

April 19, 2011

Mr. Eugene Fritzler
Fritzler Resources, Inc.
P.O. Box 114
Fort Morgan, CO 80701

Re: Gebauer #1 (API #121-06776)
NOAV #200273766
Site Investigation and Remediation Workplan Response
NWNE Sec. 15, T-1-N, R-54-W
Washington County, Colorado

Dear Mr. Fritzler,

This letter is in response to the Site Investigation and Remediation Workplan, Form 27, submitted to the Colorado Oil & Gas Conservation Commission (COGCC) on March 31, 2011, in regard to corrective actions required by the referenced NOAV at the Gebauer #1. After review of the site assessment information, the Form 27 is not approved. The proposal to line the skim pit is inadequate to bring the produced water pit complex into compliance. The applicable rules and response to your letter and site assessment are outlined below.

The site assessment information you provided establishes that the location is by definition in a sensitive area. On page 4 of your letter you assert that COGCC has previously determined that the location is not considered a sensitive area. The COGCC has never made this determination. When the pits were permitted, the information provided to COGCC indicated that the area was not sensitive. When Fritzler Resources, Inc. (Fritzler) became the operator of record on September 1, 1999, it should have verified that the pits were not in a sensitive area and amended the pit permits as needed to comply with applicable rules at the time. Fritzler has been operating an unlined skim pit and unlined produced water pit in a sensitive area out of compliance with COGCC rules for over ten years.

Prior to the most recent COGCC rule changes that went into effect on April 1, 2009, production pits were required to be permitted with an approved Form 15. At the time, a Sensitive Area Determination Decision Tree was used to determine if a site was in a sensitive area. A copy of the Decision Tree is provided for your reference as Attachment 1. Based on the produced water sample results and groundwater sample results provided in the site assessment, the answer to Box 1 should have been yes. The produced water contains greater than 250 mg/l Chloride and it is more than 1.25 times the amount of chloride in upgradient groundwater samples. In addition, the Total Dissolved Solids (TDS) concentration of the produced water sample collected on January 5, 2011, exceeded 1.25 times the background groundwater concentrations.

The location is underlain by an unconfined aquifer; as a result, the answer to Box 2 would have been yes. Although you have indicated that the area is predominantly underlain by clay with varying amounts of sand, you did not provide any information to determine the hydraulic conductivity of the underlying soils, as a result, the answer to Box 3 should have been no. The answers to box 4 and box 5 should have been no, leading to the final determination in box 6 which reads, "Is the depth to the average high ground water table less than 20 feet from the deeper of the ground surface, pit bottom or from the point of a spill or release?" Although you state in your letter that the water table appears to be more than 20 feet below the bottom of the production pit, the elevations and depth to groundwater information provided in the site assessment clearly demonstrates that groundwater is less than 20 feet below the surface and in most cases less than 20-feet below the bottom of the pit. Using your elevation data – the table below presents depth to groundwater from the surface. It also provides depth to groundwater relative to the pit bottom.

Borehole	Depth to Groundwater Below Surface (feet)	Depth to Groundwater Relative to Pit Bottom (feet)
BH-1	16.50	23.83
BH-2	2.66	14.08
BH-3	11.00	14.62
BH-4	7.87	18.37
BH-5	12.37	15.37

The answer to Box 6 should have been yes, which would have resulted in a sensitive area determination. Based on the sensitive area determination, an E&P waste management facility would not have been allowed in this location unless the operator could demonstrate no potential for significant adverse environmental impact. Pit lining, in accordance with COGCC Rule 904.a.(2), would have been required, or at a minimum, points of compliance would have been required to be established to verify no impacts to shallow groundwater from operation of unlined pits. Prior to the recent rule changes, Rule 904.a.(2) read as follows:

904. Pit Lining Requirements and Specifications

a. Pit lining requirements. The following pits shall be lined:

(2) Production pits in sensitive areas.

