Air Quality

PERMIT TO CONSTRUCT

Permittee	Oak Valley Energy, LLC
Permit Number	P-2021.0024
Project ID	62819
Facility ID	031-00074
Facility Location	468 S 800 W Burley, ID 83318

Permit Authority

This permit (a) is issued according to the "Rules for the Control of Air Pollution in Idaho" (Rules), IDAPA 58.01.01.200–228; (b) pertains only to emissions of air contaminants regulated by the State of Idaho and to the sources specifically allowed to be constructed or modified by this permit; (c) has been granted on the basis of design information presented with the application; (d) does not affect the title of the premises upon which the equipment is to be located; (e) does not release the permittee from any liability for any loss due to damage to person or property caused by, resulting from, or arising out of the design, installation, maintenance, or operation of the proposed equipment; (f) does not release the permittee from compliance with other applicable federal, state, tribal, or local laws, regulations, or ordinances; and (g) in no manner implies or suggests that the Idaho Department of Environmental Quality (DEQ) or its officers, agents, or employees assume any liability, directly or indirectly, for any loss due to damage to person or property caused by, resulting from, or arising out of design, installation, maintenance, or operation of the proposed equipment. Changes in design, equipment, or operations may be considered a modification subject to DEQ review in accordance with IDAPA 58.01.01.200–228.

Date Issued May 4, 2022

Kelli Wetzel

Kelli Wetzel, Permit Writer

Mike Simon

Mike Simon, Stationary Source Bureau Chief

Contents

1 Permit Scope

Purpose

1.1 This is a modified permit to construct (PTC) to install a new natural gas-fired boiler at Oak Valley 5.

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

1.3 This PTC replaces Permit to Construct No. P-2021.0024, issued on October 28, 2021.

Regulated Sources

Table 1.1 lists all sources of regulated emissions in this permit.

Table 1.1 Regulated Sources

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

[5/4/2022]

2 Boilers and Emergency Flare

2.1 Process Description

Oak Valley 1&4 which includes three above ground covered digester tanks and one anaerobic covered lagoon digester with a boiler and flare, and Oak Valley 5 which includes one above ground covered digester tank, one anaerobic covered lagoon digester, and one boiler are used to produce biogas from on-site dairy cattle manure. An aeration mesh system that enhances the growth of sulfur-binding bacteria and oxygen injection acts to control the H_2S concentration in the biogas. The resulting biogas is processed off site at a cleanup unit not associated with the facility. When the biogas cannot be transferred, it is routed to an emergency flare. Two boilers are used to maintain the temperature of the digesters for processing.

2.2 Control Device Descriptions

Table 2.1 Anaerobic Digesters, Boiler, and Flare Description

Emissions Units / Processes	Control Devices
Four above ground covered digester tanks and two anaerobic covered lagoon digesters	Flare Aeration Mesh System / Oxygen Injection
Boiler #1	N/A
Boiler #2	N/A

[5/4/2022]

Emission Limits

2.3 Emission Limits

The PM_{10}, SO_2, NO_x, CO, and VOC emissions from the boilers and the flare stack shall not exceed any corresponding emissions rate limits listed in Table 2.2.

Table 2.2 Boiler and Flare Emission Limits[a]

Source Description	$PM_{2.5}/PM_{10}$[b]		SO_2		NO_X		CO		VOC	
	lb/hr [c]	T/yr [d]	lb/hr [c]	T/yr [d]	lb/hr [c]	T/yr [d]	lb/hr [c]	T/yr [d]	lb/hr [c]	T/yr [d]
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
Flare	0.27	0.07	27.97	6.99	2.48	0.62	13.48	3.37	0.20	0.000004

a) In absence of any other credible evidence, compliance is ensured by complying with permit operating, monitoring, and record keeping requirements.
b) Particulate matter with an aerodynamic diameter less than or equal to a nominal two point five (2.5) and ten (10) micrometers, including condensable particulate as defined in IDAPA 58.01.01.006.
c) Pounds per hour, as determined by a test method prescribed by IDAPA 58.01.01.157, EPA reference test method, continuous emission monitoring system (CEMS) data, or DEQ-approved alternative.
d) Tons per any consecutive 12-calendar month period.

[5/4/2022]

2.4 H_2S Limit

The concentration of the hydrogen sulfide (H_2S) entering the biogas flare from the anaerobic digesters shall not exceed 4,000 ppmV of H_2S, based on the most recent consecutive 12-month average of all monitored values obtained by the hydrogen sulfide monitor or Draeger® tube, or equivalent, sampling.

2.5 Particulate Matter Standard

The permittee shall not exceed 0.015 gr/dscf at 3% oxygen for the combustion of biogas in the flare as required by IDAPA 58.01.01.676.

2.6 Odors

The permittee shall not allow, suffer, cause, or permit the emission of odorous gasses, liquids, or solids to the atmosphere in such quantities as to cause air pollution in accordance with IDAPA 58.01.01.776.01.

2.7 Opacity Limit

Emissions from the boilers and flare stack, or any other stack, vent, or functionally equivalent opening associated with the boiler and flare, shall not exceed 20% opacity for a period or periods aggregating more than three minutes in any 60-minute period as required by IDAPA 58.01.01.625. Opacity shall be determined by the procedures contained in IDAPA 58.01.01.625.

Operating Requirements

2.8 Pilot Flame

The permittee shall install, maintain, and operate a digester flare that shall be operated with a pilot flame present during the operation of the digesters. In the event of a flame failure, the permittee shall follow a standard operating procedure to reignite the pilot flame as expeditiously as practicable.

2.9 Biogas Flow

All facility generated biogas shall be directed to the offsite clean up unit for injection into the natural gas pipeline. The biogas shall be directed to the flare for combustion only when the gas cannot be routed to the pipeline.

[5/4/2022]

2.10 Boilers Fuel

The boilers shall combust only natural gas.

2.11 Reasonable Control of Fugitive Emissions

All reasonable precautions shall be taken to prevent particulate matter from becoming airborne in accordance with IDAPA 58.01.01.650-651. In determining what is reasonable, consideration will be given to factors such as the proximity of dust emitting operations to human habitations and/or activities and atmospheric conditions that might affect the movement of PM. Some of the reasonable precautions include, but are not limited to, the following:

- Use, where practical, of water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads, or the clearing of lands.
- Application, where practical, of asphalt, water, or suitable chemicals to, or covering of, dirt roads, material stockpiles, and other surfaces which can create dust.
- Installation and use, where practical, of hoods, fans, and fabric filters or equivalent systems to enclose and vent the handling of dusty materials. Adequate containment methods should be employed during sandblasting or other operations.
- Covering, when practical, of open bodied trucks transporting materials likely to give rise to airborne dusts.
- Paving of roadways and their maintenance in a clean condition, where practical.

- Prompt removal of earth or other stored material from streets, where practical.

Monitoring and Recordkeeping Requirements

2.12 Hydrogen Sulfide Monitoring

The permittee shall install, calibrate, maintain, and operate an H_2S gas monitor that shall be placed downstream of the digesters, and upstream of the biogas flare to measure the H_2S concentrations in the biogas produced by the anaerobic digesters. The monitor shall be installed in accordance with the manufacturer specifications. When conducting H_2S monitoring Draeger® tubes, or equivalent, may be used to collect a sample in lieu of the H_2S monitor.

Calibration of the H_2S monitor shall be performed and recorded in accordance with the O&M manual and no less frequently than semi-annually if the meter is in service. If the meter is out of service, the meter must be cleaned and calibrated before being put into service.

Gas checks must be conducted weekly for new H_2S analyzers, and an acceptable gas check is an analyzer response that is ±20% of a known concentration. If gas checks are within the ±20% range for four consecutive weeks, then the frequency of gas checks can be reduced to monthly. If four consecutive monthly gas checks are within the acceptable range, then the frequency can be reduced to semi-annually. If any gas check response is outside the ±20% range, then the frequency would start over at weekly.

A *gas check* is defined as an introduction of a known concentration of gas to the analyzer system prior to any adjustment being made to the analyzer response and recording the system response. A gas check will identify if the analyzer system is maintaining accuracy over time, and determine if gas checks and calibration frequency should be increased or decreased.

The measured H_2S concentrations from the H_2S monitor shall be recorded once per week in units of ppmV.

Monitoring and recordkeeping of H_2S concentrations shall occur during each calendar week of operations. Monthly monitoring may be conducted in lieu of weekly monitoring, provided that 24 consecutive weeks of monitoring do not exceed 90% of the H_2S limit permit condition. If any single measurement during monthly monitoring equals or exceeds 90% of the H_2S limit permit condition, then monitoring frequency shall revert to each calendar week until the 24 consecutive weeks of monitoring do not equal or exceed 90% of the H_2S Limit Permit Condition. Samples must be collected downstream of the digesters and upstream of the biogas flare. Records of this information shall be maintained on site and be made available to DEQ representatives upon request and in accordance with the General Provisions.

2.13 Biogas Flare Flow Rate Monitoring

The permittee shall monitor and record the total biogas combusted in the flare on a monthly basis in units of standard cubic feet per month, and calculate a rolling 12-month average of standard cubic feet (scf) per year.

Unless an alternative monitoring and recordkeeping method is approved by DEQ, the permittee shall comply with the following requirements to determine the quantity of biogas combusted in the flare:

- The permittee shall calibrate, maintain, and operate biogas flow meters that shall be placed before the flare and downstream of the anaerobic digesters. The total biogas flow will be determined by totaling the flow through each meter. The biogas flow meters shall be installed, operated, and maintained in accordance with the O&M manual and the manufacturer specifications.

- Calibration of the biogas flow meters shall be performed and recorded in accordance with the O&M manual.

2.14 Pilot Flame Monitoring Requirement

The permittee shall install, maintain, and operate a thermocouple or similar device that detects the presence of a pilot flame in the biogas flare.

2.15 Operations and Maintenance Manual

The permittee shall keep an operations and maintenance (O&M) manual which discusses the operation of the digesters and boilers and describes the procedures that will be followed to maintain the anaerobic digesters in good working order and assure operation as efficiently as practical for the boilers. The procedures and specifications described in the O&M manual shall address, at a minimum, the following topics:

Biogas Flow-rate Monitor

- Standard operational procedure for flow-rate sampling
- Frequency and method of calibration
- Flow rate measurement range

H_2S Monitor

- Standard operational procedure for H_2S concentration sampling
- Frequency and method of calibration
- H_2S concentration measurement range

Pilot Flame Detector

- Method of ensuring continuous operation
- Procedure for pilot flame re-ignition

Requirements to periodically monitor and record the parameters listed above no less frequently than once per calendar month.

The contents of the O&M manual shall be based on manufacturer's specifications for each piece of equipment. A copy of the manufacturer's recommendations shall be included with the O&M manual, and both shall be made available to DEQ representatives upon request.

Any changes to the O&M Manual shall be submitted to DEQ within 15 days of the change.

2.16 Odor Complaints

The permittee shall maintain records of all odor complaints received to demonstrate compliance with the Odors Permit Condition. The permittee shall take appropriate corrective action as expeditiously as practicable. The records shall include, at a minimum, the date each complaint was received and a description of the following: the complaint, the permittee’s assessment of the validity of the complaint, any corrective action taken, and the date the corrective action was taken.

3 General Provisions

General Compliance

3.1 The permittee has a continuing duty to comply with all terms and conditions of this permit. All emissions authorized herein shall be consistent with the terms and conditions of this permit and the "Rules for the Control of Air Pollution in Idaho." The emissions of any pollutant in excess of the limitations specified herein, or noncompliance with any other condition or limitation contained in this permit, shall constitute a violation of this permit, the "Rules for the Control of Air Pollution in Idaho," and the Environmental Protection and Health Act (Idaho Code §39-101, et seq).

[Idaho Code §39-101, et seq.]

3.2 The permittee shall at all times (except as provided in the "Rules for the Control of Air Pollution in Idaho") maintain in good working order and operate as efficiently as practicable all treatment or control facilities or systems installed or used to achieve compliance with the terms and conditions of this permit and other applicable Idaho laws for the control of air pollution.

[IDAPA 58.01.01.211]

3.3 Nothing in this permit is intended to relieve or exempt the permittee from the responsibility to comply with all applicable local, state, or federal statutes, rules, and regulations.

[IDAPA 58.01.01.212.01]

Inspection and Entry

3.4 Upon presentation of credentials, the permittee shall allow DEQ or an authorized representative of DEQ to do the following:

- Enter upon the permittee's premises where an emissions source is located, emissions-related activity is conducted, or where records are kept under conditions of this permit;
- Have access to and copy, at reasonable times, any records that are kept under the conditions of this permit;
- Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit; and
- As authorized by the Idaho Environmental Protection and Health Act, sample or monitor, at reasonable times, substances or parameters for the purpose of determining or ensuring compliance with this permit or applicable requirements.

[Idaho Code §39-108]

Construction and Operation Notification

3.5 This permit shall expire if construction has not begun within two years of its issue date, or if construction is suspended for one year.

[IDAPA 58.01.01.211.02]

3.6 The permittee shall furnish DEQ written notifications as follows:

- A notification of the date of initiation of construction, within five working days after occurrence; except in the case where pre-permit construction approval has been granted then notification shall be made within five working days after occurrence or within five working days after permit issuance whichever is later;
- A notification of the date of any suspension of construction, if such suspension lasts for one year or more; and

- A notification of the initial date of achieving the maximum production rate, within five working days after occurrence - production rate and date.

[IDAPA 58.01.01.211.01]

- A notification of the anticipated date of initial start-up of the stationary source or facility not more than sixty days or less than thirty days prior to such date; and
- A notification of the actual date of initial start-up of the stationary source or facility within fifteen days after such date.

[IDAPA 58.01.01.211.03]

Performance Testing

3.7 If performance testing (air emissions source test) is required by this permit, the permittee shall provide notice of intent to test to DEQ at least 15 days prior to the scheduled test date or shorter time period as approved by DEQ. DEQ may, at its option, have an observer present at any emissions tests conducted on a source. DEQ requests that such testing not be performed on weekends or state holidays.

3.8 All performance testing shall be conducted in accordance with the procedures in IDAPA 58.01.01.157. Without prior DEQ approval, any alternative testing is conducted solely at the permittee's risk. If the permittee fails to obtain prior written approval by DEQ for any testing deviations, DEQ may determine that the testing does not satisfy the testing requirements. Therefore, at least 30 days prior to conducting any performance test, the permittee is encouraged to submit a performance test protocol to DEQ for approval. The written protocol shall include a description of the test method(s) to be used, an explanation of any or unusual circumstances regarding the proposed test, and the proposed test schedule for conducting and reporting the test.

3.9 Within 60 days following the date in which a performance test required by this permit is concluded, the permittee shall submit to DEQ a performance test report. The report shall include a description of the process, identification of the test method(s) used, equipment used, all process operating data collected during the test period, and test results, as well as raw test data and associated documentation, including any approved test protocol.

[IDAPA 58.01.01.157]

Monitoring and Recordkeeping

3.10 The permittee shall maintain sufficient records to ensure compliance with all of the terms and conditions of this permit. Monitoring records shall include, but not be limited to, the following: (a) the date, place, and times of sampling or measurements; (b) the date analyses were performed; (c) the company or entity that performed the analyses; (d) the analytical techniques or methods used; (e) the results of such analyses; and (f) the operating conditions existing at the time of sampling or measurement. All monitoring records and support information shall be retained for a period of at least five years from the date of the monitoring sample, measurement, report, or application. Supporting information includes, but is not limited to, all calibration and maintenance records, all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. All records required to be maintained by this permit shall be made available in either hard copy or electronic format to DEQ representatives upon request.

[IDAPA 58.01.01.211]

Excess Emissions

3.11 The permittee shall comply with the procedures and requirements of IDAPA 58.01.01.130–136 for excess emissions due to start-up, shut-down, scheduled maintenance, safety measures, upsets, and breakdowns.

[IDAPA 58.01.01.130–136]

Certification

3.12 All documents submitted to DEQ—including, but not limited to, records, monitoring data, supporting information, requests for confidential treatment, testing reports, or compliance certification—shall contain a certification by a responsible official. The certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document(s) are true, accurate, and complete.

[IDAPA 58.01.01.123]

False Statements

3.13 No person shall knowingly make any false statement, representation, or certification in any form, notice, or report required under this permit or any applicable rule or order in force pursuant thereto.

[IDAPA 58.01.01.125]

Tampering

3.14 No person shall knowingly render inaccurate any monitoring device or method required under this permit or any applicable rule or order in force pursuant thereto.

[IDAPA 58.01.01.126]

Transferability

3.15 This permit is transferable in accordance with procedures listed in IDAPA 58.01.01.209.06.

[IDAPA 58.01.01.209.06]

Severability

3.16 The provisions of this permit are severable, and if any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

[IDAPA 58.01.01.211]