STATE OF UTAH

Department of Environmental Quality

Division of Air Quality

ENGINEERING REVIEW:
General Approval Order for a
Crude Oil and Natural Gas Well Site and/or Tank Battery

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PROJECT NUMBER

N149250001

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ABSTRACT

A General Approval Order (GAO) may be issued under the authority of UAC R307-401-19. This GAO is for a Crude Oil and/or Natural Gas Well Site and/or Tank Battery. Produced fluids will be brought to the surface from a well. Oil, condensate, water, and gas will be separated from the produced fluid. The oil, condensate, and water will be stored in tanks prior to being transported off site by trucks. The gas may pass through a dehydrator on site. The gas shall either be used as fuel for onsite equipment or be routed to a gas gathering system and sent off site. This GAO will cover a facility that processes up to 50,000 barrels of crude oil and condensate combined per year. A dispersion modeling analysis was conducted for NO_2. Conditions in this GAO reflect the results of this modeling analysis and will ensure protection of the NAAQS. The HAP emissions are limited by emission controls and equipment specification to ensure the requirements in R307-410-5(1)(c)(ii) or (iii) will not be triggered.

A source must comply with the requirements of R307-401-19(4) to be subject to this GAO. If a source is not able to construct within the requirements of this GAO, the source must submit a NOI under R307-401-5 and obtain an AO under R307-401-8.

NSPS 40 CFR 60 Subpart A, Dc, JJJJ, and OOOO, and MACT 40 CFR 63 Subpart A, HH, and ZZZZ regulations may apply to this source. NESHAP 40 CFR 61 regulations do not apply to this source. Title V of the 1990 Clean Air Act does not apply to this source.

The potential emissions, in tons per year, will be as follows: PM_{10} = 0.52 (which includes $PM_{2.5}$), $PM_{2.5}$ = 0.52, NO_x = 8.45, CO = 12.94, VOC = 13.55, HAPs = 2.55, and CO_2e = 6,348.

SOURCE SPECIFIC DESIGNATIONS

Applicable Programs:

NSPS (Part 60), Subpart A: General Provisions applies to Crude Oil and Natural Gas Well Site and/or Tank
NSPS (Part 60), Subpart Dc: Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units applies to Crude Oil and Natural Gas Well Site and/or Tank
NSPS (Part 60), Subpart JJJJ: Standards of Performance for Stationary Spark Ignition Internal Combustion Engines applies to Crude Oil and Natural Gas Well Site and/or Tank
NSPS (Part 60), Subpart OOOO: Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution applies to Crude Oil and Natural Gas Well Site and/or Tank
MACT (Part 63), Subpart A: General Provisions applies to Crude Oil and Natural Gas Well Site and/or Tank
MACT (Part 63), Subpart HH: National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities applies to Crude Oil and Natural Gas Well Site and/or Tank
MACT (Part 63), Subpart ZZZZ: National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines applies to Crude Oil and Natural Gas Well Site and/or Tank

SUMMARY OF NOTICE OF INTENT INFORMATION

Description of Proposal:

This crude oil and natural gas production tank battery may use a single pumpjack or several pumpjacks to bring produced fluids to the surface from a single well or multiple wells. The pumpjack will be powered by either a natural gas-fired engine or an electric motor. A heater treater will separate the oil, water, and gas, and the oil and water will be stored in tanks prior to being transported off site by trucks. The heater treater and storage tanks will be heated with various natural gas-fired boilers/heaters. The produced gas may pass through a dehydrator prior to being routed to a sales pipeline and sent off site. The VOC and HAP emissions from the oil and produced water storage tanks and the dehydrator shall either be routed to a process unit where the emissions are recycled, incorporated into a product, and/or recovered or be routed to a VOC control device with a 98% or greater control efficiency. Various natural gas-driven pneumatic controllers and pumps may be utilized on site..

Summary of Emission Totals:

The emissions listed below are an estimate of the total potential emissions from the source. Some rounding of emissions is possible.

Estimated Criteria Pollutant Potential Emissions		
CO_2 Equivalent	6348.00	tons/yr
Carbon Monoxide	12.94	tons/yr
Nitrogen Oxides	8.45	tons/yr
Particulate Matter - PM_{10}	0.52	tons/yr
Particulate Matter - $PM_{2.5}$	0.52	tons/yr
Sulfur Dioxide	0.03	tons/yr
Volatile Organic Compounds	13.55	tons/yr
Estimated Hazardous Air Pollutant Potential Emissions		
2,2,4-Trimethylpentane (CAS #540841)	272	lbs/yr
Acetaldehyde (CAS #75070)	62	lbs/yr
Acrolein (CAS #107028)	62	lbs/yr
Benzene (Including Benzene From Gasoline) (CAS #71432)	688	lbs/yr
Ethyl Benzene (CAS #100414)	28	lbs/yr
Formaldehyde (CAS #50000)	446	lbs/yr
Generic HAPs (CAS #GHAPS)	17	lbs/yr
Hexane (CAS #110543)	1.34	tons/yr
Methanol (CAS #67561)	40	lbs/yr
Toluene (CAS #108883)	497	lbs/yr
Xylenes (Isomers And Mixture) (CAS #1330207)	303	lbs/yr
Total hazardous air pollutants	2.55	tons/yr

Review of Best Available Control Technology:

1. BACT review regarding **Site-Wide Limits:**

   Combustion for heating and providing power occurs at crude oil production tank batteries. To ensure combustion is efficient with minimal emissions, the entire site will be required to comply with a 10% opacity limit, unless otherwise specified. The 10% opacity limit has been incorporated in numerous other permits issued by the Director. This limit is both technically feasible and economically feasible. [Last updated February 14, 2014]

2. BACT review regarding **Storage Tanks:**

   Storage tanks have VOC and various HAP emissions. 1 & 2 - Technically feasible options to control these emissions include: vapor combustors/flares, adsorbers, and absorbers. Depending on the configuration of a source, a Vapor Recovery Unit (VRU) may also be technically feasible. 3 - A VRU would eliminate all the emissions from the storage tanks and potentially increase emissions at another source. It has been demonstrated in the State of Utah that a vapor combustor/flare can achieve a control efficiency of 98%. Other options would have a lower control efficiency than 98%. 4 - A VRU has been implemented at other sources within the State of Utah; however, the configuration of a source may make this option unfeasible. Due to the variability of the GAO, the exact configuration of a source is not known, and the option for a VRU cannot be required. However, the GAO will not restrict the source from selecting this option. The next option is to install a vapor combustor/flare with a minimum 98% control efficiency. This option has been used by several sources within the State of Utah. 5 - BACT for the storage tanks would be to install a VRU or to install a VOC control device that can meet a manufacturer's guaranteed control efficiency of 98%. The exact type of control was not specified in the case that a source could find another technology that would achieve the same control efficiency. To make sure the emissions from the storage tanks are captured and controlled properly, the thief hatches on the storage tanks will be inspected and properly maintained. In addition, the thief hatches on the storage tanks will be kept closed and latched when the tanks are not being unloaded or undergoing maintenance.
   [Last updated February 14, 2014]

3. BACT review regarding **Dehydrators:**

   Dehydrators have VOC and various HAP emissions. 1 & 2 - Technically feasible options to control these emissions include: vapor combustors/flares, adsorbers, and absorbers. Depending on the configuration of a source, a VRU may also be technically feasible. 3 - A VRU would eliminate all the emissions from the dehydrator and potentially increase emissions at another source. It has been demonstrated in the State of Utah that a vapor combustor/flare can achieve a control efficiency of 98%. Other options would have a lower control efficiency than 98%. 4 - A VRU has been implemented at other sources within the State of Utah; however, the configuration of a source may make this option unfeasible. Due to the variability of the GAO, the exact configuration of a source is not known, and the option for a VRU cannot be required. However, the GAO will not restrict the source from selecting this option. The next option is to install a vapor combustor/flare with a minimum 98% control efficiency. This option has been used by several sources within the State of Utah. 5 - BACT for the dehydrators would be to

install a VRU or to install a VOC control device that can meet a manufacturer's guaranteed control efficiency of 98%. The exact type of control was not specified in the case that a source could find another technology that would achieve the same control efficiency.
[Last updated February 14, 2014]

4. BACT review regarding **VOC Control Device:**

The VOC control device is required to meet 98% control efficiency as guaranteed by the manufacturer. Therefore, to meet the 98% control efficiency, the VOC control device will need to be maintained according to the manufacturer's instructions. In addition, the VOC control device shall operate with no visible emissions. [Last updated February 14, 2014]

5. BACT review regarding **Pneumatic Controllers and Pneumatic Pumps:**

VOC and various HAP emissions are generated from natural gas-driven pneumatic controllers and natural gas-driven pneumatic pumps. 1 & 2 - Technically feasible options to control these emissions include: capturing the emissions, using more efficient pneumatics (low bleed, or no bleed), or no control (high bleed). 3 - Capturing emissions from the pneumatics would result in the lowest emissions. The next best-controlling option would be to use more efficient pneumatics. The no control option would generate the highest level of emissions. 4 - Capturing emissions may or may not be economically feasible depending on the number of pneumatics and the configuration of the source. Due to the variability of the GAO, the option to capture emissions cannot be required; however, the GAO will not restrict the source from selecting this option. The next option would be to use more efficient pneumatics (low bleed or no bleed). A low-bleed rate is considered to be less than or equal to 6 scf/hour. This is required for pneumatic controllers in NSPS Subpart OOOO unless a demonstration can be made that the low-bleed pneumatic cannot meet the sources requirements. This demonstration would need to be on a case-by-case basis; otherwise, low-bleed pneumatics would be required. If a source wants to make a demonstration for the use of high-bleed pneumatics, they would need to provide this during the normal approval order process. 5 - BACT for natural gas-driven pneumatic controllers and natural gas-driven pneumatic pumps is to capture emissions or use pneumatics with a bleed rate less than or equal to 6 scf/hour. [Last updated February 14, 2014]

6. BACT review regarding **Truck Loading:**

VOC and various HAP emissions are generated from the loading of tanker trucks on site. 1 & 2 - Technically feasible options to control these emissions include: submerged loading/bottom fill loading, installing a vapor balance system, and installing a VRU. 3 - A VRU would eliminate all the emissions from the loading of tanker trucks and potentially increase emissions at another source. The next best-controlling option would be the installation of a vapor balance system. The last option would be to load the trucks by submerged loading/bottom fill loading. 4 - Neither a VRU nor a vapor balance system have been installed at an oil and gas tank battery that has a throughput of 50,000 barrels or less in the State of Utah. These technologies have been implemented in the State of Utah, but at facilities that have a much higher emission rate that what would be allowed in the GAO. Due to the fact that no other similar sources in the State of Utah have implemented these technologies, installing a VRU or installing a vapor balance system are eliminated as BACT for truck loading. The remaining option is to load the trucks by submerged loading/bottom fill loading. Numerous similar sources within the State of Utah have implemented this option to reduce emissions during the loading of trucks. 5 - BACT for the loading of tanker trucks would be to conduct loading operations by submerged loading/bottom fill loading. [Last updated February 14, 2014]

7. BACT review regarding **Engines:**

Various criteria and various HAP emissions are generated from the pumpjack engines on site. All engines on site will utilize natural gas or LPG as fuel. 1 - There are numerous options to control emissions from engines. 2. - The current emission standards for stationary gas-fired engines are contained in NSPS Subpart JJJJ. Manufacturers are not making engines that do not meet these standards and are not guaranteeing engines to meet lower emission rates. 3 - The only emission rates that are technically feasible at this time are the emission rates contained in NSPS Subpart JJJJ. 4 - Sources have been installing engines that meet the emission standards in NSPS Subpart JJJJ in the State of Utah; therefore, these emission rates are economically feasible. 5 - BACT for the stationary engines on site is to use natural gas or LPG as fuel, and to meet the emission standards for new engines contained in NSPS Subpart JJJJ. NSPS Subpart JJJJ requires engines rated less than 100 hp meet the following emission standards: 3.8 g/kW-hr for $HC+NO_x$ and 6.5 g/kW-hr for CO. NSPS Subpart JJJJ requires engines rated greater than or equal to 100 hp meet the following emission standards: 1.0 g/hp-hr for NO_x, 2.0 g/hp-hr for CO, and 0.7 g/hp-hr for VOC. To ensure the engines will be able to continuously meet the emission standards, the engines must be maintained according to the manufacturer's instructions.
[Last updated February 14, 2014]

8. BACT review regarding **Boilers/Heaters:**

Various criteria and various HAP emissions are generated from the boilers/heaters on site. All boilers/heaters on site will utilize natural gas or LPG as fuel. 1 - Options to control the various emissions include: PM control devices (cyclones, baghouses, ESP, scrubbers, etc.) NO_x control devices (SCR, NSCR, low-NO_x burners, etc.), SO_2 control devices (wet scrubber, etc.), CO control devices (catalytic oxidation, etc.), and VOC control devices (vapor combustors/flares, adsorbers, and absorbers, etc.). 2 - All of the options listed above except low-NO_x burners are not technically feasible to install on natural gas-fired boilers/heaters rated less than or equal to 10.0 MMBtu/hr. No other permits in the State of Utah have required natural gas-fired boilers/heaters rated less than 10.0 MMBtu/hr to install additional controls. 3 - The only option to control emissions not eliminated is low-NO_x burners. 4 - R307-401-4 (3) requires the installation of "low oxides of nitrogen burners or equivalent oxides of nitrogen controls, as determined by the director, unless such equipment is not physically practical or cost effective." Because the source is required to install low-NO_x burners by rule, no further analysis is necessary at this time. The source would be required to conduct proper maintenance on the boilers/heaters to make sure they were running efficiently. 5 - BACT for the boilers/heaters on site is to use natural gas or LPG as fuel, no add-on controls, and proper maintenance.
[Last updated February 14, 2014]

9. BACT review regarding **Leaks/Fugitive Emissions:**

VOC and various HAP emissions are released from leaks in various valves, flanges, connections, pumps & compressors, various seals, pressure relief devices, and other equipment on site. 1 - There are no add-on controls available to reduce leaks; however, leaks can be detected and repaired. 2 - Leak detection and repair (LDAR) programs are implemented at numerous sources in the State of Utah. Inspections can be conducted with an infrared camera or various quantitative analyzers. 3 - A regular LDAR program will reduce fugitive emissions from leaks by a greater amount that sources without a LDAR program. 4 - The cost effectiveness of LDAR programs is depended on the emissions from the source and the frequency of inspections. A source with low emissions should have a low frequency of inspections, while a source with high emissions should have high frequency of inspections. Detected leaks should be repaired as soon as possible. 5 - BACT for leaks/fugitive emissions is to inspect all sources covered by this GAO within 90 days of startup, every year for sources that have a throughput more than 10,000 barrels per year, and every three months for sources that have a throughput more than 25,000 barrels per year. NSPS Subpart OOOO requires sources to initiate repair of a leak within 5 days of detection, and be completed with repair within 15 days of detection. These frequencies are also considered BACT. Records of inspections and repairs must be kept by the source. [Last updated February 14, 2014]

Modeling Results:

A generic model was performed to evaluate NO_2 concentrations from a typical crude oil production tank battery. Ambient air was established at 100 meters from the center of the site. Other input parameters and the methodology are summarized in DAQE-002-14 dated January 27, 2014. Inputs from the model were transferred into the equipment list and conditions of this permit.

Maximum site-wide formaldehyde emissions were estimated to be 0.051 lbs/hour (0.223 tons/year). The emission threshold value (ETV) for vertically restricted/fugitive releases greater than 100 meters for formaldehyde is 0.0663 lbs/hour. Because the hourly emission rate is less than the ETV no further analysis is required under R307-410-5. All other HAP emissions are below their respective ETV. [Last updated February 13, 2014]

RECOMMENDED GENERAL APPROVAL ORDER CONDITIONS

The intent is to issue an air quality GAO authorizing the project with the following recommended conditions and that failure to comply with any of the conditions may constitute a violation of the GAO. The GAO will be issued to and will apply to any source located in the State of Utah that receives approval to be subject to this GAO.

Permitted Location:
General Approval Order: Crude Oil and Natural
Gas Well Site and/or Tank Battery
Applicable State Wide, UT

SIC code: 1311 (Crude Petroleum & Natural Gas)

Section I: GENERAL PROVISIONS

I.1 All definitions, terms, abbreviations, and references used in this GAO conform to those used in the UAC R307 and 40 CFR. Unless noted otherwise, references cited in these GAO conditions refer to those rules. [R307-101]

I.2 The limits set forth in this GAO shall not be exceeded without prior approval. [R307-401]

I.3 Modifications to the equipment or processes approved by this GAO that could affect the emissions covered by this GAO must be reviewed and approved. [R307-401-1]

I.4 All records referenced in this GAO or in other applicable rules, which are required to be kept by the owner/operator, shall be made available to the Director or Director's representative upon request, and the records shall include the two-year period prior to the date of the request. Unless otherwise specified in this GAO or in other applicable state and federal rules, records shall be kept for a minimum of two (2) years. [R307-401-8]

I.5 At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any equipment approved under this GAO, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Director which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. All maintenance performed on equipment authorized by this GAO shall be recorded. [R307-401-4]

I.6 The owner/operator shall comply with UAC R307-107. General Requirements: Breakdowns. [R307-107]

I.7 The owner/operator shall comply with UAC R307-150 Series. Inventories, Testing and Monitoring. [R307-150]

I.8 The owner/operator shall comply with UAC R307-401-19(4), General Approval Order: Application, and receive approval according to R307-401-19(5), General Approval Order: Approval, to become subject to this GAO. [R307-401-9]

Section II: SPECIAL PROVISIONS

II.A **The approved installations shall consist of the following equipment:**

II.A.1 **Crude Oil and Natural Gas Well Site and/or Tank**

II.A.2 **Produced Fluids Storage Tanks**
Contents: Crude Oil, Condensate, and/or Produced Water
Maximum Site-Wide Capacity: 2,200 barrels
Maximum Individual Capacity: 550 barrels

II.A.3 **Dehydrators**
Maximum Site-Wide Capacity: 2.0MMscf/day

II.A.4 **VOC Control Device**
Minimum Control Efficiency: 98%

II.A.5 **Natural Gas-Driven Pneumatic Controllers**

II.A.6 **Natural Gas-Driven Pneumatic Pumps**

II.A.7 **Truck Loading Operations**

II.A.8 **Pumpjack, Gas Lift, and Generator Engines**
Maximum Site-Wide Rating: 130hp
Fuel: Natural Gas or LPG

II.A.9 **Various Boilers/Heaters**
Maximum Site-Wide Capacity: 10.0 MMBtu/hr combined
Fuel: Natural Gas or LPG

II.A.10 **Methanol &Ethylene Glycol Storage Vessels**
Maximum Site-Wide Capacity: 1,000 gallons combined

II.A.11 **Heater Treaters**
Oil/Water Separator
- listed for informational purposes only -

II.A.12 **Compressors & Pumps**
centrifugal and/or reciprocating
- listed for informational purposes only -

II.A.13 **One (1) Emergency/Overflow Storage Tank**
Maximum Capacity: 550 barrels
- listed for informational purposes only -

II.B Requirements and Limitations

II.B.1 Site-Wide Requirements

II.B.1.a The owner/operator shall not exceed 50,000 barrels (1 barrel = 42 gallons) of crude oil and condensate throughput combined per rolling 12-month period. [R307-401-8]

II.B.1.a.1 To determine compliance with a rolling 12-month total, the owner/operator shall calculate a new 12-month total by the twentieth day of each month using data from the previous 12 months. Records of crude oil and condensate throughput shall be kept for all periods when the plant is in operation. Crude oil and condensate throughput shall be determined by process flow meters, load tickets, sales meters, and/or sales records. The records of crude oil and condensate throughput shall be kept on a monthly basis. [R307-401-8]

II.B.1.b All gas produced from the Heater Treater shall either be used as fuel on site or be routed to a gas gathering system and sent off site. [R307-401-8]

II.B.1.c A sign shall be located at the site entrance that indicates the presence of oil and gas operations and the potential for exposure to emissions from oil and gas operations. [R307-401-8]

II.B.1.d Unless otherwise specified in this GAO, visible emissions from any stationary or fugitive emission source on site shall not exceed 10 percent opacity. [R307-401-8]

II.B.1.d.1 Unless otherwise specified in this GAO, opacity observations of fugitive and non-fugitive emissions from stationary sources shall be conducted in accordance with 40 CFR 60, Appendix A, Method 9. For intermittent sources and mobile sources, opacity observations shall be conducted using Method 9; however, the requirement for observations to be made at 15 second intervals over a six-minute period shall not apply. [R307-201-3]

II.B.1.e The owner/operator shall notify the Director in writing when the equipment listed in this GAO has been installed and is operational within 30 days after startup. To ensure proper credit when notifying the Director, send your correspondence to the Director, attn: Compliance Section.

If the owner/operator has not notified the Director in writing of the installation and operation of the equipment listed in this GAO within 18 months of a source being granted approval under this GAO, the owner/operator shall submit documentation of the continuous construction and/or installation of the operation to the Director. If a continuous program of construction and/or installation is not proceeding, the Director may require the source to submit a NOI according to R307-401-5. [R307-401-18]

II.B.1.f The owner/operator shall submit a list of the actual equipment installed on site and the potential emissions from this equipment to the Director within 180 days after startup. [R307-401-8]

II.B.1.g The owner/operator shall submit an annual inventory of the actual equipment on site and the actual emissions from the site to the Director on or before April 15 of each year following the first full calendar year of operation. [R307-150-1]

II.B.2 **Tank Requirements**

II.B.2.a VOC emissions from the produced fluids storage tanks shall either be routed to a process unit where the emissions are recycled, incorporated into a product, and/or recovered or be routed to a VOC control device where the emissions are consumed and/or destroyed. [R307-401-8]

II.B.2.b At least once every month, the thief hatches on the produced fluids storage tanks shall be inspected to ensure the thief hatches are closed and latched and the associated gaskets, if any, are in good working condition. If the gaskets are not in good working condition, they shall be replaced within 15 days of identification of the deficient condition. [R307-401-8]

II.B.2.b.1 Records of thief hatch inspections shall include the following:

a. The date of the thief hatch inspection,

b. The status of the thief hatches,

c. Any corrective action taken, and

d. The date of corrective action.

[R307-401-8]

II.B.3 **Dehydrator Requirements**

II.B.3.a VOC emissions from dehydrators shall either be routed to a process unit where the emissions are recycled, incorporated into a product, and/or recovered or be routed to a VOC control device where the emissions are consumed and/or destroyed. [R307-401-8]

II.B.4 **VOC Control Device Requirements**

II.B.4.a Any VOC control device shall have a control/destruction efficiency of no less than 98%. [R307-401-8]

II.B.4.a.1 To show compliance with the control/destruction efficiency, the VOC control device shall be operated according to the manufacturer's written instructions when gases/vapors are vented to it. [R307-401-8]

II.B.4.a.2 The owner/operator shall keep and maintain records of the following:

a. The VOC control device’s control/destruction efficiency guaranteed by the manufacturer,

b. The manufacturer’s written operating and maintenance instructions, and

c. The date and type of any maintenance conducted by the owner/operator.

[R307-401-8]

II.B.4.b The VOC control device shall operate with no visible emissions. [R307-401-8]

II.B.4.b.1 Visual determination of emissions from the VOC control device shall be conducted according to 40 CFR 60, Appendix A, Method 22. [R307-401-8]

II.B.5 **Natural Gas-Driven Pneumatic Controller Requirements**

II.B.5.a Each natural gas-driven pneumatic controller shall comply with either a or b:

a. A natural gas-driven pneumatic controller shall have a bleed rate less than or equal to 6 standard cubic feet per hour and shall comply with 40 CFR 60.5415(d).

b. The VOC emissions from a natural gas-driven pneumatic controller shall either:
   i. be routed to a process unit where the emissions are recycled, incorporated into a product, and/or recovered; or
   ii. be routed to a VOC control device where the emissions are consumed and/or destroyed. [R307-401-8]

II.B.6 **Natural Gas-Driven Pneumatic Pump Requirements**

II.B.6.a Each natural gas-driven pneumatic pump shall comply with either a or b:

a. A natural gas-driven pneumatic pump shall have a bleed rate less than or equal to 6 standard cubic feet per hour and shall comply with 40 CFR 60.5415(d).

b. The VOC emissions from a natural gas-driven pneumatic pump shall either:
   i. be routed to a process unit where the emissions are recycled, incorporated into a product, and/or recovered; or
   ii. be routed to a VOC control device where the emissions are consumed and/or destroyed. [R307-401-8]

II.B.7 **Truck Loading Requirements**

II.B.7.a The owner/operator shall load the tanker trucks on site by the use of submerged loading or bottom fill loading. [R307-401-8]

II.B.8 **Engine Requirements**

II.B.8.a Any stationary engine on site shall only use natural gas or LPG as fuel. [R307-401-8]

II.B.8.b Any stationary engine on site shall comply with the following emission standards:

a. For engines rated less than 100 hp: [40 CFR 1048.101(c)],
   1. $HC+NO_x$ = 3.8 g/kW-hr (2.84 g/hp-hr),
   2. CO = 6.5 g/kW-hr (4.85 g/hp-hr),

b. For engines rated greater than or equal to 100 hp: [40 CFR 60 Subpart JJJJ â€“ Table 1]

1. NO_x = 1.0 g/hp-hr,
2. CO = 2.0 g/hp-hr,
3. VOC = 0.7 g/hp-hr.

[40 CFR 60 Subpart JJJJ, R307-401-8]

II.B.8.b.1 The owner/operator shall keep and maintain the following records:

a. The emission rate guaranteed by the manufacturer for:

1. HC+NO_x and CO for engines rated less than 100 hp, or
2. NO_x, CO, and VOC for engines rated greater than or equal to 100 hp,

b. The manufacturer's written operating and maintenance instructions,

c. Any maintenance conducted by the owner/operator,

d. The date of the maintenance activities.

[R307-401-8]

II.B.8.c Each stationary engine stack on site shall vent no less than 4 feet above ground level. [R307-401-8]

II.B.9 **<u>Boilers/Heater Requirements</u>**

II.B.9.a All boilers/heaters on site shall only use natural gas or LPG as fuel. [R307-401-8]

II.B.9.b Each boiler stack and each heater stack on site shall vent at least 1 foot above the height of the Produced Fluids Storage Tanks. [R307-401-8]

II.B.10 **<u>Leak Detection and Repair Requirements</u>**

II.B.10.a The owner/operator shall conduct an inspection of each valve, flange or other connection, pump, compressor, pressure relief device or other vent, process drain, open-ended valve, pump seal, compressor seal, and access door seal or other seal that contains or contacts a process stream with hydrocarbons according to the following schedule:

a. No later than 90 days after startup.

b. For sources with at least one crude oil or condensate storage tank on site:

1. At least once every 12 months, for sources that have a projected annual throughput of crude oil and condensate combined that is greater than or equal to 10,000 barrels,

2. At least once every 3 months after the initial inspection, for sources that have a projected annual throughput of crude oil and condensate combined that is greater than or equal to 25,000 barrels. Inspection frequency, for sources that have a projected annual throughput of crude oil and condensate combined that is greater than or equal to 25,000 barrels, shall change according to the following:

i. If no leaks are detected during inspections for one year, inspection frequency shall be reduced to at least once every 6 months,

ii. If no leaks are detected during inspections for two years, inspection frequency shall be reduced to at least once every 12 months,

iii. If two or more leaks are detected during any inspection, inspection frequency shall be conducted at least once every 3 months,

c. At least once every 12 months, for sources that do not have a crude oil or condensate storage tank on site. [R307-401-8]

II.B.10.a.1 Inspections shall be conducted with an analyzer meeting U.S. EPA Method 21, 40 CFR Part 60, Appendix A, a tunable diode laser absorption spectroscopy (TDLAS), or an infrared camera that can detect hydrocarbons.

A reading of 500 ppm or greater with an analyzer or a TDLAS shall be considered a leak. Any emissions detected with an infrared camera shall be considered a leak unless the owner/operator evaluates the leak with an analyzer meeting U.S. EPA Method 21, 40 CFR Part 60, Appendix A no later than 5 calendar days after detection and the analyzer's reading is less than 500 ppm. Emissions detected from tank gauging, load-out operations, or other maintenance activities shall not be considered leaks. [R307-401-8]

II.B.10.a.2 The owner/operator is exempt from inspecting a valve, flange or other connection, pump or compressor, pressure relief device, process drain, open-ended valve, pump or compressor seal system degassing vent, accumulator vessel vent, agitator seal, or access door seal under any of the following circumstances:

a. the contacting process stream only contains glycol, amine, methanol, or produced water,

b. monitoring could not occur without elevating the monitoring personnel more than six feet above a supported surface or without the assistance of a wheeled scissor-lift or hydraulic type scaffold,

c. monitoring could not occur without exposing monitoring personnel to an immediate danger as a consequence of completing monitoring, or

d. the item to be inspected is buried, insulated in a manner that prevents access to the components by a monitor probe, or obstructed by equipment or piping that prevents access to the components by a monitor probe.

[R307-401-8]

II.B.10.b If a leak is detected at any time, the owner/operator shall attempt to repair the leak no later than 5 calendar days after detection. Repair of the leak shall be completed no later than 15 calendar days after detection, unless parts are unavailable or unless repair is technically infeasible without a shutdown. The owner/operator shall inspect the repaired leak no later than 15 calendar days after the leak was repaired to verify that it is no longer leaking.

If replacement parts are unavailable, the replacement parts must be ordered no later than 5 calendar days after detection, and the leak must be repaired no later than 15 calendar days after receipt of the replacement parts.