As stated, prior to the rule changes, COGCC Rule 904.a.(2) required the lining of production pits in sensitive areas. COGCC Rule 904.a.(4) has always required that skim pits be properly lined. A redline copy of Rule 904.a. is included as Attachment 2 that provides the old and new version for your reference. Since the site assessment data you have presented documents that the location is in a sensitive area, you have verified that the pits should have been lined prior to the most recent rule changes. The current version of Rule 904.a.(2) referenced in your letter provides an extension to the recently revised pit lining requirements until May 1, 2011, for production pits being constructed in Washington County after April 1, 2009, that are not in sensitive areas. Pits that were constructed prior to April 1, 2009, shall comply with the rules in effect at the time of their construction, which in this case, would have required the pits to be lined.

The site assessment information was inadequate to determine if groundwater has been impacted by the operation of the pit complex at the Gebauer #1. The only downgradient sample location (BH-1) was installed approximately 170-feet from the production pits. While the groundwater sample results from BH-1 indicate there is no widespread petroleum hydrocarbon contamination, a sample location immediately adjacent to the pits where the source of impacts is most likely to exist was never provided.

Although the produced water sample did not contain benzene, toluene, ethyl benzene or xylenes (BTEX) or Total Petroleum Hydrocarbons (TPH), you indicated that the sample was collected from the stagnant water in the lower pit. This sample may not be representative of the produced water flowing into the pit. At the time of my inspection on September 28, 2010, the skim pit was covered with free product, and according to conversation with you, there have been other periods of upset in the past resulting in free product on the skim pit. This verifies that there has been a source of petroleum hydrocarbons from the unlined water pits that may have impacted the shallow groundwater in close proximity to the pit.

You indicate that groundwater quality in the vicinity of the water pits is poor and the use is limited to agricultural. Colorado Division of Water Resources information indicates that there are eight water wells permitted as stock wells, three wells permitted as combined stock and domestic use, and one well permitted as domestic use only within a two mile radius of the Gebauer #1. All of these wells are completed in the shallow unconfined aquifer. This information demonstrates that shallow groundwater in the vicinity of the Gebauer #1 is being used for beneficial purposes including stock watering and domestic supplies.

Depending on future land use, the shallow groundwater in close proximity to the Gebauer #1 could be used for additional domestic water supplies. The samples of pit water contain much higher concentrations of sodium, chloride and TDS than the surrounding groundwater. The pit water sample also had considerably higher conductivity, SAR and pH than the surrounding groundwater. This data verifies that the produced water is not of comparable quality to groundwater.

Because the pits are located in a sensitive area, and the site assessment was inadequate to determine if groundwater has been impacted, COGCC provided three suggestions to bring the water pit complex into compliance in an email to you on February 25, 2011. In accordance with COGCC Rule 901.c., the option of installing a monitor well to establish a point of compliance (POC) immediately downgradient from the produced water pit was provided. I requested that the monitor well be sampled quarterly for one year to determine if there has been an impact to shallow groundwater. A second option was to properly line the pits and the third suggestion was to properly close the pits and replace with a water tank using an alternative produced water disposal method.

Fritzler chose to disregard the suggestions and instead proposed lining only the former skim pit. A picture of the pits was also provided claiming that the former skim pit was never closed and that it is still a skim pit even though a 110-bbl fiberglass skim vessel has been installed that precedes the pit. Since the NOAV required proper closure of the skim pit, COGCC believed that

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you had complied with part of the corrective action by installing the skim vessel. Because you have indicated in the letter dated March 31, 2011, and in the photograph provided as Attachment A to the site assessment, that the pit is still being used as a skim pit, and it is still unlined and currently uncovered, Fritzler is still in violation of COGCC Rule 904.a.(4).

Because the site assessment was inadequate to determine if groundwater immediately downgradient of the pit complex has been impacted, COGCC will perform a limited subsurface site investigation to characterize groundwater quality adjacent to the pits. If groundwater has been impacted, Fritzler will be responsible for additional delineation, remediation and COGCC will pursue enforcement regarding applicable rule violations.

Since the site assessment performed by Fritzler has documented that the location is in a sensitive area, Fritzler will continue to be in violation of applicable rules until the pits are properly closed with an approved Form 27 in accordance with Rule 905. An alternative is to properly line both the skim pit and produced water pit, which will also require sampling of the soils at the bottom of the pits, proper disposal of any E&P waste, and prior approval of a Form 27.

