



**COLORADO**  
**Oil & Gas Conservation**  
**Commission**

Department of Natural Resources

1120 Lincoln Street, Suite 801  
Denver, CO 80203

**MEMORANDUM**

Date: June 2, 2016

**TO:** Andrew Flor  
Division of Water Resources

**FROM:** Robert P. (Bob) Koehler  
Oil and Gas Conservation Commission

**SUBJECT:** Need for Hydrologic Information

The Oil and Gas Conservation Commission (OGCC) has received an application for a water injection project, summarized as follows:

LOCATION	COUNTY	FIELD
NWSE Section 35, Township 9 North, Range 91 West 6th P.M.	Moffat	Blue Gravel (#6970)

WELL NAME	Federal # 5-35 (API: 081-06818)	
INJECTION ZONE FORMATION	Lewis Formation	
DEPTH OF INJECTION INTERVAL	5,230 to 5,251	feet
PROPOSED INJECTION PRESSURE	650	psig
FRAC GRADIENT OR PRESSURE (BHP)	0.6	psi/ft
VOLUME OF FLUID TO BE INJECTED	20-100	bbl/day
TDS OF INJECTION ZONE FLUID	14,191	mg/L
TDS OF FLUID TO BE INJECTED	18,140	mg/L

WELL CONSTRUCTION DATA					
CASING STRING	HOLE SIZE	CASING SIZE	SET DEPTH	AMOUNT CEMENT	CEMENT TOP
Surface	12-1/2"	8-5/8"	352'	260 sks	0'
1st String*	7-7/8"	5-1/2"	5,382'	416 sks	*2,820'

\*Operator's value, source unknown

Please furnish the OGCC with the name and depth of any aquifer in the area of injection that is a known or potential fresh water stratum. We would also like a list of the water wells within one half mile of this location. Any other information with regard to distance to streams, ditches or outcrops would be very helpful. Thank you.

P 303.894.2100 F 303.894.2109 [www.colorado.gov/cogcc](http://www.colorado.gov/cogcc)

Commissioners: Thomas L. Compton - Chairman, Richard Alward, John H. Benton, DeAnn Craig,  
James W. Hawkins, Tommy Holton, Andrew L. Spielman, Dr. Larry Wolk

John W. Hickenlooper, Governor | Robert Randall, Interim Executive Director, DNR | Matthew J. Lepore, Director





**COLORADO**  
**Division of Water Resources**  
Department of Natural Resources

1313 Sherman Street, Room 821  
Denver, CO 80203

MEMORANDUM

TO: Robert P. Koehler, PhD, Oil & Gas Conservation Commission  
FROM: Andrew Flor, Hydrogeologist  
DATE: August 30, 2016  
SUBJECT: Water Injection Project - Savage 8A-794-SWD (API: 05-045-23079)  
NE NE S8 T7S R97W, Garfield County  
Caerus Piceance LLC

On June 2, 2016 you sent a memo describing a proposal by Mustang Resources LLC to use an existing well, Federal #5-35, for injection into the Lewis Formation. The injection interval for the Lewis Formation is 5,230-5,251 feet. The well will be located in the NW¼ of the SE¼ of Section 35, Township 9 North, Range 91 West of the Sixth Principal Meridian in Moffat County. The well will be approximately 18 miles north of Craig, CO and 4 miles west of State Highway 13.

The well completion information indicates that this well is currently constructed with a 8-5/8-inch surface casing extending to a depth of 352 feet and is cemented back up to the surface. 5-1/2-inch casing extends to a depth of 5,382 feet and is cemented back up to 2,820 feet below ground surface.

There are no completed water supply well of record within ½ mile of the wellhead, as shown in Table 1. There are three water rights structures (reservoirs) within ½ mile of the proposed wellhead as shown in Table 2. There are no COGCC oil/gas wells within ½ mile of the proposed wellhead as shown in Table 3. A PDF output from AquaMap delineating a ½ mile radius from the proposed injection well is attached. Permitted water supply wells are shown with green circles, decreed water rights structures are shown with magenta squares, and OGCC wells are shown as blue squares.

