.

(1) A new or reconstructed stationary RICE located at an area source;

(2) A new or reconstructed 2SLB stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions;

(3) A new or reconstructed 4SLB stationary RICE with a site rating of less than 250 brake HP located at a major source of HAP emissions;

(4) A new or reconstructed spark ignition 4 stroke rich burn (4SRB) stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions;

(5) A new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis;

(6) A new or reconstructed emergency or limited use stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions;

(7) A new or reconstructed compression ignition (CI) stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions.

The eight engines operated by this facility are affected sources that meet the criteria for new stationary RICE located at an area source of HAP emissions and must show compliance with this Subpart by complying with 40 CFR 60 Subpart IIII.

§ 63.6595 ..... When do I have to comply with this subpart?

(a) Affected sources.

(1) If you have an existing stationary RICE, excluding existing non-emergency CI stationary RICE, with a site rating of more than 500 brake HP located at a major source of HAP emissions, you must comply with the applicable emission limitations, operating limitations and other requirements no later than June 15, 2007. If you have an existing non-emergency CI stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, an existing stationary CI RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, or an existing stationary CI RICE located at an area source of HAP emissions, you must comply with the applicable emission limitations, operating limitations, and other requirements no later than May 3, 2013. If you have an existing stationary SI RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, or an existing stationary SI RICE located at an area source of HAP emissions, you must comply with the applicable emission limitations, operating limitations, and other requirements no later than October 19, 2013.

(2) If you start up your new or reconstructed stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions before August 16, 2004, you must comply with the applicable emission limitations and operating limitations in this subpart no later than August 16, 2004.

(3) If you start up your new or reconstructed stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions after August 16, 2004, you must comply with the applicable emission limitations and operating limitations in this subpart upon startup of your affected source.

(4) If you start up your new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions before January 18, 2008, you must comply with the applicable emission limitations and operating limitations in this subpart no later than January 18, 2008.

(5) If you start up your new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions after January 18, 2008, you must comply with the applicable emission limitations and operating limitations in this subpart upon startup of your affected source.

(6) If you start up your new or reconstructed stationary RICE located at an area source of HAP emissions before January 18, 2008, you must comply with the applicable emission limitations and operating limitations in this subpart no later than January 18, 2008.

(7) If you start up your new or reconstructed stationary RICE located at an area source of HAP emissions after January 18, 2008, you must comply with the applicable emission limitations and operating limitations in this subpart upon startup of your affected source.

The five proposed CI emergency engines are required to comply with the applicable emission limitations and operating limitations in this Subpart upon startup, however since compliance with this Subpart is shown through complying with 40 CFR 60 Subpart IIII, compliance with this section shall be done through compliance with 40 CFR 60 Subpart IIII.

(b) Area sources that become major sources. If you have an area source that increases its emissions or its potential to emit such that it becomes a major source of HAP, the compliance dates in paragraphs (b)(1) and (2) of this section apply to you.

(1) Any stationary RICE for which construction or reconstruction is commenced after the date when your area source becomes a major source of HAP must be in compliance with this subpart upon startup of your affected source.

(2) Any stationary RICE for which construction or reconstruction is commenced before your area source becomes a major source of HAP must be in compliance with the provisions of this subpart that are applicable to RICE located at major sources within 3 years after your area source becomes a major source of HAP.

(c) If you own or operate an affected source, you must meet the applicable notification requirements in §63.6645 and in 40 CFR part 63, subpart A.

Permit Conditions Review

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

Permit Condition 1.1 was revised to reflect the scope of the permit modification project including increase of maximum permitted biogas H_2S concentration and installation of a smaller rated flare.

Permit Condition 1.2 was added to describe how to identify permit conditions that are new or have changed.

Permit Condition 1.3 was added and the Regulated Sources table was updated to identify the permit that is being replaced.

Table 1.1 was revised as follows: the Biogas Boiler was corrected to Burnham Dual-Fired Boiler with a heat input rating of updated from 2.925MMBtu/hr to 2.319MMBtu/hr and fuel type was corrected from biogas to natural gas or biogas.

Permit Condition 2.1was updated to describe restrictions on flow of biogas to the boilers and flare.

Permit Condition 2.2, which contains Table 2.1, was updated to show boilers and flare for control devices.

Permit Condition 2.3 was updated with new permitted emission limits for the boilers and flare. Also, Table 2.2 was updated to reflect corrected emission data.

Permit Condition 2.4 was revised to increase the biogas concentration limit of H_2S.

Permit Condition 2.8 was revised to indicate the dual-fired boilers or flare will burn all biogas.

Permit Condition 2.9 was revised to indicate the Burnham Dual-fired Boiler shall combust biogas or natural gas exclusively and biogas H_2S requirement.

Permit Condition 2.10 was revised to indicate the Dual-fired Boiler shall combust biogas or natural gas exclusively and biogas H_2S requirement.

Permit Condition 3.1, was revised to describe Emergency Generator Engines, rather than Emergency Generators.

Permit Condition 3.2, which includes the Emergency Generator Engines, was updated to list each emission unit separately.

PUBLIC REVIEW

Public Comment Opportunity

An opportunity for public comment period on the application was provided in accordance with IDAPA 58.01.01.209.01.c or IDAPA 58.01.01.404.01.c. During this time, there was a request for a public comment period on DEQ's proposed action. Refer to the chronology for public comment opportunity dates.

