Statement of Basis

Permit to Construct No. P-2021.0003
Project ID 62572

City of Twin Falls WWTP
Twin Falls, Idaho

Facility ID 083-00164

Final

July 8, 2021
Christina Boulay
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.

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ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE

AAC	acceptable ambient concentrations
AACC	acceptable ambient concentrations for carcinogens
acfm	actual cubic feet per minute
ASTM	American Society for Testing and Materials
BACT	Best Available Control Technology
BMP	best management practices
Btu	British thermal units
CAA	Clean Air Act
CAM	Compliance Assurance Monitoring
CAS No.	Chemical Abstracts Service registry number
CBP	concrete batch plant
CEMS	continuous emission monitoring systems
cfm	cubic feet per minute
CFR	Code of Federal Regulations
CI	compression ignition
CMS	continuous monitoring systems
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	CO_2 equivalent emissions
COMS	continuous opacity monitoring systems
DEQ	Department of Environmental Quality
dscf	dry standard cubic feet
EL	screening emission levels
EPA	U.S. Environmental Protection Agency
FEC	Facility Emissions Cap
GACT	Generally Available Control Technology
gph	gallons per hour
gpm	gallons per minute
gr	grains (1 lb = 7,000 grains)
HAP	hazardous air pollutants
HHV	higher heating value
HMA	hot mix asphalt
hp	horsepower
hr/yr	hours per consecutive 12 calendar month period
ICE	internal combustion engines
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
iwg	inches of water gauge
km	kilometers
lb/hr	pounds per hour
lb/qtr	pound per quarter
m	meters
MACT	Maximum Achievable Control Technology
mg/dscm	milligrams per dry standard cubic meter
MMBtu	million British thermal units
MMscf	million standard cubic feet
NAAQS	National Ambient Air Quality Standard
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
NSPS	New Source Performance Standards

O&M	operation and maintenance
O_2	oxygen
PAH	polyaromatic hydrocarbons
PC	permit condition
PCB	polychlorinated biphenyl
PERF	Portable Equipment Relocation Form
PM	particulate matter
$PM_{2.5}$	particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
POM	polycyclic organic matter
ppm	parts per million
ppmw	parts per million by weight
PSD	Prevention of Significant Deterioration
psig	pounds per square inch gauge
PTC	permit to construct
PTC/T2	permit to construct and Tier II operating permit
PTE	potential to emit
PW	process weight rate
RAP	recycled asphalt pavement
RFO	reprocessed fuel oil
RICE	reciprocating internal combustion engines
Rules	*Rules for the Control of Air Pollution in Idaho*
scf	standard cubic feet
SCL	significant contribution limits
SIP	State Implementation Plan
SM	synthetic minor
SM80	synthetic minor facility with emissions greater than or equal to 80% of a major source threshold
SO_2	sulfur dioxide
SO_x	sulfur oxides
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
TEQ	toxicity equivalent
T-RACT	Toxic Air Pollutant Reasonably Available Control Technology
ULSD	ultra-low sulfur diesel
U.S.C.	United States Code
VOC	volatile organic compounds
yd^3	cubic yards
$\mu g/m^3$	micrograms per cubic meter

FACILITY INFORMATION

Description

The City of Twin Falls operates an existing wastewater treatment plant located at 350 Canyon Springs Road West, Twin Falls Idaho 83301. At this facility there are two process boilers 1 and 2 (process boiler 1 is the primary boiler with process boiler 2 being the redundancy process boiler), one flare, one caterpillar diesel fueled emergency generator, one MTU diesel fueled emergency generator, and 14 gas heating units. Digester gas (biogas) is produced from the anaerobic digesters. The digester gas is the primary gas used to fuel the process boilers with natural gas being the secondary fuel for the process boilers. Any excess gas that is produced but not used by the process boilers is routed to an open flare to burn off.

Permitting History

This is the initial PTC for an existing facility thus there is no permitting history.

Application Scope

This permit is the initial PTC for this facility.

The applicant has proposed to:

- Install and operate two new gas fired process boilers1 and 2;
- Operate two anaerobic digester;
- Operate a flare;
- Operate two diesel emergency generators, one caterpillar and one MTU;
- Operate 14 gas heaters.

Application Chronology

January 25, 2021	DEQ received an application.
February 1, 2021	DEQ received an application fee.
February 5 – February 22, 2021	DEQ provided an opportunity to request a public comment period on the application and proposed permitting action.
March 4, 2021	DEQ determined that the application was complete.
May 21, 2021	DEQ made available the draft permit and statement of basis for peer and regional office review.
May 28, 2021	DEQ made available the draft permit and statement of basis for applicant review.
July 8, 2021	DEQ received the permit processing fee.
July 8, 2021	DEQ issued the final permit and statement of basis.

TECHNICAL ANALYSIS

Emissions Units and Control Equipment

Table 1 EMISSIONS UNIT AND CONTROL EQUIPMENT INFORMATION

Sources	Control Equipment	Emission Point ID No.
Two Anaerobic Digesters:	Candlestick Flare 1: Manufacture Date: 1980 Heat input rating: 9.75 MMBtu/hr Fuel: Digester Gas (Biogas)	N/A
Process Boiler 1: Manufacturer: Bryan Model: RV450 Burner Model: Power Flame Manufacture Date: 2020 Heat input rating: 4.5 MMBtu/hr Fuel: Digester Gas (Biogas), and Natural Gas	None	Exit height: 23.5 ft (7.16 m) Exit diameter: 1.33 ft (0.41 m) Exit temperature: 450 °F (232.22 ºC)
Process Boiler 2: Manufacturer: Bryan Model: RV450 Burner Model: Power Flame Manufacture Date: 2020 Heat input rating: 4.5 MMBtu/hr Fuel: Digester Gas (Biogas), and Natural Gas		Exit height: 23.5 ft (7.16 m) Exit diameter: 1.33 ft (0.41 m) Exit temperature: 450 °F (232.22 ºC)
Caterpillar Emergency Generator: Manufacturer: Caterpillar Model: 3412C Manufacture Date: 2000 Maximum Rated hp: 1,073 Fuel: Diesel		N/A
MTU Emergency Generator: Manufacturer: MTU Model: 16v2000G85 Manufacture Date: 2016 Maximum Rated hp: 1,495 Fuel: Diesel		
14 Heating Units: Unit IDs: R1-R5 (5 units) Heat input rating: 0.075 MMBtu/hr Fuel: Natural Gas Unit IDs: T1 (1 unit) Heat input rating: 0.23 MMBtu/hr Fuel: Natural Gas Unit IDs: C1-C2 (2 units) Heat input rating: 0.06 MMBtu/hr Fuel: Natural Gas Unit IDs: C3 (1 unit) Heat input rating: 0.1 MMBtu/hr Fuel: Natural Gas Unit IDs: R6-R7 (2 units) Heat input rating: 0.045 MMBtu/hr Fuel: Natural Gas Unit IDs: A1 (1 unit) Heat input rating: 0.125 MMBtu/hr Fuel: Natural Gas		

Unit IDs: I1 (1 unit) Heat input rating: 1.44 MMBtu/hr Fuel: Natural Gas Unit IDs: H1 (1 unit) Heat input rating: 0.39 MMBtu/hr Fuel: Natural Gas		

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 flare, two process boilers, 14 heaters, and two emergency generator operations at the facility (see Appendix A) associated with this proposed project. Emissions estimates of criteria pollutant, HAP PTE were based on available manufacturer emissions data. Where manufacturer emissions data was not available emission factors from AP-42 Volume 1 was used, operation of 8,760 hours per year, with the exception that the two emergency generators were limited to 100 hours per year for maintenance and testing, and process information specific to the facility for this proposed project.

Uncontrolled Potential to Emit

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

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

The following table presents the uncontrolled Potential to Emit for regulated air pollutants as submitted by the Applicant and verified by DEQ staff. See Appendix A for a detailed presentation of the calculations and the assumptions used to determine emissions for each emissions unit. For this wastewater treatment plant operation uncontrolled Potential to Emit is based upon a worst-case for operation of the facility of 8,760 hr/yr (24 hr/day x 365 day/yr), with the exception that the two emergency generators are limited to 100 hours per year eachand not to exceed 1 hour per day each.

Table 2 UNCONTROLLED POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Source	$PM_{10}/PM_{2.5}$	SO_2	NO_X	CO	VOC
	T/yr	T/yr	T/yr	T/yr	T/yr
Point Sources					
Caterpillar Emergency Generator	0.024	0.001	1.31	0.35	0.037
MTU Emergency Generator	0.028	0.001	1.59	0.42	0.045
Process Boiler 1	0.10	6.96	1.79	0.73	0.49
Process Boiler 2	0.10	6.96	1.79	0.73	0.49
Flare 1	0.50	11.60	2.90	13.24	2.69
14 Unit Heaters	0.09	0.01	1.23	1.04	0.07
Total, Point Sources	**0.84**	**25.53**	**10.61**	**16.51**	**3.82**

The following table presents the uncontrolled Potential to Emit for HAP pollutants as submitted by the Applicant and verified by DEQ staff. See Appendix A for a detailed presentation of the calculations and the assumptions used to determine emissions for each emissions unit. For this wastewater treatment plant operation uncontrolled Potential to Emit is based upon a worst-case for operation of the facility of 8,760 hr/yr (24 hr/day x 365 day/yr), with the exception that the two emergency generators are limited to 100 hours per year each and not to exceed 1 hour per day each. Then, the worst-case maximum HAP Potential to Emit was determined for this wastewater treatment plant operation.

Table 3 UNCONTROLLED POTENTIAL TO EMIT FOR HAZARDOUS AIR POLLUTANTS

Hazardous Air Pollutants	PTE (T/yr)
Acetaldhyde	2.83E-03
Acrolein	6.57E-04
Benzene	1.07E-02
Ethylbenzene	9.49E-02
Formaldehyde	7.95E-02
Hexane	6.62E-02
Hydrogen Sulfide	4.08E+00
Naphthalene	7.52E-04
Toulene	3.97E-03
Xylene	1.91E-03
Total PAHs	2.01E-04
POM	4.16E-07
Arsenic	9.51E-06
Beryllium	5.70E-07
Cadmium	5.23E-05
Chromium	6.66E-05
Cobalt	3.99E-06
Manganese	1.81E-05
Mercury	1.24E-05
Nickel	9.98E-05
Selenium	1.14E-06
Total	**4.34**

Pre-Project Potential to Emit

Pre-project Potential to Emit is used to establish the change in emissions at a facility as a result of this project.

This is an existing facility. However, since this is the first time the facility is receiving a permit, pre-project emissions are set to zero for all criteria pollutants.

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 4 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)]
Caterpillar Emergency Generator	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MTU Emergency Generator	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Process Boiler 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Process Boiler 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Flare 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14 Unit Heaters	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pre-Project Totals	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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 Potential to Emit 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 5 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)]
Caterpillar Emergency Generator	0.47	0.024	0.012	0.001	26.25	1.31	6.97	0.35	0.74	0.037
MTU Emergency Generator	0.57	0.028	0.015	0.001	31.81	1.59	8.45	0.42	0.90	0.045
Process Boiler 1	0.022	0.10	1.59	6.96	0.41	1.79	0.17	0.73	0.113	0.49
Process Boiler 2	0.022	0.10	1.59	6.96	0.41	1.79	0.17	0.73	0.113	0.49
Flare 1	0.11	0.50	2.65	11.60	0.66	2.90	3.02	13.24	0.61	2.69
14 Unit Heaters	0.02	0.09	0.002	0.01	0.28	1.23	0.24	1.04	0.02	0.07
Post Project Totals	**1.21**	**0.84**	**5.86**	**25.53**	**59.82**	**10.61**	**19.02**	**16.51**	**2.50**	**3.82**

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 6 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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Post Project Potential to Emit	1.21	0.81	5.86	25.53	59.82	10.61	19.02	16.51	2.50	3.82
Changes in Potential to Emit	**1.21**	**0.81**	**5.86**	**25.53**	**59.82**	**10.61**	**19.02**	**16.51**	**2.50**	**3.82**

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

Non-Carcinogenic Toxic Air Pollutants	Pre-Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Post Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Change in 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Non-Carcinogenic Screening Emission Level (lb/hr)	Exceeds Screening Level? (Y/N)
Acrolein	0.00E-03	6.57E-04	0.0007	1.70E-02	No
Ammonia	0.00E-03	2.57E-02	0.0257	1.2	No
Ethylbenzene	0.00E-03	2.17E-02	0.0217	29	No
Hexane	0.00E-03	1.51E-02	0.0151	12	No
Hydrogen Sulfide	0.00E-03	1.88E-01	0.1880	9.33E-01	No
Naphthalene	0.00E-03	1.72E-04	0.0002	9.10E-05	Yes
Pentane	0.00E-03	2.82E-02	0.0282	118	No
Toluene	0.00E-03	9.07E-04	0.0009	25	No
Xylene	0.00E-03	4.35E-04	0.0004	29	No
Barium	0.00E-03	4.78E-05	0.00005	0.033	No
Cobalt	0.00E-03	9.12E-07	0.00000091	0.0033	No
Copper	0.00E-03	9.23E-06	0.0000092	0.013	No
Manganese	0.00E-03	4.12E-06	0.0000041	0.333	No
Molybdenum	0.00E-03	1.19E-05	0.000012	0.333	No
Selenium	0.00E-03	2.60E-07	0.0000003	0.013	No
Vanadium	0.00E-03	2.50E-05	0.00003	0.003	No
Zinc	0.00E-03	3.15E-04	0.0003	0.667	No

Some of the changes in emissions rates for non-carcinogenic TAP were exceeded as a result of this project. Therefore, modeling is required for Naphthalene because the 24-hour average non-carcinogenic screening ELs identified in IDAPA 58.01.01.585 were exceeded.

Carcinogenic TAP Emissions

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

Table 8 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)
3-Methylchloranthrene	0.00E-03	1.95E-08	0.00000002	2.50E-06	No
Acetaldehyde	0.00E-03	6.45E-04	0.0006	3.03E-03	No
Benzene	0.00E-03	2.42E-03	0.0024	8.00E-04	Yes
Benzo(a)pyrene	0.00E-03	6.63E-08	0.00000007	2.00E-06	No
Formaldehyde	0.00E-03	2.81E-02	0.0281	5.10E-04	Yes
PAH	0.00E-03	4.58E-05	0.00005	9.10E-05	No
POM	0.00E-03	9.50E-08	0.00000010	2.00E-06	No
Arsenic	0.00E-03	2.17E-06	0.000002	1.50E-06	Yes
Beryllium	0.00E-03	1.30E-07	0.0000001	2.80E-05	No
Cadmium	0.00E-03	1.19E-05	0.00001	3.70E-06	Yes
Chromium	0.00E-03	1.52E-05	0.00002	3.30E-02	No
Nickel	0.00E-03	2.28E-05	0.00002	2.70E-05	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 Benzene, 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 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 9 HAZARDOUS AIR POLLUTANTS EMISSIONS POTENTIAL TO EMIT SUMMARY

Hazardous Air Pollutants	PTE (lb/hr)	PTE (T/yr)
Acetaldhyde	6.45E-04	2.83E-03
Acrolein	1.50E-04	6.57E-04
Benzene	2.42E-03	1.07E-02
Ethylbenzene	2.17E-02	9.49E-02
Formaldehyde	2.81E-02	7.95E-02
Hexane	1.51E-02	6.62E-02
Hydrogen Sulfide	1.88E-01	4.08E+00
Naphthalene	1.72E-04	7.52E-04
Toulene	9.07E-04	3.97E-03
Xylene	4.35E-04	1.91E-03
Total PAHs	4.58E-05	2.01E-04
POM	9.50E-08	4.16E-07
Arsenic	2.17E-06	9.51E-06
Beryllium	1.30E-07	5.70E-07
Cadmium	1.19E-05	5.23E-05
Chromium	1.52E-05	6.66E-05
Cobalt	9.12E-07	3.99E-06
Manganese	4.12E-06	1.81E-05
Mercury	2.82E-06	1.24E-05
Nickel	2.28E-05	9.98E-05
Selenium	2.60E-07	1.14E-06
Totals	**0.26**	**4.34**

Ambient Air Quality Impact Analyses

As presented in the Modeling Memo in Appendix B, the estimated emission rates of SO_2, NO_X, CO, HAP, and TAP from this project exceeded applicable screening emission levels (EL) and published DEQ modeling thresholds established in IDAPA 58.01.01.585-586 and in the State of Idaho Air Quality Modeling Guideline[1]. Refer to the Emissions Inventories section for additional information concerning the emission inventories. However the applicant elected to also model PM_{10}, $PM_{2.5}$, and VOC demonstrated was not required.

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

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 Twin Falls 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.

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

Facility Classification

The AIRS/AFS facility classification codes are as follows:

For HAPs (Hazardous Air Pollutants) Only:

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

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

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

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

UNK = Class is unknown.

For All Other Pollutants:

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

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

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

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

UNK = Class is unknown.

Table 2 REGULATED AIR POLLUTANT FACILITY CLASSIFICATION

Pollutant	Uncontrolled PTE (T/yr)	Permitted PTE (T/yr)	Major Source Thresholds (T/yr)	AIRS/AFS Classification
PM	0.024	0.024	**100**	B
PM_{10}	0.024	0.024	**100**	B
$PM_{2.5}$	0.024	0.024	**100**	B
SO_2	25.53	25.53	**100**	B
NO_X	10.61	10.61	**100**	B
CO	16.51	16.51	**100**	B
VOC	3.82	3.82	**100**	B
HAP (single)	4.08E+00	4.08E+00	**10**	B
Total HAPs	4.34	4.34	**25**	B

Permit to Construct (IDAPA 58.01.01.201)

IDAPA 58.01.01.201..... Permit to Construct Required

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

Tier II Operating Permit (IDAPA 58.01.01.401)

IDAPA 58.01.01.401..... Tier II Operating Permit

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

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 2.4, 3.4, and 4.4.

Standards for New Sources (IDAPA 58.01.01.676)

IDAPA 58.01.01.676..... Standards for New Sources

The fuel burning equipment located at this facility, with a maximum rated input of ten (10) million BTU per hour or more, 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 not applicable as all the fuel burning equipment at this facility are below ten (10) million BTU per hour.

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, 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)

The facility has one 1,115 kW, 1,495 hp installed in 2016, MTU emergency generator and is subject to this NSPS:

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

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) as specified in paragraphs (a)(1) through (3) of this section. For the purposes of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator.

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

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

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

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

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

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

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

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

This subpart is applicable as the City of Twin Falls WWTP operates a 1,115 kW (1,495 hp) emergency stationary CI ICE (ie. GEN 2) installed in 2016 and manufactured by MTU, Model No. 16V-2000-G85-TB.

§ 60.4201……Emissions Standards for Manufacturers

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

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

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

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

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

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

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

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

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

This Section of the Subpart applies to non-emergency IC engines. However, as discussed previously, the Applicant has emergency IC engines proposed for this project. Therefore, the requirements of this Section of the Subpart are not applicable.

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

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

(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.

(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.

This Section of the Subpart applies to emergency IC engines. The 1,115 kW MTU emergency stationary CI ICE (ie. GEN 2) maintains a total displacement = 31.8 liters /16 cylinders = 1.99 liters/cylinder.

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

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

This requirement is assured by Permit Condition 4.15.

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

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

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

(c) [Reserved]

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

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

The Applicant has stated that they will fuel the IC engines with diesel fuel with a maximum sulfur content of 15 ppm or 0.0015% by weight which meets the requirements of this Section of the Subpart. This requirement is assured by Permit Condition 4.8.

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

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

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

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

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

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

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

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

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

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

For the Primary IC Engine the Applicant has proposed to install a 2016 model Tier certified 2 engine that meets the applicable requirements of this Section of the Subpart for that model year IC engine. These requirements are assured by Permit Condition 4.5.

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

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

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

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

The Applicant has proposed an emergency IC engine. Therefore, the hour meter is required. However, the Applicant has not proposed to install an IC engine with a diesel particulate filter. This requirement is assured by Permit Condition 4.16.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(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.

Maintenance and testing will not exceed 100 hr/yr per emergency generator.

(ii) Emergency stationary ICE may be operated for emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see §60.17), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.

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

(3) Emergency stationary ICE may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in paragraph (f)(2) of this section. Except as

provided in paragraph (f)(3)(i) of this section, the 50 hours per calendar year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

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

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

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

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

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

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

(ii) [Reserved]

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

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

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

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

(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.

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

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

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

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

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

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

However, as discussed previously the Applicant is not required to source test the IC engines proposed for this project because they are Tier certified and less than 30 liters per cylinder. Therefore, the requirements of this Section of the Subpart are not applicable.

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

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

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

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

(ii) The address of the affected source;

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

(iv) Emission control equipment; and

(v) Fuel used.

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

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

(ii) Maintenance conducted on the engine.

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

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

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

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

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

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

These requirements are assured by Permit Condition 4.18.

NESHAP Applicability (40 CFR 61)

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

GACT Applicability (40 CFR 63)

The facility has one 800 kW Caterpillar emergency generator and is subject to this NESHAP.

40 CFR 63, Subpart ZZZZ ..... National Emission Standards for Hazardous Air Pollutants: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources

§ 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. As demonstrated previously in the Emissions Inventories Section of this analysis this facility is an area source for HAPs as the potential to emit for HAPs is 0.72 T/yr. Therefore, the engines at this facility may be subject to the requirements of Subpart ZZZZ.

§ 63.6585……What is the purpose of subpart ZZZZ?

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.

City of Twin Falls WWTP maintains and operates one emergency internal combustion engines (ICE) (ie, GEN 1) that was installed before June 12, 2006 and one emergency ICE (ie. GEN 2) installed after June 12, 2006. This facility is classified as an area source of HAP emissions defined as potential-to-emit (PTE) 10 tons per year (tpy) or less for any single HAP or PTE less than 25 tpy for total HAPs. The facility is applicable to this subpart.

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

This subpart applies to each affected source.

Section (a) defines an affected source as 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.

Sections (1)(i) through (1)(iv) defines **existing** stationary RICE as the following:

For stationary RICE with a site rating of more than 500 brake horsepower (bhp) 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.

For stationary RICE with a site rating of less than or equal to 500 brake bhp 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.

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.

This applies to the existing 800 kW Caterpillar emergency generator (ie. GEN 1) installed in 2000. This emergency generator provides electrical power to the WWTP in the event of a power interruption.

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

Sections (2)(i) through (2)(iii) defines **new** stationary RICE as the following:

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

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

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.

This applies to the 1,115 KW MTU emergency generator (ie. GEN 2) installed in 2016.

Section (3)(i) through (2)(iii) defines **reconstructed** stationary RICE as the following:

A stationary RICE with a site rating of more than 500 bhp 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.

A stationary RICE with a site rating of equal to or less than 500 bhp 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.

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.

Section (b) specifies which stationary RICE are subject to limited requirements of this subpart. 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). The requirements of (b)(1)(i) through (ii) are as follows:

The stationary RICE is a new or reconstructed emergency stationary RICE with a site rating of more than 500 bhp located at a major source of HAP emissions.

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

Section (2) specifies that a new or reconstructed stationary RICE with a site rating of more than 500 bhp located at a major source of HAP emissions which combusts landfill or digester gas equivalent to 10% 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.

Section (3) allows that 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:

Existing spark ignition 2-stroke lean-burn (2SLB) stationary RICE with a site rating of more than 500 bhp located at a major source of HAP emissions;

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

Existing emergency stationary RICE with a site rating of more than 500 bhp located at a major source of HAP emissions;

Existing limited use stationary RICE with a site rating of more than 500 bhp located at a major source of HAP emissions;

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

Existing residential emergency stationary RICE located at an area source of HAP emissions;

Existing commercial emergency stationary RICE located at an area source of HAP emissions; or

Existing institutional emergency stationary RICE located at an area source of HAP emissions.

As presented previously in the Emissions Units and Control Devices Section previously, both IC engines at this facility are compression ignition stationary RICE. The Caterpillar IC Engine has a site rating of more than 500 bhp and is located at an area of HAP emissions (see the Emissions Inventories Section). The MTU IC Engine has a site rating of more than 500 bhp and is located at an area of HAP emissions (see the Emissions Inventories Section). Therefore, both IC Engines are subject to the requirements of Subpart ZZZZ.

§ 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 and operating limitations 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 and operating limitations 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 and operating limitations no later than October 19, 2013.

These two engines are existing stationary CI RICE located at an area source of HAP emissions. Therefore, the Caterpillar and MTU emergency IC Engines have until May 3, 2013 to comply with the requirements of this subpart. Permit Condition 4.10 includes the requirement of this section.

§ 63.6603……What emission limitations and operating limitations must I meet if I own or operate an existing stationary RICE located at an area source of HAP emissions?

Compliance with the numerical emission limitations established in this subpart is based on the results of testing the average of three 1-hour runs using the testing requirements and procedures in §63.6620 and Table 4 to this subpart.

(a) If you own or operate an existing stationary RICE located at an area source of HAP emissions, you must comply with the requirements in **Table 2d** to this subpart and the operating limitations in **Table 2b** to this subpart which apply to you.

(b) If you own or operate an existing stationary non-emergency CI RICE greater than 300 HP located at area sources in areas of Alaska not accessible by the Federal Aid Highway System (FAHS) you do not have to meet the numerical CO emission limitations specified in Table 2d to this subpart. Existing stationary non-emergency CI RICE greater than 300 HP located at area sources in areas of Alaska not accessible by the FAHS must meet the management practices that are shown for stationary non-emergency CI RICE less than or equal to 300 HP in Table 2d to this subpart.

As stated in §§63.6600, 63.6601, 63.6630, and 63.6640, you must comply with the following operating limitations for new and reconstructed 2SLB and compression ignition stationary RICE located at a major source of HAP emissions; new and reconstructed 4SLB stationary RICE ≥250 HP located at a major source of HAP emissions; existing compression ignition stationary RICE >500 HP; and existing 4SLB stationary RICE >500 HP located at an area source of HAP emissions that operate more than 24 hours per calendar year:

Table 3 - Table 2b to Subpart ZZZZ of Part 63— Operating Limitations for New and Reconstructed 2SLB and Compression Ignition Stationary RICE >500 HP Located at a Major Source of HAP Emissions, New and Reconstructed 4SLB Stationary RICE ≥250 HP Located at a Major Source of HAP Emissions, Existing Compression Ignition Stationary RICE >500 HP, and Existing 4SLB Stationary RICE >500 HP Located at an Area Source of HAP Emissions

For Each	You Must Meet the Following Operating Limitiation
2. 2SLB and 4SLB stationary RICE and CI stationary RICE complying with the requirement to reduce CO emissions and not using an oxidation catalyst; or 2SLB and 4SLB stationary RICE and CI stationary RICE complying with the requirement to limit the concentration of formaldehyde in the stationary RICE exhaust and not using an oxidation catalyst; or 4SLB stationary RICE and CI stationary RICE complying with the requirement to limit the concentration of CO in the stationary RICE exhaust and not using an oxidation catalyst	Comply with any operating limitations approved by the Administrator.

As stated in §63.6603 and §63.6640, you must comply with the following requirements for existing stationary RICE located at area sources of HAP emissions:

Table 4 - Table 2d to Subpart ZZZZ of Part 63 — Requirements for Existing Stationary RICE Located at Area Sources of HAP Emissions

For Each	You Must Meet the Following Operating Limitation	During periods of startup you must . . .
1. Non-Emergency, non-black start CI stationary RICE ≤300 HP	a. Change oil and filter every 1,000 hours of operation or annually, whichever comes first;[1] b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first; c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.	Minimize the engine's time spent at idle and minimize the engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply.
2. Non-Emergency, non-black start CI stationary RICE <300 HP ≤500 HP	a. Limit concentration of CO in the stationary RICE exhaust to 49 ppmvd at 15 percent O_2; or b. Reduce CO emissions by 70 percent or more.	
3. Non-Emergency, non-black start CI stationary RICE >500 HP	a. Limit concentration of CO in the stationary RICE exhaust to 23 ppmvd at 15 percent O_2; or b. Reduce CO emissions by 70 percent or more.	

1) Sources have the option to utilize an oil analysis program as described in §63.6625(i) in order to extend the specified oil change requirement in Table 2d of this subpart.

2) If an emergency engine is operating during an emergency and it is not possible to shut down the engine in order to perform the management practice requirements on the schedule required in Table 2d of this subpart, or if performing the management practice on the required schedule would otherwise pose an unacceptable risk under Federal, State, or local law, the management practice can be delayed until the emergency is over or the unacceptable risk under Federal, State, or local law has abated. The management practice should be performed as soon as practicable after the emergency has ended or the unacceptable risk under Federal, State, or local law has abated. Sources must report any failure to perform the management practice on the schedule required and the Federal, State or local law under which the risk was deemed unacceptable.

Table 2d is applicable. However, Table 2d only establishes O&M requirements such as oil and filter changes. No emission limits as the IC engines are emergency use only.

§ 63.6604……What fuel requirements must I meet if I own or operate an existing stationary CI RICE?

If you own or operate an existing non-emergency, non-black start CI stationary RICE with a site rating of more than 300 brake HP with a displacement of less than 30 liters per cylinder that uses diesel fuel, you must use diesel fuel that meets the requirements in 40 CFR 80.510(b) for non-road diesel fuel. Existing non-emergency CI stationary RICE located in Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, or at area sources in areas of Alaska not accessible by the FAHS are exempt from the requirements of this section.

Permit Condition 4.8 includes the requirements of this section.

§ 63.6605……What are my general requirements for complying with this subpart?

(a) You must be in compliance with the emission limitations and operating limitations in this subpart that apply to you at all times.

(b) At all times you must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require you to make any further efforts to reduce emissions if levels required by this standard have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

This is a general permit requirement which is included in the Permit to Construct General Provisions – General Compliance.

§ 63.6612……By what date must I conduct the initial performance tests or other initial compliance demonstrations if I own or operate an existing stationary 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 RICE located at an area source of HAP emissions?

If you own or operate an existing stationary 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 RICE located at an area source of HAP emissions you are subject to the requirements of this section.

(a) You must conduct any initial performance test or other initial compliance demonstration according to Tables 4 and 5 to this subpart that apply to you within 180 days after the compliance date that is specified for your stationary RICE in §63.6595 and according to the provisions in §63.7(a)(2).

(b) An owner or operator is not required to conduct an initial performance test on a unit for which a performance test has been previously conducted, but the test must meet all of the conditions described in paragraphs (b)(1) through (4) of this section.

(1) The test must have been conducted using the same methods specified in this subpart, and these methods must have been followed correctly.

(2) The test must not be older than 2 years.

(3) The test must be reviewed and accepted by the Administrator.

(4) Either no process or equipment changes must have been made since the test was performed, or the owner or operator must be able to demonstrate that the results of the performance test, with or without adjustments, reliably demonstrate compliance despite process or equipment changes.

As stated in §§63.6610, 63.6611, 63.6612, 63.6620, and 63.6640, you must comply with the following requirements for performance tests for stationary RICE:

Table 5 - Table 4 to Subpart ZZZZ of Part 63—Requirements for Performance Tests

For Each..	Complying with the requirement to . . .	You must . . .	Using . . .	According to the following requirements . . .
1. 2SLB, 4SLB, and CI stationary RICE	a. Reduce CO emissions	i. Measure the O_2 at the inlet and outlet of the control device; and	(1) Portable CO and O_2 analyzer	(a) Using ASTM D6522–00 (2005) a(incorporated by reference, see §63.14). Measurements to determine O_2 must be made at the same time as the measurements for CO concentration.
		ii. Measure the CO at the inlet and the outlet of the control device	(1) Portable CO and O_2 analyzer	(a) Using ASTM D6522–00 (2005) ab(incorporated by reference, see §63.14) or Method 10 of 40 CFR appendix A. The CO concentration must be at 15 percent O_2, dry basis.
3. Stationary RICE	a. Limit the concentration of formaldehyde or CO in the stationary RICE exhaust	i. Select the sampling port location and the number of traverse points; and	(1) Method 1 or 1A of 40 CFR part 60, appendix A §63.7(d)(1)(i)	(a) If using a control device, the sampling site must be located at the outlet of the control device.
		ii. Determine the O_2 concentration of the stationary RICE exhaust at the sampling port location; and	(1) Method 3 or 3A or 3B of 40 CFR part 60, appendix A, or ASTM Method D6522–00 (2005)	(a) Measurements to determine O_2 concentration must be made at the same time and location as the measurements for formaldehyde concentration.
		iii. Measure moisture content of the stationary RICE exhaust at the sampling port location; and	(1) Method 4 of 40 CFR part 60, appendix A, or Test Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348–03	(a) Measurements to determine moisture content must be made at the same time and location as the measurements for formaldehyde concentration.
		iv. Measure formaldehyde at the exhaust of the stationary RICE; or	(1) Method 320 or 323 of 40 CFR part 63, appendix A; or ASTM D6348–03, [c]provided in ASTM D6348–03 Annex A5 (Analyte Spiking Technique), the percent R must be greater than or equal to 70 and less than or equal to 130	(a) Formaldehyde concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.
		v. Measure CO at the exhaust of the stationary RICE	(1) Method 10 of 40 CFR part 60, appendix A, ASTM Method D6522–00 (2005),[a] Method 320 of 40 CFR part 63, appendix A, or ASTM D6348–03	(a) CO Concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour longer runs.

a) You may also use Methods 3A and 10 as options to ASTM–D6522–00 (2005). You may obtain a copy of ASTM–D6522–00 (2005) from at least one of the following addresses: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428–2959, or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106. ASTM–D6522–00 (2005) may be used to test both CI and SI stationary RICE.

b) You may also use Method 320 of 40 CFR part 63, appendix A, or ASTM D6348–03.

c) You may obtain a copy of ASTM–D6348–03 from at least one of the following addresses: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428–2959, or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106.

The City of Twin Falls WWTP is not subject to perform testing for the existing emergency stationary RICE (ie. GEN1) since there are no applicable emission limit requirements.

§ 63.6615…….... When must I conduct subsequent performance tests?

If you must comply with the emission limitations and operating limitations, you must conduct subsequent performance tests as specified in Table 3 of this subpart.

Table 6 - Table 3 to Subpart ZZZZ of Part 63—Subsequent Performance Tests

For Each	You Must Meet the Following Operating Limitation	During periods of startup you must . . .
4. Existing non-emergency, non-black start CI stationary RICE with a brake horsepower >500 that are not limited use stationary RICE; existing non-emergency, non-black start 4SLB and 4SRB stationary RICE located at an area source of HAP emissions with a brake horsepower >500 that are operated more than 24 hours per calendar year that are not limited use stationary RICE	Limit or reduce CO or formaldehyde emissions	Conduct subsequent performance tests every 8,760 hrs. or 3 years, whichever comes first.

The City of Twin Falls WWTP is not subject to perform testing for the existing emergency stationary RICE (ie. GEN1) since there are no applicable emission limit requirements.

§ 63.6620……What performance tests and other procedures must I use?

(a) You must conduct each performance test in Tables 3 and 4 of this subpart that applies to you.

(b) Each performance test must be conducted according to the requirements that this subpart specifies in Table 4 to this subpart. If you own or operate a non-operational stationary RICE that is subject to performance testing, you do not need to start up the engine solely to conduct the performance test. Owners and operators of a non-operational engine can conduct the performance test when the engine is started up again.

(d) You must conduct three separate test runs for each performance test required in this section, as specified in §63.7(e)(3). Each test run must last at least 1 hour.

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

$[(C_i - C_o) \div C_i] \times 100 = R$ (Eq. 1)

Where:

C_i = concentration of CO or formaldehyde at the control device inlet,

C_o = concentration of CO or formaldehyde at the control device outlet, and

R = percent reduction of CO or formaldehyde emissions.

(2) You must normalize the carbon monoxide (CO) or formaldehyde concentrations at the inlet and outlet of the control device to a dry basis and to 15 percent oxygen, or an equivalent percent carbon dioxide (CO_2). If pollutant concentrations are to be corrected to 15 percent oxygen and CO_2 concentration is measured in lieu of oxygen concentration measurement, a CO_2 correction factor is needed. Calculate the CO_2 correction factor as described in paragraphs (e)(2)(i) through (iii) of this section.

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

$F_o = (0.209 \times F_d) \div F_c$ (Eq. 2)

Where:

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

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

F_d = Ratio of the volume of dry effluent gas to the gross calorific value of the fuel from Method 19, dsm3 /J (dscf/106 Btu).

F_c = Ratio of the volume of CO_2 produced to the gross calorific value of the fuel from Method 19, dsm3 /J (dscf/106 Btu).

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

$X_{CO2} = 5.9 \div F_o$ (Eq. 3)

Where:

X_{CO2} = CO_2 correction factor, percent.

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

(iii) Calculate the NO_X and SO_2 gas concentrations adjusted to 15 percent O_2 using CO_2 as follows:

$C_{adj} = C_d \text{ x } (X_{CO2} \div \%CO_2$ (Eq. 4)

Where:

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

(f) If you comply with the emission limitation to reduce CO and you are not using an oxidation catalyst, if you comply with the emission limitation to reduce formaldehyde and you are not using NSCR, or if you comply with the emission limitation to limit the concentration of formaldehyde in the stationary RICE exhaust and you are not using an oxidation catalyst or NSCR, you must petition the Administrator for operating limitations to be established during the initial performance test and continuously monitored thereafter; or for approval of no operating limitations. You must not conduct the initial performance test until after the petition has been approved by the Administrator.

(g) If you petition the Administrator for approval of operating limitations, your petition must include the information described in paragraphs (g)(1) through (5) of this section.

(1) Identification of the specific parameters you propose to use as operating limitations;

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

(3) 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;

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

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

(h) If you petition the Administrator for approval of no operating limitations, your petition must include the information described in paragraphs (h)(1) through (7) of this section.

(1) Identification of the parameters associated with operation of the stationary RICE and any emission control device which could change intentionally (e.g., operator adjustment, automatic controller adjustment, etc.) or unintentionally (e.g., wear and tear, error, etc.) on a routine basis or over time;

(2) A discussion of the relationship, if any, between changes in the parameters and changes in HAP emissions;

(3) For the parameters which could change in such a way as to increase HAP emissions, a discussion of whether establishing limitations on the parameters would serve to limit HAP emissions;

(4) For the parameters which could change in such a way as to increase HAP emissions, a discussion of how you could establish upper and/or lower values for the parameters which would establish limits on the parameters in operating limitations;

(5) For the parameters, a discussion identifying the methods you could use to measure them and the instruments you could use to monitor them, as well as the relative accuracy and precision of the methods and instruments;

(6) For the parameters, a discussion identifying the frequency and methods for recalibrating the instruments you could use to monitor them; and

(7) A discussion of why, from your point of view, it is infeasible or unreasonable to adopt the parameters as operating limitations.

(i) The engine percent load during a performance test must be determined by documenting the calculations, assumptions, and measurement devices used to measure or estimate the percent load in a specific application. A written report of the average percent load determination must be included in the notification of compliance status. The following information must be included in the written report: the engine model number, the engine manufacturer, the year of purchase, the manufacturer's site-rated brake horsepower, the ambient temperature, pressure, and humidity during the performance test, and all assumptions that were made to estimate or calculate percent load during the performance test must be clearly explained. If measurement devices such as flow meters, kilowatt meters, beta analyzers, stain gauges, etc. are used, the model number of the measurement device, and an estimate of its accurate in percentage of true value must be provided.

The City of Twin Falls WWTP is not subject to perform testing for the existing emergency stationary RICE (ie. GEN1) since there are no applicable emission limit requirements.

§ 63.6625……What are my monitoring, installation, collection, operation, and maintenance requirements?

(a) If you elect to install a CEMS as specified in Table 5 of this subpart, you must install, operate, and maintain a CEMS to monitor CO and either oxygen or CO_2 at both the inlet and the outlet of the control device according to the requirements in paragraphs (a)(1) through (4) of this section.

(1) Each CEMS must be installed, operated, and maintained according to the applicable performance specifications of 40 CFR part 60, appendix B.

(2) You must conduct an initial performance evaluation and an annual relative accuracy test audit (RATA) of each CEMS according to the requirements in §63.8 and according to the applicable performance specifications of 40 CFR part 60, appendix B as well as daily and periodic data quality checks in accordance with 40 CFR part 60, appendix F, procedure 1.

(3) As specified in §63.8(c)(4)(ii), each CEMS must complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period. You must have at least two data points, with each representing a different 15-minute period, to have a valid hour of data.

(4) The CEMS data must be reduced as specified in §63.8(g)(2) and recorded in parts per million or parts per billion (as appropriate for the applicable limitation) at 15 percent oxygen or the equivalent CO_2 concentration.

(b) If you are required to install a continuous parameter monitoring system (CPMS) as specified in Table 5 of this subpart, you must install, operate, and maintain each CPMS according to the requirements in paragraphs (b)(1) through (8) of this section.

(1) The CPMS must complete a minimum of one cycle of operation for each successive 15-minute period. You must have a minimum of four successive cycles of operation to have a valid hour of data.

(2) Except for monitoring malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), you must conduct all monitoring in continuous operation at all times that the unit is operating. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.

(3) For purposes of calculating data averages, you must not use data recorded during monitoring malfunctions, associated repairs, out of control periods, or required quality assurance or control activities. You must use all the data collected during all other periods in assessing compliance. Any 15-minute period for which the monitoring system is out-of-control and data are not available for required calculations constitutes a deviation from the monitoring requirements.

(4) Determine the 3-hour block average of all recorded readings, except as provided in paragraph (b)(3) of this section.

(5) Record the results of each inspection, calibration, and validation check.

(6) You must develop a site-specific monitoring plan that addresses paragraphs (b)(6)(i) through (vi) of this section.

(i) Installation of the CPMS sampling probe or other interface at the appropriate location to obtain representative measurements;

(ii) Performance and equipment specifications for the sample interface, parametric signal analyzer, and the data collection and reduction systems;

(iii) Performance evaluation procedures and acceptance criteria (e.g., calibrations);

(iv) Ongoing operation and maintenance procedures in accordance with the general requirements of §63.8(c)(1), (c)(3), and (c)(4)(ii);

(v) Ongoing data quality assurance procedures in accordance with the general requirements of §63.8(d); and

(vi) Ongoing recordkeeping and reporting procedures in accordance with the general requirements of §63.10(c), (e)(1), and (e)(2)(i).

(7) You must conduct a performance evaluation of each CPMS in accordance with your site-specific monitoring plan.

(8) You must operate and maintain the CPMS in continuous operation according to the site-specific monitoring plan.

(c) If you are operating a new or reconstructed stationary RICE which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, you must monitor and record your fuel usage daily with separate fuel meters to measure the volumetric flow rate of each fuel. In addition, you must operate your stationary RICE in a manner which reasonably minimizes HAP emissions.

The Applicant has not proposed to fire the engines included in the application on landfill or digester gas. Therefore, this section is not applicable.

(d) If you are operating a new or reconstructed emergency 4SLB stationary RICE with a site rating of greater than or equal to 250 and less than or equal to 500 brake HP located at a major source of HAP emissions, you must install a non-resettable hour meter prior to the startup of the engine.

The Applicant has not proposed any 4SLB engines in the application. Therefore, this section is not applicable.

(e) If you own or operate any of the following stationary RICE, you must operate and maintain the stationary RICE and after-treatment control device (if any) according to the manufacturer's emission-related written instructions or develop your own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions:

(1) An existing stationary RICE with a site rating of less than 100 HP located at a major source of HAP emissions;

(2) An existing emergency or black start stationary RICE with a site rating of less than or equal to 500 HP located at a major source of HAP emissions;

(3) An existing emergency or black start stationary RICE located at an area source of HAP emissions;

The Applicant has proposed an existing emergency or black start stationary RICE located at an area source of HAP emissions in the application. Therefore, this section is applicable.

(4) An existing non-emergency, non-black start stationary CI RICE with a site rating less than or equal to 300 HP located at an area source of HAP emissions;

The Applicant has not proposed non-emergency, non-black start stationary CI RICE with a site rating less than or equal to 300 HP located at an area source of HAP emissions in the application. Therefore, this section is not applicable.

(5) An existing non-emergency, non-black start 2SLB stationary RICE located at an area source of HAP emissions;

(6) An existing non-emergency, non-black start landfill or digester gas stationary RICE located at an area source of HAP emissions;

(7) An existing non-emergency, non-black start 4SLB stationary RICE with a site rating less than or equal to 500 HP located at an area source of HAP emissions;

(8) An existing non-emergency, non-black start 4SRB stationary RICE with a site rating less than or equal to 500 HP located at an area source of HAP emissions;

(9) An existing, non-emergency, non-black start 4SLB stationary RICE with a site rating greater than 500 HP located at an area source of HAP emissions that is operated 24 hours or less per calendar year; and

(10) An existing, non-emergency, non-black start 4SRB stationary RICE with a site rating greater than 500 HP located at an area source of HAP emissions that is operated 24 hours or less per calendar year.

(f) If you own or operate an existing emergency stationary 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 emergency stationary RICE located at an area source of HAP emissions, you must install a non-resettable hour meter if one is not already installed.

The City of Twin Falls Complies with this subpart and non-resettable hour meter is installed.

(g) If you own or operate an existing non-emergency, non-black start CI engine greater than or equal to 300 HP that is not equipped with a closed crankcase ventilation system, you must comply with either paragraph (g)(1) or paragraph (g)(2) of this section. Owners and operators must follow the manufacturer's specified maintenance requirements for operating and maintaining the open or closed crankcase ventilation systems and replacing the crankcase filters, or can request the Administrator to approve different maintenance requirements that are as protective as manufacturer requirements. Existing CI engines located at area sources in areas of Alaska not accessible by the FAHS do not have to meet the requirements of paragraph (g) of this section.

(1) Install a closed crankcase ventilation system that prevents crankcase emissions from being emitted to the atmosphere, or

(2) Install an open crankcase filtration emission control system that reduces emissions from the crankcase by filtering the exhaust stream to remove oil mist, particulates, and metals.

This section does not apply, the generators are emergency use only.

(h) If you operate a new, reconstructed, or existing stationary engine, you must minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the emission standards applicable to all times other than startup in Tables 1a, 2a, 2c, and 2d to this subpart apply.

As discussed previously Permit Condition 4.10 includes the requirements of this section.

(i) If you own or operate a stationary CI engine that is subject to the work, operation or management practices in items 1 or 2 of Table 2c to this subpart or in items 1 or 4 of Table 2d to this subpart, you have the option of utilizing an oil analysis program in order to extend the specified oil change requirement in Tables 2c and 2d to this subpart. The oil analysis must be performed at the same frequency specified for changing the oil in Table 2c or 2d to this subpart. The analysis program must at a minimum analyze the following three parameters: Total Base Number, viscosity, and percent water content. The condemning limits for these parameters are as follows: Total Base Number is less than 30 percent of the Total Base Number of the oil when new; viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or percent water content (by volume) is greater than 0.5. If all of these condemning limits are not exceeded, the engine owner or operator is not required to change the oil. If any of the limits are exceeded, the engine owner or operator must change the oil within 2 days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the engine owner or operator must change the oil within 2 days or before commencing operation, whichever is later. The owner or operator must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine.

Permit Condition 4.11 includes the requirements of this section.

(j) If you own or operate a stationary SI engine that is subject to the work, operation or management practices in items 6, 7, or 8 of Table 2c to this subpart or in items 5, 6, 7, 9, or 11 of Table 2d to this subpart, you have the option of utilizing an oil analysis program in order to extend the specified oil change requirement in Tables 2c and 2d to this subpart. The oil analysis must be performed at the same frequency specified for changing the oil in Table 2c or 2d to this subpart. The analysis program must at a minimum analyze the following three parameters: Total Acid Number, viscosity, and percent water content. The condemning limits for these parameters are as follows: Total Acid Number increases by more than 3.0 milligrams of potassium hydroxide (KOH) per gram from Total Acid Number of the oil when new; viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or percent water content (by volume) is greater than 0.5. If all of these condemning limits are not exceeded, the engine owner or operator is not required to change the oil. If any of the limits are exceeded, the engine owner or operator must change the oil within 2 days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the engine owner or operator must change the oil within 2 days or before commencing operation, whichever is later. The owner or operator must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine.

The Applicant has not proposed a SI engine for this application. Therefore, the requirements of this Section are not applicable to the two IC engines proposed for this project.

§ 63.6630……How do I demonstrate initial compliance with the emission limitations and operating limitations?

(a) You must demonstrate initial compliance with each emission and operating limitation that applies to you according to **Table 5** of this subpart.

(b) During the initial performance test, you must establish each operating limitation in Tables 1b and 2b of this subpart that applies to you.

(c) You must submit the Notification of Compliance Status containing the results of the initial compliance demonstration according to the requirements in §63.6645.

Table 7 - Table 5 to Subpart ZZZZ of Part 63—Initial Compliance With Emission Limitations and Operating Limitations

For Each	Complying with the requirement to . . .	You have demonstrated initial compliance if . . .
1. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, non-emergency stationary CI RICE >500 HP located at a major source of HAP, existing non-emergency stationary CI RICE >500 HP located at an area source of HAP, and existing non-emergency 4SLB stationary RICE >500 HP located at an area source of HAP that are operated more than 24 hours per calendar year	a. Reduce CO emissions and using oxidation catalyst, and using a CPMS	i. The average reduction of emissions of CO determined from the initial performance test achieves the required CO percent reduction; and ii. You have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in §63.6625(b); and iii. You have recorded the catalyst pressure drop and catalyst inlet temperature during the initial performance test.
2. Non-emergency stationary CI RICE >500 HP located at a major source of HAP, existing non-emergency stationary CI RICE >500 HP located at an area source of HAP, and existing non-emergency 4SLB stationary RICE >500 HP located at an area source of HAP that are operated more than 24 hours per calendar year	a. Limit the concentration of CO, using oxidation catalyst, and using a CPMS	i. The average CO concentration determined from the initial performance test is less than or equal to the CO emission limitation; and ii. You have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in §63.6625(b); and iii. You have recorded the catalyst pressure drop and catalyst inlet temperature during the initial performance test.
3. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, non-emergency stationary CI RICE >500 HP located at a major source of HAP, existing non-emergency stationary CI RICE >500 HP located at an area source of HAP, and existing non-emergency 4SLB stationary RICE >500 HP located at an area source of HAP that are operated more than 24 hours per calendar year	a. Reduce CO emissions and not using oxidation catalyst	i. The average reduction of emissions of CO determined from the initial performance test achieves the required CO percent reduction; and ii. You have installed a CPMS to continuously monitor operating parameters approved by the Administrator (if any) according to the requirements in §63.6625(b); and iii. You have recorded the approved operating parameters (if any) during the initial performance test.
4. Non-emergency stationary CI RICE >500 HP located at a major source of HAP, existing non-emergency stationary CI RICE >500 HP located at an area source of HAP, and existing non-emergency 4SLB stationary RICE >500 HP located at an area source of HAP that are operated more than 24 hours per calendar year	a. Limit the concentration of CO, and not using oxidation catalyst	i. The average CO concentration determined from the initial performance test is less than or equal to the CO emission limitation; and ii. You have installed a CPMS to continuously monitor operating parameters approved by the Administrator (if any) according to the requirements in §63.6625(b); and iii. You have recorded the approved operating parameters (if any) during the initial performance test.

5. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, non-emergency stationary CI RICE >500 HP located at a major source of HAP, existing non-emergency stationary CI RICE >500 HP located at an area source of HAP, and existing non-emergency 4SLB stationary RICE >500 HP located at an area source of HAP that are operated more than 24 hours per calendar year	a. Reduce CO emissions, and using a CEMS	i. You have installed a CEMS to continuously monitor CO and either O_2 or CO_2 at both the inlet and outlet of the oxidation catalyst according to the requirements in §63.6625(a); and ii. You have conducted a performance evaluation of your CEMS using PS 3 and 4A of 40 CFR part 60, appendix B; and iii. The average reduction of CO calculated using §63.6620 equals or exceeds the required percent reduction. The initial test comprises the first 4-hour period after successful validation of the CEMS. Compliance is based on the average percent reduction achieved during the 4-hour period.
6. Non-emergency stationary CI RICE >500 HP located at a major source of HAP, existing non-emergency stationary CI RICE >500 HP located at an area source of HAP, and existing non-emergency 4SLB stationary RICE >500 HP located at an area source of HAP that are operated more than 24 hours per calendar year	a. Limit the concentration of CO, and using a CEMS	i. You have installed a CEMS to continuously monitor CO and either O_2 or CO_2 at the outlet of the oxidation catalyst according to the requirements in §63.6625(a); and ii. You have conducted a performance evaluation of your CEMS using PS 3 and 4A of 40 CFR part 60, appendix B; and iii. The average concentration of CO calculated using §63.6620 is less than or equal to the CO emission limitation. The initial test comprises the first 4-hour period after successful validation of the CEMS. Compliance is based on the average concentration measured during the 4-hour period.

There are no applicable requirements in Table 5 that apply to the emergency stationary RICE (ie GEN1).

§ 63.6640 How do I demonstrate continuous compliance with the emission limitations and operating limitations?

(a) You must demonstrate continuous compliance with each emission limitation and operating limitation in Tables 1a and 1b, Tables 2a and 2b, Table 2c, and Table 2d to this subpart that apply to you according to methods specified in Table 6 to this subpart.

(b) You must report each instance in which you did not meet each emission limitation or operating limitation in Tables 1a and 1b, Tables 2a and 2b, Table 2c, and Table 2d to this subpart that apply to you. These instances are deviations from the emission and operating limitations in this subpart. These deviations must be reported according to the requirements in §63.6650. If you change your catalyst, you must reestablish the values of the operating parameters measured during the initial performance test. When you reestablish the values of your operating parameters, you must also conduct a performance test to demonstrate that you are meeting the required emission limitation applicable to your stationary RICE.

(c) [Reserved]

(d) For new, reconstructed, and rebuilt stationary RICE, deviations from the emission or operating limitations that occur during the first 200 hours of operation from engine startup (engine burn-in period) are not violations. Rebuilt stationary RICE means a stationary RICE that has been rebuilt as that term is defined in 40 CFR 94.11(a).

(e) You must also report each instance in which you did not meet the requirements in Table 8 to this subpart that apply to you. If you own or operate 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 (except new or reconstructed 4SLB engines greater than or equal to 250 and less than or equal to 500 brake HP), a new or reconstructed stationary RICE located at an area source of HAP emissions, or any of the following RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with the requirements in Table 8 to this subpart: An existing 2SLB stationary RICE, an existing 4SLB stationary RICE, an existing emergency stationary RICE, an existing limited use stationary RICE, or an existing stationary RICE which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis. If you own or operate any of the following RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with the requirements in Table 8 to this subpart, except for the initial notification requirements: a new or reconstructed stationary RICE that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, a new or reconstructed emergency stationary RICE, or a new or reconstructed limited use stationary RICE.

(f) Requirements for emergency stationary RICE. (1) If you own or operate an existing emergency stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, 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 was installed on or after June 12, 2006, or an existing emergency stationary RICE located at an area source of HAP emissions, you must operate the emergency stationary RICE according to the requirements in paragraphs (f)(1)(i) through (iii) of this section. Any operation other than emergency operation, maintenance and testing, and operation in non-emergency situations for 50 hours per year, as described in paragraphs (f)(1)(i) through (iii) of this section, is prohibited. If you do not operate the engine according to the requirements in paragraphs (f)(1)(i) through (iii) of this section, the engine will not be considered an emergency engine under this subpart and will need to meet all requirements for non-emergency engines.

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

(ii) You may operate your emergency stationary RICE for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by Federal, State or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Maintenance checks and readiness testing of such units is limited to 100 hours per year. 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 RICE beyond 100 hours per year.

(iii) You may operate your emergency stationary RICE up to 50 hours per year in non-emergency situations, but those 50 hours are counted towards the 100 hours per year provided for maintenance and testing. The 50 hours per year for non-emergency situations cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity; except that owners and operators may operate the emergency engine for a maximum of 15 hours per year as part of a demand response program if the regional transmission organization or equivalent balancing authority and transmission operator has determined there are emergency conditions that could lead to a potential electrical blackout, such as unusually low frequency, equipment overload, capacity or energy deficiency, or unacceptable voltage level. The engine may not be operated for more than 30 minutes prior to the time when the emergency condition is expected to occur, and the engine operation must be terminated immediately after the facility is notified that the emergency condition is no longer imminent. The 15 hours per year of demand response operation are counted as part of the 50 hours of operation per year provided for non-emergency situations. The supply of emergency power to another entity or entities pursuant to financial arrangement is not limited by this paragraph (f)(1)(iii), as long as the power provided by the financial arrangement is limited to emergency power.

This subpart is applicable and the facility complies with f(i)-(iii).

(2) If you own or operate an emergency stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions that was installed prior to June 12, 2006, you must operate the engine according to the conditions described in paragraphs (f)(2)(i) through (iii) of this section. If you do not operate the engine according to the requirements in paragraphs (f)(2)(i) through (iii) of this section, the engine will not be considered an emergency engine under this subpart and will need to meet all requirements for non-emergency engines.

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

(ii) You may operate your emergency stationary RICE for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by the manufacturer, the vendor, or the insurance company associated with the engine. Required testing of such units should be minimized, but there is no time limit on the use of emergency stationary RICE in emergency situations and for routine testing and maintenance.

(iii) You may operate your emergency stationary RICE for an additional 50 hours per year in non-emergency situations. The 50 hours per year for non-emergency situations cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

The Applicant has proposed emergency stationary RICE for this project. Therefore, the requirements of this Section are applicable to the two IC engines proposed for this project.

§ 63.6645……What notifications must I submit and when?

(a) You must submit all of the notifications in §§63.7(b) and (c), 63.8(e), (f)(4) and (f)(6), 63.9(b) through (e), and (g) and (h) that apply to you by the dates specified if you own or operate any of the following;

(1) An existing stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions.

(2) An existing stationary RICE located at an area source of HAP emissions.

(3) A stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions.

(4) A new or reconstructed 4SLB stationary RICE with a site rating of greater than or equal to 250 HP located at a major source of HAP emissions.

(5) This requirement does not apply if you own or operate an existing stationary RICE less than 100 HP, an existing stationary emergency RICE, or an existing stationary RICE that is not subject to any numerical emission standards.

(b) As specified in §63.9(b)(2), if you start up your stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions before the effective date of this subpart, you must submit an Initial Notification not later than December 13, 2004.

(c) 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 on or after August 16, 2004, you must submit an Initial Notification not later than 120 days after you become subject to this subpart.

(d) As specified in §63.9(b)(2), if you start up your stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions before the effective date of this subpart and you are required to submit an initial notification, you must submit an Initial Notification not later than July 16, 2008.

(e) If you start up your new or reconstructed stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions on or after March 18, 2008 and you are required to submit an initial notification, you must submit an Initial Notification not later than 120 days after you become subject to this subpart.

(f) If you are required to submit an Initial Notification but are otherwise not affected by the requirements of this subpart, in accordance with §63.6590(b), your notification should include the information in §63.9(b)(2)(i) through (v), and a statement that your stationary RICE has no additional requirements and explain the basis of the exclusion (for example, that it operates exclusively as an emergency stationary RICE if it has a site rating of more than 500 brake HP located at a major source of HAP emissions).

(g) If you are required to conduct a performance test, you must submit a Notification of Intent to conduct a performance test at least 60 days before the performance test is scheduled to begin as required in §63.7(b)(1).

(h) If you are required to conduct a performance test or other initial compliance demonstration as specified in Tables 4 and 5 to this subpart, you must submit a Notification of Compliance Status according to §63.9(h)(2)(ii).

(1) For each initial compliance demonstration required in Table 5 to this subpart that does not include a performance test, you must submit the Notification of Compliance Status before the close of business on the 30th day following the completion of the initial compliance demonstration.

(2) For each initial compliance demonstration required in Table 5 to this subpart that includes a performance test conducted according to the requirements in Table 3 to this subpart, you must submit the Notification of Compliance Status, including the performance test results, before the close of business on the 60th day following the completion of the performance test according to §63.10(d)(2).

Notifications do not apply to the existing emergency stationary RICE (ie GEN1).

§ 63.6650……What reports must I submit and when?

(a) You must submit each report in Table 7 of this subpart that applies to you.

(b) Unless the Administrator has approved a different schedule for submission of reports under §63.10(a), you must submit each report by the date in Table 7 of this subpart and according to the requirements in paragraphs (b)(1) through (b)(9) of this section.

(1) For semiannual Compliance reports, the first Compliance report must cover the period beginning on the compliance date that is specified for your affected source in §63.6595 and ending on June 30 or December 31, whichever date is the first date following the end of the first calendar half after the compliance date that is specified for your source in §63.6595.

(2) For semiannual Compliance reports, the first Compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date follows the end of the first calendar half after the compliance date that is specified for your affected source in §63.6595.

(3) For semiannual Compliance reports, each subsequent Compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

(4) For semiannual Compliance reports, each subsequent Compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period.

(5) For each stationary RICE that is subject to permitting regulations pursuant to 40 CFR part 70 or 71, and if the permitting authority has established dates for submitting semiannual reports pursuant to 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6 (a)(3)(iii)(A), you may submit the first and subsequent Compliance reports according to the dates the permitting authority has established instead of according to the dates in paragraphs (b)(1) through (b)(4) of this section.

(6) For annual Compliance reports, the first Compliance report must cover the period beginning on the compliance date that is specified for your affected source in §63.6595 and ending on December 31.

(7) For annual Compliance reports, the first Compliance report must be postmarked or delivered no later than January 31 following the end of the first calendar year after the compliance date that is specified for your affected source in §63.6595.

(8) For annual Compliance reports, each subsequent Compliance report must cover the annual reporting period from January 1 through December 31.

(9) For annual Compliance reports, each subsequent Compliance report must be postmarked or delivered no later than January 31.

(c) The Compliance report must contain the information in paragraphs (c)(1) through (6) of this section.

(1) Company name and address.

(2) Statement by a responsible official, with that official's name, title, and signature, certifying the accuracy of the content of the report.

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

(4) If you had a malfunction during the reporting period, the compliance report must include the number, duration, and a brief description for each type of malfunction which occurred during the reporting period and which caused or may have caused any applicable emission limitation to be exceeded. The report must also include a description of actions taken by an owner or operator during a malfunction of an affected source to minimize emissions in accordance with §63.6605(b), including actions taken to correct a malfunction.

(5) If there are no deviations from any emission or operating limitations that apply to you, a statement that there were no deviations from the emission or operating limitations during the reporting period.

(6) If there were no periods during which the continuous monitoring system (CMS), including CEMS and CPMS, was out-of-control, as specified in §63.8(c)(7), a statement that there were no periods during which the CMS was out-of-control during the reporting period.

(d) For each deviation from an emission or operating limitation that occurs for a stationary RICE where you are not using a CMS to comply with the emission or operating limitations in this subpart, the Compliance report must contain the information in paragraphs (c)(1) through (4) of this section and the information in paragraphs (d)(1) and (2) of this section.

(1) The total operating time of the stationary RICE at which the deviation occurred during the reporting period.

(2) Information on the number, duration, and cause of deviations (including unknown cause, if applicable), as applicable, and the corrective action taken.

(e) For each deviation from an emission or operating limitation occurring for a stationary RICE where you are using a CMS to comply with the emission and operating limitations in this subpart, you must include information in paragraphs (c)(1) through (4) and (e)(1) through (12) of this section.

(1) The date and time that each malfunction started and stopped.

(2) The date, time, and duration that each CMS was inoperative, except for zero (low-level) and high-level checks.

(3) The date, time, and duration that each CMS was out-of-control, including the information in §63.8(c)(8).

(4) The date and time that each deviation started and stopped, and whether each deviation occurred during a period of malfunction or during another period.

(5) A summary of the total duration of the deviation during the reporting period, and the total duration as a percent of the total source operating time during that reporting period.

(6) A breakdown of the total duration of the deviations during the reporting period into those that are due to control equipment problems, process problems, other known causes, and other unknown causes.

(7) A summary of the total duration of CMS downtime during the reporting period, and the total duration of CMS downtime as a percent of the total operating time of the stationary RICE at which the CMS downtime occurred during that reporting period.

(8) An identification of each parameter and pollutant (CO or formaldehyde) that was monitored at the stationary RICE.

(9) A brief description of the stationary RICE.

(10) A brief description of the CMS.

(11) The date of the latest CMS certification or audit.

(12) A description of any changes in CMS, processes, or controls since the last reporting period.

(f) Each affected source that has obtained a title V operating permit pursuant to 40 CFR part 70 or 71 must report all deviations as defined in this subpart in the semiannual monitoring report required by 40 CFR 70.6 (a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A). If an affected source submits a Compliance report pursuant to Table 7 of this subpart along with, or as part of, the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), and the Compliance report includes all required information concerning deviations from any emission or operating limitation in this subpart, submission of the Compliance report shall be deemed to satisfy any obligation to report the same deviations in the semiannual monitoring report. However, submission of a Compliance report shall not otherwise affect any obligation the affected source may have to report deviations from permit requirements to the permit authority.

(g) If you are operating as a new or reconstructed stationary RICE which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, you must submit an annual report according to Table 7 of this subpart by the date specified unless the Administrator has approved a different schedule, according to the information described in paragraphs (b)(1) through (b)(5) of this section. You must report the data specified in (g)(1) through (g)(3) of this section.

(1) Fuel flow rate of each fuel and the heating values that were used in your calculations. You must also demonstrate that the percentage of heat input provided by landfill gas or digester gas is equivalent to 10 percent or more of the total fuel consumption on an annual basis.

(2) The operating limits provided in your federally enforceable permit, and any deviations from these limits.

(3) Any problems or errors suspected with the meters.

As stated in §63.6650, you must comply with the following requirements for reports:

Table 8 - Table 7 to Subpart ZZZZ of Part 63—Requirements for Reports

For Each..	You must submit a ...	The report must contain ...	You must submit the report ...
1. Existing non-emergency, non-black start stationary RICE 100≤HP≤500 located at a major source of HAP; existing non-emergency, non-black start stationary CI RICE >500 HP located at a major source of HAP; existing non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP; existing non-emergency, non-black start stationary CI RICE >300 HP located at an area source of HAP; existing non-emergency, non-black start 4SLB and 4SRB stationary RICE >500 HP located at an area source of HAP and operated more than 24 hours per calendar year; new or reconstructed non-emergency stationary RICE >500 HP located at a major source of HAP; and new or reconstructed non-emergency 4SLB stationary RICE 250≤HP≤500 located at a major source of HAP	Compliance report	a. If there are no deviations from any emission limitations or operating limitations that apply to you, a statement that there were no deviations from the emission limitations or operating limitations during the reporting period. If there were no periods during which the CMS, including CEMS and CPMS, was out-of-control, as specified in §63.8(c)(7), a statement that there were not periods during which the CMS was out-of-control during the reporting period; or b. If you had a deviation from any emission limitation or operating limitation during the reporting period, the information in §63.6650(d). If there were periods during which the CMS, including CEMS and CPMS, was out-of-control, as specified in §63.8(c)(7), the information in §63.6650(e); or c. If you had a malfunction during the reporting period, the information in §63.6650(c)(4)	i. Semiannually according to the requirements in §63.6650(b)(1)–(5) for engines that are not limited use stationary RICE subject to numerical emission limitations; and ii. Annually according to the requirements in §63.6650(b)(6)–(9) for engines that are limited use stationary RICE subject to numerical emission limitations. i. Semiannually according to the requirements in §63.6650(b). i. Semiannually according to the requirements in §63.6650(b).

Not applicable

§ 63.6655……What records must I keep?

(a) If you must comply with the emission and operating limitations, you must keep the records described in paragraphs (a)(1) through (a)(5), (b)(1) through (b)(3) and (c) of this section.

(1) A copy of each notification and report that you submitted to comply with this subpart, including all documentation supporting any Initial Notification or Notification of Compliance Status that you submitted, according to the requirement in §63.10(b)(2)(xiv).

(2) Records of the occurrence and duration of each malfunction of operation (i.e., process equipment) or the air pollution control and monitoring equipment.

(3) Records of performance tests and performance evaluations as required in §63.10(b)(2)(viii).

(4) Records of all required maintenance performed on the air pollution control and monitoring equipment.

(5) Records of actions taken during periods of malfunction to minimize emissions in accordance with §63.6605(b), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation.

(b) For each CEMS or CPMS, you must keep the records listed in paragraphs (b)(1) through (3) of this section.

(1) Records described in §63.10(b)(2)(vi) through (xi).

(2) Previous (i.e., superseded) versions of the performance evaluation plan as required in §63.8(d)(3).

(3) Requests for alternatives to the relative accuracy test for CEMS or CPMS as required in §63.8(f)(6)(i), if applicable.

(c) If you are operating a new or reconstructed stationary RICE which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, you must keep the records of your daily fuel usage monitors.

(d) You must keep the records required in Table 6 of this subpart to show continuous compliance with each emission or operating limitation that applies to you.

(e) You must keep records of the maintenance conducted on the stationary RICE in order to demonstrate that you operated and maintained the stationary RICE and after-treatment control device (if any) according to your own maintenance plan if you own or operate any of the following stationary RICE;

(1) An existing stationary RICE with a site rating of less than 100 brake HP located at a major source of HAP emissions.

(2) An existing stationary emergency RICE.

(3) An existing stationary RICE located at an area source of HAP emissions subject to management practices as shown in Table 2d to this subpart.

(f) If you own or operate any of the stationary RICE in paragraphs (f)(1) or (2) of this section, you must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. The owner or operator must document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation. If the engines are used for demand response operation, the owner or operator must keep records of the notification of the emergency situation, and the time the engine was operated as part of demand response.

(1) An existing emergency stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions that does not meet the standards applicable to non-emergency engines.

(2) An existing emergency stationary RICE located at an area source of HAP emissions that does not meet the standards applicable to non-emergency engines.

Permit Condition 4.12 includes the requirements of this section.

§ 63.6660……In what form and how long must I keep my records?

(a) Your records must be in a form suitable and readily available for expeditious review according to §63.10(b)(1).

(b) As specified in §63.10(b)(1), you must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

(c) You must keep each record readily accessible in hard copy or electronic form for at least 5 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to §63.10(b)(1).

Permit Condition 4.12 includes the requirements of this section.

§ 63.6665……What parts of the General Provisions apply to me?

Table 8 to this subpart shows which parts of the General Provisions in §§63.1 through 63.15 apply to you. If you own or operate 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 (except new or reconstructed 4SLB engines greater than or equal to 250 and less than or equal to 500 brake HP), a new or reconstructed stationary RICE located at an area source of HAP emissions, or any of the following RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with any of the requirements of the General Provisions specified in Table 8: An existing 2SLB stationary RICE, an existing 4SLB stationary RICE, an existing stationary RICE that combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, an existing emergency stationary RICE, or an existing limited use stationary RICE. If you own or operate any of the following RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with the requirements in the General Provisions specified in Table 8 except for the initial notification requirements: A new stationary RICE that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, a new emergency stationary RICE, or a new limited use stationary RICE.

Permit Condition 4.14 includes the requirements of this section.

Permit Conditions Review

This section describes the permit conditions for this initial permit as a result of this permitting action.

Initial Permit Condition 1.1

Describes the purpose of this permitting action and lists the regulated sources in Table 1.1. The 14 heaters are listed in this table as they are regulated to the permitted MMBtu/hr, number of heaters, and fuel type. However the fuel usage is based on 8,760 hours per year so there is no reason to list fuel usage permit conditions. Also, each heater is less the 10 MMBtu/hr, therefore there is no grain loading permit condition applicable to these units.

Initial Permit Condition 2.1

This permit condition describes the process of the two anaerobic digesters, two process boilers, and the candlestick flare.

Initial Permit Condition 2.2

Lists the emission sources and the control equipment.

Initial Permit Condition 2.3

Lists the emission limits of the candlestick flare, and two process boilers at the facility.

Initial Permit Condition 2.4

Lists the Hydrogen Sulfide ppmV limit and the monitoring methods that shall be used. Draeger tubes are the current and preferred method.

Initial Permit Condition 2.5

Lists the opacity limit for the facility

Initial Permit Condition 2.6

Lists the odor control permit limit condition.

Initial Permit Condition 2.7

Designates biogas and natural gas as the fuel types for the boilers. The emissions for the boilers were based on the worst case scenario using the worst case fuel type. Therefore of the secondary fuel type is used, emissions will not be exceeded.

Initial Permit Condition 2.8

Lists the pilot flame procedures to reignite the pilot.

Initial Permit Condition 2.9

Lists the reasonable control of fugitive emissions permit conditions.

Initial Permit Condition 2.10

Lists the pilot flame monitoring procedures to detect if a flame is present.

Initial Permit Condition 2.11

Describes hydrogen sulfide monitoring. This is in the permit to protect the 1,200 ppmV hydrogen sulfide limit permit condition.

Initial Permit Condition 2.12

Describes the O&M manual for the H_2S or Draeger Tubes monitoring, pilot flame detector, and anaerobic digesters to ensure these are being operated as per the specifications listed within this permit application.

Initial Permit Condition 2.13

Ensures that all process boilers are operated according to manufacturer's specifications at all times.

Initial Permit Condition 3.1

Describes the process for the two internal combustion engines located at this facility.

Initial Permit Condition 3.2

Lists the emission units and associated control devices.

Initial Permit Condition 3.3

Sets the emissions limits for both IC engines.

Initial Permit Condition 3.4

Sets the opacity limit for both IC engines.

Initial Permit Condition 3.5

States the MTU IC emergency engine shall be a Tier 2 Certified engine.

Initial Permit Condition 3.6

States the Caterpillar IC emergency engine shall be a Tier 1 Certified engine.

Initial Permit Condition 3.7

Sets the maintenance and testing operation hours to 1 hour each per day and 100 hours each per year. Actual emergency use shall not be restricted.

Initial Permit Condition 3.8

States the fuel specifications for both IC engines to ASTM Grades 1 or 2, or a mixture of ASTM Grades 1 and 2, and which has a maximum sulfur content of 0.0015% (15 ppm) by weight.

Initial Permit Condition 3.9

Lists the NESHAP compliance date for the Caterpillar emergency IC engine.

Initial Permit Condition 3.10

Lists the NESHAP startup requirements for the Caterpillar emergency IC engine.

Initial Permit Condition 3.11

Lists the NESHAP operating and monitoring requirements of the Caterpillar emergency IC engine.

Initial Permit Condition 3.12

Lists the NESHAP recordkeeping requirements of the Caterpillar emergency IC engine.

Initial Permit Condition 3.13

This permit condition incorporates all applicable federal requirements of 40 CFR 63 ZZZZ .

Initial Permit Condition 3.14

This permit condition incorporates all applicable general provisions of the federal requirements of 40 CFR 63 ZZZZ.

Initial Permit Condition 3.15

Lists the NSPS maintenance requirements for the MTU emergency IC engine.

Initial Permit Condition 3.16

The MTU emergency IC engine must have a non-resettable hour meter according to NSPS 40 CFR 60 IIII.

Initial Permit Condition 3.17

This permit condition incorporates all applicable general provisions of the federal requirements of 40 CFR 60 IIII.

Initial Permit Condition 3.18

This permit condition incorporates all applicable general provisions of the federal requirements of 40 CFR 60 IIII.

Initial Permit Condition 3.19

Lists the recordkeeping requirements for the MTU and Caterpillar emergency IC engines.

Initial Permit Condition 3.20

Lists the fuel oil specifications for the recordkeeping of the MTU and Caterpillar emergency IC engines.

Initial Permit Condition 3.21

States the general recordkeeping requirements.

Initial Permit Condition 4.1

The duty to comply general compliance provision requires that the permittee comply with all of the permit terms and conditions pursuant to Idaho Code §39-101.

Initial Permit Condition 4.2

The maintenance and operation general compliance provision requires that the permittee maintain and operate all treatment and control facilities at the facility in accordance with IDAPA 58.01.01.211.

Initial Permit Condition 4.3

The obligation to comply general compliance provision specifies that no permit condition is intended to relieve or exempt the permittee from compliance with applicable state and federal requirements, in accordance with IDAPA 58.01.01.212.01.

Initial Permit Condition 4.4

The inspection and entry provision requires that the permittee allow DEQ inspection and entry pursuant to Idaho Code §39-108.

Initial Permit Condition 4.5

The permit expiration construction and operation provision specifies that the permit expires if construction has not begun within two years of permit issuance or if construction has been suspended for a year in accordance with IDAPA 58.01.01.211.02.

Initial Permit Condition 4.6

The notification of construction and operation provision requires that the permittee notify DEQ of the dates of construction and operation, in accordance with IDAPA 58.01.01.211.01 and 211.03.

Initial Permit Condition 4.7

The performance testing notification of intent provision requires that the permittee notify DEQ at least 15 days prior to any performance test to provide DEQ the option to have an observer present, in accordance with IDAPA 58.01.01.157.03.

Initial Permit Condition 4.8

The performance test protocol provision requires that any performance testing be conducted in accordance with the procedures of IDAPA 58.01.01.157, and encourages the permittee to submit a protocol to DEQ for approval prior to testing.

Initial Permit Condition 4.9

The performance test report provision requires that the permittee report any performance test results to DEQ within 60 days of completion, in accordance with IDAPA 58.01.01.157.04-05.

Initial Permit Condition 4.10

The monitoring and recordkeeping provision requires that the permittee maintain sufficient records to ensure compliance with permit conditions, in accordance with IDAPA 58.01.01.211.

Initial Permit Condition 4.11

The excess emissions provision requires that the permittee follow the procedures required for excess emissions events, in accordance with IDAPA 58.01.01.130-136.

Initial Permit Condition 4.12

The certification provision requires that a responsible official certify all documents submitted to DEQ, in accordance with IDAPA 58.01.01.123.

Initial Permit Condition 4.13

The false statement provision requires that no person make false statements, representations, or certifications, in accordance with IDAPA 58.01.01.125.

Initial Permit Condition 4.14

The tampering provision requires that no person render inaccurate any required monitoring device or method, in accordance with IDAPA 58.01.01.126.

Initial Permit Condition 4.15

The transferability provision specifies that this permit to construct is transferable, in accordance with the procedures of IDAPA 58.01.01.209.06.

Initial Permit Condition 4.16

The severability provision specifies that permit conditions are severable, in accordance with IDAPA 58.01.01.211.

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 not a request for a public comment period on DEQ's proposed action. Refer to the chronology for public comment opportunity dates.

APPENDIX A – EMISSIONS INVENTORIES

City of Twin Falls WWTP

Criteria Pollutant Summary

Table 1. Facility-Wide PTE

Criteria Pollutants	PM10[c]		PM2.5[c]		CO[a]		NO
Emissions Unit Name	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)
Gen 1	0.47	0.024	0.46	0.023	6.97	0.35	26.25
Gen 2	0.57	0.028	0.55	0.028	8.45	0.42	31.81
BOI 1	0.022	0.095	0.022	0.09	0.17	0.73	0.41
BOI 2	0.022	0.095	0.022	0.09	0.17	0.73	0.41
Flare 1	0.11	0.50	0.11	0.50	3.02	13.24	0.66
Unit Heaters	0.02	0.09	0.02	0.09	0.24	1.04	0.28
Totals	**1.22**	**0.83**	**1.19**	**0.83**	**19.01**	**16.50**	**59.82**

)x	SOx[a]		Lead[a]		VOC[a]	
(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)
1.31	0.012	0.001			0.738	0.037
1.59	0.015	0.001			0.895	0.045
1.79	1.59	6.96	2.21E-06	9.66E-06	0.113	0.49
1.79	1.59	6.96	2.21E-06	9.66E-06	0.113	0.49
2.90	2.65	11.60			0.61	2.69
1.23	0.002	0.01	1.41E-06	6.16E-06	0.02	0.07
10.63	**5.85**	**25.52**	**5.82E-06**	**2.55E-05**	**2.49**	**3.83**

City of Twin Falls WWTP
Idaho TAP/HAP Summary

Table 2. Facility-Wide PTE TAP/HAPS

TAPs/HAPs	HAPs	Boilers 1-2		Flare 1		Unit Heaters		Gen 1		Gen 2		Facility Wide Total		EL	Exceeds EL
		(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	
3-Methylchloranthrene	No	1.45E-08	6.34E-08			5.06E-09	2.22E-08					1.95E-08	8.56E-08	2.50E-06	Below
Acetaldehyde[a]	**Yes**			6.45E-04	2.83E-03			2.36E-06	1.03E-05	2.86E-06	1.25E-05	6.45E-04	2.83E-03	3.03E-03	Below
Acrolein[a]	**Yes**			1.50E-04	6.57E-04			7.38E-07	3.23E-06	8.94E-07	3.92E-06	1.50E-04	6.57E-04	1.70E-02	Below
Ammonia	No	2.57E-02	1.13E-01									2.57E-02	1.13E-01		
Benzene[a]	**Yes**	3.22E-05	2.82E-04	2.39E-03	1.04E-02	3.38E-09	1.48E-08	7.27E-05	3.18E-04	8.81E-05	3.86E-04	**2.42E-03**	1.07E-02	8.00E-04	**Exceeds**
Benzo(a)anthracene	No														
Benzo(a)pyrene	No	9.65E-09	4.23E-08			3.38E-09	1.48E-08	2.41E-08	1.05E-07	2.92E-08	1.28E-07	6.63E-08	2.90E-07	2.00E-06	Below
Benzo(b)fluoranthene	No														
Benzo(k)fluoranthene	No														
Chrysene	No														
Dibenz(a,h)anthracene	No														
Ethylbenzene[a]	**Yes**			2.17E-02	9.49E-02							2.17E-02	9.49E-02	29	Below
Formaldehyde[a]	**Yes**	6.03E-04	2.64E-03	1.75E-02	7.68E-02	5.91E-06	2.59E-05	7.39E-06	3.24E-05	8.95E-06	3.92E-05	**1.81E-02**	7.95E-02	5.10E-04	**Exceeds**
Hexane[a]	**Yes**	1.45E-02	6.34E-02	4.35E-04	1.91E-03	2.11E-04	9.24E-04					1.51E-02	6.62E-02	12	Below
Hydrogen Sulfide[a]	**Yes**	3.13E-02	1.37E-01	1.57E-01	3.94E+00							1.88E-01	4.08E+00	9.33E-01	Below
Indeno(1,2,3-cd)pyrene	No														
Naphthalene[a]	**Yes**	4.90E-06	2.15E-05	1.65E-04	7.23E-04	1.72E-06	7.52E-06	1.22E-05	5.33E-05	1.48E-05	6.46E-05	**1.72E-04**	7.52E-04	9.10E-05	**Exceeds**
Pentane	No	2.09E-02	9.16E-02			7.32E-03	3.20E-02					2.82E-02	1.24E-01	118	Below
Toluene[a]	**Yes**	2.73E-05	1.20E-04	8.70E-04	3.81E-03	9.57E-06	4.19E-05	2.63E-05	1.15E-04	3.19E-05	1.40E-04	9.07E-04	3.97E-03	25	Below
Xylenes[a]	**Yes**			4.35E-04	1.91E-03			1.81E-05	7.92E-05	2.19E-05	9.59E-05	4.35E-04	1.91E-03	29	Below
Total PAHs[a]	**Yes**	8.04E-07	3.52E-06	4.50E-05	1.97E-04			1.99E-05	3.43E-06	2.41E-05	4.16E-06	4.58E-05	2.01E-04	9.10E-05	Below
POM[a]	**Yes**	9.17E-08	4.01E-07			3.38E-09	1.48E-08	4.21E-07	1.84E-06	5.10E-07	2.24E-06	9.50E-08	4.16E-07	2.00E-06	Below
TAPs/HAPs Metals															
Arsenic[a]	**Yes**	1.61E-06	7.04E-06			5.63E-07	2.46E-06					**2.17E-06**	9.51E-06	1.50E-06	**Exceeds**
Barium	No	3.54E-05	1.55E-04			1.24E-05	5.42E-05					4.78E-05	2.09E-04	0.033	Below
Beryllium[a]	**Yes**	9.65E-08	4.23E-07			3.38E-08	1.48E-07					1.30E-07	5.70E-07	2.80E-05	Below
Cadmium[a]	**Yes**	8.84E-06	3.87E-05			3.10E-06	1.36E-05					**1.19E-05**	5.23E-05	3.70E-06	**Exceeds**
Chromium[a]	**Yes**	1.13E-05	4.93E-05			3.94E-06	1.73E-05					1.52E-05	6.66E-05	3.30E-02	Below
Cobalt[a]	**Yes**	6.75E-07	2.96E-06			2.36E-07	1.04E-06					9.12E-07	3.99E-06	0.0033	Below
Copper	No	6.83E-06	2.99E-05			2.39E-06	1.05E-05					9.23E-06	4.04E-05	0.013	Below
Manganese[a]	**Yes**	3.06E-06	1.34E-05			1.07E-06	4.68E-06					4.12E-06	1.81E-05	0.333	Below
Mercury (HAP not a TAP)	**Yes**	2.09E-06	9.16E-06			7.32E-07	3.20E-06					2.82E-06	1.24E-05		
Molybdenum	No	8.84E-06	3.87E-05			3.10E-06	1.36E-05					1.19E-05	5.23E-05	0.333	Below
Nickel[a]	**Yes**	1.69E-05	7.40E-05			5.91E-06	2.59E-05					2.28E-05	9.98E-05	2.70E-05	Below
Selenium[a]	**Yes**	1.93E-07	8.45E-07			6.75E-08	2.96E-07					2.60E-07	1.14E-06	0.013	Below
Vanadium	No	1.85E-05	8.10E-05			6.47E-06	2.83E-05					2.50E-05	1.09E-04	0.003	Below
Zinc	No	2.33E-04	1.02E-03			8.16E-05	3.57E-04					3.15E-04	1.38E-03	0.667	Below
Total HAPs													**4.34**		

City of Twin Falls WWTP Boiler 1 (Duel fuel-Biogas & NG)

Boiler Heat Input (MMBtu/hr)	4.5
Model No.	RV450
Primary Fuel Type	Biogas
Secondary Fuel Type	Natural Gas
Secondary Fuel Heat Value (Btu/scf)	1,020
Secondary Fuel Use (10^6 scf/hr)	0.0040
Operation (hrs/yr)	8,760

Bryan Boiler with Power Flame burner

Note: That Boiler 1 only can operate one fuel type at a time . The worse case emissions are used between the two fuel types.

Based on design parameters from manufacturer provided volumetric flow rate

SO_2 & H_2S Calculations

600	BTU/ft^3	
1200	ppmv H_2S in digester gas	
1674	mg/m^3 H_2S in digester gas	
0.99	Fraction H2S converted to SO2	
1	mole H2S per mole SO2:	
	$2H_2S + 3O_2 \rightarrow 2SO_2 + 2H_2O$	
22.4	L/mol H2S (molar volume at Normal Conditions)	
64	g/mol SO2	
34	g/mol H2S	
0.00339	g SO2 per Liter exhaust	
211.77	lbs/10^6 ft^3	
0.353	lbs/MMBTU	
0.8	lb/hr -Uncontrolled Max H_2S Mass Feedrate	

				Uncontrolled Potential to Emit							
				Primary Fuel - Biogas			Secondary Fuel - Natural Gas			Worst-Case Fuel Operation	
Criteria Pollutant	**CAS No.**	**Emission Factor [1] (lb/MM Btu)**	**Emission Factor [2] (lb/MM Btu)**	**Emission Rate (lb/hr)**	**Emission Rate (lb/yr)**	**Emission Rate (ton/yr)**	**Emission Rate (lb/hr)**	**Emission Rate (lb/yr)**	**Emission Rate (ton/yr)**	**Emission Rate (lb/hr)**	**Emission Rate (ton/yr)**
Total Particulate Matter (PM) [3]		0.0048		0.022	189	0.09	0.02	189	0.1	0.02	0.09461
Nitrogen Oxides (NOx)		0.091		0.41	3,587	1.79	0.41	3587	1.8	0.41	1.79361
Sulfur Dioxide (SO_2) [4]		0.353		1.59	13,913	6.96	1.59	13913	7.0	1.59	6.95660
Carbon Monoxide (CO)		0.037		0.17	1,459	0.73	0.17	1459	0.73	0.17	0.72927
VOC		0.025		0.11	986	0.49	0.11	986	0.5	0.11	0.49275
Lead			4.90E-07	2.21E-06	1.93E-02	9.66E-06	2.21E-06	1.93E-02	9.66E-06	2.21E-06	0.00001

				Controlled Potential to Emit								
				Primary Fuel - Biogas			Secondary Fuel - Natural Gas			Worst-Case Fuel Operation		
Toxic Air Pollutants - H_2S	**CAS No.**	**Emission Factor [5] (% Destruction)**		**Emission Rate (lb/hr)**	**Emission Rate (lb/yr)**	**Emission Rate (ton/yr)**	**Emission Rate (lb/hr)**	**Emission Rate (lb/yr)**	**Emission Rate (ton/yr)**	**Emission Rate (lb/hr)**	**IDAPA 58.01.01.585/586 - EL (lb/hr)**	**PTE Emission Rate vs. EL**
Hydrogen sulfide	7783-06-4	98%		1.57E-02	137.16	6.86E-02				1.57E-02	9.33E-01	Below

				Uncontrolled Potential to Emit								
				Primary Fuel - Biogas[6]			Secondary Fuel - Natural Gas			Worst-Case Fuel Operation		
Toxic Air Pollutants - Non-metals [7]	CAS No.	EPA AP-42 Natural Gas Emission Factor ($lb/10^6$ scf)	SCAQMD [8] Digester Gas Emission Factor ($lb/10^6$ scf)	Emission Rate (lb/hr)	Emission Rate (lb/yr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (lb/yr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	IDAPA 58.01.01.585/586 - EL (lb/hr)	PTE Emission Rate vs. EL
3-Methylchloranthrene	56-49-5	1.80E-06		4.26E-09	3.73E-05	1.86E-08	7.24E-09	6.34E-05	3.17E-08	7.24E-09	2.50E-06	Below
Ammonia	7664-41-7		3.20E+00	1.29E-02	1.13E+02	5.63E-02				1.29E-02	1.20E+00	Below
Benzene	71-43-2	2.10E-03	8.00E-03	3.22E-05	2.82E-01	1.41E-04	8.44E-06	7.40E-02	3.70E-05	3.22E-05	8.00E-04	Below
Benzo(a)pyrene*	50-32-8	1.20E-06		2.84E-09	2.49E-05	1.24E-08	4.82E-09	4.23E-05	2.11E-08	4.82E-09	2.00E-06	Below
Formaldehyde	50-00-0	7.50E-02	1.70E-02	1.77E-04	1.55E+00	7.77E-04	3.02E-04	2.64E+00	1.32E-03	3.02E-04	5.10E-04	Below
Hexane	110-54-3	1.80E+00		4.26E-03	3.73E+01	1.86E-02	7.24E-03	6.34E+01	3.17E-02	7.24E-03	1.20E+01	Below
Naphthalene	91-20-3	6.10E-04		1.44E-06	1.26E-02	6.32E-06	2.45E-06	2.15E-02	1.07E-05	2.45E-06	9.10E-05	Below
Total PAHs	na		1.00E-04	4.02E-07	3.52E-03	1.76E-06				4.02E-07	9.10E-05	Below
Pentane	109-66-0	2.60E+00		6.15E-03	5.39E+01	2.69E-02	1.05E-02	9.16E+01	4.58E-02	1.05E-02	1.18E+02	Below
Toluene	108-88-3	3.40E-03		8.04E-06	7.04E-02	3.52E-05	1.37E-05	1.20E-01	5.99E-05	1.37E-05	2.50E+01	Below
Benzo(a)anthracene*	56-55-3	1.80E-06					7.24E-09	6.34E-05	3.17E-08			
Benzo(b)fluoranthene*	205-82-3	1.80E-06					7.24E-09	6.34E-05	3.17E-08			
Benzo(k)fluoranthene*	205-82-3	1.80E-06					7.24E-09	6.34E-05	3.17E-08			
Chrysene*	218-01-9	1.80E-06					7.24E-09	6.34E-05	3.17E-08			
Dibenzo(a,h)anthracene*	53-70-3	1.20E-06					4.82E-09	4.23E-05	2.11E-08			
Indeno(1,2,3-cd)pyrene*	193-39-5	1.80E-06					7.24E-09	6.34E-05	3.17E-08			
POM (7-PAH)[9]							4.58E-08	4.01E-04	2.01E-07	4.58E-08	2.00E-06	Below

				Uncontrolled Potential to Emit								
				Primary Fuel - Biogas			Secondary Fuel - Natural Gas			Worst-Case Fuel Operation		
Toxic Air Pollutants-Metals[10]	CAS Number	Emission Factor ($lb/10^6$ scf)		Emission Rate (lb/hr)	Emission Rate (lb/yr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (lb/yr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	IDAPA 58.01.01.585/586 - EL (lb/hr)	PTE Emission Rate vs. EL
Arsenic	7440-38-2	2.00E-04		4.73E-07	4.14E-03	2.07E-06	8.04E-07	7.04E-03	3.52E-06	8.04E-07	1.50E-06	Below
Barium	7440-39-3	4.40E-03		1.04E-05	9.11E-02	4.56E-05	1.77E-05	1.55E-01	7.75E-05	1.77E-05	3.30E-02	Below
Beryllium	7440-41-7	1.20E-05		2.84E-08	2.49E-04	1.24E-07	4.82E-08	4.23E-04	2.11E-07	4.82E-08	2.80E-05	Below
Cadmium	7440-43-9	1.10E-03		2.60E-06	2.28E-02	1.14E-05	4.42E-06	3.87E-02	1.94E-05	4.42E-06	3.70E-06	Exceeds
Chromium	7440-47-3	1.40E-03		3.31E-06	2.90E-02	1.45E-05	5.63E-06	4.93E-02	2.47E-05	5.63E-06	3.30E-02	Below
Cobalt	7440-48-4	8.40E-05		1.99E-07	1.74E-03	8.70E-07	3.38E-07	2.96E-03	1.48E-06	3.38E-07	3.30E-03	Below
Copper	7440-50-8	8.50E-04		2.01E-06	1.76E-02	8.80E-06	3.42E-06	2.99E-02	1.50E-05	3.42E-06	1.30E-02	Below
Manganese	7439-96-5	3.80E-04		8.99E-07	7.87E-03	3.94E-06	1.53E-06	1.34E-02	6.69E-06	1.53E-06	6.70E-02	Below
Mercury	7439-97-6	2.60E-04		6.15E-07	5.39E-03	2.69E-06	1.05E-06	9.16E-03	4.58E-06	1.05E-06	1.00E-03	Below
Molybdenum	7439-98-7	1.10E-03		2.60E-06	2.28E-02	1.14E-05	4.42E-06	3.87E-02	1.94E-05	4.42E-06	3.33E-01	Below
Nickel	7440-02-0	2.10E-03		4.97E-06	4.35E-02	2.18E-05	8.44E-06	7.40E-02	3.70E-05	8.44E-06	2.75E-05	Below
Selenium	7782-49-2	2.40E-05		5.68E-08	4.97E-04	2.49E-07	9.65E-08	8.45E-04	4.23E-07	9.65E-08	1.30E-02	Below
Vanadium	1314-62-1	2.30E-03		5.44E-06	4.76E-02	2.38E-05	9.25E-06	8.10E-02	4.05E-05	9.25E-06	3.00E-03	Below
Zinc	7440-66-6	2.90E-02		6.86E-05	6.01E-01	3.00E-04	1.17E-04	1.02E+00	5.11E-04	1.17E-04	3.33E-01	Below

Notes:

[1] Criteria Pollutants based on Power Flame burner emission factors

[2] Lead emission factor (EPA AP-42, Section 1.4 Natural Gas Combustion, Tables 1.4-1 and 1.4-2).

[3] PM emission factor is assumed to equal $PM_{2.5}$ & PM_{10}.

[4] SO_2 Emission factor for biogas assumes 100% conversion of H_2S to SO_2. Based on stoichometrics.

[5] Conservatively estimated H_2S destruction based on engineering judgement and combustion properties of H_2S

[6] Biogas toxic air pollutant emissions based on EPA AP-42 emission factors, times ratio of Biogas heat value to natural gas heat value, unless higher emisson factor available through SCAQMD.

[7] Toxic Air Pollutants (EPA AP-42, Section 1.4 Natural Gas Combustion, Table 1.4-3).

[8] Emission factors from "General Instruction Book for the 2003 - 2004 Annual Emissions Reporting Program", Table 10 (Default Emission factors for Digester Gas Combustion) South Coast Air Quality Managment District (SCAQMD).

[8] Emission factors from "Reporting Procedures for AB2588 Facilities", Table B-7 (DEFAULT EF FOR DIGESTER GAS COMBUSTION (LB / MMSCF)) South Coast Air Quality Mnagement District (SCAQMD)

[9]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. Designated by *

[10] Metals from Natural Gas Combustion (EPA AP-42, Section 1.4 Natural Gas Combustion, Table 1.4-4).

City of Twin Falls WWTP Boiler 2 (Duel fuel-Biogas & NG)

Boiler Heat Input (MMBtu/hr)	4.5
Model No.	RV450
Primary Fuel Type	Biogas
Secondary Fuel Type	Natural Gas
Secondary Fuel Heat Value (Btu/scf)	1,020
Secondary Fuel Use (10^6 scf/hr)	0.0040
Operation (hrs/yr)	8,760

Bryan Boiler with Power Flame burner

Note: That Boiler 2 was added for redundancy. The worse case emissions are used between the two fuel types.

Based on design parameters from manufacturer provided volumetric flow rate

SO_2 & H_2S Calculations

600	BTU/ft^3	
1200	ppmv H_2S in digester gas	
1674	mg/m^3 H_2S in digester gas	
0.99	Fraction H2S converted to SO2	
1	mole H2S per mole SO2:	

$$2H_2S + 3O_2 \rightarrow 2SO_2 + 2H_2O$$

22.4	L/mol H2S (molar volume at Normal Conditions)	
64	g/mol SO2	
34	g/mol H2S	
0.00339	g SO2 per Liter exhaust	
211.77	lbs/10^6 ft^3	
0.353	lbs/MMBTU	
0.8	lb/hr -Uncontrolled Max H_2S Mass Feedrate	

				Uncontrolled Potential to Emit							
				Primary Fuel - Biogas			Secondary Fuel - Natural Gas			Worst-Case Fuel Operation	
Criteria Pollutant	**CAS No.**	**Emission Factor [1] (lb/MM Btu)**	**Emission Factor [2] (lb/MM Btu)**	**Emission Rate (lb/hr)**	**Emission Rate (lb/yr)**	**Emission Rate (ton/yr)**	**Emission Rate (lb/hr)**	**Emission Rate (lb/yr)**	**Emission Rate (ton/yr)**	**Emission Rate (lb/hr)**	**Emission Rate (ton/yr)**
Total Particulate Matter (PM) [3]		0.0048		0.02	189	0.09	0.02	189	0.1	0.022	0.09
Nitrogen Oxides (NOx)		0.091		0.41	3,587	1.79	0.41	3587	1.8	0.41	1.79
Sulfur Dioxide (SO_2) [4]		0.353		1.59	13,913	6.96	1.59	13913	7.0	1.59	6.96
Carbon Monoxide (CO)		0.037		0.17	1,459	0.73	0.17	1459	0.7	0.17	0.73
VOC		0.025		0.11	986	0.49	0.11	986	0.5	0.11	0.49
Lead			4.90E-07	2.21E-06	1.93E-02	9.66E-06	2.21E-06	1.93E-02	9.66E-06	2.21E-06	9.66E-06

				Controlled Potential to Emit								
				Primary Fuel - Biogas			Secondary Fuel - Natural Gas			Worst-Case Fuel Operation		
Toxic Air Pollutants - H_2S	**CAS No.**	**Emission Factor [5] (% Destruction)**		**Emission Rate (lb/hr)**	**Emission Rate (lb/yr)**	**Emission Rate (ton/yr)**	**Emission Rate (lb/hr)**	**Emission Rate (lb/yr)**	**Emission Rate (ton/yr)**	**Emission Rate (lb/hr)**	**IDAPA 58.01.01.585/586 - EL (lb/hr)**	**PTE Emission Rate vs. EL**
Hydrogen sulfide	7783-06-4	98%		1.57E-02	137.16	6.86E-02				1.57E-02	9.33E-01	Below

				Uncontrolled Potential to Emit								
				Primary Fuel - Biogas[6]			Secondary Fuel - Natural Gas			Worst-Case Fuel Operation		
Toxic Air Pollutants - Non-metals [7]	CAS No.	EPA AP-42 Natural Gas Emission Factor (lb/10^6 scf)	SCAQMD [8] Digester Gas Emission Factor (lb/10^6 scf)	Emission Rate (lb/hr)	Emission Rate (lb/yr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (lb/yr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	IDAPA 58.01.01.585/586 - EL (lb/hr)	PTE Emission Rate vs. EL
3-Methylchloranthrene	56-49-5	1.80E-06		4.26E-09	3.73E-05	1.86E-08	7.24E-09	6.34E-05	3.17E-08	7.24E-09	2.50E-06	Below
Ammonia	7664-41-7		3.20E+00	1.29E-02	1.13E+02	5.63E-02				1.29E-02	1.20E+00	Below
Benzene	71-43-2	2.10E-03	8.00E-03	3.22E-05	2.82E-01	1.41E-04	8.44E-06	7.40E-02	3.70E-05	3.22E-05	8.00E-04	Below
Benzo(a)pyrene*	50-32-8	1.20E-06		2.84E-09	2.49E-05	1.24E-08	4.82E-09	4.23E-05	2.11E-08	4.82E-09	2.00E-06	Below
Formaldehyde	50-00-0	7.50E-02	1.70E-02	1.77E-04	1.55E+00	7.77E-04	3.02E-04	2.64E+00	1.32E-03	3.02E-04	5.10E-04	Below
Hexane	110-54-3	1.80E+00		4.26E-03	3.73E+01	1.86E-02	7.24E-03	6.34E+01	3.17E-02	7.24E-03	1.20E+01	Below
Naphthalene	91-20-3	6.10E-04		1.44E-06	1.26E-02	6.32E-06	2.45E-06	2.15E-02	1.07E-05	2.45E-06	9.10E-05	Below
Total PAHs	na		1.00E-04	4.02E-07	3.52E-03	1.76E-06				4.02E-07	9.10E-05	Below
Pentane	109-66-0	2.60E+00		6.15E-03	5.39E+01	2.69E-02	1.05E-02	9.16E+01	4.58E-02	1.05E-02	1.18E+02	Below
Toluene	108-88-3	3.40E-03		8.04E-06	7.04E-02	3.52E-05	1.37E-05	1.20E-01	5.99E-05	1.37E-05	2.50E+01	Below
Benzo(a)anthracene*	56-55-3	1.80E-06					7.24E-09	6.34E-05	3.17E-08			
Benzo(b)fluoranthene*	205-82-3	1.80E-06					7.24E-09	6.34E-05	3.17E-08			
Benzo(k)fluoranthene*	205-82-3	1.80E-06					7.24E-09	6.34E-05	3.17E-08			
Chrysene*	218-01-9	1.80E-06					7.24E-09	6.34E-05	3.17E-08			
Dibenzo(a,h)anthracene*	53-70-3	1.20E-06					4.82E-09	4.23E-05	2.11E-08			
Indeno(1,2,3-cd)pyrene*	193-39-5	1.80E-06					7.24E-09	6.34E-05	3.17E-08			
POM (7-PAH)[9]							4.58E-08	4.01E-04	2.01E-07	4.58E-08	2.00E-06	Below

				Uncontrolled Potential to Emit								
				Primary Fuel - Biogas			Secondary Fuel - Natural Gas			Worst-Case Fuel Operation		
Toxic Air Pollutants-Metals[10]	CAS Number	Emission Factor (lb/10^6 scf)		Emission Rate (lb/hr)	Emission Rate (lb/yr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (lb/yr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	IDAPA 58.01.01.585/586 - EL (lb/hr)	PTE Emission Rate vs. EL
Arsenic	7440-38-2	2.00E-04		4.73E-07	4.14E-03	2.07E-06	8.04E-07	7.04E-03	3.52E-06	8.04E-07	1.50E-06	Below
Barium	7440-39-3	4.40E-03		1.04E-05	9.11E-02	4.56E-05	1.77E-05	1.55E-01	7.75E-05	1.77E-05	3.30E-02	Below
Beryllium	7440-41-7	1.20E-05		2.84E-08	2.49E-04	1.24E-07	4.82E-08	4.23E-04	2.11E-07	4.82E-08	2.80E-05	Below
Cadmium	7440-43-9	1.10E-03		2.60E-06	2.28E-02	1.14E-05	4.42E-06	3.87E-02	1.94E-05	4.42E-06	3.70E-06	Exceeds
Chromium	7440-47-3	1.40E-03		3.31E-06	2.90E-02	1.45E-05	5.63E-06	4.93E-02	2.47E-05	5.63E-06	3.30E-02	Below
Cobalt	7440-48-4	8.40E-05		1.99E-07	1.74E-03	8.70E-07	3.38E-07	2.96E-03	1.48E-06	3.38E-07	3.30E-03	Below
Copper	7440-50-8	8.50E-04		2.01E-06	1.76E-02	8.80E-06	3.42E-06	2.99E-02	1.50E-05	3.42E-06	1.30E-02	Below
Manganese	7439-96-5	3.80E-04		8.99E-07	7.87E-03	3.94E-06	1.53E-06	1.34E-02	6.69E-06	1.53E-06	6.70E-02	Below
Mercury	7439-97-6	2.60E-04		6.15E-07	5.39E-03	2.69E-06	1.05E-06	9.16E-03	4.58E-06	1.05E-06	1.00E-03	Below
Molybdenum	7439-98-7	1.10E-03		2.60E-06	2.28E-02	1.14E-05	4.42E-06	3.87E-02	1.94E-05	4.42E-06	3.33E-01	Below
Nickel	7440-02-0	2.10E-03		4.97E-06	4.35E-02	2.18E-05	8.44E-06	7.40E-02	3.70E-05	8.44E-06	2.75E-05	Below
Selenium	7782-49-2	2.40E-05		5.68E-08	4.97E-04	2.49E-07	9.65E-08	8.45E-04	4.23E-07	9.65E-08	1.30E-02	Below
Vanadium	1314-62-1	2.30E-03		5.44E-06	4.76E-02	2.38E-05	9.25E-06	8.10E-02	4.05E-05	9.25E-06	3.00E-03	Below
Zinc	7440-66-6	2.90E-02		6.86E-05	6.01E-01	3.00E-04	1.17E-04	1.02E+00	5.11E-04	1.17E-04	3.33E-01	Below

Notes:

[1] Criteria Pollutants based on Power Flame burner emission factors

[2] Lead emission factor (EPA AP-42, Section 1.4 Natural Gas Combustion, Tables 1.4-1 and 1.4-2).

[3] PM emission factor is assumed to equal $PM_{2.5}$ & PM_{10}.

[4] SO_2 Emission factor for biogas assumes 100% conversion of H_2S to SO_2. Based on stoichometrics.

[5] Conservatively estimated H_2S destruction based on engineering judgement and combustion properties of H_2S

[6] Biogas toxic air pollutant emissions based on EPA AP-42 emission factors, times ratio of Biogas heat value to natural gas heat value, unless higher emisson factor available through SCAQMD.

[7] Toxic Air Pollutants (EPA AP-42, Section 1.4 Natural Gas Combustion, Table 1.4-3).

[8] Emission factors from "General Instruction Book for the 2003 - 2004 Annual Emissions Reporting Program", Table 10 (Default Emission factors for Digester Gas Combustion) South Coast Air Quality Managment District (SCAQMD).

[8] Emission factors from "Reporting Procedures for AB2588 Facilities", Table B-7 (DEFAULT EF FOR DIGESTER GAS COMBUSTION (LB / MMSCF)) South Coast Air Quality Mnagement District (SCAQMD)

[9]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. Designated by *

[10] Metals from Natural Gas Combustion (EPA AP-42, Section 1.4 Natural Gas Combustion, Table 1.4-4).

City of Twin Falls WWTP (NG Unit Heaters)

Model	Reznor Heaters _UDAS	Team Air Heater	Carrier Heaters	Carrier Heater	Reznor Heaters	AAON Heater	Innovent MAU	Hotsy Pressure Washer
Unit Heater IDs	R1-R5	T1	C1-C2	C3	R6-R7	A1	I1	H1
Number of Units	5	1	2	1	2	1	1	1
Heat Input (MMBTU/hr)	0.075	0.23	0.06	0.1	0.045	0.125	1.44	0.39
Natural Gas Usage (scf/hr)	368	225	118	98	88	123	1,412	382
Natural Gas Usage (10^6scf/hr)	0.00037	0.00023	0.00012	0.00010	0.00009	0.00012	0.00141	0.00038
Annual Hours of Operations (hrs/yr)[2]	8,760	8,760	8,760	8,760	8,760	8,760	8,760	8,760
Natural Gas Heating Value (BTU/scf) 1,020								

Criteria Pollutants	Emission Factor[1]																	Total Uni
	(lb/10^6scf)	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr
NO_X	100	0.04	0.16	0.02	0.10	0.01	0.052	0.01	0.043	0.01	0.04	0.01	0.05	0.14	0.62	0.04	0.17	0.28
CO	84	0.03	0.14	0.02	0.083	0.01	0.04	0.01	0.04	0.01	0.03	0.01	0.05	0.12	0.52	0.03	0.14	0.24
PM[2]	7.6	0.003	0.012	0.002	0.008	0.001	0.0039	0.001	0.0033	0.001	0.003	0.001	0.004	0.011	0.047	0.003	0.013	0.02
SO_2	0.6	0.0002	0.00097	0.0001	0.0006	0.0001	0.0003	0.0001	0.0003	0.0001	0.0002	0.0001	0.0003	0.0008	0.0037	0.0002	0.0010	0.002
VOC	5.5	0.002	0.009	0.001	0.005	0.001	0.003	0.001	0.002	0.000	0.002	0.001	0.003	0.008	0.034	0.002	0.009	0.02
Lead	0.0005	1.84E-07	8.05E-07	1.13E-07	4.94E-07	5.88E-08	2.58E-07	4.90E-08	2.15E-07	4.41E-08	1.93E-07	6.13E-08	2.68E-07	7.06E-07	3.09E-06	1.91E-07	8.37E-07	1.41E-06
TAP Emissions																		
	(lb/10^6scf)	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr
3-Methylchloranthene	1.80E-06	6.62E-10	2.90E-09	4.06E-10	1.78E-09	2.12E-10	9.28E-10	1.76E-10	7.73E-10	1.59E-10	6.96E-10	2.21E-10	9.66E-10	2.54E-09	1.11E-08	6.88E-10	3.01E-09	5.06E-09
POM		4.41E-10	1.93E-09	2.71E-10	1.19E-09	1.41E-10	6.18E-10	1.18E-10	5.15E-10	1.06E-10	4.64E-10	1.47E-10	6.44E-10	1.69E-09	7.42E-09	4.59E-10	2.01E-09	3.38E-09
Benza(a)anthracene																		
Benzo(b)fluoranthene																		
Benzo(k)fluoranthene																		
Dibenzo(a,h)anthracene																		
Chrysene																		
Indeno(1,2,3-cd)pyrene																		
Benzo(a)pyrene	1.20E-06	4.41E-10	1.93E-09	2.71E-10	1.19E-09	1.41E-10	6.18E-10	1.18E-10	5.15E-10	1.06E-10	4.64E-10	1.47E-10	6.44E-10	1.69E-09	7.42E-09	4.59E-10	2.01E-09	3.38E-09
Benzene	2.10E-03	7.72E-07	3.38E-06	4.74E-07	2.07E-06	2.47E-07	1.08E-06	2.06E-07	9.02E-07	1.85E-07	8.12E-07	2.57E-07	1.13E-06	2.96E-06	1.30E-05	8.03E-07	3.52E-06	5.91E-06
Formaldehyde	7.50E-02	2.76E-05	1.21E-04	1.69E-05	7.41E-05	8.82E-06	3.86E-05	7.35E-06	3.22E-05	6.62E-06	2.90E-05	9.19E-06	4.03E-05	1.06E-04	4.64E-04	2.87E-05	1.26E-04	2.11E-04
Hexane	1.80E+00	6.62E-04	2.90E-03	4.06E-04	1.78E-03	2.12E-04	9.28E-04	1.76E-04	7.73E-04	1.59E-04	6.96E-04	2.21E-04	9.66E-04	2.54E-03	1.11E-02	6.88E-04	3.01E-03	5.06E-03
Naphthalene	6.10E-04	2.24E-07	9.82E-07	1.38E-07	6.02E-07	7.18E-08	3.14E-07	5.98E-08	2.62E-07	5.38E-08	2.36E-07	7.48E-08	3.27E-07	8.61E-07	3.77E-06	2.33E-07	1.02E-06	1.72E-06
Pentane	2.60E+00	9.56E-04	4.19E-03	5.86E-04	2.57E-03	3.06E-04	1.34E-03	2.55E-04	1.12E-03	2.29E-04	1.00E-03	3.19E-04	1.40E-03	3.67E-03	1.61E-02	9.94E-04	4.35E-03	7.32E-03
Toluene	3.40E-03	1.25E-06	5.48E-06	7.67E-07	3.36E-06	4.00E-07	1.75E-06	3.33E-07	1.46E-06	3.00E-07	1.31E-06	4.17E-07	1.83E-06	4.80E-06	2.10E-05	1.30E-06	5.69E-06	9.57E-06
Arsenic	2.00E-04	7.35E-08	3.22E-07	4.51E-08	1.98E-07	2.35E-08	1.03E-07	1.96E-08	8.59E-08	1.76E-08	7.73E-08	2.45E-08	1.07E-07	2.82E-07	1.24E-06	7.65E-08	3.35E-07	5.63E-07
Barium	4.40E-03	1.62E-06	7.09E-06	9.92E-07	4.35E-06	5.18E-07	2.27E-06	4.31E-07	1.89E-06	3.88E-07	1.70E-06	5.39E-07	2.36E-06	6.21E-06	2.72E-05	1.68E-06	7.37E-06	1.24E-05
Beryllium	1.20E-05	4.41E-09	1.93E-08	2.71E-09	1.19E-08	1.41E-09	6.18E-09	1.18E-09	5.15E-09	1.06E-09	4.64E-09	1.47E-09	6.44E-09	1.69E-08	7.42E-08	4.59E-09	2.01E-08	3.38E-08
Cadmium	1.10E-03	4.04E-07	1.77E-06	2.48E-07	1.09E-06	1.29E-07	5.67E-07	1.08E-07	4.72E-07	9.71E-08	4.25E-07	1.35E-07	5.90E-07	1.55E-06	6.80E-06	4.21E-07	1.84E-06	3.10E-06
Chromium	1.40E-03	5.15E-07	2.25E-06	3.16E-07	1.38E-06	1.65E-07	7.21E-07	1.37E-07	6.01E-07	1.24E-07	5.41E-07	1.72E-07	7.51E-07	1.98E-06	8.66E-06	5.35E-07	2.34E-06	3.94E-06
Cobalt	8.40E-05	3.09E-08	1.35E-07	1.89E-08	8.30E-08	9.88E-09	4.33E-08	8.24E-09	3.61E-08	7.41E-09	3.25E-08	1.03E-08	4.51E-08	1.19E-07	5.19E-07	3.21E-08	1.41E-07	2.36E-07
Copper	8.50E-04	3.13E-07	1.37E-06	1.92E-07	8.40E-07	1.00E-07	4.38E-07	8.33E-08	3.65E-07	7.50E-08	3.29E-07	1.04E-07	4.56E-07	1.20E-06	5.26E-06	3.25E-07	1.42E-06	2.39E-06
Manganese	3.80E-04	1.40E-07	6.12E-07	8.57E-08	3.75E-07	4.47E-08	1.96E-07	3.73E-08	1.63E-07	3.35E-08	1.47E-07	4.66E-08	2.04E-07	5.36E-07	2.35E-06	1.45E-07	6.36E-07	1.07E-06
Mercury	2.60E-04	9.56E-08	4.19E-07	5.86E-08	2.57E-07	3.06E-08	1.34E-07	2.55E-08	1.12E-07	2.29E-08	1.00E-07	3.19E-08	1.40E-07	3.67E-07	1.61E-06	9.94E-08	4.35E-07	7.32E-07
Molybdenum	1.10E-03	4.04E-07	1.77E-06	2.48E-07	1.09E-06	1.29E-07	5.67E-07	1.08E-07	4.72E-07	9.71E-08	4.25E-07	1.35E-07	5.90E-07	1.55E-06	6.80E-06	4.21E-07	1.84E-06	3.10E-06
Nickel	2.10E-03	7.72E-07	3.38E-06	4.74E-07	2.07E-06	2.47E-07	1.08E-06	2.06E-07	9.02E-07	1.85E-07	8.12E-07	2.57E-07	1.13E-06	2.96E-06	1.30E-05	8.03E-07	3.52E-06	5.91E-06
Selenium	2.40E-05	8.82E-09	3.86E-08	5.41E-09	2.37E-08	2.82E-09	1.24E-08	2.35E-09	1.03E-08	2.12E-09	9.28E-09	2.94E-09	1.29E-08	3.39E-08	1.48E-07	9.18E-09	4.02E-08	6.75E-08
Vanadium	2.30E-03	8.46E-07	3.70E-06	5.19E-07	2.27E-06	2.71E-07	1.19E-06	2.25E-07	9.88E-07	2.03E-07	8.89E-07	2.82E-07	1.23E-06	3.25E-06	1.42E-05	8.79E-07	3.85E-06	6.47E-06
Zinc	2.90E-02	1.07E-05	4.67E-05	6.54E-06	2.86E-05	3.41E-06	1.49E-05	2.84E-06	1.25E-05	2.56E-06	1.12E-05	3.55E-06	1.56E-05	4.09E-05	1.79E-04	1.11E-05	4.86E-05	8.16E-05
TAP/HAP Totals																		

Notes

[1] Emission Factors from AP-42, Tables 1.4-1, 1.4-2, 1.4-3 and 1.4-4 (July 1998)

[2] PM emission factor is assumed to equal $PM_{2.5}$ & PM_{10}.

t Heaters
tpy
1.23
1.04
0.09
0.01
0.07
6.16E-06
tpy
2.22E-08
1.48E-08
1.48E-08
2.59E-05
9.24E-04
2.22E-02
7.52E-06
3.20E-02
4.19E-05
2.46E-06
5.42E-05
1.48E-07
1.36E-05
1.73E-05
1.04E-06
1.05E-05
4.68E-06
3.20E-06
1.36E-05
2.59E-05
2.96E-07
2.83E-05
3.57E-04
0.06

City of Twin Falls WWTP (Generator 1)

Generator Name	**Caterpillar**	Standby
Model No.	**3412C**	Installed in 2000
Engine Power Rating (kW)	800	Caterpillar technical specification sheet
Engine Power Rating (hp)	1,073	
Fuel Type	Diesel	
- maximum sulfur content (%)	0.0015	
Maximum Firing Rate (gals/hr)	58.6	Caterpillar technical specification sheet
Maximum Heat Input Rating (MMBtu/hr)	8.20	
Annual Operation Limit (hrs/yr)	100	**Uncontrolled TAPs should be based on** **8760** **hr/yr**
Annual Firing Rate (gals/yr)	5,860	
Heat Value of Fuel (Btu/gal)	140,000	

			Uncontrolled Potential to Emit			Controlled EI		1	hr/day
Pollutant	**CAS No.**	**Emission Factor (lb/MMBtu)**	**Emission Rate (lb/hr)**	**Emission Rate (lb/yr)**	**Emission Rate (ton/yr)**	**Emission Rate (lb/hr) 1 hr**	**Emission Rate (lb/hr) 3 hr**	**Emission Rate (lb/hr) 8 hr**	**Emission Rate (lb/hr) 24hr**
Particulate Matter ($PM_{2.5}$)[1]		0.0556	0.46	45.61	0.023				**0.019**
Total Particulate Matter (PM_{10})[2]		0.0573	0.47	47.01	0.024				**0.020**
Nitrogen Oxides (NOx)[3]		3.2	26.25	2,625.28	1.313				
Sulfur Oxides (SOx)[4]		0.0015	0.01	1.24	0.001	**0.012**	**0.004**		**0.001**
Carbon Monoxide (CO)[3]		0.85	6.97	697.34	0.349		**2.32**	**0.87**	
TOC[5]		0.09	0.74	73.84	0.037				

			Uncontrolled Potential to Emit		
Toxics[6]	**CAS Number**	**Emission Factor (lb/MMBtu)**	**Emission Rate (lb/hr)**	**Emission Rate (lb/yr)**	**Emission Rate (ton/yr)**
Benzene	71-43-2	7.76E-04	7.27E-05	6.37E-01	3.18E-04
Formaldehyde	50-00-0	7.89E-05	7.39E-06	6.47E-02	3.24E-05
Naphthalene	91-20-3	1.30E-04	1.22E-05	1.07E-01	5.33E-05
Toluene	108-88-3	2.81E-04	2.63E-05	2.31E-01	1.15E-04
Xylenes	1330-20-7	1.93E-04	1.81E-05	1.58E-01	7.92E-05
Acetaldehyde	75-07-0	2.52E-05	2.36E-06	2.07E-02	1.03E-05
Acrolein	107-02-8	7.88E-06	7.38E-07	6.46E-03	3.23E-06
Propylene	115-07-1	2.79E-03	2.61E-04	2.29E+00	1.14E-03
Acenaphthalylene	203-96-8	9.23E-06	8.64E-07	7.57E-03	3.79E-06
Acenaphthene	83-32-9	4.68E-06	4.38E-07	3.84E-03	1.92E-06
Fluorene	86-73-7	1.28E-05	1.20E-06	1.05E-02	5.25E-06
Phenanthrene	85-01-8	4.08E-05	3.82E-06	3.35E-02	1.67E-05
Anthracene	120-12-7	1.23E-06	1.15E-07	1.01E-03	5.05E-07
Fluoranthene	206-44-0	4.03E-06	3.77E-07	3.31E-03	1.65E-06
Pyrene	129-00-0	3.71E-06	3.47E-07	3.04E-03	1.52E-06
Benzo(g,h,I)pyrlene	191-24-2	5.56E-07	5.21E-08	4.56E-04	2.28E-07
Benz(a)anthracene	56-55-3	6.22E-07	5.83E-08	5.10E-04	2.55E-07
Benzo(b)fluoranthene	205-99-2	1.11E-06	1.04E-07	9.11E-04	4.55E-07
Benzo(k)fluoranthene	205-82-3	2.18E-07	2.04E-08	1.79E-04	8.94E-08
Chrysene	218-01-9	1.53E-06	1.43E-07	1.26E-03	6.28E-07
Dibenzo(a,h)anthracene	53-70-3	3.46E-07	3.24E-08	2.84E-04	1.42E-07
Indeno(1,2,3-cd)pyrene	193-39-5	4.14E-07	3.88E-08	3.40E-04	1.70E-07
Benzo(a)pyrene	50-32-8	2.57E-07	2.41E-08	2.11E-04	1.05E-07
POM [6]			4.21E-07	3.69E-03	1.84E-06
Total PAH		2.12E-04	1.99E-05	1.74E-01	3.43E-06

Notes:

[1] $PM_{2.5}$ emission factor based on filterable particale size less than 3 micrometers plus condensable particulate from EPA AP-42, Section 3.4 Large Statio and All Stationary Dual Fuel Engines,Table 3.4-2

[2] PM_{10} emission factor based on filterable particale size less than 3 micrometers plus condensable particulate from EPA AP-42, Section 3.4 Large Statio and All Stationary Dual Fuel Engines,Table 3.4-2

[3] NOx and CO emission factors from diesel fuel based on EPA AP-42, Section 3.4 Large Stationary Diesel and All Stationary Dual Fuel Engines, Table 3.

[4] SO_2 emission factor multiplied by percent sulfur content of fuel (EPA AP-42 Table 3.4-1) EF = 1.01 x (sulfur content) = 0.0015

[5] TOC is assumed to equal VOC based on EPA AP-42, Section 3.4 Large Stationary Diesel and All Stationary Dual Fuel Engines, Table 3.4-1

[6] Toxic emission factors were utilized from EPA AP-42, Section 3.4 Large Stationary Diesel and All Stationary Dual Fuel Engines,Tables 3.4-3 and 3.4-4. Tables 3.4-3 and 3.4-4.

Emission Rate (lb/hr)
Annual
0.005207
0.005366
0.299689
0.000142

nary Diesel

ıary Diesel

4-1

City of Twin Falls WWTP Biogas Flare 1

Heat Input (MMBtu/hr)	9.75	
Manufacturer	Varec Biogas	
Fuel Type	Biogas	
Biogas Heat Value (Btu/scf)	650	
Max Biogas Production (scf/day) (based on highest expected sulfate concentration)	360,000	**Flare capacity based on Montgomery Watson design of 15,000 ft^3/hr gas volumetric flow**
Biogas Primary Fuel Use (10^6 scf/hr)	0.0150	
Operation (hrs/yr)	8,760	**Operates intermittently**
Hydrogen Sulfide (H_2S) Biogas Concentration (ppmv)	1,200	**Engineering estimate**
H_2S Biogas Concentration (mg/m^3)	1,674	363,618
Uncontrolled H_2S Mass Feedrate (lb/hr)	1.6	
Assumed H_2S Conversion for SO_2 Emissions	90%	

				Uncontrolled Potential to Emit		
Criteria Pollutant	**CAS No.**	**Emission Factor [1]**		**Emission Rate (lb/hr)**	**Emission Rate (lb/yr)**	**Emission Rate (ton/yr)**
Total Particulate Matter (PM) [2]		7.6	lb MM cf NG	0.1140	999	0.50
Nitrogen Oxides (NOx)		0.068	lb/MM Btu	0.66	5,808	2.90
Sulfur Dioxide (SO_2) [3]		H_2S / SO_2 Mass Balance		2.65	23,205	11.60
Carbon Monoxide (CO)		0.31	lb/MM Btu	3.02	26,477	13.24
VOC		0.06	lb/MM Btu	0.61	5,381	2.69

				Primary Fuel - Biogas				
				Controlled Potential to Emit				
Toxic Air Pollutants - H_2S	**CAS No.**	**Emission Factor [4] (% Destruction)**		**Emission Rate (lb/hr)**	**Emission Rate (lb/yr)**	**Emission Rate (ton/yr)**	**IDAPA 58.01.01.585/586 - EL (lb/hr)**	**PTE Emission Rate vs. EL**
Hydrogen sulfide	7783-06-4	90%		0.16	7.88E+03	3.94E+00	9.33E-01	Below

				Primary Fuel - Biogas [3]				
				Uncontrolled Potential to Emit				
Toxic Air Pollutants - Others	**CAS No.**	**Digester Gas Emission Factor[5] (lb/10^6 scf)**		**Emission Rate (lb/hr)**	**Emission Rate (lb/yr)**	**Emission Rate (ton/yr)**	**IDAPA 58.01.01.585/586 - EL (lb/hr)**	**PTE Emission Rate vs. EL**
Benzene	71-43-2	0.159		2.39E-03	2.09E+01	0.0104463	8.00E-04	Exceeds
Formaldehyde	50-00-0	1.169		1.75E-02	1.54E+02	0.0768033	5.10E-04	Exceeds
Total PAH	1151	0.003		4.50E-05	3.94E-01	1.97E-04	9.10E-05	Below
Naphthalene	91-20-3	0.011		1.65E-04	1.45E+00	7.23E-04	3.33	Below
Acetaldehyde	75-07-0	0.043		6.45E-04	5.65E+00	2.83E-03	3.00E-03	Below
Acrolein	107-02-8	0.010		1.50E-04	1.31E+00	6.57E-04	0.017	Below
Ethylbenzene	100-41-4	1.444		2.17E-02	1.90E+02	9.49E-02	29.0	Below
Hexane	110-54-3	0.029		4.35E-04	3.81E+00	1.91E-03	12.0	Below
Toluene	108-88-3	0.058		8.70E-04	7.62E+00	3.81E-03	25.0	Below
Xylenes	1330-20-7	0.029		4.35E-04	3.81E+00	1.91E-03	29.0	Below

Notes:

[1] Criteria pollutants emission rates from AP-42, Section 13.5 (Industrial Flares) w/ exception of PM and SO_2 (see below).

[2] PM emissions based on natural gas combustion, per AP-42 Table 1.4-2, due to extreme range and concentration-based format of industrial flare PM factors

[3] SO_2 Emission factor for biogas assumes 100% conversion of H_2S to SO_2 . Natural gas SO2 factor based on AP-42, Table 1.4-2.

[4] Conservatively estimated H_2S destruction based on engineering judgement and combustion properties of H_2S

[5] Emission factors from "Reporting Procedures for AB2588 Facilities Reporting their Quadrennial Air Toxic Emission Inventory in the Annual Emission Reporting Program", Table B-7: DEFAULT EF FOR DIGESTER GAS COMBUSTION; SOURCE: Flare, Non-Refinery, South Coast Air Quality Managment District (SCAQMD).

[6] Emission factors from "Reporting Procedures for AB2588 Facilities Reporting their Quadrennial Air Toxic Emission Inventory in the Annual Emission Reporting Program", Table B-1: DEFAULT EF FOR NATURAL GAS COMBUSTION; SOURCE: Flare, Non-Refinery, South Coast Air Quality Managment District (SCAQMD).

City of Twin Falls WWTP (Generator 2)

Generator Name	**MTU**	Standby
Model No.	**16 V 2000 G85 TB**	Installed in 2016
Engine Power Rating (kW)	1,115	MTU technical specification sheet
Engine Power Rating (hp)	1,495	
Fuel Type	Diesel	
- maximum sulfur content (%)	0.0015	
Maximum Firing Rate (gals/hr)	71.0	MTU technical specification sheet
Maximum Heat Input Rating (MMBtu/hr)	9.94	
Annual Operation Limit (hrs/yr)	100	**Uncontrolled TAPs should be based on** **8760** **hr/yr**
Annual Firing Rate (gals/yr)	7,100	
Heat Value of Fuel (Btu/gal)	140,000	

			Controlled Potential to Emit			**Controlled EI**		**1**	**hr/day**	
Pollutant	**CAS No.**	**Emission Factor[1] (lb/MMBtu)**	**Emission Rate[2] (lb/hr)**	**Emission Rate (lb/yr)**	**Emission Rate (ton/yr)**	**Emission Rate (lb/hr) 1 hr**	**Emission Rate (lb/hr) 3 hr**	**Emission Rate (lb/hr) 8 hr**	**Emission Rate (lb/hr) 24hr**	**Emission Rate (lb/hr) Annual**
Particulate Matter ($PM_{2.5}$)[1]		0.0556	0.55	55.27	0.028				**0.023**	**6.31E-03**
Total Particulate Matter (PM_{10})[2]		0.0573	0.57	56.96	0.028				**0.024**	**6.50E-03**
Nitrogen Oxides (NOx)[3]		3.2	31.81	3,180.80	1.590					**0.363105**
Sulfur Oxides (SOx)[4]		0.0015	0.015	1.51	0.001	**0.02**	**0.01**		**0.001**	**1.72E-04**
Carbon Monoxide (CO)[3]		0.85	8.45	844.90	0.422	**8.45**	**2.82**	**1.06**		
TOC[5]		0.09	0.89	89.46	0.045					

			Uncontrolled Potential to Emit		
Toxics[6]	**CAS Number**	**Emission Factor (lb/MMBtu)**	**Emission Rate (lb/hr)**	**Emission Rate (lb/yr)**	**Emission Rate (ton/yr)**
Benzene	71-43-2	7.76E-04	8.81E-05	7.71E-01	3.86E-04
Formaldehyde	50-00-0	7.89E-05	8.95E-06	7.84E-02	3.92E-05
Naphthalene	91-20-3	1.30E-04	1.48E-05	1.29E-01	6.46E-05
Toluene	108-88-3	2.81E-04	3.19E-05	2.79E-01	1.40E-04
Xylenes	1330-20-7	1.93E-04	2.19E-05	1.92E-01	9.59E-05
Acetaldehyde	75-07-0	2.52E-05	2.86E-06	2.50E-02	1.25E-05
Acrolein	107-02-8	7.88E-06	8.94E-07	7.83E-03	3.92E-06
Propylene	115-07-1	2.79E-03	3.17E-04	2.77E+00	1.39E-03
Acenaphthalylene	203-96-8	9.23E-06	1.05E-06	9.17E-03	4.59E-06
Acenaphthene	83-32-9	4.68E-06	5.31E-07	4.65E-03	2.33E-06
Fluorene	86-73-7	1.28E-05	1.45E-06	1.27E-02	6.36E-06
Phenanthrene	85-01-8	4.08E-05	4.63E-06	4.06E-02	2.03E-05
Anthracene	120-12-7	1.23E-06	1.40E-07	1.22E-03	6.11E-07
Fluoranthene	206-44-0	4.03E-06	4.57E-07	4.01E-03	2.00E-06
Pyrene	129-00-0	3.71E-06	4.21E-07	3.69E-03	1.84E-06
Benzo(g,h,I)pyrlene	191-24-2	5.56E-07	6.31E-08	5.53E-04	2.76E-07
Benz(a)anthracene	56-55-3	6.22E-07	7.06E-08	6.18E-04	3.09E-07
Benzo(b)fluoranthene	205-99-2	1.11E-06	1.26E-07	1.10E-03	5.52E-07
Benzo(k)fluoranthene	205-82-3	2.18E-07	2.47E-08	2.17E-04	1.08E-07
Chrysene	218-01-9	1.53E-06	1.74E-07	1.52E-03	7.60E-07
Dibenzo(a,h)anthracene	53-70-3	3.46E-07	3.93E-08	3.44E-04	1.72E-07
Indeno(1,2,3-cd)pyrene	193-39-5	4.14E-07	4.70E-08	4.12E-04	2.06E-07
Benzo(a)pyrene	50-32-8	2.57E-07	2.92E-08	2.55E-04	1.28E-07
POM [6]			5.10E-07	4.47E-03	2.24E-06
Total PAH		2.12E-04	2.41E-05	2.11E-01	4.16E-06

Notes:

[1] $PM_{2.5}$ emission factor based on filterable particale size less than 3 micrometers plus condensable particulate from EPA AP-42, Section 3.4 Large Stationary Diesel and All Stationary Dual Fuel Engines,Table 3.4-2

[2] PM_{10} emission factor based on filterable particale size less than 3 micrometers plus condensable particulate from EPA AP-42, Section 3.4 Large Stationary Diesel and All Stationary Dual Fuel Engines,Table 3.4-2

[3] NOx and CO emission factors from diesel fuel based on EPA AP-42, Section 3.4 Large Stationary Diesel and All Stationary Dual Fuel Engines, Table 3.4-1

[4] SO_2 emission factor multiplied by percent sulfur content of fuel (EPA AP-42 Table 3.4-1) EF = 1.01 x (sulfur content) = 0.0015

[5] TOC is assumed to equal VOC based on EPA AP-42, Section 3.4 Large Stationary Diesel and All Stationary Dual Fuel Engines, Table 3.4-1

[6] Toxic emission factors were utilized from EPA AP-42, Section 3.4 Large Stationary Diesel and All Stationary Dual Fuel Engines,Tables 3.4-3 and 3.4-4.
Tables 3.4-3 and 3.4-4.

APPENDIX B – AMBIENT AIR QUALITY IMPACT ANALYSES

M E M O R A N D U M

DATE: April 27, 2021

TO: Christina Boulay, Permit Writer, Air Program

FROM: Pao Baylon, Modeling Review Analyst, Air Program

PROJECT: P-2021.0003 PROJ 62572, Initial Permit for an Existing Municipal Wastewater Treatment Plant located in Twin Falls, Idaho.

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

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Acronyms, Units, and Chemical Nomenclature

AAC	Acceptable Ambient Concentration of a Non-carcinogenic TAP
AACC	Acceptable Ambient Concentration of a Carcinogenic TAP
acfm	Actual cubic feet per minute
ADB	Anaerobic Digester Building
AERMAP	The terrain data preprocessor for AERMOD
AERMET	The meteorological data preprocessor for AERMOD
AERMOD	American Meteorological Society/Environmental Protection Agency Regulatory Model
Appendix W	40 CFR 51, Appendix W – Guideline on Air Quality Models
ASOS	Automated Surface Observing System
BPIP	Building Profile Input Program
BRC	Below Regulatory Concern
Btu	British thermal units
CFR	Code of Federal Regulations
CMAQ	Community Multi-Scale Air Quality Modeling System
CO	Carbon Monoxide
D	Effective stack diameter of flare
DEQ	Idaho Department of Environmental Quality
EL	Emissions Screening Level of a TAP
EPA	United States Environmental Protection Agency
GEP	Good Engineering Practice
H_2S	Hydrogen sulfide
H_a	Actual height of flare
H_e	Effective stack height of flare
hr	Hours
Idaho Air Rules	Rules for the Control of Air Pollution in Idaho, located in the Idaho Administrative Procedures Act 58.01.01
ISCST3	Industrial Source Complex Short Term 3 dispersion model
K	Kelvin
km	Kilometers
lb	Pounds
lb/hr	Pounds per hour
m	Meters
m/sec	Meters per second
MAU	Makeup air unit
MMBtu	Million British thermal units
MMBtu/hour	Million British thermal units per hour
NAAQS	National Ambient Air Quality Standards
NED	National Elevation Dataset
NO	Nitrogen Oxide
NO_2	Nitrogen Dioxide
NOx	Oxides of Nitrogen
NW AIRQUEST	Northwest International Air Quality Environmental Science and Technology Consortium

O_3	Ozone
Pb	Lead
PM_{10}	Particulate matter with an aerodynamic particle diameter less than or equal to a nominal 10 micrometers
$PM_{2.5}$	Particulate matter with an aerodynamic particle diameter less than or equal to a nominal 2.5 micrometers
ppb	Parts per billion
ppmv	Parts per million by volume
PRIME	Plume Rise Model Enhancement
PSD	Prevention of Significant Deterioration
PTC	Permit to Construct
PTE	Potential to Emit
q	Gross heat released from flare
q_n	Net heat released from flare
SIL	Significant Impact Level
SO_2	Sulfur Dioxide
T/day	Tons per day
TAP	Toxic Air Pollutant
tpy	Tons per year
TFWWTP	City of Twin Falls Wastewater Treatment Plant (permittee)
USGS	United States Geological Survey
UTM	Universal Transverse Mercator
VOC	Volatile Organic Compounds
WWTP	Wastewater Treatment Plant
º	Degrees Latitude or Longitude
ºF	Degrees Fahrenheit
µg/m^3	Micrograms per cubic meter of air

1.0 Summary

The City of Twin Falls submitted a Permit to Construct (PTC) application in support of a modification to its Wastewater Treatment Plant (WWTP) located in Twin Falls, Idaho. The project involves replacing two existing process boilers with new boilers (one primary and one redundant boiler for backup). Digester gas is produced from the anaerobic digesters at the WWTP. The two process boilers use digester gas (biogas) as the primary fuel and natural gas as a secondary fuel for heating the WWTP anaerobic digesters. Any excess biogas produced that is not used by the process boilers is routed to an open flare to burn off. The WWTP uses two diesel-fired emergency generators to provide backup power for WWTP operations if electric power is interrupted. The facility also uses natural gas unit heaters to heat buildings periodically throughout the year. An air quality permit exemption was initially prepared for this project but projected hydrogen sulfide (H_2S) concentrations will be in exceedance of the 200 parts per million by volume (ppmv) exemption threshold. Therefore, an air quality PTC was required for this project. Project-specific air quality analyses involving atmospheric dispersion modeling of estimated emissions associated with the facility were submitted to the Idaho Department of Environmental Quality (DEQ) to demonstrate that applicable emissions do not result in violation of a National Ambient Air Quality Standard (NAAQS) or Toxic Air Pollutant (TAP) increment as required by the Idaho Administrative Procedures Act 58.01.01.203.02 and 203.03 (Idaho Air Rules Section 203.02 and 203.03). This memorandum provides a summary of the applicability assessment for analyses and air impact analyses used to demonstrate compliance with applicable NAAQS and TAP increments, as required by Idaho Air Rules Section 203.02 and 203.03.

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

Table 1 presents key assumptions and results to be considered in the development of the permit. Idaho Air Rules require air impact analyses be conducted in accordance with methods outlined in 40 CFR 51, Appendix W *Guideline on Air Quality Models* (Appendix W). Appendix W requires that air quality impacts be assessed using atmospheric dispersion models with emissions and operations representative of design capacity or as limited by a federally enforceable permit condition.

The submitted information and analyses: 1) utilized appropriate methods and models; 2) was conducted using reasonably accurate or conservative model parameters and input data (review of emission 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 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, 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 TAP emission increases associated with the project will not result in increased ambient air impacts exceeding allowable TAP increments. This conclusion assumes that conditions in Table 1 are representative of facility design

capacity or operations as limited by a federally enforceable permit condition. The DEQ permit writer should use Table 1 and other information presented in this memorandum to generate appropriate permit provisions/restrictions to assure emissions do not exceed applicable regulatory thresholds requiring further analyses and to assure the requirements of Appendix W are met regarding emissions representative of design capacity or permit allowable rates.

Table 1. KEY ASSUMPTIONS USED IN MODELING ANALYSES.

Criteria/Assumption/Result	Explanation/Consideration
General Emission Rates. Emission rates used in the air impact analyses must represent maximum potential emissions as given by design capacity, inherently limited by the nature of the process or configuration of the facility, or as limited by the issued permit for the specific pollutant and averaging period.	Compliance has not been demonstrated for emission rates greater than those used in the air impact analyses.
Air Impact Analyses for Criteria Pollutant Emissions. Facility-wide emissions of CO[a], SO_2[b], and NO_2[c] do not qualify for a below regulatory concern (BRC) exemption. Therefore, these pollutants and all averaging times are subject to NAAQS Compliance Demonstration requirements. However, the applicant elected to also model for PM_{10}[d] and $PM_{2.5}$[e].	Project-specific air impact analyses demonstrating compliance with NAAQS, as required by Idaho Air Rules Section 203.02, are required for pollutant increases above BRC thresholds, or for pollutants having an emission increase that is greater than Level I modeling applicability thresholds (where the BRC exclusion cannot be used).
Air Impact Analyses for TAP Emissions. Allowable emissions of arsenic, benzene, cadmium, formaldehyde, and naphthalene exceed screening emission levels (ELs). Analyses demonstrating compliance with arsenic, benzene, cadmium, formaldehyde, and naphthalene TAP increments were performed.	A TAP increment compliance demonstration, as required by Idaho Air Rules Section 203.03, would be required for any TAPs with emission increases above ELs.
Testing and Maintenance of Emergency Generators. Two diesel-fired emergency generators provide electrical backup power to the WWTP in the event electric power is interrupted for facility operations. For testing and maintenance purposes, the emergency generator will be limited to 100 hours per year and may operate up to one hour per day. Testing and maintenance operation of the emergency generator is subject to modeling requirements except for 1-hour NO_2 SIL and NAAQS. True operation of the emergency generator, during an actual emergency, is not subject to modeling requirements.	Limited daily and annual operation assumptions for both emergency generators were applied to the SIL and NAAQS analyses. Contributions to the daily and annual ambient impacts were reduced compared to unrestricted operations. The annual limit of 100 hours per year for both emergency generators is appropriate given that the 1-hour NO_2 modeling exemption requires this operating limit.
Release Parameters for Emission Points. Stack heights are no shorter than what is indicated in this memorandum. Stack diameters are no larger than what is indicated in this memorandum. Typical exhaust flow rates and temperatures at the point of release are not less than the values indicated in this memorandum.	Compliance with applicable air quality standards is not assured if release parameters vary substantially from what was used in impact analyses.

a. Carbon monoxide.
b. Sulfur dioxide.
c. Nitrogen dioxide.
d. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
e. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.

Summary of Submittals and Actions

January 25, 2021 Application received by DEQ.

February 2, 2021 Regulatory start date.

March 4, 2021 Application determined complete by DEQ.

2.0 Background Information

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

2.1 Project Description

The City of Twin Falls is proposing to replace two existing process boilers with new process boilers (ie. one primary and one redundant boiler for backup) at their wastewater treatment plant located at 350 Canyon Springs Road West, Twin Falls, Idaho. Digester gas is produced from the anaerobic digesters at the City of Twin Falls Wastewater Treatment Plant (TFWWTP). The two process boilers use digester gas (biogas) as the primary fuel and natural gas as a secondary fuel for heating the TFWWTP anaerobic digesters. Any excess biogas produced that is not used by the process boilers is routed to an open flare to burn off.

The TFWWTP uses two diesel-fired emergency generators to provide backup power for TFWWTP operations if electric power is interrupted. The facility also uses natural gas unit heaters to heat buildings periodically throughout the year.

An air quality permit exemption was initially prepared for this project but projected hydrogen sulfide (H_2S) concentration data suggest that H_2S concentrations will exceed the 200 parts per million by volume (ppmv) exemption threshold. Therefore, an air quality PTC was required for this project.

Facility-wide emissions will include:

- two anaerobic digesters;
- two new process boilers;
- two emergency generators;
- one open flare; and
- 14 natural gas heating units (space heaters, makeup air unit, and stationary pressure washer).

The PTC addresses all air pollutant-emitting activities associated with the project.

2.2 Facility Location and Area Classification

The TFWWTP is located in Twin Falls County, Idaho (Northing: 4,720,330 meters [m]; Easting: 706,152 m; UTM Zone 11), which is designated as an attainment or unclassifiable area for particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM_{10}), particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers ($PM_{2.5}$), carbon monoxide (CO), ozone (O_3), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), and lead (Pb). The area is not classified as non-attainment for any criteria pollutant.

2.3 Air Impact Analyses Required for All Permits to Construct

Idaho Air Rules Sections 203.02 and 203.03 state:

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

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

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

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

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

2.4 Significant Impact Level and Cumulative NAAQS Impact Analyses

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

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

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

Table 2. APPLICABLE REGULATORY LIMITS.

Pollutant	Averaging Period	Significant Impact Levels[a] (µg/m^3)[b]	Regulatory Limit[c] (µg/m^3)	Modeled Design Value Used[d]
PM_{10}[e]	24-hour	5.0	150[f]	Maximum 6th highest[g]
$PM_{2.5}$[h]	24-hour	1.2	35[i]	Mean of maximum 8th highest[j]
	Annual	0.2	12[k]	Mean of maximum 1st highest[l]
Carbon Monoxide (CO)	1-hour	2,000	40,000[m]	Maximum 2nd highest[n]
	8-hour	500	10,000[m]	Maximum 2nd highest[n]
Sulfur Dioxide (SO_2)	1-hour	3 ppb[o] (7.8 µg/m^3)	75 ppb[p] (196 µg/m^3)	Mean of maximum 4th highest[q]
	3-hour	25	1,300[m]	Maximum 2nd highest[n]
Nitrogen Dioxide (NO_2)	1-hour	4 ppb (7.5 µg/m^3)	100 ppb[s] (188 µg/m^3)	Mean of maximum 8th highest[t]
	Annual	1.0	100[r]	Maximum 1st highest[n]
Lead (Pb)	3-month[u]	NA	0.15[r]	Maximum 1st highest[n]

	Quarterly	NA	1.5[r]	Maximum 1st highest[n]
Ozone (O_3)	8-hour	40 TPY VOC[v]	70 ppb[w]	Not typically modeled

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

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

A cumulative NAAQS impact analysis for attainment area pollutants involves assessing ambient impacts (typically the design values consistent with the form of the standard) from potential/allowable emissions resulting from the project and emissions from any nearby co-contributing sources (including existing emissions from the facility that are unrelated to the project), and then adding a DEQ-approved background concentration value to the modeled result that is appropriate for the criteria pollutant/averaging-period at the facility location and the area of significant impact. The resulting pollutant concentrations in ambient air are then compared to the NAAQS listed in Table 2. Table 2 also 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 an exceedance of NAAQS, a culpability analysis can determine if this exceedance is due to emissions from the proposed project. The permit may not be issued if the proposed project has a significant contribution (exceeding the SIL) to the modeled violation. If project-specific impacts are below the SIL, then the project does not have a significant contribution to the specific violations.

Compliance with Idaho Air Rules Section 203.02 is generally demonstrated if: a) applicable specific criteria pollutant emission increases are at a level defined as BRC, using the criteria established by DEQ regulatory interpretation[1]; or b) all modeled impacts of the SIL analysis are below the applicable SIL or

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

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

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

3.0 Analytical Methods and Data

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

3.1 Emission Source Data

Emissions of criteria pollutants and TAPs resulting from operation of the TFWWTP facility were

estimated by Jacobs for various applicable averaging periods. The calculation of potential emissions is the responsibility of the DEQ permit writer, and the representativeness and accuracy of emission estimates is not addressed in this modeling memorandum. DEQ air impact analysts are responsible for assuring that potential emission rates provided in the emission inventory are properly used in the model. The rates listed must represent the maximum allowable rate as averaged over the specified period.

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

3.1.1 Criteria Pollutant Modeling Applicability and Modeled Emission Rates

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

A NAAQS compliance demonstration must be performed for pollutant increases that would not qualify for the BRC exemption from the requirement to demonstrate compliance with NAAQS.

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

If total project-specific emission rate increases of a pollutant are below Level I Modeling Applicability Thresholds, then project-specific air impact analyses are not necessary for permitting. Use of Level II Modeling Applicability Thresholds is conditional, requiring DEQ approval. DEQ approval is based on dispersion-affecting characteristics of the emission sources such as stack height, stack gas exit velocity, stack gas temperature, distance from sources to ambient air, presence of elevated terrain, and potential exposure to sensitive public receptors.

Table 3 provides a comparison between facility-wide PTE emissions and BRC levels.

Table 3. CRITERIA POLLUTANT NAAQS COMPLIANCE DEMONSTRATION APPLICABILITY.			
Criteria Pollutant	**Applicable Facility-Wide PTE Emissions (ton/year)**	**BRC Level (ton/year)**	**Air Impact Analyses Required?**
PM_{10}[a]	0.83	1.5	No
$PM_{2.5}$[b]	0.83	1.0	No
CO[c]	16.50	10.0	Yes
SO_2[d]	25.52	4.0	Yes
NOx[e]	10.63	4.0	Yes
Pb[f]	2.55E-05	0.06	No
VOCs[g]	3.83	4.0	No

a. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
b. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
c. Carbon monoxide.
d. Sulfur dioxide.
e. Nitrogen oxides.
f. Lead.
g. Volatile Organic Compounds.

As shown in Table 3, a NAAQS compliance demonstration was required for CO, SO_2, and NOx because the facility-wide emission rates are larger than 10% of the significant emission rates. Facility-wide emissions of other criteria pollutants are less than 10% of the significant emission rates and therefore qualify for a BRC exemption. However, the applicant elected to model PM_{10} and $PM_{2.5}$ to demonstrate compliance with NAAQS.

Tables 4 and 5 list criteria pollutant emission rates used in the SIL and cumulative NAAQS impact analyses, respectively. Source descriptions of source identification names used in the model are listed in Table 8 along with release parameters. Note that the applicant did not take credit for negative emissions from the decommissioned units in the SIL analysis. Per Appendix A of the *State of Idaho Guideline for Performing Air Quality Impact Analysis*, modeling for 1-hour NO_2 is not required for emergency engine generators that run intermittently.[2] Therefore, the two existing emergency generators (EGEN1 and EGEN2) were excluded from the 1-hour NO_2 modeling demonstration (Table 5).

DEQ's review of the modeled emission rates indicates that existing space heaters that exhaust through multiple stacks (R1-R5, C1-C2, and R6-R7) were conservatively modeled using the combined emissions from all stacks instead of the individual emissions from each unit. Correcting for the modeled emission rates for existing space heaters would result in lower modeled concentrations.

Table 4. MODELED EMISSION RATES FOR SIL ANALYSIS.									
Source ID	**24-hr $PM_{2.5}$[a] (lb/hr)[b]**	**Annual $PM_{2.5}$ (tpy)[c]**	**24-hr PM_{10}[d] (lb/hr)**	**1-hr NO_2[e] (lb/hr)**	**Annual NO_2 (tpy)**	**1-hr SO_2[f] (lb/hr)**	**3-hr SO_2 (lb/hr)**	**1-hr CO[g] (lb/hr)**	**8-hr CO (lb/hr)**
BOI1	2.20E-02	9.00E-02	2.20E-02	4.09E-01	1.80E+00	1.59E+00	1.59E+00	1.70E-01	1.70E-01
BOI2	2.20E-02	9.00E-02	2.20E-02	4.09E-01	1.80E+00	1.59E+00	1.59E+00	1.70E-01	1.70E-01
FLARE1	1.10E-01	5.00E-01	1.10E-01	6.63E-01	2.90E+00	2.65E+00	2.65E+00	3.02E+00	3.02E+00

a. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
b. Pounds per hour.
c. Tons per year.
d. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
e. Nitrogen dioxide.
f. Sulfur dioxide.
g. Carbon monoxide.

Table 5. MODELED EMISSION RATES FOR CUMULATIVE NAAQS IMPACT ANALYSIS.									
Source ID	**24-hr $PM_{2.5}$[a] (lb/hr)[b]**	**Annual $PM_{2.5}$ (tpy)[c]**	**24-hr PM_{10}[d] (lb/hr)**	**1-hr NO_2[e] (lb/hr)**	**Annual NO_2 (tpy)**	**1-hr SO_2[f] (lb/hr)**	**3-hr SO_2 (lb/hr)**	**1-hr CO[g] (lb/hr)**	**8-hr CO (lb/hr)**
BOI1	2.20E-02	9.00E-02	2.20E-02	4.09E-01	1.80E+00	1.59E+00	1.59E+00	1.70E-01	1.70E-01
BOI2	2.20E-02	9.00E-02	2.20E-02	4.09E-01	1.80E+00	1.59E+00	1.59E+00	1.70E-01	1.70E-01
EGEN2	2.30E-02	2.80E-02	2.40E-02	0	1.59E+00	2.00E-02	1.00E-02	8.45E+00	1.06E+00
EGEN1	1.90E-02	2.30E-02	2.00E-02	0	1.31E+00	1.20E-02	4.00E-03	6.97E+00	8.70E-01
FLARE1	1.10E-01	5.00E-01	1.10E-01	6.63E-01	2.90E+00	2.65E+00	2.65E+00	3.02E+00	3.02E+00
R1	3.00E-03	1.20E-02	3.00E-03	3.65E-02	1.75E-01	2.00E-04	2.00E-04	3.00E-02	3.00E-02
R2	3.00E-03	1.20E-02	3.00E-03	3.65E-02	1.75E-01	2.00E-04	2.00E-04	3.00E-02	3.00E-02
R3	3.00E-03	1.20E-02	3.00E-03	3.65E-02	1.75E-01	2.00E-04	2.00E-04	3.00E-02	3.00E-02
R4	3.00E-03	1.20E-02	3.00E-03	3.65E-02	1.75E-01	2.00E-04	2.00E-04	3.00E-02	3.00E-02
R5	3.00E-03	1.20E-02	3.00E-03	3.65E-02	1.75E-01	2.00E-04	2.00E-04	3.00E-02	3.00E-02
T1	2.00E-03	8.00E-03	2.00E-03	2.28E-02	8.76E-02	1.00E-04	1.00E-04	2.00E-02	2.00E-02
C1	1.00E-03	3.90E-03	1.00E-03	1.19E-02	4.38E-02	1.00E-04	1.00E-04	1.00E-02	1.00E-02
C2	1.00E-03	3.90E-03	1.00E-03	1.19E-02	4.38E-02	1.00E-04	1.00E-04	1.00E-02	1.00E-02
C3	1.00E-03	3.30E-03	1.00E-03	9.82E-03	4.38E-02	1.00E-04	1.00E-04	1.00E-02	1.00E-02
R6	1.00E-03	3.00E-03	1.00E-03	9.13E-03	4.38E-02	1.00E-04	1.00E-04	3.00E-02	3.00E-02
R7	1.00E-03	3.00E-03	1.00E-03	9.13E-03	4.38E-02	1.00E-04	1.00E-04	3.00E-02	3.00E-02
A1	1.00E-03	4.00E-03	1.00E-03	1.14E-02	4.38E-02	1.00E-04	1.00E-04	1.00E-02	1.00E-02
I1	1.10E-02	4.70E-02	1.10E-02	1.42E-01	6.13E-01	8.00E-04	8.00E-04	1.20E-01	1.20E-01
H1	3.00E-03	1.31E-02	3.00E-03	3.88E-02	1.75E-01	2.00E-04	2.00E-04	3.00E-02	3.00E-02

a. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
b. Pounds per hour.
c. Tons per year.
d. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
e. Nitrogen dioxide.
f. Sulfur dioxide.
g. Carbon monoxide.

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 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 within the context of permitting a new stationary source 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."*

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

3.1.2 TAPs Modeling Applicability and Modeled Emission Rates

Facility-wide emissions of arsenic, benzene, cadmium, formaldehyde, and naphthalene exceed the applicable emission screening levels (ELs) of Idaho Air Rules Section 585 and 586. Air impact modeling analyses were then required to demonstrate that maximum impacts of arsenic, benzene, cadmium, formaldehyde, and naphthalene are below applicable ambient increment standards expressed in Idaho Air Rules Section 585 and 586 as AACs and AACCs.

Arsenic, benzene, cadmium, formaldehyde, and naphthalene are carcinogenic TAPs that are regulated on a long-term averaging basis. Therefore, the appropriate emission rates for impact analyses are maximum annual emissions, expressed as an average pound/hour value over an 8,760-hour period.

Table 6 provides a summary of TAP emission increases for the five TAPs that had an increase exceeding the ELs of Idaho Air Rules Section 585 or 586.

Table 6. TAP EMISSION INCREASES THAT TRIGGER MODELING.

Toxic Air Pollutant	Emissions (lb/hr)[a]	Screening Emissions Level (lb/hr)
Arsenic[b]	2.17E-06	1.50E-06
Benzene[b]	2.45E-03	8.00E-04
Cadmium[b]	1.19E-05	3.70E-06
Formaldehyde[b]	1.81E-02	5.10E-04
Naphthalene[b]	1.72E-04	9.10E-05

[a.] Pounds per hour.

b. Carcinogenic TAP. ELs are annual maximum emissions expressed as pounds/hour. The emission rate is the annual emissions divided by 8,760 hours/year.

Table 7 lists the emission rates used in the TAPs impact analysis. The total modeled emission rate for each TAP is greater than or equal to the emission increase for that TAP listed in Table 6. As noted in Section 2.5 of this modeling memorandum, 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. Therefore, Idaho TAPs that are federal HAPs may be excluded from the modeling analysis for the two emergency generators (EGEN1 and EGEN2 in Table 7). The permit writer evaluates the applicability of specific TAPs to the Section 210.20 exclusion.

Table 7. MODELED EMISSION RATES FOR TAPS IMPACT ANALYSIS.

Source ID	Arsenic[a] (lb/hr)[b]	Benzene[a] (lb/hr)	Cadmium[a] (lb/hr)	Formaldehyde[a] (lb/hr)	Naphthalene[a] (lb/hr)
BOI1	8.04E-07	3.22E-05	4.42E-06	3.02E-04	2.45E-06
BOI2	8.04E-07	3.22E-05	4.42E-06	3.02E-04	2.45E-06
EGEN2	0	0	0	0	0
EGEN1	0	0	0	0	0
FLARE1	0	2.39E-03	0	1.75E-02	1.65E-04
R1	7.35E-08	7.72E-07	4.04E-07	2.76E-05	2.24E-07
R2	7.35E-08	7.72E-07	4.04E-07	2.76E-05	2.24E-07
R3	7.35E-08	7.72E-07	4.04E-07	2.76E-05	2.24E-07
R4	7.35E-08	7.72E-07	4.04E-07	2.76E-05	2.24E-07
R5	7.35E-08	7.72E-07	4.04E-07	2.76E-05	2.24E-07
T1	4.51E-08	4.73E-07	2.48E-07	1.69E-05	1.37E-07
C1	2.35E-08	2.47E-07	1.29E-07	8.82E-06	7.18E-08
C2	2.35E-08	2.47E-07	1.29E-07	8.82E-06	7.18E-08
C3	1.96E-08	2.06E-07	1.08E-07	7.35E-06	5.98E-08
R6	1.76E-08	1.85E-07	9.71E-08	6.62E-06	5.39E-08
R7	1.76E-08	1.85E-07	9.71E-08	6.62E-06	5.39E-08
A1	2.45E-08	2.58E-07	1.35E-07	9.20E-06	7.48E-08
I1	2.83E-07	2.97E-06	1.55E-06	1.06E-04	8.61E-07
H1	7.65E-08	8.04E-07	4.21E-07	2.88E-05	2.33E-07

a. Carcinogenic TAP. The emission rate is the annual emissions divided by 8,760 hours/year.
b. Pounds per hour.

3.1.3 Emission Release Parameters

Table 8 lists the emission release parameters, including stack height, exhaust temperature, exhaust velocity, and stack diameter for all emission sources (English units are in parentheses). Emission point release parameters were based on information provided in the application. Justification for emission release parameters is summarized in the next section.

Table 8. POINT SOURCE EMISSION RELEASE PARAMETERS IN METRIC UNITS (ENGLISH UNITS IN PARENTHESES).

Release Point	Description	UTM[a] Coordinates		Stack Height in m (ft)[c]	Stack Exhaust Temp. in K (°F)[d]	Stack Exhaust Velocity in m/sec (fps)[e]	Stack Diameter in m (ft)	Orient. Of Release[f]
		Easting-X in m[b]	Northing-Y in m					
BOI1	Bryan Boiler	706,231.81	4,720,422.70	7.2 (23.5)	505 (450)	6.6 (21.5)	0.41 (1.33)	D
BOI2	Bryan Boiler	706,227.06	4,720,426.06	7.2 (23.5)	505 (450)	6.6 (21.5)	0.41 (1.33)	D

EGEN2	MTU Emergency Generator	706,255.26	4,720,343.67	3.2 (10.5)	897 (1,155)	44.6 (146.3)	0.30 (1.00)	D
EGEN1	Caterpillar Emergency Generator	706,228.58	4,720,232.89	2.5 (8.3)	897 (1,155)	44.6 (146.3)	0.25 (0.83)	D
FLARE1	Varec Biogas Flare	706,244.00	4,720,448.00	8.6 (28.1)	1273 (1,832)	20.0 (65.6)	0.55 (1.80)	D
R1	Reznor Heaters - UDAS	706,209.00	4,720,342.00	9.4 (31.0)	561 (550)	3.9 (12.8)	0.10 (0.33)	R
R2	Reznor Heaters - UDAS	706,208.98	4,720,335.24	9.4 (31.0)	561 (550)	3.9 (12.8)	0.10 (0.33)	R
R3	Reznor Heaters - UDAS	706,203.00	4,720,342.00	9.4 (31.0)	561 (550)	3.9 (12.8)	0.10 (0.33)	R
R4	Reznor Heaters - UDAS	706,202.93	4,720,335.22	9.4 (31.0)	561 (550)	3.9 (12.8)	0.10 (0.33)	R
R5	Reznor Heaters - UDAS	706,305.42	4,720,241.58	4.3 (14.0)	561 (550)	3.9 (12.8)	0.10 (0.33)	R
T1	Team Air Heater	706,310.00	4,720,242.00	4.3 (14.0)	561 (550)	4.2 (13.7)	0.15 (0.49)	R
C1	Carrier Heaters	706,215.00	4,720,342.00	9.4 (31.0)	561 (550)	3.1 (10.3)	0.10 (0.33)	R
C2	Carrier Heaters	706,215.04	4,720,335.30	9.4 (31.0)	561 (550)	3.1 (10.3)	0.10 (0.33)	R
C3	Carrier Heaters	706,211.90	4,720,176.60	5.5 (18.0)	561 (550)	3.4 (11.1)	0.10 (0.33)	R
R6	Reznor Heaters	706,186.72	4,720,211.16	7.3 (24.0)	561 (550)	3.3 (10.9)	0.10 (0.33)	R
R7	Reznor Heaters	706,198.30	4,720,205.28	7.3 (24.0)	561 (550)	3.3 (10.9)	0.10 (0.33)	R
A1	AAON Heater	706,311.00	4,720,319.00	4.6 (15.0)	0[g] (-460)	3.9 (12.7)	0.10 (0.33)	R
I1	Innovent MAU	706,298.00	4,720,416.00	9.8 (32.0)	0[g] (-460)	0.010 (0.033)	0.69 (2.26)	H
H1	Hotsy Pressure Washer	706,297.37	4,720,423.82	9.1 (30.0)	0[g] (-460)	5.4 (17.8)	0.20 (0.66)	R

a. Universal Transverse Mercator.
b. m: meters.
c. ft: feet.
d. K: Kelvin; ºF: degrees Fahrenheit.
e. m/sec: meters per second; fps: feet per second.
f. Orientation of release: D (default, vertical, uninterrupted release); H (horizontal release); R (rain-capped release).
g. Setting the exhaust temperature to 0 K triggers AERMOD to use the actual ambient air temperatures from the meteorological data input files.

3.1.4 Emission Release Parameter Justification

New Process Boilers

Model IDs: BOI1 and BOI2

The listed manufacturer for both boilers is Bryan Boilers. The primary fuel of the two boilers is biogas with natural gas a secondary fuel type. The second boiler (BOI2) is provided for redundancy in the event the first boiler (BOI1) is not operational. For operational flexibility, both boilers may operate at the same time. Each boiler is proposed to operate uncontrolled for 8,760 hours/year.

Modeled exhaust temperature (450°F) and flow rate (0.402 actual cubic feet per minute [acfm] per 1,000 British thermal units per hour [Btu/hr] input) were based on typical firing rates of 75% load and 100% rated heat input capacity. Modeled stack diameter (1.33 feet) and stack height (23.5 feet) were derived from manufacturer's engineering specifications and design stack configurations, and must be verified upon final construction. Both boilers are rated at 4.5 Million British thermal units per hour (MMBtu/hr) capacity. Therefore, the corresponding modeled exit velocity is 6.6 meter/second.

$$BOI1\ and\ BOI2\ exit\ velocity = 0.402\frac{\cancel{feet^3}}{\cancel{minute}} \times \frac{\cancel{hr}}{1{,}000\ \cancel{Btu}} \times 4{,}500{,}000\frac{\cancel{Btu}}{\cancel{hr}} \times \frac{4}{\pi(1.33\ \cancel{feet})^2} \times \frac{1\ \cancel{minute}}{60\ seconds} \times \frac{1\ meter}{3.28\ \cancel{feet}} = 6.6\frac{meter}{second}$$

The two boilers will be located at the Anaerobic Digester Building (ADB). The ADB is a one-story building with a basement. The bottom of the basement of the ADB is located at the lowest elevation of the facility, and the base elevation of the first floor is located at an elevation that is 53.50 feet higher than the bottom of the basement. Therefore, the base elevation for the two boiler stacks was set to the base elevation of the first floor of the ADB. Both boiler stacks were modeled with vertical, uninterrupted release.

Release parameters for both boilers were appropriately documented and justified.

Existing Emergency Generators

Model IDs: EGEN1 and EGEN2

Two diesel-fired emergency generators are utilized for backup power purposes only. Each emergency generator is limited to 100 hours per year from maintenance and testing. The listed manufacturers for EGEN1 and EGEN2 are Caterpillar and MTU, respectively.

Both emergency generators were field-measured by TFWWTP operators onsite in November 2020 to correctly identify the exit diameter (0.83 feet for EGEN1 and 1 foot for EGEN2) and exit stack heights (8.3 feet for EGEN1 and 10.5 feet for EGEN2) compared to discrepancies found in manufacturer data cut sheets.

Initial calculations of exit velocities for both generators exceeded 50 meter/second and were seen as highly suspicious; therefore, the exit velocities (44.6 meter/second) and exhaust temperatures (1,155°F) were obtained from Washington Ecology's "Suitability of Diesel-Powered Emergency Generators for Air Quality General Order of Approval: Evaluation of Control Technology, Ambient Impacts, and Potential Approval Criteria."[3] Exit velocity was obtained from Table 6 of the Washington Ecology document; exhaust temperature was obtained from Table 7 with the emergency generators at 75% load and using the lowest conservative temperature in the general order analysis for generators rated between 500 to 6,900 BHP. However, documentation for both emergency generators provided in Attachment 1 of the modeling report indicates exhaust stack gas temperatures of 964.0°F and 1,022°F for EGEN1 and EGEN2, respectively, which are lower than the modeled exhaust temperature of 1,155°F based on the Washington Ecology document. DEQ performed a modeling simulation using the more conservative exhaust temperatures and found no significant difference in modeled impacts.

Both emergency generator stacks were modeled with vertical, uninterrupted release.

Release parameters for both emergency generators were appropriately documented and justified.

Open Flare

Model ID: FLARE1

The listed manufacturer for the open flare is Varec Biogas with a heat input of 9.75 MMBtu/hr. It was modeled with vertical, uninterrupted release. The modeled stack parameters for the flare were based on EPA's *SCREEN3 Model User's Guide* to assess the enhanced buoyancy occurring with open flare sources.[4] The SCREEN3 method sets the exit gas velocity and temperature constant at 20 meter/second and 1,273 Kelvin, respectively. The stack diameter (*D*) was then calculated based on the heat released from the combustion of gases in the flare using the following equation:

$$D = 9.88 \times 10^{-4}(q_n)^{0.5}$$

where

D: effective stack diameter in meters; and
q_n: net heat released in calories/second.

The net heat released (q_n) was calculated from the gross heat released using the following equation:

$$q_n = 0.45q$$

where

q: gross heat released in calories/second.

Gross heat released (q) was calculated using the following equation:

$$q = \left(\frac{Flare\ Heat\ Rating\ MMBtu}{hour}\right) \times \left(\frac{1{,}000{,}000\ Btu}{1\ MMBtu}\right) \times \left(\frac{252\ calories}{Btu}\right) \times \left(\frac{1\ hour}{3{,}600\ seconds}\right)$$

$$q = \left(\frac{9.75\ MMBtu}{hour}\right) \times \left(\frac{1{,}000{,}000\ Btu}{1\ MMBtu}\right) \times \left(\frac{252\ calories}{Btu}\right) \times \left(\frac{1\ hour}{3{,}600\ seconds}\right)$$

$$q = 682{,}500\ calories/second$$

Using a q value of 682,500 calories/second, a net heat release (q_n) of 307,125 calories/second was calculated, giving a final effective diameter (*D*) of 0.55 meters.

An effective stack height was also calculated by the SCREEN3 method using the following equation:

$$H_e = H_a + [(4.56 \times 10^{-3})(q^{0.478})]$$

where

H_e: effective stack height in meters; and
H_a: actual height of flare at tip in meters.

The actual flare height (H_a) is 5.78 meters, giving an effective height (H_e) of 8.58 meters.

Flare release parameters were appropriately documented and justified.

Existing Heating Units

Model IDs: R1 through R7, T1, C1 through C3, A1, I1, and H1

The TFWWTP utilizes small natural gas heating units to provide heat to a variety of support buildings periodically throughout the year. There are 12 small natural gas space heating units ranging in size from 0.06 to 0.23 MMBtu/hr. In addition, there is one natural gas-fired makeup air unit (MAU) and one stationary pressure washer located at the dewatering building with rated heat input capacities of 1.44 MMBtu/hr and 0.39 MMBtu/hr, respectively. All heating units were modeled to operate based on 8,760 hours per year.

- R1-R5
  - Five natural gas Reznor ceiling heaters with a heat input of 0.075 MMBtu/hr.
  - All units have a vent diameter of 0.33 feet.
  - R1-R4 are located in the IFAS Building and have a vertical stack height of 31 feet.
  - R5 is located in RAS Pump Station 2 and has a vertical stack height of 14 feet.

- T1
  - One Team Air Heater with a heat input of 0.23 MMBtu/hr.
  - Unit has a vent diameter of 0.5 feet.
  - T1 is located in RAS Pump Station 2 and has a vertical stack height of 14 feet.

- C1-C2
  - Two Carrier Heaters with a heat input of 0.06 MMBtu/hr.
  - Units have a vent diameter of 0.33 feet.
  - C1 and C2 are located in the IFAS Building and have a vertical stack height of 31 feet.

- C3
  - One Carrier Heater with a heat input of 0.1 MMBtu/hr.
  - Unit has a vent diameter of 0.33 feet.
  - C3 is located in the Headworks 2 Building and has a vertical stack height of 18 feet.

- R6-7
  - Two Reznor heaters with a heat input of 0.045 MMBtu/hr.
  - Units have a vent diameter of 0.33 feet.
  - R6 and R7 are located in the CEPT Building and have a vertical stack height of 24 feet.

- A1
  - One AAON heater with a heat input of 0.125 MMBtu/hr.
  - Unit has a vent diameter of 0.33 feet.
  - A1 is located between Secondary Clarifiers 1 and 2 and has a vertical stack height of 15 feet.

- I1
  - One Innovent Makeup Air Unit (MAU) with a heat input of 1.44 MMBtu/hr.
  - Unit has a horizontal, north facing vent with a diameter of 27 inches (2.25 feet).

    - I1 is located in the UV Disinfection and Pump Station and has a vertical stack height of 32 feet.

- H1
    - One Hotsy stationary pressure washer with a heat input of 0.39 MMBtu/hr.
    - Unit has a vent diameter of 8 inches (0.67 feet).
    - H1 is located in the UV Disinfection and Pump Station and has a vertical stack height of 30 feet.

Stack heights and stack diameters were field-measured by TFWWTP operators onsite in November 2020. The release stack height assumes that each heating unit is 2 feet above the roofline (i.e., vertical discharge with raincap) of each structure or building at the TFWWTP with exception of the MAU at the dewatering building (model ID: I1). The MAU contains a horizontal release parameter to the north approximately 4 feet above the building roofline. Modeled exhaust temperatures and flow rates were taken from available manufacturing data. If no such manufacturing data were available for a particular unit, then similar units based on heat input ratings were used from the available Reznor technical data sheet. In addition, when no exit temperature data was available for a particular heating unit, ambient air temperature was used to increase conservatism. This was performed for units A1, I1, and H1, where the exhaust temperature was set to 0 K in the model which triggers AERMOD to use the actual ambient air temperatures from the meteorological data input files.

Release parameters for all existing heating units were appropriately justified.

3.2 Background Concentrations

Background concentrations are used if a cumulative NAAQS impact analysis is needed to demonstrate compliance with applicable NAAQS. Background design values (DV) for all criteria pollutants and averaging periods were obtained from the Northwest International Air Quality Environmental Science and Technology Consortium (NW AIRQUEST; https://arcg.is/1jXmHH) using the project site coordinates. These background air pollutant levels are based on regional scale air pollution modeling of pollutants in Washington, Oregon, and Idaho, with modeling results adjusted according to available monitoring data. The TFWWTP is located in the center of four local nodes. For conservatism, the maximum concentration from each node for each criteria pollutant and averaging period was selected as background. These values are listed in Table 9.

Table 9. CRITERIA POLLUTANT AMBIENT BACKGROUND CONCENTRATIONS.

Pollutant	Averaging Period	Background Concentration ($\mu g/m^3$)[a,b]
$PM_{2.5}$[c]	24-hour	13.79
	Annual	5.87
PM_{10}[d]	24-hour	78.11
NO_2[e]	1-hour	57.21
	Annual	10.21
SO_2[f]	1-hour	13.53
	3-hour	17.48
CO[g]	1-hour	2.55
	8-hour	1.37

a. Micrograms per cubic meter, except where noted otherwise.
b. NW AIRQUEST ambient background lookup tool, mid 2014–mid 2017.
c. Particulate matter with an aerodynamic diameter of 2.5 microns or less.
d. Particulate matter with an aerodynamic diameter of 10 microns or less.
e. Nitrogen dioxide.

f. Sulfur dioxide.
g. Carbon monoxide.

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 Impact Analyses

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

Table 10 provides a brief description of parameters used in the modeling analyses.

Table 10. MODELING PARAMETERS.

Parameter	Description/Values	Documentation/Addition Description
General Facility Location	Twin Falls, Idaho	The area is an attainment or unclassified area for all criteria pollutants.
Model	AERMOD	AERMOD with the PRIME downwash algorithm, version 19191.
Meteorological Data	Twin Falls surface station; Boise upper air station	The meteorological model input files for this project were developed by DEQ. The data were processed using the latest version of AERMET (version 19191) and the "ADJ_U*" option. See Section 3.3.5 of this memorandum for additional details of the meteorological data.
Terrain	Considered	National Elevation Dataset (NED) was acquired from the USGS for the surrounding area. AERMAP version 18081 was used to process terrain elevation data for all buildings and receptors. See Section 3.3.6 for more details.
Building Downwash	Considered	Plume downwash was considered for the structures associated with the facility. BPIP-PRIME was used to evaluate building dimensions for consideration of downwash effects in AERMOD. See Section 3.3.7 for more details.
NOx Chemistry	ARM2	The ARM2 method is a Tier 2 analysis method which assumes an ambient equilibrium between NO and NO_2, in which the conversion of NO to NO_2 is predicted using hourly ambient NOx monitoring data. ARM2 has been adopted by the EPA as a default regulatory Tier 2 option. See Section 3.3.8 for more details.
Receptor Grid	**SIL Analysis** The selection of receptors for use in the SIL analysis is as follows (see Section 3.3.10 for more details):	
	Grid 1	10-meter spacing along the ambient air boundary.
	Grid 2	10-meter spacing in a 100 meter (easting) by 100 meter (northing) grid centered on the facility.
	Grid 3	100-meter spacing in a 1,000 meter (easting) by 1,000 meter (northing) grid centered on the facility.
	Grid 4	500-meter spacing in a 5,000 meter (easting) by 5,000 meter (northing) grid centered on the facility.
	Cumulative NAAQS Impact Analysis The same receptor grid was used for the cumulative NAAQS impact analysis as for the SIL analysis.	
	TAPs Analysis The same receptor grid was used for the TAPs analysis as for the SIL analysis.	

3.3.2 Modeling Protocol

A modeling protocol was submitted by Jacobs to DEQ prior to the application, on November 20, 2020. Conditional DEQ protocol approval was provided to Jacobs on December 15, 2020.

3.3.3 Modeling Methodology

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

3.3.4 Model Selection

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

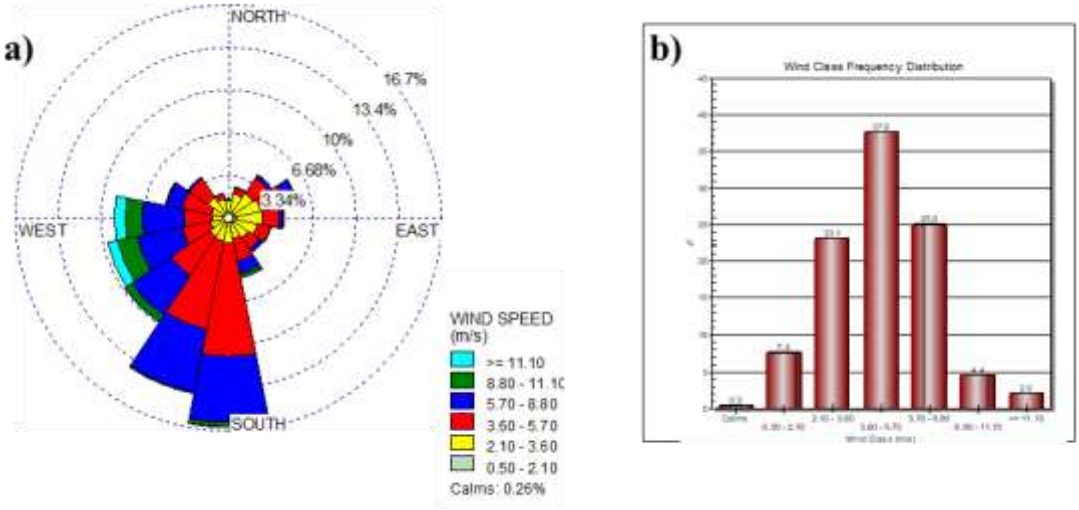
AERMOD version 19191 was used by Jacobs for the modeling analyses to evaluate impacts of the facility. This version was the current version at the time the application was received by DEQ.

3.3.5 Meteorological Data

DEQ processed a meteorological dataset from Twin Falls, Idaho (KTWF; station ID 725867-94178) covering the years 2014-2018. The upper air soundings required by AERMET were obtained from the Boise airport station (site ID 24131). Surface characteristics were determined by DEQ staff using AERSURFACE version 13016. DEQ modeling staff evaluated annual moisture conditions for the AERSURFACE runs based on thirty years of Twin Falls airport precipitation data. Conditions were determined to be "wet" for 2014 and 2016, "average" for 2015 and 2017, and "dry" for 2018. Average moisture content is defined as within a 30 percentile of the 30-year mean of 10.27 inches. Calms were relatively low, and less than 1 percent of the data were missing from the 5-year record.

Figure 1 shows a wind rose and wind speed histogram at Twin Falls Airport. AERMINUTE version 15272 was used to process Automated Surface Observing Systems (ASOS) wind data for use in AERMET. AERMET version 19191 was used to process surface and upper air data and to generate a model-ready meteorological data input file. The "adjust u star" (ADJ_U*) option was applied in AERMET to enhance model performance during low wind speeds under stable conditions. DEQ provided meteorological data to the applicant, with and without the ADJ_U* option enabled. In the submitted modeling files, Jacobs used the meteorological data with the ADJ_U* option enabled. DEQ determined that these data are adequately representative of the meteorology at the TFWWTP site for minor source permitting.

Figure 1. (a) WIND ROSE AND (b) WIND SPEED HISTOGRAM AT TWIN FALLS AIRPORT IN IDAHO (2014-2018).



3.3.6 Effects of Terrain on Modeled Impacts

Submitted ambient air impact analyses used terrain data extracted from United States Geological Survey (USGS) National Elevation Dataset (NED) 1-arc second TIFF files. The terrain preprocessor AERMAP version 18081 was used by Jacobs 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. Figure 2 depicts the receptor grid used in the analyses, overlaid on a terrain image from Google Earth.

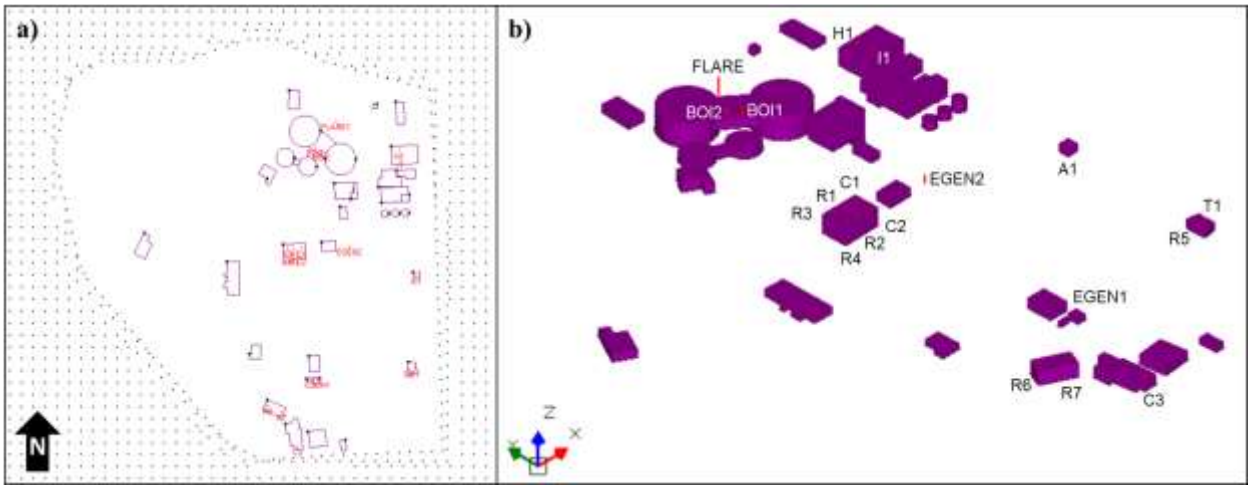
Figure 2. THE FULL RECEPTOR GRID CENTERED AT THE CITY OF TWIN FALLS WASTEWATER TREATMENT PLANT IN TWIN FALLS, IDAHO.



3.3.7 Facility Layout and Downwash

Figure 3a shows the facility's model setup showing locations of emission sources. Figure 3b illustrates a three-dimensional view of Figure 3a as viewed from the southwest.

Figure 3. (a) THE CITY OF TWIN FALLS WASTEWATER TREATMENT PLANT'S MODEL SETUP SHOWING EMISSION SOURCES, AND (b) THREE-DIMENSIONAL VIEW OF THE MODEL SETUP AS VIEWED FROM THE SOUTHWEST.



DEQ verified proper identification of the site location, equipment locations, and the ambient air boundary by comparing a graphical representation of the modeling input file to aerial photographs on Google Earth (available at https://www.google.com/earth).

Potential downwash effects on emission plumes were accounted for in the model by using building dimensions and locations (locations of building corners, base elevation, and building heights). Dimensions and orientation of buildings were used as input to the Building Profile Input Program for the Plume Rise Model Enhancements downwash algorithm (BPIP-PRIME version 04274) to calculate direction-specific dimensions and Good Engineering Practice (GEP) stack height information for input to AERMOD.

3.3.8 NOx Chemistry

The atmospheric chemistry of NO, NO_2, and O_3 complicates accurate prediction of NO_2 impacts resulting from NOx emissions. The conversion of NO to NO_2 can be conservatively addressed through the use of several methods as outlined in a *2014 EPA NO_2 Modeling Clarification Memorandum*.[5] The guidance outlines a three-tiered approach:

- Tier 1 – assume full conversion of NO to NO_2 where total NOx emissions are modeled and modeled impacts are assumed to be 100 percent NO_2.
- Tier 2 – use an ambient ratio to adjust impacts from the Tier 1 analysis.
- Tier 3 – use a detailed screening method to account for $NO/NO_2/O_3$ chemistry such as the Ozone Limiting Method (OLM) or the Plume Volume Molar Ratio Method (PVMRM).

Jacobs used the ARM2 method, a Tier 2 analysis method which assumes an ambient equilibrium between NO and NO_2, in which the conversion of NO to NO_2 is predicted using hourly ambient NOx monitoring data. ARM2 has been adopted by the EPA as a default regulatory Tier 2 option. A minimum and maximum NO_2/NOx ratio of 0.5 and 0.9, respectively, were specified in the model.

3.3.9 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." The ambient air boundary for this project (illustrated in Figure 4 below) is defined by the fenceline to the west, south, and east and bordered by the Snake River to the north. Public access is precluded by a fenceline and secured gate into the TFWWTP to the south. The secured fence ends at the edge of the Snake River; therefore, to trace the facility's fenceline for modeling purposes, a virtual line simulating the continuation of the fenceline along the edge of the Snake River was developed and the fenceline was drawn along the virtual line. Although it is not expected that the edge of the Snake River will serve as a common place for the public to access, it could be problematic for public exposure. Therefore, public access will be precluded by "No Trespassing" signs along the edge of the river as a precaution.

DEQ has determined that measures described in the application to preclude public access to areas of the site excluded from ambient air are adequate.

Figure 4. THE CITY OF TWIN FALLS WASTEWATER TREATMENT PLANT'S AMBIENT AIR BOUNDARY.



3.3.10 Receptor Network

Table 10 describes the receptor network used in the submitted modeling analyses. The receptor grids used in the model provided good resolution of the maximum design concentrations for the project and provided extensive coverage. The selection of receptors was as follows:

- Discrete receptors every 10 meters around the ambient air boundary.

- A 10-meter grid extended approximately 100 meters from the ambient air boundary.
- A 100-meter grid extended approximately 1 kilometer from the ambient air boundary.
- A 500-meter grid extended approximately 5 kilometers from the ambient air boundary.

The full receptor grid consists of 3,452 receptors and is depicted in Figure 2. The full receptor grid was used for the SIL, cumulative NAAQS impact, and TAPs analyses. DEQ determined that the receptor grid used in the submitted modeling analyses was adequate to resolve maximum modeled impacts.

The receptor grid used in the submitted modeling analyses met the minimum recommendations specified in the *Idaho Air Quality Modeling Guideline*[2], and DEQ determined that the receptor network was effective in reasonably assuring compliance with applicable air quality standards at all ambient air locations.

3.3.11 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.

Sources from the TFWWTP are below GEP stack height. Therefore, consideration of downwash caused by nearby buildings was required.

4.0 NAAQS and TAPs Impact Modeling Results

This section describes the air impact modeling results for both NAAQS and TAPs analyses.

4.1 Results for NAAQS Analyses

4.1.1 Significant Impact Level Analysis

Table 11 provides results for the significant impact level (SIL) analysis. It shows that the maximum predicted impacts from the facility are above the SIL for annual $PM_{2.5}$, 1-hour NO_2, annual NO_2, 1-hour SO_2, and 3-hour SO_2. Therefore, a cumulative NAAQS impact analysis was performed for these pollutants. However, the applicant elected to also model CO and all particulates in the cumulative NAAQS impact analysis.

Table 11. RESULTS FOR SIGNIFICANT IMPACT LEVEL ANALYSIS.					
Pollutant	**Averaging Period**	**Maximum Modeled Impact ($\mu g/m^3$)[a]**	**Significant Impact Level (SIL) ($\mu g/m^3$)**	**Percent of SIL**	**Cumulative NAAQS Impact Analysis Required?**
$PM_{2.5}$[b]	24-hour	1.08	1.2	90.0%	No
	Annual	0.22	0.2	110.0%	Yes
PM_{10}[c]	24-hour	1.48	5.0	29.6%	No
NO_2[d]	1-hour	48.81	7.5	650.8%	Yes
	Annual	4.57	1.0	457.0%	Yes
SO_2[e]	1-hour	189.92	7.8	2,434.9%	Yes
	3-hour	172.66	25	690.6%	Yes
CO[f]	1-hour	75.72	2,000	3.8%	No
	8-hour	43.06	500	8.6%	No

a. Micrograms per cubic meter.
b. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
c. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
d. Nitrogen dioxide.
e. Sulfur dioxide.
f. Carbon monoxide.

4.1.2 Cumulative NAAQS Impact Analysis

Table 12 provides results for the cumulative NAAQS impact analysis. For each modeled pollutant, the total impact was calculated by adding the design value (DV) of the impact to the ambient background value. The sum was then compared to the NAAQS. Ambient impacts for the facility, when combined with approved ambient backgrounds, were below the NAAQS at all receptors. DEQ notes that space heaters that exhaust through multiple stacks were conservatively modeled using the combined emissions coming from all stacks instead of the individual emission coming from each unit. For example, Reznor ceiling heaters R1 through R5 were each modeled using the total emissions coming from all five stacks. Correcting for the emission rates of the space heaters would likely result in lower modeled design values.

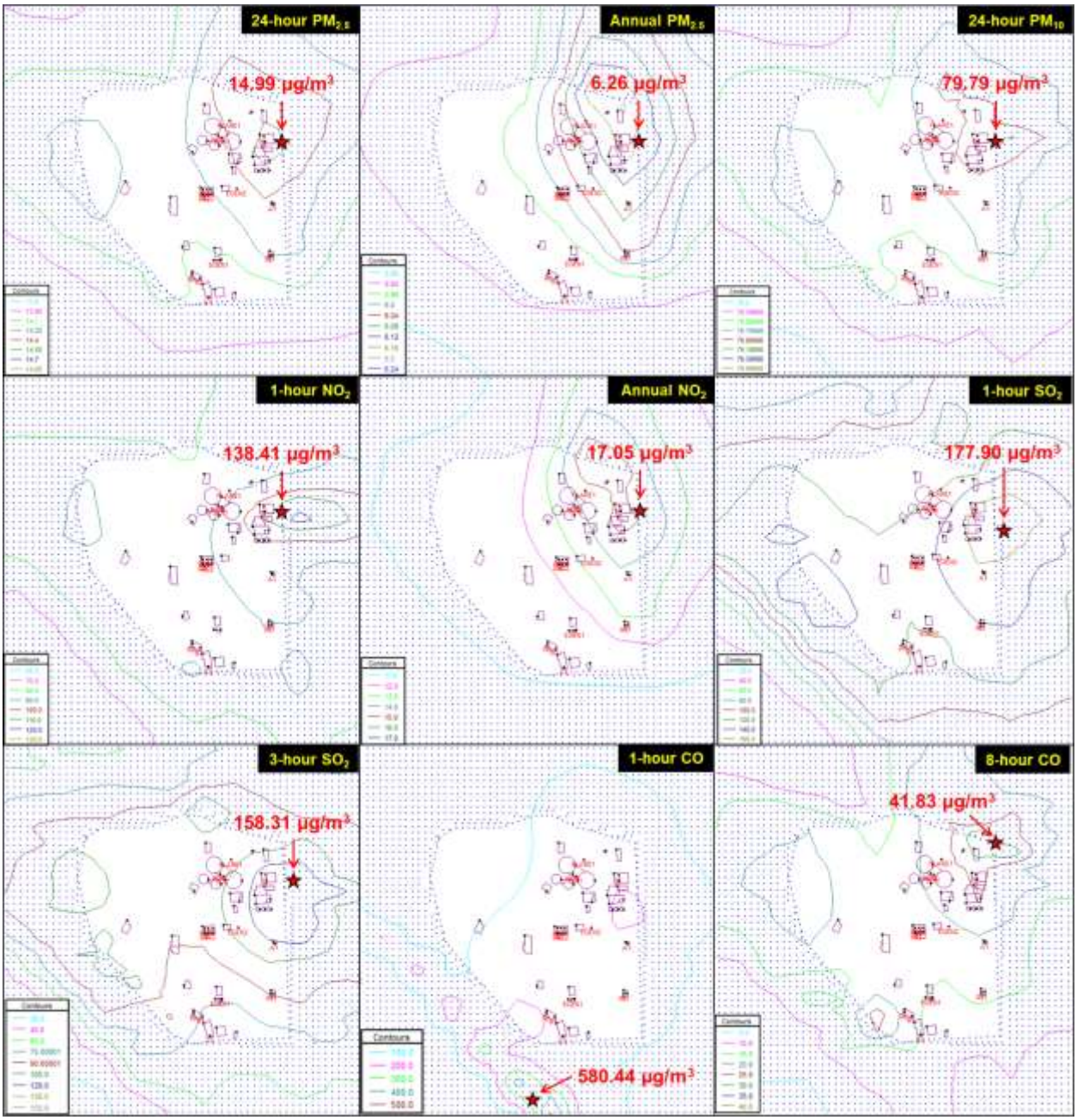
Table 12. RESULTS FOR CUMULATIVE NAAQS IMPACT ANALYSIS.						
Pollutant	**Averaging Period**	**Modeled Design Value Concentration ($\mu g/m^3$)[a]**	**Background Concentration ($\mu g/m^3$)**	**Total Ambient Impact ($\mu g/m^3$)**	**NAAQS ($\mu g/m^3$)**	**Percent of NAAQS**
$PM_{2.5}$[b]	24-hour	1.20	13.79	14.99	35	42.8%
	Annual	0.39	5.87	6.26	12	52.2%
PM_{10}[c]	24-hour	1.68	78.11	79.79	150	53.2%
NO_2[d]	1-hour	81.20	57.21	138.41	188	73.6%
	Annual	6.84	10.21	17.05	100	17.1%
SO_2[e]	1-hour	164.37	13.53	177.90	196	90.8%
	3-hour	140.83	17.48	158.31	1,300	12.2%
CO[f]	1-hour	577.89	2.55	580.44	40,000	1.5%
	8-hour	40.46	1.37	41.83	10,000	0.4%

a. Micrograms per cubic meter.
b. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
c. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
d. Nitrogen dioxide.
e. Sulfur dioxide.
f. Carbon monoxide.

Figure 5 illustrates the total impacts (modeled design values + background concentrations) for all pollutants and averaging periods that were modeled in the cumulative NAAQS impact analysis. The red

star denotes the location of maximum impacts. High impacts are limited to a relatively small area close to the facility, mostly along the northeast section of the property boundary.

Figure 5. TOTAL IMPACTS (MODELED DESIGN VALUES + BACKGROUND CONCENTRATIONS) FOR CUMULATIVE NAAQS IMPACT ANALYSIS.



4.2 Results for TAPs Impact Analyses

Dispersion modeling was required to demonstrate compliance with TAP increments specified by Idaho Air Rules Section 585 and 586 for those TAPs with emission increases exceeding screening emission levels (ELs). Table 13 lists the maximum modeled impacts for the five carcinogenic TAPs that required

modeling. All modeled impacts are below applicable AACCs.

Table 13. TAPS AIR IMPACT ANALYSIS RESULTS.			
TAP	**Maximum Modeled Impact (µg/m^3)[a]**	**AAC or AACC (µg/m^3)**	**Percent of AAC/AACC**
Arsenic[b]	1.00E-05	2.30E-04	4.3%
Benzene[b]	1.18E-03	1.20E-01	1.0%
Cadmium[b]	6.00E-05	5.60E-04	10.7%
Formaldehyde[b]	1.02E-02	7.70E-02	13.2%
Naphthalene[b]	9.00E-05	1.40E-02	0.6%

a. Micrograms per cubic meter.

b. Carcinogenic TAP. Modeled impact and AACC represent annual or period-average concentration.

5.0 Conclusions

The information submitted with the PTC application, combined with DEQ's air impact analyses, demonstrated to DEQ's satisfaction that emissions from the City of Twin Falls Wastewater Treatment Plant in Twin Falls, Idaho will not cause or significantly contribute to a violation of any applicable ambient air quality standard or TAP increment.

References

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

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

3. *Suitability of Diesel-Powered Emergency Generators for Air Quality General Order of Approval: Evaluation of Control Technology, Ambient Impacts, and Potential Approval Criteria*. Washington State Department of Ecology, Air Quality Program, General Order Engineering Team. June 23, 2006.

4. *SCREEN3 Model User's Guide*. EPA-454/B-95-004. U.S. Environmental Protection Agency. Office of Air Quality Planning and Standards Emissions, Monitoring, and Analysis Division. Research Triangle Park, NC. September 1995.

5. *Clarification on the Use of AERMOD Dispersion Modeling for Demonstrating Compliance with the NO_2 National Ambient Air Quality Standard*. Office of Air Quality Planning and Standards. Air Quality Modeling Group. Research Triangle Park, NC. Guidance memorandum from R. Chris Owen and Roger Brode to Regional Dispersion Modeling Contacts. September 30, 2014.

APPENDIX C – FACILITY DRAFT COMMENTS

The following comments were received from the facility on June 10, 2021:

Facility Comment: Please add, “or draeger tubes” to permit condition 2.4.

DEQ Response: “or draeger tubes” has been added to permit condition 2.4.

Facility Comment: Please add, “Draeger tubes may be used in lieu of an H2S monitor” to permit condition 2.11, paragraph one.

DEQ Response: “Draeger tubes may be used in lieu of an H_2S monitor” has been added to permit condition 2.11, paragraph one.

Facility Comment: Please add, “If an H_2S monitor is installed in lieu of draeger tubes” to permit condition 2.11, paragraph two.

DEQ Response: “If an H_2S monitor is installed in lieu of draeger tubes” has been added to permit condition 2.11, paragraph two.

Facility Comment: Please add, **“**or draeger tubes” to permit condition 2.11, paragraph three.

DEQ Response: “or draeger tubes” has been added to permit condition 2.11, paragraph three.

Facility Comment: Please add, “or draeger tubes” to permit condition 2.12, paragraph one.

DEQ Response: “or draeger tubes” has been added to permit condition 2.12, paragraph one.

Facility Comment: Please add, “or Draeger Tubes” to permit condition 2.12, H_2S Monitor section.

DEQ Response: “or Draeger Tubes” has been added to permit condition 2.12, H_2S Monitor section.

Facility Comment: Please add an Anaerobic Digester section and the following bullet points to permit condition 2.12.

- Procedure for monitoring biogas under positive pressure,
- Corrective action procedures if biogas is detected outside of pressure gauge range.

DEQ Response: An Anaerobic Digester section has been added to permit condition 2.12, along with the following bullet points:

- Procedure for monitoring biogas under positive pressure,
- Corrective action procedures if biogas is detected outside of pressure gauge range.

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 Twin Falls WWTP**
Address:	**350 Canyon Springs Road West**
City:	**Twin Falls**
State:	**Idaho**
Zip Code:	**83301**
Facility Contact:	**Jack Bennion**
Title:	**Plant Manager**
AIRS No.:	**221320**

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	10.6	0	10.6
SO_2	25.5	0	25.5
CO	16.5	0	16.5
PM10	0.0	0	0.0
VOC	3.8	0	3.8
Total:	56.5	0	**56.5**
Fee Due	**$ 5,000.00**		

Comments: