



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

**Water Plan**

**Flower Oil and Gas Development Plan**

## Table of Contents

<b>I. Water Use Information .....</b>	<b>3</b>
<b>II. Drilling Operations Water Use .....</b>	<b>3</b>
<b>Table of anticipated Water Sources Utilized by KMOG for Drilling.....</b>	<b>4</b>
<b>III. Completions Operations Water Use.....</b>	<b>4</b>
<b>1) Water-on-Demand System .....</b>	<b>4</b>
<b>2) Water Sources .....</b>	<b>5</b>
<b>Table of Anticipated Primary Water Sources Utilized for Completions .....</b>	<b>5</b>
<b>Table of Anticipated Back-up Sources Utilized for Completions .....</b>	<b>6</b>
<b>3) Recycled Water Compliance with Table 437-1 .....</b>	<b>6</b>

## I. Water Use Information

Pad Name: Vista 16 HZ						
	Construction Water		Completions Water		Drilling Water	
	%	BBLS	%	BBLS	%	BBLS
<b>Total Water Usage by Phase:</b>		19,250		4,289,100		22,000
<b>Surface Water</b>	0%	0	75%	3,216,825	0%	0
<b>Ground Water</b>	100%	19,250	24.5%	1,050,830	100%	22,000
<b>Recycled Water (produced water)</b>	0%	0	0.50%	21,446	0%	0
<b>Recycled water (non produced water)</b>	0%	0	0%	0	0%	0
<b>Unspecified Sources</b>	0%	0	0%	0	0%	0
						<b>4,330,350</b>

Pad Name: Schmerge 9-4HZ						
	Construction Water		Completions Water		Drilling Water	
	%	BBLS	%	BBLS	%	BBLS
<b>Total Water Usage by Phase:</b>		19,250		9,525,545		30,800
<b>Surface Water</b>	0%	0	75%	7,144,159	0%	0
<b>Ground Water</b>	100%	19,250	24.5%	2,333,759	100%	30,800
<b>Recycled Water (produced water)</b>	0%	0	0.50%	47,628	0%	0
<b>Recycled water (non produced water)</b>	0%	0	0%	0	0%	0
<b>Unspecified Sources</b>	0%	0	0%	0	0%	0
						<b>9,575,595</b>

## II. Drilling Operations Water Use

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 Water Use

#### 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 OGD.
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.
- 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,and 8 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]	Surface Water	[REDACTED]	[REDACTED]	[REDACTED]
2	[REDACTED]	Surface Water	[REDACTED]	[REDACTED]	[REDACTED]
3	South Platte	Surface Water	40.240, -104.860	Free River - Colorado Division of Water Resources	810 9th Street, Suite 200, Greeley, CO 80631
4	[REDACTED]	Ground Water	[REDACTED]	[REDACTED]	[REDACTED]
5	C-BT	Surface Water	Anywhere in the NCWCD District	TBD	TBD

**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]	Ground Water	[REDACTED]	[REDACTED]	[REDACTED]
7	[REDACTED]	Surface Water	[REDACTED]	[REDACTED]	[REDACTED]
8	[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) will develop 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. The background will be developed through collecting inlet and outlet fluid samples from the Aggregate State Fluid Recycling Facility (Facility ID 456644) to compare treatment efficiencies and ensure recycled water is not accumulating the forementioned compounds above background levels once established. The Aggregate State Fluid Recycling Facility manages primarily non-produced E&P wastes. For this reason, an initial background will be developed in June of 2021 followed by a series of random sampling events throughout the remainder of 2021. This process will be completed to ensure an accurate background is developed given the potential variability of the wastes being treated. No chemical additives listed in table 437-1 have been or will be used to assist in water treatment activities. A records review will be completed by KMOG to ensure the remaining compounds listed in Table 437-1 have not been used as an additive in well completion operations within the past five years. If a facility has been determined to have had contact with a Table 437-1 listed ingredient, additional sampling will be completed at the location to determine its suitability for recycling opportunities.