



State of Utah

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Environmental Quality

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DIVISION OF AIR QUALITY  
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Director

DAQE-MN149250001-14

**MEMORANDUM**

To: Site: 14925 – General Approval Order:  
Crude Oil and Natural Gas Well Site and/or Tank Battery

Through: Marty Gray, New Source Review Section Manager

From: Alan D. Humpherys, Minor New Source Review Section Manager

Date: June 4, 2014

Subject: Response to Public Comments

**Introduction**

A General Approval Order (GAO) for a Crude Oil and Natural Gas Well Site and/or Tank Battery was proposed with a public comment period from February 25, 2014 thru March 29, 2014; written comments were received from six submitters. Each comment received was considered before final issuance of the AO. The comments submitted are identified below with the Utah Division of Air Quality's (DAQ) response. A copy of the written comments is attached to this memo. The Bureau of Land Management submitted comments after the comment period had ended, and according to R307-401-7(3) DAQ is not required to consider these comments. A copy of these comments will be included with this memo for informational purposes only.

The proposed 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 single well or multiple wells. 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.

**Comments Received from QEP Resources, Inc.**

**1) Comment:**

*"As you know, NSPS OOOO creates very strict requirements for controlling emission in the oil and gas sector, and those regulations came after years of consideration of the unique processes and circumstances that make up the oil and gas business. There are plenty of areas that need*

*improvement in that rule, but it is important to note that the EPA did not include pneumatic pumps in NSPS OOOO, for good reason. There simply is no evidence of meaningful reductions to be found in such controls. UDAQ provides no evidence, nor does UDAQ include any cost benefit or BACT analysis justifying any controls in this area beyond those set forth in NSPS OOOO. Please eliminate any requirements for pneumatic pumps under the GAO.”*

**DAQ Response:** DAQ agrees that NSPS Subpart OOOO does not include pneumatic pumps and that a cost benefit analysis was not conducted for pneumatic pumps for the GAO. DAQ disagrees with the commenter that there is no evidence of meaningful reductions from controlling pneumatic pumps and that evidence or a BACT analysis justifying controls was not provided. The method of estimating emissions is summarized in comment #2 of the REVIEWER COMMENTS in the engineering review. The emission calculations provided during the comment period show an uncontrolled VOC emission rate of 2.10 tons per year per device and a controlled VOC emission rate of 0.30 tons per year per device. A BACT review was conducted for all emitting units as required by R307-401-5(2)(d). The BACT review, including the justification of the controls is contained in comment #5 of the Review of Best Available Control Technology in the engineering review. The commenter did not provide how the emission calculation methodology, the emission calculations, or the BACT analysis was deficient or incorrect. No changes were made to the permit as a result of this comment.

**2) Comment:**

*“In addition, the GAO must be clarified to specify that the GAO requirements for pneumatic controllers apply solely to “continuous bleed” pneumatic controllers. Again, if UDAQ does not adopt this common-sense revision, Utah will require stricter controls than EPA set forth in NSPS OOOO. EPA recognized the difficulty of determining emissions from intermittent controllers, and specifically focused on continuous bleed controllers. UDAQ should do the same.”*

**DAQ Response:** DAQ disagrees with this comment. The emission limitation would include all pneumatic controllers. The commenter did not provide regulatory justification why this emission limit should not be applicable to all pneumatic controllers instead of just continuous bleed pneumatic controllers. Through the BACT process, DAQ may require emission limits more stringent than federal standards. The federal standards would be the minimum requirement. The definition of “Best available control technology” in R307-401-2 includes the sentence: “In no event shall application of best available control technology result in emissions of any pollutant which would exceed the emissions allowed by any applicable standard under 40 CFR parts 60 and 61.” The commenter did not explain what difficulties exist from estimating emissions from intermittent controllers. The method for estimating emissions from the pneumatic controllers is contained in comment #2 of the REVIEWER COMMENTS in the engineering review. DAQ must evaluate every emitting unit through the NSR permitting process as outlined in R307-401-5(2). No changes were made to the permit as a result of this comment.

**3) Comment:**

*“QEP notes the approach currently set forth in the GAO requiring dehydrator and tank controls on all units regardless of size is unprecedented. The requirements should either be stricken from the GAO, or UDAQ must select a de minimis threshold based on an appropriate cost benefit or BACT analysis. As it stands, UDAQ has no such analysis to support this radical change to the regulatory structure which will have minimal emission reduction benefits associated with it.”*

**DAQ Response:** DAQ disagrees with this comment. The controls required on the equipment were determined through the BACT process based on the potential to emit. The “potential to emit” is defined in R307-401-2. The emission calculation methodology from the tanks and the dehydrators is contained in comment #1 of the REVIEWER COMMENTS in the engineering review. The BACT determinations for the storage tanks and the dehydrator are contained in comment #2 and #3 respectively of the Review of Best Available Control Technology in the engineering review. The emission calculations provided during the comment period show an uncontrolled VOC emission rate of 44.19 tons per year for tanks and 46.35 tons per year for dehydrators, and a controlled VOC emission rate of 0.88 tons per year for tanks and 0.93 tons per year for dehydrators. The commenter did not explain how the emission calculation methodology, the emission calculations, or the BACT analysis was deficient or incorrect. No changes were made to the permit as a result of this comment.

**4) Comment:**

*“In addition, we continue to raise objections to the inclusion of stack height requirements in the GAO, the inclusion of the term “malfunction” in the GAO, and encourage UDAQ to limit the application of the emissions standards in the GAO to new or modified engines. Without the changes outlined here, QEP questions whether UDAQ’s goal of constructing a GAO that will be utilized for 80% of new oil and gas applications can be met.”*

**DAQ Response:** DAQ notes the objections, encouragement and question raised by the commenter; however, the commenter did not provide technical justification to change stack heights, to change the term “malfunction”, to change engine emission standards, or the percentage of applications that could be subject to this permit. No changes were made to the permit as a result of this comment.

**Comment Received from Wasatch Clean Air Coalition**

**5) Comment:**

*“It is an accomplishment to be at this point in the development of this GAO. This process has been marked by strenuous and effective outreach and consistent efforts to address concerns throughout the development of this ITA.*

*During the comment period the relevant documents were easily located. Alan Humpherys and Colleen Delaney are particularly commended for their persistence and vision in developing the GAO concept, and this first ITA under R307-401-19. We hope that the efficiencies and early reductions envisioned are realized.”*

**DAQ Response:** Comment noted. No technical issues were raised with this comment; therefore, no changes were made to the permit as a result of this comment.

**Comment Received from LINN Energy**

**6) LINN Energy Comment #1 & Basis #1:**

*“Comment #1: Remove Condition I.2. or remove “without prior approval.”*

*~~“The limits set forth in this GAO shall not be exceeded without prior approval. [R307-401]”~~*

***Basis #1:** In condition I.1., the language seems to imply that a limit set forth in the GAO may be exceeded with prior approval, which does not appear to be consistent with the intent of the GAO. The abstract states*

*‘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.’”*

**DAQ Response:** DAQ disagrees with this comment. Condition I.2 is a standard condition that is included in all NSR permits issued by DAQ. If a source desires to exceed a limit in the GAO, approval would only be given with the issuance of a new AO under R307-401-8. If “without prior approval” was removed from the condition, a source would always be required to comply with the limitations in the GAO and could not obtain approval to deviate from the GAO with the issuance of an AO under R307-401-8. No changes were made to the permit as a result of this comment.

**7) LINN Energy Comment #2 & Basis #2:**

***“Comment #2:** Include a condition detailing how changes to the facility are handled/conveyed to the UDAQ similar to Colorado’s revised air pollution emission notices as set out in Regulation 3 Part A II.C (<http://www.colorado.gov/cs/Satellite/CDPHE-Main/CBON/1251583470000>) The following is proposed for consideration:*

*A revised list of actual equipment installed and potential emissions shall be submitted to the Director:*

- a. Annually whenever new equipment is added which results in an increase in the facility’s potential emissions above the level last submitted to the Director; or*
- b. Whenever there is a change in the owner or operator of any facility, process, or activity; or*
- c. Whenever new control equipment is installed, or whenever a different type of control equipment replaces an existing type of control equipment (revised list of equipment and associated potential emissions is not required for routine maintenance, repair, or replacement of control equipment).*

***Basis #2:** If a facility were to add a new well or new piece of equipment, it could still remain covered under the GAO assuming none of the limits were exceeded by the addition. An entirely new application for such a circumstance seems excessive and could be streamlined by requiring the owner/operator notify the Director with an updated equipment and potential emissions list.”*

**DAQ Response:** DAQ disagrees with this comment. R307-401-19(8) contains the following: “A source may make modifications only as authorized by the approved general approval order. Modifications outside the scope authorized by the approved general approval order shall require a new application for either an individual approval order under R307-401-5 and R307-401-8 or a general approval order under R307-401-19.” In addition, according to conditions II.B.1.f and II.B.1.g, equipment and emissions are required to be submitted to the DAQ within 180 days of startup and annually thereafter. No changes were made to the permit as a result of this comment.

**8) LINN Energy Comment #3 & Basis #3:**

*“**Comment #3:** As a general comment, consider removing all production throughput limits in favor of a site-wide VOC emission cap, for example similar to Colorado’s General Permits for oil and gas industry storage tanks (GP-01, GP-05 and Draft GP-08) and New Mexico’s General Construction Permit for Storage Vessel Facilities (GCP-6).”*

***Basis #3:** The hydrocarbon liquid production, storage and throughput limits set out in the draft GAO are unnecessarily limiting coverage of the GAO to single well sites or sites with very low production levels and small numbers of tanks. Many operators in the Uinta Basin are developing multi-well sites, which has the benefit of reducing the number of well pads and roads and associated environmental impacts. Sites with two or more wells may have production volumes and tank capacity levels that exceed limits in GAO, while controlled VOC emissions are not substantially higher from such sites.”*

**DAQ Response:** DAQ disagrees with this comment. DAQ did consider using an emission cap for each type of emitting unit; however, it was determined that using a throughput limit was less complicated. If an emission-based limit were used, a calculation methodology would need to be included in the permit for each emitting unit. As part of this calculation, throughput would also be included. The emission totals and methodology, based on throughput, were included with the ITA. The methodology of estimating emissions is contained in items #1 and #2 of the REVIEWER COMMENTS in the engineering review. An emissions-based limit is not required to satisfy the permitting requirements of R307-401. The commenter does not provide any regulatory justification to the contrary. No changes were made to the permit as a result of this comment.

**9) LINN Energy Comment #4 & Basis #4**

*“**Comment #4:** In condition II.A.1. revise the listed site description as follows:  
“Crude Oil and Natural Gas Well Site and/or Tank **Battery**”*

***Basis #4:** The revised description is consistent with the intent of the GAO, as described in the title and contents of the GAO.”*

**DAQ Response:** DAQ agrees with the commenter. The permit writing program that DAQ uses has a maximum character size of 50 for this field. The word “Battery” was inadvertently cut off due to the character size restriction. To meet the character limit and to add the word “Battery”, DAQ will change line II.A.1 to read, “Crude Oil & Natural Gas Well Site/Tank Battery”.

**10) LINN Energy Comment #5 & Basis #5**

*“**Comment #5:** Remove the maximum site-wide storage capacity (volume) limit for crude oil, condensate and/or produced water tanks. Also see Comment #3.*

*Produced ~~Fluids~~ **Liquids** Storage Tanks*

*Contents: Crude Oil, Condensate, and/or Produced Water*

*~~Maximum Site Wide Capacity: 2,200 barrels~~*

*Maximum Individual Capacity: 550 barrels*

***Basis #5:** Limiting the maximum site-wide storage tank capacity to 2,200 barrels (bbl) will unnecessarily preclude many sites from qualifying for the GAO and will provide a disincentive to drill multiple wells on a single pad. Many well sites in the Uinta Basin include two or more 400-bbl*

*tanks per well. A well site with three or more wells may require more tank capacity than allowed by the GAO. The net increase in site-wide VOC emissions, controlled basis, for a site with 5 tanks versus a site with 10 tanks is not substantial. Also see Basis #3.”*

**DAQ Response:** DAQ disagrees with the commenter. The commenter did not provide any regulatory justification to change “fluids” to “liquids”. The justification for selecting 2,200 barrels as the site-wide capacity is contained in comment #4 of the REVIEWER COMMENTS in the engineering review. The commenter did not provide the percentage of sources that would be affected or the change in emissions to allow a change or removal of the site-wide capacity of 2,200 barrels. No changes were made to the permit as a result of this comment.

#### 11) LINN Energy Comment #6 & Basis #6

*“**Comment #6:** Remove or increase the maximum site-wide throughput capacity (MMscf/day) limit for glycol dehydration units. Also see Comment #3.*

***Basis #6:** The 2 MMscfd limit for glycol dehydration unit capacity will preclude some small well sites from qualifying for the GAO even though the incremental increase in VOC and HAP emissions, controlled basis, from larger dehydration units would not be substantial. Also see Basis #3.”*

**DAQ Response:** DAQ disagrees with the commenter. The justification for selecting 2.0MMscfd as the dehydrator capacity is contained in comment #4 of the REVIEWER COMMENTS in the engineering review. The absence of a limit would result in an unknown potential-to-emit. The potential-to-emit could be above the major source thresholds contained in R307-403, R307-405, 101-2, and according to R307-401-19(1)(a), a source of this size is not eligible for coverage under a general approval order. The commenter did not provide the number of sources that would be affected by a change in the dehydrator capacity. No changes were made to the permit as a result of this comment.

#### 12) LINN Energy Comment #7 & Basis #7

*“**Comment #7:** Specify the regulated pneumatic controllers are continuous-bleed. Also see Comment #3.*

*“II.A.5 Natural Gas-Driven Continuous-Bleed Pneumatic Controllers”.*

***Basis #7:** The condition appears to be intended to regulate continuous-bleed controllers. Also see Basis #3.”*

**DAQ Response:** DAQ disagrees with the commenter. See DAQ response to Comment #2. No changes were made to the permit as a result of this comment.

#### 13) LINN Energy Comment #8 & Basis #8

*“**Comment #8:** Remove or increase the combined site-wide total crude oil and condensate volume throughput capacity limit per rolling 12-month period. Also see Comment #3.*

***Basis #8:** The combined rolling 12-month hydrocarbon liquid production limit (137 barrels per day) will preclude many multi-well production pads from qualifying for the GAO. Also see Basis #3.”*

**DAQ Response:** DAQ disagrees with the commenter. The justification for selecting the throughput capacity is contained in comment #5 of the REVIEWER COMMENTS in the engineering review. The commenter did not provide the number of sources that would be affected by a change of the throughput or how the emissions would be affected as a result of a change. No changes were made to the permit as a result of this comment.

**14) LINN Energy Comment #9 & Basis #9**

*“Comment #9: The condition states “All gas” from the heater treater will be used as fuel or sent off site. Suggest adding language acknowledging conditions where gas may not be routed to gathering line, for example during a release from a pressure relief valve. Also, operators may route produced gas to vessels other than those classified as “heater treaters.”*

*All gas produced ~~gas from the Heater Treater~~ shall either be used as fuel or for other purposes on site or be routed to a gas gathering system and sent off site, except for gas released during an over-pressure condition through a pressure relief device or gas released due to a malfunction or interruption in availability of the gas gathering system. [R307-401-8]*

*Basis #9: The condition as originally written does not provide for certain circumstances where it may not be possible to route gas to a gathering system.”*

**DAQ Response:** DAQ disagrees with the commenter. The requirement to route the gas to a pipeline is applicable at all times according to condition I.5. Malfunctions or breakdowns are addressed in condition I.6, which references R307-107. If the language was changed according to the commenter, the condition could be interpreted that all gas from all sources, including fugitive sources, must be routed to a pipeline or used as fuel. The emissions from all sources were evaluated as part of the BACT review, and this option was eliminated from the selection of BACT. The heater treater may also be called a separator, and DAQ interprets these meanings to be interchangeable. The commenter does not provide what vessels gas is routed to other than heater treaters, and DAQ is not aware of these vessels. As explained in comment #5 of the REVIEWER COMMENTS in the engineering review, if the gas is not routed to a pipeline or used as fuel, the source would not qualify for the GAO and would need to obtain a permit under R307-401-8. No changes were made to the permit as a result of this comment.

**15) LINN Energy Comment #10 & Basis #10**

*“Comment #10: Remove condition 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]*

*Basis #10: The owner/operator is required to submit a list of actual equipment installed and associated potential emissions to the Director per condition II.B.1.f. According to the Divisions controlled emission rates maximum site-wide VOC emissions are 13.55 tpy. The potential emissions submitted with the equipment list should be sufficient for providing the Division with an estimate of actual emissions at each location. In addition, as noted in Comment #3, the Division would be notified of any significant increases in emissions due to the addition of new equipment.”*

**DAQ Response:** DAQ disagrees with the commenter. The reason for an annual inventory in addition to an initial inventory is contained in comment #5 of the REVIEWER COMMENTS in the engineering review. No changes were made to the permit as a result of this comment.