COGCC intends to proceed with the limited subsurface site investigation within the next four weeks. If Fritzler chooses to proceed with proper closure or lining of the water pits to prevent ongoing days of rule violations, an approved Form 27 is still required prior to any additional site work.

Please contact me via email at John.Axelson@state.co.us or call me at 303-637-7178 if you have any questions.

Sincerely,



John Axelson, P.G.
Environmental Protection Specialist

Enclosures Attachment 1 – Sensitive Area Determination Decision Tree
Attachment 2 – COGCC Rule 904.a.(2) Redline Copy

Cc. David Neslin – COGCC Director
Debbie Baldwin – COGCC Environmental Manager
Steve Lindblom – COGCC Environmental Supervisor
Rob Willis – COGCC Enforcement Officer
David Britton – Surface Owner

Attachment 1
Former Figure 901-1
Sensitive Area Determination Decision Tree

**Figure 901-1
SENSITIVE AREA DETERMINATION
Decision Tree**

RECEIVED

JUL 26 2010

COGCC

**OUTSIDE
SENSITIVE
AREAS**

-New E&P waste management facilities shall be allowed outside Sensitive Areas. Points of Compliance shall be established as appropriate.

-Where complaints are made, Points of Compliance may be established for existing facilities.

**INSIDE
SENSITIVE
AREAS**

-E&P waste management facilities shall not be allowed unless the operator demonstrates no potential for significant adverse environmental impact.

-Facilities which are permitted may have Points of Compliance established.

NO

BOX 1: Is discharge water or waste:
>1.25 x background ppm TDS
>250 mg/l Chloride or
1.25 x background
>250 mg/l Sulfate or
1.25 x background
> 5 µg/l Benzene
> 1000 µg/l Toluene
> 700 µg/l Ethylbenzene
> 1,400 µg/l Total Xylenes

YES

NO

BOX 2: Is the site underlain by an unconfined aquifer or recharge zone?

YES

YES

BOX 3: Is the hydraulic conductivity of the underlying soils and geologic material less than or equal to 10^{-6} cm/sec?

NO

BOX 4: Is the site within an area classified for domestic use by WQCC, or a local (water supply) wellhead protection area (WHPA)?

YES

NO

BOX 5: Is the location within 1/8 mi. of a domestic water well, or 1/4 mi. of a public water supply well, using the same aquifer?

YES

NO

NO

BOX 6: Is the depth to the average high ground water table <20' from the deeper of the ground surface, pit bottom or from the point of spill/release? (*see footnote)

YES

** Additional requirements may be imposed by the Director in accordance with Rule 901.c.*

Attachment 2

Redline Copy – COGCC Rule 904.a.

(Provides Rule language prior to April 1, 2009 and current language)

- a. An Earthen Pit Report/Permit, Form 15, shall be submitted to the Director for prior approval for the following pits ~~Drilling pits, production pits, and special purpose pits shall be permitted or reported as follows:~~

(1) All production pits.

(2) Special purpose pits except those reported under Rule 903.b.(1) or Rule 903.b.(2).

~~Pit Construction Report/Permit, Form 15, shall be submitted for prior Director approval for the following:~~

(3) A. Drilling pits designed for use with fluids containing hydrocarbon concentrations exceeding 210,000 ppm TPH or chloride concentrations at total well depth exceeding 15,000 ppm in sensitive areas or 50,000 ppm outside sensitive areas.

~~B. Production pits and unlined special purpose pits in sensitive areas.~~

~~C. Unlined production pits and special purpose pits outside sensitive areas, excluding those pits permitted in accordance with Rule 903.a.(2).B.~~

(4) Multi-well pits containing produced water, drilling fluids, or completion fluids that will be recycled or reused, except where reuse consists only of moving drilling fluids from one (1) oil and gas location to another such location for reuse there.

- (2) b. An Earthen Pit Construction Report/Permit, Form 15, shall be submitted within thirty (30) calendar days after construction for the following:

~~A. Lined production pits outside sensitive areas.~~

~~B. Unlined production pits outside sensitive areas receiving produced water at an average daily rate of five (5) or less barrels per day calculated on a monthly basis for each month of operation.~~

~~C.(1) Lined special purpose pits used in the initial phase of emergency response.~~

~~D.(2) Flare pits where there is no risk of condensate accumulation.~~

- (3) c. An Earthen Pit Construction Report/Permit, Form 15, shall not be required for drilling pits using water-based bentonitic drilling fluids with concentrations of TPH and chloride below those referenced in Rule 903.a.(3).A.

