



1120 Lincoln Street, Suite 801  
Denver, CO 80203

May 5, 2015

Mr. Lee Fyock  
Gunnison Energy LLC  
1801 Broadway, Suite 1200  
Denver, CO 80202

Re: Review of Form 28 Centralized E&P Waste Management Facility Permit  
Facility ID #440177, Spadafora Water Storage Facility  
Gunnison Energy LLC  
NWNE Section 20, T11S, R90W, 6<sup>th</sup> PM, Gunnison County, Colorado

Dear Mr. Fyock:

The Colorado Oil and Gas Conservation Commission (COGCC) has received and reviewed Gunnison Energy LLC (Gunnison) submittal for the above referenced permit application for COGCC Facility ID 440177. At this time, the COGCC has the following comments:

Form 28 Centralized E&P Waste Management Facility Permit

1) Form 28, Attachment Checklist.

COGCC Comment: None.

2) Form 28, Question 1.

Is the site in a sensitive area? Answer: No

COGCC Comment: None.

3) Form 28, Question 2.

What are the average annual precipitation and evaporation rates for the site? Answer: Precipitation- 10.08 inches/year. Evaporation – 57.45 inches/year.

COGCC Comment: None.

3) Form 28, Question 3.

Has a description of the site's general topography, geology, and hydrology been attached?

Answer: Yes.

COGCC Comment: None.

4) Form 28, Question 4.

Has a description of the adjacent land use been attached? Answer: Yes.

COGCC Comment: None.

5) Form 28, Question 5.

Has a 1:24,000 topographic map showing the site location been attached? Answer: Yes.

COGCC Comment: None.

P 303.894.2100 F 303.894.2109 [www.colorado.gov/cogcc](http://www.colorado.gov/cogcc)

Commissioners: Thomas L. Compton - Chairman, Richard Alward, John H. Benton, DeAnn Craig,  
James W. Hawkins, Tommy Holton, Andrew L. Spielman, Mike King, Dr. Larry Wolk

John W. Hickenlooper, Governor | Mike King, Executive Director, DNR | Matthew J. Lepore, Director



6) Form 28, Question 6.

Has a site plan showing drainage patterns, diversion or containment structures, roads, fencing, tanks, pits, buildings and any other pertinent construction details been attached? Answer: Yes.

COGCC Comment: None.

7) Form 28, Question 7.

If site is not owned by the operator, is written authorization of the surface owner attached?

Answer: Yes.

COGCC Comment: None.

8) Form 28, Question 8.

Has a scaled drawing and survey showing the entire section(s) containing the proposed facility been attached? Answer: Yes.

COGCC Comment: None.

9) Form 28, Question 9.

What measures have been implemented to limit access to the facility by wildlife, domestic animals or by members of the public? Answer: The Facility will be fenced with an 8 ft. chain link with three strands of barb wire on top and a fine mesh buried biota screen at the bottom. The pits will be covered with Hexproduct.

COGCC Comment: None.

10) Form 28, Question 10.

Is there a planned fire lane of at least 10 feet in width around the active treatment areas and within the perimeter fence? Answer: Yes.

COGCC Comment: None.

11) Form 28, Question 11.

Is there an additional buffer zone of at least 10 feet in width within the perimeter fire lane? Answer: No.

COGCC Comment: None.

12) Form 28, Question 12.

Have surface water diversion structures been constructed to accommodate a 100-year, 24-hour event?

Answer: Yes.

COGCC Comment: None.

13) Form 28, Question 13.

Has a waste profile been calculated according to Rule 908.b.6? Answer: Yes.

COGCC Comment: None.

14) Form 28, Question 14.

Has facility design and engineering been provided as required by Rule 908.b.7? Answer: Yes.

COGCC Comment: None.

15) Form 28, Question 15.

Has an operating plan been completed as required by Rule 908.b.8? Answer: Yes.

COGCC Comment: None.

16) Form 28, Question 16.

Has ground water monitoring for the site been provided? Answer: Yes.

COGCC Comment: None.

17) Form 28, Question 17.

