

CENTRALIZED E&P WASTE MANAGEMENT FORM 28 APPLICATION

**Elevation Midstream, LLC
Badger Central Gathering
Facility
Gypsum, CO**



May 4, 2018

TRC Project No: 283926-0000-0000

Prepared For:

Elevation Midstream, LLC
370 17th Street., Suite 5300
Denver, CO 80202

Prepared By:

1526 Cole Blvd., Bldg. 3, Suite 150
Lakewood, CO, 80401
303-395-4007



Table of Contents

INTRODUCTION.....	1
1.0 908.A: APPLICABILITY	1
2.0 908.B.(1), (2) & (3): CONTACT INFORMATION & LEGAL SITE DESCRIPTION.....	2
3.0 908.B.(4): TOPOGRAPHY, GEOLOGY AND HYDROLOGY.....	2
3.1 GENERAL SITE DESCRIPTION.....	2
3.2 ADJACENT LAND USE.....	3
3.3 TOPOGRAPHY.....	3
3.4 GEOLOGY	3
3.5 HYDROLOGY.....	4
3.6 AVERAGE ANNUAL PRECIPITATION	4
3.7 AVERAGE ANNUAL EVAPORATION.....	4
4.0 908.B.(5).A: SITE PLAN.....	4
5.0 908.B.(5).B: SURVEY DRAWINGS	5
6.0 908.B.(5).C: ACCESS CONTROL MEASURES.....	5
7.0 908.B.(5).D: FIRE ACCESS.....	5
8.0 908.B.(5).E: SURFACE WATER DESIGN	6
9.0 908.B.(6): WASTE PROFILE.....	7
9.1 PRODUCED WATER	7
9.1.1 Estimated Volume	7
9.1.2 Characteristic Waste Profile	7
9.2 TANK BOTTOM SOLIDS.....	8
9.2.1 Estimated Volume	8
9.2.2 Characteristic Waste Profile	8
9.3 PRODUCED OIL.....	8
9.3.1 Estimated Volume	8
9.4 WASTE DISPOSAL	9
9.5 WATER QUALITY TESTING PROGRAM	9
9.6 NATURALLY OCCURRING RADIOACTIVE MATERIAL (NORM)	9
10.0 908.B.(7).A: FACILITY DESIGN AND ENGINEERING – GEOLOGY	9
10.1 UNCONSOLIDATED SOILS	10
10.2 CONSOLIDATED BEDROCK.....	10
10.3 GEOLOGIC STRUCTURES.....	10
10.4 GEOLOGIC HAZARDS	10
11.0 908.B.(7).B: FACILITY DESIGN AND ENGINEERING – HYDROLOGY	10
11.1 SURFACE WATER FEATURES.....	11

11.2	SHALLOW GROUND WATER.....	11
11.2.1	Shallow Ground Water Depth	11
11.2.2	Shallow Ground Water Quality.....	12
11.3	MAJOR AQUIFERS.....	12
11.4	LOCAL WATER WELLS.....	13
11.5	LOCAL FLOODPLAINS	15
11.6	IMPACT POTENTIAL.....	15
12.0	908.B.(7).C: FACILITY DESIGN AND ENGINEERING – ENGINEERING DATA.....	15
12.1	PROCESS DESCRIPTION	15
12.1.1	Influent.....	16
12.1.2	Process Overview	16
12.2	PERMANENT STRUCTURES AND EQUIPMENT.....	17
12.2.1	Buildings	17
12.2.2	Site Tankage	17
12.2.3	Other Process Equipment.....	17
12.3	SPILL CONTAINMENT	18
12.3.1	Secondary Containment Design	18
13.0	908.B.(8): OPERATING PLAN.....	20
13.1	COMMUNITY IMPACTS AND MITIGATION.....	21
13.2	COMMUNICATION CARDS	21
13.3	PROACTIVE COMMUNICATION.....	22
13.4	REACTIVE COMMUNICATION	22
14.0	908.B.(9).A: WATER WELLS.....	22
15.0	908.B.(9).B: MONITORING WELLS	22
16.0	908.B.(10): SURFACE WATER MONITORING.....	23
17.0	908.B.(11): CONTINGENCY PLAN	23
17.1	SITE SAFETY / EVACUATION PLAN	23
17.2	CHEMICALS ON-SITE.....	24
17.3	SPILL PREVENTION, CONTROL AND COUNTERMEASURE PLAN.....	24
17.4	EMERGENCY RESPONSE PLAN	24
18.0	908.D: FINANCIAL ASSURANCE.....	25
19.0	908.E: FACILITY MODIFICATIONS.....	25
20.0	908.F: ANNUAL PERMIT REVIEW	25
21.0	908.G.(1).A: PRELIMINARY CLOSURE PLAN	26
22.0	908.G.(1).B: PRELIMINARY CLOSURE COST.....	26
23.0	908.H: OTHER PERMITS AND NOTIFICATIONS.....	27

List of Tables

Table 3-1: Adjacent Land Use as of April 21, 2017	3
Table 9-1: Anticipated Produced Water Quality.....	8
Table 9-2: Solid Waste Disposal Facility.....	9
Table 9-3: Water Disposal Facilities	9
Table 11-1: Local Water Wells	14
Table 12-1: Sample Secondary Containment Calculations	18
Table 13-1: Location of Rule 908.b.(8) Compliance Information in the CGF O&M Manual.....	20
Table 23-1: Other Permits and Notifications	27

List of Appendices

Appendix 1: Engineering Drawings

Appendix 2: Figures

Figure 1: Topographic Map

Figure 2: Site Survey

Figure F-1: Floodplain Map

Figure GW-1: Ground Water Well Map

Figure LU-1: Land Use Map

Figure SW-1: Surface Water Map

Figure V-1: Vicinity Map

Appendix 3: Phase I Site Assessment Report

Appendix 4: Precipitation and Evaporation Data

Appendix 5: Stormwater Management Plan

Appendix 6: Drainage Report

Appendix 7: Geotechnical Investigation

Appendix 8: Geologic Hazards Report

Appendix 9: Hydrology Report

Appendix 10: Waste Stream Sampling and Characterization

Appendix 11: Contributing Wells

Appendix 12: Tank Coating Specifications

Appendix 13: Secondary Containment Lining Material

Appendix 14: Operations & Maintenance Manual

Appendix 15: Emergency Response Plan

Appendix 16: Safety Data Sheets

- Appendix 17: Sample SPCC Plan
- Appendix 18: Financial Assurance
- Appendix 19: Closure and Reclamation Plan
- Appendix 20: Closure and Reclamation Cost Estimate
- Appendix 21: CDPHE APCD Permit Application
- Appendix 22: Weld County Use by Special Review Permit
- Appendix 23: Copy of Submitted Form 2A
- Appendix 24: Certificate of Conveyances
- Appendix 25: Badger CGF Neighbors Meeting Documentation
- Appendix 26: Landscaping Plans & View Studies
- Appendix 27: Fire Protection Report
- Appendix 28: Traffic Plan
- Appendix 29: Lighting Plans
- Appendix 30: Noise Study

INTRODUCTION

Elevation Midstream, LLC (Elevation) plans to construct and operate the Badger Central Gathering Facility (CGF) to receive produced water and oil, and gas, from production well pads located proximate to the facility. The proposed throughput for this facility is 40,000 barrels per day (bpd) of oil, with the ability to expand to 60,000 bpd in the future. This oil is expected to be flash stabilized to reduce volatile organic compound emissions utilizing dual flash stabilization trains. An additional stabilization train (for a total of three trains) is planned. A total of up to 50,000 bpd of produced water is expected to be received and stored on-site, and then disposed of from the facility via pipeline.

Elevation is also planning to build a 175 million cubic feet per day (cfm) Compressor Station (CS) with expansion capability to 350 million cfm to the south of the CGF. This facility would be located approximately ¼ mile from the proposed CGF and will be functionally independent of the CGF.

Under the current Colorado Oil and Gas Conservation Commission (COGCC) rules (Series 900) the water storage portion of the facility will be considered a “Centralized E&P Waste Management Facility” due to the fact that the facility will receive produced water (defined as an extraction and production waste) from more than one production facility for storage and/or treatment. Under the COGCC rules, Form 28 and other associated information must be submitted to the COGCC for approval prior to the beginning of construction.

This document is being provided to demonstrate compliance with the Colorado Oil & Gas Conservation Commission (COGCC) Rule 908 requirements for the construction of a centralized E&P waste management facility, supplementing the COGCC Form 28. This document addresses each requirement of Rule 908 that is presented in the Rule, with additional information provided in the appendices, as needed.

Construction of the CGF is scheduled to begin in August 2018. The facility is scheduled to be operational in 2019.

1.0 908.A: APPLICABILITY

The proposed facility is a non-commercial, centralized gathering facility that will handle produced liquids from a portion of Extraction Oil & Gas, Inc’s (Extraction) operations in the Denver-Julesburg (DJ) Basin area in Weld County, Colorado.

The objectives of the CGF are to:

- Gather produced oil from wells;
- Gather produced water from operations;
- Minimize community and environmental impact by:
 - Reducing equipment located in residential areas;
 - Reducing truck traffic in residential areas;

- Controlling emissions of production equipment;
- Following Best Management Practices (BMPs);
- Operating the facility in accordance with all permits.

This facility will be authorized to receive the following influent:

- Produced oil and produced water from Extraction-operated wells and wells with Extraction interest in the DJ Basin

Produced water from other oil and gas operators may be received by this facility on a case-by-case basis through a Colorado Oil & Gas Conservation Commission (COGCC) Rule 502.b variance request and approval with a water sharing agreement in place. Any arrangements of this nature must be authorized by Elevation and the COGCC. No third-party influent will be accepted if doing so violates the CGF's status as a non-commercial facility.

2.0 908.B.(1), (2) & (3): CONTACT INFORMATION & LEGAL SITE DESCRIPTION

The site's legal description is PT NE4 30-1-67 Lot B REC Exempt RE-1306 (3.1R) and will be located on a future Weld County Recorded Exemption lot.

3.0 908.B.(4): TOPOGRAPHY, GEOLOGY AND HYDROLOGY

3.1 GENERAL SITE DESCRIPTION

The CGF is located Brighton, Colorado in Weld County at the northeast corner of the intersection of Weld County Road 6 & Weld County Road 15. The site is located in the northeast quarter of Section 30, Township 1 North, Range 67 West of the 6th PM, County of Weld, State of Colorado. Appendix 1 shows the general layout of all facilities to be cited within the NE quarter of Section 30 to include the CGF, Compressor Station (CS) and substation. The subject site includes approximately 156 acres of primarily vacant agricultural land located at the southwest corner of Weld County Roads 6 and 15 in unincorporated Weld County, Colorado. Five existing oil & gas well sites and other equipment are present within the larger parcel.

The site is bordered by Weld County Road 6 to the north, Weld County Road 15 to the east, and agricultural land to the south and west. At the time of our field exploration, the ground surface was mostly covered with a low growth of grass and weeds along with some areas of plowed field. An existing natural drainage area is present at the site and flows from the west & central portion of the property toward the southeast corner of the site. Multiple oil and gas wells (along with buried pipeline) are present across the site. An unpaved well access road is present off of Weld County Road 15. An overhead electric utility was also observed. Based on the provided ALTA, the site slopes downwards to the southeast (as well as towards the existing drainage), with an estimated elevation differential of about 60 feet across the site.

The Project area is characterized as a disturbed, and currently fallow, agriculture field dominated by noxious and invasive weed species interspersed with two-track dirt access roads which terminate at existing oil and gas wellheads. The topography of the Project area is relatively flat with minor inundations associated with a drainage and wetland complex. Several cottonwood (*Populus deltoides*) trees are present along the perimeter of the Project area.

3.2 ADJACENT LAND USE

Adjacent land uses within a 1,500-foot radius of the site are primarily agricultural activities, oil and natural gas extraction and USR-1669 Truck Parking. There are seven private residences within a 1,500-foot radius of the site. The surrounding areas will not be adversely impacted by construction and operation of the facility due to the removed location of the site and the existing surrounding uses being similar to the proposed facility. Kleinfelder performed a brief walk-around and drive-by survey of the properties immediately adjoining the Site on April 21, 2017 as shown below:

Table 3-1: Adjacent Land Use as of April 21, 2017	
Direction	Land Use Description
NORTH	The Site is bordered on the north by the Weld County Road 6, followed by agricultural and vacant land and private residences.
EAST	The Site is bordered on the east by the Weld County Road 15, followed by agricultural and vacant land, private residences, and oil and gas development.
SOUTH	The Site is adjoined to the south and west by agricultural and vacant land and oil and gas development.
WEST	The Site is adjoined to the south and west by agricultural and vacant land and oil and gas development.

3.3 TOPOGRAPHY

As shown in Appendix 2, Figure 1: Topographic Map and Figure 2: Site Survey, the proposed site is undeveloped with elevations ranging from 5040 to 5116 feet. The Site has an approximate elevation of 5,088 feet above mean sea level. The site slopes from west to east with a natural drainage path flowing southeast towards Weld County Road 15. The delineated wetlands is located south of the proposed site and will not be impacted by this project. Land use in the Project area was historically agriculture, but is currently fallow and dominated by noxious and invasive weed species. Two-track dirt access roads cross the Project area and terminate at existing oil and gas wellheads. Soil type is primarily Type C (Nunn Loam – 1 to 3% slopes).

3.4 GEOLOGY

Surficial geologic conditions at the site as mapped by the US Geological Survey (USGS) and Colton (1978) consist of Holocene to late Pleistocene-age Eolian Deposits. These deposits are described as windblown clay, silt, and sand. The mapped geology at the site is presented in the Geotechnical Report contained in Appendix

7. The Eolian Bedrock underlying the surface units consists of Upper Cretaceous-age Laramie Formation. This formation, as mapped in the area, is described to include interbedded claystone, shale, sandstone, and lignite. Thickness of the upper part of the unit in the area is reported to be about 700 feet.

3.5 HYDROLOGY

Existing cover conditions within the major basin are primarily undeveloped. The development within the basin almost completely consists of agricultural and oil and gas development. The predominant drainage pattern is characterized by overland flow sloping to the southeast. The ephemeral stream running through the Site was found in the National Hydrography Dataset (NHD) and was also found on the National Wetlands Inventory (NWI) database (see Appendix 9, Hydrology Report, Figure 3).

The Project area is located within the Lower Big Dry Creek hydrologic unit of the South Platte River Basin. Based on the USGS NHD, one intermittent waterbody (approximately 2,504 linear feet) and one pond (approximately 0.6 acre) were identified within the Project area (USGS 2017). Based on a review of the USFWS NWI data, two palustrine emergent (PEM) wetlands (totaling approximately 4.0 acres) and one palustrine unconsolidated bottom/freshwater pond (approximately 0.8 acre) were identified within the Project area (USFWS 2017a). Based on a review of the USDA NRCS SSURGO data, 80 percent of soil map unit '4' (variable occurring in depressions) was classified as containing a hydric soil component, which may be indicative of wetland features (USDA NRCS 2017).

Grades in the area are relatively flat ranging from 1 to 5%. Natural channels collect and concentrate surface runoff. Occasionally roads cross the slope also concentrating and diverting runoff. Flow from the site and areas up-basin from the site drain to Big Dry Creek and ultimately to the South Platte River.

Based on a review of digital floodplain data, the Project area is classified as Zone X. Zone X is defined as an "area determined to be outside of the 500-year floodplain" (FEMA 2017).

3.6 AVERAGE ANNUAL PRECIPITATION

The average annual precipitation in the area is approximately 14.03 inches based on the Western Regional Climate Center weather data records for Station 050950 in Brighton, Colorado (see Appendix 4).

3.7 AVERAGE ANNUAL EVAPORATION

The average annual evaporation in the area is approximately 41.04 inches based on the Western Regional Climate Center weather data for Fort Collins (see Appendix 4).

4.0 908.B.(5).A: SITE PLAN

An overall site plan for the proposed facility is provided in Appendix 1: Engineering Drawings.

5.0 908.B.(5).B: SURVEY DRAWINGS

Site survey plans for the proposed facility are shown in Appendix 1: Engineering Drawings.

6.0 908.B.(5).C: ACCESS CONTROL MEASURES

The CGF will be staffed 24-hours a day, 365 days a year by three to five full-time employees to include at least one Facility Operator for both the CGF and CS, a Lead Facility Operator, a Facility Foreman, and a fulltime Operational Control Center (OCC) Operator. Part-time employees will be utilized on-site on a limited as-needed basis for maintenance and operational needs. An office will be located on-site.

The proposed facilities will be enclosed with a chain-link fence approximately 6 to 7 feet high with a potential 3 foot outrigger and barbed wire as a security device for the life of the facility. Vegetative screening and/or landscaping will be installed as a visual barrier to nearby residents. Three -or four-rail decorative fencing may be used as a component of visual mitigation in areas along Weld County Road 6, and at key roadway intersections.

The proposed landscaping will utilize earthen berms and tree plantings for visual mitigation of the proposed facility from residential and street views. Trees will be planted on the earthen berms located directly next to the facilities and will be of various types including Deciduous Canopy, and Evergreen trees. These were chosen based on survivability for the area, fast growing, and the ability to withstand wind and drought conditions, as well as on the feedback from surrounding neighbors. In the landscaping plan, the trees being represented are the sizes Elevation plans to install on day (1) one. An irrigation system will be installed to provide adequate watering of all landscaping around the facility as these areas are key visual mitigation locations.

Portions of the site will remain available for agricultural use. Existing trees are to remain where feasible. Proposed plant selection will consist of native and adapted species and will prioritize low-water use varieties. Irrigated and/or non-irrigated native grass seed application is anticipated at earthen berms and where existing grade is disturbed.

Screening of parking and outdoor storage areas is proposed to consist of a combination of earthen berms, evergreen and deciduous tree planting, and fencing, where appropriate. Screening will be prioritized at high visibility edges where equipment is either closer to neighboring views or more visible due to the type of equipment.

7.0 908.B.(5).D: FIRE ACCESS

Elevation has met and conferred with Brighton Fire Protection District as a main point of contact to discuss fire protection and fire access. In this area, Brighton Fire works in conjunction with Mountain View Fire Protection District and Ft. Lupton Fire Protection District. Brighton Fire has been in contact with Mountain View and Ft. Lupton to discuss firefighting measures. Attached is a preliminary Fire Protection Report, Appendix 27, and design of a fire foam system for the Stabilized Oil Tanks. Discussions continue to occur between Elevation and Brighton Fire.

The Fire Protection Report describes Elevations plans for firefighting based on conversations with Brighton Fire Protection District. The Badger CGF is provided with the following key fire protection features:

- Foam ring installations on the (2) two 40,000 barrel Stabilized Oil Tanks
- Permanently installed and hard-piped AFFF (Aqueous Film-Forming Foam) delivery system
- Permanently installed 400 barrel (16,800 gallon) Fire Water Tank
- Point flame detection and hand held fire extinguishers in key areas within the facility
- Auxiliary foam supply trailer (TBD)
- The Buffalo CGF is provided with the following key fire protection features:
 - Point flame detection and hand held fire extinguishers in key areas within the facility
 - Auxiliary foam supply trailer (TBD) located in the Control Room Building at the Badger CGF

Within the facility a continuous fire access road with a minimum width of ten (10) feet has been provided around the active treatment areas, as shown in Appendix 1. An additional buffer zone with a minimum width of ten (10) feet has been provided within the perimeter fire lane. Access roads will be surfaced with asphalt, crushed gravel, or concrete.

8.0 908.B.(5).E: SURFACE WATER DESIGN

The proposed project area has historically drained from northwest to southeast at a 2% slope across an undeveloped, cultivated field. The site is split by a natural drainage channel with all site flows converging at the southeast corner of the site. The area to the north of the channel is 104.70 acres in area. The area to the south of the channel is 52.82 acres in area. This site includes a residential lot in the northeast corner and County Road right-of- way. The drainage area for the CGF developed portion of the property is divided into TEN (10) separate drainage basins. The basins 10-year discharge and 100-year discharge is summarized in Table 1, Part III, Drainage Design Criteria within the Badger CGF Drainage Report (Appendix 6: Drainage Report).

There is historic evidence of off-site drainage flow entering the property. The field to the west drains in a southeasterly direction to the existing swale bisecting the subject property, a new culvert will be installed under the road which will capture any offsite flows. There is no drainage onto the site from the north.

The site consists of gravel and paved areas, oil storage equipment, and existing ground cover as described in the NRCS Soil Survey. Drainage will be directed into an on-site detention pond. Storm water detention storage was calculated in accordance with the Weld County Criteria. The required detention volume is the 1-hour 100-year storm volume. The required volume was calculated to be 280,472 CF. The required volume is provided within the proposed detention pond southeast of the CFG with a volume of 325,162 CF at the spillway elevation and a total volume of 460,673 CF at the top of bank elevation. The additional volume provided in the pond allows for the required one foot of freeboard over the 1-hour, 100-year storm depth. The 100-year storm event depth for the pond is 4.17 feet. The percolation rate of the soils within the detention pond has not been analyzed.

An outlet structure with a culvert and an overflow spillway has been designed for the detention pond. The detention pond area is shown on Plan Sheets C2 and C10. The CFG Pond has a capacity of 7.46 ac-ft at an elevation of 5083.5 ft as shown in the calculations provided in Appendix 6 of the attached drainage report. The 100-year storm creates 6.44 ac-ft of water at an elevation of 5083.17 ft. A 47' wide spillway at elevation 5083.20 ft accounts for overflow capacity.

9.0 908.B.(6): WASTE PROFILE

Primary separation of produced flows will be installed at each well pad to achieve separation of gas and liquid phases. Each phase will be conveyed via pipeline to the Facility. Produced water delivered to the CGF will flow through pig receivers and undergo additional separation in the fired Water Bulk Separator to recover additional oil and gas. Oil and gas recovered from the Water Bulk Separator will be piped into the hydrocarbon processing portion of the Facility. Water from the Water Bulk Separator will be conveyed to two (2) Water Storage Tanks. Flash stabilized produced water will be pumped via pipeline(s) to disposal. Provisions are made for a future water treatment plant for reuse and/or recycling. Stream characterization has been performed based on samples taken from wells developed in similar formations and under similar operating conditions as those which will ultimately be stored at the CGF.

Other wastes generated at the facility may include tank bottoms, compressor lube oilsoils, and miscellaneous other solid wastes. These streams will be categorized in accordance with all solid and hazardous waste regulations prior to disposal; however, this cannot be performed prior to construction of the facility.

9.1 PRODUCED WATER

9.1.1 Estimated Volume

The CGF has been designed to receive up to 50,000 bpd of produced water from Extraction operated wells in the Denver-Julesburg (DJ) Basin, Wattenberg Field. Future wells that are drilled in the vicinity of the CGF could also contribute.

9.1.2 Characteristic Waste Profile

Analytical information for similar produced water is included in Appendix 10. The maximum expected characteristics are shown in Table 9-1. Maximum values for the anticipated range are based on samples collected.

Table 9-1: Anticipated Produced Water Quality	
Component	Maximum Anticipated Range (mg/l)
TPH-GRO (C6-C10)	10-1000
TPH (C10-C28)	10-600
Methanol	0-125
Total Suspended Solids (TSS)	100-1000
Total Dissolved Solids (TDS)	<50,000
BTEX	1-100
Ammonia	<5

9.2 TANK BOTTOM SOLIDS

9.2.1 Estimated Volume

The monthly volume of pressed solids at the CGF is anticipated to be between 50 - 450 bbl.

9.2.2 Characteristic Waste Profile

This information will be updated with actual waste characteristics in future updates to the COGCC once the facility is operational. These wastes will not be treated on-site, but will be handled according to solid or hazardous waste regulations.

9.3 PRODUCED OIL

9.3.1 Estimated Volume

The CGF will have the ability to process up to 60,000 barrels per day (bopd) of oil and associated recovered flash gas vapors. Produced oil from the gathering system trunk pipelines flows to the inlet separator where light ends are flashed out of the produced oil and bulk water is separated. The separated water combines with the other CGF sources to feed the water storage tanks, while the flashed vapor combines with the discharge of the electric LP compressors. The produced oil is then sent to the heater treater(s) for additional flash-stabilization where sediment and water specifications are achieved. The produced oil from the heater treater(s) flows to a flash drum, where the sales oil RVP specification is achieved. Sales oil is then pumped from the flash drum into stabilized oil storage tank(s) where it will be pumped through Lease Automatic Custody Transfer (LACT) units and pipeline pumps to the sales point.

The site will be equipped with intermediate off-spec oil tanks and off-spec pumps, which will serve as a surge volume for off-spec oil from the LACT unit.

9.4 WASTE DISPOSAL

Wastes to be managed at the CGF are anticipated to be E&P exempt. Elevation plans to dispose of solid waste from the CGF at the landfill shown in Table 9-2. Produced water will be disposed at the facilities identified in Table 9-3, both of which are permitted to accept E&P Exempt Wastes.

Table 9-2: Solid Waste Disposal Facility		
Disposal Facility	Address	Permit Number
Waste Management	2400 West Union Avenue Englewood, CO 80010 (303)482-6406	TBD

Table 9-3: Water Disposal Facilities		
Disposal Facility	Address	Permit Number
C2	1191 Weld County Road 19 Brighton, CO 80601	401075964
South Weld	1821 Weld County Road 27 Brighton, CO 80601	TBD

9.5 WATER QUALITY TESTING PROGRAM

The produced water influent stream will be sampled annually for hydrocarbon, methanol, and BTEX content in accordance with EPA Approved Methods 8015 and 8260. An annual average will be maintained by Elevation and reported to the COGCC once per year in accordance with Rule 908.f.

9.6 NATURALLY OCCURRING RADIOACTIVE MATERIAL (NORM)

Samples of solid waste produced by the CGF will not be available until the facility is operational. At that time, testing will be completed to ensure the waste is safe for disposal at a commercial landfill.

10.0 908.B.(7).A: FACILITY DESIGN AND ENGINEERING – GEOLOGY

A geotechnical report for the CGF was prepared in July 2017 and amended in December 2017 (see Appendix 7). Test-holes were drilled throughout the proposed site to depths of 25 to 50 feet below grade. Highlights of this report which specifically address Rule 908.b.(7).A are described below.

10.1 UNCONSOLIDATED SOILS

The overburden soils at the site primarily consist of lean clays with varying amounts of sand. Clayey sand was encountered beneath the clays in multiple borings at depths ranging from about 7 to 12 feet below existing site grades.

10.2 CONSOLIDATED BEDROCK

Sedimentary claystone and sandstone bedrock was encountered underlying the clays/sands at depths ranging from about 7 to 9 feet in the southwest and northeast portions of the site, and at depths ranging from about 12 to 24 feet in borings located in proximity to the existing drainage feature. The bedrock extended to the depths explored.

10.3 GEOLOGIC STRUCTURES

Surficial geologic conditions at the site as mapped by the US Geological Survey (USGS) and Colton (1978) consist of Holocene to late Pleistocene-age Eolian Deposits. These deposits are described as windblown clay, silt, and sand. The mapped geology at the site is presented in the Geotechnical Report contained in Appendix 7. The Eolian Bedrock underlying the surface units consists of Upper Cretaceous-age Laramie Formation. This formation, as mapped in the area, is described to include interbedded claystone, shale, sandstone, and lignite. Thickness of the upper part of the unit in the area is reported to be about 700 feet.

10.4 GEOLOGIC HAZARDS

The subject site is considered suitable for the construction of the CGF, from a geotechnical perspective. Geologic hazards such as on-site faults, liquefaction, ground fissures, flood-prone areas, landslides or unstable slope hazards were not observed during site reconnaissance and were not indicated in the referenced publications. Based upon review of the maps showing the extent of mining in the Boulder/Weld coal field for the area (²Amuedo and Ivey, 1975) and coal geology and resources (³Spencer, 1986), the project is not located within mapped areas of known coal resources or subsidence potential due to past mine workings. However, areas of low to severe subsidence potential are mapped northwest of the site.

Mapping completed by the Colorado Geological Survey (⁴Hart, 1972) indicates the site is located in an area of "High Swell Potential." This category generally includes bedrock, however, moderately expansive near surface soils may also be locally present. See Appendix 8 for a complete Geologic Hazards Report.

11.0 908.B.(7).B: FACILITY DESIGN AND ENGINEERING – HYDROLOGY

A drainage report for the CGF development was prepared by Baseline for engineering and design purposes (see Appendix 6). Highlights of this report which specifically address Rule 908.b.(7).B are described below and the complete Hydrology Report is included in Appendix 9.

11.1 SURFACE WATER FEATURES

Appendix 9, Figure 3 illustrates the surface water features within a two (2)-mile radius of the proposed facility. Little Dry Creek is located approximately one and three-quarter miles northwest of the proposed facility. Big Dry Creek and Thompson Ditch are both located about one mile to the south of the Site. Little Dry Creek and Big Dry Creek both flow to the northeast into the South Platte River. Bull Canal is located approximately half a mile north of the Site. Thompson Reservoir and Mathison Reservoir are both located to the east of the proposed facility location. Karshi Reservoir and Yoxall Ditch are located to the east and south of the Site. German Reservoirs Number's 6, 8, 9, 11, and 12 are all located south of the Site. Big Dry Creek Ditch is located almost two miles south of the Site. Bull Canal Reservoir 8 is located southwest of the site. Trostel Ditch and Whipple Ditch are both located west of the site. Figure 3 depicts the surface water features within a two miles radius of the Site. Figure 2 shows that the draws and drainages flow to the north-northeast direction, consistent with regional topography.

There are various irrigation ponds and ditches located within a two mile radius of the Site. The majority of the surface water features have intermittent flow throughout the year. The irrigation ditches general flow from April through September, coinciding with the agricultural season. After a major storm event the ditches may have standing or flowing water.

11.2 SHALLOW GROUND WATER

11.2.1 Shallow Ground Water Depth

In 2017 Cole Garner Geotechnical (Cole) was contracted by Elevation to create a Geotechnical Engineering Report. In their preliminary investigation in June 2017 groundwater was encountered from 2 to 7.5 feet bgs. During their supplemental investigations in November 2017 they found shallow groundwater ranging from 5 to 15 feet bgs across the Site (Cole, 2017). According to the U.S Geological Survey Maps, regional groundwater ranges from 5 to 20 feet bgs with seasonal groundwater typically less than 10 feet bgs (Hillier et al, 1979), which is consistent with Cole's findings. Shallow groundwater flows consistent with topography to the southeast, as is demonstrated in the potentiometric surface map in Figure 2.

There are 26 water wells within a one-mile radius of the Site, including 2 plugged and abandoned wells (See Appendix 9, Figure 4). There are no permitted water wells on Site. According to the Colorado Division of Water Resources (DWR) well permit records, the total depths of these wells range from 31 feet to 800 feet bgs. Static water level data ranges from 14 feet to 572 feet bgs. The surface elevation data that is available shows a range of 4,939 feet to 5,140 feet amsl. The well yields range from 3.7 gallons per minute (gpm) to 22 gpm. The associated aquifer for the wells with the available information is the Laramie-Fox Hills aquifer and the Quaternary alluvium. The listed use for all wells, is domestic, monitoring, commercial, irrigation, and household use only. Information for all permitted water wells is presented in Table 2. Table 3 lists groundwater sample results from the permitted water wells within 1-mile from the Site.

The ground water potentiometric surface is influenced by seasonal precipitation events, agricultural irrigation, surficial topography, and subsurface lithologic conditions. It is anticipated that the local shallow ground water flow direction will be to the southeast.

11.2.2 Shallow Ground Water Quality

The groundwater quality in the lower South Platte River basin is generally of good quality to the north of the Denver metropolitan area, where the Site is located. The water to the north of the Denver area is classified as calcium-bicarbonate water. The total dissolved solids (TDS) concentrations in groundwater tends to increase as it flows downstream due to evapotranspiration and recharge from irrigation water applications, which contain large amounts of fertilizer. TDS concentration near Denver is approximately 1,000 milligrams per liter (mg/L) (Topper et al, 2003).