**16) LINN Energy Comment #11 & Basis #11**

*“**Comment #11:** Remove requirement to make visual determination via Method 22 and require only visual observation and include frequency for making determination:*

*Visual determination of ~~emissions from~~ **proper operation of the VOC control device shall be conducted monthly. A check box is suitable for recording proper operation.** ~~according to 40 CFR 60, Appendix A, Method 22. [R307-401-8]~~*

***Basis #11:** Method 22 is unnecessarily burdensome to determine the proper operation of the control device provided it must be operated with no visible emissions. A monthly visual check should provide sufficient record of proper operation.”*

**DAQ Response:** DAQ disagrees with the commenter. The EPA approved method to determine if there are visible emissions is Method 22, as mentioned in comment #6 of the REVIEWER COMMENTS in the engineering review. According to the ITA the source is not required to conduct monitoring, recordkeeping, and reporting on visible emissions, but there is nothing in the ITA that would prevent the source from conducting monitoring, recordkeeping, and reporting for visible emissions. No changes were made to the permit as a result of this comment.

**17) LINN Energy Comment #12 & Basis #12**

*“**Comment #12:** Remove “and shall comply with 40 CFR 60.5415(d)” from option “a” and replace the language in option “b” as follows:*

*“Each **continuous bleed** 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. **A natural gas-driven continuous bleed pneumatic controller with a bleed rate greater than 6 standard cubic feet per hour and shall comply with 40 CFR 60.5415(d).** ~~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]”*

***Basis #12:** First, the cited requirements from NSPS Subpart OOOO, 40 CFR 60.5415(d), only apply to pneumatic controller affected facilities, defined in §60.5365(d) to include only those continuous bleed natural gas driven pneumatic controller operating at a natural gas bleed rate greater than 6 scfh. Basically, an affected facility is limited to a bleed rate of 6 scfh, unless it can be shown that a high-bleed device is needed. Second, it would not be technically or economically feasible to recover 6 scfh natural gas and route such gas to a control device or back to a process. The vast majority of devices installed will be low-bleed or no-bleed controllers and any high-bleed controllers will be subject to NSPS Subpart OOOO anyway.”*



**DAQ Response:** DAQ disagrees with the commenter. See DAQ Response to Comment #2. 40 CFR 60.5415(d) contains tagging/labeling, recordkeeping, and reporting requirements. This is required by the source to demonstrate compliance with II.B.5.a. Without this requirement, there would be no way a source could demonstrate compliance. The recovery of gas from pneumatics would only be required for bleed rates above 6 scfh. The commenter did not provide information on how recovering these gases would be technically or economically infeasible. If a source wants to make this demonstration, the source would need to go through the normal permitting process. No changes were made to the permit as a result of this comment.

**18) LINN Energy Comment #13 & Basis #13**

*“Comment #13: Replace Condition II.B.6. with a requirement similar to the presumptive BACT (p-BACT) requirement set out in the Wyoming Department of Environmental Quality’s Oil and Gas Production Facilities Chapter 6, Section 2 Permitting Guidance, Revised September 2013 (<http://deq.state.wy.us/aqd/oilgas.asp>).*

*“Each natural gas-driven pneumatic pump shall comply with either a or b:*

*a. At sites with combustion units installed for the control of flash or dehydration unit emissions:*

*VOC and HAP emissions associated with the discharge streams from natural gas-operated pneumatic pumps shall be controlled by at least 98% by routing the pump discharge streams into the combustion unit or the discharge streams shall be routed into a closed loop system.*

*b. At sites without combustion units installed for the control of flash or dehydration unit emissions:*

*Pneumatic pumps (other than those for heat trace/heat medium/hot glycol circulation) shall be solar, electric or air-driven pumps in lieu of natural gas-operated pneumatic pumps. Wherever possible, heat trace/heat medium/hot glycol circulation pumps shall be solar-operated, electric or air-driven.*

*~~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.”~~*

*Basis #13: The cited requirements from NSPS Subpart OOOO, 40 CFR 60.5415(d), only apply to pneumatic controller affected facilities and not to pneumatic pumps. Pneumatic pumps are not regulated by any federal requirement, but rather should be regulated by BACT. The “bleed rate” of many pneumatic pumps is much higher than that for pneumatic controllers - on the order of cubic feet per minute, not cubic feet per hour. Many pneumatic pumps are only used intermittently or temporarily. In North Dakota, the Bakken Pool Guidance requires that pneumatic pumps with VOC emissions (potential to emit basis) greater than 5 tons per year be controlled. Wyoming’s p-BACT for pneumatic pumps provides requirements to capture and control emissions from pneumatic pumps or to replace such pumps with electric driven alternatives.”*

**DAQ Response:** DAQ agrees with the commenter. Natural gas-driven pneumatic pumps may have higher bleed rates than 6 scfh and are used intermittently. Control of these emissions is still required through the BACT process. The requirement to route the gas to a VOC control device or to recycle the gas will be required in the GAO for natural gas-driven pneumatic pumps. The option to have a

bleed rate less than 6 scfh for pneumatic pumps will be removed from the GAO. The revised GAO condition will read as follows: “The VOC emissions from each natural gas-driven pneumatic pump shall either:

- a. be routed to a process unit where the emissions are recycled, incorporated into a product, and/or recovered; or
- b. be routed to a VOC control device where the emissions are consumed and/or destroyed.”

## 19) LINN Energy Comment #14 & Basis #14

**“Comment #14: Remove limits for engines**

a. ~~For engines rated less than 100 hp: [40 CFR 1048.101(c)],~~

1.  ~~$HC + NO_x = 3.8 \text{ g/kW-hr (2.84 g/hp-hr)}$ ,~~

2.  ~~$CO = 6.5 \text{ g/kW-hr (4.85 g/hp-hr)}$ ,~~

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

1.  ~~$NO_x = 1.0 \text{ g/hp-hr}$ ,~~

2.  ~~$CO = 2.0 \text{ g/hp-hr}$ ,~~

3.  ~~$VOC = 0.7 \text{ g/hp-hr}$ .~~

**Basis #14:** Many operators employ engines less than 25 hp, which are required to be certified by the manufacture according to §60.4231(a) and do not require an engine performance test. The certification limits differ from those of §1048.101(c).

§1048.101(c)(3) offers alternate variable emission standards according to the equation  $(HC+NO_x) \times CO_0.791 \leq 16.78$ ; an engine with low  $NO_x$  emissions can have correspondingly higher  $CO$  emissions or vice versa. It must also be noted that §1048.101(c)(2) allows  $HC$  emissions to be assumed to be zero for natural-gas fueled engines.

Engines are often moved between locations and many existing engines < 100 hp are not subject to the requirements of §1048.101(c). This would create a significant cost burden on operators applying for the GAO as older engines would need to be replaced.

40 CFR 60 subpart JJJJ – Table 1 provides the option for owners/operators to comply with g/bhp-hr **OR** ppm limits. For engines < 500 hp, determining the hp is often difficult and demonstrating compliance with the emission standard would be unnecessarily burdensome on operators.

If an engine is subject to the requirements of 40 CFR 60 Subpart JJJJ, it will be so regardless of having a GAO or not. This condition is unnecessarily regulating engines which are not subject to subpart JJJJ.”

**DAQ Response:** DAQ disagrees with the commenter that the limits for the engines should be removed. The emission limits are a result of the BACT review that is summarized in comment #7 of the Review of Best Available Control Technology in the engineering review. R307-401-8 (1)(a) requires that a source meets BACT for all emitting units. If an old engine is brought to a site, the engine would be considered a new emitting unit at that source and must meet BACT. The commenter did not explain how the BACT analysis was deficient or incorrect. Other requirements of NSPS Subpart JJJJ may apply to the source, but are independent of a BACT determination, and a BACT determination is independent of requirements of NSPS Subpart JJJJ. NSPS Subpart JJJJ has the option to demonstrate compliance with either a g/bhp-hr limit or a ppm limit; however, emission estimates for the GAO and the BACT review were based on a g/bhp-hr limit. Therefore, the BACT established limits will remain in the permit. No changes were made to the permit as a result of this comment.

**20) LINN Energy Comment #15 & Basis #15**

**“Comment #15:** Remove requirement to maintain emissions guarantee from manufacturer:

~~a. The emission rate guaranteed by the manufacturer for:~~

- ~~1. HC + NO<sub>x</sub> and CO for engines rated less than 100 hp, or~~
- ~~2. NO<sub>x</sub>, CO, and VOC for engines rated greater than or equal to 100 hp,~~

**Basis #15:** The condition implies the emission rate published by the manufacturer will be required to determine potential emissions. Engines not certified by the manufacture that are subject to 40 CFR 60 subpart JJJJ require an engine performance test. Operators should be given the flexibility to use the results of these tests as the basis for calculating potential or actual emissions. In the absence of test data, the manufacture supplied emission factors or other sources of emissions factors should be allowed.”

**DAQ Response:** DAQ disagrees with the commenter. The records of the manufacturer's guarantee will be used to demonstrate compliance that the engine will be able to meet the emission limitation in condition II.B.8.b. The only other method that would be acceptable to DAQ would be a stack test. If a stack test requirement is included in the permit, according to R307-165-2, a stack test must be repeated at least once every five years. The additional cost of stack testing, the relatively low amount of emissions from this source, and the additional burden on the source and DAQ caused the option of stack testing to not be included in the GAO. No changes were made to the permit as a result of this comment.

**21) LINN Energy Comment #16 & Basis #16**

**“Comment #16:** Remove reference to compressors and compressor seals

~~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:~~

**Basis #16:** Compressors and compressor seals inherently leak, these emissions are minimized by work practice standards, but cannot be fully eliminated. No other LDAR program requires leak monitoring of compressors, rather compressor seal standards are provided.”

**DAQ Response:** DAQ disagrees with the commenter that compressors and compressor seals should be removed from leak inspections. Because compressors and compressor seals inherently leak, it is vital that emissions be minimized from these sources. Sources with leaks less than 500 ppm would not be considered leaks in need of repair. No changes were made to the permit as a result of this comment.

**22) LINN Energy Comment #17 & Basis #17**

**“Comment #17:** Suggest only an annual LDAR inspection frequency for GAO sites > 10,000 bbl/yr. An audio, visual, olfactory (AVO) inspection can be performed on more frequent basis.

~~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. Sources shall conduct an AVO inspection of the facility every three months**

~~3. 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;~~

**Basis #17:** *The well sites and/or tank batteries intended to be covered under this GAO have relatively few components and fugitive emissions are not determined based on throughput. Requiring quarterly LDAR monitoring will be unnecessarily burdensome to owners and operators with little reduction in emissions.”*

**DAQ Response:** DAQ disagrees with the commenter. Inspection frequency is discussed in comment #9 of the REVIEWER COMMENTS in the engineering review. The commenter did not provide the percentage of sources affected or an estimation of emissions. An inspection methodology and recordkeeping requirements must be included for an AVO inspection, and the commenter did not provide this information. The GAO allows for the frequency of inspections to be reduced with demonstration of proper maintenance by observing no leaks. No changes were made to the permit as a result of this comment.

## 23) LINN Energy Comment #18 & Basis #18

**“Comment #18:** *Revise the condition (II.B.10.a.1) as follows:*

*“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 **not associated with normal equipment operation, such as pneumatic device actuation and crank case ventilation**, 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]”*

**Basis #18:** *Some equipment is designed to vent at times and such venting should not be considered a “leak”. The proposed language was taken from Colorado’s Regulation 7 (unofficial draft - adoption pending).”*

**DAQ Response:** DAQ disagrees with the commenter. Condition II.B.10.a specifically mentions what equipment must be inspected and could be considered to leak. If a piece of equipment is not on that list, it would not be required to be inspected; however, there is nothing in the GAO that would prevent a source from inspecting a non-listed piece of equipment for leaks. No changes were made to the permit as a result of this comment.

**24) LINN Energy Comment #19 & Basis #19**

*“Comment #19: Revise Section III as follows*

*“In addition to the requirements of this AO, all applicable provisions of ~~the following~~ federal New Source Performance Standards (40 CFR Part 60) or National Emission Standards for Hazardous Air Pollutants from Source Categories (40 CFR Part 63), whether or not incorporated by reference into R307-210 and R307-214, respectively, programs ~~may have been found to~~ 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”~~

**Basis #19:** Owners and operators have to comply with the cited federal standards whether or not a GAO is in effect. Also, some of the cited rules, or provisions of such rules, generally don't apply to oil and gas sites of the type qualifying for the GAO. It should be sufficient simply to state that federal programs may apply to the installation.

*NSPS (Part 60), Dc: Standards of Performance for Small-Industrial-Commercial-Institutional Steam Generating Units: Most oil and gas well sites and tank batteries operate one or more small burners and heaters that individually have a maximum heat input capacity less than 10 MMBtu/hr. Many burners are direct-fired and do not use a heat transfer medium. Such units are “process heaters”, are not “steam generating units” and are not affected by NSPS Subpart Dc. Boilers (generating steam from water) are not typically used in the upstream oil and gas industry. Subpart Dc is not generally relevant to any oil and gas well site/tank battery.*

*NSPS (Part 60), OOOO: Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution: The UDAQ states in its engineering review document:*

*“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.”*

*It is important to note that not all storage vessels for which construction commenced after August 23, 2011 are subject to Subpart OOOO. Only certain “storage vessel affected facilities” with potential VOC emissions greater than 6 tpy are affected. Owners and operators may well use the GAO to avoid regulation under Subpart OOOO for storage vessels through the enforceable limitations provided by condition II.B.2. Centrifugal and reciprocating compressors located at sites containing one or more wells are not regulated by Subpart OOOO.*

*MACT (Part 63), HH: National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities: For area source oil and gas production facilities, Subpart HH regulates certain triethylene glycol (TEG) dehydration units. TEG units with an actual annual natural gas throughput less than 3 MMscfd are exempt from the requirements under the rule, except that records of throughput must be kept. The GAO limits the total TEG unit capacity to 2 MMscfd, which is well below the exemption threshold. No dehydration unit located at a facility qualifying for the GAO will be subject to standards and requirements under Subpart HH, except for recordkeeping. It should also be noted that EPA intends to propose and promulgate amendments to Subpart OOOO this year. Keeping references to relevant federal standards general would preclude the need to revise the GAO in the future.”*

**DAQ Response:** The commenter is correct that owners and operators have to comply with federal requirements whether or not they are subject to the GAO. The federal requirements listed are to assist the source with compliance as they may be subject to them. The explanation on the applicability of the listed federal requirements is contained in comments #10, #11, and #12 of the REVIEWER COMMENTS in the engineering review. Due to the variability of what equipment will be located on site, the GAO will be updated and include “may apply” instead of “have been found to apply”.

### **Comments Received from Western Energy Alliance**

#### **25) Comment on Modeling and Stack Height Requirements:**

*“If stack heights are prescribed in the GAO, operators will not be able to use it and will have to file NOIs for individual AOs.*

*The proposed GAO states that stack heights will be determined based on dispersion modeling for NO<sub>2</sub>. Relying on 1-hr NO<sub>2</sub> modeling to determine stack heights will result in unnecessary costs as well as stack height constraints that may raise safety and operational issues (e.g. back pressure).”*

**DAQ Response:** DAQ disagrees with the commenter. The commenter does not provide costs with different stack heights and does not explain at what stack heights safety or operational issues arise. R307-401-8(1)(a)(vii) requires all sources receiving an AO from the DAQ to comply with all applicable NAAQS. The stack height requirements included in an air quality model for the GAO are the minimum stack heights necessary to demonstrate compliance with the 1-hour NO<sub>2</sub> NAAQS. The summary of the modeling is contained in DAQE-002-14 dated January 27, 2014. No changes were made to the permit as a result of this comment.

**26) Comment on Modeling and Stack Height Requirements (continued):**

*“The inability of air quality models to accurately predict 1-hr NO<sub>2</sub> concentrations is well documented. A letter from the Western States Air Resources Council (WESTAR) to EPA requests that EPA conduct critically needed field studies to resolve 1-hr NO<sub>2</sub> modeling issues (see Attachment B). The background document (see Attachment B), written by the WESTAR 1-hr NO<sub>2</sub> modeling ad hoc committee (of which UDAQ staff were members) points out the model’s “tendency to overestimate 1-hr NO<sub>2</sub> impacts,” and says, “... it is possible that modeled concentrations exceed the standard when monitoring indicates compliance with the standard.” Given these concerns with the accuracy of 1-hr NO<sub>2</sub> models, UDAQ should not rely solely on model results to determine NAAQS compliance.”*

**DAQ Response:** DAQ disagrees with the commenter. DAQE-002-14 dated January 27, 2014 contains modeling results for the GAO demonstrating compliance with the 1-hour NO<sub>2</sub> NAAQS. When modeling is required for a source, R307-410-3 requires the analysis to be consistent with 40 CFR Part 51, Appendix W (Guideline on Air Quality models). The DAQ believes that the air quality analysis for the GAO is consistent with Appendix W. Since the air quality analysis is consistent with all requirements and limitations outlined in the GAO, the DAQ is not required to conduct any further analyses. No changes were made to the permit as a result of this comment.

