STATE OF COLORADO

Treitz - DNR, Rebecca <rebecca.treitz@state.co.us>

Great Western Reeman 2A doc no 402127285

8 messages

Treitz - DNR, Rebecca <rebecca.treitz@state.co.us> Tue, Sep 29, 2020 at 1:19 PM
To: elind@gwp.com, regulatorypermitting@gwp.com

Erin,

COGCC is in the process of reviewing the Reeman DE Form 2A, doc no 402127285.

In compliance with § 24-65.1-108(1), C.R.S., the COGCC is providing this written request for all additional information necessary for the COGCC to respond to this application. The applicant may provide all requested additional information to COGCC via email. Upon receipt of all requested information, the COGCC will have 60 days in which to approve, deny, or request all additional information necessary to complete the regulatory review. If the applicant no longer requires this application be approved, the applicant may request to withdraw the application.
In addition to all standard required information and attachments, the COGCC hereby confirms the following information is necessary for review:

1. The equipment list has 28 wells and 38 separators, please confirm the number of separators.
2. Under the BMP section:
   a. BMP #2 will there be stormwater inspections and what will the inspection intervals be?
   b. BMP #4 Will a rig mat be used? Will equipment or tanks used for drilling and completions be in secondary containment?
   c. BMP #5 regarding containment and spill control: What type of mitigation will be used for containment, steel rings and liner under the tanks?
   What is the new design Great Western is using? How is it different from before? How does it avoid releases or detect spills? How are the irregularities detected quickly? Is this a remote system? Is it for both gas and liquids? How often is the pressure testing?
   Please reword for the reference to annual SPCC or relate it to COGCC rules.
   d. BMP #7 regarding noise mitigation has “if needed” Please provide information regarding what noise mitigation will be in place at the location and where. Are there rig sound studies? Baseline noise surveys?
   e. BMP #8 regarding emissions – how often will inspections occur for both drilling and completions and during production?
   f. BMP #9 regarding emissions, how will exhaust be directed away from building units? What type/group of OBM will be used? What other emission controls will be used at the location?
   g. BMP #11 – the date of COGCC policy for Modular Large Volume Tanks, June 13, 2014 needs to be added to the BMP.
   h. How will liquids be gauged for loading from the tanks to the trucks? Will there be electronic metering or will hatches be opened?
   i. Please provide BMPs for protection of nearby surface water and shallow ground water.
   j. Please provide a green completions BMP including information regarding the timing of a gas sales line or if the well will be shut-in.
3. The SUA has the production and wells in different places than the location drawing, placing the production closer to the building units to the northwest. Is the surface owner aware of the change? Please provide information on the discrepancy.
4. This location meets SB19-181 Objective Criteria for #5.c (sensitive environment for water resources) and # 8 for greater than 18 tanks for 5,200 bbls of produced liquids. For #8, please provide information regarding emergency preparedness/plans and any interactions with the local fire department.

The Form 2A will be placed "On Hold" until all questions are addressed. Let me know if you have questions or would like to discuss any of the above further.

Thank you,

Rebecca Treitz

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Rebecca Treitz
Oil and Gas Location Assessment Specialist
P 303.894.2100 x5173 | F 303.894.2109 |
1120 Lincoln Street, Suite 801, Denver, CO 80203
Rebecca.Treitz@state.co.us | www.colorado.gov/cogcc

Erin Lind <Elind@gwp.com> Sun, Oct 11, 2020 at 4:31 PM
To: "Treitz - DNR, Rebecca" <rebecca.treitz@state.co.us>

Hi Rebecca,

Please see below our responses in blue to your questions on the Reeman Pad.

Let me know if you need anything further.

Thanks!

Erin Lind

Lead Regulatory Analyst
Great Western Operating Company, LLC

Direct: 720.595.2255

Cell: 314.374.5572

From: Treitz - DNR, Rebecca <rebecca.treitz@state.co.us>
Sent: Tuesday, September 29, 2020 1:20 PM
To: Erin Lind <Elind@gwp.com>; regulatorypermitting@gwp.com
Subject: [EXTERNAL] Great Western Reeman 2A doc no 402127285

Erin,

COGCC is in the process of reviewing the Reeman DE Form 2A, doc no 402127285.

In compliance with § 24-65.1-108(1), C.R.S., the COGCC is providing this written request for all additional information necessary for the COGCC to respond to this application. The applicant may provide all requested additional information to COGCC via email. Upon receipt of all requested information, the COGCC will have 60 days in which to approve, deny, or request all additional information necessary to complete the regulatory review. If the applicant no longer requires this application be approved, the applicant may request to withdraw the application.
In addition to all standard required information and attachments, the COGCC hereby confirms the following information is necessary for review:

1. The equipment list has 28 wells and 38 separators, please confirm the number of separators.

Yes, there will be 28 wells and 38 separators at this location.

