



Kerr-McGee Oil & Gas Onshore LP

Water Plan

DB Farms 40-12HZ Oil and Gas Development Plan

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I. DB Farms 40-12HZ Water Use Information

Table of Estimated Total Volume of Water To be Used for Drilling and Completions Operations (barrels)		
Surface Water	Groundwater	Recycled Water
2,256,748	782,854	15,045

II. Drilling Operations Estimated Water Use: 26,736 barrels total

Water sources change for every project, throughout the project phases, and will not be known at the time of permitting due to the following factors:

- Kerr McGee Oil & Gas Onshore, LP (KMOG) maintains contractual agreements with multiple companies that have different water sources. This flexibility allows for efficient water transportation and minimizing traffic, dust, noise impacts which, ultimately, protect the health, safety, welfare of the community, and the environment.
- KMOG adjusts which sources are used to provide certain volumes to certain drilling locations depending on the day and the demands throughout the system and the available supply from suppliers.
- This table contains a list of water sources that are anticipated be used to supply drilling operations with water for the proposed OGD. All these sources 1, 2, and 3 are subject to change due to contractual obligations, operational constraints, and supply availability. Other sources not mentioned in this list could potentially be used as dictated by contractual obligations, operational constraints, and supply availability. All used sources are documented with detailed record of volumes used from each source. The data can be provided after completion of the project.

Table of anticipated Water Sources Utilized by KMOG for Drilling

Source Number	Source Name	Type	GPS Coordinates Lat/Long (deg)	Seller Name	Seller Address
1		Surface Water			
2		Surface Water			
3		Surface Water			

III. Completions Operations Estimated Water Use: 3,027,911 barrels total

1) Water-on-Demand System

Completions operations are supplied with water using the KMOG Water-on-Demand (WOD) system. This system is a network of over 180 miles of underground pipeline that stretches the length of the 20-mile by 30-mile Wattenberg field to source and transport water to completions operations. This system eliminates more than 2,000 truck trips per day field-wide, while reducing noise, traffic, emissions, and dust impact.

The following factors affect the sourcing and delivery of water to completion operations and the information provided in this Water Plan:

1. The WOD system has been designed to allow for delivery of water from multiple sources.
2. KMOG currently only contracts water annually so knowing which specific sources will be contractually available is difficult to predict at the time of submitting the OGDG.
3. With the WOD system design functionality (capable of accessing multiple water sources) KMOG will choose the best source combination for the job based on the water contract terms, the WOD water system capacity, and the forecasted geographic area of water demand (hydraulic fracturing activity).
4. Historically, KMOG has used approximately 75% surface water, 24.5% ground water, and 0.5% recycle water. The balance of source type will likely be slightly different for the future completions operation based on the factors mentioned above.
5. Detailed daily accounting is maintained for all WOD water supplies and provided to the Colorado Division of Water Resources annually and upon request.
6. Daily detailed accounting of water sources used for this OGDG can be provided upon request after contract execution and fulfillment.

2) Water Sources

Water sources change for every project, throughout the project phases, and will not be known at the time of permitting due to the following factors:

- KMOG maintains contractual agreements with multiple companies that have different water sources. This flexibility allows for efficient water transportation and minimizing traffic, dust, noise impacts which, ultimately, protect the health, safety, welfare of the community, and the environment.
- KMOG adjusts which sources are used to provide certain volumes to certain completion locations depending on the day and the demands throughout the WOD system.
- KMOG maintains a dynamic WOD system that provides efficiency gains to minimize the impact on one specific source and only uses surface and groundwater sources that are regenerative.
- KMOG uses non-potable river quality water for completion operations. KMOG does not use any “fresh” municipal treated water for completions operations.
- The table included in the following page contains a list of water sources for the WOD system that are anticipated to be used to supply the WOD system with water for completion operations of the proposed OGDG. Sources 1, 2, 3, 4, and 5 are anticipated to be used as primary sources. A second table includes the back-up sources 6,7,8, and 9 that could also be used to supply water if the anticipated primary sources are not available. All primary and back-up sources are subject to change due to contractual obligations, operational constraints, and supply availability. Other sources not mentioned in this list could potentially be used as dictated by contractual obligations, operational constraints, and supply availability. All used sources are documented with detailed record of volumes used from each source. The data can be provided after completion of the project.

Table of Anticipated Primary Water Sources Utilized for Completions

Source Number	Source Name	Type	GPS Coordinates Lat/Long (deg)	Seller Name	Seller Address
1	[REDACTED]	Ground Water	[REDACTED]	[REDACTED]	[REDACTED]
2	[REDACTED]	Surface Water	[REDACTED]	[REDACTED]	[REDACTED]
3	[REDACTED]	Surface Water	[REDACTED]	[REDACTED]	[REDACTED]
4	[REDACTED]	Ground Water	[REDACTED]	[REDACTED]	[REDACTED]
5	[REDACTED]	Surface Water	[REDACTED]	[REDACTED]	[REDACTED]

Table of Anticipated Back-up Sources Utilized for Completions

Source Number	Source Name	Type	GPS Coordinates Lat/Long (deg)	Seller Name	Seller Address
6	[REDACTED]	Surface Water	[REDACTED]	[REDACTED]	[REDACTED]
7	[REDACTED]	Surface Water	[REDACTED]	[REDACTED]	[REDACTED]
8	[REDACTED]	Surface Water	[REDACTED]	[REDACTED]	[REDACTED]
9	[REDACTED]	Surface Water	[REDACTED]	[REDACTED]	[REDACTED]

3) Recycled Water Compliance with Table 437-1

To achieve compliance with Table 437-1 Kerr-McGee Oil and Gas Onshore LP (KMOG) developed a baseline analytical dataset to determine the potential background levels of Benzene, Lead, Mercury, Arsenic, Cadmium Ethylbenzene, Xylene, 1,3,5- trimethylbenzene and 1,4-dioxane in recycle water streams. Inlet and outlet fluid samples were collected biweekly for four consecutive weeks at the Aggregate Recycle Facility (Facility ID #456644) to develop baseline conditions for constituents that have laboratory detections methods referenced in Table 437-1. Average concentrations of each constituent were compared on a inlet vs outlet bases and determined that concentrations were not compounding in response to the recycling treatment process. Samples will be taken monthly for a period of one year to provide ongoing monitoring and increase baseline data reporting. Constituents referenced in Table 437-1 without readily available laboratory detection methods were evaluated based on a records review and determined to have not been included within the genesis of waste streams handled at the Aggregate Recycled Facility. KMOG will apply for a sundry and provide additional data as it is collected closer to the start date of operations.