**27) Comment on Modeling and Stack Height Requirements (continued):**

*“There is sufficient information to demonstrate that a facility authorized under the GAO will not interfere with the attainment of the 1-hr NO<sub>2</sub> standard. Western Energy Alliance suggests contacting other States regarding their 1-hr modeling issues, such as Wyoming. Wyoming conducted an extensive amount of modeling for several facilities to determine the impact of the 1-hr standard on permitting. None showed compliance with the 1-hr standard unless unreasonable stack heights were used. Based on this modeling, it was clear that requiring applicants to demonstrate compliance with the 1-hr standard via modeling was not a viable path for minor sources going forward. Instead, they rely on the extensive ambient monitoring program data to make a demonstration that the proposed facility will not prevent attainment with the 1-hr NO<sub>2</sub> ambient standard.*

*We believe Utah’s extensive ambient monitoring program is equivalent and allows UDAQ to adopt this same approach (Table 3-4 in Attachment F). We request that UDAQ consider these and other state regulations that will allow for reasonable GAO requirements while still demonstrating NAAQS compliance.”*

**DAQ Response:** DAQ disagrees with the commenter. While ambient monitoring may address attainment on a regional scale, the DAQ conducted the modeling analysis to demonstrate that the requirements of the GAO would not interfere with the 1-hour NO<sub>2</sub> NAAQS in all areas defined as ‘ambient air’. Other analyses may be conducted, but the commenter did not provide information on how DAQ’s modeling analysis was deficient or incorrect. No changes were made to the permit as a result of this comment.

**28) Comment on Pneumatic Controllers and Pumps:**

*“Unless applicability of this requirement is limited to continuous bleed pneumatic controllers, operators will not be able to use the GAO and will have to file NOIs for individual AOs.*

*Sections II.B.5 and II.B.6 address pneumatic controllers and pneumatic pumps, respectively. The GAO does not specify the type of pneumatic controllers that are subject to the requirements. We suggest UDAQ limit the GAO requirements to continuous bleed pneumatic controllers. Recognizing the difficulty of determining emissions from intermittent controllers, EPA did not regulate intermittent bleed emissions related to process control in NSPS OOOO. The GAO requirements for pneumatic controllers go far beyond what is required of operators in NSPS OOOO as pneumatic pumps are not even covered in NSPS OOOO.*

*Additionally, UDAQ lacks any cost benefit analysis or BACT analysis on requiring controls for pneumatic pumps demonstrating the cost effectiveness of such a requirement. We request UDAQ eliminate specific requirements for pneumatic pumps and reiterate our request that only continuous bleed controllers be subject to requirements under the GAO.”*

**DAQ Response:** DAQ disagrees with the commenter. See DAQ Response to Comment #2 for pneumatic controllers. See DAQ Response to Comment #1 for pneumatic pumps. No changes were made to the permit as a result of this comment.

### **29) Comment on Pneumatic Controllers and Pumps (continued):**

*“We are also concerned about the inconsistent requirement in Sec. II.B.5.a.a that controllers “shall have a bleed rate less than or equal to 6 standard cubic feet per hour [scf/hr] and shall comply with 40 CFR 60.5415(d).” If a pneumatic controller bleed rate is less than 6 scf/hr, it is not subject to the referenced Federal regulation. Similarly, the GAO requires compliance with 40 CFR 60.5415(d) in Section II.B.6.a.a for pneumatic pumps; however, pneumatic pumps are not subject to 40 CFR 60.5415. Moreover, that specific rule was not designed for pneumatic pumps. In light of these conflicts for both controllers and pumps, we suggest UDAQ remove all reference to 40 CFR 60.5415.”*

**DAQ Response:** DAQ disagrees with the commenter. See DAQ Response to Comment #17. No changes were made to the permit as a result of this comment.

### **30) Comment on Malfunction:**

*“Section I.5 requires that equipment be maintained during “periods of startup, shutdown and malfunction.” It is not possible to maintain all equipment during periods of malfunction. Additionally, this language should be consistent with the language suggested by the Alliance for the Preliminary Draft for Discussion Purposes, General Provisions, R307-501-4 proposed on July 30, 2013.*

*Unless the term “malfunction” is removed, operators will not be able to use the GAO and will have to file NOIs for individual AOs.”*

**DAQ Response:** DAQ disagrees with the commenter. The term “malfunction” has been included in each AO for several years. This would also include permits issued to oil and gas tank batteries. Condition I.5 requires sources to maintain and operate equipment in a manner consistent with good air pollution control practices to minimize emissions. This is especially important during malfunctions. Without this language a source could emit pollutants during a malfunction and take no steps to minimize emissions; therefore, the term “malfunction” will not be removed. Malfunctions, or breakdowns, are subject to R307-107, and a source would be required to comply with R307-107 during a malfunction. No changes were made to the permit as a result of this comment.



**31) Comment on Broad Applicability of NSPS JJJJ:**

*“UDAQ is attempting to apply BACT to all engines, not just new or modified engines. The Alliance questions UDAQ’s authority to require controls on engines that are not new or modified. UDAQ references NSPS JJJJ in Section II.B.8, Engine Requirements, but the GAO is far more stringent than NSPS JJJJ. It should be noted that in NSPS JJJJ EPA took careful consideration of manufacture date, engine type (lean or rich) and capacity to ensure that the resulting requirements incorporated appropriate cost effectiveness and technical feasibility. Section II.B.8.b.a references NSPS JJJJ limits and II.B.8.b.b references Table 1 of NSPS JJJJ (see Attachment K) before listing emissions standards for NO<sub>x</sub>, CO and VOCs. The standards listed in the GAO in II.B.8.b.a are only applicable to engines manufactured after July 1, 2008 and those in II.B.8.b.b are only applicable to engines manufactured after January 1, 2011 in NSPS JJJJ. In some cases, it is not technically feasible to modify an engine to meet these stringent emissions standards. Where it is technically feasible, it is often cost prohibitive to modify an engine. Therefore, EPA does not apply one set of emission standards to all engines.*

*We suggest UDAQ strike the Section II.B.8.b and refer to Section III of the GAO, which includes NSPS JJJJ in the list of federal requirements with which owners/operators must comply. If UDAQ retains such stringent emissions standards for all engines, our members will not use this GAO and will be required to file NOIs for individual AOs.”*

**DAQ Response:** DAQ disagrees with the commenter. See DAQ Response to Comment #19. No changes were made to the permit as a result of this comment.

**32) Comment on Dehydrator and Tank Controls:**

*“Sections II.B.2 and II.B.3. require VOC controls for tanks and dehydrators, respectively, no matter their size. UDAQ lacks any cost benefit analysis or BACT analysis demonstrating cost effectiveness. We are unaware of any Federal or State requirement for dehydrator and tank controls on all units regardless of size. The airshed would likely observe more emissions from the control device than total emissions from smaller dehydrators and tanks.*

*The Alliance proposes that the requirement to control dehydrators and tanks regardless of size be stricken from the GAO. Where a dehydrator or tank control requirement is pursued, an appropriate de minimus threshold should be included based on technical and economic feasibility. Without a threshold, operators will not be able to use the GAO and will have to file NOIs for individual AOs.”*

**DAQ Response:** DAQ disagrees with the commenter. See DAQ Response to Comment #3. No changes were made to the permit as a result of this comment.

**33) Comment P1:**

*“The proposed GAO states that stack heights will be determined based on dispersion modeling for NO<sub>2</sub>. Relying on 1-hr NO<sub>2</sub> modeling to determine stack heights will result in unnecessary costs as well as stack height constraints that may raise safety and operational issues (e.g. back pressure). The inability of air quality models to accurately predict 1-hr NO<sub>2</sub> concentrations is well documented. A letter from the Western States Air Resources Council (WESTAR) to EPA requests that EPA conduct critically needed field studies to resolve 1-hr NO<sub>2</sub> modeling issues (Attachment B). The background document, written by the WESTAR 1-hr NO<sub>2</sub> modeling ad hoc committee (of which UDAQ staff were*

*members) points out the model's "tendency to overestimate 1-hr NO<sub>2</sub> impacts," and says, "... it is possible that modeled concentrations exceed the standard when monitoring indicates compliance with the standard." (Attachment B), Given these concerns with the accuracy of 1-hr NO<sub>2</sub> models, UDAQ should not rely solely on model results to determine NAAQS compliance. There is sufficient information to demonstrate that a facility authorized under the GAO will not interfere with the attainment of the 1-hr NO<sub>2</sub> standard. Western Energy Alliance suggests contacting other States regarding their 1-hr modeling issues, such as Colorado and Wyoming."*

**DAQ Response:** DAQ disagrees with the commenter. See DAQ Response to Comments #25, #26, and #27. No changes were made to the permit as a result of this comment.

**34) Comment P1 (continued):**

*"Colorado has acknowledged and adopted EPA's approach to NO<sub>2</sub> modeling (EPA Guidance, Attachment D) in a memo that states, "ambient air quality impact analyses are not necessary for either NO<sub>2</sub> or SO<sub>2</sub> emissions below the 40 tpy [significant emissions rate]" (CDPHE, Attachment C). This is also consistent with UDAQ R307-410-4, which states that NO<sub>2</sub> modeling requirements are limited to sources with "a total controlled emission rate per pollutant greater than or equal to amounts specified in Table 1," which is 40 tpy."*

**DAQ Response:** DAQ disagrees with the commenter. R307-401-8(1)(b)(vii) requires that permits must meet National Primary and Secondary Ambient Air Quality Standards (NAAQS). DAQ has elected to use a modeling analysis to demonstrate compliance with this for the 1-hour NO<sub>2</sub> NAAQS. R307-410, as referenced by the commenter, does not prevent DAQ from conducting its own modeling analysis to demonstrate compliance with the NAAQS. No changes were made to the permit as a result of this comment.

**35) Comment P1 (continued):**

*"Wyoming conducted an extensive amount of modeling for several facilities to determine the impact of the 1-hr standard on permitting. None showed compliance with the 1-hr standard unless unreasonable stack heights were used. Based on this modeling, it was clear that requiring applicants to demonstrate compliance with the 1-hr standard, via modeling, was not a viable path for minor sources going forward. Instead they rely on the extensive ambient monitoring program data to make a demonstration that the proposed facility will not prevent attainment with the 1-hr NO<sub>2</sub> ambient standard. The drastic discrepancy between measured and modeled data is illustrated in Table A-1 in EPA's March 1, 2011, memorandum (EPA Guidance, Attachment E). It is also important to note that this successful Wyoming program monitors facilities with equipment far in excess of the GAO capacities."*

*Overall, we believe Utah's extensive ambient monitoring program is comparable, shows compliance with the 1-hr NO<sub>2</sub> standard (Table 3-4 of the Redhorse Modeling Study, Attachment F) and allows UDAQ to adopt this same approach. We request that UDAQ consider these and other state regulations that clearly demonstrate NAAQS compliance and allow for reasonable GAO requirements."*

*If stack heights are so high as to be technically infeasible, operators will not be able to use the GAO and will have to file NOIs for individual approval orders (AO)."*

**DAQ Response:** DAQ disagrees with the commenter. DAQ was able to conduct a modeling analysis of NO<sub>2</sub> for the GAO that complied with the 1-hour NO<sub>2</sub> NAAQS. The commenter did not explain how stack heights listed in the GAO were unreasonable and what stack heights were reasonable. DAQ must make decisions and demonstrations according to DAQ's rules, which are independent of other states' decisions, demonstrations and rules. The commenter did not explain how the stack heights are technically infeasible. The commenter is correct that if operators are not able to use the GAO, the operators would need to file a NOI and obtain an AO. The requirement for a source would be to either obtain an AO under R307-401-8 or be subject to a GAO under R307-401-19. No changes were made to the permit as a result of this comment.

**36) Comment P2 (Alternate Language):**

*"A source must comply with the requirements of R307-401-19(4) to be ~~subject to~~ **eligible for** 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"*

**DAQ Response:** DAQ disagrees with the commenter. R307-401-19(4) contains the requirements for an application. A source must fill out the application to be subject to the requirements of the GAO. There are other requirements that a source must comply with to be eligible for the GAO. The intent of this condition was to indicate that until a source fills out the application, submits the application to the director, and the director approves the application, the source is not subject to the requirements of the GAO, but still would be subject to the requirement to obtain an AO. No changes were made to the permit as a result of this comment.

**37) Comment P5:**

*"Form 1 General Information (Application to the GAO) requires the GAO approval letter from UDAQ be issued before construction or installation, but there are several problems with combining that requirement with other data requests in Form 1. Item 12b requires confirmation that the site will have an annual throughput of crude oil and condensate less than or equal to 50,000 bbls/year, but we cannot confirm the throughput of a site before the well has been drilled. Also, Form 1 requires the requested information to be accurate and complete. We cannot verify the accuracy of the information required in Item 12a and 12b until the site has been constructed and we know the well production rate. We suggest that UDAQ remove the specific data requirements from the Form 1 application and request that data within the records section of the GAO (Section I.4).*

*Additionally, many things are unknown during the first days of production that influence emissions including the following.*

- *Flowrate uncertainties*
- *What type of separator can be used (high/low)*
- *Composition of the production*
- *Decline curve determination*
- *Well pressure*
- *Production is not stabilized*

*These issues could result in significant differences in the initially estimated production, which in turn could affect the applicability of the General Approval Order and estimated emissions.*

*In order to limit the risk of underestimating production, applicants would have to significantly overestimate production, and therefore overestimate emissions and valuable\critical emission offsets.*

*This rationale for allowing operators time after start of production to file paperwork on production and emissions was included in the preamble in NSPS OOOO.*

*According to the petitioners, in many cases at well sites and at other locations, emissions cannot be estimated until the storage vessel is in operation, given the uncertainties in flowrate and other characteristics of the liquid flowing to the vessel. When a new well comes online, even at a location where wells are already in production, liquids from the new well can have significantly different characteristics than liquids from the existing wells.*

*The IPAA letter on NSPS OOOO provided the following rationale for allowing operators time after start of production:*

*As currently proposed, owners and operators of Group 2 storage vessels must determine their VOC emissions by April 15, 2014 or 30 days after startup, whichever is later. Id. §60.5395(c)(1) and (2). If VOC emissions are projected to be equal or greater than 6 TPY, then controls must be installed by April 15, 2014 or 60 days after startup, whichever is later. Id. §60.5395(d). These time periods are simply too short. At a minimum, **90 days** is necessary to conduct the required emissions calculation and install controls. The first 30 days of production normally are not representative of stabilized production from a well, and are subject to variation that could result in the overestimation or underestimation of the emissions from storage vessels associated with that well. Thus, at least 45 days is needed to evaluate and accurately calculate projected annual emissions from a storage vessel. Another 45 days—again, at a minimum—would be needed to engage a contractor and install the necessary controls. Providing a total of 90 days to make the initial emissions determination **and** install any necessary controls will ensure a more reliable emissions estimate and afford the regulated community sufficient time to contract for the testing/modeling of emissions and installation of controls. Accordingly, IPAA recommends that EPA extend this compliance period to 90 days.*

*CDPHE's partial adoption of NSPS OOOO had a generic explanation in their preamble:*

*Second, the Division proposes to adopt the requirements for storage vessels at well sites, associated with exploration and production, only after the first 90 days of production has occurred. This is consistent with the Division's approach towards exploration and production activities, allowing owners and operators time to determine if exploration and production activities will result in reportable emissions.*"

**DAQ Response:** DAQ disagrees with the commenter. The requirement to obtain a permit prior to construction is contained in R307-401-5(1): "Except as provided in R307-401-9 through R307-401-17, any person subject to R307-401 shall submit a notice of intent to the director and receive an approval order prior to initiation of construction, modification or relocation." This requirement is repeated in R307-401-19(4)(d): "The owner or operator that has applied to be covered by a general approval order shall not initiate construction, modification, or relocation until the application has been approved by the director." The rules and justification that the commenter provides does not replace or supersede DAQ permitting rules. No changes were made to the permit as a result of this comment.

**38) Comment I.2:**

*“We propose UDAQ include language that specifies that once a facility recognizes that it will not meet the GAO requirements, it will apply for a NOI within a certain time.”*

**Alternate Language:** *“If an owner or operator finds that they are exceeding the ~~The~~ limits set forth in this GAO ~~shall not be exceeded without prior approval,~~ the owner or operator shall be covered under the GAO, but shall apply for an NOI. [R307-401]”*

**DAQ Response:** DAQ disagrees with the commenter. R307-401-5(1) requires: “any person subject to R307-401 shall submit a notice of intent to the director and receive an approval order prior to initiation of construction, modification or relocation.” A source that exceeds the limits of the GAO would be in violation of R307-401-5 and the GAO; therefore, the source would be subject to compliance action. It is the source’s responsibility to comply with the GAO and other applicable rules. A source would need to submit a NOI and obtain an AO prior to exceeding any limit in the GAO. No changes were made to the permit as a result of this comment.