Public Comment Period

A public comment period was made available to the public in accordance with IDAPA 58.01.01.209.01.c. During this time, comments were submitted in response to DEQ's proposed action. Refer to the chronology for public comment period dates.

APPENDIX A – EMISSIONS INVENTORIES

City of Jerome
WWTP Permit Application
EI Input Data

Equipment	Capacity	Data Source
Average Total Digester Biogas Production - 2 Digesters (scf/day)	107204	RFI Response (Jerome WWTP Expansion RFI_v0.2 - RESPONSE.pdf) received from 5/13/16 from Jason King, Keller Associates.
Average Total Digester Biogas Production - 2 Digesters (scf/hr)	4467	Conversion 24hr/day
Max Total Digester Biogas Production - 2 Digesters (scf/day)	420000	RFI Response (Jerome WWTP Expansion RFI_v0.2 - RESPONSE.pdf) received from 5/13/16 from Jason King, Keller Associates.
Max Total Digester Biogas Production - 2 Digesters (scf/hr)	17500	Conversion 24hr/day
Biogas Heat Content (Btu/scf)	550	RFI Response #2 (Jerome WWTP Expansion RFI#2 Responses.doc) received from 6/27/16 from Jeremy Wilson, Keller Associates. Says to use the biogas heat content as indicated from Folsom (Boiler provider) on Boiler spec sheet
Natural Gas Heat Content (Btu/scf)	1020	AP-42 Section 1.4
Design Capacity of N.G. Burnham Boiler - NG Combustion (MMBtu/hr)	1.95	Burnham Boilers Spec Sheet, provided by Mike Burnam, Folsom
Design Capacity of Biogas Burnham Boiler - Biogas Combustion (MMBtu/hr)	2.319	Burnham Boilers Spec Sheet, provided by Jason King via email on 7/26/17
Design Capacity of N.G. Burnham Boiler - NG Combustion (MMscf/hr)	0.0019	Conversion based on NG heat content
Design Capacity of Biogas Burnham Boiler - Biogas Combustion (MMscf/hr)	0.0042	Conversion based on Digester Gas heat content
Design Capacity of Biogas Burnham Boiler - NG Combustion (MMscf/hr)	0.0023	Conversion based on NG heat content
Design Capacity of Biogas Burnham Boiler - Biogas Combustion (scf/hr)	4216	Conversion
Design Capacity of Flare (MMBtu/hr)	5.24	Email from Jeremy Wilson received 6/28/17
Design Capacity of Flare (scf/hr)	9527	Email from Jeremy Wilson received 6/28/17
Excess Biogas to Flare (scf/hr)	13284	Total biogas production - Design Capacity of Boiler when combustion biogas
Flare NG Pilot (scf/hr)	45	Email from Jeremy Wilson received 6/28/17
Design Capacity of Emergency Generators (kW)	500	
Design Capacity of Emergency Generators (hp)	762	Generac,Caterpillar Spec Sheets
Design Capacity of Emergency Generators (MMBtu/hr)	1.94	Conversion, 1 hp = 2544.43 Btu/hr
Generator Fuel Usage (gal/yr)	3120	31.2 gal/hr at 100% load, 100 hrs/yr
Emergency Generator Operating Hours (hours)	100	
Emergency Generator Operating Hours - Uncontrolled (hours)	500	
Heater Operating Hours (hours)	8760	

Facility-wide Emissions (lb/hr)

Emission Sources	CO	NO_x	PM/PM10/PM2.5	SO_2	VOC	Lead	HAPs	CH_4	N_2O	CO_2	CO_2e
Boiler - Burnham Dual-Fired	0.09	0.22	0.01	0.002	0.02	2.11E-06	0.008	0.010	0.009	506	509
Boiler - Dual-Fired	0.07	0.19	0.01	0.002	0.02	9.56E-07	0.02	0.004	0.004	229	231
Flare - Biogas Combustion	0.43	0.51	0.04	5.543	0.03	2.57E-06	0.04	0.012	0.011	616	620
Flare - NG Pilot	0.004	0.00	0.0003	2.70E-05	2.48E-04	2.25E-08	0.00	0.000	0.000	5	5
Emergency Generators	7.23	61.55	0.52	0.07	1.70	n/a	0.02	0.011	0.002	281	282
Heaters	0.03	0.07	0.01	0.0005	0.004	3.78E-07	0.00	0.002	0.002	91	91
TOTAL	7.8	62.5	0.6	5.62	1.8	6.03E-06	0.1	0.0	0.0	1728.7	1738.3
Modeling Threshold	15.0	0.2	PM2.5 - 0.054 (Level II - 0.63) PM10 - 0.22	0.21	n/a	14 (lb/month)					

Facility-wide Emissions (tpy)

Emission Sources	CO	NO_x	PM/PM10/PM2.5	SO_2	VOC	Lead	HAPs	CH_4	N_2O	CO_2	CO_2e
Boiler - Burnham Dual-Fired	0.38	0.98	0.05	0.010	0.08	9.23E-06	0.03	0.04	0.04	2216	2229
Boiler - Dual-Fired	0.32	0.82	0.04	0.009	0.07	4.19E-06	0.02	0.02	0.02	1005	1011
Flare - Biogas Combustion	1.89	2.25	0.17	24.279	0.12	1.13E-05	0.04	0.05	0.05	2700	2716
Flare - NG Pilot	0.02	0.02	0.001	1.18E-04	0.001	9.86E-08	0.00	0.00	0.00	24	24
Emergency Generators	0.36	3.08	0.03	0.004	0.08	n/a	0.00	0.00	0.00	14	14
Heaters	0.13	0.31	0.03	0.002	0.02	1.65E-06	0.01	0.01	0.01	397	399
TOTAL	3.09	7.45	0.31	24.30	0.38	2.64E-05	0.1	0.1	0.1	6355.6	6393.3
Modeling Threshold	n/a	1.2	PM2.5 - 0.35 (Level II - 4.1 tpy) PM10 - n/a	1.2	n/a	14 (lb/month)	4.40E-03				