2. Under the BMP section:

a. BMP #2 will there be stormwater inspections and what will the inspection intervals be?

Please find details regarding stormwater inspections below.

Active Construction Inspections: Site inspections shall start within 7 calendar days of the commencement of construction activities at a new site. Inspections will then be conducted either, at least every 7 calendar days, or, at least every 14 calendar days *and* after precipitation and melting-events that cause surface erosion.

Cropland Sites – Active Inspections to the Post-Construction Program: At sites that are located in cropland, once all ground disturbing activities have been completed and the location has been pulled-back and all areas not needed for ongoing operation have been returned to cropland, and all final stabilization measures have been implemented, the location will move out of the CDPHE stormwater program and into the COGCC post-construction program unless qualified for the COGCC Tier 1 exemption.

Post-Construction Locations: When a location moves into the COGCC post-construction stormwater program, the location will be assessed against the COGCC Tier 1 criteria to determine COGCC Tier 1 exemption applicability. If the location is not Tier 1 exempted, annual post-construction stormwater inspections will be conducted until final reclamation, or until conditions change to allow a transition to being Tier 1 exempted.

b. BMP #4 Will a rig mat be used? Will equipment or tanks used for drilling and completions be in secondary containment?

A liner will be placed beneath the rig sub-base and the rig shaker tank. Secondary containment will be used for the bulk mud storage tanks and bulk base oil storage tanks during drilling. The rig's diesel tank is double walled. During completions, secondary containment will be used for all equipment and tanks that do not contain fresh water.

c. BMP #5 regarding containment and spill control: What type of mitigation will be used for containment, steel rings and liner under the tanks?

Containment berms are constructed of steel rings, designed and installed to prevent leakage and resist degradation from erosion or routine operation. Secondary containment areas for tanks are constructed with a synthetic or engineered liner that contains all primary containment vessels and load lines and is mechanically connected to the steel ring to prevent leakage.

What is the new design Great Western is using? How is it different from before?

Great Western will not be using a new design at this location. New facilities will be installed using the same design that Great Western has been using. The BMP language says that this design will be used on new facility builds, meaning new locations, not a new design.

How does it avoid releases or detect spills?

GWOC designs its new facilities to both avoid leaks or releases as well as to help detect them in a time-efficient manner to minimize potential impacts. Tanks and all visible pipelines and valves etc. are inspected informally on a daily basis by company lease operators. In addition, GWOC also conducts formal annual SPCC inspections, and formal site specific and random audits, by third-party consultants to inspect for general site conditions as well as condition of tanks, pipelines, and containment structures. In addition, our company lease operators and Production staff review production records, including volumes and pressures, looking for irregularities that may indicate a problem with a tank or pipeline. If an irregularity is detected that may indicate a potential release the suspect tank and/or pipeline(s) are removed from service, isolated, and either pressure tested or visibly inspected for indications of a potential leak.

How are the irregularities detected quickly? Is this a remote system?

Automation will be installed at this site which will provide notice of facility upset conditions with remote shut-in capabilities. Automation installed at this site can alert Great Western of changes in underground line pressure as an indicator of possible loss of mechanical integrity.

Is it for both gas and liquids?

Yes.

How often is the pressure testing?

Flowlines will be tested annually at the site for evidence of lost mechanical integrity.

Please reword for the reference to annual SPCC or relate it to COGCC rules.

Great Western's Spill Prevention Control and Countermeasure Plan (SPCC) is in place to address any possible spill and is in compliance with Federal Register 40 CFR Part 112.

d. BMP #7 regarding noise mitigation has "if needed" Please provide information regarding what noise mitigation will be in place at the location and where.

Great Western intends to use quiet drilling and completions fleets at this site which will mitigate noise during the drilling and completions phases of this operation and likely negate the need for sound walls around all or part of this site. Great Western does not anticipate the need for sound mitigation at this location, however it will be utilized if needed.

Are there rig sound studies?

Yes.

Baseline noise surveys?

Yes, ambient monitoring will be conducted before operations at this location.

e. BMP #8 regarding emissions – how often will inspections occur for both drilling and completions and during production?