**39) Comment I.5:**

*“It is not possible to maintain all equipment during periods of malfunction. Additionally, this language should be consistent with the language suggested by the Alliance for the Preliminary Draft for Discussion Purposes, General Provisions, R307-501-4 proposed on July 30, 2013.*

*Unless the term “malfunction” is removed, operators will not be able to use the GAO and will have to file NOIs for individual approval orders (AO).”*

**Alternate Language:** *“~~At all times, including~~ During periods of startup, shutdown, ~~and malfunction,~~ owners and operators shall, to the extent practicable, shutdown the facility and any required maintain and operate any equipment approved under this GAO ~~including associated air pollution control equipment~~ under this GAO must be maintained and operated in a manner consistent with good air pollution control practices for minimizing VOC emissions. Determination of whether acceptable ~~operating~~ operation and maintenance procedures are being used will be based on information available to the Executive Secretary which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.”*

**DAQ Response:** DAQ disagrees with the commenter. See DAQ Response to Comment #30. In addition, the suggested language from the commenter only includes periods of startup and shutdown. R307-401-4(1) requires any control apparatus to be adequately and properly maintained. The rule does not limit the time that this would occur, so control must be applied at all times. The commenter only lists VOC emissions as being properly controlled. All pollutants must be included, not just VOC emissions. No changes were made to the permit as a result of this comment.

**40) Comment Section II: SPECIAL PROVISIONS:**

*“Operators installing new equipment in the Uinta Basin attempt to consolidate sites and equipment as much as possible to increase operational efficiency, decrease surface disturbance and reduce their environmental impact. Both EPA and BLM are also encouraging this trend through their regulations and requirements. By focusing on prescriptive capacity requirements, UDAQ is actually discouraging*

*consolidation in the GAO. We suggest site-wide emission limits rather than prescriptive equipment specifications.*

*Throughout the stakeholder process, Alliance members hoped that this GAO would be developed in a manner in which coverage could be sought for all types of oil and gas sites. We have concluded, however, that the scope of the coverage is limited to tank batteries with 1 or 2 wells, unlike as indicated by the title and abstract, and our many conversations with UDAQ permitting staff. With that in mind, we scoped our comments to reflect that limited application. We first identify four elements of the GAO that render it unusable (highlighted in green in this comment table). Additionally, in this table you will find other concerns we have with this GAO.”*

**DAQ Response:** DAQ disagrees with the commenter. DAQ is not required to consider source consolidation as part of the permitting process as outlined in R307-401. The commenter does not provide any regulatory justification to the contrary. The reasoning behind the equipment capacity requirements of the GAO are contained in comment #4 of the REVIEWER COMMENTS in the engineering review. The GAO was never intended to cover all sources. As contained in R307-401-19, the GAO is intended to “establish conditions for similar new or modified sources of the same type or for specific types of equipment.” This would alleviate some of the administrative burdens of the source and DAQ. No changes were made to the permit as a result of this comment.

**41) Comment II.A.2:**

*“The proposed GAO has a total site-wide produced fluids capacity of 2,200 bbls and max individual or emergency/overflow tank capacity of 550 bbls. Operators are moving towards larger tank batteries in an effort to consolidate their operations and reduce their surface impacts. By limiting the site-wide capacity to 2200 bbls, UDAQ is discouraging consolidation of tank batteries, which is counter to EPA’s recent NSPS OOOO rule for storage vessels. Even if we apply the constraints we view as the scope of this GAO of tank batteries with 1 or 2 wells, we recommend a site-wide storage capacity of at least 3000 bbls. Currently, a typical production location is comprised of 3-4 tanks. A site-wide capacity limit of 3,000 bbls allows for these typical locations with a small contingency for up to 2 additional 500 bbl tanks for smaller centralized batteries or batteries located at multi-well pads.*

*Western Energy Alliance also suggests removing limits on individual tank sizes. Some operators are moving to 600 bbl tanks, and operational flexibility can be retained without increasing site-wide emissions.”*

**Alternate Language:** “Crude Oil, Condensate, and/or Produced Water Maximum Site-Wide Capacity: ~~2,200~~ 3,000 barrels Maximum Individual Capacity: ~~550~~ 600 barrels”

**DAQ Response:** DAQ disagrees with the commenter. DAQ is not required to consider source consolidation as part of the permitting process as outlined in R307-401. The commenter does not provide any regulatory justification to the contrary. The selection of the tank sizes is contained in comment #4 of the REVIEWER COMMENTS in the engineering review. The commenter does not provide the percentage of sources that would be affected or the change in emissions with a change in tank capacities. No changes were made to the permit as a result of this comment.

**42) Comment II.A.3:**

*“The draft proposed GAO has capacity limit of 2.0 MMscf/day and we support that approach. The most common sizes of field natural gas dehydration units range from 1 to 2 MMscf/day. Establishing a maximum capacity of 2 MMscf/day would encompass most field installations and will also coordinate with the MACT HH applicability threshold of 2 MMscf/day. Although many of the dehydrators in the basin are currently at or below 1.0 MMscf/day, operators are often installing 2.0 MMscf/day dehydrators, which allows for greater site consolidation and reduced surface impact. Additionally, data demonstrates that the emissions profile differences between a 1.0 MMscf/day unit and a 2.0 MMscf/day unit are negligible (Dehydrator Calculations, Attachment G). Attachment G: Dehydrator Calculations”*

**DAQ Response:** Comment noted. The selection of the dehydrator size is contained in comment #4 of the REVIEWER COMMENTS in the engineering review. No changes were made to the permit as a result of this comment.

**43) Comment II.A.4:**

*“We understand that UDAQ does not intend to apply 98% efficiency to VRUs, however we feel the language in the current draft of the GAO is ambiguous in this regard and we request clarifying language be inserted.*

*For background, during the development of NSPS OOOO, EPA clearly disagreed with comments asserting that 98% control is technically achievable on a continuous basis (EPA Response to NSPS OOOO Comments) further states that data clearly supports that other technologies can only achieve 95% reduction (EPA, Attachment H). While 98% is achievable for some combustion devices such as flares and vapor combustors, other existing and innovative technologies may not be able to achieve 98%. The 98% control requirement used in generic terms could reduce operational flexibility and require operators to flare, which causes further emissions. It also discourages innovation of new control technology that could eliminate the emissions associated with flaring. Western Energy Alliance further asserts that in some applications the use of a combustion device is not cost effective. Attachment H: EPA GASTAR VRU Lessons Learned.”*

**Alternate Language:** “VOC Combustion Control Device: Minimum Control Efficiency: 98%”

**DAQ Response:** DAQ disagrees with the commenter. The 98% control efficiency was a result of the BACT review as summarized in comment #2, #3, and #4 of the Review of Best Available Control Technology in the engineering review. As defined in R307-401-2, “‘Best available control technology’ means an emissions limitation ....based on the maximum degree of reduction for each air contaminant .... taking into account energy, environmental, and economic impacts and other costs....” The 98% control efficiency is the maximum degree of reduction for VOC that was determined by DAQ. The commenter admits that 98% control is achievable for some combustion devices. Any new technologies would have to meet the 98% control efficiency as determined by the BACT review. No changes were made to the permit as a result of this comment.

**44) Comment II.A.8:**

*“For this engine capacity, we understand that Utah has state-only regulations addressing toxic air pollutant (TAP) impacts. The Utah regulations include requirements for impact screening*

*assessments that are dependent upon TAP emission rates. The Utah GAO is written to keep TAP emissions below the screening levels, assuring that more complex analyses are not necessary. The Utah TAP screening requirements limit site-wide horse-power capacity to 130 horse-power, with higher horse-power capacities triggering complex site-specific analyses. As such, the site-wide horse-power limits are driven by state-only screening criteria. It is possible to have higher site-wide horse-power capacity in a Utah permit, but in Utah the higher permit limits would require site-specific analyses that go beyond the scope of doing a generic screening analysis for a general permit.*

*However, the draft proposed GAO limits of 130hp forces operators away from consolidation of sites and equipment. It should be noted that consolidated sites would have more engine controls and thereby, fewer emissions per horsepower. In addition, the GAO requires all engines to meet EPA NSPS JJJJ requirements, which are the same for an engine equal to 100hp and an engine less than or equal to 500hp.*

*Also, many tank batteries are in remote areas with no power infrastructure available, and the addition of a vapor recovery unit (VRU), as may be required by other sections of the GAO, could increase onsite horsepower needs. As a result of these cited issues, the site-wide horsepower limit of 130hp will severely limit the number of GAO eligible sites. Additionally, in some areas due to the BTU content of the gas, natural gas or LPG would not be feasible and other fuels would need to be considered.”*

**Alternate Language:** *“Pumpjack, Gas Lift, and Generator Engines: Maximum Site-Wide Rating: 130hp, Fuel: Natural Gas or LPG”*

**DAQ Response:** The selection of 130 hp as the engine size is summarized in comment #2 of the REVIEWER COMMENTS in the engineering review. DAQ is not required to consider source consolidation as part of the permitting process as outlined in R307-401. The commenter does not provide any regulatory justification to the contrary. Other fuels for engines besides natural gas or LPG were not considered as part of this permitting action. The use of a different fuel would require approval under R307-401-8 prior to using such fuel. The alternate language provided by the commenter is the same language contained in the ITA. No changes were made to the permit as a result of this comment.

**45) Comment II.A.9:**

*“Unless we apply the constraints we view as the scope of this GAO for tank batteries with 1 or 2 wells, this capacity would need to be increased to allow for other oil and gas equipment.”*

**DAQ Response:** Comment noted. The selection of the size of the various boilers/heater is contained in comment #4 of the REVIEWER COMMENTS in the engineering review. No changes were made to the permit as a result of this comment.

**46) Comment II.A.10:**

*“The proposed GAO has a total site-wide methanol and glycol storage capacity of 1,000 gallons and for tank batteries with 1 or 2 wells, we agree with this approach. Where present, methanol tanks and glycol storage tanks are typically 500 gallons. This is a standard size in the industry and a standard size provided by the methanol and ethylene glycol suppliers who also frequently provide us with the*



*tanks to store their product. A larger site-wide capacity may be needed for sites outside that narrowed scope.”*

**DAQ Response:** Comment noted. The selection of the size of the methanol and glycol storage tanks is contained in comment #4 of the REVIEWER COMMENTS in the engineering review. No changes were made to the permit as a result of this comment.

**47) Comment II.A.10 (continued):**

*“Furthermore, emissions from methanol and glycol tanks are negligible so limiting the site-wide capacity is unnecessary to for emissions reduction. For example, one operator calculated the annual emissions from glycol and methanol tanks to be 0.02 pounds/year and 8 pounds/year, respectively, under typical operations (Storage Tank Emissions Calculations, Attachment I). We suggest these tanks be treated as ancillary equipment listed for informational purposes and that a site-wide storage capacity limit not be included for them.*

*Attachment I: Storage Tank Emissions Calculations”*

**DAQ Response:** DAQ disagrees with this comment. The site-wide capacity is necessary. The absence of a limit would result in an unknown potential-to-emit. The potential-to-emit could be above the major source thresholds contained in R307-403, R307-405,101-2, and according to R307-401-19(1)(a), a source of this size is not eligible for coverage under a general approval order. No changes were made to the permit as a result of this comment.

**48) Comment II.B.1.a:**

*“(See comments on capacities, decreased surface disturbance and reduced environmental impact above.)*

*The proposed GAO 50,000 bbl/year limit may not be suitable for some horizontal wells that produce more or for multi-well tank batteries. 50,000 bbl/year equates to ~137 bbl/day, and this limit will not be practical in the future given the push for centralized tank batteries and tank emission controls. As we have mentioned before, industry prefers a site-wide emissions limit, but if a throughput limit is required, we request that it be increased to accommodate the trend of increased consolidation.*

*If we apply the constraints we view as the scope of this GAO for tank batteries with 1 or 2 wells, although it will limit the number of GAO eligible sites we support the use of 50,000 bbls.”*

**DAQ Response:** DAQ disagrees with this comment. The reason for the selection of 50,000 bbls per year is contained in comment #5 of the REVIEWER COMMENTS in the engineering review. In addition, DAQ is not required to consider source consolidation as part of the permitting process as outlined in R307-401. The commenter does not provide any regulatory justification to the contrary. No changes were made to the permit as a result of this comment.

**49) Comment II.B.1.b:**

*“UDAQ lacks any cost benefit analysis or BACT analysis demonstrating the cost effectiveness of applying this requirement to all new and existing oil and gas sites in all areas and modes of operation.*

*If we assume gathering infrastructure is available and apply this requirement only to new installations during normal operations, this requirement could potentially be technically practicable and cost effective in some instances, however, this is not a cost effective measure for existing facilities in all oil and gas applications during all modes of operation.”*

**Alternate Language:** *“For new installations, A all gas produced during normal operations from the Heater Treater shall either be used as fuel on site, flared or be routed to a gas gathering system and sent off site. [R307-401-8]”*

**DAQ Response:** DAQ disagrees with this comment. The reason for this requirement is contained in comment #5 of the REVIEWER COMMENTS in the engineering review. The routing of gas to a pipeline is an operational practice that results in no emissions and is not considered an emitting unit as defined in R307-401-2. A BACT review is only conducted for emitting units. If a source does not route the produced gas to a pipeline, the source would not qualify for a GAO and would be required to obtain a permit under R307-401-8. No changes were made to the permit as a result of this comment.

#### 50) Comment II.B.1.d & II.B.1.d.1:

*“Western Energy Alliance asserts that even UDAQ’s own rules allow for 20% opacity. Unless UDAQ has an analysis justifying the lowering of the opacity for oil and gas, we recommend that the GAO remain consistent with R307-401-8. We suggest striking this requirement and instead reference R307-401-8.”*

**Alternate Language:** *“~~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]*

*“~~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]”*

**DAQ Response:** DAQ disagrees with this comment. The reason for 10% opacity is contained in comment #5 of the REVIEWER COMMENTS in the engineering review. In addition, this requirement was addressed in comment #1 of the Review of Best Available Control Technology in the engineering review. No changes were made to the permit as a result of this comment.

#### 51) Comment II.B.1.e:

*“The term “startup” is not clearly defined, and we suggest replacing it with “commencement of normal operation.”*

**Alternate Language:** *“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 commencement of normal operation ~~startup~~.”*

**DAQ Response:** DAQ disagrees with this comment. Condition I.1 incorporates all definitions of R307 and 40 CFR into the permit. 40 CFR 60.2 contains the following: “Startup means the setting in

operation of an affected facility for any purpose.” This definition does not include “normal operation” as provided by the commenter. No changes were made to the permit as a result of this comment.

**52) Comment II.B.1.f:**

*“The term “startup” is not clearly defined, and we suggest replacing it with “commencement of normal operation.”*

**Alternate Language:** *“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 commencement of normal operation ~~startup~~. [R307-401-8]”*

**DAQ Response:** DAQ disagrees with this comment. See DAQ Response to Comment #51. No changes were made to the permit as a result of this comment.

**53) Comment II.B.2.a:**

*“Western Energy Alliance asserts that UDAQ lacks any cost benefit analysis or BACT analysis for this requirement demonstrating the cost effectiveness. We are unaware of any Federal or State requirement that requires controls on all tanks regardless of size or content. It should also be noted that the air shed would likely observe more emissions from the control device than total emissions for smaller tanks.*

*Western Energy Alliance proposes that this requirement be stricken from the GAO. If a tank control requirement is pursued, a selection of an appropriate de minimis threshold based on technical and economic feasibility is necessary.*

*Unless a de minimis is applied, operators will not be able to use the GAO and will have to file NOIs for individual approval orders (AO).”*

**Alternate Language:** *“~~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]~~”*

**DAQ Response:** DAQ disagrees with this comment. See DAQ Response to Comment #3. No changes were made to the permit as a result of this comment.

**54) Comment II.B.3.a:**

*“Western Energy Alliance asserts that UDAQ lacks any cost benefit analysis or BACT analysis for this requirement demonstrating the cost effectiveness. We are unaware of any Federal or State requirement that requires dehy controls on all units regardless of size. It should also be noted that the air shed would likely observe more emissions from the control device than total emissions for smaller dehy.*

*Western Energy Alliance proposes that this requirement be stricken from the GAO. If a dehy control requirement is pursued, a selection of an appropriate de minimis threshold based on technical and economic feasibility is necessary.*

*Unless a de minimis is applied, operators will not be able to use the GAO and will have to file NOIs for individual approval orders (AO).”*

**Alternate Language:** *“~~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]”~~*

**DAQ Response:** DAQ disagrees with this comment. See DAQ Response to Comment #3. No changes were made to the permit as a result of this comment.

**55) Comment II.B.4.a:**

*“[SEE COMMENTS IN II.A.4.]”*

**Alternate Language:** *“Any VOC combustion control device shall have a control/destruction efficiency of no less than 98%. [R307-401-8]”*

**DAQ Response:** DAQ disagrees with this comment. See DAQ Response to Comment #43. No changes were made to the permit as a result of this comment.

**56) Comment II.B.4.a.1:**

*“[SEE COMMENTS IN II.A.4.]”*

**Alternate Language:** *“To show compliance with the control/destruction efficiency, the VOC combustion control device shall be operated according to the manufacturer's written instructions when gases/vapors are vented to it. [R307-401-8]”*

**DAQ Response:** DAQ disagrees with this comment. See DAQ Response to Comment #43. No changes were made to the permit as a result of this comment.

**57) Comment II.B.4.a.2:**

*“[SEE COMMENTS IN II.A.4.]”*

**Alternate Language:** *“The owner/operator shall keep and maintain records of the following: The VOC combustion control device's control/destruction efficiency guaranteed by the manufacturer, The manufacturer's written operating and maintenance instructions, and The date and type of any maintenance conducted by the owner/operator. [R307-401-8]”*

**DAQ Response:** DAQ disagrees with this comment. See DAQ Response to Comment #43. No changes were made to the permit as a result of this comment.

**58) Comment II.B.4.b & II.B.4.b.1:**

*“[SEE COMMENTS IN II.A.4.]”*

*Western Energy Alliance questions the notion that a combustion device can technically be operated at all times with no visible emissions. We suggest looking to other states for solutions that are workable. For example, most governing bodies, including UDAQ allow for a minimal time period for visible emissions to be present given the nature of these devices. Examples include, but are not limited to, periods in excess of 1 minute in any 15 minute period. Additionally, it is not practical to apply these visible emissions requirements outside of normal operation.”*

**Alternate Language:** *“The VOC control device shall operate with no visible emissions **at a duration greater than or equal to 1 minute in any 15 minute period during normal operation. Visible emissions do not include radiant energy or water vapor.** [R307-401-8]*

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

**DAQ Response:** DAQ disagrees with this comment. The selection of the “no visible emissions” is discussed in comment #6 of the REVIEWER COMMENTS in the engineering review. The requirements of the permit must be met at all times. If the source must operate outside of normal operation, the source must comply with R307-107, General Requirements: Breakdowns. Radiant energy and water vapor are not considered “air contaminants” as defined in R307-101-2. In addition, 40 CFR 60, Appendix A, Method 22 specifically mentions that water vapor is not considered an emission. No changes were made to the permit as a result of this comment.

**59) Comment II.B.5.a:**

*“The GAO does not specify the type of pneumatic controllers that are subject to the requirements. We suggest UDAQ limit the GAO requirements to continuous bleed pneumatic controllers. Recognizing the difficulty of determining emissions from intermittent controllers, EPA did not regulate intermittent bleed emissions related to process control in NSPS OOOO. (EPA Response to NSPS OOOO Comments). The GAO requirements for pneumatic controllers go far beyond what is required of operators in NSPS OOOO as pneumatic pumps are not even covered in NSPS OOOO.*

*Pneumatic pumps are not covered in NSPS OOOO. Additionally, UDAQ lacks any cost benefit analysis or BACT analysis on requiring controls for pneumatic pumps demonstrating the cost effectiveness of such a requirement. We request UDAQ eliminate specific requirements for pneumatic pumps and reiterate our request that only continuous bleed controllers be subject to requirements under the GAO.*

*We are also concerned about the inconsistent requirement in Sec. II.B.5.a.a that controllers “shall have a bleed rate less than or equal to 6 standard cubic feet per hour [scf/hr] and shall comply with 40 CFR 60.5415(d).” If a pneumatic controller bleed rate is less than 6 scf/hr, it is not subject to the referenced Federal regulation. Similarly, the GAO requires compliance with 40 CFR 60.5415(d) in Section II.B.6.a.a for pneumatic pumps; however, pneumatic pumps are not subject to 40 CFR 60.5415. Moreover, that specific rule was not designed for pneumatic pumps. In light of these conflicts for both controllers and pumps, we suggest UDAQ remove all reference to 40 CFR 60.5415.*

*Unless applicability of this requirement is limited to continuous bleed pneumatic controllers, operators will not be able to use the GAO and will have to file NOIs for individual AOs.”*

**Alternate Language:** “Each continuous bleed natural gas-driven pneumatic controller shall comply with either a or b:

- a. A natural gas-driven pneumatic controller shall have a continuous 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 continuous bleed 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]”

**DAQ Response:** DAQ disagrees with this comment. See DAQ Response to Comments #1, #2, and #17. No changes were made to the permit as a result of this comment.

**60) Comment II.B.6.a:**

“The GAO requires compliance with 40 CFR 60.5415(d) in Section II.B.6.a.a for pneumatic pumps; however, pneumatic pumps are not subject to 40 CFR 60.5415. Moreover, that specific rule was not designed for pneumatic pumps. In light of this conflict for controllers, we suggest UDAQ remove all reference to 40 CFR 60.5415.

Pneumatic pumps are not covered in NSPS OOOO. Additionally, UDAQ lacks any cost benefit analysis or BACT analysis on requiring controls for pneumatic pumps demonstrating the cost effectiveness of such a requirement. We request UDAQ eliminate specific requirements for pneumatic pumps and reiterate our request that only continuous bleed controllers be subject to requirements under the GAO.

Regardless of application to our narrowed scope of tank batteries with 1 or 2 wells, operators will not be able to use the GAO and will have to file NOIs for individual approval orders (AO).”

**Alternate Language:** ~~“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]”~~

**DAQ Response:** DAQ disagrees with this comment. See DAQ Response to Comments #1, #17, and #18. No changes were made to the permit as a result of this comment.

**61) Comment II.B.8.b:**

“UDAQ is attempting to apply BACT to all engines, not just new or modified engines. The Alliance questions UDAQ’s authority to require controls on engines that are not new or modified. UDAQ references NSPS JJJJ in Section II.B.8 Engine Requirements but the GAO is far more stringent than NSPS JJJJ. It should be noted that in NSPS JJJJ EPA took careful consideration of manufacture date, engine type (lean or rich) and capacity to ensure that the resulting requirements incorporated

*appropriate cost effectiveness and technical feasibility. Section II.B.8.b.b references Table 1 of NSPS JJJJ (EPA, Attachment K) before listing emissions standards for NOx, CO and VOCs. The standards listed in the GAO are only applicable to engine manufactured after January 1, 2011 in NSPS JJJJ. In some cases, it is not technically feasible to modify an engine to meet these stringent emissions standards. Where it is technically feasible, it is often cost prohibitive to modify an engine. Therefore, EPA does not apply one set of emission standards to all engines.*

*A specific example of cost prohibitiveness is that Ajax has developed the E-565 JJJJ compliant model, which is a new version of their old non-JJJJ model E-42 engine. The new equivalent of the E-42 is the E565, which costs approximately \$35,000. Replacing the E-42 with a new E-565 in order to meet NSPS JJJJ standards would result in a reduction in emissions of 0.65 tons per year of NOx, which equates to \$54,000 per ton of NOx, which is not cost effective. This would place an unacceptable financial burden on the operator. At a foreseeable pace of adding 100 new wells per year, that is a potential cost of \$3.5 million.*

*Another option is to install a control system on an existing non-JJJJ compliant engine, but that can also be cost prohibitive. One specific example would be the AFR controller system for 5.9L Cummins engines. Based on an estimate for work for one of our members, the cost to install this system on one engine, including equipment and labor, is \$10,400. This does not include the costs of bringing a power supply to the engine site, which would be a common requirement in some remote areas, or other ancillary costs associated with downtime or travel to the site.*

*We suggest UDAQ strike the Section II.B.8.b and refer to Section III of the GAO, which includes NSPS JJJJ in the list of federal requirements with which owners/operators must comply. If UDAQ retains such stringent emissions standards for all engines, our members will not use this GAO and will be required to file NOIs for individual AOs.*

*Attachment K: NSPS JJJJ Table 1”*

**Alternate Language:** *“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)], HC+NOx = 3.8 g/kW hr (2.84 g/hp-hr), CO = 6.5 g/kW hr (4.85g/hp-hr),~~*

*b. ~~For engines rated greater than or equal to 100 hp: [40 CFR 60 Subpart JJJJ Table 1] NOx = 1.0 g/hp-hr, CO = 2.0 g/hp-hr, VOC = 0.7 g/hp-hr. [40 CFR 60 Subpart JJJJ, R307-401-8]~~*

**See Section III: Applicable Federal Requirements”**

**DAQ Response:** DAQ disagrees with this comment. See DAQ Response to Comment #19. In addition, BACT is required for new or modified sources, and since a source is required to be subject to an AO or a GAO prior to construction according to R307-401-5 and R307-401-19, each source applying to be subject to a GAO should consist of new equipment that meets current emission standards. The costs that the commenter provided did not include supporting documentation and did not appear to be annualized over the life of the equipment. No changes were made to the permit as a result of this comment.

## 62) Comment II.B.8.b.1:

*“Older engines may not have manufacturer guarantees. Western Energy Alliance would suggest alternatives such as manufacturer publications or estimates are included.*

*An alternative would be to take into consideration the engine type; lean or rich burn.”*

**Alternate Language:** *“For engines subject to 40 CFR 60 Subpart JJJJ, ~~F~~the owner/operator shall keep and maintain the following records:*

- a. The emission rate **estimated, published or** guaranteed by the manufacturer for: HC+NO<sub>x</sub> and CO for engines rated less than 100 hp, or NO<sub>x</sub>, 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, and*
- d. The date of the maintenance activities. [R307-401-8]”*

**DAQ Response:** DAQ disagrees with this comment. See DAQ Response to Comment #20. In addition, the selection of the type of engine as either lean or rich burn does not guarantee emission rates. Estimates or published data is not equivalent to a guarantee. An engine with an estimate or with published emission rates may or may not meet those emission rates depending on how the engine is operated or maintained. To meet the manufacturer’s guarantee, the source must operate the engine according to the manufacturer’s instructions. No changes were made to the permit as a result of this comment.

**63) Comment II.B.8.c:**

*“Engine manufacturer data confirms that extending exhaust stacks from the pumpjack engines is not technically feasible. Modeling analyses that indicate tall stack heights are required for the engines to comply with the NO<sub>2</sub> NAAQS are based on overly conservative model assumptions (Redhorse Modeling Study, Attachment F). For more explanation and detail, see comments on Abstract Paragraph 1 above).*

*If stack heights are so high as to be technically infeasible, operators will not be able to use the GAO and will have to file NOIs for individual approval orders (AO).”*

**DAQ Response:** DAQ disagrees with the commenter. See DAQ Response to Comments #25, #26, #27, #34, and #35. No changes were made to the permit as a result of this comment.

**64) Comment II.B.9.b:**

*“Modeling analyses that indicate tall stack heights to comply with the NO<sub>2</sub> NAAQS are based on overly conservative model assumptions (Redhorse Modeling Study, Attachment F). For more explanation and detail, see comments on Abstract Paragraph 1 above).”*

**DAQ Response:** DAQ disagrees with the commenter. See DAQ Response to Comments #25, #26, #27, #34, and #35. No changes were made to the permit as a result of this comment.

**65) Comment II.B.10.a:**

*“Section II.B.10.a.a requires all inspections of virtually every connection at a well site or tank battery be completed within 90 days of start-up. The term “start-up” is not clearly defined, and we suggest replacing it with “commencement of normal operation.”*



All Federal LDAR programs, including KKK and refinery LDAR programs, allow for a reduced monitoring frequency if it is demonstrated that a site has very little potential for leaks. Western Energy Alliance proposes that an alternative inspection frequency may be applied if a company is able to demonstrate a specified low number of leaks in their monitoring history (two consecutive monitoring events). The requested changes are performance based and the inspection frequencies revert back to the original frequencies if the number of leaks identified rise above the identified thresholds; ensuring production facilities maintain a low number of new component leaks.

Western Energy Alliance also asserts that a standard of “no leaks” would render this reduced frequency alternative unusable. As KKK allows, we propose that a 2% or less or 10 or less components is an appropriate standard.

Western Energy Alliance also proposes that the no tank monitoring requirement, paragraph c., be stricken as the potential for leaks at these sites would fall well below any cost effective criteria and be conducted for little benefit.”

**Alternate Language:**

- “a. No later than 90 days after commencement of normal operation 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~~ 6 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 10 or less component leaks or 2% or less of total components are detected during inspections for one year in each of 2 monitoring events,~~ 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 at a number greater than i. above, inspection frequency shall ~~be conducted at least resume at~~ resume at once every ~~3~~ 6 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]”~~

**DAQ Response:** DAQ disagrees with this comment. See DAQ Response to Comment #51 in regards to “startup”. The rule has an option to reduce the frequency of inspections based on the observation of leaks. Other federal LDAR programs allow for a reduced frequency with approval from the Administrator. If a source wanted to vary from the frequency listed in the GAO, the source would need to obtain approval from the Director with the issuance of a new AO. The commenter does not explain how the “no leaks” standard would be unusable. The commenter did not provide the exact reference of KKK where the source proposed “10 or less component leaks or 2% or less of total components”. DAQ found a requirement similar to this in 40 CFR 60.483-1a (NSPS Subpart VVa). 40 CFR 60.483-1a is an alternative standard that a source must notify the Administrator before implementing the alternative standard. If a source wanted to vary from the inspection method listed

in the GAO, the source would need to obtain approval from the Director with the issuance of a new AO. The development of changes to Colorado's Regulation Number 7 (adopted 2/23/14, effective 4/14/14) was used in the development of permit condition II.B.10.a. Colorado's Regulation Number 7 has thresholds for well production facility component inspections based on sources with storage tanks and sources without storage tanks. Facilities without storage tanks may have dehydrators and other gas contacting equipment. This equipment has the potential to leak and should be inspected for leaks. No changes were made to the permit as a result of this comment.

**66) Comment II.B.10.a.1:**

*"We request flexibility in the method used to detect leaks and suggest adding "or any approved method" to Section II.B.10.a.1 of the GAO. As technology changes and given the diversity of our companies' operations we ask to UDAQ to leave open the possibility of using other instruments to detect leaks."*

**Alternate Language:** *"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), any Executive Secretary approved instrument based monitoring device or method, or an infrared camera that can detect ~~hydrocarbons~~ leaks as defined in this section, except as provided in II.B.10.a.2."*

**DAQ Response:** DAQ disagrees with this comment. The Director would approve an instrument or method by issuing an AO for the source. If a source desires to use another instrument or method, the source would either need to obtain an AO for the site with the change, or request the Director to issue a new GAO that contains the change and then request to be subject to that GAO after it has been issued. No changes were made to the permit as a result of this comment.

**67) Comment II.B.10.a.1 (continued):**

*"The proposed GAO's definition of a leak is "a reading of 500 ppm or greater with an analyzer or [tunable diode laser absorption spectroscopy]." UDAQ informed us this definition came from EPA's New Source Performance Standard for the Oil and Gas Sector, Section 0000 (NSPS 0000); however, that leak definition applies only to gas processing plants in Quad O, not well sites or tank batteries. EPA's definition of a leak for "pumps, valves, and connectors", which applies to well sites and tank batteries is 10,000ppm or greater, found in NSPS, Sec. VVa (40 CFR 60.482-8a(2)(6))."*

*Under most New Source Performance Standards, including subpart KKK and VVa, leaks are defined as greater than 10,000 ppm and under those programs, fugitive emissions below 10,000 ppm are not leaks, and do not require repair. 40 C.F.R. Part 60, Subparts KKK and VV.*

*Additionally, Alberta has a well-established LDAR program where operators use a screening value of 10,000 ppm to determine if a component is "leaking" and thus may warrant repair (CAPP, Attachment J).*

*Also, based on data provided by API member companies for several natural gas processing plants that are currently subject to 40 CFR 60 Subpart KKK, the percent of valves that leak above 10,000 ppm ranges between 0.1 - 4.0%; however, these leaking valves contribute 82 - 99% of the total mass emissions from facility valves when using the Leak/No-Leak method from EPA's 1995 protocol for estimating emissions. This is consistent with an earlier API study (API # 310, November 1997) of*

*petroleum refineries equipment leaks that showed that 92% of reducible emissions are due to only ~ 0.13% of components.*

*For all these reasons, Western Energy Alliance believes that 10,000ppm leak definition is protective and appropriate for this GAO.*

*Attachment J., Canadian Association of Petroleum Producers, Best Management Practice, Management of Fugitive Emissions at Upstream Oil and Gas Facilities, January 2007”*

**Alternate Language:** *“A reading of ~~500~~ **10,000** 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~~ **10,000** ppm. Emissions detected from tank gauging, load-out operations, or other maintenance activities shall not be considered leaks. [R307-401-8]”*

**DAQ Response:** DAQ disagrees with this comment. The requirements and documents mentioned in support of the 10,000 ppm limit have the following effective dates: 40 CFR 60 Subpart VV – October 18, 1983 with applicable changes to the section that contains the 10,000 ppm definition of a leak on November 16, 2007, 40 CFR 60 Subpart VVa – November 16, 2007, 40 CFR 60 Subpart KKK – June 24, 1985 with applicable changes to the section that contains the 10,000 ppm definition of a leak on October 17, 2000, and the reference document provided by the commenter from the Canadian Association of Petroleum Producers – January 2007. These references are at least 6 years old. 40 CFR 60 Subpart OOOO became effective in August 16, 2012 with the most recent changes being in September 23, 2013, and Colorado’s Regulation Number 7 was adopted February 23, 2014 with an effective date of April 14, 2014. Both 40 CFR 60 Subpart OOOO and Colorado’s Regulation Number 7 are more recent than those mentioned by the commenter. 40 CFR 40 CFR 60.5401(b)(2) (Subpart OOOO) contains the limits of 500 ppm for onshore natural gas processing plants. This detection level is applicable to oil and gas tank batteries because the tank batteries contain the same fluids that would go to a processing plant. In addition, Colorado’s Regulation Number 7 XVII.F contains requirements for leak detection and repair program for well production facilities and natural gas compressor stations. For well production facilities, according to XVII.F.6.a and XVII.F.6.b a leak is defined as any concentration of hydrocarbon above 500 ppm. 40 CFR 60 Subpart VVa also references 500 ppm as a leak limit that would require repair for: pumps in light liquid service in 40 CFR 60.482-2a (e), compressors in 40 CFR 60.482-3a(i), pressure relief devices in gas/vapor service in 40 CFR 60.482-4a(a), valves in gas/vapor service and in light liquid service in 40 CFR 60.482-7a(b), closed vent systems and control devices in 40 CFR 60.482-10a(g), and connectors in gas/vapor service and in light liquid service in 40 CFR 60.482-11a(b)(2). Due to the recent references setting 500 ppm as a limit, the 500 ppm limit is determined to be feasible and would be considered BACT as the level at which repair is needed. No changes were made to the permit as a result of this comment.

### **Comments Received from National Parks Conservation Association (NPCA)**

National Parks Conservation Association’s comments can be separated into three categories: first, regulatory framework and emission estimates; second, cumulative impacts; and third, best available control technology (BACT). The category of regulatory framework and emission estimates can be broken down into four subcategories: first, pre-existing air quality issues; second, jurisdiction; third, certainty to the regulated community; and fourth, underestimates of emissions. The category of cumulative impacts can be broken down into three subcategories: first, ozone and NO<sub>2</sub> analysis;

second, visibility; and third, methane and PM<sub>2.5</sub> emissions. Comments will be summarized and responded to in these categories and subcategories. DAQ has not repeated the entire text of the comment, but the comments in full length and the commenter's supporting documentation can be found in the file for this permitting action. In general, DAQ has attempted to include the full text of any specific comment; however, particularly long or compound comments may have been paraphrased or split for ease of reading and brevity concerns. Where this has occurred, DAQ has included a notation.

### **NPCA Comments on Regulatory Framework and Emission Estimates**

#### **68) Comment on Pre-Existing Air Quality Issues:**

Utah's energy development impacts air quality in areas of public interest. Monitored ozone values in the Uinta Basin have been above the NAAQS in the past. Other areas in the state have been designated as nonattainment for PM<sub>10</sub> and PM<sub>2.5</sub>. *"These pre-existing issues should provide significant motivation for Utah to address emission from increasing oil and gas development before they lead to grave air quality problems in the state and region."* (Pages 1 – 4)

**DAQ Response:** Comment noted. Impacts to air quality are summarized in DAQE-002-14 dated January 27, 2014 and in comment #14 of the REVIEWER COMMENTS in the engineering review. DAQ is not required to address emissions outside the scope of this permit. The commenter does not provide any regulatory justification to the contrary. No changes were made to the permit as a result of this comment.

#### **69) Comment on Jurisdiction:**

*"This general permitting process would only provide guidelines for wells on lands under state jurisdiction—just 10 to 15 percent of current oil and gas wells in the Basin. The vast majority of wells in the region are located in Indian Country and under the jurisdiction of the tribes and the Environmental Protection Agency (EPA). With just the number of oil and gas wells under state jurisdiction projected to double in the next four years—from 1,956 in 2013 to 4,092 in 2018—we believe now is a time for caution. The state has little control over the wells not under its jurisdiction—hence we believe that Utah should do everything it can to control the emissions originating on its lands."*

**DAQ Response:** Comment noted. The GAO would only be applicable to sources located within the State of Utah's jurisdiction. No changes were made to the permit as a result of this comment.

#### **70) Comment on Certainty to the Regulated Community:**

*"Currently, energy development in the region falls under a hodge-podge of piecemeal environmental regulations. Many of these sources could qualify for the state's small source exemption (R307-401-9), and could thus escape much regulation at all. With overlapping state and federal jurisdictions leaving potential gaps in enforcement, this GAO represents Utah's opportunity to put in place comprehensive, impactful rules for oil and gas development. Moreover, a clear regulatory framework provides much needed certainty for producers, and strong control requirements would spur economic development in pollution controls."*

**DAQ Response:** Comment noted. DAQ only has authority to address air quality regulations within its jurisdiction. Other agencies are authorized to address non-air quality regulations or areas outside of DAQ jurisdiction. It is true that sources may qualify for the small source exemption under R307-401-9. The exemption under R307-401-9 only exempts a source from the requirement to file a NOI and obtain an AO under R307-401-5 through R307-401-8. A source would still be subject to any other applicable federal, state, or local rule or regulation. For air quality permitting, there is no overlap between federal and state jurisdictions. Depending on where a source was located, the source would be required to either satisfy DAQ's air permitting requirements, or EPA's air permitting requirements, but the source would not be required to meet both DAQ and EPA's air permitting requirements. The GAO is a permitting action and must meet the regulatory requirements of R307-401. The regulatory requirements of R307-401 do not address or require the creation of rules or the establishment of a regulatory framework. The commenter does not provide any regulatory justification to the contrary. No changes were made to the permit as a result of this comment.

#### 71) Comment on Underestimates of Emissions:

*“Several portions of DAQ’s emissions estimates appear to be underestimated. For instance, the flaring emissions in the GAO do not appear to include particulate matter, which is unlikely to be accurate. Likewise, to the extent that emissions from the flares reflect an assumed 98% combustion efficiency, they potentially underestimate emissions.”*

**DAQ Response:** DAQ disagrees with this comment. Emissions from the VOC Control Device were estimated using EPA's AP-42 Table 13.5-1 (Emissions Factors for Flare Operations). This table contains soot as an emission, which could be used for particulate matter. The emission factor ranges from 0 to 274 micrograms per liter. Footnote c of this table indicates that for nonsmoking flares, the emission factor is 0 micrograms per liter. The permit requires that the VOC Control Device operate with no visible emissions. If there are no visible emissions, the flare would not be smoking and the emission factor would be 0 micrograms per liter and would result in 0 emissions for particulate matter. No changes were made to the permit as a result of this comment.

#### 72) Comment on Underestimates of Emissions (continued):

*“In addition, there are unaccounted-for emissions from trucking, road dust, drilling, and operation and maintenance of the wells. That these activities are not stationary makes no difference to the cumulative impact on regional air quality. These associated emissions can be significant and must be accounted for.”*

**DAQ Response:** Comment noted. According to R307-401-3, R307-401 applies to any person constructing a new installation or modifying an installation as defined in R307-101-2. Activities not occurring at the installation being permitted under R307-401 are not accounted for in the Potential to Emit for the installation according to R307-101-2. Tail pipe emissions from trucking are mobile sources of emissions and are not considered a stationary source as defined in R307-401-2.

Road dust that occurs on site is part of a stationary source. The particulate emissions from haul road traffic were estimated as a result of this comment. Uncontrolled PM<sub>10</sub> emissions from haul roads were estimated to be 0.04 tons per year, and uncontrolled PM<sub>2.5</sub> emissions from haul roads were estimated to be 0.004 tons per year. BACT for the on-site haul roads was determined to be no control. All options to control emissions from on-site haul roads were determined to be economically

infeasible due to the low amount of emissions. The haul road emission estimates and the updated emission totals are included at the end of this memo.

Drilling activities occur during the construction of the site. Construction activities, including drilling, are considered secondary emissions as defined in R307-401-2 and the emissions from these activities are not included in the potential to emit as defined in R307-401-2.

Operation and maintenance activities are part of the stationary source and are included in the permit. The commenter did not provide specific operations and maintenance activities not addressed above that were not addressed by the permit.

The potential to emit will be updated in the abstract to include the particulate emissions from the haul roads. No other changes were made to the permit as a result of this comment.

### **NPCA Comments on Cumulative Impacts**

#### **73) Comment on Cumulative Impacts:**

Utah does not take into account cumulative impacts of projected multiple unknown new sources.  
(Page 5)

**DAQ Response:** DAQ disagrees with this comment. Consistent with the guidelines included in Appendix W (Guideline to Air Quality Models), modeling analysis for NAAQS are required to only include previously permitted sources. The analysis is not required to include potential new sources, or permit applications that are under review by the DAQ, but for which an AO has not been issued. As a prelude to the GAO modeling analysis, the DAQ did perform its own air quality analysis of a large densely source-populated oil and gas field in the Uintah Basin to address the issue of cumulative NO<sub>2</sub> impacts. The results of that analysis indicated that the contribution of NO<sub>2</sub> from adjacent wellheads was not a significant factor in determining compliance with the NO<sub>2</sub> NAAQS in the immediate areas surrounding any single wellhead site. The DAQ reviewed all available ambient monitoring data in the Uintah Basin and East-Central areas of the State. Based on the reviewed data, the DAQ devised a conservative background concentration for NO<sub>2</sub> to be included in the analysis, to address the issue of potential impacts from cumulative sources and regional contribution. No changes were made to the permit as a result of this comment.

#### **74) Comment on Ozone and NO<sub>2</sub> Analysis:**

The “White Paper: VOC Emission Projection Methodology for the Uinta Basin” is insufficient and must be more detailed. The White Paper assumes all other sources will remain steady, but these sources may increase and cause or contribute to a violation of the ozone NAAQS. (Pages 5 – 6)

**DAQ Response:** DAQ disagrees with this comment. The intent of the analysis “White Paper: VOC Emissions Projection Methodology for the Uinta Basin,” was to show that even though oil and gas production is increasing, the emissions from oil and gas sources are decreasing. While the White Paper focused only on oil development within state jurisdiction the VOC emissions controls that were examined are federal controls that will impact both state and non-state lands. Thus DAQ expects that similar results would be obtained for development on lands not in state jurisdiction. The 2011 emission inventory for Duchesne County and Uintah County show that oil and gas operations account for 97% of anthropogenic VOC emissions in the Uinta Basin. Emissions from other sources do not

have a meaningful influence when compared to the emissions from the oil and gas sources in the area. No changes were made to the permit as a result of this comment.

**75) Comment on Ozone and NO<sub>2</sub> Analysis (continued):**

*“Furthermore, this analysis fails to even examine the whole of the oil and gas industry. It reviews only emissions associated with gas production and, among that subset, only emissions associated with tanks, not other sources. This type of selective assessment is not unhelpful, but to be instructive, a comprehensive review is warranted.”*

**DAQ Response:** DAQ disagrees with this comment. As noted in “White Paper: VOC Emissions Projection Methodology for the Uinta Basin,” “the analysis is focused on oil production in areas of the Uinta Basin that are under State jurisdiction because this information is most relevant to the permitting decisions that must be made by DAQ.” The analysis is focused on oil production associated with oil tanks, because oil storage tanks account for the largest portion of oil production related VOC emissions. According to 2012 projections from the 2006 WRAP Phase III emissions inventory, oil tanks were responsible for approximately 64% of oil related VOC emissions in Uintah and Duchesne counties. DAQ is confident that similar results will be seen for the remaining significant VOC emitting equipment. As production from existing uncontrolled sources declines and is replaced by production from new, highly controlled sources covered by the GAO and the NSPS OOOO standards, overall VOC emissions are expected to decrease. As documented in the White Paper, VOC emissions from tanks are projected to decline by 24% despite a potential 130% increase in oil production between 2012 and 2018. No changes were made to the permit as a result of this comment.

**76) Comment on Ozone and NO<sub>2</sub> Analysis (continued):**

*“Likewise, the NO<sub>2</sub> modeling that was done is insufficient to address cumulative impacts.”*

**DAQ Response:** DAQ disagrees with this comment. See DAQ response to Comment #73. In addition, the commenter does not explain how the modeling was insufficient. No changes were made to the permit as a result of this comment.

**77) Comment on Ozone and NO<sub>2</sub> Analysis (continued):**

*“A number of assumptions made in the modeling cannot be assured. For instance, the modeling assumes that the wells are in a rural area, which may generally be the case, but is not required.”*

**DAQ Response:** The nearby land-use reference used in the AERMAP processing was consistent with a rural area without any nearby buildings or structures. Downwash effect from wellheads, tanks, and other support structures potentially at the wellhead site were included in the analysis. However, based on guidance provide for the use of the Building Profile Input Program (BPIP) used in AERMOD, the average structure size found in rural areas and small cities that are located more than 100 meters from the modeled site would not influence the plume’s dispersion characteristics. Only large structures generally found in the heavily populated urban areas might have a potential to create such influences. The modeling analysis was performed with the assumption that no businesses or residences would be located within 100 meters of a wellhead site. To ensure that conditions on the ground are consistent with assumptions included in the modeling analysis, a condition will be added to the permit that will requires a source that is subject to the GAO be located no closer than 100

meters to a residential or commercial business building or structure. This will prevent nearby buildings or structures from affecting dispersion, and ensure compliance with the NAAQS at any nearby residence or place of business.

**78) Comment on Ozone and NO<sub>2</sub> Analysis (continued):**

*“A specific height and diameter for flares is assumed, but not required.”*

**DAQ Response:** Comment noted. For the purposes of estimating NO<sub>2</sub> impacts, the VOC Control Device was assumed to be a flare or combustor. If a different VOC control device is used, there will not be NO<sub>2</sub> emissions. DAQ’s modeling analysis showed that due to the extremely high temperature and buoyancy of the NO<sub>2</sub> emissions from the VOC Control Device, the NO<sub>2</sub> emissions were not a significant contributor to the highest modeled values; therefore, it is not necessary to include a stack height requirement for the VOC Control Device. No changes were made to the permit as a result of this comment.

**79) Comment on Ozone and NO<sub>2</sub> Analysis (continued):**

*“Similarly, a background level of 40 – 65 ug/m<sup>3</sup> was assumed, which may not be appropriate for sources being permitted several years from now.”*

**DAQ Response:** DAQ disagrees with this comment. *See* DAQ response to Comment #73. R307-401-19(7)(c) requires DAQ to review the GAO at least once every three years. DAQ will include any updated monitoring data at that time. No changes were made to the permit as a result of this comment.

**80) Comment on Ozone and NO<sub>2</sub> Analysis (continued):**

*“The modeling only addressed a single well source and, in some configurations, very nearly exceeded the 1-hour standard (186 ug/m<sup>3</sup> versus the standard of 188 ug/m<sup>3</sup>). Given this fact, along with the additional emissions caused by operational activities on site (such as trucking) and the unknown, unenforceable distance to other wells, it appears likely that some sources permitted under the GAO may cause or contribute to localized violations of the NAAQS.”*

**DAQ Response:** DAQ disagrees with this comment. DAQ conducted a modeling analysis according to R307-410. R307-410-4 requires that a modeling analysis indicate that the new source or modification not violate a NAAQS. There is no requirement to be a certain level below a NAAQS. The commenter provides no regulatory authority to the contrary or how DAQ’s modeling analysis did not meet the requirements of R307-410. The modeling analysis indicated that for most wellhead site configurations cover under the GAO, the impact from the site (including background) would be less than 50-70% of the NAAQS, with occasional maximums reaching 80-90% of the NAAQS. Only those sites having the maximum HP rating allowed under the GAO would have the potential to reach maximum impact levels close to the NAAQS. And under most meteorological conditions during the year, their impacts would be well below the NAAQS. Also, see response to Comment 73. No changes were made to the permit as a result of this comment.



**81) Comment on Ozone and NO<sub>2</sub> Analysis (continued):**

*“In light of these potential violations, in addition to more analysis, additional industry-sponsored monitoring around these sites would be a source of valuable information and a clear way to assess whether violations occur.”*

**DAQ Response:** DAQ disagrees with this comment. There are no rules that would require a minor source to conduct monitoring. The commenter provides no regulatory authority to the contrary. In addition, the commenter does not provide what analyses should be conducted, what monitoring should be conducted or what information would be valuable. No changes were made to the permit as a result of this comment.

**82) Comment on Ozone and NO<sub>2</sub> Analysis (continued):**

*“Likewise, given the difficulty of accurate emissions inventories with multiple smaller sources, requiring regular and testing-verified emissions statements would improve the ability of the state to address emissions from oil and gas development and afford the public a transparent process with measures to assure accountability.”*

**DAQ Response:** DAQ disagrees with this comment. The GAO requires a source to submit an initial inventory within 180 days after startup and every year thereafter. R307-150-1(5)(a) requires a source to keep track of how emissions are estimated, but does not require a specific a method. The commenter provides no regulatory authority to the contrary. No changes were made to the permit as a result of this comment.

**83) Comment on Visibility:**

*“In its recent Regional Haze State Implementation Plan (SIP), Utah declined to analyze the impact of emissions from oil and gas development under state jurisdiction. The regional haze program imposes a legal obligation on the State to abate adverse visibility impacts from its haze-causing facilities in order to restore visibility levels in Class I areas to their natural conditions. We recommend that Utah take the opportunity here to address these issues.*

*Other, more comprehensive, analyses of air quality data have found reason to be concerned about Basin oil and gas development’s impact on regional pollution. Cumulative impact air modeling of emissions from fracking for oil and gas wells on land adjacent to Dinosaur National Monument in Colorado has shown that proposed fracking development could increase NO<sub>x</sub> and other emissions that impair visibility at the park’s scenic landscapes over 200 days each year (>1.0 dv impact for 202 days).”*

**DAQ Response:** DAQ disagrees with this comment. This permitting action is independent of other planning activities like a Regional Haze SIP. In addition, Dinosaur National Monument in Colorado is not a Federal Class I area, and is therefore not subject to Class I visibility protection required under any surrounding State’s air quality rules, or by their permitted sources. The commenter provides no regulatory authority to the contrary. In addition, other developments, like fracking, in the regional area not required to be addressed for minor source permits. See DAQ response to Comment #73. No changes were made to the permit as a result of this comment.

**84) Comment on Methane and PM<sub>2.5</sub> Emissions:**

Utah disregards PM<sub>2.5</sub> and methane emissions. There are multiple sources of methane emissions. *“In addition to its effects as a greenhouse gas, methane also contributes to higher background global levels of ozone. Thus, given the area’s ozone concerns, addressing methane makes sense. Furthermore, methane leaks can be costly — potential product being vented instead of captured. Finally, addressing methane can provide a safer environment for workers. Additionally, the collective sources could emit a significant amount of PM<sub>2.5</sub>. We ask that DAQ include an analysis of all of the sources of this pollutant, including from increased vehicular traffic and dust, incomplete combustion from flaring, and increases in PM<sub>2.5</sub> precursors.”* (Pages 7 – 8)

**DAQ Response:** DAQ disagrees with this comment. DAQ has estimated PM<sub>2.5</sub> and methane emissions for this GAO. The total PM<sub>2.5</sub> emissions were estimated to be 0.52 tons per year. The sources of PM<sub>2.5</sub> permitted by this GAO include the engines, the boilers/heater, and the haul roads. Sources of PM<sub>2.5</sub> not located at the facility are not evaluated with this permitting action. See DAQ response to Comment #72. Methane is classified as a greenhouse gas. Total greenhouse gasses from the GAO were estimated to be 6,348 tons per year (as CO<sub>2</sub> equivalent). Greenhouse gasses are not subject to regulation with emission levels below 100,000 tons per year (as CO<sub>2</sub> equivalent) according to R307-405-3(9). Therefore, no additional permitting requirements apply to methane. The commenter provides no regulatory authority to the contrary. No changes were made to the permit as a result of this comment.

**NPCA Comments on Best Available Control Technology****85) Comment on Overall BACT Analysis:**

*“With this permitting process, Utah has the chance to safeguard the air quality of the region up front, with truly state-of-the-art pollution controls. Utah’s state program requires that a GAO meet all the requirements of R307-401-8, including the requirement for Best Available Control Technology (BACT). Unfortunately, the analysis provided in the GAO proposal is abbreviated, weak, and fails to consider technologies and approaches that would significantly decrease emissions from the subject sources.”*

**DAQ Response:** Comment noted. A BACT review was conducted for all emitting units included in the GAO as summarized in Review of Best Available Control Technology in the Engineering Review. The commenter must, but did not, provide specific details of how the BACT review is “abbreviated, weak, and fails to consider technologies and approaches that would significantly decrease emissions.” The specific details that the commenter provides are responded to in the following comments. No changes were made to the permit as a result of this comment.

**86) Comment on Overall BACT Analysis (continued):**

*“Additionally, a thorough BACT analysis is only applicable now, as there is no way of knowing the available technologies 6 months or a year from now. We urge DAQ to require review of this GAO more frequently than the required 3-year interval.”*

**DAQ Response:** Comment noted. The commenter is correct that DAQ cannot know of available technology in the future. DAQ has not observed frequent changes in technology applicable to the oil and gas industry. The commenter does not explain why six months or a year is more appropriate than

a 3-year interval. DAQ estimates that three years is an adequate timeframe to keep the GAO current with technology. In addition, there is no restriction that would prevent DAQ from issuing a new GAO prior to the three-year review if a new technology does become available. No changes were made to the permit as a result of this comment.

**87) Comment on Case-by-Case BACT:**

*“BACT analyses, by definition, are to be determined on a “case-by-case basis, taking into account energy, environmental, and economic impacts and other costs.” In this instance, the analysis provided by DAQ is hampered by the fact that case-by-case information is not known.”*

**DAQ Response:** Comment noted. R307-401-19 authorizes the Director to issue a GAO for similar sources of the same type. The results of a BACT analysis for these similar sources of the same type would be the same. Listed equipment, equipment capacities, and production rates were used to keep BACT the same for sources covered by the GAO. Sources that have equipment, equipment capacities, or production rates outside those listed in the GAO would need additional review to determine BACT. No changes were made to the permit as a result of this comment.

**88) Comment on BACT for Pneumatics:**

*“For example, when discussing controls for pneumatic controllers and pumps, the BACT determination notes that the most effective control is capturing emissions from this equipment. However, it then goes on to state that “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.” In this instance, the GAO is clearly bypassing BACT. The most stringent option should be required unless the source demonstrates that its implementation is not economically feasible.”*

**DAQ Response:** DAQ agrees with the commenter. Natural gas-driven pneumatic pumps were re-evaluated as a result of Comment #18. BACT was determined for natural gas-driven pneumatic pumps to be routing emissions to a VOC Control Device. Low-bleed pumps were removed as BACT. See DAQ response to Comment #18.

BACT was re-evaluated for natural gas-driven pneumatic controllers. The emission differences were evaluated between high-bleed and low-bleed, between high-bleed and captured emissions, and low-bleed and captured emissions. The difference in emissions between high-bleed and low-bleed is 1.8 tons per year per device. The difference in emissions between high-bleed and captured emissions is 2.058 tons per year per device. The difference in emissions between low-bleed and captured emissions is 0.294 tons per year per device. The cost to capture emissions from low-bleed devices would be considered extremely high for the amount of emissions reduced. Due to these costs, the requirement to capture emissions from natural gas-driven pneumatic controllers is removed as BACT. BACT for natural gas-driven pneumatic controllers is the use of low-bleed (less than or equal to 6 scfh) pneumatics. Since emissions are lower by capturing them, the GAO will not restrict a source from capturing emissions; however, this option is too expensive to be considered BACT. No changes were made to the permit as a result of this comment, but changes were made as a result of Comment #18.

**89) Comment on BACT for Storage Tanks, Dehydrators, and Flares:**

*“The faulty BACT analysis for storage tanks, dehydrators, and flares provides another clear example. There is ample evidence that simply maintaining a flare according to manufacturer specifications does not automatically provide 98% efficiency, and flaring in general is a wasteful way to deal with excess gas. Vapor Recovery Units (VRU) provide a much more resourceful way to handle these emissions – turning them into a revenue source – yet they are not required because of the unknown configuration of the sources. The BACT analysis does not consider the use of a Vapor Recovery Tower in conjunction with a VRU to limit fugitive emissions from storage tanks; nor does it consider different VRU configurations, all of which would fall under the scope of a complete BACT analysis.”*

**DAQ Response:** DAQ agrees with the commenter in part. The BACT review was re-evaluated for routing emissions to a flare or capturing emissions with a VRU as a result of this comment. The emission differences for storage tanks and dehydrators were evaluated between no control and a VOC Control Device (98% control), between no control and a VRU (100% control), and between a VOC Control Device (98% control) and a VRU (100% control). The difference in emissions between no control and a VOC Control Device (98% control) is 45.42 tons per year for the dehydrator and 43.30 tons per year for the tanks. The difference in emissions between no control and a VRU (100% control) is 46.35 tons per year for the dehydrator and 44.20 tons per year for the tanks. The difference in emissions between a VOC Control Device (98% control) and a VRU (100% control) is 0.93 tons per year for the dehydrator and 0.89 tons per year for the tanks. The additional costs of a VRU compared with the incremental amount of emissions controlled, removes a VRU from being selected as BACT. BACT for storage tanks and BACT for dehydrators is 98% control by installing a VOC Control Device. Since emissions are lower by routing them to a VRU, the GAO will not restrict a source from installing a VRU; however, this option is too expensive to be considered BACT.

DAQ disagrees with the commenter that there is *“ample evidence that simply maintaining a flare according to manufacturer specifications does not automatically provide 98% efficiency”*. The commenter did not specifically provide what evidence existed; however, the commenter did provide an attachment to their comments of a technical paper that addresses flare control efficiency. The title of the paper is *“Theoretical and Observational Assessments of Flare Efficiencies.”* This paper discusses different variables that affect the destruction efficiencies of flares. The manufacturer of a flare would evaluate these different variables and establish the needed operational parameters for the flare to meet the necessary control efficiency. The paper does not mention or compare how a flare is not meeting manufacturer’s guarantees, while operating within manufacturer’s operating parameters. No changes were made to the permit as a result of this comment.

**90) Comment on BACT for Flares:**

*“The BACT analysis fails to perform an analysis for flares. It essentially states that any flare will meet its manufacturer’s guarantee without requiring confirmation of that combustion efficiency. It does not consider the option of an enclosed flare, which eliminates visible emissions and increases combustion efficiency due to protection from the wind.”*

**DAQ Response:** DAQ disagrees with the commenter. Part of the definition of BACT in R307-401-2 states: *“Best available control technology’ means an emissions limitation....”* The option selected as BACT for storage tanks and dehydrators is to reduce emissions by 98%. This is accomplished with the use of a VOC Control Device. A flare with a 98% control efficiency would meet this requirement. In addition, to make sure the VOC control device is operating properly, the VOC

control device must operate with no visible emissions. No further analysis is required after selection of BACT. The commenter provides no regulatory authority to the contrary. No changes were made to the permit as a result of this comment.

**91) Comment on BACT for Truck Loading:**

*“For truck loading, the BACT analysis dismisses the two most effective controls because they haven’t been installed on sources of a similar size in Utah. This fails to meet the standard of the state’s definition of BACT, which requires that the control be achievable. DAQ has not made a showing that either of the controls are technologically or economically unfeasible for sources of this size.”*

**DAQ Response:** DAQ agrees with the commenter. BACT was re-evaluated for the truck loading as a result of this comment. The uncontrolled VOC emission rate from truck loading is 18.97 tons per year. Installing a VRU with an associated VOC control device would result in a controlled VOC emission rate of 0.16 tons per year (submerged loading saturation factor of 0.60 with a control efficiency of 98%). Installing a vapor balance system and routing vapors from the loading of the trucks back to the storage tanks where they would be controlled by a VOC control device would result in a controlled VOC emission rate of 0.26 tons per year (submerged loading saturation factor of 1.00 with a control efficiency of 98%). Requiring submerged filling would result in a controlled VOC emission rate of 7.85 tons per year (submerged loading saturation factor of 0.60). Since the emissions from truck loading are occurring from the truck, a VRU or a vapor balance system would require changes to the trucks and on site equipment. Several different trucks will service the same tank battery. To allow for a VRU or vapor balance system, all the trucks servicing a tank battery must be modified to meet the standards of R307-328-4 and conduct vapor tightness testing according to R307-328-7. Currently only gasoline tanker trucks are required to meet these standards. A requirement for a site covered by the GAO would require a large portion of the fleet to be converted to allow for this control. This additional cost of numerous trucks in addition to the cost of the onsite equipment to control 7.69 tons of VOC to install a VRU or 7.59 tons of VOC to install a vapor balance system is not economically feasible. The commenter did not provide an economic analysis on why these other options are economically achievable. BACT for the truck loading is submerged or bottom filling. No changes were made to the permit as a result of this comment.

**92) Comment on BACT for Pumps:**

*“DAQ did not consider requiring solar-powered pumps, which have been used elsewhere.”*

**DAQ Response:** DAQ disagrees with the commenter. Solar-powered pumps are considered non-emitting units and do not require a BACT analysis. The GAO includes a section in the equipment list for various pumps and compressors for informational purposes. Solar-powered pumps would be included in this section. The BACT analysis for natural gas-driven pneumatic pumps did not include solar-powered pumps as an option because the two pumps use different mechanisms during operation. The use of a solar-powered pump in place of a natural gas-driven pump would redefine the source. The BACT analysis evaluates the emission rate and control of a specified source, not the design or purpose of the source. The commenter provides no regulatory authority to the contrary. No changes were made to the permit as a result of this comment.

**93) Comment on BACT for Voluntary Controls:**

*“DAQ also describes the use of voluntary episodic controls to assist in ameliorating ozone episodes; here DAQ has the ability and means to make such controls mandatory, which it ought to require, but fails to do so.”*

**DAQ Response:** DAQ disagrees with the commenter. DAQ does not list or indicate voluntary episodic controls in the GAO, and the commenter does not provide what these controls are. Limitations contained in the GAO are a result of the BACT review, a modeling analysis or federal or state rule. Voluntary control options not selected as BACT cannot be required through the permitting process. The commenter provides no regulatory authority to the contrary. No changes were made to the permit as a result of this comment.

**94) Comment on BACT being Incomplete:**

*“These are only examples. In general, DAQ’s BACT analysis is incomplete. We urge DAQ to review the controls required in Colorado, California, and additional states with similar experience, as well as those controls discussed as part of EPA’s Natural Gas STAR program. Further, we ask that DAQ require the best controls as BACT as the default option, unless the source can transparently demonstrate, in a process subject to public comment, that such controls are technologically or economically infeasible.”*

**DAQ Response:** DAQ disagrees with the commenter. A BACT review was conducted for all emitting units. The commenter did not explain how the BACT was incomplete other than what was provided in the previous comments. In gathering information for the GAO, DAQ did look at other states’ rules and regulations, even though it was not required. The selection of the controls of the emitting units listed in the GAO is contained in this Response to Comments Memo and the Review of Best Available Control Technology in the engineering review. Other than the comments previous listed, the commenter did not provide regulatory justification for the selection of a different control than what was selected as BACT. No changes were made to the permit as a result of this comment.

**95) Comment on Unresolved Issues:**

*“Given these unresolved issues, particularly the existing air quality concerns and projected increases in localized pollution directly resulting from the new oil and gas sector sources, we question whether the state can move forward with permitting a potentially large number of oil and gas operations in advance of quantifying pollution from such sources and assessing their collective impact. Even if the state achieves NAAQS attainment status for ozone, oil and gas developments in the region still must meet BACT requirements. The proposed, limited pollution controls do not appear to come close to that threshold.”*

**DAQ Response:** DAQ disagrees with the commenter. See DAQ response to Comment #68 for existing air quality concerns. See DAQ response to Comment #74 and #75 for projected increases in localized pollution from the oil and gas sector. See DAQ response to Comment #71, #72, and #73 for quantifying pollution and the collective impact. See DAQ response to Comments #85, #86, #87, #88, #89, #90, #91, #92, #93, and #94 for BACT requirements. No changes were made to the permit as a result of this comment.

### **Comments Received from Western Resource Advocates (WRA) and Utah Physicians for a Healthy Environment (UPHE)**

WRA and UPHE comments can be separated into nine categories: health impacts of oil and gas development activities, air quality in the Uinta Basin, legal background, cumulative impacts to air quality and visibility, modeling, PM<sub>2.5</sub> emissions, BACT, monitoring and reporting, and ozone emissions. Comments will be summarized and responded to in these categories. DAQ has not repeated the entire text of the comment, but the comments in full length and the commenter's supporting documentation can be found in the file for this permitting action. In general, DAQ has attempted to include the full text of any specific comment; however, particularly long or compound comments may have been paraphrased or split for ease of reading and brevity concerns. Where this has occurred, DAQ has included a notation.

#### **WRA and UPHE Comments on Health Impacts of Oil and Gas Development Activities**

##### **96) Comment:**

Oil and gas development will cause an increase in pollution from direct and indirect sources. This will impact both areas of oil and gas development and areas outside oil and gas development. Pollution from oil and gas development will have health impacts at low exposure levels. (Pages 1 – 3)

**DAQ Response:** DAQ evaluated and reviewed this project against current air pollution standards. These standards, established by the EPA, are health-based standards. Concerns about the adequacy of those standards should be addressed to the EPA. DAQ's review has determined that the project, as proposed in the ITA, meets all applicable requirements. The comments are otherwise noted. However, as this comment raised no technical or procedural concerns with the ITA or the supporting engineering review, no changes were made to the permit as a result of this comment.

#### **WRA and UPHE Comments on Air Quality in the Uinta Basin**

##### **97) Comment:**

Most of the oil and gas development in the State of Utah occurs in the Uinta Basin. Increases in oil and gas production increase pollution, which harms human health and the environment. The Uinta Basin has monitored values above the ozone and PM<sub>2.5</sub> NAAQS. (Pages 3 – 5)

**DAQ Response:** Comment noted. The designations of areas as attainment or nonattainment are contained in Title 40 of the Code of Regulations Part 81. The designations for Duchesne and Uintah Counties, as contained in 40 CFR 81.345, are Unclassifiable for ozone and Unclassifiable/Attainment for PM<sub>2.5</sub>. The permitting requirements for attainment areas and unclassifiable areas are the same. The evaluation of ozone for the Uinta Basin is contained in "White Paper: VOC Emission Projection Methodology for the Uinta Basin." No changes were made to the permit as a result of this comment.

**WRA and UPHE Comments on Legal Background****98) Comment:**

The Oil and Gas GAO must meet BACT and the applicable requirements of R307-401. *“Ultimately, the Prevention of Significant Deterioration (PSD) program prohibits air quality in PSD areas from exceeding the NAAQS: “The maximum allowable concentration of any air pollutant in any area to which this part applies shall not exceed a concentration for such pollutant for each period of exposure equal to” the NAAQS “for such pollutant for such period of exposure.” 42 U.S.C. § 7473(b)(4).”* (Pages 5 – 6)

**DAQ Response:** Comment noted. According to R307-401-19(1)(a), a source subject to the PSD requirements of R307-405 cannot be subject to a GAO. PSD rules are not applicable to the oil and gas GAO. No changes were made to the permit as a result of this comment.

**WRA and UPHE Comments on Cumulative Impacts to Air Quality and Visibility****99) Comment:**

The Director does not address cumulative impact of the oil and gas GAO on air quality, visibility, the NAAQS, and increment. *“As a result of his refusal to address the cumulative impacts of wells and tank batteries authorized under the GAO in light of worsening air quality in the Uintah Basin, the Director has failed to fulfill his obligation to ensure that the GAO – and its application to oil and gas wells and tank batteries during the life of the permit – will not cause or contribute to a violation of the NAAQS, impermissibly consume increment, impair visibility in Class I areas, or run afoul of 42 U.S.C. § 7473(b)(4).”* (Pages 6 – 7)

**DAQ Response:** DAQ disagrees with the commenter. *See* DAQ response to Comment #73 on the issue of cumulative NO<sub>2</sub> impacts. Increment consumption and visibility are required under R307-405 Permits: Major Sources in Attainment or Unclassified Areas (PSD). A source subject to R307-405 is not eligible for a GAO as specified in R307-401-19(1)(a); therefore, this analysis was not required nor conducted. The commenter provides no regulatory authority to the contrary. An evaluation of ozone was conducted and results are contained in “White Paper: VOC Emission Projection Methodology for the Uinta Basin.” No changes were made to the permit as a result of this comment.

**WRA and UPHE Comments on Modeling****100) Comment:**

The Director must address all NAAQS, PSD increments, and cumulative impacts. Only the 1-hour NO<sub>2</sub> NAAQS was addressed but cumulative impacts were not evaluated. (Pages 7 – 8)

**DAQ Response:** DAQ disagrees with the commenter. *See* DAQ response to Comment #99. No changes were made to the permit as a result of this comment.



**WRA and UPHE Comments on PM<sub>2.5</sub> Emissions****101) Comment:**

*“The Director has failed his Rule 401-8 obligations relative to PM<sub>2.5</sub> emissions. In proposing to issue the GAO, the Director has neglected to confront either the fact that oil and gas wells and tank batteries emit PM<sub>2.5</sub> and its precursors or the fact that the Uintah Basin experiences concentrations of PM<sub>2.5</sub> that, at times, exceed the relevant NAAQS.*

*Thus, the Director has failed his obligations under the Utah SIP and has failed to fulfill his duty to ensure that the GAO – and its application to oil and gas wells and tank batteries during the life of the permit – will not cause or contribute to a violation of the NAAQS, impermissibly consume increment, impair visibility in Class I areas or run afoul of 42 U.S.C. § 7473(b)(4). After all, the Oil and Gas GAO is intended to apply to a substantial number of wells and tank batteries and will be in effect for a significant time period in an area plagued by poor air quality and characterized by increased oil and gas development and production.”*

**DAQ Response:** DAQ disagrees with the commenter. PM<sub>2.5</sub> emissions were estimated as part of the GAO and are included in the abstract of the GAO. Direct PM<sub>2.5</sub> emissions were estimated to be 0.52 tons per year. Direct PM<sub>2.5</sub> emissions are emitted from the Heaters/Boilers, the stationary engines, and the haul roads. See DAQ response to Comment #99 for NAAQS, increment, and visibility. No changes were made to the permit as a result of this comment.

**WRA and UPHE Comments on BACT****102) Comment:**

*“The Director does not undertake pollutant by pollutant BACT analysis. Proper analysis would address BACT for each pollutant regulated under the Clean Air Act, including ozone (and its precursors), PM<sub>2.5</sub> (and its precursors), PM<sub>10</sub>, CO, NO<sub>2</sub> and SO<sub>2</sub>, as well as carbon dioxide.”*

**DAQ Response:** DAQ disagrees with the commenter. BACT was evaluated for all pollutants emitted from the source. Ozone forms in the atmosphere and is not emitted from the source. According to R307-401-2, “‘best available control technology’ means an emissions limitation (including a visible emissions standard) based on the maximum degree of reduction for each air contaminant **which would be emitted** from any proposed stationary source or modification...”(emphasis added). Since ozone is not emitted from the source a BACT review is not required. The commenter provides no regulatory authority to the contrary. BACT was evaluated for NO<sub>x</sub> and VOC, which are ozone precursors. The BACT review for the pollutants emitted from the source is contained in the Review of Best Available Control Technology items 1 – 9 in the engineering review. No changes were made to the permit as a result of this comment.

**103) Comment:**

*“The Director does not derive an emission limitation based on BACT. Proper analysis would derive an emission limitation for each pollutant regulated under the Clean Air Act, including ozone (and its precursors), PM<sub>2.5</sub> (and its precursors), PM<sub>10</sub>, CO, NO<sub>2</sub> and SO<sub>2</sub>, as well as carbon dioxide.”*

**DAQ Response:** DAQ disagrees with the commenter. The definition of BACT is contained in R307-401-2. “*Best available control technology*’ means an emissions limitation (including a visible emissions standard) based on the maximum degree of reduction for each air contaminant which would be emitted from any proposed stationary source or modification which the director, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant. In no event shall application of best available control technology result in emissions of any pollutant which would exceed the emissions allowed by any applicable standard under 40 CFR parts 60 and 61. **If the director determines that technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard infeasible, a design, equipment, work practice, operational standard or combination thereof, may be prescribed instead to satisfy the requirement for the application of best available control technology. Such standard shall, to the degree possible, set forth the emissions reduction achievable by implementation of such design, equipment, work practice or operation, and shall provide for compliance by means which achieve equivalent results.**” According to the definition above, an emission limit is not required for each pollutant. Design equipment, work practices, and/or operational standards may be selected as BACT. No changes were made to the permit as a result of this comment.

**104) Comment:**

*“The Director does not establish short-term emission limitations. Proper analysis would derive a short term emission limitation adequate to ensure compliance with the 24-hour PM<sub>2.5</sub> and PM<sub>10</sub> NAAQS, the one-hour and three-hour SO<sub>2</sub> NAAQS, the one-hour NO<sub>2</sub> NAAQS, the eight-hour ozone standard, and the eight and one-hour CO NAAQS.”*

**DAQ Response:** Comment noted. There are no short-term emission limits contained in the permit. DAQ disagrees with the commenter that an improper analysis was conducted and that short-term limits are needed. Short-term emissions limits are to ensure that emissions from a source would not interfere with the attainment or maintenance of any NAAQS. The requirements for this demonstration are contained in R307-410. Sources with emission rates greater than those in Table 1 of R307-410-4 are required to conduct a modeling analysis to make this demonstration. Sources with emission rates below these levels are not required to conduct an analysis or to establish short term limits. The commenter provides no regulatory authority to the contrary. DAQ is not aware of any other regulation that would require short-term emissions limits. No changes were made to the permit as a result of this comment.

**105) Comment:**

*“The Director does not base his analysis on documented evidence. The Director’s BACT analysis must comply with the law and be adequately based on the record. E.g. Utah Code §63G-4-403(4); Utah Code § 301.5(14)(c). Proper analysis would be founded upon documented evidence rather than mere assertion that shows that the Director’s BACT conclusions reflect the maximum degree of reduction available for each air contaminant. This failure applies to the Director’s BACT analysis across the board.”*

**DAQ Response:** DAQ disagrees with the commenter. The Review of Best Available Control Technology in the engineering review is part of the record for this permitting action. The commenter

did not explain which aspects of the BACT analysis were unsupported or undocumented. No changes were made to the permit as a result of this comment.

**106) Comment:**

*“The Director does not ensure compliance with the BACT Rule provision that “[i]n no event shall application of best available control technology result in emissions of any pollutant which would exceed the emissions allowed by any applicable standard under 40 CFR parts 60 and 61.” Proper analysis would show that the Director’s determination of BACT and adequately derived BACT emission limitations for each regulated pollutant are equal to or more stringent than any applicable standard under 40 CFR parts 60 and 61. While this analysis was included for “engines,” it was not undertaken for other emission units.”*

**DAQ Response:** DAQ disagrees with the commenter. DAQ did look at applicable subparts. An example is that NSPS Subpart OOOO requires 95% control on storage tanks. The BACT review determined that tanks should meet a 98% control. DAQ is unaware of any limit that was derived from the BACT review that is less stringent than a federal standard. The commenter did not provide what limit in the GAO was less stringent than an applicable federal standard. No changes were made to the permit as a result of this comment.

**107) Comment:**

*“The Director does not come up with a case-by-case analysis. In his BACT analysis, the Director states: “A VRU has been implemented at other sources within the State of Utah; however, the configuration of a source may make this option unfeasible.” Engineering Review at 4; see also id. at 5 (“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.”). Based on these conclusions, the Director then imposes control technologies that are less effective and efficient and are not BACT – even though alternative technologies are BACT at some sources. Id. Thus, the Director has failed to determine BACT on a case-by-case basis and has failed to establish BACT for some sources.”*

**DAQ Response:** DAQ disagrees with the commenter. See DAQ response to Comment #87 in regards to the case-by-case analysis. See DAQ response to Comment #89 for the elimination of a VRU as BACT for the storage tanks and dehydrators. No changes were made to the permit as a result of this comment.

**108) Comment:**

*“The Director does not implement BACT. In his BACT analysis, the Director states that “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.” Engineering Review at 5-6; see also id. at 6 (“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.”). However, nothing in the BACT Rule restricts availability or feasibility or any other BACT analysis to only those technologies implemented in Utah. Rather, BACT reflects the maximum degree of reduction available for each air contaminant. Therefore, to reject technology on the basis of whether it has been implemented in Utah is not consistent with the BACT Rule and is otherwise illegal.”*

**DAQ Response:** DAQ agrees with the commenter in part. The commenter is correct that “*nothing in the BACT Rule restricts availability or feasibility or any other BACT analysis to only those technologies implemented in Utah.*” However, DAQ disagrees with the commenter that BACT is not implemented. DAQ has re-evaluated the BACT analysis for truck loading and for the boilers/heaters. This evaluation was not limited to sources in Utah, nor did DAQ reject any BACT options because they had not been implemented in Utah. Federal rules were evaluated in the BACT analysis. R307-401-2 states: “In no event shall application of best available control technology result in emissions of any pollutant which would exceed the emissions allowed by any applicable standard under 40 CFR parts 60 and 61.” Therefore, the applicable federal standards were evaluated as part of the BACT review.

See DAQ response to comment #91 for BACT for truck loading. In addition, NSPS Subpart Dc, Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units, does not have any requirements to add controls for boilers/heaters that combust only natural gas or LPG, nor does MACT Subpart JJJJJ, National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources, have any requirements for gas-fired boilers.

BACT was also re-evaluated for the various boilers/heaters as a result of this comment. The emissions of PM, SO<sub>2</sub>, and VOC from the boilers/heaters are each below one ton. The NO<sub>x</sub> emissions from the boilers/heaters are estimated to be 4.29 tons per year. The CO emissions from the boilers/heaters are estimated to be 3.61 tons per year. The controls mentioned in the Review of Best Available Control Technology item #8 in the engineering review for the boilers/heaters typically cost in the tens to hundreds of thousands of dollars to install. In addition, the energy requirements to power these controls (SCR, SNCR, Baghouse, etc.) would require an additional engine to provide the necessary power to run these control devices. The engine would increase emissions by similar amounts (3.56 tons per year of NO<sub>x</sub> and 6.09 tons per year of CO) and thus essentially negate any benefit of adding a control device to the boilers/heaters. Therefore, BACT for the boilers/heaters is to use natural gas or LPG and proper maintenance with no add-on controls. In addition, NSPS Subpart OOOO, Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution, does not contain any requirements for truck loading of crude oil or condensate.

The commenter did not explain what other controls should have been evaluated or otherwise explain how other controls not contained in the ITA were economically or technically feasible and should be implemented as BACT, or how the BACT determination would have been any different as a result. In addition, the commenter’s statement that the BACT determination is “otherwise illegal” is not sufficiently specific, and DAQ therefore cannot respond to it. No changes were made to the permit as a result of this comment.

#### **109) Comment:**

*“The Director does not base his analysis on evidence. In his BACT analysis, the Director states: “A source with low emissions should have a low frequency of inspections, while a source with high emissions should have high frequency of inspections.” Engineering Review at 7. There is no evidence in the record to support this decision and no consideration of cost, feasibility or availability to justify this conclusion.”*

**DAQ Response:** DAQ disagrees with the commenter. The explanation of the leak detection and repair requirements listed in the GAO are contained in comment #9 of the Review of Best Available

Control Technology in the engineering review and comment #9 of the REVIEWER COMMENTS in the engineering review. The engineering review includes information on feasibility and availability. The explanation of cost is as follows: A cost will be associated with each leak inspection. More inspections will result in higher costs. One method to look at BACT is a cost of control per ton of pollutant controlled. A source with small emissions and a small cost will be comparable to a larger source with higher costs. Since inspections will be an expense to the source, larger sources can conduct more inspections with the same cost per ton ratio as a smaller source with fewer inspections. Colorado's Regulation Number 7 was used as a guideline to establish different frequencies for different sources. No changes were made to the permit as a result of this comment.

### **WRA and UPHE Comments on Monitoring and Reporting**

#### **110) Comment:**

The Director does not require adequate monitoring or reporting requirements to demonstrate compliance with the NAAQS, increment, or visibility. (Page 10)

**DAQ Response:** DAQ disagrees with the commenter. The commenter cites no regulatory requirement for additional monitoring or reporting than what was listed in the ITA nor is DAQ aware of such a requirement. *See* DAQ response to Comment #99 for NAAQS, increment, and visibility. No changes were made to the permit as a result of this comment.

### **WRA and UPHE Comments on Ozone Emissions**

#### **111) Comment:**

DAQ should include methane reporting, monitoring, and reductions through the GAO. *“Joining other states in regulating methane emission from oil and gas operations is consistent with the goals and framework of the State’s existing air quality programs.” “Methane emissions are address as part of the air quality analysis for a major development on federal lands in Uintah Country” “Colorado’s new Air Quality Control Division Rule regulating methane is a good model for Utah” “Direct regulation of methane makes sense for Utah.”* (Pages 11 – 19)

**DAQ Response:** DAQ disagrees with the commenter. Methane is classified as a greenhouse gas. Total greenhouse gasses from the GAO were estimated to be 6,348 tons per year (as CO2 equivalent). Greenhouse gasses are not subject to regulation with emission levels below 100,000 tons per year (as CO2 equivalent) according to R307-405-3(9). Therefore, no additional permitting requirements apply to methane. The commenter provides no regulatory authority to the contrary. No changes were made to the permit as a result of this comment.

### **General Comment from the Oil and Gas Industry**

#### **112) Comment:**

Numerous comments from the oil and gas industry suggest the following:

- the limits that apply to the GAO will render the GAO unusable for their operations because the limits restrict equipment size and production throughput;
- for future operations, industry intends to consolidate wells and utilize larger tank batteries;
- the GAO establishes limits that are more stringent than federal rules;

- the required controls in the GAO exceed current industry standards and are too costly;
- due to the limits in the GAO, the industry will need to file NOI's for individual AO's rather than use the GAO.

**DAQ Response:** Comments noted. The purpose of a GAO is to decrease the time it takes to issue a permit, decrease the burdens on sources of preparing a permit application, decrease the burdens on DAQ staff in reviewing permit applications, and meet all the requirements of R307-401. The DAQ began work on the GAO for a Crude Oil and Natural Gas Well Site and/or Tank Battery because a lot of growth was occurring and is expected to continue for many years in the oil and gas industry.

The GAO is designed to cover the majority of sources similar to the well site/tank batteries that the DAQ has permitted in the last three years. Based on well production data from the Utah Division of Oil, Gas, and Mining, the GAO should also cover over 98% of single-oil-well tank batteries within state jurisdiction (*See* comment #5 of the REVIEWER COMMENTS in the engineering review). The DAQ will consider the comments received to determine the need and appropriateness of a future GAO to address larger multi-well operations.

The GAO does establish limits that are more stringent than federal rules. R307-401 requires that an AO, including a GAO, meet BACT. BACT cannot be less stringent than federal rules but may be more stringent than federal rules. The controls are summarized in the Review of Best Available Control Technology in the engineering review. These controls are not more stringent than other BACT determinations for other permits and are considered economically feasible.

There are some recordkeeping and reporting requirements that are included in the GAO that are not normally included in an AO issued under R307-401-8. A GAO application will not require the same detailed site-specific engineering evaluations that are required for a NOI for an AO issued under R307-401-8. Each source subject to a GAO must meet the same standards to ensure protection of health and the environment as an AO issued under R307-401-8. The additional recordkeeping and reporting will ensure that public health and the environment will be protected.

A source must meet the requirements of R307-401. One option to meet these requirements is to submit an application to be subject to a GAO under R307-401-19. Another option is to submit a NOI and obtain an AO under R307-401-8. The GAO gives a source flexibility to choose how they will comply with the requirements of R307-401, but does not change the requirement to be subject to R307-401. No changes were made to the permit as a result of this comment.

This is the end of the written comments section.