

Receiving Operator Water Reuse Plan

**Caerus Piceance LLC and
Berry Petroleum Company, LLC**

MAY 2019

Purpose and Need

This water re-use plan is to be submitted to the Colorado Oil and Gas Conservation Commission (“COGCC”) with a Form 4 (sundry) to allow a Master Produced Water Custody Transfer Agreement between Berry Petroleum Company, LLC (“Berry”) (Operator ID: 10091) and Caerus Piceance LLC (“Caerus”) (Operator ID: 10456).

Caerus requires up to 30,000 barrels (bbl.) of produced water for exploration and production (“E&P”) operations in Garfield County, Colorado. Caerus and Berry have entered into a Master Produced Water Custody Transfer Agreement, dated February 16, 2018 (the “Agreement”), under which, among other things, Caerus agreed to accept Berry produced water when Caerus has a current use for such water in Caerus operations. Berry now wishes to transfer to Caerus and Caerus desires to accept such Berry produced water under the terms of the Agreement and in conformity with this Receiving Operator Reuse Plan (the “Plan”).

Berry operates wells in the Parachute and Grand Valley fields located in Garfield County, Colorado, located in proximity to Caerus’ E&P operations. Currently, produced water from Berry production operations in the Parachute and Grand Valley fields is trucked to the Berry O29 Centralized E&P Waste Management Facility (Facility ID 442514), located in Sec. 29, T5S R96W, Garfield County, Colorado, for injection into an approved Class II underground injection control (“UIC”) location. A list of these sources is shown on Exhibit A.

Berry would like to transfer excess produced water, that otherwise would be injected at the O29, for beneficial re-use in Caerus’ E&P operations. The source of the produced water is produced water stored / managed at the Berry Facilities listed in Exhibit A. Berry proposes to haul produced water via approved water hauler from these sources to the MOC Water Storage Facility 32C (Facility ID #433736) (the “Caerus Facility”), located in the SESW of Sec. 32 T5S R96W, Garfield County, Colorado.

Custody of the water will transfer at the Caerus offload on the Gun Barrel tank at the Caerus Facility (the “Custody Transfer Point”). The lat/long for the Custody Transfer Point is approximately: 39°34’01.62” N, 108°11’36.69” W. Caerus will assume regulatory responsibility upon entry of the water into the offload.

Water will be transferred, by buried pipeline, to the North Parachute Ranch EP Waste Mgmt (i.e. Middlefork) (I.D. #120803). Produced water will be transferred from Middlefork (I.D. 120803), located in Lot 13 and 14 of Section 30, Township 5S, Range 95W of the 6th P.M., via Caerus pipelines to completions operations at the following locations:

- K10 (I.D. #335676) located in S1/2 of Section 10, Township 5S, Range 96W. of the 6th P.M.
- A03 (I.D. #335720) located in SENE and Lot 1 of Section 3, Township 5S, Range 96W of the 6th P.M.

Transfer of produced water would begin upon the date of COGCC approval and terminate on June 30th, 2019, unless otherwise extended, upon mutual agreement of Caerus and Berry, by extension of the Production Water Transfer Agreement, and upon subsequent COGCC approval.

Benefits

Under this plan, each party shall use reasonable and available means to safely transfer production water, in sufficient volumes and quality, to meet the other party's transfer request, when mutually agreeable to do so. The potential benefits include:

- Decreased fresh water withdrawals from surface water sources;
- Decreased reliance on injection wells for disposal of production/flowback water;
- Reduced completions costs versus alternative sources;
- Increased operational efficiencies from reusing local supplies of production/flowback water to meet water demands for drilling, completion and workover activities.

Produced Fluid Pickup, Custody Transfer Point and Delivery Locations

Water produced from Berry's Grand Valley and Parachute fields will be gathered at the MOC Water Storage Facility 32C (I.D. #433736). The Custody Transfer Point will be at the offload on the Gun Barrel tank. The lat/long for the Custody Transfer Point is approximately: 39°34'01.62" N, 108°11'36.69" W. Caerus will assume regulatory responsibility upon entry of the water into the offload. The produced water will then be transferred to the North Parachute Ranch EP Waste Mgmt (i.e. Middlefork) (I.D.#120803), located in Lot 13 and 14 of Section 30, Township 5S, Range 95W of the 6th P.M., through ~16,050 feet of 4" FlexPipe, having a maximum design pressure of 1,500 psi, through ~15,900 feet 8" steel, having a maximum design pressure of 2,250 psi and then through ~6,300 feet of 12" HDPE lined steel, having a maximum design pressure of 2,250 psi. The maximum anticipated operating pressure for delivery of water from the MOC Water Storage Facility 32C to Middlefork will be 500 psi. From Middlefork (I.D. #120803) the produced water will then be delivered to completions operations at the following locations:

- K10 (I.D. #335676) located in the S1/2 of Section 10, Township 5S, Range 96W. of the 6th P.M. - From Middlefork (I.D. #120803), produced water will be transferred through ≈22,915' of 8" polymer lined steel pipeline, having a max design pressure of 1,440 psi, to A15 (I.D. #440582) and into 12" surface steel pipeline having an approximate length of ≈3,000' and a max design pressure of 720 psi. The maximum anticipated operating pressure for delivery from Middlefork (I.D. #120803) to the A15 (I.D. #440582) will be 945 psi and 300 psi from A15 (I.D. #440582) to K10 (I.D. #335676). These pipelines will deliver to 10, 500-bbl. frac tanks, located on the K10.
- A03 (I.D. #335720) located in the SENE and Lot 1 of Section 3, Township 5S, Range 96W of the 6th P.M. - From Middlefork (I.D. #120803), produced water will be transferred through ≈26,715' of 12" polymer lined steel pipeline, having a max design pressure of 2,250 psi into ≈1,690' of 8" steel pipeline, having a max design pressure of 1,440 psi. The maximum anticipated operating pressure for delivery from Middlefork (I.D. #120803) to the A03 (I.D. #335720) will be 1,740 psi in the 12" polymer lined steel. These pipelines will deliver to 10, 500-bbl. frac tanks, located on the A03.

Berry shall maintain all regulatory responsibility, custody and control for all water, until such time as it is transferred to Caerus at the Custody Transfer Point. Once the water enters the Caerus offload on the Gun Barrel tank, Caerus will assume regulatory responsibility, custody and control of the water. (See Exhibit B attached map for additional detail on the Custody Transfer Point).

All isolation valves on pipelines involved in the transfer are shown on Exhibit B.

Transfer

Caerus's transferring activities will consist of the following:

The volume of fluid to be transferred is estimated at ~500 bbl./day, however, the total volume will not exceed 30,000 bbl. over the effective dates of this agreement. Actual received volumes will be tracked at the Custody Transfer Point.

Caerus will maintain records with the following information:

- Changes to the approved plan;
- Applicable training requirements for Caerus and its contractors (lock out/ tag out, job hazard analysis at the transfer location, etc.);
- Types and results of internal and contractor audits conducted;
- Tabulated water generator records, if required by Rule 907.b.(2) including:
 - Date of transport
 - Identity of water generator
 - Identity of water transporter
 - Location of the produced water pick up site
 - Type and Volume of water transported
 - Name and Location of receiving point
(Transport tickets will be maintained for each load)
- Summary of spills, incidents or upsets;

Such records shall be signed by the transporter, made available for inspection by the Director of the COGCC during normal business hours, and copies thereof shall be furnished to the Director of the COGCC upon request.

Spill Response and Cleanup Measures

Caerus has the following precautions in place for spill response and cleanup measures:

- Caerus pads and facilities are covered under a Spill Prevention Control and Countermeasure Plan (SPCC);
- In addition to the SPCC Plan, Caerus has its own tailored internal Spill Response Program;
- Caerus has strategically located spill response equipment bins throughout the Piceance Basin;
- Integrity testing of flowlines occurs annually and prior to commencing water sharing operations;
- Caerus operated pads have primary containment around water and condensate tanks and secondary containment around drilling and completions operations.

Berry has the following precautions in place for spill response and cleanup measures:

- Berry locations are covered under a comprehensive Spill Prevention Control and Countermeasure Plan (SPCC);
- Berry has spill response equipment bins located at the proposed produced water receiving locations;
- Berry maintains multiple fully loaded spill kit trailers on stand-by ready for deployment in the event of any incident;
- All new-construction Berry operated pads have secondary containment around the equipment and the pad location has secondary containment built around the pad perimeter.

Transferring and Receiving Operator will implement best management practices to contain any unintentional release of fluids, including any fluids conveyed via temporary surface pipelines.

Analytical Data

Approval of this plan is contingent upon analytical laboratory results for representative samples of Caerus water collected from the water sources identified above. Results shall be submitted to the COGCC within 30 days of approval of this plan, unless included with the Form 4 submission. Standard EPA analytical laboratory analysis shall include:

- Volatile organic compounds EPA Method 624 (GC/MS)
- Semi-Volatile organic compounds (EPA Method 625 (GC/MS)
- Dissolved metals (EPA Method 200.7 ICP)
- Dissolved inorganics (non-metals) (EPA Method 300.0, IC)
 - Br, Cl, F, Nitrate / Nitrite, Sulfate
- General water quality parameters
 - Specific conductance (EPA Method 300.0, IC)
 - Hardness (EPA Method 130.1)
 - Total dissolved solids (EPA Method 160.1)
 - pH (EPA Method 150.2)

Operator Contact Information

Berry Petroleum Company LLC
Derek Johnson
235 Callahan Ave
Parachute, CO 81635
Phone: 970.285.5202

Caerus Piceance LLC
Ryan Guldán
Water Superintendent
143 Diamond Ave
Parachute, CO 81635
Phone: 970.285.2816

Termination of Transfer

Both Caerus and Berry shall notify the COGCC via Sundry within 30 days of the termination of activities under this plan.

Annual Reporting

Caerus and Berry will each separately submit an annual report to the COGCC summarizing the transfer of production water (both as transferring and receiving operator) during the calendar year. The annual report shall be submitted on or before the anniversary of the first date of transfer.

END OF DOCUMENT

Exhibit A

Water Source Locations for O29	
Location ID	Name
335998	Chevron E18
335964	Chevron I31
335841	Chevron J20
335596	Chevron K17
335716	Berry F01
335837	Chevron EL 12
335585	Chevron M04
335836	Latham O29
335965	Chevron CD-29
335621	Chevron C20
335840	Latham O32
324393	Chevron O13
311623	Chevron E13
335616	Chevron J13
417618	Chevron C19
335820	Chevron H07A
335917	Chevron E33
415531	Latham I02
335869	Chevron I19
335842	Latham CD-32
335872	Chevron O33
335887	Chevron F06
335966	Chevron K06
335685	Chevron F30
335597	Chevron L04
335583	Chevron O36A
335658	Chevron O36B
335161	Chevron D20

Exhibit B