Facility Wide PTE

Pollutant	Potential TAP Emissions (lb/hr)	(tpy)	IDAPA EL (lb/hr)	Exceeds IDAPA EL (Yes/No)
Benzene	2.53E-05	1.11E-04	8.00E-04	No
Formaldehyde	9.05E-04	3.96E-03	5.10E-04	Yes
Toluene	4.40E-03	3.98E-04	2.50E+01	No
Xylenes	2.99E-03	1.50E-04	2.90E+01	No
2-Methylnaphthalene	2.90E-07	1.27E-06	9.10E-05	No
3-Methylchloranthrene	2.17E-08	9.51E-08	9.10E-05	No
7,12-Dimethylbenz(a)anthracene	1.93E-07	8.46E-07	9.10E-05	No
Acenaphthylene	2.17E-08	9.51E-08	9.10E-05	No
Benzo(a)pyrene	1.45E-08	6.34E-08	2.00E-06	No
Benzo(b)fluoranthene	2.17E-08	9.51E-08	2.00E-06	No
Benzo(k)fluoranthene	2.17E-08	9.51E-08	2.00E-06	No
Dibenzo(a,h)anthracene	1.45E-08	6.34E-08	2.00E-06	No
Dichlorobenzene	1.45E-05	6.34E-05	3.00E+01	No
Hexane	2.17E-02	9.51E-02	1.20E+01	No
Naphthalene	7.36E-06	3.22E-05	3.33E+00	No
Acenaphthene	2.17E-08	9.51E-08	9.10E-05	No
Anthracene	2.90E-08	1.27E-07	9.10E-05	No
Benzo(a)anthracene	2.17E-08	9.51E-08	2.00E-06	No
Benzo(g,h,i)perylene	1.45E-08	6.34E-08	9.10E-05	No
Chrysene	2.17E-08	9.51E-08	2.00E-06	No
Fluoranthene	3.62E-08	1.59E-07	9.10E-05	No
Fluorene	3.38E-08	1.48E-07	9.10E-05	No
Indeno(1,2,3-cd)pyrene	2.17E-08	9.51E-08	2.00E-06	No
Phenanthrene	2.05E-07	8.98E-07	9.10E-05	No
Pentane	3.14E-02	1.37E-01	1.18E+02	No
Pyrene	6.03E-08	2.64E-07	9.10E-05	No
Arsenic	2.41E-06	1.06E-05	1.50E-06	Yes
Barium	5.31E-05	2.33E-04	3.30E-02	No
Beryllium	1.45E-07	6.34E-07	2.80E-05	No
Cadmium	1.33E-05	5.81E-05	3.70E-06	Yes
Chromium	1.69E-05	7.40E-05	3.30E-02	No
Cobalt	1.01E-06	4.44E-06	3.30E-03	No
Copper	1.03E-05	4.49E-05	6.70E-02	No
Lead	N/A	N/A	N/A	N/A
Manganese	4.58E-06	2.01E-05	3.33E-01	No
Mercury	N/A	N/A	N/A	N/A
Molybdenum	1.33E-05	5.81E-05	3.33E-01	No
Nickel	2.53E-05	1.11E-04	2.70E-05	No
Selenium	2.90E-07	1.27E-06	1.30E-02	No
Vanadium	2.78E-05	1.22E-04	3.00E-03	No
Hydrogen Sulfide	2.94E-01	1.29E+00	9.33E-01	No
POM	1.38E-07	6.02E-07	2.00E-06	No

Uncontrolled Potential to Emit for Regulated Air Pollutants

Source	M10/PM2.	SO2	NOx	CO	VOC	CO2e
	T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
Point Sources						
Boiler - Burnham Dual-Fired	0.05	0.01	0.98	0.38	0.08	2229
Boiler - Dual-Fired	0.04	0.009	0.82	0.32	0.07	1011
Flare - Biogas Combustion	0.17	24.28	2.25	1.89	0.12	2716
Flare - NG Pilot	0.001	0.00012	0.02	0.02	0.00	24
Emergency Generators	0.13	0.018	15.39	1.81	0.42	70
Heaters	0.03	0.002	0.31	0.13	0.02	399
Total, Point Sources	**0.42**	**24.32**	**19.76**	**4.54**	**0.72**	**6450**