- ~~bd. The An Earthen Pit Construction Report/Permit, Form 15, shall be completed in accordance with the instructions in Appendix I. Failure to complete the form in full may result in delay of approval or return of form.~~

- ~~ee. The Director shall endeavor to review any properly completed Earthen Pit Construction Report/Permit, Form 15, within thirty (30) calendar days after receipt. In order to allow adequate time for pit permit review and approval, operators should shall submit required an Earthen Pit Report/Permit, Form 15, pit construction permit requests for approval at the same time as the with an Application for Permit to Drill, Form 2, is submitted.~~ The Director may condition permit approval upon compliance with additional terms, provisions, or requirements necessary to protect the waters of the state, public health, or the environment.

904. PIT LINING REQUIREMENTS AND SPECIFICATIONS

- a. Pit-lining requirements. Pits that were constructed before May 1, 2009 on federal land, or before April 1, 2009 on other land, shall comply with the rules in effect at the time of their construction. The following pits shall be lined if they are constructed on or after May 1, 2009 on federal land, or on or after April 1, 2009 on other land:

- (1) Drilling pits designed for use with fluids containing hydrocarbon concentrations exceeding 210,000 ppm TPH or chloride concentrations at total well depth exceeding 15,000 ppm ~~in sensitive areas or 50,000 ppm outside sensitive areas.~~
- (2) Production pits ~~in sensitive areas, other than skim pits, unless the operator demonstrates to the Director's satisfaction that the quality of the produced water is equivalent to or better than that of the underlying groundwater or the operator can clearly demonstrate by substantial evidence, such as by appropriate percolation tests, that seepage will not reach the underlying aquifer or waters of the state at contamination levels in excess of applicable standards. Subject to Rule 901.c, this requirement shall not apply to such pits in Washington, Yuma, Logan, Morgan, Huerfano, or Las Animas Counties constructed before May 1, 2011.~~
- (3) Special purpose pits, except emergency pits constructed during initial emergency response to spills/releases, or flare pits where there is no risk of condensate accumulation.
- (4) Skim pits.
- (5) Multi-well pits used to contain produced water, drilling fluids, or completion fluids that will be recycled or reused, except where reuse consists only of moving drilling fluids from one oil and gas location to another such location for reuse there. Subject to Rule 901.c, this requirement shall not apply to multi-well pits used to contain produced water in Washington, Yuma, Logan, Morgan, Huerfano, or Las Animas Counties constructed before May 1, 2011.
- (6) Pits at centralized E&P waste management facilities and UIC facilities.

- b. The following specifications shall apply to all pits that are required to be lined:

- (1) Materials used in lining pits shall be of a synthetic material that is impervious, has high puncture and tear strength, has adequate elongation, and is resistant to deterioration by ultraviolet light, weathering, resistant and resistant to deterioration when in contact with hydrocarbons, aqueous acids, alkali, fungi or other substances in the produced water.
- (2) All pit lining systems shall be designed, constructed, installed, and maintained in accordance with the manufacturers' specifications and good engineering practices. Soil liners shall have a minimum thickness of six (6) inches after compaction, shall cover the entire bottom and interior sides of the pit, and shall be constructed so that the hydraulic conductivity of the liner shall not exceed 1.0×10^{-6} cm/sec. Bentonite liners shall be constructed to provide equivalent protection. Operators shall perform post-construction tests either in a laboratory or in the field. All test results shall be filed with the Director.
- (3) Field seams must be installed and tested in accordance with manufacturer specifications and good engineering practices. Testing results must be maintained by the operator and provided to the Director upon request.

- c. The following specifications shall also apply to pits that are required to be lined, except those at centralized E&P waste management facilities, unless an oil and gas operator demonstrates to the satisfaction of the Director that a liner system offering equivalent protection to public health, safety, and welfare, including the environment and wildlife resources, will be used: