



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: Kevin Donegan, Hydrogeologist
DATE: March 02, 2015
SUBJECT: Water Injection Project - Watson Ranch B 24AWI-17-07-95
SESW Sec 17, T7S, R95W, 6th PM, Garfield County
Ursa Operating Company, LLC API: 045-22801

Your February 25, 2015 memo describes a proposal by Ursa Operating Company, LLC to use a new well, Watson Ranch B 24AWI-17-07-95, for injection into the Cozzette and Corcoran Members of the Iles Formation. The injection interval for the Cozzette Member will be approximately 6,722-6,963 feet and 6,963-7,315 feet for the Corcoran Member. The well will be located in the SE¼ of the SW¼ of Section 17, Township 7 South, Range 95 West of the Sixth Principal Meridian in Garfield County. The well will be approximately 1.3 miles from the Colorado River, 2 miles southeast of Parachute, CO.

The proposed well completion information indicates that this well will be constructed with a 16 inch conductor casing grouted to a depth of 60 ft. 9-5/8 inch surface casing will be grouted from ground surface to a depth of 1,700 feet. 5-½ inch casing will extend to a depth of 7,420 feet and will be cemented back up to 1,700 feet below ground surface.

There are 16 completed water supply wells of record within ½ mile of the proposed well location. There are also 10 water rights structures (decreed wells) within ½ mile. The wells range in depth from 120 to 280 feet below ground and are all completed in sandstones within the Wasatch Formation.

A PDF output from Map Viewer delineating a ½ mile radius from the proposed injection well is attached. Water supply wells are shown with green circles and oil & gas wells are shown in blue squares. Water Rights Structures are shown as squares. A second map is attached showing dams with significant hazard ratings in the vicinity.

The shallow geology of this area consists of Quaternary aged mudflow and fan gravel deposits overlying the Tertiary age Wasatch Formation. Below the Wasatch Formation, lies the Mesaverde Group which includes the Cozzette and Corcoran Members of the Iles Formation. The Mesaverde Group is considered an aquifer in some parts of Piceance Basin. The Cozzette and Corcoran Members of the Iles Formation crop out approximately 18 miles to the northeast. The Colorado River and its alluvium cross this outcrop approximately 28 miles to the northeast.



The Watson Ranch B 24AWI-17-07-95 well location does map within the nontributary area for the Iles Formation as determined by the Produced Nontributary Ground Water Rules (2 CCR 402-17). These rules delineated the formations from which producing water would not deplete stream flow under the definition for nontributary water. The rules, however, do not consider the effects of injecting poor quality water into saturated formations. The possibility does exist that injecting into this formation could push poor quality water towards the outcrop and alluvial contact.

The total dissolved solids (TDS) concentration of the Cozzette and Corcoran Members is estimated to be approximately 16,000 mg/L. A sample collected from WPX SG 334-32, approximately 6 miles to the southwest shows TDS concentration to be 17,880 mg/L. Assuming this water quality sample is representative of the water in the formation, the Cozzette and Corcoran Members would not be considered an aquifer with potable water quality.

Due to the depth and assumed poor water quality of the injection zone formations, they are not considered to be sources of potable groundwater at this location. Based on the information provided, injection to the Cozzette and Corcoran Members of the Iles Formation through a properly constructed well should not negatively impact existing groundwater or surface water resources in the vicinity. In response to the letter from the Concerned and Affected Residents Surrounding Ursa Operating Co. LLC Proposed Watson B - Disposal Well and Pad, the multiple layers of casing and cement are designed to protect shallow groundwater, but the potential does exist for contamination in the event of casing or cement failure.

If you have any questions or require additional information, please feel free to contact me (303-866-3581 x8221).



Table 1

Permit	Use	Aquifer	Date	Depth	ApplicantName	MoreInfo
206247-	HOUSEHOLD	ALL UNNAMED AQUIFERS	12/19/1997	120	YATER ALEX & BRENDA	http://www.dwr.state.co.us/WellPermitSearch/View.aspx?receipt=0424192
211946-	DOMESTIC	ALL UNNAMED AQUIFERS	3/31/1999	120	WEHR GANT LENA ESTATE OF	http://www.dwr.state.co.us/WellPermitSearch/View.aspx?receipt=0435735A
57705-F	DOMESTIC	WASATCH	3/3/2003	123	MONUMENT RIDGE HOMEOWNERS ASSN	http://www.dwr.state.co.us/WellPermitSearch/View.aspx?receipt=0491311F
47521-	DOMESTIC	ALL UNNAMED AQUIFERS	10/10/1953	132	GARDNER ALBERT	http://www.dwr.state.co.us/WellPermitSearch/View.aspx?receipt=9114131
64326-F	DOMESTIC	ALL UNNAMED AQUIFERS	10/16/2001	140	GIBSON ELLEN	http://www.dwr.state.co.us/WellPermitSearch/View.aspx?receipt=9502457A
64325-F	DOMESTIC	ALL UNNAMED AQUIFERS	1/24/2002	142	WASSERMAN DAVE	http://www.dwr.state.co.us/WellPermitSearch/View.aspx?receipt=9502458
57704-F	DOMESTIC	WASATCH	2/27/2003	145	MONUMENT RIDGE HOMEOWNERS ASSN	http://www.dwr.state.co.us/WellPermitSearch/View.aspx?receipt=0491311E
95280-	DOMESTIC	ALL UNNAMED AQUIFERS	12/28/1977	145	LEUALLEN KEVIN S & TAMMY A	http://www.dwr.state.co.us/WellPermitSearch/View.aspx?receipt=9114497
64327-F	DOMESTIC	ALL UNNAMED AQUIFERS	1/25/2002	145	DOMINGUEZ WILLIAM P & STICE STEPHANIE	http://www.dwr.state.co.us/WellPermitSearch/View.aspx?receipt=9502457B
51470-F-R	DOMESTIC	ALL UNNAMED AQUIFERS	5/1/2001	148	ALLRED BARBARA L	http://www.dwr.state.co.us/WellPermitSearch/View.aspx?receipt=9500565
119549--A	DOMESTIC	ALL UNNAMED AQUIFERS	12/4/2007	155	COOK GERALD D	http://www.dwr.state.co.us/WellPermitSearch/View.aspx?receipt=9502860
264602-	COMMERCIAL	ALL UNNAMED AQUIFERS	8/8/2005	166	GRAND VALLEY HISTORICAL SOCIETY	http://www.dwr.state.co.us/WellPermitSearch/View.aspx?receipt=9502273
66636-F	DOMESTIC	ALL UNNAMED AQUIFERS	1/16/2008	175	GARDNER MARK & HOLLY	http://www.dwr.state.co.us/WellPermitSearch/View.aspx?receipt=9502952
206247--A	HOUSEHOLD	ALL UNNAMED AQUIFERS	5/6/2003	180	YATER ALEX	http://www.dwr.state.co.us/WellPermitSearch/View.aspx?receipt=9501485
92020-	DOMESTIC	ALL UNNAMED AQUIFERS		185	PATTON EARL E & MAXINE C	http://www.dwr.state.co.us/WellPermitSearch/View.aspx?receipt=9114469
119549-	DOMESTIC	ALL UNNAMED AQUIFERS	8/24/1981	280	MARTIN MICKEY M & COOK GERALD	http://www.dwr.state.co.us/WellPermitSearch/View.aspx?receipt=0213421

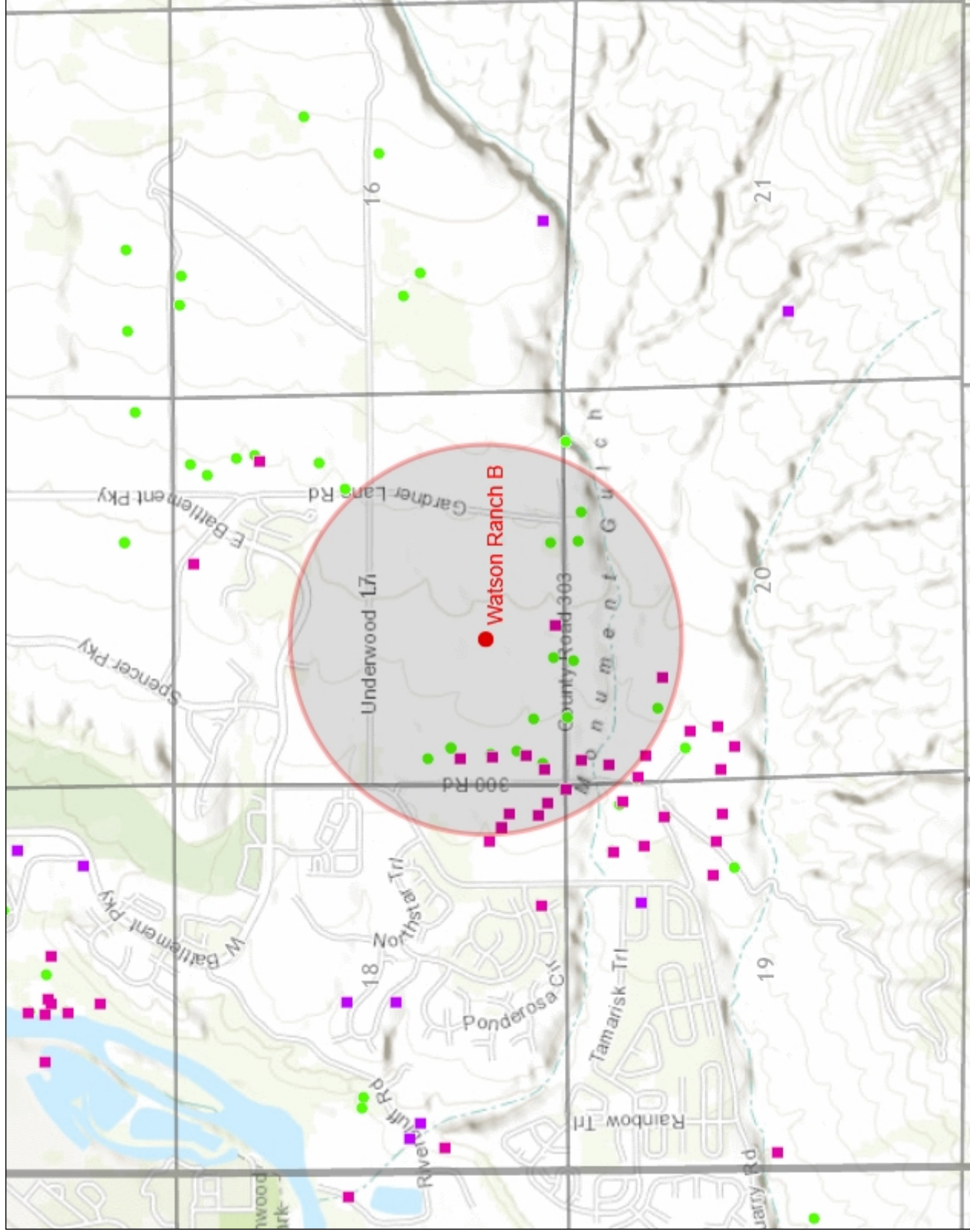
Table 2

StructName	WDID	CurrlnUse	WaterSrc	AssocPermits	AssocCaseNumbers
ALLRED WELL	4508006	Active Structure with contemporary diversion records (A)	MONUMENT GULCH	51470-F	02CW0281
YATER WELL	4508012	Active Structure with contemporary diversion records (A)	COLORADO RIVER	52803-F	99CW0320
GARDNER WELL	4508076	Active Structure with contemporary diversion records (A)	UNNAMED TRIB(COLO R)	66636-F	02CW0123
MONUMENT RIDGE PARCEL E1 WELL #19	4508133	Active Structure with contemporary diversion records (A)	COLORADO RIVER	64325-F	02CW0281
MONUMENT RIDGE PARCEL E3 WELL #18	4508134	Active Structure with contemporary diversion records (A)	MONUMENT GULCH	64327-F	02CW0281
MONUMENT RIDGE WELL #3	4508149	Active Structure with contemporary diversion records (A)	MONUMENT GULCH	56567-F	02CW0281
MONUMENT RIDGE PARCEL E2 WELL #2	4508150	Active Structure with contemporary diversion records (A)	COLORADO RIVER	64326-F	02CW0281
MONUMENT RIDGE WELL #24	4508175	Active Structure with contemporary diversion records (A)	COLORADO RIVER		
MONUMENT RIDGE WELL#25	4508176	Active Structure with contemporary diversion records (A)	COLORADO RIVER	57705-F	
SPEAKMEN WELL 2	4508177	Active Structure with contemporary diversion records (A)	COLORADO RIVER	68875-F	



CDSS
Colorado's Decision Support Systems

Watson Ranch B Half Mile Radius



Legend

- Ditch
- Well
- Well Constructed
- Townships
- Sections

Location



Notes

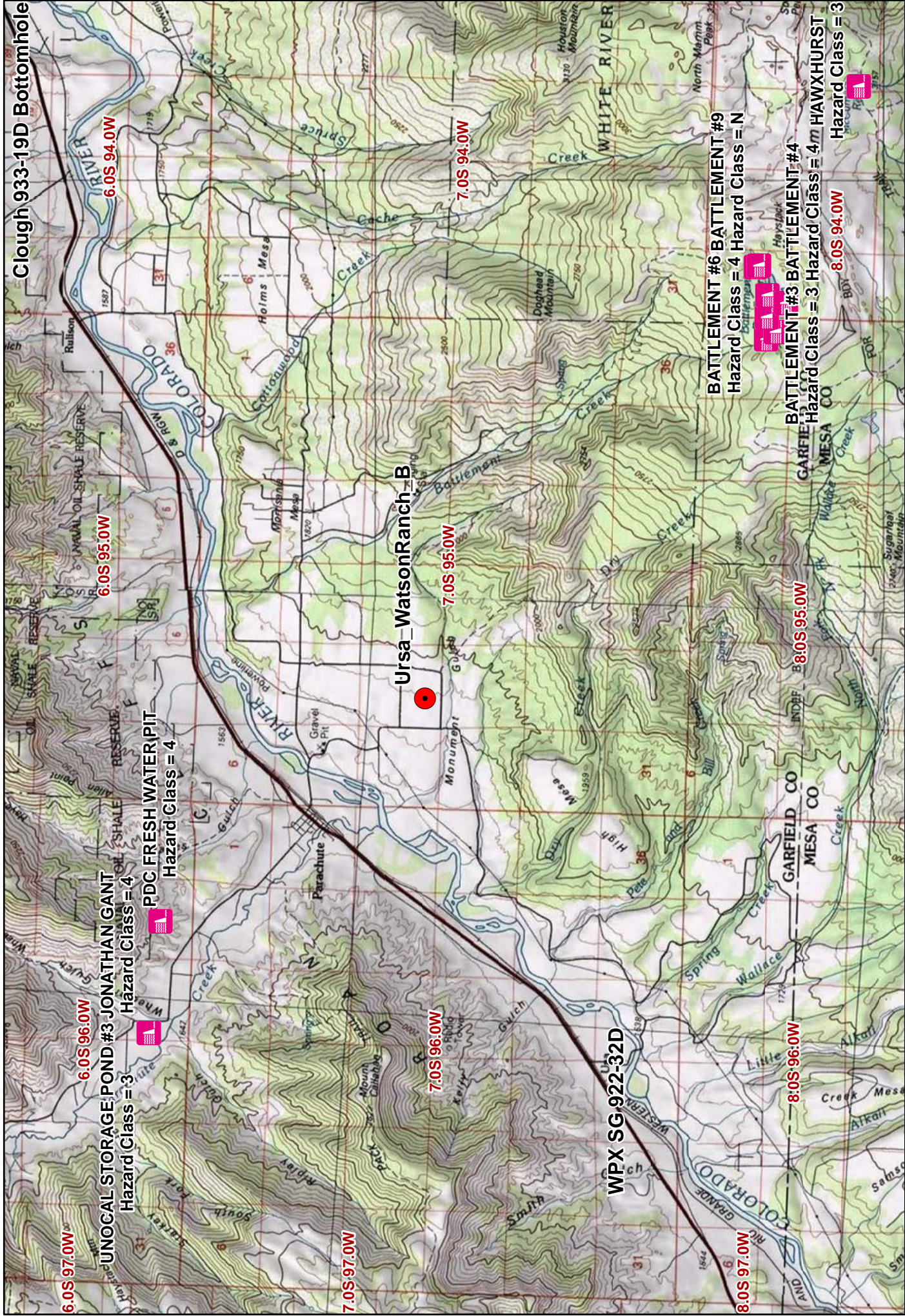


4,000 0 2,000 4,000 Feet

1: 24,000

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Date Prepared: 3/2/2015 3:43:45 PM



Watson Ranch B 24AWI-17-07-95 Surrounding Dams



COLORADO

Oil & Gas Conservation Commission

Department of Natural Resources

1120 Lincoln Street, Suite 801
Denver, CO 80203

Date: February 25, 2015

TO: Kevin Donegan
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
SESW Section 17 Township 7 South Range 95 West, 6th P.M.	Garfield	Parachute #67350

WELL NAME	Ursa Operating Company LLC: Watson Ranch B 24AWI-17-07-95 (API: 045-22801)	
INJECTION ZONE FORMATION	Cozzette and Corcoran Members of the Iles Formation	
DEPTH OF INJECTION INTERVAL	Case hole: Top Cozzette 6,722, Top Corcoran 6,963, TD 7,420 (estimates)	feet
PROPOSED INJECTION PRESSURE	1,450 (est.)	psig
FRAC GRADIENT OR PRESSURE (BHP)	TBD (est.: Step Rate Test and/or Pressure Falloff Test will be performed)	psi/ft
VOLUME OF FLUID TO BE INJECTED	Up to 5,000 (est.)	bbl/day
TDS OF INJECTION ZONE FLUID	16,000 (est.)	mg/L
TDS OF FLUID TO BE INJECTED	TBD	mg/L

WELL CONSTRUCTION DATA (Pre-Construction Estimates)					
CASING STRING	HOLE SIZE	CASING SIZE	DEPTH	AMOUNT CEMENT	CEMENT TOP
Conductor	24"	16"	60'	111	0'
Surface	12-1/4"	9-5/8"	1700'	267 sks	0'
1st String	8-3/4"	5-1/2"	7,420'	649 sks	1700'

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. Please try and have the evaluation back COGCC by March 25, 2015. Thank you.

P 303.894.2100 F 303.894.2109 www.colorado.gov/cogcc

Commissioners: Thomas L. Compton - Chairman, Richard Alward, John H. Benton, DeAnn Craig,
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John W. Hickenlooper, Governor | Mike King, Executive Director, DNR | Matthew J. Lepore, Director