Has financial assurance been provided as required by Rule 704? Answer: Yes.

COGCC Comment: A Financial Assurance Cost Estimate of \$3,666,000.00 was provided with the submittal. Prior to approval, financial assurance shall be provided. Gunnison can provide the estimated \$3,666,000.00 financial assurance, however, the COGCC is having a third party review the closure of the facility and prepare an independent closure cost estimate. Based on the third party review, the financial assurance may be less than the estimated \$3,666,000.00 or more than the estimated \$3,666,000.00.

**Response:** Western Project Management has estimated \$4,044,549.00 for estimated closure costs.

18) Form 28, Question 18.

Has a closure plan been provided? Answer: Yes.

COGCC Comment: None.

19) Form 28, Question 19.

Have local government requirements for zoning and construction been complied with? Answer: Yes.

COGCC Comment: None.

20) Form 28, Question 20.

Have permits and notifications required by local governments and other agencies been provided? Answer: Yes.

COGCC Comment: Please see the previous comment above.

**Response:** See above

#### Supplemental Narrative

908.b.2: Surface Owner & Legal Site Description:

Provide documentation or surface use agreement giving Gunnison the rights to construct this Facility.

**Response:** Previously noted in Comment 7.

908.b.(9).B.: Site Specific Monitoring Wells:

COGCC Comment: : Please submit proposed construction drawings for the monitoring wells.

**Response:** See attached Figure.

908.d.: Financial Assurance:

COGCC Comment: See previous comment on Financial Assurance.

**Response:** See above

908.b.5.E. Surface Water Diversion Structures:

COGCC Comment: Has consideration of the dispersion nature of the clay overburden in the design of the surface water diversion structures been taken into account?

**Response:** The geotechnical report indicates the clay overburden has a dispersion value of 36% and the shale has a dispersion value of 48%. The report also indicates that below 30% is non dispersive and above

Review of Form 28 Centralized E&P Waste Management Facility Permit Application

Facility ID #440177, Spadafora Water Storage Facility

Gunnison Energy LLC

NWNE Section 20, T11S, R90W, 6<sup>th</sup> PM, Gunnison County, Colorado

50% is dispersive, so these soils fall between. Compaction requirements are given in the specifications and the dispersive nature of the material will be controlled through proper compaction.

908.b.6.: Waste Profile

COGCC Comment: It is stated that water not reused will be pumped via pipeline to an injection well. What is the location (API Number) of the injection well and as part of this Facility, will a pipeline be constructed?

**Response:** Two water disposal wells are currently connected to the existing 6" water line which passes near the proposed facility as shown on the General Site Plan, Drawing C101. These wells are the Hotchkiss Federal 12-89 #18-22D API 05-051-06073 and Allen 12-91 #12-13D API 05-029-06095. The proposed facility would be connected to the existing water line as shown on the Piping Plan and Piping Detail, Drawings C118 and C119.

908.b.(7).B. Hydrologic Data:

COGCC Comment: What are the construction details for the five (5) proposed monitoring wells? The static water level in the water well located approximately ½- mile west to southwest of the proposed Facility is 128-feet.

**Response:** See attached Figure

Huddleston-Berry Engineering and Testing LLC., indicate that the hydraulic conductivity for the clay overburden is  $4 \times 10^{-4}$  cm/sec and the shale bedrock is  $1.1 \times 10^{-4}$  cm/sec. Groundwater encountered in the soil borings is considered to be perched groundwater with the true groundwater present in the shale bedrock. Has the depth to groundwater in the shale bedrock been determined?

**Response:** The groundwater observed at the site is interpreted as the same system and not a true groundwater table. There is no apparent separation between the groundwater observed in the clay overburden vs. the perched groundwater observed deeper within the shale bedrock. Groundwater was not characterized in deeper shale units.

A "French Drain" system has been engineered to address the perched groundwater. Does the "French Drain" design take into consideration ground water in the shale? What is the anticipated volume of water that will be controlled by the "French Drain"? What is the maximum volume of fluids the "French Drain" can control?

**Response:** Yes the FD takes into account the total groundwater system at the site. Because of the non continuous nature of the groundwater, a calculation of flow to the drain can not be calculated. We have neither gradient or conductivity. The drain was designed so the north half of the drain will accommodate 0.26 gpm/ft and the south drain will accommodate 0.33 gpm/ft. The opinion of our geologist is the flow to the drain will not exceed those numbers....SEE ENGINEERING CALCS

908.b.7.: Facility Design and Engineering:

COGCC Comment: Appendix M provides a December 31, 2014 letter from the Colorado Division of Water Resources (DWR) with attachments. The attachments for the three (3) pits are "Notice of Intent to Construct a Non-Jurisdictional Water Impoundment Structure." The notices provide for: *Stream Name or Water Source with a Footnote 5*: Footnote 5 states, "If constructed reservoir intercepts groundwater, a well permit is required."

Has a well permit been applied for with the DWR?

**Response:** A well permit has not yet been applied

for but will prior to construction of facility.

#### Facility Description

Interconnecting Pipelines and Underground Injection Control:

COGCC Comment: Where is the existing water conveyance pipe in relation to the proposed Facility?

Provide pipeline testing results as part of the annual report submittal. Submit a GIS map with information in a suitable format showing the location of flowlines, type of pipe used in each segment, monitor points, valve locations, booster pump locations (if any) and update as part of the annual report.

**Response:** These will be provided within the annual operating report after facility construction.

908.b.7.C.iii.:

COGCC Comment: It is stated that *"The Colorado Division of Water Resources (DWR) Office of the State Engineer Dam Safety Branch is evaluating the engineering drawings and all proposed structures insure they are in compliance with the 2CCR 402-1 Rules and Regulations for Dam Safety and Dam Construction for a "Non-jurisdictional Size Dam."*

Has the DWR completed their evaluation of the engineering drawings and proposed structures?

**Response:** Yes, a letter originally included in the permit application provides documentation of the evaluation.

#### Form 28 Attachments:

A. Figures:

COGCC Comment: None.

B. Closure Reclamation Plan:

COGCC Comment: None.

C. Wildlife and Habitat Study:

COGCC Comment: None.

D. NRCS Report:

COGCC Comment: None.

E. Geotechnical Report:

COGCC Comment: Huddleston-Berry Engineering and Testing LLC., indicate that both the native clay overburden and the shale bedrock are classified as dispersive materials. Has the design of the proposed Facility taken into account the dispersive nature of these materials?

**Response:** Yes, and as stated previously, site soils are defined as slightly dispersive, and will not pose a construction problem

F. Engineering Package:

COGCC Comment: The plans submitted are stamped "Not For Construction", the following comments are based upon a cursory review of this plan submittal. A set of "Final Construction" plans, stamped and signed by a Colorado Licensed Professional Engineer shall be submitted for review prior to permit approval.

**Response:** Dave G has spoken to the COGCC and will amend the drawing set and include revised sheets as

Review of Form 28 Centralized E&P Waste Management Facility Permit Application

Facility ID #440177, Spadafora Water Storage Facility

Gunnison Energy LLC

NWNE Section 20, T11S, R90W, 6<sup>th</sup> PM, Gunnison County, Colorado

part of the Sundry.

Sheet C101. General Site Plan:

- COGCC Comment: Add leader from "Fire Road" to where it is. Done

Sheet C102. Grading Plan:

- COGCC Comment: Show existing contours in the background. Added Sheet, Done

Sheet C105. North Pit Plan:

- COGCC Comment: Add existing and proposed contour line types to the legend. Done

Sheet C106. North Pit Sections:

- COGCC Comment: Extend tops of clay and shale shown in profile views across entire profile view. Note added stating profiles are based on existing data.

Sheet C108. Mid Pit Sections:

- COGCC Comment: See comment above. Note added stating profiles are based on existing data.

Sheet C110. South Pit Sections:

- COGCC Comment: See comment above. Note added stating profiles are based on existing data.

Sheet C112. South Swale Profile:

- COGCC Comment: Show Riprap protection areas on the profile. Added note indicating all channels will be armoured.

