

STATE OF
COLORADO

Christopher - DNR, Brian <brian.christopher@state.co.us>

Safi 1224 Form 2A Doc 402010466

11 messages

Christopher - DNR, Brian <brian.christopher@state.co.us>
To: regulatory@verdadoil.com

Wed, Oct 16, 2019 at 1:04 PM

Ms. Mitchell,

I am conducting the Oil and Gas Location Assessment for the Safi 1224 location, Doc #402010466, and have the following questions:

1. Do you have any updated BMPs for this location? If so, this could answer multiple questions on my list.
2. BMP #4, storm water/erosion control. Please provide site specific BMPs.
3. BMP #8, noise mitigation. Please provide site specific BMP.
4. Please expand/add LDAR BMP.
5. Are there any plans to build a vehicle tracking pad at this location? Related to BMP #3, mud control, also potentially stormwater. If so, can you send additional language to expand this BMP?
6. Please provide secondary containment BMP. Please include discussion on what is beneath the separators.
7. I want your concurrence to add DSU Docket # 190700515 to the location.
8. Can you provide updated construction start and reclamation start dates?
9. As this location is in the Greater Wattenberg Area, please send us your Waste Management Plan.
10. Please provide language to add to the comment in the submit tab about how no Rule 306 consultation is needed as Verdad is the surface owner.
11. Will any of the wells on this location be producing minerals from Section 12? If not, do I have your concurrence to change the minerals beneath the oil and gas location question to no?
12. With your concurrence, the depth to ground water will be changed to 23 ft. to reflect the static water level from the referenced water well, Permit # 12389R. With the soil types at this location being clay loams, infiltration is likely high enough to make this a sensitive area.
13. With your concurrence, the distance to the nearest surface water feature will be shifted to the irrigation ditch, approximately 38 ft. east of the location. If you have a surveyed distance to this ditch, etc., please let me know.
14. Under the construction tab, commercial disposal is selected for both drilling fluids disposal and cuttings disposal. The comment in the submittal tab seems to contradict this. What are Verdad's disposal plans?
15. The distance to property lines on cultural setbacks and the location map do not match the locations of property lines in the access road map. Please advise and let me know what corrections are needed to make this consistent.
16. Hydrology map does not show the irrigation pond or irrigation ditch next to the location. These do not show up on the topographic map, but do need to be accounted for. Please send us an updated Hydrology map.
17. If the number of tanks at this location are being reduced, please let me know.
18. This location meets the Director's Objective Criteria 5.c., a Sensitive Area for water resources.
19. This location meets the Director's Objective Criteria 8, related to number/volume of hydrocarbon or produced liquid storage tanks.

Please provide me with this additional information within the next 30 days.

Please contact me with any questions.

Thank you,

Brian Christopher
Oil & Gas Location Assessment Specialist

**COLORADO**
Oil & Gas Conservation
Commission
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VR Regulatory <Regulatory@verdadoil.com>

Thu, Oct 17, 2019 at 11:43 AM

To: "Christopher - DNR, Brian" <brian.christopher@state.co.us>, VR Regulatory <Regulatory@verdadoil.com>

Hi Brian – see my responses below and also the revised attachments.

From: Christopher - DNR, Brian <brian.christopher@state.co.us>

Sent: Wednesday, October 16, 2019 1:05 PM

To: VR Regulatory <Regulatory@VerdadOil.com>

Subject: Safi 1224 Form 2A Doc 402010466

Ms. Mitchell,

I am conducting the Oil and Gas Location Assessment for the Safi 1224 location, Doc #402010466, and have the following questions:

1. Do you have any updated BMPs for this location? If so, this could answer multiple questions on my list.
2. BMP #4, storm water/erosion control. Please provide site specific BMPs.