The location will have 24-hour manned oversight during drilling and completions which will include facility-wide Audio, Visual, and Olfactory (AVO) inspections and personal air monitoring. During production operations there will be daily AVO inspections, enhanced weekly AVO inspections, and IR camera inspections in accordance with CDPHE Regulation #7 requirements.

f. BMP #9 regarding emissions, how will exhaust be directed away from building units?

Great Western will point engine exhausts upwards and away from the closest Building Units to the northwest of the site.

What type/group of OBM will be used?

Great Western uses an oil-based mud that meets the requirement for Group III classification and, if necessary, uses a masking agent to assist with odor mitigation.

What other emission controls will be used at the location?

Great Western utilizes numerous methods to minimize emissions including utilization of green completions, if technically feasible. During production, Great Western conducts Audio, Visual, and Olfactory (AVO) inspections; Leak Detection and Repair (LDAR) using an infrared camera; and utilization of air emission control technologies such as vapor recovery units; vapor recovery towers; and enclosed combustion devices (ECD).

g. BMP #11 – the date of COGCC policy for Modular Large Volume Tanks, June 13, 2014 needs to be added to the BMP.

See revised BMP language: Great Western certifies that the MLVTs on this location will be designed and implemented consistent with the COGCC Policy for Modular Large Volume Tanks, dated June 13, 2014.

h. How will liquids be gauged for loading from the tanks to the trucks? Will there be electronic metering or will hatches be opened?

Automatic tank liquid level gauges will be installed on oil production tanks, and tank liquid level gauging will be conducted through electronic readout at the SCADA panel.

i. Please provide BMPs for protection of nearby surface water and shallow ground water.

Pre-Production BMPs:

- Pit-less drilling systems
- Closed-loop drilling systems
- Flowback and stimulation fluids are contained within tanks and placed in secondary containment
- Continuous offsite disposal of flowback water to minimize on-location storage

Stormwater BMPs including Ditch and Berm, Detention Pond, and Rip-Rap Aprons:

- The location of the pad naturally diverts the majority of the stormwater around the pad.
- Surrounding the pad will be a system of ditches and berms intended to collect stormwater runoff from the pad areas and convey it around the edges of the pad.
- The perimeter berm is also intended to divert any off-site stormwater drainage from around the pad and prevent flooding of the facilities on the pad.
- The ditches are sized to convey the 100-year stormwater runoff flows to the detention pond at the northeast corner of the pad.
- The detention pond is intended to provide detention time for sedimentation to occur but will also be in place for the life of the location to contain potential releases. An emergency spillway armored by rip-rap will be installed at the outfall point of the detention pond.
- There are three off-site drainage basins around the north and west perimeters of the pad. The system of ditches and berms is designed to convey stormwater drainage from two of the three basins into rip-rap aprons to be installed at the northeast and southwest corners of the pad. The roadside swale to be installed along the north edge of the access road will convey stormwater runoff from the third drainage basin into a rip-rap apron to be installed at the pad entry along Weld County Road 29.

Production BMPs:

- Secondary containment is sized to contain 110% or more of the volume of the largest primary containment vessel within the secondary containment area.
- Containment berms are constructed of steel rings, designed and installed to prevent leakage and resist degradation from erosion or routine operation.
- Secondary containment areas for tanks are constructed with a synthetic or engineered liner that contains all primary containment vessels and load lines and is mechanically connected to the steel ring to prevent leakage
- Stormwater BMPs provide tertiary containment around the perimeter of the production facility.
- Steel containment berms constructed around separation equipment
- Production Facilities are installed with automated fluid level monitoring, capable of alerting the operator in the event of a sudden change in fluid level
- Wells are equipped with remote shut-in capability, pending availability of cellular service.
- Corrosion protection for buried piping
- Load lines are bull-plugged or capped and located inside secondary containment
- An emergency spill response program is utilized that includes employee training, safety, and maintenance provisions.

j. Please provide a green completions BMP including information regarding the timing of a gas sales line or if the well will be shut-in.

See suggested BMP language: Green Completions - Test separators and associated flow lines, sand traps and emission control systems will be installed on-site to accommodate green completions techniques. When commercial quantities of salable quality gas are achieved at each well, the gas shall be directed to a sales line .If a sales line is unavailable or other conditions prevent placing the gas into a sales line, the operator will not produce the wells without an approved variance per Rule 805.b. (3)C.

3. The SUA has the production and wells in different places than the location drawing, placing the production closer to the building units to the northwest. Is the surface owner aware of the change? Please provide information on the discrepancy.

