



**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: April 17, 2015  
SUBJECT: Water Injection Project - NGL C6A (API 123-40968)  
SWSE Sec 30, T3N, R65W, 6th PM  
NGL Water Solutions, Weld County

On April 16, 2015 you sent a memo describing a proposal by NGL Water Solutions to construct a new well, NGL C6A, for injection into the DJINJ interval 9,294 to 10,955 feet below ground surface. This interval represents the approximate depths for the following formations; Lyons, Lower Satanka, Wolfcamp, Amazon, Council Grove, Admire, Virgil, Missouri, Fountain, Des Moines, Atoka, and Morrow. The NGL C6A well will be located in the SW $\frac{1}{4}$  of the SE $\frac{1}{4}$  of Section 30, Township 3 North, Range 65 West of the Sixth Principal Meridian in Weld County. The well is located approximately 1 mile southeast of Speer Canal, 4 miles southwest of Milton Reservoir, and 6 miles southeast of Platteville, CO. The uppermost injection formation, the Lyons, crops out approximately 30 miles west of the proposed well location.

The well completion information indicates that this well is constructed with 9-5/8 inch surface casing that is grouted from ground surface to a depth of 819 feet. 7 inch casing extends to a depth of 9,344 feet and is cemented from 9,344 feet back up to ground surface. 4- $\frac{1}{2}$  inch slotted liner is installed to a depth of 10,963 feet below ground surface.

There are four completed water supply wells of record within  $\frac{1}{2}$  mile of the injection well. The details of those wells are shown on the attached Table 1. There are no other decreed water rights structures within  $\frac{1}{2}$  mile. A PDF output from Map Viewer delineating a  $\frac{1}{2}$  mile radius from the injection well is attached. The Milton Reservoir Dam, Hazard Class 1, is located 5 miles to the northeast. The Mose Davis #2, Fulton Waste, and Twombly Dams, all Hazard Class 3, are located 5 miles to the southwest. The dams and hazard ratings are shown on an attached map.

Most of the existing water supply wells in this area produce from the shallow quaternary sediments or the Laramie-Fox Hills aquifer (KLF). The base of the KLF aquifer is approximately 700 feet below ground surface. The Pierre Shale underlies the Laramie-Fox Hills aquifer at this location. Recently, the Upper Pierre aquifer has begun to be developed as a source of fresh water in Northern Colorado. The Upper Pierre aquifer at this location extends to an approximate depth of 2,000 feet below ground surface.

Due to the depth and poor water quality of the injection zone formations (12,846-16,960 mg/L), they are not considered to be sources of potable groundwater at this location. Based on the information provided, injection to the Lyons, Lower Satanka, Wolfcamp, Amazon, Council Grove, Admire, Virgil, Missouri, Fountain, Des Moines, Atoka, and Morrow Formations through a properly constructed well should not negatively impact existing groundwater or surface water resources in the vicinity. **The well must be constructed with grout extending from surface to a depth of at least 2,000 feet below ground surface to adequately protect the Upper Pierre aquifer from contamination.** If you have any questions or require additional information, please feel free to contact me (303-866-3581 x8218).



Table 1

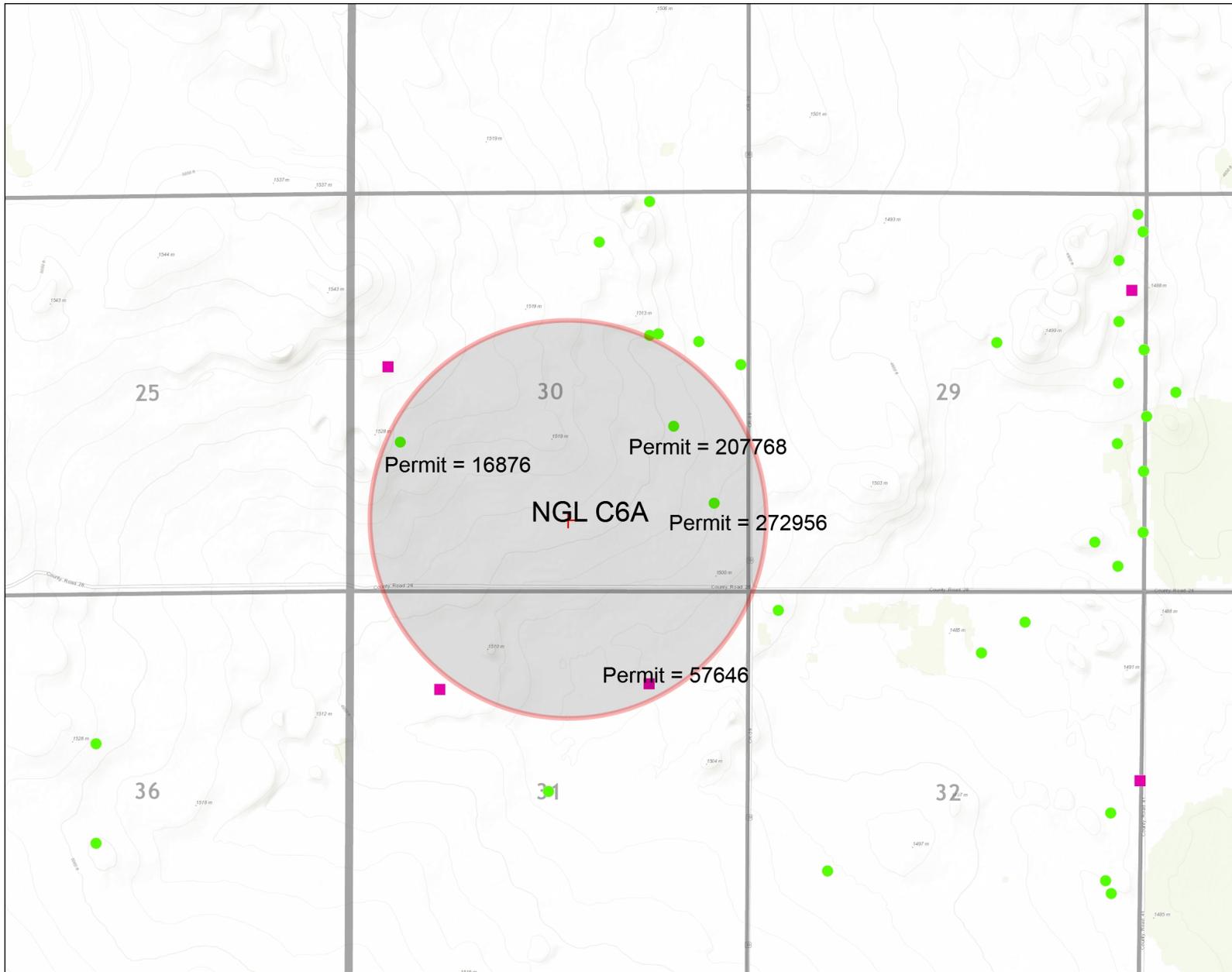
Receipt	Permit	Decree	CurrStatus	Use	Aquifer	Depth	ApplicantName	MoreInfo
3612977	272956		Well Constructed	COMMERCIAL	LARAMIE FOX HILLS	400	HIGH SIERRA WATER SERVICES LLC	<a href="http://www.dwr.state.co.us/WellPermitSearch/View.aspx?receipt=3612977">http://www.dwr.state.co.us/WellPermitSearch/View.aspx?receipt=3612977</a>
9062410	16876		Well Constructed	DOMESTIC	ALL UNNAMED AQUIFERS	52	HANSON LESLIE E	<a href="http://www.dwr.state.co.us/WellPermitSearch/View.aspx?receipt=9062410">http://www.dwr.state.co.us/WellPermitSearch/View.aspx?receipt=9062410</a>
9064861	57646	W-3179	Well Constructed	STOCK	ALL UNNAMED AQUIFERS		CAMP LEWIS C & LLOYD & MELVIN J	<a href="http://www.dwr.state.co.us/WellPermitSearch/View.aspx?receipt=9064861">http://www.dwr.state.co.us/WellPermitSearch/View.aspx?receipt=9064861</a>
421158	207768		Well Constructed	DOMESTIC	ALL UNNAMED AQUIFERS	740	BRUNSON KEVIN & NANCY	<a href="http://www.dwr.state.co.us/WellPermitSearch/View.aspx?receipt=0421158">http://www.dwr.state.co.us/WellPermitSearch/View.aspx?receipt=0421158</a>



CDSS

Colorado's Decision Support Systems

# NGL C6A - Half Mile Radius



### Legend

- Ditch
- Reservoir
- Spring
- Well
- Well Constructed
- Townships
- Sections

### Location

### Notes

4,000 0 2,000 4,000 Feet

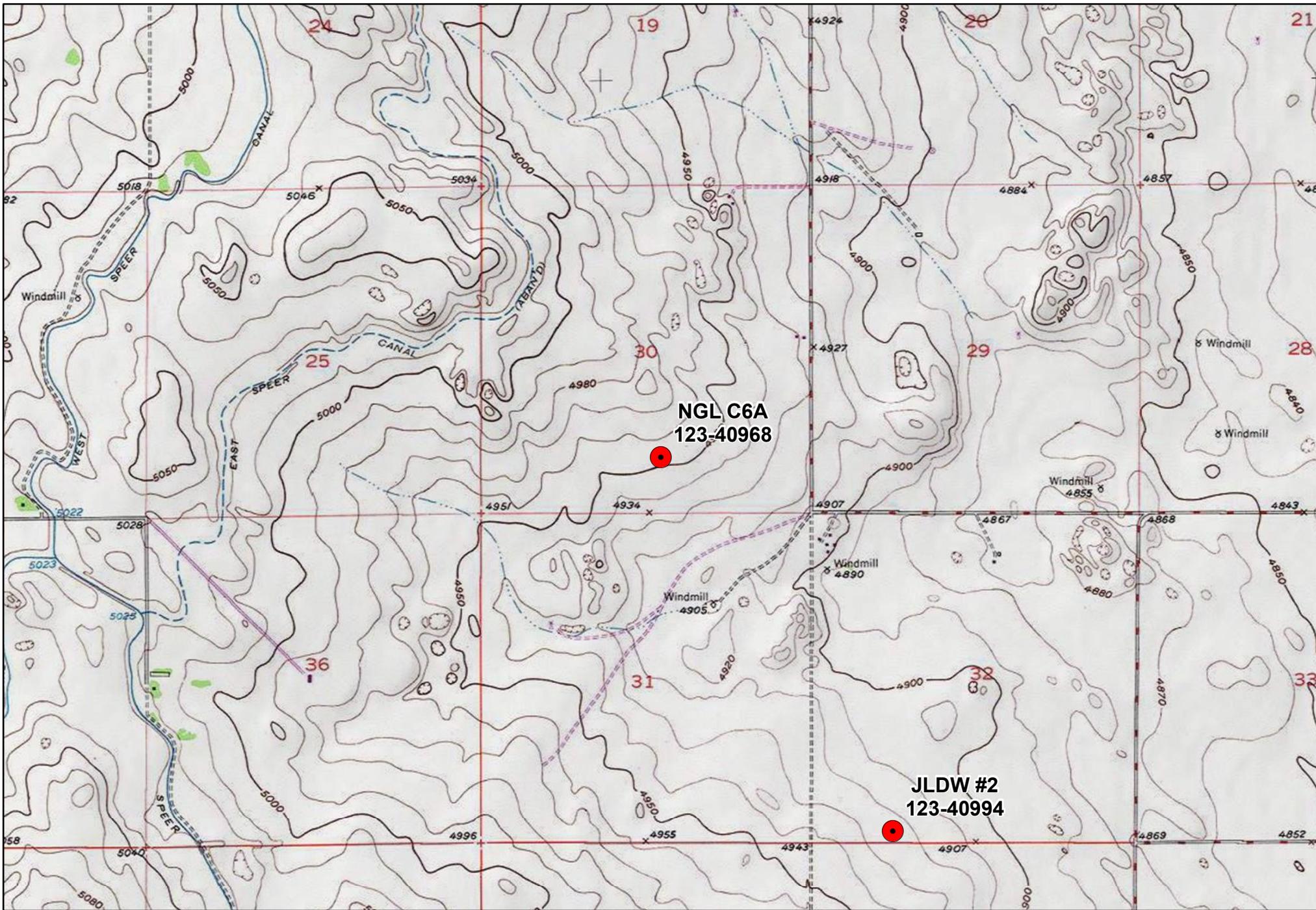


1: 24,000



*This product is for informational purposes and may not have been prepared for, or be suitable for legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information.*

Date Prepared: 4/17/2015 6:15:11 AM



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# NGL C5A Surrounding Dams

1 inch = 2,000 feet



# COLORADO

## Oil & Gas Conservation Commission

Department of Natural Resources  
1120 Lincoln Street, Suite 801  
Denver, CO 80203

### MEMORANDUM

April 16, 2015

**TO:** Kevin Donegan  
Division of Water Resources

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

**SUBJECT:** Need for Hydrologic Information

The OGCC has received an application for a water injection project, summarized as follows:

LOCATION	COUNTY	FIELD
SWSE Section 30 Township 3 North Range 65 West, 6th P.M.	Weld	Wattenberg #90750

WELL NAME	NGL: NGL C6A API: 123-40968	
INJECTION ZONE FORMATION	DJINJ = Lyons, L. Satanka, Wolfcamp, Amazon, Council Grove, Admire, Virgil, Missouri, Fountain, Des Moines, Atoka, and Morrow Formations	
DEPTH OF INJECTION INTERVAL	Open Hole: 9,294-10,955'	feet
PROPOSED INJECTION PRESSURE	2,200 to 2,250	psig
FRAC GRADIENT OR PRESSURE (BHP)	0.67	psi/ft
VOLUME OF FLUID TO BE INJECTED	10,000 to 19,440	bbbl/day
TDS OF INJECTION ZONE FLUID	12,846-16,960	mg/L
TDS OF FLUID TO BE INJECTED	TBD (Commercial Disposal)	mg/L

WELL CONSTRUCTION DATA					
CASING STRING	HOLE SIZE	CASING SIZE	DEPTH	AMOUNT CEMENT	CEMENT TOP
Surface	12-1/4"	9-5/8"	819'	215 sks	0'
1st String*	8-3/4"	7"	9,344'	150 sks	7,903'
1st Liner**	6-1/8"	4-1/2"	10,963'	NA	NA

\*DV Stage Tool @ 7,903' with 750 sks cement.

\*\*External Casing Packers @ 9,929', 10,034', 10,223', & 10,534'; Top of Liner is 9,224'.

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.