A Stormwater management plan (SWMP) will be in place to address construction, drilling, and operations associated with the CDPHE permit. Control measures for stormwater will be implemented around the perimeter of the pad prior to construction. The control measures will include: a large volume detention ditch and diversion berm around the perimeter of the pad disturbance, to keep stormwater from flowing off the pad to sediment removal control measures; two sediment traps with armored inlets and outlets at the northside and southeast corner of the pad to detain stormwater runoff from the pad and allow sediment to settle from the stormwater; and wattles at the sediment trap outlets to slow the departure of the water from the sediment trap and further remove any remaining sediment from the stormwater as well as a crop vegetative buffer over 50 feet to the North and over 200 feet to the East, the most likely directions of flow from the sediment trap outlets. These control measures will remain in place and maintained throughout operations until final reclamation and be modified as appropriate to observations during Stormwater inspections. The control measures described will manage stormwater flow to prevent erosion and sediment transport to the centerline ditch to the East of the pad.

3. BMP #8, noise mitigation. Please provide site specific BMP. We will install sound walls to the south and west. We will also commit to quiet frac fleets.
4. Please expand/add LDAR BMP.

AVO (Audio, Visual, Olfactory) inspections of pipe and connections will be performed daily on production equipment to detect leaks which will be immediately corrected, repaired and reported to COGCC as required.

5. Are there any plans to build a vehicle tracking pad at this location? Related to BMP #3, mud control, also potentially stormwater. If so, can you send additional language to expand this BMP?

Mud control: Operator will implement effective, temporary vehicle tracking control at the location egress to prevent transport of sediment offsite and onto the public road during construction, drilling, completions, stimulation, and flowback operations. Appropriate vehicle tracking control, such as a properly sized cattle guard or 2-inch to 4-inch stone, will still be required during production operations.

6. Please provide secondary containment BMP. Please include discussion on what is beneath the separators.

Separators are encompassed by steel berms and surrounded road base that is approximately 1-2 feet and it is sufficiently impervious per SPCC regulation to greatly minimize impact to the soil from any potential leak or drip from the separators. Sites are visited daily so a spill would be detected and cleaned up before any significant infiltration could occur. The berms would contain a spill from leaving the area around the separators.

7. I want your concurrence to add DSU Docket # 190700515 to the location. **These are all Wellbore Spaced Units.**
8. Can you provide updated construction start and reclamation start dates? **02/01/2019 and 08/01/2019**
9. As this location is in the Greater Wattenberg Area, please send us your Waste Management Plan. **Attached**

10. Please provide language to add to the comment in the submit tab about how no Rule 306 consultation is needed as Verdad is the surface owner.

Verdad Resources is the surface owner of this location and no rule 306 consultation is needed.

11. Will any of the wells on this location be producing minerals from Section 12? If not, do I have your concurrence to change the minerals beneath the oil and gas location question to no? **I concur**
12. With your concurrence, the depth to ground water will be changed to 23 ft. to reflect the static water level from the referenced water well, Permit # 12389R. With the soil types at this location being clay loams, infiltration is likely high enough to make this a sensitive area. **I concur**
13. With your concurrence, the distance to the nearest surface water feature will be shifted to the irrigation ditch, approximately 38 ft. east of the location. If you have a surveyed distance to this ditch, etc., please let me know. **We show 29'NW of the pad on our revised location drawing.**
14. Under the construction tab, commercial disposal is selected for both drilling fluids disposal and cuttings disposal. The comment in the submittal tab seems to contradict this. What are Verdad's disposal plans? **Let's remove that comment. Our contractor put that in there, I believe in the event we do something besides commercial disposal. The waste management plan is also consistent with commercial disposal.**
15. The distance to property lines on cultural setbacks and the location map do not match the locations of property lines in the access road map. Please advise and let me know what corrections are needed to make this consistent. **The access road was right and I have corrected distance for the 2A is 392' W from the Safi 1224 01H and 104' N from a VOC. I will have the form 2s updated.**
16. Hydrology map does not show the irrigation pond or irrigation ditch next to the location. These do not show up on the topographic map, but do need to be accounted for. Please send us an updated Hydrology map. **Attached**
17. If the number of tanks at this location are being reduced, please let me know. **We have reduced the number of tanks to 20 oil tanks and 10 water tanks on a revised location drawing (attached) because we reduced the tanks, the cultural distances from production equipment changed as well. .**
18. This location meets the Director's Objective Criteria 5.c., a Sensitive Area for water resources.
19. This location meets the Director's Objective Criteria 8, related to number/volume of hydrocarbon or produced liquid storage tanks.

