

# **Receiving Operator Water Reuse Plan**

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

**May 2018**

## **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 25,000 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 piped or trucked to the Berry O29 Centralized E&P Waste Management Facility (Facility ID 442514) (the "Berry Facilities"), located in Sec. 29, T5S R96W, Garfield County, Colorado, for injection into approved Class II underground injection control ("UIC") locations in the area or reused for drilling and completion activities. Water volumes in excess of amounts that can be reused or injected are sent by Berry to offsite licensed commercial disposal facilities.

Berry would like to transfer excess produced water, for beneficial re-use in Caerus' E&P operations. The source of the produced water is produced water stored / managed at the Berry Facility. Berry proposes to haul produced water via approved water hauler from this source 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. At the Caerus Facility, the water will pass through the offload into the Gun Barrel tank, which will output the water into the Caerus Facility Pond. From the Caerus Facility, the water will be transferred to the 596-31A-65S96W 31NWNE (Location ID 335875, located in Sec 31 T5S R96W, Garfield County, Colorado) through ~3.2 miles of buried 4" flexpipe, having a maximum anticipated operating pressure of ~150 psi which will deliver to twenty (20), 500-bbl. frac tanks on the 596-31A location. There are multiple isolation points along the route, including at the beginning and end of the pipeline. The map for the water share is in Exhibit A.

All Caerus lines will be pressure tested for a minimum of 30 mins prior to initial use. Throughout the transfer, Caerus will frequently monitor receipt of water at the Custody Transfer Point. Caerus and Berry representatives will be in communication to manage the transfer. Caerus will test and verify compatibility of the produced water provided by Berry.

Transfer of produced water would begin upon the date of COGCC approval and terminate after no more than 30 days, with an option for extension.

### **Benefits**

Under this Plan, Berry shall use reasonable and available means to safely transfer production water, in sufficient volumes and quality, to meet the Caerus' transfer request of up to 25,000 bbl. as mutually agreed. The potential benefits include:

- Decreased fresh water withdrawals from surface water sources;
- Decreased reliance on injection wells for disposal of production/flowback water;
- Assistance to Berry during a facility upgrade; and
- 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**

The source of the produced water will be the Berry O-29 Centralized E&P Waste Management Facility (Facility ID 442514) in Sec. 29, T5S R96W, Garfield County, Colorado. Berry proposes to haul produced water via approved water hauler from this source temporarily to MOC Water Storage Facility 32C (Facility ID #433736) in SESW 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. At the Caerus Facility, the water will pass through the offload into the Gun Barrel tank, which will output the water into the Caerus Facility Pond. From the Caerus Facility, the water will be transferred to the 596-31A-65S96W 31NWNE, (Location ID 335875) located in Sec 31 T5S R96W, Garfield County, Colorado through ~3.2 miles of buried 4" flexpipe, having a maximum anticipated operating pressure of ~150 psi which will deliver to twenty (20), 500-bbl. frac tanks on the 596-31A location. There are multiple isolation points along the route, including at the beginning and end of the pipeline. The map for the water share is in Exhibit A.

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 A attached map for additional detail on the Custody Transfer Point).

### **Transfer**

Berry's transferring activities will consist of the following:

The source of the produced water will be produced water stored / managed at the O-29 Centralized E&P Waste Management Facility (Facility ID 442514) in Sec. 29, T5S

R96W, Garfield County, Colorado. Berry proposes to haul produced water via approved water hauler from this source temporarily to the Caerus Facility.

The volume of fluid to be transferred is estimated at ~3,000 bbl./day, however, the total volume will not exceed 25,000 bbl. over the effective dates of this Plan. Actual received volumes will be tracked at the Custody Transfer Point.

Berry 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**

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

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

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

- Caerus's pads are covered under a comprehensive Spill Prevention Control and Countermeasure Plan (SPCC);
- Caerus will have a containment located under the manifold.
- 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;
- Caerus maintains multiple fully loaded spill kit trailers on stand-by ready for deployment in the event of any incident;

- All new-construction Caerus operated pads have secondary containment around the equipment and the pad location has secondary containment built around the pad perimeter.

### **Analytical Data**

Sample results from a representative sample of the water to be transferred to Caerus will be provided to COGCC within 30 days of approval of this agreement.

### **Operator Contact Information**

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### **Summary**

Water Origination: Berry produced water will be sourced from the O-29 Centralized E&P Waste Management Facility (Facility ID 442514) in Sec. 29, T5S R96W, Garfield County, Colorado.

#### Water Transportation and Destination:

Produced water will be hauled, via approved water hauler, to the Caerus Facility. 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. At the Caerus Facility, the water will pass through the offload into the Gun Barrel tank, which will output the water into the Caerus Facility Pond. From the Caerus Facility, the water will be transferred to the 596-31A-65S96W 31NWNE (Location ID 335875 located in Sec 31 T5S R96W, Garfield County, Colorado) transferred through ~3.2 miles of buried 4" flexpipe, having a maximum anticipated operating pressure of ~150 psi which will deliver to twenty (20), 500-bbl. frac tanks on the 596-31A location. There are multiple isolation points along the route, including at the beginning and end of the pipeline. The map for the water share is in Exhibit A.

Estimated volume of water transferred: Up to an estimated 3,000 bbl./day, over a 30-day period, not to exceed 25,000 bbl., with the possibility for extension via sundry notice.

#### Obligations:

The transferring operator shall implement the following:

- Approval of this Plan is contingent upon analytical laboratory results for representative samples of Berry water collected from the water sources identified above. Results shall be submitted to the COGCC within 45 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 must implement best management practices to contain any unintentional release of fluids, including any fluids conveyed via temporary surface pipelines.

Termination of activities: Both Caerus and Berry shall notify the COGCC via Sundry 30 days prior to the effective date of the termination of activities.

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.

Exhibit A

