

AP 21-8-695 Pit

Facility ID 284669 | Location ID 335627

909.j.(6) Alternative Sampling Plan



A. INTRODUCTION

TEP Rocky Mountain LLC (“TEP”) has prepared this Alternative Sampling Plan for director approval per COGCC Rule 909.j.(6) for the AP 21-8-695 Pit. TEP has extensive water reuse and recycle infrastructure to utilize produced water from approximately 7,000 natural gas wells in the Piceance Basin for hydraulic fracturing of new natural gas wells, primarily in Garfield and Rio Blanco Counties. Twenty-eight (28) lined produced water pits are part of this infrastructure. Due to the very large number of individual actively producing wells it is impractical to sample produced water from each well. However, since proximate wells are producing from the same, or similar, formations, collecting and analyzing produced water from the composite inlet stream of each lined pit will provide representative analytical results.

B. LOCATION DESCRIPTION

The AP 21-8-695 facility is a single-well pit located within Section 8, Township 6 South, Range 95 West in Garfield County (facility ID 284669, location ID 335627, lat. 39.542635, long. -108.022936). A facility diagram is attached for reference. The facility consists of a 9,482 barrel capacity lined produced water pit, one natural gas well, one three-phase production separator, and oil storage tanks.

C. PRODUCED WATER SAMPLING PROTOCOL

In accord with COGCC Rule 909.j.(1) produced water samples will be collected from the inlet produced water pipeline entering the pit and analyzed for the properties and constituents listed below. A list of well pads that send produced water to the AP 21-8-695 Pit is included in Section D (“Well List”) below.

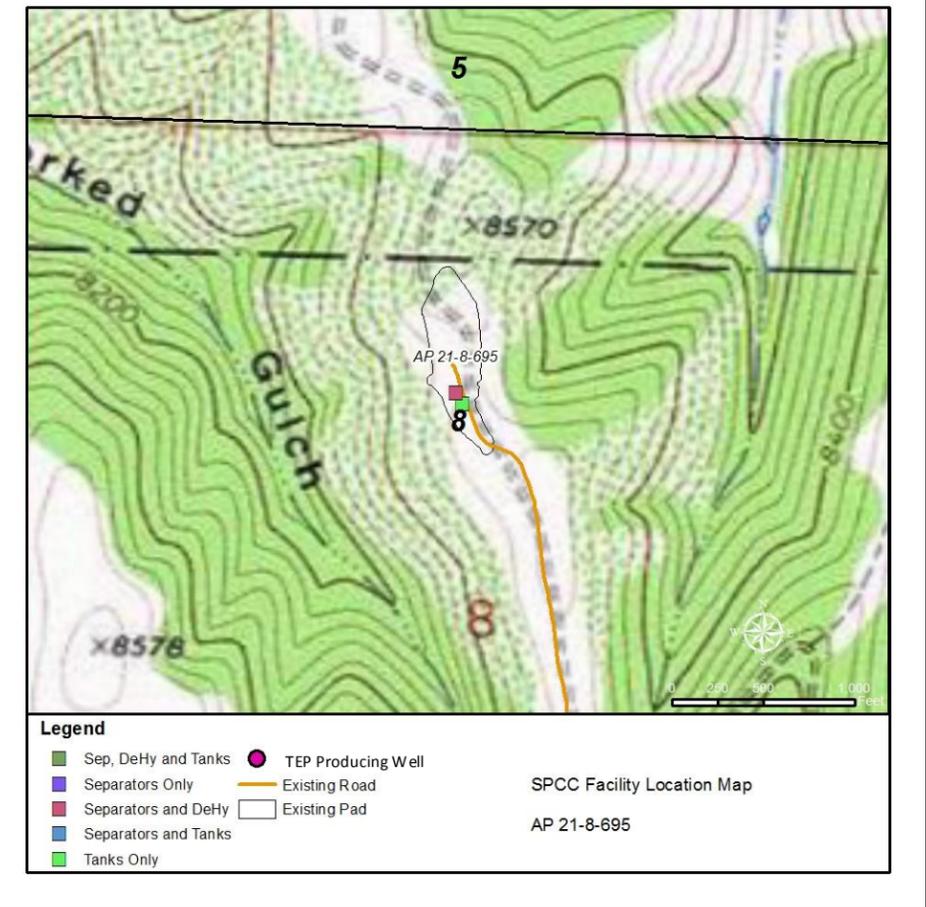
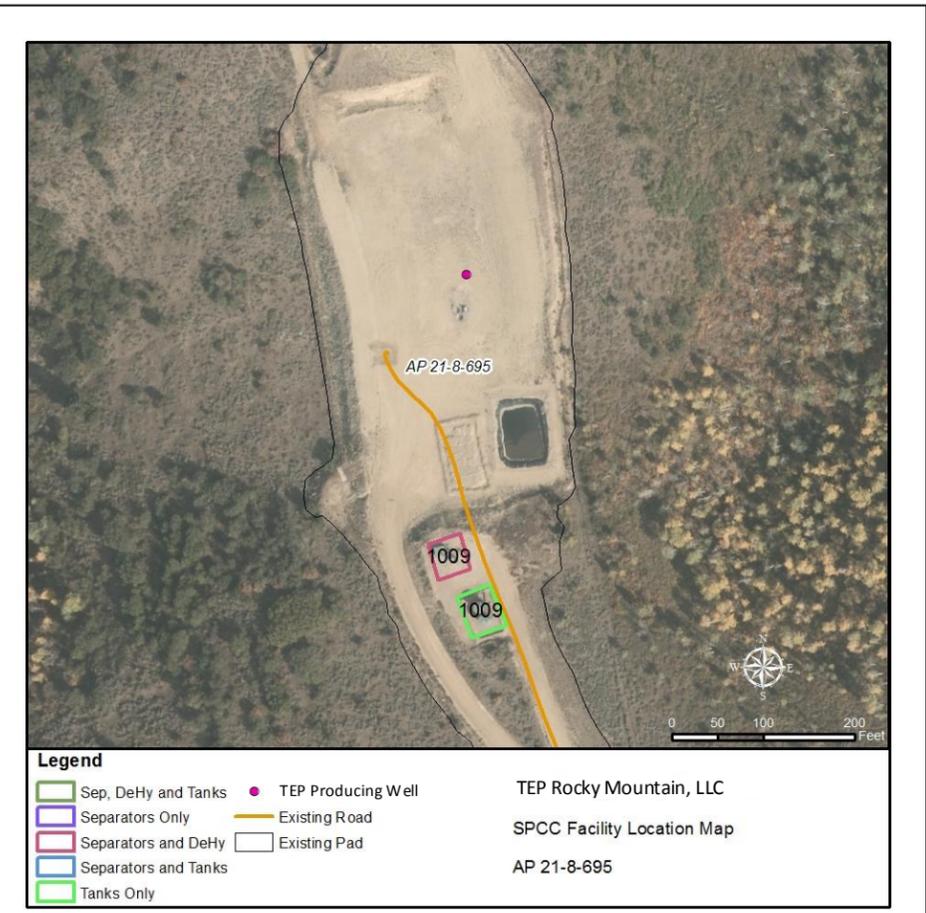
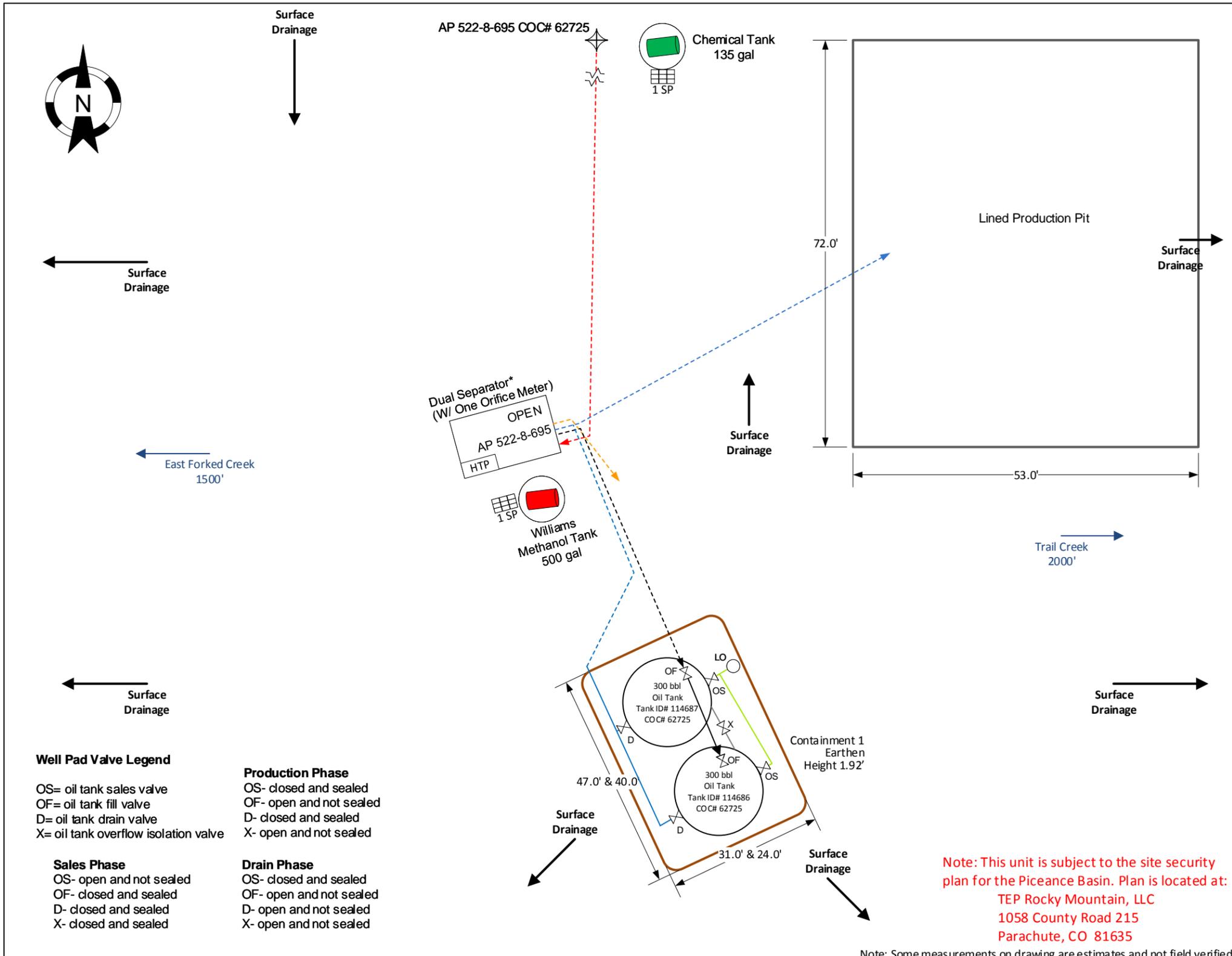
- pH
- Specific conductance
- Total dissolved and suspended solids (TDS and TSS)
- Alkalinity (total, bicarbonate, and carbonate as CaCO₃)
- Major anions (bromide, chloride, fluoride, sulfate, nitrate and nitrite as N, and phosphorus)
- Major cations (calcium, iron, magnesium, manganese, potassium, and sodium)
- Other elements (barium, boron, selenium, and strontium)
- Naphthalene
- Total petroleum hydrocarbons (“TPH”) as total volatile hydrocarbons (C₆ to C₁₀) and total extractable hydrocarbons (C₁₀ to C₃₆)
- BTEX compounds (benzene, toluene, ethylbenzene, and xylenes)
- Radium (226Ra and 228Ra)

In accord with COGCC Rule 909.j.(3) analytical results will be submitted to the COGCC via Form 43.

D. WELL LIST

Produced water from the wells listed below are sent to the AP 21-8-695 Pit via on-site flowlines:

- AP 522-8-695



| | |
|-------------|----------|
| Facility ID | |
| DRAWN BY: | TG |
| DATE: | 12/12/18 |

Facility Diagram
 TEP Rocky Mountain, llc
 North Grand Valley - AP 21-8-695
 Latitude: 39.542635 Longitude: -108.022936
 NE/NW, Sec.8, T6S, R95W
 COC# 62725
 EU Number: 91257788
 Garfield County, CO

Note: Some measurements on drawing are estimates and not field verified.

| | | |
|-----------------|-----------------|-----------------|
| Water Dump Line | Oil Dump Line 4 | Heat Trace Pump |
| Flowline | Gas Sales Line | Valve |
| Oil Dump Line | Overflow Line | Solar Pump |
| Oil Dump Line 2 | Vent Line | Load Out Valve |
| Oil Dump Line 3 | Manifold Line | Well Head |
| | Load Line | |

Dotted lined denote underground pipes. All lines denote 2" steel pipe, unless otherwise noted. Valves on separator not shown.