There are six dams within 10 miles of this injection well: Freeman (10 miles northeast), Martin Gull (8 miles east), Millspaugh (8 miles east), Blaine Dryden (7 miles east), Little Cottonwood Creek (7 miles east), and Baker (4 miles east). The dams and hazard ratings are shown on an attached map.

The shallow geology of this area consists of relatively thin packages of Holocene and Pleistocene residuum overlying the Tertiary Wasatch Formation. Below the Wasatch Formation lies the Tertiary Fort Union Formation and the Cretaceous Lance and Lewis Formations. The Lewis Formation outcrops approximately 17 miles to the south.



Due to the depth and poor water quality of the injection zone formation (TDS=14,191 mg/L) it is not considered to be a source of potable groundwater at this location. Based on the information provided, injection into the Lewis Formation through a properly constructed well should not negatively impact existing groundwater or surface water resources in the vicinity. If you have any questions or require additional information, please feel free to contact me (303-866-3581 x8218).



Table 1

RECEIPT	PERMIT	STATUS	WELL NAME	USE	AQUIFER	DEPTH	OWNER	MORE INFO
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Table 2

Structure Type	WDID	Associated Permits	Associated Case Numbers	Structure Name	More Info
RESERVOIR	5403514		82CW0245	VISINTAINER B RES 7	<a href="http://www.dwr.state.co.us/structure/structure.aspx?wd=54&amp;strid=3514">http://www.dwr.state.co.us/structure/structure.aspx?wd=54&amp;strid=3514</a>
RESERVOIR	5404591		82CW0235	VISINTAINER RES 63	<a href="http://www.dwr.state.co.us/structure/structure.aspx?wd=54&amp;strid=4591">http://www.dwr.state.co.us/structure/structure.aspx?wd=54&amp;strid=4591</a>
RESERVOIR	5404592		82CW0235	VISINTAINER RES 64	<a href="http://www.dwr.state.co.us/structure/structure.aspx?wd=54&amp;strid=4592">http://www.dwr.state.co.us/structure/structure.aspx?wd=54&amp;strid=4592</a>

Table 3

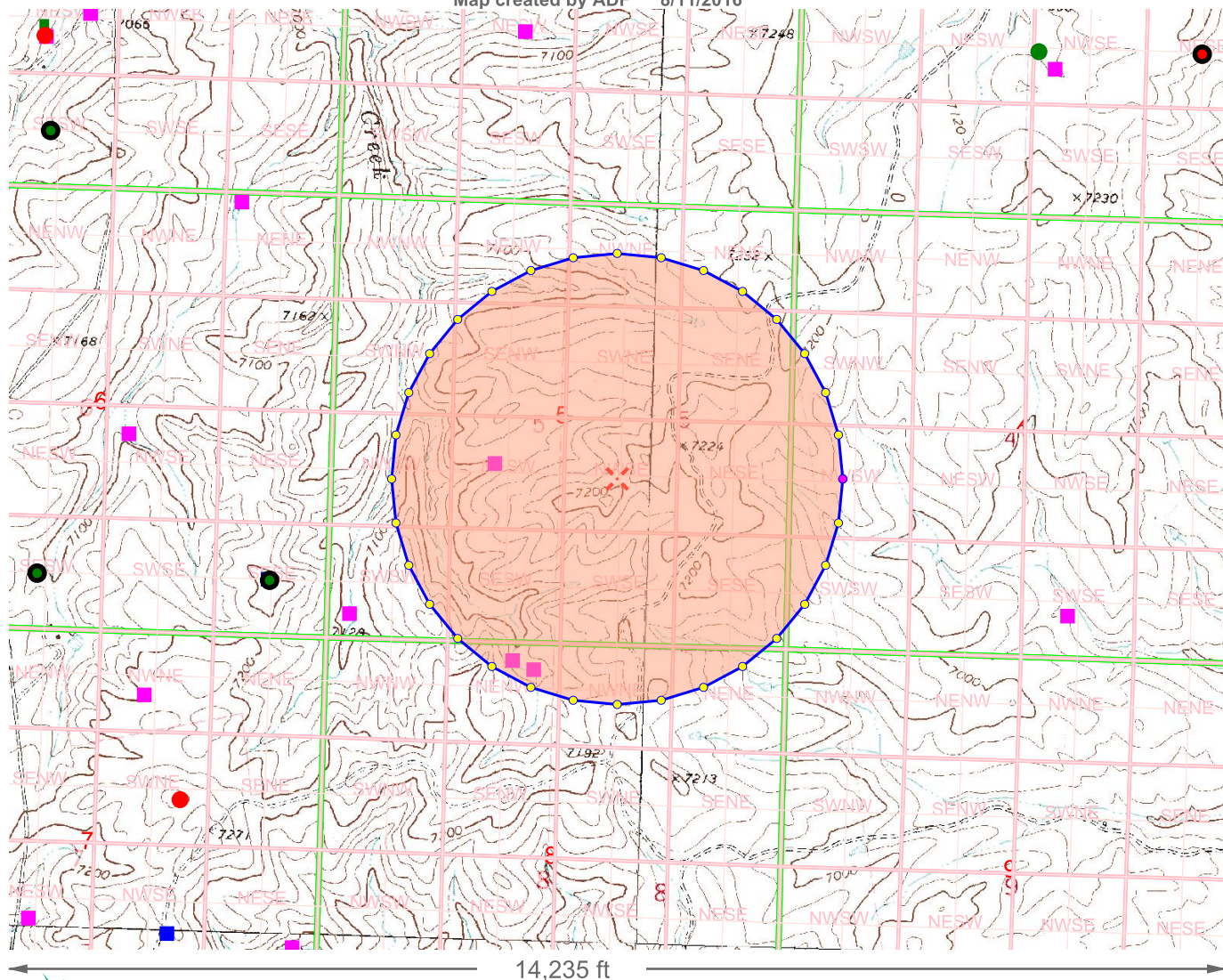
API_NUM	WELL_NAME	WELL_STATUS	PLSS_LOCATION	OPERATOR_NAME
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# AQUAMAP

## Colorado Division of Water Resources

### Federal 5 35 API 0508106818

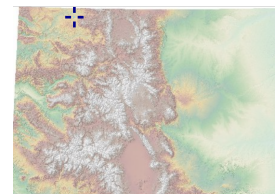
Map created by ADF 8/11/2016



Based on work developed at <http://www.carto.net>

Address location by Bing Maps  
AquaMap Version 3.0.1 July 5, 2009

## MAP NAVIGATION



Click to create PDF  
UTM X, Zone 13: 277030  
UTM Y, Zone 13: 4517852  
Long: -107° 38' 32.5"  
Lat: 40° 46' 53.1"  
UTM and Geographic(LL)  
coordinates in NAD 83

## DATA DISPLAY

- |   |  |  |
|---|--|--|
| <input checked="" type="checkbox"/> Background                  | <input checked="" type="checkbox"/> Counties               | <input checked="" type="checkbox"/> Water Well Application |
| Quad Maps <span>▼</span>  | <input checked="" type="checkbox"/> PLSS                   | <input type="checkbox"/> DWR Parcels                       |
| <input type="radio"/> Low <input checked="" type="radio"/> High | <input type="checkbox"/> Roads                             | <input checked="" type="checkbox"/> EPA Well Notification  |
| Transparency <span>▬</span>                                     | <input type="checkbox"/> Hydrography                       | <input checked="" type="checkbox"/> Oil/Gas Well Location  |
|   | <input type="checkbox"/> County Parcels (No Public Access) |  |
|   | <input type="checkbox"/> Towns                             | <a href="#">More Data</a>                                  |

## LOCATION

Section: 5 ▼ Township: 9 ▼ N ▼ Range: 91 ▼ W ▼ Meridian: Sixth ▼

[PLSS Locator](#) [Quick Zoom](#) [Spacing](#)

## PRINTING

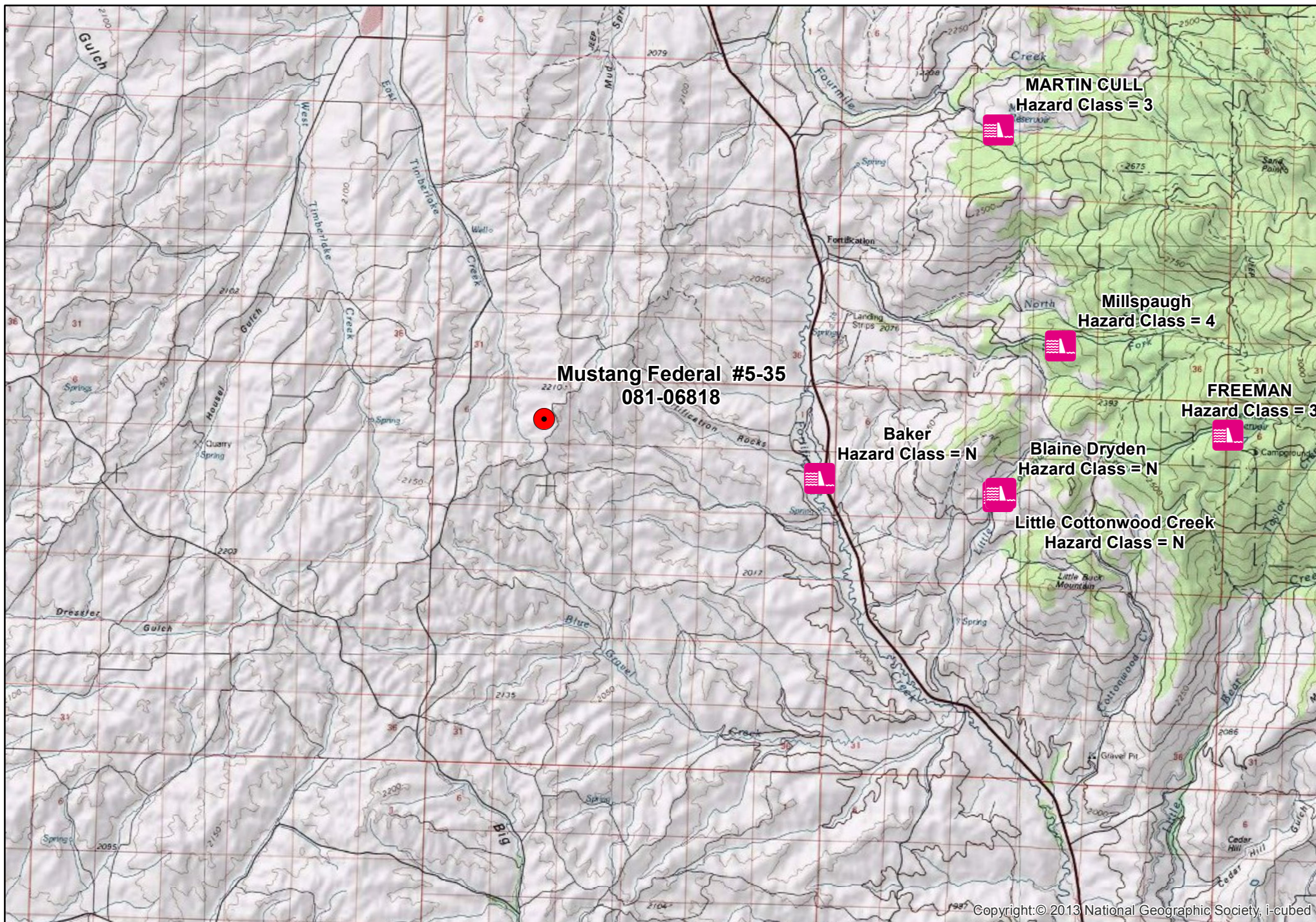
Output Scale: 24,000 ▼ Page Size: 8.5x11 ▼ User: ADF

Title: [Federal 5 35 API 0508106818](#)

Note: The well locations displayed on AquaMap are based on location information provided by well permit application forms and are only as accurate as the information provided. The actual physical location of all wells have not been field verified and may vary from the location displayed. Refer to a copy of the original well permit file, available on the Division of Water Resources website, for well location details.







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## Mustang Resources LLC - Federal #5-35 Surrounding Dams

1 inch = 10,000 feet