After the SUA was executed, our team had to make changes to the layouts of the drill and facility pads due to the amount of cut/fill and where we could safely place our tanks. We also had to make adjustments to the pad

based on Weld County's revised drainage requirements. All of these changes were captured on an updated drawing and shown to the surface owner in June 2020. The surface owner has no issues with the changes and has given their approval.

4. This location meets SB19-181 Objective Criteria for #5.c (sensitive environment for water resources) and # 8 for greater than 18 tanks for 5,200 bbls of produced liquids. For #8, please provide information regarding emergency preparedness/plans and any interactions with the local fire department.

   Great Western provided a Tactical Response Card and Emergency Action Plan to the Nunn Fire Protection District during the 1041 WOGLA permit process. The Emergency Action Plan was approved by the Weld County Office of Emergency Management on 6/5/2020.

The Form 2A will be placed "On Hold" until all questions are addressed. Let me know if you have questions or would like to discuss any of the above further.

Thank you,

Rebecca Treitz

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Rebecca Treitz

Oil and Gas Location Assessment Specialist

P 303.894.2100 x5173 | F 303.894.2109 |

1120 Lincoln Street, Suite 801, Denver, CO 80203

Rebecca.Treitz@state.co.us | www.colorado.gov/cogcc

Erin Lind <Elind@gwp.com> Thu, Oct 22, 2020 at 9:01 AM
To: "Treitz - DNR, Rebecca" <rebecca.treitz@state.co.us>

Hi Rebecca,

I wanted to check in with you on my email below to see if you needed anything else for the Reeman pad. I noticed the 2A was still on hold so just following up.

Let me know when you get a chance. Thanks!

Erin Lind

Lead Regulatory Analyst
Great Western Operating Company, LLC

Direct: 720.595.2255

Cell: 314.374.5572

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Treitz - DNR, Rebecca <rebecca.treitz@state.co.us> Fri, Oct 23, 2020 at 1:50 PM
To: Erin Lind <Elind@gwp.com>

Erin,
I apologize, I saw the email, but was out on personal leave last week and the first part of this week. I will look at the response and let you know if I have questions.

Thank you,
Rebecca
[Quoted text hidden]

Erin Lind <Elind@gwp.com> Fri, Oct 23, 2020 at 1:52 PM
To: "Treitz - DNR, Rebecca" <rebecca.treitz@state.co.us>

Sounds great, thank you!

Have a great weekend and stay warm!

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> 3. The SUA has the production and wells in different places than the location drawing, placing the production closer to the building units to the northwest. Is the surface owner aware of the change? Please provide information on the discrepancy.
>
> After the SUA was executed, our team had to make changes to the layouts of the drill and facility pads due to the amount of cut/fill and where we could safely place our tanks. We also had to make adjustments to the pad based on Weld County's revised drainage requirements. All of these changes were captured on an updated drawing and shown to the surface owner in June 2020. The surface owner has no issues with the changes and has given their approval.
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> Thank you,
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> Rebecca Treitz
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Rebecca Treitz

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Rebecca.Treitz@state.co.us | www.colorado.gov/cogcc

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Treitz - DNR, Rebecca <rebecca.treitz@state.co.us> Fri, Oct 30, 2020 at 5:50 PM
To: Erin Lind <Elind@gwp.com>

Erin,
In reviewing the BMPs provided, I had a few more questions/comments.

For BMP #5, this BMP appears to be leak detection as well as spill prevention:
Leak Detection: Great Western designs its facilities to both avoid leaks or releases as well as to help detect them in a time-efficient manner to minimize potential impacts. Tanks and all visible pipelines and valves etc. are inspected informally on a daily basis by company lease operators. Third-party consultants to inspect for general site conditions as well as condition of tanks, pipelines, and containment structures. In addition, our company lease operators and Production staff review production records, including volumes and pressures, looking for irregularities that may indicate a problem with a tank or pipeline. If an irregularity is detected that may indicate a potential release the suspect tank and/or pipeline(s) are removed from service, isolated, and either pressure tested or visibly inspected for indications of a potential leak. Automation will be installed at this site which will provide notice of facility upset conditions with remote shut-in capabilities. Automation installed at this site can alert Great Western of changes in underground line pressure as an indicator of possible loss of mechanical integrity. Automation will be installed at this site which will provide notice of facility upset conditions with remote shut-in capabilities. Flowlines will be tested annually at the site for evidence of lost mechanical integrity.

Spill and Release: A minimum containment capacity of 110% of the single largest storage vessel inside the containment will be constructed around any liquids storage area at this site. Containment berms are constructed of steel rings, designed and installed to prevent leakage and resist degradation from erosion or routine operation. Secondary containment areas for tanks are constructed with a synthetic or engineered liner that contains all primary containment vessels and load lines and is mechanically connected to the steel ring to prevent leakage.

For the SPCC plan, that is outside of COGCC's jurisdiction.

With your concurrence, I will add the above as leak detection and spill prevention without the SPCC reference.

For BMP #7 - the "as needed" is at the end. With your concurrence, I will remove the last portion removing the "as needed" otherwise, please provide a proactive noise mitigation BMP. Let me know if you would like to discuss further.

For Stormwater controls, how often will there be inspections at the location?

Please let me know if you would like to discuss any of the above.

Thank you,

Rebecca

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Erin Lind <Elind@gwp.com> Mon, Nov 9, 2020 at 4:24 PM
To: "Treitz - DNR, Rebecca" <rebecca.treitz@state.co.us>

Hi Rebecca,

Thanks for your email below. I have a couple clarifying questions for you on two of your requests. I included my responses in blue.

Let me know when you have some time to chat about those.

Thanks!

Erin Lind

Lead Regulatory Analyst
Great Western Operating Company, LLC

Direct: 720.595.2255

Cell: 314.374.5572

From: Treitz - DNR, Rebecca <rebecca.treitz@state.co.us>
Sent: Friday, October 30, 2020 5:50 PM
To: Erin Lind <Elind@gwp.com>
Subject: Re: [EXTERNAL] Great Western Reeman 2A doc no 402127285

Erin,

In reviewing the BMPs provided, I had a few more questions/comments.

For BMP #5, this BMP appears to be leak detection as well as spill prevention:

Leak Detection: Great Western designs its facilities to both avoid leaks or releases as well as to help detect them in a time-efficient manner to minimize potential impacts. Tanks and all visible pipelines and valves etc. are inspected informally on a daily basis by company lease operators. Third-party consultants to inspect for general site conditions as well as condition of tanks, pipelines, and containment structures. In addition, our company lease operators and Production staff review production records, including volumes and pressures, looking for irregularities that may indicate a problem with a tank or pipeline. If an irregularity is detected that may indicate a potential release the suspect tank and/or pipeline(s) are removed from service, isolated, and either pressure tested or visibly inspected for indications of a potential leak. Automation will be installed at this site which will provide notice of facility upset conditions with remote shut-in capabilities. Automation installed at this site can alert Great Western of changes in underground line pressure as an indicator of possible loss of mechanical integrity. Automation will be installed at this site which will provide notice of facility upset conditions with remote shut-in capabilities. Flowlines will be tested annually at the site for evidence of lost mechanical integrity.

Spill and Release: A minimum containment capacity of 110% of the single largest storage vessel inside the containment will be constructed around any liquids storage area at this site. Containment berms are constructed of steel rings, designed and installed to prevent leakage and resist degradation from erosion or routine operation. Secondary

containment areas for tanks are constructed with a synthetic or engineered liner that contains all primary containment vessels and load lines and is mechanically connected to the steel ring to prevent leakage.

For the SPCC plan, that is outside of COGCC's jurisdiction.

With your concurrence, I will add the above as leak detection and spill prevention without the SPCC reference. We concur with your suggested changes.

For BMP #7 - the "as needed" is at the end. With your concurrence, I will remove the last portion removing the "as needed" otherwise, please provide a proactive noise mitigation BMP. Let me know if you would like to discuss further. I think we'll need to discuss this one. Considering the proximity to nearby homes, we don't think we'll have any issues with noise here and aren't currently planning to put up any walls. I'd like to know what you suggest for language here since I don't want to commit to something we might not need during operations.

For Stormwater controls, how often will there be inspections at the location? We provided some detailed information on this in our previous response, see below. Were you looking for something more condensed than that? Just want to make sure we're providing what you need so let me know.

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Erin Lind <Elind@gwp.com> Wed, Nov 11, 2020 at 9:05 AM
To: "Treitz - DNR, Rebecca" <rebecca.treitz@state.co.us>

Hi Rebecca,

Sorry I missed your call yesterday, it was a little hectic over here. I did get your voicemail so I made some adjustments to the noise BMP language based on your suggestions, see below. Let me know if that works.

> Great Western intends to use quiet drilling and completions fleets at this site which will mitigate noise during the drilling and completions phases of this operation. Due to the proximity of the nearest residential Building Unit being over 2300' away, Great Western does not anticipate the need for additional sound mitigation at this location.

Also, let me know if you needed something different on the stormwater inspection timeframes. I know our original response was pretty detailed so wasn't sure if you were looking for something else there.

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