Additional BMPs we have added since the submittal of this 2A below

Stormwater management plans (SWMP) will be in place to address construction, drilling, and operations associated with CDPHE permits. The location will have stormwater control measures consisting of a berm around the perimeter of the location to divert clean water away from disturbed areas and to divert onsite runoff into a sediment trap, a ditch around the location to collect and divert runoff to a sediment trap, and two to four sediment traps to allow sediment to settle out of diverted stormwater runoff. Sediment trap spill way will use rip-rap, aggregate and/or wattles to further filter runoff. These control measures will be inspected at the following frequencies: or 2-inch to 4-inch stone

Every 14 days during construction, drilling and completions. Once per month after that, until interim reclamation is completely established (approximately 2 years). Once per year after that until facility abandoned.

During drilling operations 12 inches of cement is placed under the rig surrounded by a compacted soil berm to prevent any soil contamination. Drilling mud is stored in large volume tanks that will be surrounded by impervious secondary containment.

Verdad will employ automated tank gauges to allow for the gauging of liquids without opening the thief hatch. This will minimize the number of times a thief hatch will be opened and further reduce the vapor emissions from tank.

Verdad wells have remote shut-in capabilities to mitigate spills and safety issues. Remote shut-in will allow Verdad to immediately shut a well in the event of a reported problem on location or in the event of a potential threat such as a grass fire or flood.

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3 attachments

 **F2A_SAFI_1224_LOCATION_DRAWING_REV4.pdf**
749K

 **F2A_SAFI_1224_HYDROLOGY_REV4.pdf**
220K

 **VR WMP 10.09.19.pdf**
55K

Christopher - DNR, Brian <brian.christopher@state.co.us>
To: VR Regulatory <Regulatory@verdadoil.com>

Fri, Oct 18, 2019 at 1:49 PM

Heather,

I have several of the responses you made that I need additional clarification on:

2. BMP #4, storm water/erosion control. Please provide site specific BMPs.

A Stormwater management plan (SWMP) will be in place to address construction, drilling, and operations associated with the CDPHE permit. Control measures for stormwater will be implemented around the perimeter of the pad prior to construction. The control measures will include: a large volume detention ditch and diversion berm around the perimeter of the pad disturbance, to keep stormwater from flowing off the pad to sediment removal control measures; two sediment traps with armored inlets and outlets at the northside and southeast corner of the pad to detain stormwater runoff from the pad and allow sediment to settle from the stormwater; and wattles at the sediment trap outlets to slow the departure of the water from the sediment trap and further remove any remaining sediment from the stormwater as well as a crop vegetative buffer over 50 feet to the North and over 200 feet to the East, the most likely directions of flow from the sediment trap outlets. These control measures will remain in place and maintained throughout operations until final reclamation and be modified as appropriate to observations during Stormwater inspections. The control measures described will manage stormwater flow to prevent erosion and sediment transport to the centerline ditch to the East of the pad.

And from the bottom of your email.

Stormwater management plans (SWMP) will be in place to address construction, drilling, and operations associated with CDPHE permits. The location will have stormwater control measures consisting of a berm around the perimeter of the location to divert clean water away from disturbed areas and to divert onsite runoff into a sediment trap, a ditch around the location to collect and divert runoff to a sediment trap, and two to four sediment traps to allow sediment to settle out of diverted stormwater runoff. Sediment trap spill way will use rip-rap, aggregate and/or wattles to further filter runoff. These control measures will be inspected at the following frequencies: or 2-inch to 4-inch stone

Every 14 days during construction, drilling and completions. Once per month after that, until interim reclamation is completely established (approximately 2 years). Once per year after that until facility abandoned.

Are these meant to overlap and cover the same ground? If not, can you reconcile these and give me one BMP?

6. Please provide secondary containment BMP. Please include discussion on what is beneath the separators.

Separators are encompassed by steel berms and surrounded road base that is approximately 1-2 feet and it is sufficiently impervious per SPCC regulation to greatly minimize impact to the soil from any potential leak or drip from the separators. Sites are visited daily so a spill would be detected and cleaned up before any significant infiltration could occur. The berms would contain a spill from leaving the area around the separators.

Please also include the tank battery containment construction for this BMP.

8. Can you provide updated construction start and reclamation start dates? 02/01/2019 and 08/01/2019

Dates in past

Please let me know if you have any questions.

Brian Christopher

Oil & Gas Location Assessment Specialist



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VR Regulatory <Regulatory@verdadoil.com>

Mon, Oct 21, 2019 at 8:39 AM

To: "Christopher - DNR, Brian" <brian.christopher@state.co.us>, VR Regulatory <Regulatory@verdadoil.com>

Hi Brian – Please see below.

2. BMP #4, storm water/erosion control. Please provide site specific BMPs.

A Stormwater management plan (SWMP) will be in place to address construction, drilling, and operations associated with the CDPHE permit. Control measures for stormwater will be implemented around the perimeter of the pad prior to construction. The control measures will include: a large volume detention ditch and diversion berm around the perimeter of the pad disturbance, to keep stormwater from flowing off the pad to sediment removal control measures; two sediment traps with armored inlets and outlets at the northside and southeast corner of the pad to detain stormwater runoff from the pad and allow sediment to settle from the stormwater; and wattles at the sediment trap outlets to slow the departure of the water from the sediment trap and further remove any remaining sediment from the stormwater as well as a crop vegetative buffer over 50 feet to the North and over 200 feet to the East, the most likely directions of flow from the sediment trap outlets. These control measures will remain in place and maintained throughout operations until final reclamation and be modified as appropriate to observations during Stormwater inspections. The control measures described will manage stormwater flow to prevent erosion and sediment transport to the centerline ditch to the East of the pad.

Every 14 days during construction, drilling and completions. Once per month after that, until interim reclamation is completely established (approximately 2 years). Once per year after that until facility abandoned.

Please also include the tank battery containment construction for this BMP.

To minimize potential impacts to soil, the operator shall line the secondary containment areas for the tanks with an impervious poly or spray in liner.

8. Can you provide updated construction start and reclamation start dates? **02/01/2020 and 08/01/2020**

Thanks,

Heather Mitchell

Regulatory Manager

Verdad Resources

HMitchell@verdadoil.com

720-845-6917

From: Christopher - DNR, Brian <brian.christopher@state.co.us>
Sent: Friday, October 18, 2019 1:50 PM
To: VR Regulatory <Regulatory@VerdadOil.com>
Subject: Re: Safi 1224 Form 2A Doc 402010466

Heather,

I have several of the responses you made that I need additional clarification on:

2. BMP #4, storm water/erosion control. Please provide site specific BMPs.

A Stormwater management plan (SWMP) will be in place to address construction, drilling, and operations associated with the CDPHE permit. Control measures for stormwater will be implemented around the perimeter of the pad prior to construction. The control measures will include: a large volume detention ditch and diversion berm around the perimeter of the pad disturbance, to keep stormwater from flowing off the pad to sediment removal control measures; two sediment traps with armored inlets and outlets at the northside and southeast corner of the pad to detain stormwater runoff from the pad and allow sediment to settle from the stormwater; and wattles at the sediment trap outlets to slow the departure of the water from the sediment trap and further remove any remaining sediment from the stormwater as well as a crop vegetative buffer over 50 feet to the North and over 200 feet to the East, the most likely directions of flow from the sediment trap outlets. These control measures will remain in place and maintained throughout operations until final reclamation and be modified as appropriate to observations during Stormwater inspections. The control measures described will manage stormwater flow to prevent erosion and sediment transport to the centerline ditch to the East of the pad.

And from the bottom of your email.

