



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: September 2, 2016
SUBJECT: Water Injection Project - Decker 22-18 #2 (API: 05-121-05126)
SE NW S18 T4S R53W, Washington County
Diamond Operating, Inc.

On July 18, 2016 you sent a memo describing a proposal by Diamond Operating, Inc. to use an existing well, Decker 22-18 #2, for injection into the J-Sandstone (4,644-4,732 feet below ground surface) formation. The well is located in the SE $\frac{1}{4}$ of the NW $\frac{1}{4}$ of Section 18, Township 4 South, Range 53 West of the Sixth Principal Meridian in Washington County. The well will be approximately 3 miles southeast of Lindon, CO and 5 miles north of Gordon Creek.

The well completion information indicates that this well is currently constructed with a 8-5/8-inch surface casing extending to a depth of 142 feet and is cemented back up to the surface. 5-1/2-inch casing extends to a depth of 4,742 feet and is cemented back up to 4,029 feet below ground surface. Inside of the 5-1/2-inch casing is a 4-1/2-inch liner casing from the surface to 4,552 feet below ground surface and is cemented back to the surface.

There are three completed water supply wells of record within $\frac{1}{2}$ mile of the wellhead, as shown in Table 1. There are no water rights structures within $\frac{1}{2}$ mile of the proposed wellhead as shown in Table 2. There are 12 COGCC oil/gas wells within $\frac{1}{2}$ mile of the proposed wellhead as shown in Table 3. A PDF output from AquaMap delineating a $\frac{1}{2}$ 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 no dams within 10 miles of this injection well, as shown on an attached map.

All of the existing water supply wells within $\frac{1}{2}$ mile of the injection site produce from the shallow (0-50 feet) quaternary Peoria Loess sediments (Qp). Below the surficial deposits, the High Plains aquifer and the Upper Pierre aquifer (KPU) are used. The base of the High Plains aquifer is approximately 100 feet below ground surface, and the base of the KPU aquifer is approximately 600-800 feet below ground surface. Recently, the Upper Pierre aquifer has begun to be developed as a source of fresh water in Northern Colorado.

Due to the depth and poor water quality of the injection zone formation (residual petroleum hydrocarbons, BTEX, and metals) it is not considered to be a source of potable groundwater at this time and location. Based on the information provided, injection into the J-Sandstone 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 3

API_NUM	WELL_NAME	WELL_STATUS	PLSS_LOCATION	OPERATOR_NAME
05-121-05118	HOWARD J HOSSLE 1	DRY AND ABANDONED	NWSW 18 4S 53W 6	ANDERSON-PRICHARD OIL CORP
05-121-05127	DECKER B 2	DRY AND ABANDONED	SWNW 18 4S 53W 6	OKMAR OIL CO
05-121-05135	DECKER 2	DRY AND ABANDONED	SENE 18 4S 53W 6	TIPPS DRILLING CO., INC.
05-121-10014	HOSSLE 1-B	DRY AND ABANDONED	NWSE 18 4S 53W 6	TIPPS KENNETH L
05-121-05116	HOSSLE 2	PLUGGED AND ABANDONED	NESW 18 4S 53W 6	UNKNOWN
05-121-05119	HOSSLE 3	PLUGGED AND ABANDONED	NWSE 18 4S 53W 6	OKMAR OIL CO
05-121-05142	DECKER 1	PLUGGED AND ABANDONED	NENW 18 4S 53W 6	OKMAR OIL CO
05-121-40047	HOSSLE 2	PLUGGED AND ABANDONED	NESW 18 4S 53W 6	OKMAR OIL CO
05-121-05134	DECKER 32-18 3	PRODUCING	SWNE 18 4S 53W 6	VISUAL OPTICS INC
05-121-05140	DECKER B 1	PRODUCING	NWNW 18 4S 53W 6	FRITZLER RESOURCES INC
05-121-05141	DECKER 31-18 1	PRODUCING	NWNE 18 4S 53W 6	VISUAL OPTICS INC
05-121-05126	DECKER 22-18 2	SHUT IN	SENE 18 4S 53W 6	VISUAL OPTICS INC

Table 2

Structure Type	WDID	Associated Permits	Associated Case Numbers	Structure Name	More Info
----------------	------	--------------------	-------------------------	----------------	-----------

Table 1

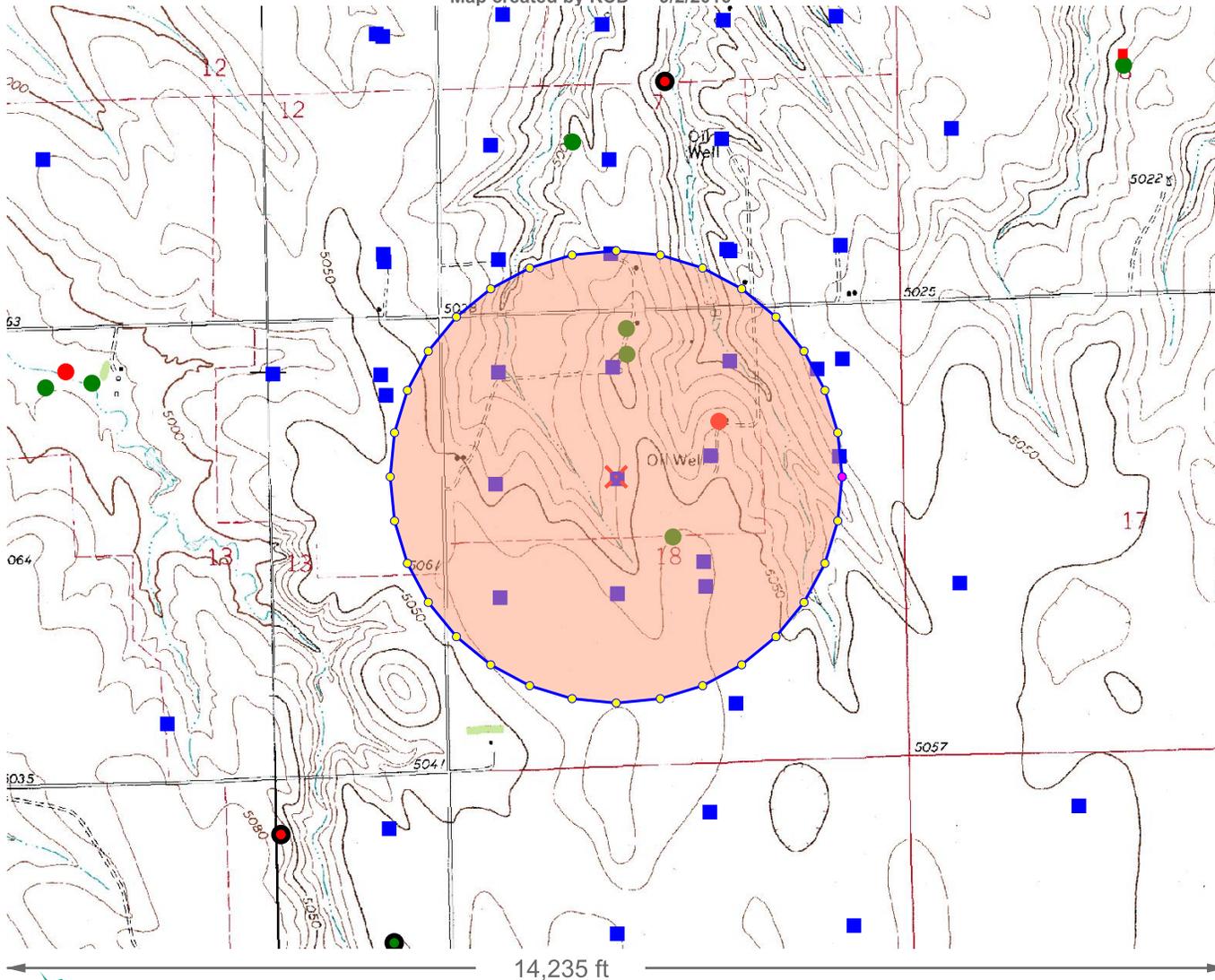
RECEIPT	PERMIT	STATUS	WELL NAME	USE	AQUIFER	DEPTH	OWNER	MORE INFO
9057170	28929			Domestic	All Unnamed	43	RICHARD DECKER	http://www.dwr.state.co.us/WellPermitSearch/View.aspx?receipt=9057170
15345	89412-VE			Domestic	All Unnamed	49	RICHARD DECKER	http://www.dwr.state.co.us/WellPermitSearch/View.aspx?receipt=15345
0304250A	155177			Domestic	All Unnamed	35	RICHARD DECKER	http://www.dwr.state.co.us/WellPermitSearch/View.aspx?receipt=0304250A
0304250B	155177-A			Domestic	All Unnamed	49	RICHARD DECKER	http://www.dwr.state.co.us/WellPermitSearch/View.aspx?receipt=0304250B

AQUAMAP

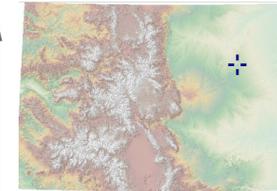
Colorado Division of Water Resources

Decker 2218 2 half mile radius

Map created by KCD 9/2/2016



MAP NAVIGATION



Click to create PDF
 UTM X, Zone 13: 153021
 UTM Y, Zone 13: 4083707
 Long: -108° 53' 25.7"
 Lat: 36° 50' 8.3"
 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 <input type="text" value="▼"/>	<input 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 <input type="text" value=""/>	<input type="checkbox"/> Hydrography	<input checked="" type="checkbox"/> Oil/Gas Well Location
	<input type="checkbox"/> County Parcels (No Public Access)	<input type="button" value="More Data"/>
	<input type="checkbox"/> Towns	

LOCATION

Section	Township	Range	Meridian
<input type="text" value="18"/>	<input type="text" value="4 S"/>	<input type="text" value="53 W"/>	<input type="text" value="Sixth"/>
<input type="button" value="PLSS Locator"/>		<input type="button" value="Quick Zoom"/>	<input type="button" value="Spacing"/>

PRINTING

Output Scale	Page Size	User
<input type="text" value="24,000"/>	<input type="text" value="8.5x11"/>	<input type="text" value="KCD"/>
Title <input type="text" value="Decker 2218 2 half mile radius"/>		

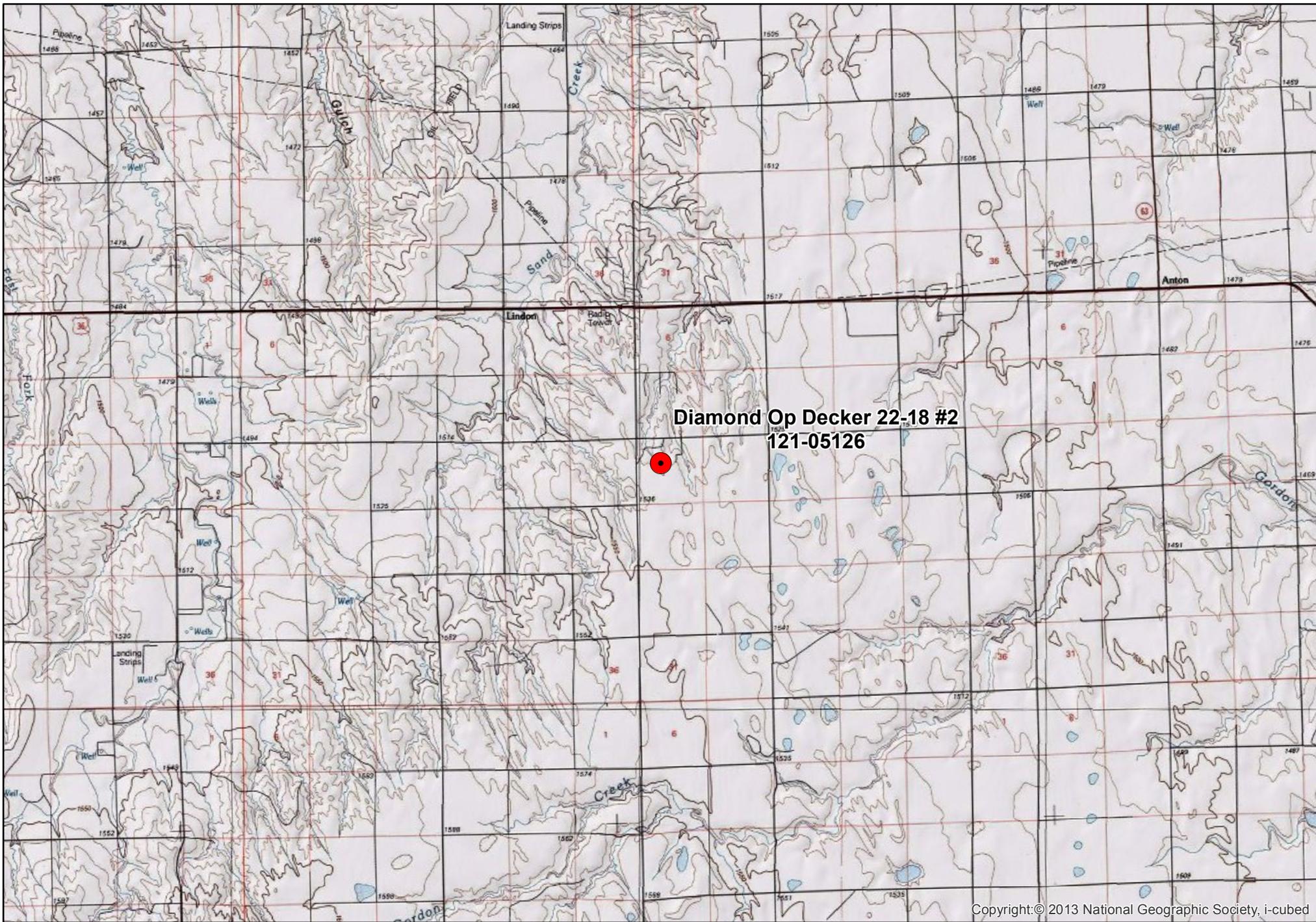
Note: The well locations displayed on AquaMap are based on location information provided by well permit application forms and are only as accurate as the information provided. The actual physical locations of all wells have not been field verified and may vary from the location displayed. Refer to a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



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

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





Copyright: © 2013 National Geographic Society, i-cubed



COLORADO
Division of Water Resources
Department of Natural Resources

Mustang Resources LLC - Federal #5-35

Surrounding Dams

1 inch = 10,000 feet

