

# Government Federal 298-13-1 Pad Sensitive Area Determination Checklist



|   |                           |
|---|---------------------------|
| TEP Rocky Mountain, LLC                       |                           |
| <b>Person (s) Conducting Field Inspection</b> |                           |
| Name: Dean Goebel                             | Date: August 17, 2021     |
| Comment: Desktop analysis                     |                           |
| <b>Site Information</b>                       |                           |
| Location Name: Govt. Federal 298-13-1 Pad     | COGCC Location ID: 315513 |
| Type of Facility: Well Pad                    |                           |
| <b>Environmental Conditions</b>               |                           |
| Temperature (°F): NA                          |                           |
| <b>Comments</b>                               |                           |
|   |                           |

**Sensitive Area:** A sensitive area is an area vulnerable to potential significant adverse groundwater impacts, due to factors such as the presence of shallow groundwater or pathways for communication with deeper groundwater; proximity to surface water, including lakes, rivers, perennial or intermittent streams, creeks, irrigation canals, and wetlands. Additionally, areas classified for domestic use by the Water Quality Control Commission, local (water supply) wellhead protection areas, areas within 1/8 mile of a domestic water well, areas within 1/4 mile of a public water supply well, ground water basins designated by the Colorado Ground Water Commission, and surface water supply areas are sensitive areas.

Has the proposed, new, or existing location been designated as a sensitive area?

Yes       No

## **SURFACE WATER**

- Are there any intermittent surface water features or Surface Water Supply Areas (SWSAs) adjacent to or within ¼ mile of the proposed or existing facility?

Yes       No

If yes, list type of surface water feature(s), i.e. rivers, creeks, streams, seeps, springs, wetlands:

If yes, describe location relative to facility:

- Could a potential release from the facility reach intermittent surface water features?

Yes       No

If yes, describe the pathway a release from the facility would likely follow to determine if the potential to impact surface water is high or low.

Is the potential to impact surface water from a facility release high or low?

High       Low

## **GROUNDWATER**

- Will the proposed/new or existing facility have any pits which will contain hydrocarbons and chlorides or other E&P wastes?

Yes       No

If yes, List the pit type(s):.

2. Is the site of the proposed facility underlain by an unconfined aquifer or recharge zone?  
 Yes       No
  
3. Is the hydraulic conductivity of the underlying soil or geologic material  $\leq 1.0 \times 10^{-7}$  cm/sec?  
 Yes       No
  
4. Is the proposed facility located within 1/8 mile of a domestic water well or 1/4 mile of a public water supply well which would use the same aquifer?  
 Yes       No
  
5. Is the proposed facility located within a 100-year floodplain?  
 Yes (Sensitive)       No (If no, proceed to question #6)
  
6. Is the depth to groundwater known?  
 Yes (If yes, follow instructions provided in 6(a) of this section).  
 No (If no, follow instructions provided in 6(b) of this section).
  - a. If yes, could a potential release from the proposed facility reach groundwater?  
 Yes       No  
If yes, explain:
  - b. If no:
    - i. Evaluate surrounding soils, topography, and vegetation which may suggest the presence of shallow groundwater.
    - ii. Gather information from surrounding well data in order to determine a depth to groundwater, i.e. State Engineers Office.
  
7. Is the potential to impact ground water from the facility in the event of a release high or low?  
 High       Low

**Additional Comments:**

Potential surface water impacts are deemed low for the sensitive area determination for the proposed expansion of an existing well pad. Identified intermittent streams are not located within a ¼ mile of the proposed pad. Intermittent streams identified within the ½-mile site radius are 2,066 feet north and 1,942 feet northeast, respectively from the well pad. Although the drainages are downgradient of the site, the lack of a defined bed and bank pathway promotes sheet flow rather than concentrated flow thus limiting offsite migration to these drainages. The drainages qualify as Water of the United States (WOUS) defined as a riverine aquatic resources with intermittent flow regimes providing seasonally flooded stream beds. The intermittent drainages flow to Ryan Gulch discharging to perennial Piceance Creek. Site grading will provide control measures minimizing potential fluid migration off site. Best Management Practices (BMPs) slated during site construction will eliminate preferential pathways for offsite depression flow using earthen berms and diversion ditches. All newly constructed BMPs will be closely monitored and maintained to ensure complete on-site containment of a potential release.

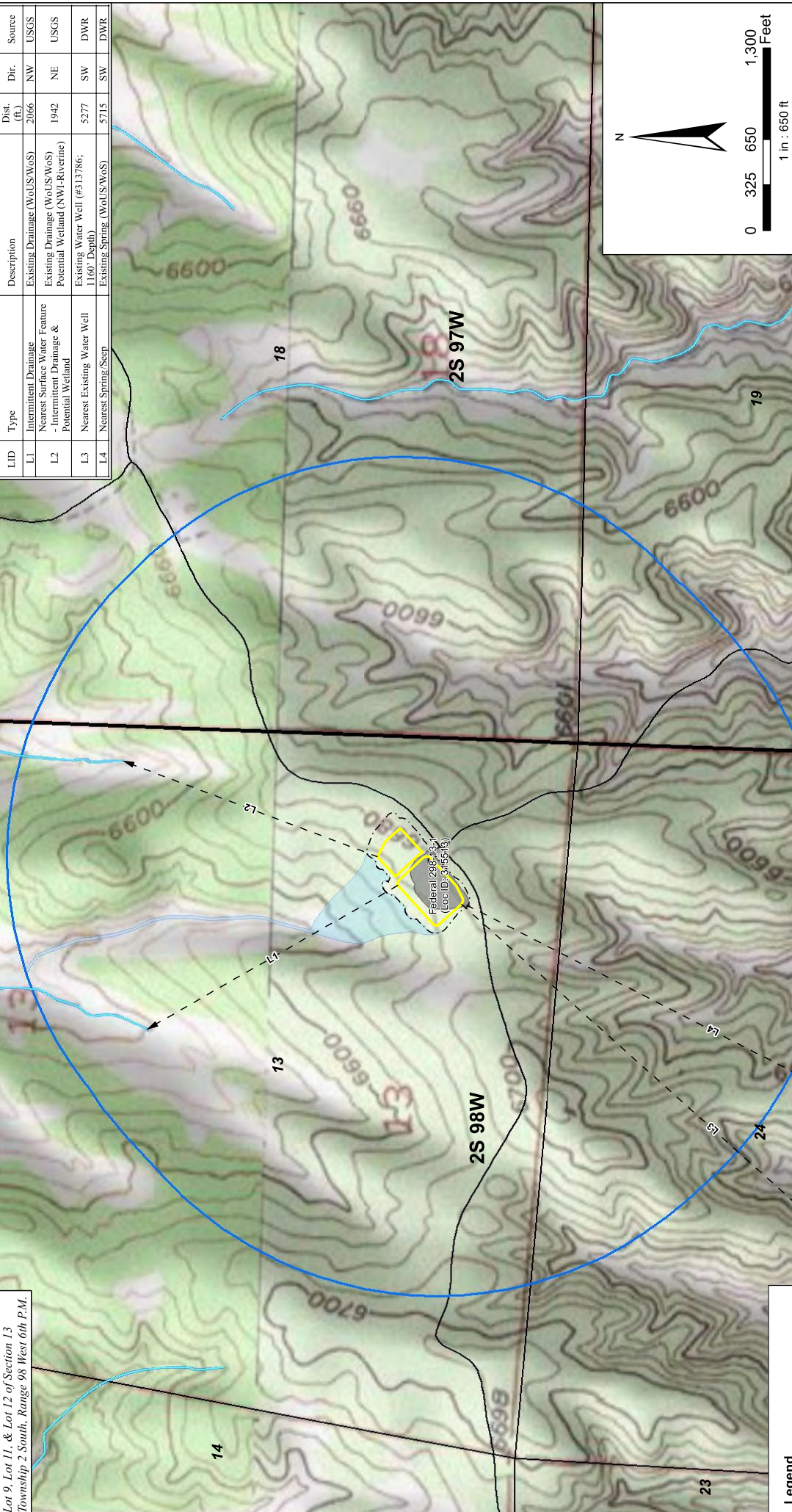
State Engineers Office and USGS records were reviewed for existing / constructed water wells in the vicinity of the Federal 298-13-1 pad. A monitoring well (permit no. 313789) is located 5,277 feet southwest of the existing Federal 298-13-1 well pad proposed for re-construction. The monitoring hole was drilled to 1,160 feet with a water level of 78.5 feet as indicated on scanned documents filed for this monitoring well. Visual observations of the site based on site photos taken during the biological survey and aerial photography indicates scrub pinyon and juniper vegetation and sagebrush shrublands. Depth to shallow groundwater residing in the local flow system is greater than 80 inches (6.67 feet) based on NRCS soil properties and qualities for Redcreek-Rentsac complex and Rentsac channery loam soil mapped units occurring at the site. Typical soil profiles for this mapped soil units indicates bedrock subcrops 5 to 16 inches below the ground surface. Saturated hydraulic conductivity (Ksat) for the mapped soils is less than  $1.0 \times 10^{-7}$  cm/sec for the Rentsac channery loam but greater than for the Redcreek-Rentsac complex soils.

Dominant upland vegetation indicates pervasive dry antecedent soil conditions conducive with thin soil horizons overlying shallow bedrock not in hydraulic connection with the local groundwater flow system. Evidence of springs or seeps in project vicinity were not detected during site reconnaissance and vegetation assessment conducted for the Biological Survey Report. Hydrogeological indicators do not support the occurrence of shallow groundwater at the site, depth to groundwater is probably greater than 100 feet in the underlying bedrock. Potential impact to groundwater resources at the site is deemed to be low based on the site hydrogeology.

Based on the information collected during the desktop review, the potential for impacts to surface water, and groundwater is deemed to be low. Therefore, the proposed expanded well pad should be designated as being in a non-sensitive area.

Lot 9, Lot 11, & Lot 12 of Section 13  
Township 2 South, Range 98 West 6th P.M.

| LID | Type  | Description  | Dist. (ft.) | Dir. | Source |
|-----|---|--|-------------|------|--------|
| L1  | Intermittent Drainage   | Existing Drainage (WoUS/WoS)                                     | 2066        | NW   | USGS   |
| L2  | Nearest Surface Water Feature - Intermittent Drainage & Potential Wetland | Existing Drainage (WoUS/WoS)<br>Potential Wetland (NWI-Riverine) | 1942        | NE   | USGS   |
| L3  | Nearest Existing Water Well   | Existing Water Well #313786; 1160' Depth                         | 5277        | SW   | DWR    |
| L4  | Nearest Spring/Seep   | Existing Spring (WoUS/WoS)                                       | 5715        | SW   | DWR    |



**NOTE:**

- 1) The proposed oil & gas location is greater than 15 stream miles from the nearest active down gradient Public Water Supply Intake.
- 2) There are no GUDI Wells, Type III Aquifer Wells, or COGCC Rule 411 Buffer Zones within 2,640 feet of the proposed Working Pad Surface.
- 3) Downgradient flow would be to the north of the facility. The existing ridgeline southeast of the location provides a natural topographic barrier restricting flow to the north.
- 4) Nearest downgradient surface water feature (WOS) and potential wetland (NWI) is approximately 2,884' northwest of the proposed oil and gas location along an unnamed dry intermittent drainage.

- Legend**
- Proposed Working Pad Surface
  - Proposed O&G Location (LOD)
  - Intermittent Stream
  - Existing Wetland (NWI)
  - 2,640' Buffer (WPS)
  - Existing Access Road
  - Existing Pad
  - Downgradient Area

**Federal 298-13-1 Drill Pad  
Hydrology Map**



TEP ROCKY MOUNTAIN, LLC  
Exhibit prepared by: AJT  
Date prepared: April 7, 2022