



1313 Sherman Street, Room 821
Denver, CO 80203

MEMORANDUM

TO: Robert P. Koehler, PhD, Oil & Gas Conservation Commission
FROM: Kevin Donegan, Hydrogeologist
DATE: April 16, 2015
SUBJECT: Water Injection Project - Wildhorse 16-13L (API 123-37374)
NWSW Sec 16, T9N, R59W, 6th PM
Whiting Oil & Gas Corp, Weld County

On December 10, 2014 you sent a memo describing a proposal by Whiting Oil & Gas to use an existing well, Wildhorse 16-13L, for injection into the Entrada and Lyons formations at depths of 7,538-7,604 and 8,140-8,184 feet below ground respectively. The Wildhorse 16-13L well is located in the NW¼ of the SW¼ of Section 16, Township 9 North, Range 59 West of the Sixth Principal Meridian in Weld County. The well is located in northeast Weld County approximately 16 miles west of Hwy 71 and 5 miles northeast of Keota, CO. The uppermost injection formations crop out approximately 60 miles west of the 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 1,608 feet. 5-½ inch casing extends to a depth of 10,047 feet and is cemented from 10,047 back up to ground surface.

There are no completed water supply wells of record within ½ mile of the injection well. Three wells within 1 mile are shown on the attached Table 1. A PDF output from Map Viewer delineating a ½ and 1 mile radius from the proposed injection well is attached. The Wildhorse #1 Dam, Hazard Class 3, is located 3.5 miles to the southwest. The dam and its hazard rating are shown on an attached map.

Most of the existing water supply wells in this area produce from the shallow (0-250 feet) White River Formation or the Laramie-Fox Hills aquifer (KLF). The base of the KLF aquifer is approximately 650 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 1,800 feet below ground surface.

Due to the depth and poor water quality of the injection zone formations (Entrada: TDS=12,310 mg/L and Lyons: TDS=14,860-20,010 mg/L,) they are not considered to be sources of potable groundwater at this location. Based on the information provided, injection to the Entrada and Lyons Formations 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 x8221).

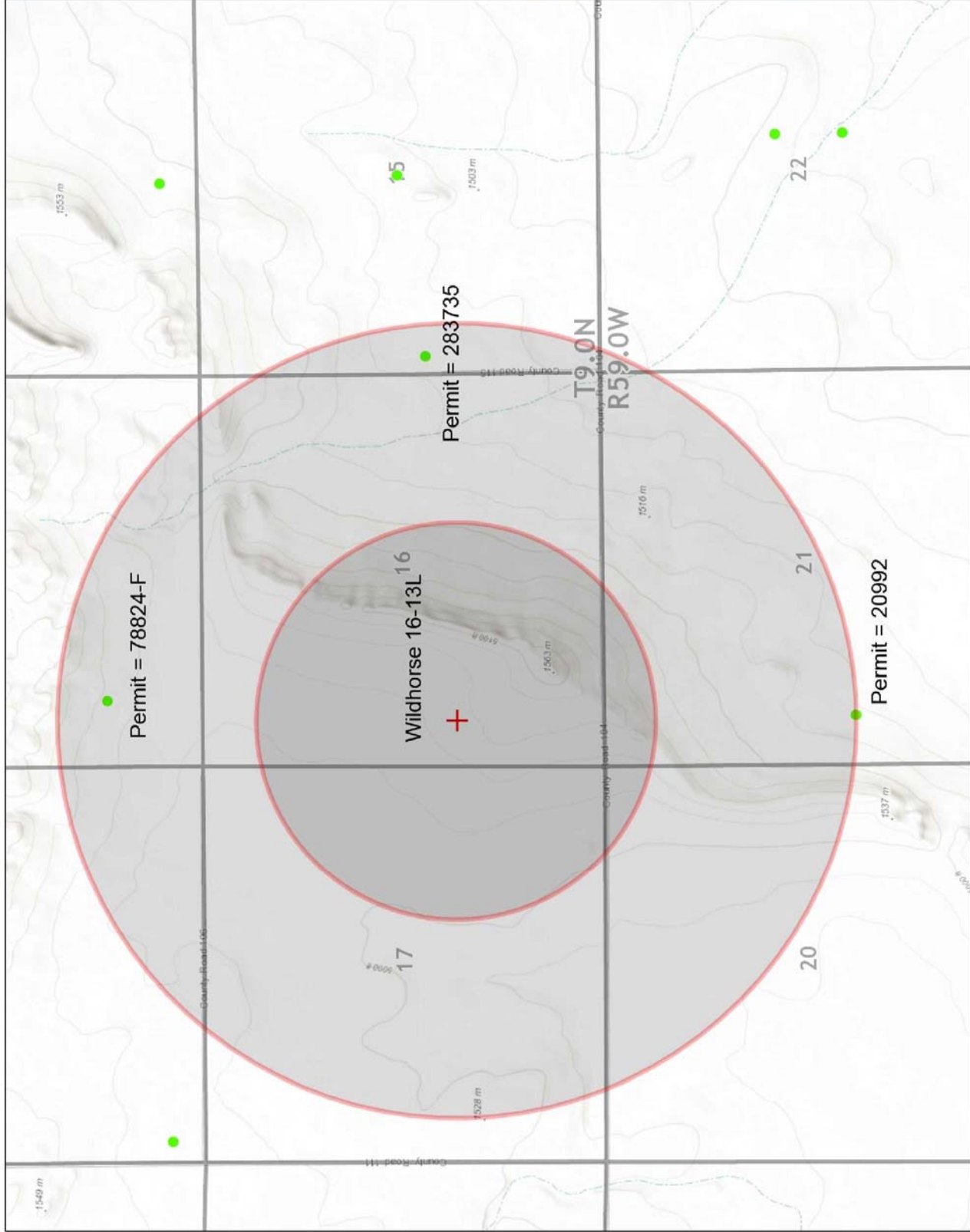


Table 1

Receipt	Permit	Use1	Use2	Aquifer	Depth	Applicant	More Info
9062833	20992	STOCK		ALL UNNAMED AQUIFERS	225	PTASNIK LAND COMPANY	http://www.dwr.state.co.us/WellPermitSearch/View.aspx?receipt=9062833
3645764I	283735	DOMESTIC	STOCK	ALL UNNAMED AQUIFERS	250	CASTOR WADE E & DELAND TODD CASTOR	http://www.dwr.state.co.us/WellPermitSearch/View.aspx?receipt=3645764I
3668219A	78824-F	INDUSTRIAL	IRRIGATION	ALL UNNAMED AQUIFERS	1780	TIMMERMAN ROANLD	http://www.dwr.state.co.us/WellPermitSearch/View.aspx?receipt=3668219A



Wildhorse 16-13L



Legend

- Well Constructed
- Townships
- Sections

Location



Notes

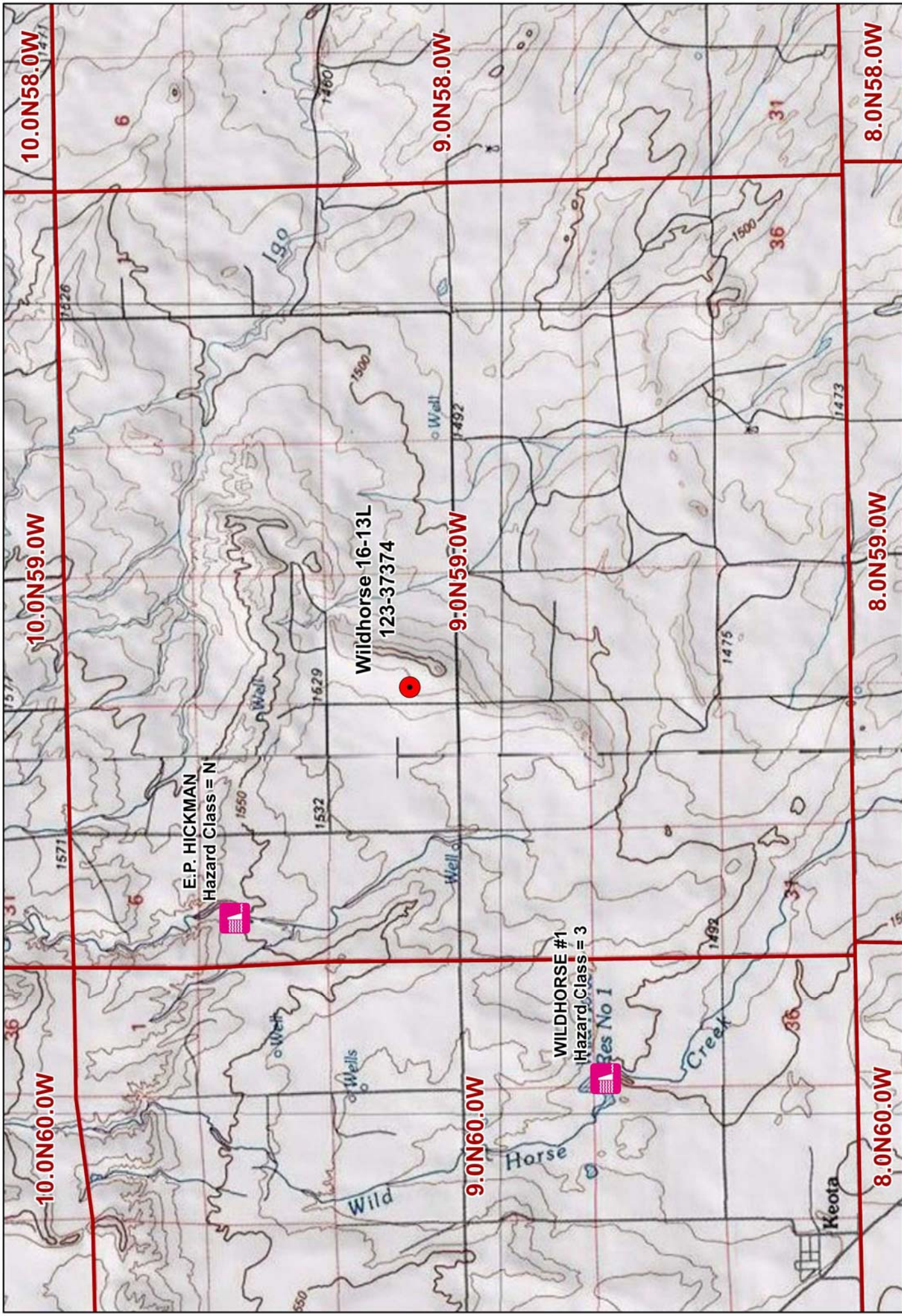
This product is for informational purposes and may not have been prepared for, or be suitable for legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information.



0 2,000 4,000 Feet



1: 24,000



1 inch = 5,000 feet



Wildhorse 16-13L Surrounding Dams

COLORADO
Division of Water Resources
Department of Natural Resources