Stormwater management plans (SWMP) will be in place to address construction, drilling, and operations associated with CDPHE permits. The location will have stormwater control measures consisting of a berm around the perimeter of the location to divert clean water away from disturbed areas and to divert onsite runoff into a sediment trap, a ditch around the location to collect and divert runoff to a sediment trap, and two to four sediment traps to allow sediment to settle out of diverted stormwater runoff. Sediment trap spill way will use rip-rap, aggregate and/or wattles to further filter runoff. These control measures will be inspected at the following frequencies: or 2-inch to 4-inch stone

Are these meant to overlap and cover the same ground? If not, can you reconcile these and give me one BMP?

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[Quoted text hidden]

VR Regulatory <Regulatory@verdadoil.com>

Mon, Oct 21, 2019 at 3:44 PM

To: VR Regulatory <Regulatory@verdadoil.com>, "Christopher - DNR, Brian" <brian.christopher@state.co.us>

Hi Brian- our surveyors stated the that distance to the BUO to the south is 1539' from the edge of the pad.

Below is our odor BMP

To reduce odors during drilling and completion, the rig will be washed of oily debris before moving in. D822 is our base fluid which is a distillate and has the benefits of lower BTEX levels and is recognized as having lower odor than traditional oil based mud. We will utilize drying shakers or vertical dryers which will minimize residual oil on cuttings prior to transport and will promptly remove 4-5 loads of cuttings per day during drilling operations which should help to reduce odors.

If it is beneficial we will put sound wall to the east however the distance to the closest BUO is 1993'. Let us know if that is a sticking point.

Our surface land man is not in the office at the moment. However, I do know we have an SUA with Joe Amen's to the south and the Mike and Gary Wuertz to the west on other locations.

Please let me know if this is sufficient or if you need something further.

[Quoted text hidden]

Christopher - DNR, Brian <brian.christopher@state.co.us>
To: VR Regulatory <Regulatory@verdadoil.com>

Wed, Oct 23, 2019 at 2:36 PM

Heather,

I ran another quick review of the attachments for the Safi 1224 location and realize that I will also need the updated Construction Layout Drawing to reflect the reduced tank count.

Thanks,

Brian Christopher
Oil & Gas Location Assessment Specialist



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VR Regulatory <Regulatory@verdadoil.com>

Thu, Oct 24, 2019 at 7:32 AM

To: "Christopher - DNR, Brian" <brian.christopher@state.co.us>, VR Regulatory <Regulatory@verdadoil.com>

Hi Brian – we do have one and I have attached it. Are these required when we are more than 1000' from a BUO?

[Quoted text hidden]



F2A_SAFI_1224_FACILITY_LAYOUT_REV1.pdf
4455K

Christopher - DNR, Brian <brian.christopher@state.co.us>
To: VR Regulatory <Regulatory@verdadoil.com>

Thu, Oct 24, 2019 at 9:23 AM

Heather,

They are typically not required for locations more than 1,000 ft from a location, but since one was on the initial submittal showing the site prior to the reduction in tanks, I needed to update it.

Brian Christopher
Oil & Gas Location Assessment Specialist



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VR Regulatory <Regulatory@verdadoil.com>

Wed, Oct 30, 2019 at 8:29 AM

To: "Christopher - DNR, Brian" <brian.christopher@state.co.us>

Good Morning Brian- Can you please tell me the status of the Safi 1224- has it been reviewed by the director?

[Quoted text hidden]

Christopher - DNR, Brian <brian.christopher@state.co.us>

Wed, Oct 30, 2019 at 4:58 PM

To: VR Regulatory <Regulatory@verdadoil.com>

Hi Heather,

I was having Rebeca look over the Safi 1224 location prior to it going to the Director. She had some additional BMP clarifications:

1. ~~Mud control: when conditions exist that roads are excessively muddy, additional fill material will be added in order to dehydrate the environment and reduce the amount of material that is transported from the wells road and location to off-site areas.~~ Remove this section, keep the other.

2. Stormwater. Remove the first sentence that specifically references the SWMP and the CDPHE permit. Change phrasing on the second section to better reflect storm inspections and required inspection frequency.