In March 2018 TRC installed 6 temporary monitoring wells throughout the Site and collected soil and groundwater samples from three of the wells. The wells were installed to ensure a minimum of 5 feet of the screen interval was below the water table. The wells were installed at a depth of 16 feet bgs to 30 feet bgs and were constructed with 1 inch PVC casing and 10 feet of screen. The depth to water ranged from 9 feet bgs to 14.53 feet bgs. Groundwater was sampled from three of the wells and analyzed for Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) and Inorganic compounds. The concentrations of the analyzed constituents in all three wells were below Colorado Department of Public Health & Environment (CDPHE) Groundwater Standards and USEPA's Residential Regional Screening Levels (RSL) (Appendix 9, Table 1).

The groundwater quality in the Denver Basin is also generally of good quality. The dissolved solids concentration is generally 2,000 mg/L in the Laramie-Fox Hills aquifer, while in the Dawson aquifer the concentration is less than 100 mg/L. The groundwater in the Laramie-Fox Hills aquifer is classified as a sodium bicarbonate type. In the area of the Site's location the groundwater is reported to have high concentrations of sulfate. A table with a typical water analysis for the Denver basin aquifers is presented in the Groundwater Atlas of Colorado as Table 6.1-5 (Topper et al, 2003). The limited ground water samples were analyzed for benzene, toluene, ethylbenzene, xylenes (BTEX), and total VOC's by EPA Method 8260. The ground water analytical data collected during the hydrology assessment is included as Table 1 of Appendix 9.

11.3 MAJOR AQUIFERS

The Denver Basin encompasses the Denver metropolitan area in the Great Plains region of Colorado. It is bounded by the Palmer Divide in the south and the Front Range Mountains to the west. The geologic formations that contain the Denver basin are the Dawson, Denver, Arapahoe, and Laramie Formations and the Fox Hills Sandstone. The bedrock formation found beneath the Site's location consists of the Upper Cretaceous Laramie Formation. The Laramie Formation consists of interbedded sandstone and shale with a unit thickness ranging from 100 to 600 feet (Topper et al, 2003).

According to the Groundwater Atlas of Colorado, the Laramie Formation contains the Laramie-Fox Hills aquifer. This aquifer is up to 350 feet thick with 40 to 60 percent being fine to medium sandstones. The Laramie-Fox Hills aquifer is comprised of two sandstone units from the Laramie Formation and the Fox Hills Sandstone. The Laramie-Fox Hills aquifer is vertically bound by the impermeable Pierre Shale below it and a Laramie confining unit above it. The Pierre Shale can be up to 7,000 feet thick in some places. Because of the upper confining unit surrounding the aquifer, there is little recharge via vertical movement of water (Topper et al, 2003). The hydrogeology map is presented as Figure 4.

Alluvium deposited along the South Platte River is a locally important aquifer where the accumulated alluvium forms a continuous network called the lower South Platte River basin. The alluvium in this area consists of poorly sorted gravel, sand, and clay with caliche (Topper et al, 2003). The South Platte River is located approximately 10 miles to the east of the Site.

It is important to note that atop the Laramie Formation, there is a confining shale layer (100 to 600 feet in thickness) which separates the shallow ground water zone(s) from the targeted water-bearing sandstone of the Laramie-Fox Hills Aquifer.

The regional ground water flow direction for the Laramie-Fox Hills Aquifer trends to an east-southeast direction. The potentiometric surface of this mainly confining aquifer is dependent on precipitational recharge and pumping rates. Recorded pumping rates for the aquifer range from 10 to 350 gallons per minute (gpm).

11.4 LOCAL WATER WELLS

Appendix 2, Figure GW-1 illustrates the registered water wells (State Engineer's Office) within a one (1) mile radius of the proposed facility. Well permit numbers, ownership, depth, depth to water, screened interval(s), yield(s), and aquifer name are provided in Table 11-1. The data is limited to the information provided by the State Engineer's Office and field reconnaissance.

Table 11-1: Local Water Wells

ID	Permit No.	Status	Type	Aquifer	Elevation (ft AMSL)	Well Depth (ft bgs)	Screened Interval (ft)	Static Water Level (ft bgs)	Yield (gal)
1	251727	Well Constructed	HH	Laramie-Fox Hills	5140	800	530-800	383	7
2	254302	Permit Issued	DOM	Laramie-Fox Hills	-	-	-	-	-
3	223191	Well Constructed	DOM	Laramie-Fox Hills	-	725	595-725	420	4
4	109843-A	Well Constructed	DOM	Laramie-Fox Hills	-	725	626-725	413	13
5	109843	Well Constructed	DOM	Laramie-Fox Hills	-	-	-	-	-
6	140241-A	Well Constructed	DOM	All Unnamed Aquifers	-	731		453	11
7	140241	Well Constructed	DOM	Laramie-Fox Hills	-	-		-	-
8	44023-F	Well Constructed	DOM	Laramie-Fox Hills	-	720	550-720	445	22
9	117336	Well Constructed	DOM	All Unnamed Aquifers	-	703	588-703	425	-
10	52753-MH	Well Constructed	MW	Quaternary Alluvium	4939	36		-	-
11	228631	Well Constructed	IRR	Laramie-Fox Hills	-	800		525	7.1
12	229706	Well Constructed	DOM	All Unnamed Aquifers	5100	800		540	3.7
13	153351-A	Permit Issued	DOM	All Unnamed Aquifers	-	-	-	-	-
14	153351	Well Constructed	HH	All Unnamed Aquifers	-	-	-	-	-
15	32978-A	Well Constructed	DOM	All Unnamed Aquifers	-	31	13-30	14	-
16	204921	Well Constructed	DOM	Laramie-Fox Hills	-	745	530-745	462	11
17	7306	Well Constructed	DOM	All Unnamed Aquifers	-	-	-	-	-
18	54136-F	Well Constructed	COM	Laramie-Fox Hills	-	702	540-702	572	10
19	-	Application Withdrawn	DOM	Laramie	-	-	-	-	-
20	301275	Well Constructed	DOM	Laramie-Fox Hills	5050	-	-	-	-
21	195186	Permit Cancelled	DOM	Laramie-Fox Hills	-	740	650-740	-	-
22	38826	Well Constructed	DOM	All Unnamed Aquifers	-	-	-	-	-
23	2005244-AB	Well Abandoned	Other	All Unnamed Aquifers	-	-	-	-	-
24	2005243-AB	Well Abandoned	Other	All Unnamed Aquifers	-	-	-	-	-
25	259319	Permit Extended	DOM	Laramie-Fox Hills	5135	-	-	-	-
26	212999	Well Constructed	HH	All Unnamed Aquifers	-	750	540-750	475	10

MW – Monitoring Well
 DOM – Domestic Well
 IRR – Irrigation Well
 HH – Household Use Only Well
 COM – Commercial Well

Source: Colorado Division of Water Resources

11.5 LOCAL FLOODPLAINS

The site is not located within a 100-year floodplain. The local floodplain map for the site is shown in Appendix 2, Figure F-1.

11.6 IMPACT POTENTIAL

The potential to impact surface water is present when any new construction or development is conducted. The possible impact(s) to surface water would mainly come from stormwater runoff. The potential impact(s) will be mitigated through careful design of the facility. A large portion of the facility will consist of sized secondary containment (per SPCC Rule) and will not discharge (i.e., precipitation falling in this area will be retained). Stormwater runoff quality is being addressed through the use of permanent BMPs such as retention ponds, revegetation, and water quality capture with outlet control in addition to those specified within Elevation's Stormwater Management Plan (see Appendix 5).

The potential to impact shallow ground water is also present when new construction or development is conducted. There is no potential to impact the deeper Laramie-Fox Hills Aquifer because of the impermeable shale layer of the upper Laramie Formation separating the shallow ground water from the deeper water bearing zones. The possible impact(s) to shallow ground water would mainly be a result of a chemical or oil spill. The potential impact(s) will be removed or minimized through the design of the facility and implementation of the Spill Prevention, Control and Countermeasure (SPCC) plan (see Section 17.3). As mentioned above, a large portion of the facility will consist of sized secondary containments (see Section 12.3). The containments will be lined and engineered to be impervious. The aforementioned stormwater BMPs are also designed to contain potential spills and releases from leaving the facility boundary. Proposed ground water monitoring and sampling at the facility will track the presence/absence of impacts to ground water (see Section 15).

This project will have no impact on the surrounding drainage patterns and will comply with Weld County, Urban Drainage and Flood Control District and COGCC drainage criteria.

12.0 908.B.(7).C: FACILITY DESIGN AND ENGINEERING – ENGINEERING DATA

This facility stores produced oil, produced water and residual solids. All storage is in above ground steel tanks enclosed within secondary containment systems. All produced oil will be stabilized and sold.

Produced water will be transported offsite via pipeline to the appropriate approved disposal. All solids will be trucked offsite for landfill disposal.

Preliminary drawings for the facility are located in Appendix 1.

12.1 PROCESS DESCRIPTION

Figure 12-1 shows the basic CGF process. Placement of the process equipment is shown in Appendix 1: Engineering Drawings.

12.1.1 Influent

Produced oil and water undergo primary separation at each Extraction-operated well pad. They are then transported in separate pipelines to the CGF. The un-stabilized produced oil will enter the CGF from gathering pipelines which combine produced oil from multiple well pads. Produced water will also enter the CGF via separate gathering pipelines from multiple well pads.

12.1.2 Process Overview

Elevation plans to construct and operate two separate and distinct facilities near the intersection of Route(s) 6 & 15 in Weld County, CO. The first plant, the Badger CGF will be utilized as a central location for the Broomfield and Weld County development areas and will use a “flash stabilization” method as a base platform to process well fluids into saleable oil, gas and water product streams. The second facility will be a compressor station used to condition wellhead gas to pipeline specification.

12.1.2.1 Central Gathering Facility Description

The CGF will have the ability to process up to 60,000 barrels per day (bopd) of oil and associated recovered flash gas vapors, and up to 50,000 barrels per day (bwpd) of produced water. Produced oil from the gathering system trunk pipelines flows to the inlet separator where light ends are flashed out of the produced oil and bulk water is separated. The separated water combines with the other CGF sources to feed the water storage tanks, while the flashed vapor combines with the discharge of the electric LP compressors. The produced oil is then sent to the heater treater(s) for additional flash-stabilization where sediment and water specifications are achieved. The produced oil from the heater treater(s) flows to a flash drum, where the sales oil RVP specification is achieved. Sales oil is then pumped from the flash drum into stabilized oil storage tank(s) where it will be pumped through Lease Automatic Custody Transfer (LACT) units and pipeline pumps to the sales point.

The site will be equipped with intermediate off-spec oil tanks and off-spec pumps, which will serve as a surge volume for off-spec oil from the LACT unit

The produced water trunk-line will flow to the inlet separator where light ends are flashed out of the produced water and separated. Water will be stored in the inlet water tanks where separation and skimming will send the oil to the off-spec oil tanks for processing. The water will be pumped into a pipeline to a disposal facility. Provisions are made for a future water treatment plant for reuse and/or recycling. The inlet water tanks, off-spec oil tanks and third-party oil tanks will be vented to the high rate enclosed combustor (HREC).

12.1.2.2 Compressor Station Description

Produced gas from the gathering system trunk pipelines will flow directly to the compressor station where the gas will be compressed from 75 psig to 1250 psig. All compression will be electric drive rather than combustion engines and installed in a sound mitigating building. The produced gas will also be dehydrated (the removal of excess moisture) via an electric glycol (TEG) reboiler. The dehydration unit reboiler vent is routed to the compressor station enclosed combustor, while the dehydrated gas is metered and put into a 3rd party pipeline.

12.1.2.3 Loading of Products

Products will be transported off-site via pipelines. Bottom solids that accumulate in the Water Storage Tanks, flash stabilization equipment, and Bulk Water Separators will be trucked offsite for disposal.

Produced water that is not needed within Elevation's system for well completions will be piped from the Storage Tanks to the disposal facilities defined in Table 9-3.

12.2 PERMANENT STRUCTURES AND EQUIPMENT

An overall site plan for the proposed facility is shown in Appendix 1. All proposed structures and access roads are shown on this plan.

12.2.1 Buildings

The following buildings will be constructed at the CGF:

- MCC/PDC Building (Skid mounted)
- Office/Control Building

All buildings will comply with the relevant Weld County Building Codes.

12.2.2 Site Tankage

The following tanks will be constructed at the CGF:

- Three (3) 40,000 bbl Stabilized Oil Tanks (2 current and one future);
- Two (2) 5,000 bbl Off-Spec Oil Storage Tanks;
- Two (2) 750 bbl Trucked-In Off-spec Oil Tanks;
- Two (2) 20,000 bbl Inlet Water Tanks

12.2.2.1 General Design Criteria

- API 650: Welded Tanks for Oil Storage
- Foundation design stamped by a Colorado Professional Engineer
- Tank design stamped by a Colorado Professional Engineer
- Concrete ring wall will be constructed around each of the large tank foundations

Internal coating of the tanks will be per Elevation's Specification for Internal Tank and Pressure Vessel Coating (see Appendix 12):

12.2.3 Other Process Equipment

Additional process equipment will be located at the CGF as follows:

- Nine (9) Separators (Six (6) Produced Oil Separators & Three (3) Produced Water Separators)
- Four to Six (4-6) Vapor Recovery Unit(s)
- Two (2) Produced Water Storage Tanks

- Ten (10) Electric Driven Gas Compressor(s)
- Seven (7) Heater Treater(s)
- One (1) Diesel Fuel Tank
- Six (6) Pigging Stations
- One (1) Gas or Diesel Motor(s) – Emergency Generator
- One to Three (1-3) LACT Unit(s)
- One (1) High Rate Enclosed VOC Combustor
- Forty-Six (46) Electric Motors
- Twenty-Nine (29) Pumps
- Seven (7) Miscellaneous Tanks (Methanol, Frame Oil, Fire Foam, Skid Drain)
- Three (3) Flash Drum(s)

12.3 SPILL CONTAINMENT

12.3.1 Secondary Containment Design

Three impervious secondary containment structures will be constructed at the CGF site, as follows:

- Containing the Stabilized Oil Tanks, Inlet Water and Off-Spec Oil Tanks

All containment volumes have been sized using the volume of the largest tank, plus the 25 year, 24-hour storm event (per NOAA Atlas 14, Volume 8, Version 2), plus one (1) foot of freeboard. The displacement of future tanks or structures was incorporated into the calculated volume to verify that the height of the containment is sufficient for the ultimate build-out condition. Containment calculations will be presented upon completion of construction and will be contained within the finalized SPCC plans.

Table 12-1: Sample Secondary Containment Calculations					
		Stabilized Oil Containment	Inlet Water Containment	Off Spec Oil	Notes
Gross Containment					
Width	ft	170	130	165	Width at half-depth w/o freeboard
Length	ft	370	270	105	Length at half-depth w/o freeboard
Depth	ft	4.75	4.75	2.75	Total depth of containment
Freeboard	ft	1	0.75	0.5	Required freeboard
Depth w/o freeboard	ft	3.75	4	2.25	Available depth of containment
Volume w/o freeboard	ft ³	318,788	181,329	38,981	Gross volume of containment without freeboard
Volume w/o freeboard	bbbl	56,778	32,296	6,943	
Individual Tank Displacement					
		Stabilized Oil Tanks	Inlet Water Tanks	Off Spec Oil	

Table 12-1: Sample Secondary Containment Calculations					
		Stabilized Oil Containment	Inlet Water Containment	Off Spec Oil	Notes
Diameter	ft	93	70	35	
Height	ft	40	40	32	
Area of tank	ft ²	6,793	3,848	962	Footprint of tank - used for displacement
Volume	ft ³	271,716	153,938	30,788	Volume of tank
Volume	bbl	48,395	27,418	5,484	
Number of Tanks		2	2	2	
Trucked-In Off-Spec					
Diameter	ft	0	0	16	
Height	ft	0	0	24	
Area of tank	ft ²	0	0	189	Footprint of tank - used for displacement
Volume	ft ³	0	0	4,529	Volume of tank
Volume	bbl	0	0	807	
Number of Tanks		0	0	2	
Combined Tank Displacement					
Large Tank Displacement	ft ³	25,473	15,394	2,165	Volume displaced (area x depth (w/o freeboard))
Remaining Tanks		1	1	2	Number of tanks not leaking
Small Tank Displacement					
Small Tank Displacement	ft ³	0	0	850	Volume displaced (area x depth (w/o freeboard))
Number of Tanks		0	0	2	Number of tanks not leaking
Total Tank Displacement	ft ³	25,473	15,394	3,014	Remaining tanks x tank displacement (Large and Small)
Net Containment	ft ³	293,314	165,935	35,967	Total containment less displacement
Rainfall					
Rain event	ft	0.293	0.293	0.293	25-Year, 24 hour storm event
Area at Top of Berm	ft ²	62,900	35,100	17,325	
Rain Event Volume	ft ³	18,430	10,284	5,076	Total volume of rain event
Rain Event Volume	bbl	3,282	1,832	904	
Required Volume					
Largest Tank Liquid Volume	bbl	48,395	27,418	5,484	
Required Containment	bbl	51,677	29,249	6,388	Largest tank liquid volume + rain event

Containment structures will be constructed from post driven seamless secondary containment system. Specifications for this liner as well as containment drawings are included in Appendix 13. The tanks will be

constructed on concrete foundations, each of which will have a ring wall. Cathodic protection will be installed prior to the construction of the tanks.

