

# **Statement of Basis**

**Permit to Construct No. P-2021.0024  
Project ID 62819**

**Oak Valley Energy, LLC  
Burley, Idaho**

**Facility ID 031-00074**

**Final**

**May 4, 2022**

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**Permit Writer**

*KW*

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
Btu	British thermal units
CAA	Clean Air Act
CAS No.	Chemical Abstracts Service registry number
cfm	cubic feet per minute
CFR	Code of Federal Regulations
CO	carbon monoxide
CO <sub>2</sub>	carbon dioxide
CO <sub>2e</sub>	CO <sub>2</sub> equivalent emissions
DEQ	Department of Environmental Quality
dscf	dry standard cubic feet
EL	screening emission levels
EPA	U.S. Environmental Protection Agency
GACT	Generally Available Control Technology
gph	gallons per hour
gpm	gallons per minute
gr	grains (1 lb = 7,000 grains)
HAP	hazardous air pollutants
hr/yr	hours per consecutive 12 calendar month period
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
km	kilometers
lb/hr	pounds per hour
lb/qtr	pound per quarter
m	meters
MACT	Maximum Achievable Control Technology
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 <sub>2</sub>	nitrogen dioxide
NO <sub>x</sub>	nitrogen oxides
NSPS	New Source Performance Standards
O&M	operation and maintenance
O <sub>2</sub>	oxygen
PAH	polyaromatic hydrocarbons
PC	permit condition
PM	particulate matter
PM <sub>2.5</sub>	particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers
PM <sub>10</sub>	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
Rules	<i>Rules for the Control of Air Pollution in Idaho</i>

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 <sub>2</sub>	sulfur dioxide
SO <sub>x</sub>	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
U.S.C.	United States Code
VOC	volatile organic compounds
yd <sup>3</sup>	cubic yards
µg/m <sup>3</sup>	micrograms per cubic meter

## **FACILITY INFORMATION**

### ***Description***

Oak Valley Energy, LLC operates digesters at two different locations. Oak Valley 1&4 includes three above ground covered digester tanks and one anaerobic covered lagoon digester with a boiler and flare, and Oak Valley 5 includes one above ground covered digester tank and one anaerobic covered lagoon digester that will be producing biogas. An aeration mesh system that enhances the growth of sulfur-binding bacteria and oxygen injection acts to control the H<sub>2</sub>S concentration in the biogas. This biogas has a methane content of nearly 67% and will be captured via a natural gas pipeline. Once captured, the gas is removed using numerous, closely spaced 6-8" sludge pipes with open ends. The biogas is processed off site at another location at a cleanup unit that is not associated with this facility. When the biogas cannot be transferred, it is routed to the on-site flare at a maximum flowrate of 715 scf/min. A natural gas fired water heater (boiler) is used to maintain the temperature of the digesters for processing.

### ***Permitting History***

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

October 28, 2021            P-2021.0024, Initial PTC to install and operate a total of four above ground covered digester tanks and two anaerobic covered lagoon digesters, a natural gas fired water heater (boiler), and a flare, Permit status (A, but will become S upon issuance of this permit)

### ***Application Scope***

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

The applicant has proposed to install a new 2.0 MMBtu/hr natural gas-fired boiler at Oak Valley 5. In addition, the potential to emit from the flare has been revised from 8,760 hours per year to 500 hours per year.

### ***Application Chronology***

February 3, 2022            DEQ received an application and an application fee.

February 15 – March 2, 2022    DEQ provided an opportunity to request a public comment period on the application and proposed permitting action.

March 11, 2022            DEQ determined that the application was incomplete.

March 14, 2022            DEQ received supplemental information from the applicant.

March 25, 2022            DEQ determined that the application was complete.

April 11, 2022            DEQ made available the draft permit and statement of basis for peer and regional office review.

April 20, 2022            DEQ made available the draft permit and statement of basis for applicant review.

April 26, 2022            DEQ received the permit processing fee.