3. Production location secondary containment. Confirm that the tank berms are metal. How much containment will be provided by tank berms (greater than 150%, etc)? Remove reference to SPCC plan.

4. Fueling handling: how frequently will visual inspections of pipe and connections occur (more specific than frequently). Remove reference to SPCC plan.

5. Noise mitigation:

Operator will consult with owners of residents and occupied structures and other stakeholders to reduce impact of noise and light during drilling and completion operations. The direction of prevailing winds is considered when planning the location in order to mitigate odor and noise from being a nuisance to the surrounding residents and occupied structures. In order to minimize sound levels during drilling operations at nearby residences, rig generators will be located as far as possible from the residence ~~by rig orientation~~ on the _____ side. Rig lighting will also be directed away from residential units.

~~As necessary,~~ Temporary straw bale walls or sound walls will be constructed to dampen noise in the direction of residential units.

Operator will install sound walls to the south and west. Operator commits to quiet frac fleets.

6. Not a BMP, but I also wanted to hear more about landowner contact with the surrounding building unit owners, particularly the one to the south. I know that this will be asked about during the Director's review.

Please let me know if you have any questions.

Thanks,

Brian Christopher
Oil & Gas Location Assessment Specialist



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[Quoted text hidden]

VR Regulatory <Regulatory@verdadoil.com>

Thu, Oct 31, 2019 at 2:31 PM

To: "Christopher - DNR, Brian" <brian.christopher@state.co.us>

Hi Brian – here are my responses below. Let me know if you need anything further.

1. Mud control: Operator will implement effective, temporary vehicle tracking control at the location egress to prevent transport of sediment offsite and onto the public road during construction, drilling, completions, stimulation, and flowback operations. Appropriate vehicle tracking control, such as a properly sized cattle guard or 2-inch to 4-inch stone, will still be required during production operations.
2. Control measures for stormwater will be implemented around the perimeter of the pad prior to construction. The control measures will include: a large volume detention ditch and diversion berm around the perimeter of the pad disturbance, to keep stormwater from flowing off the pad to sediment removal control measures; two sediment traps with armored inlets and outlets at the northside and southeast corner of the pad to detain stormwater runoff from the pad and allow sediment to settle from the stormwater; and wattles at the sediment trap outlets to slow the departure of the water from the sediment trap and further remove any remaining sediment from the stormwater as well as a crop vegetative buffer over 50 feet to the North and over 200 feet to the East, the most likely directions of flow from the sediment trap outlets. These control measures will remain in place and maintained throughout operations until final reclamation and be modified as appropriate to observations during Stormwater inspections. The control measures described will manage stormwater flow to prevent erosion and sediment transport to the centerline ditch to the East of the pad.

Inspections on storm water controls will be conducted every 14 days during construction, drilling and completions. Once per month after that, until interim reclamation is completely established (approximately 2 years). Once per year after that until facility abandoned.

3. Tank secondary containment will be impervious lined steel berms with capacity > 150% volume of the largest tank. Pad will also have tertiary containment of ditch and berm to prevent any spills from leaving site. All spills will be immediately cleaned up and will be reported if volume exceeds reporting limit.
4. AVO (Audio, Visual, Olfactory) inspections of pipe and connections will be performed daily on production equipment to detect leaks which will be immediately corrected, repaired and reported to COGCC as required.
5. Operator will consult with owners of residents and occupied structures and other stakeholders to reduce impact of noise and light during drilling and completion operations. The direction of prevailing winds is considered when planning the location in order to mitigate odor and noise from being a nuisance to the surrounding residents and occupied structures. In order to minimize sound levels during drilling operations at nearby residences, rig generators will be located as far as possible from the residence by rig orientation on the North side. Rig lighting will also be directed away from residential units.

~~As necessary,~~ Temporary straw bale walls or sound walls will be constructed to dampen noise in the direction of residential units.

Operator will install sound walls to the south and west. Operator commits to quiet frac fleets.

6. Joe Amen is aware of this location. We have SUA's with him for another locations. He is also then tenant farmer on the safi property.

[Quoted text hidden]