This system mitigates the risk of tank bottom failure by containing the tank bottom and allowing minor leakage to be captured by the ring wall prior to entering the secondary containment.

13.0 908.B.(8): OPERATING PLAN

A preliminary Operations and Maintenance (O&M) Manual is in development for the CGF (see Appendix 14). Each subsection of Rule 908.b.(8) has been addressed within the O&M Manual, as shown in Table 13-1, with the exception of Rule 908.b.(8).E: Emergency Response Plan.

Table 13-1: Location of Rule 908.b.(8) Compliance Information in the CGF O&M Manual		
Subsection of Rule 908.b.8	Description of subsection requirement	Corresponding Section of the CGF O&M Manual
A	Method of treatment, loading rates, and application of nutrients and soil amendments	Not Applicable, No land application
B	Dust and moisture control	Section 2 Dust Control
C	Sampling	Section 3 Sampling
D	Inspection and Maintenance	Section 4 Inspection & Maintenance Schedule
E	Emergency Response	Section 5 Emergency Response
F	Record-Keeping	Section 6 Record-Keeping
G	Site Security	Section 7 Site Security
H	Hours of Operation	Section 8 Hours of Operation
I	Noise and Odor Mitigation	Section 9 Noise and Odor Mitigation
J	Final Disposition of Waste	Section 10 Final Disposition of Waste

The O&M Manual included with this Form 28 submittal is preliminary. A final O&M Manual will be submitted to the COGCC in accordance with Rule 908.f upon completion of the facility.

In addition to the O&M Manual, Elevation has committed to the community to setup a communication plan. Below are summaries of the nuisance management and community communication plans Elevation will utilize

to mitigate community impacts from the operations of the CGF and CS while proactively communicating with adjacent neighbors and landowners.

13.1 COMMUNITY IMPACTS AND MITIGATION

Traffic – The nature of this project greatly minimizes traffic into and out of the facility. With pipeline infrastructure feeding into the facility and carrying product away from the facility, truck traffic will be necessary only during times of maintenance or on rare occasions. There will be traffic during the construction phase of the project and we will keep all trucks on CR13 and CR6, both of which are paved roads, refer to Appendix 28.

Light – The lighting plan for the Centralized Gathering Facility focuses on reducing light pollution wherever possible, refer to Appendix 29. Utilizing feedback from the meetings we have already had with adjacent neighbors, we will keep lights focused downward and will use a warm, yellow color bulb versus a cool, bluer color bulb. Lighting during the construction phase of the project will be minimal as we will not be working during night hours.

Noise – After meeting with adjacent neighbors, noise is one of the biggest factors that we are committed to mitigating. Soil berms and trees strategically planted using data gleaned from a sound study will be main methods of sound mitigation, refer to Appendix 30. Most equipment that could emit noise, including compressors and their electric motors, will be enclosed in a sound buffering structure. The fact that we are committed to using electric motors in compression stations is itself tremendously helpful in mitigating noise. Any equipment that is not inside these structures will be equipment that does not require sound mitigation. Additional planned sound mitigation measures include orienting compressor coolers in such a way that all fans will be horizontal instead of vertically positioned. This drastically reduces the sound propagation toward the property boundary, thus pushing any sound away from neighbors. We also commit to working with our neighbors through continuous and ongoing communication to be sure noise is mitigated to the greatest extent possible.

Dust – Dust is likely an issue that could occur during the construction phase of the project, but should pose no impacts once the facility is operational. To the extent it is ever a factor, we have committed mitigating dust by spraying a fine mist of water that will prevent dust from becoming airborne and blowing toward our neighbors. The landscaping on the property will also assist greatly in preventing soil erosion.

13.2 COMMUNICATION CARDS

XTR and Elevation commit to taking contact cards to each of our adjacent neighbors with the following information:

On-Site Operations Team Contact Information

General Company Contact Information

811 Call Before You Dig

For any contacts to the company, we can commit that a representative will follow up within 24 hours, if not reached immediately.

13.3 PROACTIVE COMMUNICATION

For any planned activities on the site, a letter and email will be sent to all adjacent neighbors letting them know about the activity, schedule and contact for any questions. Neighborhood meetings will also be utilized as necessary or requested.

13.4 REACTIVE COMMUNICATION

For activities that occur without notice, an email and text will be sent to our neighbors notifying them of the event and will contain contact information should they have additional questions. For any contacts to the company, a representative will follow up within 24 hours, if not reached immediately.

14.0 908.B.(9).A: WATER WELLS

As shown in Table 11-1 above, the majority of registered water wells within the one (1) mile radius of the proposed facility are related to the groundwater located within the area. Baseline water quality parameters from the well sample analytical as well as samples taken during the hydrology investigation indicate that groundwater currently meets Colorado water quality standards.

The proposed facility is located within COGCC's designated "Greater Wattenberg Area" (Rule 318A). With the oil and gas operators in the area (including Elevation), there may be additional baseline groundwater analytical data present within the COGCC's database as well as the Department of Water Resources for the nearby domestic use wells. Although the COGCC Rule 318A does state:

Nothing in this Rule is intended, and shall not be construed, to preclude or limit the Director from requiring groundwater sampling or monitoring at other Production Facilities consistent with other applicable Rules, including but not limited to the Oil and Gas Location Assessment process, and other processes in place under 900- series E&P Waste Management Rules (Form 15, Form 27, Form 28),

Elevation proposes that no baseline water quality data from the three domestic use well owners within the one (1) mile radius is required since current baseline water quality data is available for several of the domestic wells and the fact that the impermeable shale layer within the upper Laramie Formation limits potential impact to the deeper water bearing zones shared by the domestic water wells. Elevation would sample nearby domestic wells on an "as-needed" basis due to complaints, concerns, or spill investigation(s).

For the site use, no potable water supply is currently available nor proposed on the property. A non-potable water well located on the property will be used for building control. Fresh water for drinking will be brought in as bottles or via water service. Permit application is on-going to the well.

15.0 908.B.(9).B: MONITORING WELLS

Elevation proposes that no ground water monitoring wells are necessary during or after CGF construction activities are completed. Elevation proposes that additional samples and analytical for those constituents

listed in Rule 908.b.(9).A for the initial baseline and then default to the ground water constituents listed in COGCC Table 910-1 are not necessary. Additional sampling may occur on an “as- needed” basis (i.e. in response to a spill investigation or to confirm anomalous data reported). Elevation will submit reports summarizing the groundwater monitoring and sampling data, including direction of ground water flow, ground water gradient, and water quality in accordance with Rule 908.f, as necessary.

16.0 908.B.(10): SURFACE WATER MONITORING

Figure SW-1 (Appendix 2) illustrates the surface water features within a two (2) mile radius of the proposed facility. With the exception of Big Dry Creek, the remaining features are ephemeral, intermittent, or seasonal. Elevation does not recommend baseline or periodic surface water monitoring or sampling at this time. The data and information which support this statement include:

- The closest surface water feature is the Bull Canal, which meanders north of the site to the east and north. It flows during seasonal irrigation periods and is topographically upgradient.
- The nearest downgradient surface water feature is a section of Thompson Ditch. It is approximately three-quarters (3/4) mile away located on agricultural property. The draw that bisects the property and lies south of the CGF eventually drains to Big Dry Creek, but the ephemeral flow would have to cross several properties and Thompson Ditch to have any effect.
- The design of the facility includes the control of stormwater run-on and run-off. Diversion of run-on water around the facility and the retention of stormwater run-off will occur. The goal is to fully prevent run-off from leaving the location. In the scenario where a series of storm events fill the retention areas to capacity, the retention areas is designed to release run-off in a controlled and supervised approach.
- The retention areas of the facility will be inspected on a periodic basis. The inspections will note the presence or absence of an oily sheen. If there is an oily sheen, the water will be removed and recovered mechanically.

Elevation does not anticipate the need to install a permanent surface water monitoring station at this location.

17.0 908.B.(11): CONTINGENCY PLAN

17.1 SITE SAFETY / EVACUATION PLAN

A preliminary site specific safety and evacuation plan will be prepared prior to facility operation and is contained in the Fire Protection Plan. This plan shall include directions to the site, emergency contact information, and designated muster points. An Emergency Shutdown Plan showing the location of all emergency isolation valves, ESD switches and fire extinguishers will be prepared prior to facility operation and will be kept on site thereafter. This plan will be incorporated into start-up and commissioning training for the facility.

17.2 CHEMICALS ON-SITE

No chemicals other than methanol are planned to be stored on site. Safety Data Sheets (SDS) for crude oil, methanol and produced water shall be maintained on-site. Analytical from similar produced water can be found in Appendix 16.

17.3 SPILL PREVENTION, CONTROL AND COUNTERMEASURE PLAN

A preliminary Spill Prevention, Control and Countermeasure (SPCC) Plan for Elevation’s Badger CGF is provided in Appendix 17 as a sample. A complete SPCC plan will be developed for the CGF and submitted to COGCC within six (6) months of commissioning and start-up of the facility. This timeframe is consistent with the EPA guidelines for SPCC planning.

Emergency equipment will include four 96 gallon spill kits.

17.4 EMERGENCY RESPONSE PLAN

Elevation requires an Emergency Preparedness and Emergency Response Plans (ERP) be in place. These plans are kept current and are supported by training and resources to ensure decisive and effective incident response.

A current copy of the Emergency Notification Chart for the CGF will be kept on-site with the Notification and Activation section of the Emergency Response Plan (see Appendix 15 – Emergency Notification numbers are provided below).

EHS emergency 24 hour contacts:

<u>Weld County Office of Emergency Mgmt.</u>	<u>970-304-6540</u>
<u>Colorado Emergency Operations</u>	<u>303-279-8855</u>
<u>CDPHE – Water Quality Control Division</u>	<u>303-692-3500</u>
<u>(24hr) National Response Center</u>	<u>800-424-8802</u>
<u>EPA Region 8 – On Scene Coordinator</u>	<u>800-227-8914</u>
<u>Brighton Fire Protection District</u>	<u>911 & 303-288-1535</u>

The ERP facilitates a coordinated response by personnel to any emergency situation related to seismic/exploration, construction, drilling, completion, workovers, operations, remediation, reclamation, and support services. It describes the procedures which will be implemented, in whole or in part, if an emergency situation occurs during any phase of operations including, but not limited to, the following types of incidents:

- Serious injury or fatality
- Vehicle related incident
- Major property or equipment damage
- Fire or explosion
- Spill, hazardous materials release, or product release
- Security threat or suspicious activity
- Natural occurrence

18.0 908.D: FINANCIAL ASSURANCE

Financial assurance, as required by Rule 904 and 907.d, will be included in Appendix 18 of this submittal upon COGCC approval of the closure cost estimate.

19.0 908.E: FACILITY MODIFICATIONS

Any proposed major modifications to the facility design, operations plan, permit data, or permit conditions will be submitted to the COGCC for prior approval under a Form 4 Sundry notice and in accordance with Rule 908.e.

Any minor modifications to the facility design, operations plan, permit data or permit conditions (from entities other than the COGCC) will be included in the annual reports submitted to the COGCC per Rule 908.f.

Elevation has committed to restrict operations to within the currently identified disturbed area so long as such area is sufficient to comply with all federal, state and local regulatory requirements. This commitment is consistent with Elevation conversations with surrounding neighbors and residents.

20.0 908.F: ANNUAL PERMIT REVIEW

The following data will be provided to the COGCC to supplement this application within six (6) months of facility start-up, as discussed throughout this document:

- Final Operations & Maintenance Manual
- Spill Prevention, Control and Countermeasure Plan

If requested, Elevation can also provide the following information post-construction:

- As-built drawings showing final building locations and site characteristics
- Evacuation Plan

After the first year of operation an annual report on the CGF will be submitted to the COGCC which will include:

- Volume of solid waste exiting the facility
- Volume of water entering and exiting the facility
- Any facility modifications, per Rule 908.e

A rolling twelve month average of the facility water quality will be retained by Elevation and reported to the Colorado Department of Public Health and Environment (CDPHE) Air Pollution Control Division (APCD) as required for permit compliance. These reports will be available to the COGCC upon request.

21.0 908.G.(1).A: PRELIMINARY CLOSURE PLAN

The CGF is expected to operate for thirty (30) years or greater. However, the facility could be closed earlier due to changing market conditions.

At closure, the following tasks will be undertaken at the CGF:

- Removal of the following items:
 - Industrial waste including bottom solids
 - Equipment including pumps, pipelines, electrical equipment, etc.
 - Steel tanks
 - Separators
 - Drainage controls
 - Other industrial components, as required by COGCC regulations at the time of closure
- Native soil sampling and analysis for Table 910-1 constituents
- Comparison of closure samples with baseline samples to determine if naturally occurring background concentrations have been exceeded.
- Completion of remediation activities required by soil sampling results.
- Site restoration to pre-facility conditions, including recontouring and revegetating the site, redistribution of topsoil and reseeding.
- Site monitoring to verify that seventy (70) percent of the preexisting vegetation is achieved.
- Final reclamation in accordance with COGCC regulations at the time of closure.

Additional details regarding the revegetation plan are located in Appendix 19: Closure and Reclamation Plan.

22.0 908.G.(1).B: PRELIMINARY CLOSURE COST

The preliminary closure cost for the CGF is estimated to be \$1,578,000. Details of this estimate are included in Appendix 20.

Due to the extended operating time of this facility the accuracy of this closure estimate is + 40 /- 30%. However, Elevation believes that this is an adequate estimate for the following reasons:

- Contractor overhead and profit included at 15%
- Estimate includes a 10% contingency on contractor cost
- Estimate assumes local contractor and labor will perform all work
- Equipment salvage and or scrap value was offset by demolition debris disposal costs
- No escalation is included
- Contractor mobilization/demobilization included at 5% of contractor's direct cost
- Contractor project management included at 5% of contractor's direct cost

An allowance has been included in the estimate for Owner's costs including:

- Project design/planning included at 2% of the contractor's cost
- Construction management included at 3% of the contractor's cost
- Closure confirmation sampling includes 20 soil samples and 5 groundwater samples

- Post closure groundwater monitoring included for 10 908.g.(2): Final Closure Plan

A detailed Site Investigation and Remediation Work Plan Form 27 will be submitted to the COGCC for approval a minimum of sixty (60) days prior to closure of the CGF.

23.0 908.H: OTHER PERMITS AND NOTIFICATIONS

The following table provides a list of local, state, and federal permits and notifications required for construction and operation of the CGF. Permit approvals for all applications are expected to be granted by August 1, 2018.

Table 23-1: Other Permits and Notifications				
Agency	Permit	Application Date	Anticipated Approval Date	Location
CDPHE APCD	Air Permit Application	January 2018	July 2018	Appendix 20
CDPHE WQCD	Construction Stormwater Permit	April 82018	July 2018	Not included in this application
Weld County	Use by Special Review	April 2018	August 2018	Appendix 22
Weld County	Grading and Erosion Control Permits	April 2018	July 2018	Not included in this application
Weld County	Building Permits	April 2018	July 2018	Not included in this application
COGCC	Form 2A	April 2018	July 2018	Appendix 22
Neighborhood	Introductory Meeting	n/a	n/a	Appendix 25