Post Project Potential to Emit for Regulated Air Pollutants

Source	PM10/PM2.5		SO2		NOx		CO		VOC		CO2e
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	T/yr
Boiler - Burnham Dual-Fired	0.01	0.05	0.00	0.01	0.22	0.98	0.09	0.38	0.02	0.08	2229
Boiler - Dual-Fired	0.01	0.04	0.002	0.01	0.19	0.82	0.07	0.32	0.02	0.07	1011
Flare - Biogas Combustion	0.04	0.17	5.54	24.28	0.51	2.25	0.43	1.89	0.03	0.12	2716
Flare - NG Pilot	0.0003	0.001	0.00003	0.0001	0.00	0.02	0.00	0.02	0.00	0.001	24
Emergency Generators	0.52	0.03	0.07	0.004	61.55	3.08	7.23	0.36	1.70	0.08	14
Heaters	0.01	0.03	0.0005	0.002	0.07	0.31	0.03	0.13	0.00	0.02	399
Post Project Totals	**0.58**	**0.31**	**5.62**	**24.30**	**62.55**	**7.45**	**7.85**	**3.09**	**1.76**	**0.38**	**6393**

Changes in Potential to Emit for Regulated Air Pollutants

Source	PM10/PM2.5		SO2		NOx		CO		VOC		CO2e
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	T/yr
Pre-Project Potential to Emit	0.65	0.56	0.08	0.06	63.26	10.56	8.48	5.85	1.8	0.54	9808
Post Project Potential to Emit	0.58	0.31	5.62	24.30	62.55	7.45	7.85	3.09	1.76	0.38	6393
Changes in Potential to Emit	**-0.07**	**-0.25**	**5.54**	**24.24**	**-0.71**	**-3.11**	**-0.63**	**-2.76**	**-0.04**	**-0.16**	**-3415**

Lead	(lb/hr)	-2.48E-05	
	(t/yr)	-1.81E-02	

Pre- and Post Project Potential to Emit for Non-Carcinogenic Toxic Air Pollutants

Non-Carcinogenic Toxic Air Pollutants	Pre-Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Post Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Change in 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Non-Carcinogenic Screening Emission Level (lb/hr)	Exceeds Screening Level? (Y/N)
Toluene	4.42E-03	4.40E-03	-2.04E-05	2.50E+01	No
Xylene	2.99E-03	2.99E-03	0.00E+00	2.90E+01	No
Dichlorobenzene	2.22E-05	1.45E-05	-7.72E-06	3.00E+01	No
Hexane	3.33E-02	2.17E-02	-1.16E-02	1.20E+01	No
Naphthalene	1.13E-05	7.36E-06	-3.94E-06	3.33E+00	No
Pentane	4.82E-02	3.14E-02	-1.68E-02	1.18E+02	No
Barium	8.15E-05	5.31E-05	-2.84E-05	3.30E-02	No
Chromium	2.59E-05	1.69E-05	-9.01E-06	3.30E-02	No
Cobalt	1.56E-06	1.01E-06	-5.47E-07	3.30E-03	No
Copper	1.57E-05	1.03E-05	-5.44E-06	6.70E-02	No
Manganese	7.04E-06	4.58E-06	-2.46E-06	3.33E-01	No
Molybdenum	2.04E-05	1.33E-05	-7.13E-06	3.33E-01	No
Selenium	4.45E-07	2.90E-07	-1.55E-07	1.30E-02	No
Vanadium	4.26E-05	2.78E-05	-1.48E-05	3.00E-03	No
Hydrogen Sulfide	0.00E+00	2.94E-01	2.94E-01	9.33E-01	No

Pre- and Post Project Potential to Emit for Carcinogenic Toxic Air Pollutants

Carcinogenic Toxic Air Pollutants	Pre-Project Annual Average Emissions Rates for Units at the Facility (lb/hr)	Post Project Annual Average Emissions Rates for Units at the Facility (lb/hr)	Change in Annual Average Emissions Rates for Units at the Facility (lb/hr)	Carcinogenic Screening Emission Level (lb/hr)	Exceeds Screening Level? (Y/N)
Benzene	3.89E-05	2.53E-05	-1.36E-05	8.00E-04	No
Formaldehyde	1.39E-03	9.05E-04	-4.85E-04	5.10E-04	No
2-Methylnaphthalene	4.45E-07	2.90E-07	-1.55E-07	9.10E-05	No
3-Methylchloranthrene	3.33E-08	2.17E-08	-1.16E-08	9.10E-05	No
7,12-Dimethylbenz(a)anthracene	2.96E-07	1.93E-07	-1.03E-07	9.10E-05	No
Acenaphthylene	3.33E-08	2.17E-08	-1.16E-08	9.10E-05	No
Benzo(a)pyrene	2.22E-08	1.45E-08	-7.72E-09	2.00E-06	No
Benzo(b)fluoranthene	3.33E-08	2.17E-08	-1.16E-08	2.00E-06	No
Benzo(k)fluoranthene	3.33E-08	2.17E-08	-1.16E-08	2.00E-06	No
Dibenzo(a,h)anthracene	2.22E-08	1.45E-08	-7.72E-09	2.00E-06	No
Acenaphthene	3.33E-08	2.17E-08	-1.16E-08	9.10E-05	No
Anthracene	4.45E-08	2.90E-08	-1.55E-08	9.10E-05	No
Benzo(a)anthracene	3.33E-08	2.17E-08	-1.16E-08	2.00E-06	No
Benzo(g,h,i)perylene	2.22E-08	1.45E-08	-7.72E-09	9.10E-05	No
Chrysene	3.33E-08	2.17E-08	-1.16E-08	2.00E-06	No
Fluoranthene	5.56E-08	3.62E-08	-1.94E-08	9.10E-05	No
Fluorene	5.19E-08	3.38E-08	-1.81E-08	9.10E-05	No
Indeno(1,2,3-cd)pyrene	3.33E-08	2.17E-08	-1.16E-08	2.00E-06	No
Phenanthrene	3.15E-07	2.05E-07	-1.10E-07	9.10E-05	No
Pyrene	9.26E-08	6.03E-08	-3.23E-08	9.10E-05	No
Arsenic	3.71E-06	2.41E-06	-1.30E-06	1.50E-06	No
Beryllium	2.22E-07	1.45E-07	-7.72E-08	2.80E-05	No
Cadmium	2.04E-05	1.33E-05	-7.13E-06	3.70E-06	No
Nickel	3.89E-05	2.53E-05	-1.36E-05	2.70E-05	No
POM	2.11E-07	1.38E-07	-7.35E-08	2.00E-06	No

Hazardous Air Pollutants Emission Potential to Emit Summary

Hazardous Air Pollutants	PTE (lb/hr	PTE (T/yr)
Benzene	2.53E-05	1.11E-04
Formaldehyde	9.05E-04	3.96E-03
Toluene	4.40E-03	3.98E-04
Xylenes	2.99E-03	1.50E-04
2-Methylnaphthalene	2.90E-07	1.27E-06
3-Methylchloranthrene	2.17E-08	9.51E-08
7,12-Dimethylbenz(a)anthracen	1.93E-07	8.46E-07
Acenaphthylene	2.17E-08	9.51E-08
Benzo(a)pyrene	1.45E-08	6.34E-08
Benzo(b)fluoranthene	2.17E-08	9.51E-08
Benzo(k)fluoranthene	2.17E-08	9.51E-08
Dibenzo(a,h)anthracene	1.45E-08	6.34E-08
Dichlorobenzene	1.45E-05	6.34E-05
Hexane	2.17E-02	9.51E-02
Naphthalene	7.36E-06	3.22E-05
Acenaphthene	2.17E-08	9.51E-08
Anthracene	2.90E-08	1.27E-07
Benzo(a)anthracene	2.17E-08	9.51E-08
Benzo(g,h,i)perylene	1.45E-08	6.34E-08
Chrysene	2.17E-08	9.51E-08
Fluoranthene	3.62E-08	1.59E-07
Fluorene	3.38E-08	1.48E-07
Indeno(1,2,3-cd)pyrene	2.17E-08	9.51E-08
Phenanthrene	2.05E-07	8.98E-07
Pyrene	6.03E-08	2.64E-07
Arsenic	2.41E-06	1.06E-05
Beryllium	1.45E-07	6.34E-07
Cadmium	1.33E-05	5.81E-05
Chromium	1.69E-05	7.40E-05
Cobalt	1.01E-06	4.44E-06
Manganese	4.58E-06	2.01E-05
Nickel	2.53E-05	1.11E-04
Selenium	2.90E-07	1.27E-06
POM	1.38E-07	6.02E-07
Totals	**0.03**	**0.10**

APPENDIX B – AMBIENT AIR QUALITY IMPACT ANALYSES

MEMORANDUM /DRAFT

DATE: **January 30**, 2018

TO: **Rakael Pope**, Permit Writer, Air Program

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

PROJECT: City of Jerome Waste Water Treatment Plant, in Jerome, Idaho, a Permit to Construct (PTC) P-2016.0051, Project 61968, Facility ID No. 053-00038

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

City of Jerome Waste Water Treatment Plant (JWWT), submitted an application for a Permit to Construct (PTC) on December 12, 2017, for a modification to an existing facility located in Jerome, Idaho, denoted as PTC P-2016.0051.

JWWTP provides wastewater treatment for the City of Jerome, including residential, commercial, and industrial customers. The existing facility consists of headworks, trickling filters, membrane bioreactor treatment (MBR), chemical treatments, ultraviolet disinfection, solids handling facilities, a lab, a control building, two anaerobic digesters, a natural gas/biogas fired boiler, a biogas fired boiler, a biogas flare, eight emergency generators, and some small heaters. The treated wastewater is discharged into the J9 Canal under a discharge permit issued by the EPA. JWWTP is requesting an increase in allowable hydrogen sulfide (H_2S) emissions from each digester. The existing permitted flare will also be replaced with a smaller unit. Additionally, revised stack information is provided for the biogas boiler. Because of these changes, there will be an increase in emissions for SO_2 and H_2S. If the H_2S of the biogas exceeds 100 ppmv, the boilers are unable to combust the gas and the biogas boiler will then operate on natural gas. All biogas at that time will be sent to the flare. There will be no positive change to emission levels for any of the other criteria pollutants.

Details of the entire process are discussed 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).

Trinity Consultants (TRINITY), performed the ambient air impact analyses for this project on behalf of JWWTP. The analyses were performed to demonstrate compliance with applicable 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 is the responsibility of the permit writer and is addressed in the main body of the Statement of Basis. The accuracy of emissions estimates was not evaluated as part of DEQ's review of the air impact analyses submitted and described in this modeling review memorandum.

A modeling protocol was not submitted for this project. TRINITY submitted an application on December 4, 2017 (which was initiated on December 12, 2017). It was deemed incomplete on January 10, 2018, and again on January 18, 2018, due to missing information. This application was deemed complete on January 23, 2018.

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 estimated potential/allowable emissions are at a level defined as below regulatory concern (BRC) and do not require a National Ambient Air Quality

Standards (NAAQS) compliance demonstration; b) that predicted pollutant concentrations from emissions associated with the project as modeled were below Significant Impact Levels (SILs) or other applicable regulatory thresholds; or c) 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 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 daily 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. All emission rates were modeled at 8,760 hours a year to determine annual modeled impacts, except for the emergency generators, which are limited to 100 hours/year.
Modeling Thresholds for Criteria Pollutant Emissions. Maximum short-term and long-term emissions of the criteria pollutants SO_2 associated with the proposed project are above the Level 1 threshold for each pollutant. Therefore, a demonstration of compliance with NAAQS was done for this criteria pollutant and applicable averaging times.	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 Modeling Applicability Thresholds, or for pollutant increases above BRC thresholds (where the pollutant-specific BRC modeling exemption can be used). Compliance with NAAQS has not been demonstrated for emissions that exceed the emission estimates presented in the application.
TAPS Modeling. There were no emission rates of any TAPs that exceeded Emissions Screening Level (EL) rates of Idaho Air Rules Section 585 and 586.	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. Because no TAPs emissions exceeded the ELs, a demonstration of compliance with TAPs increments was not 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

JWWTP provides wastewater treatment for the City of Jerome, including residential, commercial, and industrial customers. JWWTP is requesting an increase in allowable hydrogen sulfide (H_2S) emissions from each digester. The existing permitted flare is being replaced with a smaller unit, and revised emissions stack information is also provided for the biogas boiler. Because of these changes, there will be an increase in emissions of SO_2 and H_2S. If the H_2S concentration in the biogas exceeds 100 ppmv, the boilers are unable to combust the gas and the biogas boiler will then operate on natural gas. All biogas at that time will be sent to the flare. There will be no positive change to emission levels for any of the other criteria pollutants. More detailed information can be found in Section 1 of this document, as well as the Statement of Basis for this project.

The air impact analyses performed by TRINITY, as part of the permit application, were submitted to show that facility-wide emissions do not cause or contribute to an exceedance of any NAAQS or TAP Acceptable Ambient Concentrations(AAC) or Acceptable Ambient Concentration of Carcinogen(AACC).

2.2 Proposed Location and Area Classification

JWWTP is located in Jerome County, Idaho, section 500 N 100 W. 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 using methods and data as outlined in Appendix W. Appendix W requires that facilities be modeled using emissions and operations representative of design capacity or as limited by a federally enforceable permit condition.

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

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.

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.

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, then the facility might not have a significant contribution to a violation if impacts are below the SIL at the specific receptors showing the violations during the specific 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]	70 ppb[w]	Not typically modeled

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

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 Emissions Source Data

Emissions rates of TAPS and criteria pollutants for the project 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 TRINITY, as listed in this memorandum, should be reviewed by the DEQ permit writer against those in the emissions inventory of the permit application. All modeled criteria air pollutant 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 the modification-related or facility-wide potential to emit (PTE) values for a specific criteria pollutant 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 analysis 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.

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 the established SIL for that specific pollutant and averaging period.

If project-specific total emissions rates are below Level I Modeling Applicability Thresholds, project-specific air impact analyses are not necessary for permitting. Uses of Level II Modeling Applicability Thresholds are conditional, requiring DEQ approval. Table 3 provides the emissions-based modeling applicability summary. The submitted application did not evaluate estimated emissions increases against BRC thresholds. The submitted modeling report evaluated modeling applicability based on comparison of emissions to Level I Modeling Applicability Thresholds. Emissions of the criteria pollutant SO_2 resulting from the proposed project are greater than the Level 1 Modeling Applicability Thresholds, and therefore air impact analyses are required for these criteria pollutants. Modeled SO_2 emission rates for all sources are listed in Table 4.

Table 3. MODELING APPLICABILITY ANALYSIS RESULTS						
Pollutant	**Averaging Period**	**Emissions**	**BRC Threshold[a] (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	-0.56 ton/yr[b]	1.0	0.350	4.1	No
	24-hour	-0.1 lb/hr[c]		0.054	0.63	No
PM_{10}	24-hour	-0.1 lb/hr[c]	1.5	0.22	2.6	No
NOx	Annual	-3.1 ton/yr[b]	4.0	1.2	14	No
	1-hour	-0.7 lb/hr[c]		0.2	2.4	No
SO_2	Annual	24.24 ton/yr[b]	4.0	1.2	14	Yes
	1-hour	5.54 lb/hr[c]		0.21	2.5	Yes
CO	1,8 hour	-0.6 lb/hr[c]	10.0	15	175	No
Lead	Annual	-0.02 lb/mo[d]	0.06	14 pounds/month		No

a. No criteria pollutant emissions increases could qualify for a BRC exemption.
b. Tons/year.
c. Pounds/hour.
d. Pounds/month

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.

Table 4. MODELED CRITERIA POLLUTANTS			
Source ID	**Description**	**SO_2 (lb/hr)[a]**	**SO_2 Annual TPY[b]**
GENA	Emergency Gen A	0.009	0.0005
GENB	Emergency Gen B	0.009	0.0005
GENC	Emergency Gen C	0.009	0.0005
NGBOIL	Boiler - NG	0.002	0.01
BIOBOIL	Boiler _ NG/Biogas	0.002	0.01
FLARE	Flare	5.54	24.28
GEN1	Emergency Gen 1	0.009	0.0005
GEN2	Emergency Gen 2	0.009	0.0005
GEN3	Emergency Gen 3	0.009	0.0005
GEN4	Emergency Gen 4	0.009	0.0005
GEN5	Emergency Gen 5	0.009	0.0005
1GUH1	#1 Heater - (0.06 MMBtu/hr)	3.60E-05	1.58E-04
2GUH1	#2 Heater - (0.06 MMBtu/hr)	3.60E-05	1.58E-04
3GUH1	#3 Heater - (0.06 MMBtu/hr)	3.60E-05	1.58E-04
4GUH1	#4 Heater - (0.06 MMBtu/hr)	3.60E-05	1.58E-04
5GUH1	#5 Heater - (0.06 MMBtu/hr)	3.60E-05	1.58E-04
6GUH1	#6 Heater - (0.06 MMBtu/hr)	3.60E-05	1.58E-04
1GUH2	#1 Heater - (0.12 MMBtu/hr)	7.50E-05	3.29E-04
2GUH2	#2 Heater - (0.12 MMBtu/hr)	7.50E-05	3.29E-04
GUH3	#3 Heater - (0.045 MMBtu/hr)	2.70E-05	1.18E-04
GUH4	#4 Heater - (0.105 MMBtu/hr)	6.00E-05	2.63E-04

a. Pounds/hour short term emissions rate.
b. Tons per year annual rate; all sources except emergency generators are modeled at 8760 hours/year. The emergency generators are limited to 100 hours a year.

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 based on 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. The submitted emissions inventory in the application identified no TAPs having potential emission increases that could exceed screening emissions levels (ELs) of Idaho Air Rules Section 585 or 586. Therefore, no modeling assessment of TAPS impacts was required.

3.1.3 Emission Release Parameters

Table 5 provides emissions release parameters, including stack height, stack diameter, exhaust temperature, and exhaust velocity for facility sources as used in the final modeling assessment.

Stack parameters used in the modeling analyses were documented/justified adequately in this application, although some data were discussed in more detail in the previous application, P-2016.0051 Project 61772. Stack parameters for the emergency generators and the heaters are not critical to the analyses because SO_2 emissions from these sources are very small and resulting impacts from these sources will also be very small. The stack parameters used for the flare modeling were taken from SCREEN3 procedures for temperature and exit velocity. The applicant conservatively chose not to model with "derived" parameters of stack diameter and stack height, (calculated with the SCREEN3 algorithms), which can be used to more accurately portray the buoyancy of an open flare source. The modeled concentrations as listed by TRINITY are therefore likely greater in magnitude than the results from modeling with those derived stack parameters, and the submitted analyses are conservative in nature.

Table 5. Modeling Parameters

Source ID	Description	Easting (X)[a] (m)	Northing (Y)[b] (m)	Stack Height (ft)[c]	Temp. (°F)[d]	Exit Velocity (fps)[e]	Stack Diameter (ft)[c]
GENA	Emergency Gen A	701862	4733840	8.67	800.0	146.33	0.42
GENB	Emergency Gen B	701865	4733840	8.67	800.0	146.33	0.42
GENC	Emergency Gen C	701868	4733840	8.67	800.0	146.33	0.42
NGBOIL	Boiler - NG	701721	4733790	16.50	450.0	26.83	0.83
BIOBOIL	Boiler _ NG/Biogas	701731	4733790	20.00	450.0	40.25	1.00
FLARE	Flare	701749	4733803	16.50	1831.7	65.62	1.83
GEN1	Emergency Gen 1	701746	4733729	6.83	800.0	146.33	0.67
GEN2	Emergency Gen 2	701750	4733729	6.83	800.0	146.33	0.67
GEN3	Emergency Gen 3	701914	4733833	6.83	800.0	146.33	0.67
GEN4	Emergency Gen 4	701915	4733827	6.83	800.0	146.33	0.67
GEN5	Emergency Gen 5	701916	4733822	6.83	800.0	146.33	0.67
1GUH1	#1 Heater - (0.06 MMBtu/hr)	701704	4733731	11.00	45.0	0.0033	0.33
2GUH1	#2 Heater - (0.06 MMBtu/hr)	701718	4733733	11.00	45.0	0.0033	0.33
3GUH1	#3 Heater - (0.06 MMBtu/hr)	701732	4733730	11.00	45.0	0.0033	0.33
4GUH1	#4 Heater - (0.06 MMBtu/hr)	701704	4733722	11.00	45.0	0.0033	0.33
5GUH1	#5 Heater - (0.06 MMBtu/hr)	701718	4733719	11.00	45.0	0.0033	0.33
6GUH1	#6 Heater - (0.06 MMBtu/hr)	701732	4733722	11.00	45.0	0.0033	0.33
1GUH2	#1 Heater - (0.12 MMBtu/hr)	701707	4733720	11.00	45.0	0.0033	0.33
2GUH2	#2 Heater - (0.12 MMBtu/hr)	701730	4733720	11.00	45.0	0.0033	0.33
GUH3	#3 Heater - (0.045 MMBtu/hr)	701739	4733759	22.25	55.0	0.0033	0.33
GUH4	#4 Heater - (0.105 MMBtu/hr)	701735	4733801	13.33	60.0	0.0033	0.33

a. Universal Transverse Mercator coordinates in meters in the east/west direction.
b. Universal Transverse Mercator coordinates in meters in the north/south direction.
c. Feet.
d. Temperature in degrees Fahrenheit.
e. Feet/second.

3.2 Background Concentrations

Background concentrations were obtained from NW-AIRQUEST[2], based on the coordinates of the center of the facility. Because the facility emissions exceeded the Level I Modeling Applicability Thresholds for SO_2, compliance demonstration modeling utilizing these background data were required.

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

TRINITY performed project-specific air impact analyses that were determined by DEQ to be reasonably representative of the proposed facility as described in the application. DEQ did independent assessment modeling analyses to determine that compliance with NAAQS was achieved.

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

Table 6. MODELING PARAMETERS

Parameter	Description/Values	Documentation/Addition Description
General Facility Location	Jerome, Idaho	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, version 16216r
Meteorological Data	2008-2012 surface data from Jerome County Airport and upper air data from Boise, ID	See Section 3.3.4 for a detailed discussion on the meteorological data.
Terrain	Considered	See Section 5.3 below.
Building Downwash	Considered	Because buildings are present at the JWWTP facility, BPIP-PRIME was used to evaluate building dimensions for consideration of downwash effects in AERMOD.
Receptor Grid	Grid 1 Grid 2 Grid 3 Grid 4	25-meter spacing out to distances of 400 meters with respect to the facility 50-meter spacing out to approximately 800 meters 150- meter spacing out to 2300 meters 500–meter spacing out to 5000 meters

3.3.2 Modeling Protocol and Methodology

A modeling protocol was not submitted for this project. TRINITY submitted an application on December 4, 2017 (which was initiated on December 12, 2017). It was deemed incomplete on January 10, and again on January 18, 2018, due to missing information. This application was deemed complete on January 23, 2018.

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 it includes more advanced algorithms to assess turbulent mixing processes in the planetary boundary layer for both convective and stable stratified layers.

AERMOD version 16216r was used by the applicant for the air impact 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

TRINITY used meteorological data collected at the Jerome County Airport for the period 2008-2012. Upper air data were taken from the Boise, Idaho, airport. DEQ supplied these data and determined the meteorological data used in the submitted analyses were representative for modeling for this permit in the locale of JWWTP.

3.3.5 Effects of Terrain on Modeled Impacts

Terrain data were extracted from United States Geological Survey (USGS) 7.5 minute data in National Elevation Dataset (NED) format in 30-meter spacing. DEQ confirmed accuracy of the data by recalculating receptor elevations from the current data sets downloaded in NED format. The data as modeled are 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 National Agriculture Imagery Program (NAIP) database. 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 compared the facility layout used in the model to that indicated in aerial photographs on Google Earth. The modeled layout was consistent 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 needed as input to the Building Profile Input Program for the Plume Rise Model Enhancements (BPIP-PRIME) downwash algorithm because there are existing structures affecting the emissions plumes at the facility.

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." Public access to the JWWTP facility is limited by existing fence-lines and signage. In addition, facility personnel patrol the property. This approach is adequate to preclude public access to areas excluded from the air impact assessment.

3.3.9 Receptor Network

Table 6 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 that 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.

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.

Buildings exist in the vicinity of all point sources modeled. Therefore, consideration of downwash caused by nearby buildings was required.

4.0 Impact Modeling Results

4.1 Results for NAAQS Impact Level Analyses

Because estimated emissions for the project were above Level I Modeling Applicability Thresholds, air quality dispersion modeling was necessary for the criteria pollutant SO_2. The ambient air impact analyses submitted with the PTC application demonstrated to DEQ's satisfaction that SO_2 emissions from the JWWT will not cause or significantly contribute to a NAAQS violation. TRINITY omitted analyses showing compliance for the SO_2 3-hour NAAQS, so DEQ performed additional modeling to quantify this analysis. These results are listed in Table 7.

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 exceeds the ELs, modeling analyses were not needed to demonstrate compliance with those AACs and AAACs.

Table 7. RESULTS FOR NAAQS IMPACT ANALYSES

Pollutant	Averaging Period	Design Modeled Concentration ($\mu g/m^3$)[a]	Ambient Background ($\mu g/m^3$)[a]	Total Impact ($\mu g/m^3$)[a]	NAAQS ($\mu g/m^3$)[a]
SO_2	1-hour	185.2[b]	3.67	188.9	196
	3-hour	178.8	4.70	183.5	1300
	Annual	12.8	1.05	13.9	80

a. Micrograms per cubic meter.
b. 5-year mean of the 4th highest daily 1-hour maximum modeled concentrations for each year of meteorological data modeled.
c. High 2nd high modeled concentration.

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 JWWTP 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.

APPENDIX C – FACILITY DRAFT COMMENTS

The following comments were received from the facility on March 20, 2018:

No comments were received.

APPENDIX D – PROCESSING FEE

PTC Processing Fee Calculation Worksheet

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

Company: City of Jerome Waste Water
Address: 50 North 100 West
City: Jerome
State: ID
Zip Code: 83338
Facility Contact: Gilbert Sanchez
Title: Public Works Director
AIRS No.: 053-00038

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

Emissions Inventory			
Pollutant	Annual Emissions Increase (T/yr)	Annual Emissions Reduction (T/yr)	Annual Emissions Change (T/yr)
NO_X	0.0	3.1	-3.1
SO_2	24.2	0	24.2
CO	0.0	2.75	-2.8
PM10	0.0	0.24	-0.2
VOC	0.0	0.17	-0.2
TAPS/HAPS	0.0	0.05	-0.1
Total:	24.24	6.31	**17.9**
Fee Due	**$ 5,000.00**		

Comments: P-2016.0051 Modification, Project 61968