



**Kerr-McGee Oil & Gas Onshore LP**

**Waste Management Plan**

**Bronco Comprehensive Area Plan (CAP)**

**And**

**Bronco Comprehensive Development Plan (CDP)**

**Weld County, Colorado**

**July 2023**

**Revised October 2023**

**Second Revision January 2024 (update "COGCC" to "ECMC")**

## **Waste Management**

Kerr-McGee Oil & Gas Onshore LP (Kerr-McGee) operations will meet the requirements Weld County Code Sec. 21-5-320.B.9, Sec. 21-5-450, COGCC 900 Series, and EPA CFR parts 260 through 273. All waste management and best management practices will be conducted in accordance with the operational requirements listed below.

### **Waste Storage, Handling, and Best Management Practices**

The proper handling and storage of waste is essential to ensuring protection of human health and the environment, while minimizing company liability. The following guidelines identify proper waste handling and storage practices to be employed by personnel at pads associated with the Bronco CAP and CDP.

- Waste will be stored in containers or on lined containment that are chosen for compatibility and checked periodically for leaks or integrity problems. Examples of containment include but are not limited to 3-sided steel tanks, steel tanks, lined containment, plastic totes, drums, etc.
- All specific wastes in the attached site-specific Table will have a detailed Safety Data Sheet available which includes information such as the properties of the wastes; the physical, health, and environmental health hazards; protective measures; and safety precautions for handling, storing, and transporting the chemical.
- The proper personal protective equipment will always be worn when handling waste. Employees will refer to the Safety Data Sheet for additional information.
- Good housekeeping measures will be implemented in the operating area to ensure safety and environmental well-being.
- Waste will be segregated and stored according to its waste type.
- When feasible, waste will be recycled, re-used, or treated onsite. As a best management practice fluids are generally re-used from location to location if possible. Produced water and flowback (water) will be treated, recycled, and used throughout the pads associated with the Bronco CAP and CDP during the well stimulation process. Water recycling operations are described below. In the event that additional onsite treatment or recycling is feasible, a written management plan will be submitted to the Director for approval on a Form 4.
- All waste streams will be transported off location for recycling or disposal in a timely manner in accordance with local, state, and federal regulations.
- All spills or leaks will be cleaned up upon discovery in accordance with local, state, and federal testing and cleanup standards. All waste generated from the cleanup process will be profiled, as required by local, state, and federal regulations, for recycling or disposal. Manifests will be used to track all waste generated.
- During drilling, completions, and facility construction, human waste and septic from temporary buildings will be stored in tanks. These tanks will be emptied via vacuum truck for disposal. Temporary portable restrooms will also be available for workers during this phase.

### **Waste Characterization and Volumes**

Waste will be characterized in accordance with local, state, and federal requirements. Different types of wastes will be characterized via process knowledge, safety data sheets, or laboratory analysis in accordance with regulations and the requirements of the permitted facility to which they will be taken for ultimate disposition. Different types of waste have different classifications such as hazardous, non-hazardous, and E&P exempt. The majority of waste generated at this well pad will be E&P exempt. Volumes of waste will be highly variable with

some potential waste never being generated and can vary greatly throughout the life of the well. Wastes such as drill cuttings, flowback sand, and produced fluids will certainly be generated with volumes ranging from approximately 350-700 cubic yards per well, 100-300 cubic yards per well, and 50-1,500 barrels per day, respectively.

### **Waste Transportation and Disposal**

Wastes will be transported to facilities authorized by the Director, to permitted commercial waste disposal facilities, permitted commercial waste facilities, or permitted beneficial use sites.

All E&P wastes transported offsite will be ticketed, signed by the transporter, and maintained to be provided upon request for a minimum of 5 years. Each ticket will include the information listed below.

- The date of the transport.
- The identity of the waste generator.
- The identity of the waste transporter.
- The location of the waste pickup site.
- The type and volume of waste.
- The name and location of the treatment or disposal site.

### **Site Specific Information**

The attached table lists the potential waste management options for the Bronco CAP and CDP. The site-specific table lists the following management features.

- Waste Type
- Storage Container
- Waste Disposal Facility
- Potential Volumes per Well
- Frequency of Transport per Well
- Waste Characterization
- Potential Hazard
- E&P Exemption status
- Narrative/Phase of Generation

For each waste type a variety of options are identified due to factors that change during the course of normal operation and life of the facility such as waste volumes, disposal facility hours of operation, facility capacities, etc.

### **Produced and Flowback Water Recycling**

This provides a summary of the Kerr-McGee operations for treating, recycling or using water in an attempt to use a decreased percentage of fresh water in accordance with State of Colorado House Bill 23-1242. Where available, Kerr-McGee will contract a third-party vendor to manage a water recycling process that will treat produced water to well completion standards. Once the water has been treated, Kerr-McGee plans to re-use the treated water as hydraulic fracturing feed water, therefore reducing the use of fresh water in its operations in Bronco CAP and CDP . The water recycling process will also assist Kerr-McGee with reducing the volume of produced water sent to commercial disposal. This process will also reduce truck traffic because the treated water will be piped directly to the respective Oil and Gas Locations for hydraulic fracturing operations. The

proposed water recycling process will be utilized for only Kerr-McGee's operations in the Bronco CAP / CDP lands and the third-party vendor will not accept water from third parties.

The semi-mobile water recycling process will remove oil, grease, break and remove emulsions, settle solids, remove bacteria, among other things, and will adjust chemical parameters such as pH through four stages of treatment. This treated water will then be re-used for hydraulic fracturing operations. The four stages of treatment include:

- 1) Oxidation and hardness reduction in order to reduce organics/microorganisms and boost the pH if needed.
- 2) Settling and dissolved air flotation via flocculation/coagulation.
- 3) Filtration and polishing.
- 4) Solids control and disposal.

The following bullet points provide additional information about the third-party mobile recycling system that will provide treated water to Kerr-McGee's hydraulic fracturing operations.

- The mobile recycling system will be placed on the Daniel Boone 8-15HZ pad located in the SE¼NE¼ of Section 15, Township 3 North, Range 63 West, 6<sup>th</sup> P.M., Weld County, Colorado within the Bronco CAP and CDP. The system will remain on location for approximately 6-24 months. After providing water to the final location scheduled for completions in the Bronco CAP / CDP lands the facility will be decommissioned and all equipment removed as soon as practicable.
- The mobile recycling system can treat approximately 10,000 barrels of produced water per day with capabilities to capture additional produced volumes if available. Kerr-McGee anticipates utilizing pipelines for managing the transport of produced water.
- The sludge generated from the recycling treatment will be collected in tanks on the Daniel Boone 8-15HZ pad and transported offsite for disposal at a permitted landfill or Kerr-McGee's Aggregate Recycle Facility. The resulting treated water from the dewatering process will be recirculated back through the mobile recycling system.
- Produced water and treated water will be in closed top frac tanks or vessels designed for produced water storage. Emissions controls equipment will be utilized and installed as specified by state and federal requirements. Raw produced water and treated water will not be stored in pits.
- Best management practices will be incorporated for above ground piping carrying treated water to oil and gas locations for use in hydraulic fracturing operations on the respective wells. The majority of piping will be above ground where it can be easily and consistently be evaluated for leaks. Additionally, fused high density polyethylene pipe or piping with similar protective qualities will be utilized to carry treated water as this is best industry practice for minimizing leaks along fluid transportation corridors.
- Kerr-McGee will maintain spill controls at the Daniel Boone 8-15HZ pad where the mobile recycling system is utilized. The untreated water tanks will be placed within a lined secondary containment which will be sized to accommodate SPCC requirements.
- All tanks and vessels will be inspected daily, and the facility will be staffed 24 hours per day.
- Kerr-McGee will maintain a waste tracking program for the mobile recycling system as noted above.
- Once the mobile recycling operation has been decommissioned, all remaining produced water shall be piped from each of the locations to a third party SWD well.

Quality assurance will be maintained through sampling and analysis at various stages of the treatment process. Kerr-McGee will be regularly testing and documenting soluble iron, bacterial control, dissolved H<sub>2</sub>S, pH, and oxidation reduction potential.

The locations and volumes of the source produced water will be documented for the water recycling process. When treated water is used as hydraulic fracturing feed water, the locations and volumes of the source produced water will be provided to the Energy and Carbon Management Commission as required by rule or statute.

Waste Type	Storage Container	Waste Disposal or Centralized E&P Management Facility	Potential Volume per Well	Frequency of transport per Well	Waste Characterization	Potential Hazard	E&P Exempt	Narrative/Phase of Generation
Water-based drilling fluids and associated drill cuttings	Steel bins, roll-offs, or tanks	Drilling Fluid Management Facility #3 (ECMC Facility ID 439305)	300-700 cubic yards	Daily-weekly	DFMF 3 ECMC permit requirements	None	Yes	Drilling, Plugging and Abandonment
		Aggregate State Fluid Recycling Facility (ECMC Facility ID 456644)			Aggregate State Fluid Recycling Facility Waste Management Plan requirements			
		Waste Connections, Erie, Colorado			Landfill requirements			
		Buffalo Ridge, Keenesburg, Colorado						
Oil-based drilling fluids and associated drill cuttings	Steel bins, roll-offs, or tanks	Aggregate State Fluid Recycling Facility (ECMC Facility ID 456644)	300-700 cubic yards	Daily-weekly	Aggregate State Fluid Recycling Facility Waste Management Plan requirements	Ingitable/Combustible, Toxic	Yes	Drilling, Plugging and Abandonment, Spill Response and Remediation
		Waste Connections, Erie, Colorado			Landfill requirements			
		Buffalo Ridge, Keenesburg, Colorado						
Flowback sand	Steel bins, roll-offs, or tanks	Aggregate State Fluid Recycling Facility (ECMC Facility ID 456644)	100-300 cubic yards	Daily-weekly	Aggregate State Fluid Recycling Facility Waste Management Plan requirements	Ingitable/Combustible, Toxic	Yes	Drilling, Plugging and Abandonment, Spill Response and Remediation
		Waste Connections, Erie, Colorado			Landfill requirements			
		Buffalo Ridge, Keenesburg, Colorado						
Flowback and produced water	Piped to recycle and reuse facility or put directly into pipe, steel tanks, flow through process vessels	Flowback and produced water not recycled & reused will be piped to a licensed disposal well in Colorado	50-1,500 bbls per day	Daily-weekly	ECMC UIC permit requirements	Ingitable/Combustible, Toxic	Yes	Completions, Flowback, Production, Facility Decommissioning, Plugging and Abandonment
Oil and produced fluid impacted soil	Containment, steel roll-offs, or loaded directly into transportation	KMOG Land Treatment Facility (ECMC Facility ID 149007)	Highly Variable	Daily-Never	Land Treatment Facility Waste Management Plan requirements	Ingitable/Combustible, Toxic	Yes	Spill Response and Remediation
		Aggregate State Fluid Recycling Facility (ECMC Facility ID 456644)			Aggregate State Fluid Recycling Facility Waste Management Plan requirements			
		Waste Connections, Erie, Colorado			Landfill requirements			
		Buffalo Ridge, Keenesburg, Colorado						
Tank bottoms, oily waste, water treatment sludge, filter socks, and workover fluids	Steel bins, roll-offs, tanks, containment, or loaded directly into transportation	KMOG Landfarm (ECMC Facility ID 149007)	Highly Variable	Weekly-Never Generated	Land Treatment Facility Waste Management Plan requirements	Ingitable/Combustible, Toxic	Yes	Drilling, Completions, Flowback, Production, Spill Response and remediation, Facility Decommissioning, Plugging and Abandonment
		Aggregate State Fluid Recycling Facility (ECMC Facility ID 456644)			Aggregate State Fluid Recycling Facility Waste Management Plan requirements			
		Waste Connections, Erie, Colorado			Landfill requirements			
		Buffalo Ridge, Keenesburg, Colorado						
		Tower Road Landfill, Denver, Colorado						
		Foothills Landfill, Golden, Colorado						
Clean Harbors, Deer Trail, Colorado								
Non-hazardous industrial waste	Steel bins, roll-offs, tanks, containment, or loaded directly into transportation	Waste Connections, Erie, Colorado	Highly Variable	Weekly-Never Generated	Landfill requirements	Ingitable/Combustible, Toxic	No	Drilling, Completions, Flowback, Production, Spill Response and remediation, Facility Decommissioning, Plugging and Abandonment
		Buffalo Ridge, Keenesburg, Colorado						
		Tower Road Landfill, Denver, Colorado						
		Foothills Landfill, Golden, Colorado						
		Clean Harbors, Deer Trail, Colorado						
Hazardous waste	Steel bins, roll-offs, tanks, totes, drums, clean packs	Clean Harbors, Kimble, Nebraska	Highly Variable	Yearly-Never Generated	Resource, Conservation, and Recovery ACT (RCRA) and Landfill requirements	Ingitable/Combustible, Corrosive, Reactive, Toxic	No	Drilling, Completions, Production
		Clean Harbors, Deer Trail, Colorado						
General trash and non-hazardous municipal solid waste	Steel bins or roll-offs	Waste Connections, Erie, Colorado	Highly Variable	Weekly-Never Generated	No characterization required	None	No	Construction, Drilling, Completions, Flowback, Production, Spill Response and Remediation, Facility Decommissioning, Plugging and Abandonment
		Buffalo Ridge, Keenesburg, Colorado						
Human Wastes	Steel Septic Tanks or Port-a-lets	McDonald Farms, Longmont, Colorado	Highly Variable	Weekly-Monthly	No characterization required	Biological	No	Construction, Drilling, Completions, Flowback, Production, Spill Response and Remediation, Facility Decommissioning, Plugging and Abandonment
		Columbia Sanitation, Golden, Colorado						