May 4, 2022            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
<p><u>Total of four above ground covered digester tanks and two anaerobic covered lagoon digesters</u>            Biogas produced: 300,981,863 scf/year or            1,077,336 scf/day</p>	<p><u>Flare</u>            Manufacturer: Parnel Biogas            Model: Free Standing flare (custom)            Maximum Capacity: 715 scfm            Rated Heat Input: 30.35 MMBtu/hr            Manufacture Date: May 2021</p> <p><u>Aeration Mesh System / Oxygen Injection</u></p>
<p><u>Boiler #1</u>            Manufacturer: Cleaver and Brooks            Model: FLX-1000            Burner Model: LNVG-100            Manufacture Date: 2011            Maximum Heat Input: 10.0 MMBtu/hr            Fuel: Natural Gas</p>	<p>None</p>
<p><u>Boiler #2</u>            Manufacturer: Cleaver and Brooks            Model: CFC-E            Burner Model: CFC-E            Manufacture Date: TBD            Maximum Heat Input: 2.0 MMBtu/hr            Fuel: Natural Gas</p>	<p>None</p>

### ***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 and two boilers at the facility (see Appendix A) associated with this proposed project. Emissions estimates of criteria pollutant, HAP and TAP were based on emission factors from AP-42 and South Coast Air Quality Management District (SCAQMD), operation of 8,760 hours per year for both boilers and 500 hours per year for the flare, and process information specific to the facility for this proposed project.

#### **Pre-Project Potential to Emit**

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. Pre-project emissions include 8,760 hours of flare operation.

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

Source	PM <sub>10</sub> /PM <sub>2.5</sub>		SO <sub>2</sub>		NO <sub>x</sub>		CO		VOC	
	lb/hr <sup>(a)</sup>	T/yr <sup>(b)</sup>	lb/hr <sup>(a)</sup>	T/yr <sup>(b)</sup>	lb/hr <sup>(a)</sup>	T/yr <sup>(b)</sup>	lb/hr <sup>(a)</sup>	T/yr <sup>(b)</sup>	lb/hr <sup>(a)</sup>	T/yr <sup>(b)</sup>
Flare	0.27	0.91	28.78	96.50	2.48	8.30	13.48	45.17	0.20	0.66
Boiler	0.21	0.92	0.01	0.04	0.42	1.84	0.90	3.94	0.05	0.23
<b>Pre-Project Totals</b>	<b>0.48</b>	<b>1.83</b>	<b>28.79</b>	<b>96.54</b>	<b>2.90</b>	<b>10.14</b>	<b>14.38</b>	<b>49.11</b>	<b>0.25</b>	<b>0.89</b>

- 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. Post project emissions include 500 hours of flare operation.

**Table 3 POST PROJECT POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS**

Source	PM <sub>10</sub> /PM <sub>2.5</sub>		SO <sub>2</sub>		NO <sub>x</sub>		CO		VOC	
	lb/hr <sup>(a)</sup>	T/yr <sup>(b)</sup>	lb/hr <sup>(a)</sup>	T/yr <sup>(b)</sup>	lb/hr <sup>(a)</sup>	T/yr <sup>(b)</sup>	lb/hr <sup>(a)</sup>	T/yr <sup>(b)</sup>	lb/hr <sup>(a)</sup>	T/yr <sup>(b)</sup>
Flare	0.27	0.07	27.97	6.99	2.48	0.62	13.48	3.37	0.20	0.000004
Boiler #1	0.21	0.92	0.01	0.04	0.42	1.84	0.90	3.94	0.05	0.23
Boiler #2	0.02	0.09	0.002	0.01	0.05	0.21	0.03	0.12	0.003	0.01
<b>Post Project Totals</b>	<b>0.50</b>	<b>1.08</b>	<b>27.98</b>	<b>7.04</b>	<b>2.95</b>	<b>2.67</b>	<b>14.41</b>	<b>7.43</b>	<b>0.25</b>	<b>0.24</b>

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

**Change in Potential to Emit**

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

**Table 4 CHANGES IN POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS**

Source	PM <sub>10</sub> /PM <sub>2.5</sub>		SO <sub>2</sub>		NO <sub>x</sub>		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	0.48	1.83	28.79	96.54	2.90	10.14	14.38	49.11	0.25	0.89
Post Project Potential to Emit	<b>0.50</b>	<b>1.08</b>	<b>27.98</b>	<b>7.04</b>	<b>2.95</b>	<b>2.67</b>	<b>14.41</b>	<b>7.43</b>	<b>0.25</b>	<b>0.24</b>
<b>Changes in Potential to Emit</b>	<b>0.02</b>	<b>-0.75</b>	<b>-0.81</b>	<b>-89.50</b>	<b>0.05</b>	<b>-7.47</b>	<b>0.03</b>	<b>-41.68</b>	<b>0.00</b>	<b>-0.65</b>

**Non-Carcinogenic TAP Emissions**

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

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

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

Non-Carcinogenic Toxic Air Pollutants	Pre-Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Post Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Change in 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Non-Carcinogenic Screening Emission Level (lb/hr)	Exceeds Screening Level? (Y/N)
Acrolein	0.00	5.40E-06	5.40E-06	1.70E-02	No
Ammonia	0.00	6.40E-03	6.40E-03	1.20	No
Barium	2.09E-04	2.09E-04	0.00	3.30E-02	No
Cobalt	3.99E-06	3.99E-06	0.00	3.30E-03	No
Copper	4.03E-05	4.03E-05	0.00	1.30E-02	No
Dichlorobenzene	5.71E-05	5.71E-05	0.00	20	No
Ethyl Benzene	0.00	1.38E-05	1.38E-05	29	No
Hexane	8.52E-02	8.52E-02	9.20E-06	12	No
Hydrogen Sulfide	7.05E-01	7.05E-01	0.00	9.33E-01	No
Manganese	1.81E-05	1.81E-05	0.00	3.33E-01	No
Molybdenum	5.23E-05	5.23E-05	0.00	3.33E-01	No
Naphthalene	2.90E-05	2.96E-05	6.00E-07	3.33	No
Pentane	1.23E-01	1.23E-01	0.00	118	No
Selenium	1.14E-06	1.14E-06	0.00	1.3E-02	No
Toluene	1.61E-04	2.14E-04	5.30E-05	25	No
Vanadium	1.09E-04	1.09E-04	0.00	3.00E-03	No
Xylene	0.00	3.94E-05	3.94E-05	29	No
Zinc	1.38E-03	1.38E-03	0.00	6.67E-01	No

All changes in emissions rates for non-carcinogenic TAP were below EL (screening emissions level) as a result of this project. Therefore, modeling is not required for any non-carcinogenic TAP because none of the 24-hour average non-carcinogenic screening ELs identified in IDAPA 58.01.01.585 were exceeded.

**Carcinogenic TAP Emissions**

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

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

Carcinogenic Toxic Air Pollutants	Pre-Project Annual Average Emissions Rates for Units at the Facility (lb/hr)	Post Project Annual Average Emissions Rates for Units at the Facility (lb/hr)	Change in Annual Average Emissions Rates for Units at the Facility (lb/hr)	Carcinogenic Screening Emission Level (lb/hr)	Exceeds Screening Level? (Y/N)
Acetaldehyde	0.00	6.20E-06	6.20E-06	3.00E-03	No
Arsenic	7.81E-06	7.81E-06	0.00	1.50E-06	No
Benzene	8.21E-06	1.98E-05	1.16E-05	8.00E-04	No
POM	4.92E-07	4.92E-07	0.00	2.00E-06	No
PAH	3.00E-06	3.20E-06	2.00E-07	9.10E-05	No
Beryllium	4.70E-08	4.70E-08	0.00	2.80E-05	No
Cadmium	4.31E-05	4.31E-05	0.00	3.70E-06	No
Chromium	5.46E-05	5.46E-05	0.00	5.60E-07	No
Formaldehyde	2.93E-03	2.95E-03	2.46E-05	5.10E-04	No
Nickel	8.21E-05	8.21E-05	0.00	2.70E-05	No