Sheet C113. North Swale Profile:

- COGCC Comment: See comment above. Added note indicating all channels will be armoured.

Sheet C114. North Sediment Basin:

- COGCC Comment: Label proposed index contour elevations and dimension pipe outlet riprap areas. Done

**Response:** Dave G.

Sheet C115. South Sediment Basin:

- COGCC Comment: See comment above. Add SC7 Detail to this sheet as shown on C114. **Done**

Sheet C116. Access Road Plan and Profile:

- COGCC Comment: There is no FES shown on the 18" storm culvert outlet. Please clarify. **Manufactured end section added to inlet and outlet of culvert on Section C.**

Sheet C118. Riser Pipe and Drain Details:

- COGCC Comment: Add a Bollard Detail. **Comment deleted**

Sheet C123. Waterline Piping Plan and Profile:

- COGCC Comment: Show existing contours in the Pipe Plan view. **Done**

Sheet C124. Waterline Plan and Profile:

- COGCC Comment: See comment above. **Done**

Sheet C125. North and Middle Pits Piping Plan and Profile:

- COGCC Comment: Add existing and proposed line types to the legend. **Done**

Sheet C126. South Pit Piping Plan and Profile:

- COGCC Comment: See comment above. **Done**

Sheet EC102. Erosion Control Plan Post Construction:

- COGCC Comment: Are Mulch and Seeding of all cut and fill slopes intended prior to the installation of the EC-6 erosion control blankets. Please clarify. **Added seeding and mulching to erosion control blanket in the key.**

G. Engineering Calculations:

COGCC Comment: None.

H. Storm Water Management Plan:

COGCC Comment: None.

I. Data Tables:

COGCC Comment: These are the waste profiles.

J. Waste Profile:

COGCC Comment: These are chemical products that maybe used during the drilling and production of oil and gas operations.

K. Potentiometric Surface Map:

COGCC Comment: Groundwater elevations in boreholes, not a true potentiometric surface.

**Response:** **Agreed. Will remove reference to potentiometric surface.**

L. Operations Plan:

COGCC Comment: Submit a GIS map with information in a suitable format showing the location of flowlines, type of pipe used in each segment, monitor points, valve locations, booster pump locations.

**Response:** **The produced water gathering system was permitted under Gunnison County. Due to personnel**

Review of Form 28 Centralized E&P Waste Management Facility Permit Application

Facility ID #440177, Spadafora Water Storage Facility

Gunnison Energy LLC

NWNE Section 20, T11S, R90W, 6<sup>th</sup> PM, Gunnison County, Colorado

changes at Gunnison Energy the permit is not yet available but will be forwarded soon. The permit contains GIS layout of the system.....



Water Source, Treatment and Flow Rates:

It is stated that "There will be three sources of water stored in the pits." Only two sources of water are discussed. Please clarify.

**Response:** Only two water sources will be stored at the facility, not three.

Notification Contacts:

The Contact Information shall be updated when changes in personnel are made.

Emergency Response:

The Emergency Notification List shall be updated when changes in personnel are made.

M. Permit Applications and Notifications:

COGCC Comment: NPDES Permit expired 06/30/12, please clarify

See previous comments regarding the DWRs evaluation of the engineering drawings and all proposed structures, and "Notice of Intent to Construct a Non-Jurisdictional Water Impoundment Structure."

**Response:** The NPDES for the Gunnison Energy leases has been updated with CDPHE but no documentation of this was ever forwarded by CDPHE. The approved "Notice of Intent to Construct a Non-Jurisdictional Water Impoundment Structure." Have been attached to this document.

Should you have any questions, please contact me at 303-894-2100 extension 5138.

Sincerely,



Alex Fischer, P.G.  
Environmental Supervisor-Western Colorado

Cc: Stephen C. Jenkins, P.E., C.P.E.S.C.  
North Central Area Engineer

Attachment: Well  
Construction Design

WESTON SOLUTIONS, INC. 1435 GARRISON STREET SUITE 100 LAKEWOOD, COLORADO 80226