If repair is technically infeasible without a shutdown, the leak must be repaired by the end of the next shutdown. If a shutdown is required to repair a leak, the shutdown must occur no later than 6 months after the detection of the leak unless the owner/operator demonstrates that emissions generated from the shutdown are greater than the fugitive emissions likely to result from delay of repair. [R307-401-8]

II.B.10.c Records of inspections and leak detection and repair shall include the following:

a. The date of the inspection,
b. The name of the person conducting the inspection,
c. Any component not inspected and the reason it was not inspected
d. The identification of any component that was determined to be leaking,
e. The analyzer's or TDLAS reading (if used),
f. The date of first attempt to repair the leaking component,
g. Any component with a delayed repair,
h. The reason for a delayed repair,
    1. For Unavailable Parts:
        i. The date of ordering a replacement component,
        ii. The date the replacement component was received,
    2. For a Shutdown:
        i. The reason the repair is technically infeasible,
        ii. The date of the shutdown
        iii. Emission estimates of the shutdown and the repair if the delay is longer than 6 months,
i. Corrective action taken,
j. The date corrective action was completed, and
k. The date the component was verified to no longer be leaking.

[R307-401-8]

Section III: APPLICABLE FEDERAL REQUIREMENTS

In addition to the requirements of this GAO, all applicable provisions of the following federal programs may apply to this installation. This GAO in no way releases the owner or operator from any liability for compliance with all other applicable federal, state, and local regulations including UAC R307.

NSPS (Part 60), A: General Provisions
NSPS (Part 60), Dc: Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units
NSPS (Part 60), JJJJ: Standards of Performance for Stationary Spark Ignition Internal Combustion Engines
NSPS (Part 60), OOOO: Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution
MACT (Part 63), A: General Provisions
MACT (Part 63), HH: National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities
MACT (Part 63), ZZZZ: National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

REVIEWER COMMENTS

The AO will be based on the following documents:

1. Comment regarding Emission Estimates:

Emissions were estimated from the following sources:
Crude oil storage tanks, dehydrators, VOC control device (combustor/flare), pumpjack engines, natural gas-combustion equipment (including a heater treater and various tank heaters), crude oil truck loading, methanol and glycol storage tanks, natural gas-driven pneumatic controllers and pumps, and various fugitive equipment leaks.

Crude Oil Storage Tanks
VOC emissions from the crude oil storage tanks were estimated using EPA TANKS 4.0.9d program for the working and breathing losses and the Vasquez-Beggs (V-B) equation for flashing emissions.

For the EPA TANKS program, a capacity of 550 barrels (23,100 gallons) was used with a throughput of 16,667 barrels (700,000 gallons) of oil. This represents the throughput spread out over three tanks, so the emissions obtained from EPA TANKS would be multiplied by three. Crude oil (RVP 5) was used as the contents of the tank to be applicable state wide. The tanks would also need to be heated to a temperature of around 140 degrees Fahrenheit.

For the V-B equation, the same variables used in the EPA TANKS program were used to estimate the flashing emissions. The V-B equation uses a daily throughput instead of an annual throughput to estimate annual emissions, so the value of 137 barrels/day (50,000 barrels/year) was used.

The working and breathing losses were added to the flashing emissions, and a control efficiency of 98% was applied to the emissions due to the addition of a VOC control device.

Dehydrators
A gas analysis was taken from ten different dehydrators that were located at ten different permitted compressor stations. An emission factor for VOC, each HAP, and GHG was determined for each site. The emission factors for uncontrolled emissions have units of tons/year per MMcsf/day. The highest emission factor for each pollutant was used to estimate emissions from a dehydrator. The maximum allowed size of the dehydrator (2.0 MMscf/day) was multiplied by the emission factor to determine emissions in tons per year.

VOC Control Device (combustor/flare)
For emission estimation purposes, the VOC control device was assumed to be a flare. A flare would have the highest emission rates when compared to other VOC control devices. The rating of the flare was set at 2.0 MMBtu/hour. NO_x, CO, and GHG emissions from the flare were estimated using AP-42 Section 13.2-5. [Last updated February 14, 2014]

2. Comment regarding Emission Estimates:

Pumpjack Engines
NO_x (3.80 g/kw-hr) and CO (2.84 g/kw-hr) emission rates were estimated from 40 CFR 1048.101(c). The remaining criteria HAP, and GHG emission rates were estimated using AP-42

Section 3.2 Table 3.2-1 for 2-stroke lean-burn engines. The maximum rating of the engines on site was 130 hp. Although a source could use multiple engines to reach this total, a single 130 hp engine could also be used. The emissions from a single 130 hp engine would be less than several smaller engines, due to more stringent emission standards for the larger engine. Therefore, the higher emission rate of multiple smaller engines was used to make sure emissions were not underestimated.

Natural Gas-Combustion Equipment
Criteria pollutant, HAP, and GHG emissions from the heater treater and natural gas-combustion equipment were estimated using AP-42 Section 1.4. The maximum rating on site was 10.0 MMBtu/hr. This would incorporate all natural gas-fired heaters and boilers on site.

Crude Oil Truck Loading
VOC emissions from the submerged loading/bottom fill loading of crude oil into tanker trucks were estimated using AP-42 Section 5.2. The liquid temperature was set at 140 degrees Fahrenheit (600 Rankine). The saturation factor was set at 0.6 for submerged loading/bottom fill loading: dedicated normal service. Other variables were obtained from the inputs of the EPA TANKS program. The annual throughput of 50,000 barrels (2,100,000 gallons) was used to estimate annual emissions.

Methanol & Glycol Storage Tanks
VOC & HAP emissions from the methanol and glycol storage tanks were estimated using EPA TANKS 4.0.9d. The size of a single tank was set at 500 gallons. The turnovers of each tank was set to 4 times per year. The total throughputs would be 2,000 gallons of methanol and 2,000 gallons of glycol.

Natural Gas-Driven Pneumatic Controllers and Pumps
VOC emissions from natural gas-driven controllers and pumps were estimated by allowing up to 10 pneumatic controllers or pumps on site. High bleed pneumatics were assumed to have a bleed rate of 42 scf/hour. This was obtained from Appendix A of "Options for Reducing Methane Emissions from Pneumatic Devices in the Natural Gas Industry" from Natural Gas STAR Partners. Low bleed pneumatics were assumed to have a bleed rate of 6 scf/hour. This was obtained from 40 CFR 60 Subpart OOOO. An emission factor of 20 cf-year/hr-tons(VOC) was obtained from "Draft Oil and Gas Ozone Reduction Strategy, Revision 1 - Presented at April 10, 2008 RAQC Meeting." The emission factor was multiplied by the number of pneumatics and the bleed rate of the pneumatics to determine the tons of VOC per year emitted from pneumatics.

Fugitive Equipment Leaks
VOC emissions from fugitive leaks were estimated using Table 2-4 (for uncontrolled emissions) and Table 2-8 (for controlled emissions) of the 1995 EPA Protocol for Equipment Leak Emission Estimates (Document EPA-453/R-95-017). This document has emission factors for gas, heavy oil, light oil, and water/oil. The highest emission factor was used to estimate emissions from valves, pump seals, other, connectors, and flanges. The number of these can vary between sites, so a value of 50 was selected to estimate emissions for each component.
[Last updated February 14, 2014]

3. Comment regarding HAP & GHG Emissions:

A gas analysis was taken from six different sites that have been permitted. The ratio of HAP & GHG emissions to VOC emissions was developed for each analysis. To make sure emissions would not be underestimated; the highest ratio for each HAP and GHG was used to estimate emissions from the storage tanks, truck loading, pneumatics, and leaks. The following are the ratios per 1 ton of VOC. 0.011 for 2,2,4-Trimethylpentane, 0.0182 for Benzene, 0.0094 for Toluene, 0.0005 for EthylBenzene, 0.003 for Xylene, 0.1033 for n-Hexane, 480,407 for Methane, 0.0373 for CO2.
[Last updated February 14, 2014]

4. Comment regarding Permitted Equipment:

Crude Oil & Produced Water Storage Tanks
The maximum capacity of each storage tanks was set at 550 barrels. Most of the currently permitted storage tanks for an oil and gas tank battery would be less than this value. Each tank battery will need at least two oil storage tanks and one produced water tank. Some sites require an additional tank; therefore, the maximum site-wide capacity was increased to 2,200 barrels to allow for a total of four tanks with a capacity of 550 barrels each.

Dehydrators
A 1.0 MMscf/day dehydrator would be able to handle the gas produced from most single-well facilities. A larger dehydrator would allow for the gas at multiple wells to be routed to a single site. The emissions from dehydrators are largely dependent on the glycol recirculation rate, and the recirculation rate is very similar between a 1.0 MMscf/day and a 2.0 MMscf/day dehydrator. One industry representative provided emission estimates for a 1.0 MMscf/day and a 2.0 MMscf/day dehydrator, and the difference in emissions was very small. The 2.0 MMscf/day dehydrator was selected to allow for multiple well sites.

Pumpjack Engines
Emissions for the pumpjack engines were estimated using natural gas as fuel. A modeling analysis for NO_2 was conducted, and the site-wide rating of the engines that was used in the model was 130 hp. An engine with a larger rating will have a higher NO_x emission rate, which could cause issues with the NO_2 NAAQS. In addition, a larger rating would allow for higher formaldehyde emissions. A source with formaldehyde emissions above its emission threshold value would not qualify for the GAO; therefore, a higher rating cannot be used.

Boilers/Heaters
Emissions for the boilers and heaters were estimated using natural gas as fuel. A site-wide capacity was set at 10.0 MMBtu/hr. Most of the currently permitted oil and gas tank batteries have site-wide capacities less than this. The BACT review and modeling analysis were conducted using the 10.0 MMBtu/hr rating, so a larger capacity would require another BACT review and modeling analysis.

Methanol & Glycol Storage Vessels
Various tanks are needed to support the operations at the tank battery. Methanol or glycol can be stored in those tanks. The emissions from these tanks are very small. The standard size of an individual tank is 500 gallons. The permit allows up to 1,000 gallons to allow for one tank of both methanol and glycol; however, the source would have the option of including any combination up

to 1,000 gallons.

Emergency/Overflow Storage Tank
The emergency/overflow tank was set to be the same size as a crude oil storage tank of 550 barrels. This tank is in addition to the 2,200 barrel capacity of the produced fluids storage tanks. This tank should only be used in emergency or upset conditions and does not have any emissions during normal operation. Because there are no emissions from the emergency/overflow tank during normal operation, no additional controls were evaluated or required at this time.
[Last updated February 14, 2014]

5. Comment regarding Permit Conditions:

Site Wide Requirements
Emissions for this GAO were estimated using a throughput of 50,000 barrels per year. It was estimated that around 98% of the sources within state jurisdiction have a throughput less than or equal to 50,000 barrels. The remaining 2% equates to around 30 sources that would have a throughput higher than 50,000 barrels. Sources with a higher throughput would need to go through the normal approval order process and BACT review. Sources are required to keep and maintain records of their production.

All gas produced from the heater treater shall be routed to a pipeline. Large amounts of gas can be produced from the heater treater. If not captured and routed to a pipeline, these emissions can be very large. If a pipeline is not in the area, the source would not qualify for a general permit and would need to go through the regular permitting process to determine BACT for these emissions.

A sign shall be posted at the site entrance indicating the presence of emissions due to oil and gas development. This condition establishes an area that is not considered ambient air. Impacts to ambient air were evaluated as part of this GAO. If not posted the boundary of ambient air is not clear.

The entire site will be required to comply with a 10% opacity limit. This limit has been included in other permits issued by DAQ and is required for this site. Opacity measurements will be conducted according to Method 9 except for mobile or intermittent sources, then the requirement for six-minute observations, shall not apply.

R307-401-18 requires that a source complete construction or have a continuous program of construction within 18 months of being subject to an AO (or GAO). If neither is occurring, the Director may revoke the AO (or the applicability to the GAO). The source is required to notify the Director of completed construction within 30 days of startup. The reason for the 30 days is so DAQ compliance inspectors can schedule an initial inspection for the source. If the source has not completed construction within 18 months of being subject to the GAO, the source must submit a letter to the director indicating a continuous program of construction.

The GAO contains maximum equipment limits and maximum potential emissions. The actual equipment and actual emissions will be less than what is permitted. The DAQ needs the actual emission rates to assist with other analyses and potential SIP development. The source would be required to submit an inventory of the equipment and emissions within 180 days of startup. The reason for the 180 days is to allow the source enough time to gather site specific data on the composition of the oil and/or gas and have enough time to have throughput level off so accurate projections can be obtained.

In addition to the initial inventory, the source will be required to submit an annual inventory thereafter. R307-150-1 (4) states: The director may require at any time a full or partial year inventory upon reasonable notice to affected sources when it is determined that the inventory is necessary to develop a state implementation plan, to assess whether there is a threat to public health or safety or the environment, or to determine whether the source is in compliance with R307. Due to the number of sources expected to apply to the GAO, the director is requesting an annual inventory to assist with potential SIP development and to determine if the source is operating in compliance with the GAO (R307-401-19). [Last updated February 14, 2014]

6. Comment regarding Permit Conditions:

Tank Requirements
The VOC emissions from the oil storage tanks and the produced water storage tanks must either be sent to a VRU, or be captured and sent to a VOC control device. Numerous other permits issued by DAQ have included the option to capture and control emissions with a VOC control device; therefore, this is feasible for all sources. If a source does not want to comply with these options, the source must make a demonstration through the normal approval order process that these options are not feasible.

To make sure emissions are captured correctly and there are no unnecessary emissions, the thief hatches on the storage tanks will be closed and latched except during maintenance activities. To make sure the thief hatches are closed, the source is required to inspect the thief hatches and associated gaskets at least once a month. The source is required to keep and maintain the records of inspection and maintenance.

Dehydrator Requirements
The VOC emissions from the dehydrator must either be sent to a VRU, or be captured and sent to a VOC control device. Numerous other permits issued by DAQ have included the option to capture and control emissions with a VOC control device; therefore, this is feasible for all sources.

VOC Control Device Requirements
The VOC control device must have a control/destruction efficiency of at least 98%. NSPS Subpart OOOO requires a control of at least 95%. The reason that the control efficiency was increased was because the State of Wyoming has a presumptive BACT of at least 98%. This control efficiency would be applicable in the State of Utah. A specific control technology was not required, which allows the source the flexibility to select whatever technology is best for them to reach the 98% reduction. Numerous sources have been able to reach this reduction with the use of flares/combustors. To make sure the control device is able to meet the control efficiency, the manufacturer must guarantee that the control device will be able to meet the control efficiency, and the source must operate and maintain the control device according to the manufacturer's instructions. Records must be kept by the source to demonstrate compliance.

The VOC control device must operate with no visible emissions. Flares used to comply with requirements in NSPS must comply with NSPS Subpart A. 40 CFR 60.18(c)(1) requires flares to operate with no visible emissions. Visible emissions are determined according to 40 CFR 60 Appendix A Method 22. This requirement is applicable to the control device at this facility. [Last updated February 14, 2014]

7. Comment regarding Permit Conditions:

Natural Gas-Driven Pneumatic Controller Requirements
Each pneumatic controller must have a bleed rate less than 6 scf/hour or shall have its emissions routed to a VRU. The 6 scf/hour requirement is contained in NSPS Subpart OOOO. This requirement would be applicable to the pneumatics in the State of Utah. If a source needs a pneumatic controller that has a bleed rate greater than 6 scf/hour, the source would need to route the emissions to a VRU. If a VRU is not feasible, the source must make a demonstration through the BACT analysis for a regular AO.

Natural Gas-Driven Pneumatic Pump Requirements
Each pneumatic pump must have a bleed rate less than 6 scf/hour or shall have its emissions routed to a VRU. The 6 scf/hour requirement is contained in NSPS Subpart OOOO. This requirement would be applicable to the pneumatics in the State of Utah. If a source needs a pneumatic pump that has a bleed rate greater than 6 scf/hour, the source would need to route the emissions to a VRU. If a VRU is not feasible, the source must make a demonstration through the BACT analysis for a regular AO.

Truck Loading Requirements
Truck loading must be by submerged loading/bottom fill loading. The use of submerged loading/bottom fill loading is required for the filling of gasoline tanker trucks and storage tanks under R307-328. This technology is applicable to the loading of tanker trucks for the oil and gas industry and has been included in numerous AOs previously issued to sources in the State of Utah. [Last updated February 14, 2014]

8. Comment regarding Permit Conditions:

Engine Requirements
The engines on site are required to use natural gas or LPG as fuel. These fuels are readily available in the State of Utah. Emissions from other fuels were not evaluated as part of this GAO, so no other fuel would be allowed. If a source wants to use another fuel, the source must conduct a BACT analysis as part of the process of obtaining a regular AO.

According to NSPS Subpart JJJJ, new engines rated less than or equal to 25 hp are required to meet the emission standards contained in 40 CFR 1054, new engines rated greater than 25 hp that are rich burn engines and use LPG are required to meet the emission standards contained in 40 CFR 1048, new engines rated greater than 25 hp and less than 100 hp are required to meet the emission standards contained in 40 CFR 1048.101(c), and new engines rated greater than or equal to 100 hp are required to meet the emission standards contained in 40 CFR 60 Subpart JJJJ Table 1. The emission standards of engines rated 25 hp or less were not evaluated as part of the modeling analysis; therefore, if a source wanted to use an engine rated 25 hp or less, the engine would be required to meet the emission standards of the engines modeled. The emission standards of rich burn engines rated greater than 25 hp that use LPG vary depending on steady-state testing, transient testing, and field testing. The emission standards of non-rich burn engines rated greater than 25 hp and less than 100 hp are based on the field testing requirements in 40 CFR 1048.101. This emission standard is what was used in the modeling analysis; therefore, rich burn engines rated greater than 25 hp that use LPG must at least comply with the emission standard that was modeled. If another rule or requirement is more stringent for the specific engine selected, the source must also meet that limit. The emission standards for engines rated greater than or equal to 100 hp are lower than for engines rated less than 100 hp; therefore, any modeling done at the higher emission rate for the lower hp engines would be applicable to a lower emission rate for the higher hp engines. BACT cannot be less stringent that a federal standard, so engines rated greater than or equal to 100 hp must comply with the more stringent emission standard. The emission standards for engines rated less than 100 hp are as follows: HC+NO_x = 3.8 g/kW-hr (2.84 g/hp-hr) and CO = 6.5 g/kW-hr (4.85 g/hp-hr). The emission standards for engines rated greater than or equal to 100 hp are as follows: NO_x = 1.0 g/hp-hr, CO = 2.0 g/hp-hr, VOC = 0.7 g/hp-hr. To make sure the engines do not exceed these emission rates, the manufacturer must guarantee that the engines will be able to meet the emission rates specified in NSPS Subpart JJJJ. The sources must also operate and maintain the engine according to the manufacturer's instructions. Records must be kept by the source to demonstrate compliance.

The stack height of the engine is required to be no less than 4 feet above ground. A modeling analysis was conducted for NO_2, and this stack requirement was included in the passing model.

Boiler Requirements
Boilers/Heaters are required to use natural gas or LPG as fuel. These fuels are readily available in the State of Utah. Emissions from other fuels were not evaluated as part of this GAO, so no other fuel would be allowed.

The stack height of each boiler/heater is required to be no less than 1 foot from the top of the storage tanks on site. A modeling analysis was conducted for NO_2, and this stack requirement was included in the passing model. The height above the storage tanks is required to avoid building downwash in the model. [Last updated February 14, 2014]

9. Comment regarding Permit Conditions:

Leak Detection and Repair Requirements
Fugitive leaks and unmaintained equipment can be a large source of emissions. To minimize leaks, the source will be required to inspect the site using an infrared camera, an analyzer meeting Method 21, or a tunable diode laser absorption spectroscopy. All sources must be inspected within 90 days of startup, unless the component to be inspected is unsafe to inspect. The initial inspection is to make sure the site was constructed correctly and there are no leaks due to poor construction. For sources that have a throughput greater than 10,000 bbls that have storage tanks, or sites that do not have storage tanks, inspections must be conducted annually. This is estimated to include around half of the sources that would need a permit in state jurisdiction. Sources that have a throughput of 25,000 barrels or greater would need to conduct quarterly inspections. This is estimated to include around 15% of sources that would require a permit in state jurisdiction. If after a year and no leaks are detected, the source may conduct inspections every six months. After another year of no leaks, the source would be allowed to conduct inspections every year. If two or more leaks are detected during a subsequent inspection, the source would conduct inspections on a quarterly basis again.

A leak is considered anything detected with an infrared camera or a reading of 500 ppm or greater with another instrument. All leaks must be attempted to be repaired within 5 days of detection, and all leaks must be repaired within 15 days of detection, unless a shutdown is required or parts are unavailable. These limits and timelines are the same as the limits and timelines contained in

NSPS Subpart OOOO.

Records must be kept of all inspections, and records must be kept of any detected leaks and the steps taken to repair the leaks. [Last updated February 14, 2014]

10. Comment regarding Oil and Gas NSPS & MACT Applicability:

40 CFR 60 NSPS Subpart Kb applies to each storage vessel with a capacity greater than or equal to 75 cubic meters (19,813 gallons) that is used to store volatile organic liquids. The maximum storage tank on site could have a capacity of 23,100 gallons, which is greater than applicability threshold. However, NSPS Subpart Kb does not apply to storage vessels with a design capacity less than or equal to 1,589.874 cubic meters (420,000 gallons) used for petroleum or condensate stored, processed, or treated prior to custody transfer (40 CFR 60.110b (d)(4)). Any storage tank on site will be less than 1,589.874 cubic meters and will be located prior to custody transfer; therefore, NSPS Subpart Kb does not apply to this facility.

40 CFR 60 NSPS Subpart KKK applies to onshore natural gas processing plants. Natural gas processing plant is defined as any processing site engaged in the extraction of natural gas liquids from field gas, fractionation of mixed natural gas liquids to natural gas products, or both. This facility will not extract natural gas liquids from field gas; therefore, NSPS Subpart KKK will not apply to this facility.

40 CFR 60 NSPS Subpart LLL applies to sweetening units and sweetening units followed by sulfur recovery units that process natural gas. This facility will not have a sweetening unit; therefore, NSPS Subpart LLL will not apply to this facility.

40 CFR 60 NSPS Subpart OOOO applies to the following onshore affected facilities that commence construction, modification, or reconstruction after August 23, 2011: gas wells, centrifugal compressors, reciprocating compressors, pneumatic controllers, storage vessels, sweetening units, and hydraulically refractured wells. This source will have centrifugal compressors, reciprocating compressors, pneumatic controllers, and/or storage vessels that will commence construction after August 23, 2011; therefore, NSPS Subpart OOOO will apply to this facility. The specific requirements for each piece of equipment are contained in NSPS Subpart OOOO.

40 CFR 63 MACT Subpart HH applies to owners and operators of triethylene glycol (TEG) dehydration units at area sources of HAP. This facility will be an area source of HAP and may contain a TEG dehydration unit; therefore, MACT Subpart HH may apply to this facility. The specific requirements for a TEG dehydration unit are contained in MACT Subpart HH.

40 CFR 63 MACT Subpart HHH applies to owners and operators of natural gas transmission and storage facilities that are major sources of HAP emissions. This facility will not be a major source of HAP emissions; therefore, MACT Subpart HHH will not apply to this facility.
[Last updated February 14, 2014]

11. Comment regarding Boiler/Heater NSPS & MACT Applicability:

40 CFR 60 NSPS Subpart Dc applies to each steam generating unit that has a maximum design heat input capacity of 100 MMBtu/hr or less, but greater than or equal to 10 MMBtu/hr. This GAO would allow a source to install one 10.0 MMBtu/hr steam generating unit. If a source does this NSPS Subpart Dc would apply; however, since the only fuel permitted by the GAO is natural gas or LPG, the source would only be required to keep records of the amount of fuel used in the heater/boiler.

40 CFR 63 MACT Subpart JJJJJJ applies to industrial, commercial, or institutional boiler that is located at, or is part of, an area source of HAP. This facility will have at least one industrial boiler on site; however, each boiler on site will also be a gas-fired boiler as defined in 40 CFR 63.11237. MACT Subpart JJJJJJ does not apply to gas-fired boilers (40 CFR 63.11195 (e)); therefore, MACT Subpart JJJJJJ does not apply to this facility. [Last updated February 14, 2014]

12. Comment regarding Engine NSPS & MACT Applicability:

40 CFR 60 NSPS Subpart JJJJ applies to owners and operators of stationary SI ICE that commence construction after June 12, 2006, where the stationary SI ICE are manufactured on or after July 1, 2008, for engines with a maximum engine power less than 500 hp. The engine at this facility will be required to meet the emission standards for engines manufactured after January 1, 2011. Engines manufactured prior to this date will most likely not be able to meet the emission limits, so sources will most likely need to install engines manufactured after January 1, 2011; therefore, NSPS Subpart JJJJ will apply to this facility. NSPS Subpart JJJJ requires that owners and operators of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) and less than 75 KW (100 HP) comply with the emission standards for field testing in 40 CFR 1048.101(c). The emission standards contained in 40 CFR 1048.101(c) require 3.8 g/kW-hr for $HC+NO_x$ and 6.5 g/kW-hr for CO. NSPS Subpart JJJJ requires that owners and operators of stationary SI ICE with a maximum engine power greater than 75 KW (100 HP) comply with the emission standards contained in Table 1 to 40 CFR 60 Subpart JJJJ. The emission standards contained in Table 1 to 40 CFR 60 Subpart JJJJ require 1.0 g/hp-hr for NO_x, 2.0 g/hp-hr for CO, and 0.7 g/hp-hr for VOC. Additional monitoring, recordkeeping, and reporting requirements are contained in NSPS JJJJ.

40 CFR 63 MACT Subpart ZZZZ applies to owners and operators of stationary RICE at a major or area source of HAP emissions. Since this source will have a stationary RICE at an area source of HAP emissions, MACT Subpart ZZZZ will apply to this facility. A new stationary RICE located at an area source must meet the requirements of MACT Subpart ZZZZ by meeting the requirements of NSPS Subpart JJJJ. No further requirements apply.
[Last updated February 14, 2014]

13. Comment regarding Title V Applicability:

Title V of the 1990 Clean Air Act (Title V) applies to the following:

1. Any major source
2. Any source subject to a standard, limitation, or other requirement under Section 111 of the Act, Standards of Performance for New Stationary Sources;

3. Any source subject to a standard or other requirement under Section 112 of the Act, Hazardous Air Pollutants.
4. Any Title IV affected source.

This facility is not a major source and is not a Title IV source; however, the facility is subject to 40 CFR 60 NSPS Subpart Dc, Subpart JJJJ, Subpart OOOO and 40 CFR 63 MACT Subpart HH and Subpart ZZZZ regulations. However, Title V does not apply because NSPS Subpart JJJJ, Subpart OOOO, MACT Subpart HH, and Subpart ZZZZ exempt sources from the obligation to obtain a permit under 40 CFR part 70 (Title V permit) if the source is not otherwise required by law to obtain a permit. NSPS Dc requires the source to maintain records of the amount of natural gas consumed. According to a February 17, 2000 DAQ guideline, this requirement does not constitute a standard or limitation that would require a Title V permit. There are no other reasons why this source would be required to obtain a part 70 permit; therefore, Title V does not apply to this facility. [Last updated February 14, 2014]

14. Comment regarding Ozone Demonstration:

This GAO must meet the requirements of R307-401-8, which includes the National Primary and Secondary Ambient Air Quality Standards. The information that would allow the issuance of this GAO in regards to ozone is contained in "White Paper: VOC Emissions Projection Methodology for the Uinta Basin, Version 1.0, dated February 18, 2014." [Last updated February 14, 2014]

15. Comment regarding Periodic Review:

According to R307-401-19(7)(c), this GAO shall be reviewed at least once every three years from the date issuance and shall follow the public notice requirements of R307-401-19(3). [Last updated February 14, 2014]

ACRONYMS

The following lists commonly used acronyms and associated translations as they apply to this document:

40 CFR	Title 40 of the Code of Federal Regulations
AO	Approval Order
BACT	Best Available Control Technology
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CDS	Classification Data System (used by EPA to classify sources by size/type)
CEM	Continuous emissions monitor
CEMS	Continuous emissions monitoring system
CFR	Code of Federal Regulations
CMS	Continuous monitoring system
CO	Carbon monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent - 40 CFR Part 98, Subpart A, Table A-1
COM	Continuous opacity monitor
DAQ	Division of Air Quality (typically interchangeable with UDAQ)
DAQE	This is a document tracking code for internal UDAQ use
EPA	Environmental Protection Agency
FDCP	Fugitive dust control plan
GHG	Greenhouse Gas(es) - 40 CFR 52.21 (b)(49)(i)
GWP	Global Warming Potential - 40 CFR Part 86.1818-12(a)
HAP or HAPs	Hazardous air pollutant(s)
ITA	Intent to Approve
LB/HR	Pounds per hour
MACT	Maximum Achievable Control Technology
MMBTU	Million British Thermal Units
NAA	Nonattainment Area
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standards for Hazardous Air Pollutants
NOI	Notice of Intent
NO_x	Oxides of nitrogen
NSPS	New Source Performance Standard
NSR	New Source Review
PM_{10}	Particulate matter less than 10 microns in size
$PM_{2.5}$	Particulate matter less than 2.5 microns in size
PSD	Prevention of Significant Deterioration
PTE	Potential to Emit
R307	Rules Series 307
R307-401	Rules Series 307 - Section 401
SO_2	Sulfur dioxide
Title IV	Title IV of the Clean Air Act
Title V	Title V of the Clean Air Act
TPY	Tons per year
UAC	Utah Administrative Code
UDAQ	Utah Division of Air Quality (typically interchangeable with DAQ)
VOC	Volatile organic compounds