All changes in emissions rates for carcinogenic TAP were below EL (screening emissions level) as a result of this project. Therefore, modeling is not required for any carcinogenic TAP because none of 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 7 HAZARDOUS AIR POLLUTANTS EMISSIONS POTENTIAL TO EMIT SUMMARY**

<b>Hazardous Air Pollutants</b>	<b>PTE (T/yr)</b>
Cobalt	5.08E-06
Hexane	1.09E-01
Hydrogen Sulfide	1.76E-01
Manganese	2.30E-05
Naphthalene	3.95E-05
Selenium	1.45E-06
Toluene	4.37E-04
Arsenic	3.42E-05
Benzene	8.68E-05
PAH	1.38E-05
POM	2.16E-06
Beryllium	2.06E-07
Cadmium	1.89E-04
Chromium	2.39E-04
Formaldehyde	1.29E-02
Nickel	3.60E-04
Acetaldehyde	2.72E-05
Acrolein	2.37E-05
Ethyl benzene	6.04E-05
Xylene	1.73E-04
<b>Totals</b>	<b>0.30</b>

***Ambient Air Quality Impact Analyses***

An ambient air impact analysis was not required for this project because the project PTE for all criteria pollutants are below regulatory concern. In addition, a toxic air pollutant increment analysis was not required for this project because none of the ELs listed in IDAPA 58.01.01.585 or 586 were exceeded.

**REGULATORY ANALYSIS**

***Attainment Designation (40 CFR 81.313)***

The facility is located in Cassia County, which is designated as attainment or unclassifiable for PM<sub>2.5</sub>, PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>2</sub>, CO, and Ozone. Refer to 40 CFR 81.313 for additional information.

***Facility Classification***

The AIRS/AFS facility classification codes are as follows:

For HAPs (Hazardous Air Pollutants) Only:

A = Use when any one HAP has 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 8 REGULATED AIR POLLUTANT FACILITY CLASSIFICATION**

Pollutant	Uncontrolled PTE (T/yr)	Permitted PTE (T/yr)	Major Source Thresholds (T/yr)	AIRS/AFS Classification
PM <sub>10</sub>	1.08	1.08	<b>100</b>	B
PM <sub>2.5</sub>	1.08	1.08	<b>100</b>	B
SO <sub>2</sub>	7.04	7.04	<b>100</b>	B
NO <sub>x</sub>	2.67	2.67	<b>100</b>	B
CO	7.43	7.43	<b>100</b>	B
VOC	0.24	0.24	<b>100</b>	B
HAP (single)	0.18	0.18	<b>10</b>	B
Total HAPs	0.30	0.30	<b>25</b>	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 Condition 2.7.

**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 assured by Permit Condition 2.5.

**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<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO, and VOC or 10 tons per year for any one HAP or 25 tons per year for all HAP combined as demonstrated previously in the Emissions Inventories Section of this analysis. Therefore, the facility is not a Tier I source in accordance with IDAPA 58.01.01.006 and the requirements of IDAPA 58.01.01.301 do not apply.

**PSD Classification (40 CFR 52.21)**

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

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

**NSPS Applicability (40 CFR 60)**

The facility is not subject to any NSPS requirements 40 CFR Part 60.

**NESHAP Applicability (40 CFR 61)**

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

**MACT/GACT Applicability (40 CFR 63)**

The facility has proposed to operate as a minor source of hazardous air pollutant (HAP) emissions and may be subject to the requirements of 40 CFR 63, Subpart JJJJJJ–National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources. DEQ is delegated this Subpart.

40 CFR 63, Subpart JJJJJJ ..... National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources

§ 63.11193 ..... Am I subject to this subpart?

You are subject to this subpart if you own or operate an industrial, commercial, or institutional boiler as defined in § 63.11237 that is located at, or is part of, an area source of hazardous air pollutants (HAP), as defined in § 63.2, except as specified in § 63.11195.

The boilers at the facility are located at an area source of HAPs. However, it is specifically specified as being not subject to this subpart in § 63.11195.

§ 63.11193..... Are any boilers not subject to this subpart?

The types of boilers listed in paragraphs (a) through (k) of this section are not subject to this subpart and to any requirements in this subpart.

(e) A gas-fired boiler as defined in this subpart.

§ 63.11193..... What definitions apply to this subpart?

Gas-fired boiler includes any boiler that burns gaseous fuels not combined with any solid fuels and burns liquid fuel only during periods of gas curtailment, gas supply interruption, startups, or for periodic testing, maintenance, or operator training on liquid fuel. Periodic testing, maintenance, or operator training on liquid fuel shall not exceed a combined total of 48 hours during any calendar year.

Gaseous fuels include, but is not limited to, natural gas, process gas, landfill gas, coal derived gas, refinery gas, hydrogen, and biogas.

The boilers at the facility are considered gas-fired boilers and are therefore not subject to the requirements of the subpart.

### ***Permit Conditions Review***

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

Existing Tables 1.1, 2.1, and 2.2

These tables have been revised to include Boiler #2.

Deleted Permit Condition 2.8

The biogas flaring limit condition has been removed as the biogas is to be combusted in the flare only when the gas cannot be routed to the pipeline.

Modified Permit Condition 2.9

This permit condition has been revised to state that all biogas shall be directed to the offsite clean up unit for injection into the natural gas pipeline and only to the flare when the gas cannot be routed to the pipeline.

## **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

Oak Valley Energy LLC

Pre-Project Permitted PTE (as listed in the PTC P-2021.0024, 10/28/21)

Source	PM10		PM2.5		SO2		NOx		CO		VOC	
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Boiler	0.21	0.92	0.21	0.92	0.01	0.04	0.42	1.84	0.90	3.94	0.05	0.23
Flare	0.27	0.91	0.27	0.91	28.78	96.50	2.48	8.30	13.48	45.17	0.20	0.66
Total	0.48	1.83	0.48	1.83	28.79	96.54	2.90	10.14	14.38	49.11	0.25	0.89

Project Increase

Source	PM10		PM2.5		SO2		NOx		CO		VOC	
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
New Boiler	0.02	0.09	0.02	0.09	0.002	0.01	0.05	0.21	0.03	0.12	0.003	0.01
Total	0.02	0.09	0.02	0.09	0.00	0.01	0.05	0.21	0.03	0.12	0.00	0.01

Post Project PTE

Source	PM10		PM2.5		SO2		NOx		CO		VOC	
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Existing Equipment	0.48	1.83	0.48	1.83	28.79	96.54	2.90	10.14	14.38	49.11	0.25	0.89
New Boiler	0.02	0.09	0.02	0.09	0.00	0.01	0.05	0.21	0.03	0.12	0.00	0.01
Total	0.50	1.92	0.50	1.92	28.79	96.55	2.95	10.35	14.41	49.23	0.25	0.90

### Oak Valley 5 New Boiler Potential Criteria Pollutant Emissions

Fuel	Natural Gas
Hours of Operation	8760 hours/year
Heat Input Capacity	2.0 MMBtu/hr
Fuel Heat Value <sup>1</sup>	1000 Btu/scf
Heat Input Capacity	0.0020 MMscf/hr

Pollutant	Manufacturer Specifications Emission Factor (lb/MMBtu)	AP-42 NG Combustion Emission Factor <sup>2</sup> (lb/MMscf)	Potential Emissions	
			(lb/hr)	(tpy)
PM <sub>10</sub>	0.01	--	2.00E-02	8.76E-02
PM <sub>2.5</sub>	0.01	--	2.00E-02	8.76E-02
CO	0.014	--	2.80E-02	1.23E-01
NO <sub>x</sub>	0.024	--	4.80E-02	2.10E-01
SO <sub>2</sub>	0.001	--	2.00E-03	8.76E-03
VOC	0.0016	--	3.20E-03	1.40E-02
Lead	--	0.0005	1.00E-06	4.38E-06
CH <sub>4</sub>	--	2.3	0.005	0.02
N <sub>2</sub> O	--	2.20	0.004	0.02
CO <sub>2</sub>	--	120,000	240	1,051
CO <sub>2</sub> e <sup>3</sup>	--	--	241	1,057

Heat input capacity from manufacturer specifications

Emission Factors from AP-42 Section 1.4 for Natural Gas combustion.

CO<sub>2</sub>e assumes a Global Warming Potential per Table A-1 to Subpart A of 40 CFR Part 98: CO<sub>2</sub> = 1, NH<sub>4</sub> = 25, N<sub>2</sub>O = 298

**Oak Valley 5 New Boiler Potential HAP and TAP Emissions**

Fuel Usage	0.0020 MMscf/hr
Hours of Operation Per Year	8,760 hours/year

Pollutant	HAP?	Non-Carcinogenic TAP?	Carcinogenic TAP?	Natural Gas Combustion Emission Factor <sup>1</sup> (lb/MMscf)	Potential HAP Emissions		Potential TAP Emissions <sup>2</sup>		IDAPA EL (lb/hr)	Increase Exceeds IDAPA EL (Yes/No)
					(lb/hr)	(tpy)	(lb/hr)	(tpy)		
Benzene	Yes	No	Yes	5.80E-03	1.16E-05	5.08E-05	1.16E-05	5.08E-05	8.00E-04	No
Formaldehyde	Yes	No	Yes	1.23E-02	2.46E-05	1.08E-04	2.46E-05	1.08E-04	5.10E-04	No
Total PAHs	Yes	No	Yes	1.00E-04	2.00E-07	8.76E-07	2.00E-07	8.76E-07	9.10E-05	No
Naphthalene	Yes	Yes	No	3.00E-04	6.00E-07	2.63E-06	6.00E-07	2.63E-06	3.33E+00	No
Acetaldehyde	Yes	No	Yes	3.10E-03	6.20E-06	2.72E-05	6.20E-06	2.72E-05	3.00E-03	No
Acrolein	Yes	Yes	No	2.70E-03	5.40E-06	2.37E-05	5.40E-06	2.37E-05	1.70E-02	No
Ammonia	No	Yes	No	3.20E+00	-	-	6.40E-03	2.80E-02	1.20E+00	No
Ethyl benzene	Yes	Yes	No	6.90E-03	1.38E-05	6.04E-05	1.38E-05	6.04E-05	2.90E+01	No
Hexane	Yes	Yes	No	4.60E-03	9.20E-06	4.03E-05	9.20E-06	4.03E-05	1.20E+01	No
Toluene	Yes	Yes	No	2.65E-02	5.30E-05	2.32E-04	5.30E-05	2.32E-04	2.50E+01	No
Xylene	Yes	Yes	No	1.97E-02	3.94E-05	1.73E-04	3.94E-05	1.73E-04	2.90E+01	No
<b>Maximum Individual HAP</b>					<b>0.00</b>	<b>0.00</b>	<b>0.01</b>	<b>0.03</b>		
<b>Total HAP</b>					<b>0.000</b>	<b>0.00</b>	<b>0.01</b>	<b>0.03</b>		

South Coast Air Quality Management District's (SCAQMD) Reporting Procedures for AB2588 Facilities Reporting Their Quadrennial Air Toxics Emissions Inventory (December 2016, Table B-1)

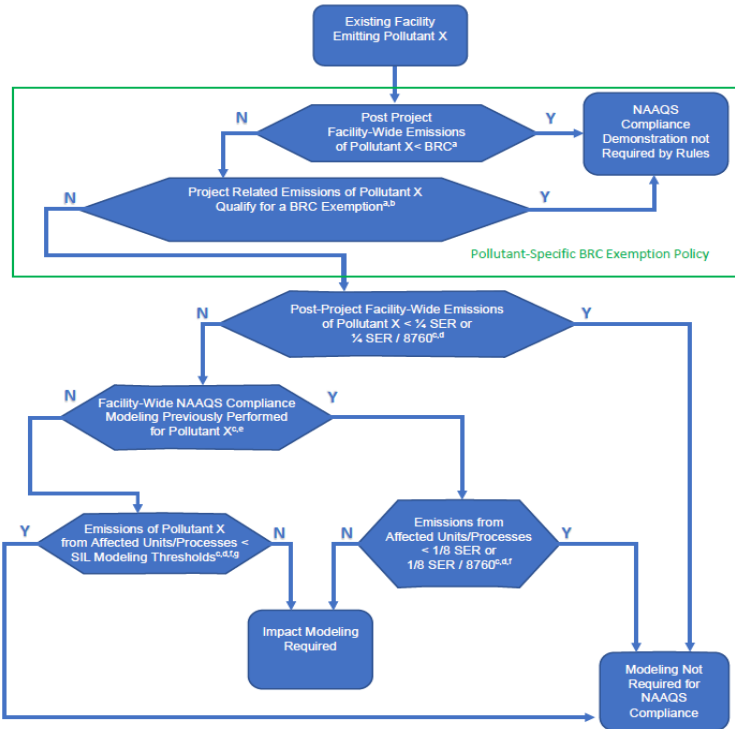
Emissions of non-carcinogenic TAPs, which have a 24-hour standard, are calculated based on the hourly fuel usage. Emissions of carcinogenic TAPs, which have an annual standard are based on the ratio of the annual fuel usage to the total number of hours in the year.



Oak Valley 5 New Boiler Modeling Applicability

Pollutant	ALL Facility-Wide PTE (lb/hr or tpy)	Non-Fugitive Facility-Wide PTE (lb/hr or tpy)	Project Increase (lb/hr or tpy)	BRC (lb/hr or tpy)	Facility-Wide PTE<BRC? (Y/N)	Non-Fugitive Facility-Wide PTE < BRC? (Y/N)	Project Increase PTE < BRC? (Y/N)	1/4 SER	Facility-Wide PTE < 1/4 SER? (Y/N)	Previously Modeled?	1/8 SER	Project Increase PTE < 1/8 SER? (Y/N)	SIL Threshold	Project Increase PTE < SIL Threshold? (Y/N)	Modeling Required?
CO 1-hr	14.41	14.41	0.03	84	Yes	Yes	Yes	84	Yes	No	84	Yes	84	Yes	No
CO 8-hr	14.41	14.41	0.03	26	Yes	Yes	Yes	26	Yes	No	26	Yes	26	Yes	No
CO Ann	49.23	49.23	0.12	10	No	No	Yes	25	No	N/A	12.5	Yes	N/A	N/A	N/A
NO2 1-hr	2.95	2.95	0.05	0.91	No	No	Yes	2.3	No	Yes	1.14	Yes	0.38	Yes	No
NO2 ann	10.35	10.35	0.21	4	No	No	Yes	10	No	Yes	5	Yes	1.9	Yes	No
SO2 1-hr	28.79	28.79	0.00	0.91	No	No	Yes	2.3	No	Yes	1.14	Yes	0.4	Yes	No
SO2 Ann	96.55	96.55	0.01	4	No	No	Yes	10	No	Yes	5	Yes	N/A	N/A	N/A
PM10 24-hr	0.50	0.50	0.02	0.34	No	No	Yes	0.86	Yes	No	0.43	Yes	0.32	Yes	No
PM10 Ann	1.92	1.92	0.09	1.5	No	No	Yes	3.75	Yes	No	1.875	Yes	N/A	N/A	N/A
PM2.5 24-hr	0.50	0.50	0.02	0.23	No	No	Yes	0.57	Yes	No	0.29	Yes	0.092	Yes	No
PM2.5 ann	1.92	1.92	0.09	1	No	No	Yes	2.5	Yes	No	1.25	Yes	0.37	Yes	No

Figure 2. Pollutant-Specific Modeling Applicability Flow Chart for Modifications to Existing Facilities in Attainment or Unclassifiable Areas





Pollutant	Emission Factor <sup>1</sup>	Emissions <sup>2</sup>	
		(lb/hr)	(tons/yr)
SO <sub>2</sub>	6.52E-04	27.96	6.99

1. SO<sub>2</sub> EF based on mass balance and assumes 98% conversion of fuel sulfur to SO<sub>2</sub> with 4000 ppm H<sub>2</sub>S
2. The worst case scenario assumes 50% downtime of gas cleanup equipment which would require flaring.

#### Assumptions

Maximum Flare Capacity	715 SCF/min
------------------------	-------------

**H2S/SO2 Emission Factor Calculations**

H2S concentration (uncontrolled)	4,000 ppm
H2S concentration (controlled)	500 ppm
Gas volume	385 scf gas/lb-mole
Molecular weight of H2S	34 lb H2S/lb-mole
Molecular weight of SO2	64 lb SO2/lb-mole

**Uncontrolled EF Calculation:**

$$\frac{4,000 \text{ part H2S}}{1.00\text{E}+06 \text{ part biogas}} \times \frac{1 \text{ lb-mole gas}}{385 \text{ scf gas}} \times \frac{34 \text{ lb H2S}}{1 \text{ lb-mole H2S}} = \frac{3.53\text{E}-04 \text{ lb H2S}}{\text{scf of biogas}}$$

$$\frac{3.53\text{E}-04 \text{ lb H2S}}{\text{scf of biogas}} \times \frac{64 \text{ mol SO2}}{34 \text{ mol H2S}} = \frac{6.65\text{E}-04 \text{ lb SO2}}{\text{scf of biogas}}$$

**Controlled EF Calculation:**

$$\frac{500 \text{ part H2S}}{1.00\text{E}+06 \text{ part biogas}} \times \frac{1 \text{ lb-mole gas}}{385 \text{ scf gas}} \times \frac{34 \text{ lb H2S}}{1 \text{ lb-mole H2S}} = \frac{4.42\text{E}-05 \text{ lb H2S}}{\text{scf of biogas}}$$

$$\frac{4.42\text{E}-05 \text{ lb H2S}}{\text{scf of biogas}} \times \frac{64 \text{ mol SO2}}{34 \text{ mol H2S}} = \frac{8.31\text{E}-05 \text{ lb SO2}}{\text{scf of biogas}}$$

## **APPENDIX B – FACILITY DRAFT COMMENTS**

**No comments were received from the facility on April 22, 2022.**

## **APPENDIX C – 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:** Oak Valley Energy, LLC  
**Address:** 468 South 800 West  
**City:** Burley  
**State:** ID  
**Zip Code:** 83318  
**Facility Contact:** Pete Jones  
**Title:** Chief Executive Officer  
**AIRS No.:** 031-00074

- 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)

<b>Emissions Inventory</b>			
Pollutant	Annual Emissions Increase (T/yr)	Annual Emissions Reduction (T/yr)	Annual Emissions Change (T/yr)
NO <sub>x</sub>	0.0	7.47	-7.5
SO <sub>2</sub>	0.0	89.5	-89.5
CO	0.0	41.68	-41.7
PM10	0.0	0.75	-0.8
VOC	0.0	0.65	-0.7
<b>Total:</b>	0.0	140.05	<b>-140.1</b>
Fee Due	<b>\$ 1,000.00</b>		

Comments: