

# **Waste Management Plan**

**TR 34-16-597 Oil and Gas Location**

**Loc ID #335924**

**January 2025**



## **INTRODUCTION**

TEP Rocky Mountain LLC (“TEP”) has developed the following Waste Management Plan to address Exploration and Production (“E&P”) and other wastes related to its proposed operations on the TR 34-16-597 Pad (remote frac pad). The TR 34-16-597 Pad (ECMC Loc ID: 335924) is an existing Oil and Gas Location located in the SE¼ of Section 16, Township 5 South, Range 97 West, 6th P.M. and currently supports production operations for ten (10) active natural gas wells. TEP is requesting that this Oil and Gas Location be approved for use as a remote frac pad to support well completion operations for the seventeen (17) proposed wells on the existing TR 32-28-597 pad (ECMC Loc ID: 324040) and the eighteen (18) proposed wells on the existing TR 43-32-597 pad (ECMC Loc ID: 324411). The existing TR 34-16-597 pad would not require any additional site construction prior to installing and operating the proposed tanks.

This plan provides an overview of methods TEP will use for managing waste materials as required by Colorado Energy and Carbon Management Commission (“ECMC”) Rule 304.c.(11) and Rule 905.a.(4). This plan also provides details on reuse and recycling of produced water for well completion operations and the use of Modular Large Volume Tanks (“MLVTs”) at the Oil and Gas Location for the storage of recycled produced water.

E&P wastes are not regulated (i.e., exempt) as hazardous wastes by the Environmental Protection Agency (EPA) (40 CFR 261) or by the ECMC. The ECMC regulates E&P waste in the State of Colorado. Both agencies publish a list of E&P exempt wastes on their websites. To qualify as an E&P waste, the waste must be generated during the drilling, completion, or production operations. These wastes must be managed (treated, stored, transported, and disposed of) in accordance with ECMC, County and municipal regulations, and land use codes and ordinances.

Non-E&P Wastes are those that are not generated as part of Oil and Gas downhole operations and are generally classified as non-hazardous or hazardous. These wastes must be managed in accordance with Colorado Department of Public Health and Environment (“CDPHE”) regulations, and County and Local landfill or waste disposal facility requirements.

The following Waste Management Plan provides the general practices and procedures TEP will use to manage the identified waste streams to be generated during temporary completion operations on the TR 34-16-597 pad.

## **SITE DESCRIPTION**

As mentioned above, the TR 34-16-597 is an existing 7.757-acre Oil and Gas Location located within the SE¼ of Section 16, Township 5 South, Range 97 West, 6th P.M. and is located on private surface owned by Chevron USA Inc. The TR 34-16-597 pad currently supports production operations for ten (10) active natural gas wells. The land on which the pad is located is classified as non-crop land / rangeland.

The TR 34-16-597 Pad was approved for use as a remote well completions location for the proposed wells on the TR 32-28-597 Pad and TR 43-32-597 Pad on March 19, 2024 (Form 4 Doc #403640277), including the use of MLVTs. However, the tanks previously approved for use on the TR 34-16-597 pad are not currently available. Therefore, TEP has prepared this revised Waste Management Plan to document the changes to waste management at TR 34-16-597 pad, include the new MLVT that will be utilized at this location.

The existing Oil and Gas Location will not require additional site re-grading prior to planned operations. Final pad grading and application of gravel to the existing Oil and Gas Location would be required prior

to planned operations. All proposed activities will be conducted within the existing limit of disturbance and no new disturbance would be required. The existing access road will be maintained to support ingress and egress to the facility.

## **DEVELOPMENT PHASE AND POTENTIAL WASTE STREAMS**

Planned activities on the Oil and Gas Location will generally occur in the following order of operations:

- 1) Ongoing production operations;
- 2) Site regrading operations;
- 3) Temporary well completion operations (remote completions);
- 4) Temporary flowback operations;
- 5) Interim reclamation activities;
- 6) Spill response and remediation; if applicable
- 7) Plugging and abandonment; and
- 8) Final site reclamation

The potential waste streams identified for operations at the TR 34-16-597 pad are listed in Table 1, Potential Waste Streams by Operations Phase. This table identifies the types of waste streams likely to be generated during each operational phase and the operational phase when the waste is likely to be generated.

**Table 1, TR 34-16-597 Potential Waste Streams by Operations Phase.**

<b>Potential Waste Streams</b>	<b>Operational Phase</b>	<b>Description</b>
Produced Water	Completion, Flowback, and Production	Recycled produced water utilized during well completion operations and returned fluid during flowback and production.
Contaminated Soils	All Phases	Soils contaminated at any phase of development.
Sewage	All Phases	Sewage generated while location is occupied during construction, completion, flowback, and production operations.
Solid Waste / Trash	All Phases	Solid waste materials produced during any phase of development at the Oil and Gas Location.

## **TYPES OF WASTES AND DISPOSAL METHODS**

### **Produced Water**

Produced water generated from the existing wells on the TR 34-16-597 pad is transported through the existing on-location produced water pipeline to the existing tank battery located on the Oil and Gas Location. Water is then transported via existing water pipelines to one of TEP's Centralized E&P Waste Management Facilities (see Table 2) for treatment, recycling, or disposal.

Recycled produced water required for well completion and flowback operations associated with the seventeen (17) proposed wells on the TR 32-28-597 pad and the eighteen (18) proposed wells on the TR 43-32-597 will be transported to the TR 34-16-597 pad. Recycled produced water will be transported from TEP's existing water management facilities and stored in Harpoon Tanks at the TR 34-16-597 pad

prior to pumping operations. Fluids for well completion operations will then be pumped from the TR 34-16-597 pad to the wells on the TR 32-28-597 pad and the TR 43-32-597 pad via proposed temporary surface steel frac pipelines.

Any recycled produced water remaining at the TR 34-16-597 pad following completion of well completion and flowback operations will be transported via pipeline to one of the following TEP operated Centralized E&P Waste Management Facilities for treatment, recycling, or disposal.

**Table 2, Existing E&P Waste Management Facilities**

Facility Name	Location	ECMC Location ID	ECMC Facility ID
Parachute E&P Waste Management Facility	SWSW Section 36 T6S R96W	--	149015
Rulison E&P Waste Management Facility	NWSW Section 20 T6S R94W	--	149006
Mautz Ranch E&P Waste Fac.	SENW Section 19 T2S R98W	422672	444993

Produced water will be treated with biocide at the water management facilities. Produced water will also be treated with biocide prior to disposal if necessary. Produced water is then disposed of through (1) delivered and injected into one of the approved TEP operated underground injection control (“UIC”) facilities, (2) re-used in hydraulic fracturing operations, or (3) hauled to an approved third-party, commercial disposal facility as described below.

*Underground Injection Control (UIC) Facilities*

Disposal of produced water at permitted underground injection control facilities (“UIC”) is one viable option for disposal of excess produced water. Currently, TEP owns and operates thirty-eight (38) UIC injection wells (see Table 3) that are used for produced water disposal as needed. These UIC disposal wells / facilities are a critical component of TEP’s water management process as they help to maintain the balance between the total volume of production water generated, and the volume of water that is re-used / recycled. All UIC facilities have been permitted per the Rule 800 series.

**Table 3, Approved UIC Facilities**

Well Name	Location	UIC Facility Number	Ownership	API
Circle B Land 33A-35-692	NWSE-S35-T6S-R92W	159277	Fee	05-045-18493
GGU Roderick	NENW-S31-T6S-R91W	159176	Fee	05-045-13803
Scott 41D-36-692	NENE-S36-T6S-R92W	159159	Fee	05-045-11169
Specialty 13A-28	NWSW-S28-T6S-R92W	159212	Fed	05-045-14054
KP SWD 9-12D	NESE-S8-T6S-R91W	159301	Fee	05-045-18532
PWD Federal 21-6	SWSE-S21-T6S-R91W	159479	Fed	05-045-21277
GM 14-36	Lot 4-S36-T6S-R96W	159262	Fee	05-045-07501
GM 239-36	NESW-S36-T6S-R96W	159369	Fee	05-045-14693
GM 523-36	NESW-S36-T6S-R96W	159266	Fee	05-045-13979
GM 923-1D	SWNE-S1-T7S-R96W	159295	Fee	05-045-18424
GM 931-1D	SWNE-S1-T7S-R96W	159297	Fee	05-045-18425
GM 943-1D	SWNE-S1-T7S-R96W	159296	Fee	05-045-18426
Fed 299-23-1	SESW-S23-T2S-R99W	159478	Fed	05-103-10488

Well Name	Location	UIC Facility Number	Ownership	API
Fed 299-23-2	NESE-S23-T2S-R99W	159452	Fed	05-103-10490
Fed 299-26-1	SWNW-S26-T2S-R99W	160001	Fed	05-103-10364
Fed 299-26-2	NWNW-S26-T2S-R99W	159413	Fed	05-103-10538
Fed 299-27-5	SWNE-S27-T2S-R99W	159317	Fed	05-103-10624
Fed 299-27-6	NENW-S27-T2S-R99W	159396	Fed	05-103-10644
RG 41-16-397	NWNE-S16-T3S-R97W	159410	Fed	05-103-11517
RMV 215-21	NESW-S21-T6S-R94W	159388	Fee	05-045-07465
RWF 434-21	SWSE-S21-T6S-R94W	159386	Fee	05-045-10469
RWF 623-21	NESW-S21-T6S-R94W	159387	Fee	05-045-10389
RWF 911-28D	SESW-S21-T6S-R94W	159447	Fee	05-045-22176
RWF 933-19D	SWNW-S20-T6S-R94W	159462	Fed	05-045-22333
SG 334-32	NWSE-S32-T7S-R96W	159971	Fee	05-045-18442
SG 914-32D	NESE-S32-T7S-R96W	159981	Fee	05-045-18533
SG 922-32D	SESW-S32-T7S-R96W	159960	Fee	05-045-22654
SG 924-29D	NWNE-S32-T7S-R96W	159974	Fed	05-045-23023
B19-N	NWNE-S32-T7S-R96W	159220	Fee	05-103-11000
BAT 23CWI-24-07-96	NESW-S24-T7S-R96W	159457	Fee	05-045-22313
CSF #1-10W (Speakman)	NESW-S10-T7S-R91W	159150	Fed	05-045-06273
Tompkins 41 AWI-08-07-95	SESE-S5-T7S-R95W	160006	Fee	05-045-22551
Valley Farms D3	NENW-S15-T6S-R92W	159299	Fee	05-045-12082
Valley Farms F4	NWSW-S14-T6S-R92W	159298	Fee	05-045-14287
Watson Ranch B 24AWI-17-07-95	SESW-S17-T7S-R95W	159983	Fee	05-045-22801
DOE 1-W-27	Lot 5-S27-T6S-R95W	159432	Fed	05-045-06584
DOE 2-W-27	Lot 8-S27-T6S-R95W	159432	Fed	05-045-06585
DOE 2-W-29	Lot 8-S29-T6S-R95W	159418	Fed	05-045-06588

### Re-use/Recycle in Hydraulic Fracturing Operations

Re-use and recycling of produced water is an effective and efficient use of produced water as it precludes the use and consumption of freshwater resources. As produced water is generated from existing wells, the water is collected / transported to one of TEP's Centralized E&P Waste Management Facilities for further treatment and potential re-use / recycling during hydraulic fracturing operations. The "finished" water from the treatment facility has been treated to remove any residual hydrocarbon content that was not separated at the well-head. After treatment, the treated water may then be "re-used / recycled" during hydraulic fracturing operations where the water is pumped from a Centralized E&P Waste Management Facility to a series of remote storage ponds where the water is staged and ultimately re-used / recycled for hydraulic fracturing operations. Hydraulic fracturing operations is a highly water intensive activity and re-using / recycling produced water serves to protect and reserve Colorado's freshwater resources.

### Third Party Disposal Facilities

Third party disposal facilities are an option available to TEP for management and disposal of produced water. However, because this option requires trucking to a distant commercial disposal facility, this is

typically considered to be a labor-intensive option, is not cost effective for TEP, and therefore, is not a preferred option. There are six third-party, commercial disposal facilities that are locally / regionally available to TEP operations (see Table 4). Typically, TEP would only use a third-party commercial disposal facility for produced water disposal if our existing water treatment facilities were full (at maximum capacity) and/or TEP's permitted injection wells were incapacitated (not available) for some reason.

**Table 4, Approved Third Party Disposal Facilities**

<b>Facility Name</b>	<b>Location</b>	<b>Permit No.</b>
OWL SWD Operating LLC Services	SE Sec 8, T20S, R24E Grand County, UT	Grand County Council Resolution 2798
Harley Dome #1 SWD 43-019-31622	Sec. 10-9S-25E	UIC-358-1
Greenleaf Environmental Services	15655 45 ½ Road Debeque, CO 81630	Mesa County CUP Resolution MCM 2012-044 APCD Permit – 02ME0577 CDPHE-HMWMD – SW / MES BLA / 2.2
ECDC Environmental Landfill	1111 West Highway 123 East Carbon, UT 84520	Class V Landfill Permit #9422R1
White River Dome (Owned by RNI/DHI) Colorado disposal site	White River City Rio Blanco County, CO Intersection of CR 5 and Hwy 64	CDPHE Solid Waste Permit: SW-RBL.PIC 2.3 APCD Permit- 07RB0987
PBR Disposal	SWSW Section 2, T3S, R98W Rio Blanco County	Air Construction Permit. 09RB0921 Rio Blanco County SUP Resolution 2007-42 (07/13/09)

### **Contaminated Soils**

Occasionally, spills of recycled produced water may occur during completions operations that could result in localized impacts to soils on or near the Oil and Gas Location. All spills are immediately investigated by TEP Environmental and Operations personnel. Contaminated soils are assessed to determine if they exceed regulatory cleanup standards and require removal, treatment, or disposal. Characterizing potentially contaminated soils is accomplished either by field-screening the impacted soils to determine relative hydrocarbon concentrations, and/or by collecting samples of the impacted soils and sending the samples to an approved commercial lab for analysis.

All contaminated soils exceeding regulatory cleanup standards are excavated and managed / disposed of appropriately. If a spill incident is subject to agency reporting requirements, the appropriate agencies are notified within the regulatory timelines. Impacted soils that exceed applicable cleanup standards are typically excavated and taken to an off-site commercial disposal facility that is authorized to accept that type of waste.

### **Sewage**

Chemical toilets (i.e., porta potties) will be provided on site for personnel use during temporary completion operations. Porta potties will be emptied weekly by an approved sanitary waste contractor and hauled to an approved sanitary waste disposal facility. Please see the Waste Handling Summary (Table 7) for additional details.

## **Garbage**

All garbage and trash (i.e., solid, non-hazardous wastes) will be stored in enclosed bear-proof trash containers. Disposal of garbage and trash will occur approximately once per week during completions operations. All garbage and trash will be transported to a permitted solid waste landfill within one (1) week following termination of completion operations. Garbage or trash will not be disposed of on-location. The well site and access road will be kept free of trash and debris during long-term production operations. No hazardous substances or hazardous wastes are anticipated to be generated during completions operations. Such materials are strictly prohibited for disposal at a solid waste landfill. Please see the Waste Handling Summary (Table 7) for additional details.

## **PLUGGING AND ABANDONMENT / DECOMMISSIONING PHASE WASTE STREAMS**

Plugging and abandonment (P&A) of individual wells will occur as the part of the natural life cycle of the well. Typically, a producing well will be P&A'd due to economic reasons (i.e., the well no longer produces sufficient gas to be economically viable). However, occasionally a well may also require closure due mechanical integrity issues that exceed the benefit of keeping the well in production.

The potential waste streams that may be generated during the P&A phase of a well are summarized in Table 5.

**Table 5. Potential Waste Streams Resulting from the Plugging and Abandonment Phase.**

<b>Potential Waste Streams</b>	<b>Description</b>
Excavated soils around well bore and flowlines	All soils excavated from around the immediate well bore and the flow line tie-in point during the P&A phase will be treated as contaminated E&P wastes and will taken to an off-site commercial disposal facility.
Well head / BPOE	The well-head / BPOE assembly will be removed, re-built (if needed), and re-used.
Miscellaneous well tubing, casing, and flowlines	Steel tubing, casing, and flowlines removed during the P&A process have residual economic value as either a recycled commodity or to be re-purposed as fencing materials – typically for ranching / agricultural operations. As such, these materials are either recycled for scrap value or re-purposed.
Cellar rings / planks	Some wells may have cellars that have been constructed from galvanized steel (i.e., CMP), welded steel plates, or wooden timber planks. At the time a well is P&A'd, any cellar material is generally not reusable. Metal materials will be recycled, and wooden planks will be taken to a local solid waste landfill for disposal.
Cellar grates / covers	If well cellars are present, any cellar grates and covers will be re-moved and stored for re-use at other locations.
Waste cement / drilling mud returns	Any cement or drilling-mud returns generated during the plugging process will be collected in tanks during the P&A operation. This waste stream will be treated as an E&P waste and will be taken to an approved off-site disposal facility once the P&A operations have been completed.
Tanks, separators, related equipment	P&A operations may also result in associated production equipment that is no longer needed. This equipment may include steel above-ground fluid storage tanks (produced water and condensate tanks), separators, dump lines, piping, manifolds, fittings, etc.. Any equipment that is re-usable will be removed and stored at an off-site equipment storage yard for potential re-use. Any pieces of equipment that are no longer usable or cannot be refurbished will be scanned, verified as clean, and sold as scrap metal to a commercial scrap metal recycler.

Potential Waste Streams	Description
Solid wastes / trash	Minor volumes of solid waste and trash (i.e., non-E&P wastes) that have no economic value or cannot be reused, will be taken to the local landfill for disposal.
Final site cleanup and decommissioning waste	After all wells have been P&A'd and the location is ready for final reclamation and decommissioning, any contaminated soils encountered during the final removal of equipment, piping, flowlines, and tank batteries, etc., will be investigated for compliance with Table 915-1 cleanup standards. Any contaminated soils exceeding these standards will be remediated and disposed of at an approved off-site disposal facility.

All waste generated during the P&A / final decommissioning phase will be removed from the location and recycled, reused, repurposed, or disposed of at an approved off-site commercial disposal facility. No waste materials will be treated, stored, buried, or disposed of on the location.

## REUSE AND RECYCLING PLAN

As mentioned above, the TR 34-16-597 pad would utilize recycled produced water during hydraulic fracturing operations for the seventeen (17) proposed wells on the TR 32-28-597 pad and the eighteen (18) proposed wells on the existing TR 43-32-597 pad. Produced water generated from existing wells operated by TEP will be transported from one of TEP's existing Centralized E&P Waste Management Facilities to the TR 34-16-597 pad for use during well completion operations. Produced water generated from TEP's existing well operations is collected, transported, and treated at one of TEP's Centralized Waste Management Facilities. After treatment, recycled water will be pumped via TEP's existing waterline infrastructure to the TR 34-16-597 Pad (remote completions pad). Four (4) Harpoon Tanks (aka. Modular Large Volume Tanks or MLVTs), each with a working capacity of approximately 15,000 bbls will store the recycled produced water until it can be pumped to the proposed wells on the drill pads. Fluids for well completion operations will then be pumped from the TR 34-16-597 remote frac pad into the proposed wells on the TR 32-28-597 pad and TR 43-32-597 pad via proposed temporary surface steel frac lines. Reuse and recycling of produced water for well completion operations provides several benefits, including:

- 1) Decreases freshwater withdrawals from surface water sources.
- 2) Decreases reliance on injection wells for disposal of production/flowback water.
- 3) Increases operational efficiencies from re-using local supplies of production / flowback water to meet water demands for completion activities.
- 4) Reduces volume of truck traffic, versus alternatives that could involve trucking water from other sources.

## Proposed Volume

TEP is currently planning to utilize approximately 120,000 barrels of produced water per well during well completion operations. With a total of thirty-five (35) proposed wells, this totals approximately 4.2MM barrels of produced water that will be pumped to the TR 34-16-597 pad and utilized for hydraulic fracturing operations. The actual volume of water to be pumped during completion operations may vary depending on characteristics of the geologic formations and other factors.



## **Method of Waste Treatment and Storage**

### *Treatment of Recycled Produced Water*

All water delivered to the TR 34-16-597 pad during temporary well completion operations will be preprocessed and recycled produced water from one or more of TEP's existing Centralized E&P Waste Management Facilities. The produced water is processed through gun barrels and other separation equipment to remove and minimize the hydrocarbon concentration within the produced water. The produced water is then stored in a pit where it is treated with biocides, when necessary.

### *Storage Tanks*

Recycled produced water delivered to the TR 34-16-597 pad for use during well completion operations will be stored in Harpoon Tanks prior to being pumped to operations on the proposed wells at the TR 32-28-597 pad and TR 43-32-597 pad. TEP's contractor will erect four (4) fifteen-thousand-barrel (15,000bbl) Harpoon Tanks with an individual working capacity of fourteen thousand barrels (14,200bbls). The total capacity of the four (4) Harpoon Tanks is sixty thousand barrels (60,000bbls) with a total working capacity of fifty-six thousand eight hundred barrels (56,800bbls). By reducing the total work capacity for all four (4) tanks TEP is committing to leaving two-feet (2') of freeboard in each tank.

The Harpoon Tank is comprised of a ridged steel frame structure bolted together to form a cylindrical shell with a Thermoplastic Polyurethane liner secured to the steel frame. Each tank is fifty-four point five feet (54.5') in diameter and thirty-six feet (36') high. The tank construction is designed in accordance with API Standard 650 – Welded Tanks for Oil Storage. Please see the Harpoon Tank Sales Drawing and the other tank design documents attached to the Form 4 for additional details on tank construction.

### *Containment System*

A Thermoplastic Polyurethane liner installed within the steel frame shell of the Harpoon Tank, which will serve as the primary containment for recycled water stored at the Oil and Gas Location during well completion operations.

A secondary containment structure will be erected along the northeast side of the pad to provide one hundred and fifty percent (150%) containment of the largest tank. The secondary containment structure will be comprised of a Muscle Wall containment structure with an interior liner. The Muscle Wall is a portable, low-density polyethylene hollow plastic four-foot (4') high barrier, which interlocks to provide a ridged containment structure. Each section of Muscle Wall is six feet (6') in length. The interior liner will be a forty-three mil (43mil) linear low density polyethylene liner, which will be attached to the Muscle Wall using straps and clips as specified by the manufacture.

A tertiary containment structure is already in place on the TR 34-16-597 pad, which was installed during site reconstruction in 2024. The existing pad perimeter berm on the TR 34-16-597 pad will be evaluated prior to tank installation to ensure the berm is a minimum one-foot (1') high. The berm will be reconstructed with excavated subsurface material, if needed to ensure there is a minimum one-foot (1') high perimeter berm around the fill side of the Working Pad Surface.

During initial setup of the proposed Harpoon Tanks, TEP will inspect the existing tertiary containment structure (earthen berm) to verify the integrity of the containment system and ensure that the containment is sufficiently impervious so that any discharge from a primary and/or secondary containment system will not escape containment before cleanup occurs.

Please see the Preliminary Well Completion and Stimulation Layout Drawing attached to the Form 4 for the layout of the Muscle Wall on the TR 34-16-597 pad and for a depiction of the pad perimeter berm / tertiary containment. Please also see the Muscle Wall Setup Diagram attached to the Form 4 for detail on how the secondary containment system will be installed.

#### *Containment Calculation*

Secondary Containment: The total working capacity of the four (4) Harpoon Tanks is approximately fifty-six-thousand-eight-hundred-barrels (56,800bbls). The volume of the largest tank within the secondary containment structure will be fourteen-thousand-two-hundred-barrels (14,200bbls). Per ECMC Rule 603.o.(1), “[o]perators will design secondary containment structures to be sufficiently sized to contain at least 150% of the volume of the largest single [t]ank within the containment”. The total required holding capacity of the secondary containment must be a minimum of twenty-six-thousand two-hundred and eighty-six barrels (26,286bbls) including displacement of all three (3) additional tanks.

With the displacement factored in for the Harpoon tanks, the secondary containment should be:

$$150\% \text{ of Largest Tank} + ((\pi \times r^2 \times \text{containment high}) \times \text{oil barrel conversion}) \times \text{add'l tanks})$$

$$1.5 \times 14,200\text{bbls} + ((\pi \times 27.25^2 \times 4') \times 0.17811) \times 3)$$

$$\text{Total Secondary Containment} = 26,286\text{bbls}$$

The proposed Muscle Wall secondary containment will be on average approximately three hundred and ninety feet (390') in length by eighty-four feet (96') in width by four feet (4') in height. The secondary containment will have a total capacity of approximately 26,673bbls, 187% containment of largest tank at work capacity (14,200bbls).

Tertiary Containment: A minimum one foot (1') high earthen perimeter berm will be used for tertiary containment. The tertiary containment is estimated to contain approximately thirty-five thousand barrels (33,768 bbls), equating to approximately three hundred and fifty percent (237%) of the largest tank volume.

#### **Produced Water Quality and Quality Assurance**

Produced water delivered to the TR 34-16-597 pad for storage in the proposed Harpoon Tanks will be pre-treated at one of TEP's existing Centralized E&P Waste Management Facilities. Produced water is generally processed through gun barrels and other hydrocarbon separating equipment to minimize the hydrocarbon content within the produced water.

TEP does not use any of the chemicals identified in Table 437-1 as additives in any of our completion fluids. There are trace concentrations of some organic compounds (e.g., Benzene, Ethylbenzene, Xylene, etc.), but these are naturally occurring chemicals found within the formation water that is collected and treated. TEP complies with ECMC Rule 437.b, which does not prevent operators from recycling or reusing produced water that has naturally occurring trace amounts of the chemicals listed in Table 437-1. TEP also complies with Rule 437.c, which allows for the use of those chemical constituents at either the Table 915-1 standard, or the unconcentrated naturally occurring background level, whichever is greater. Please see Table 6, Recycled Produced Water – Table 437-1 Concentrations for detailed water sampling results.

**Table 6, Recycled Produced Water - Table 437-1 Concentrations**

Water Quality Sampling Results Data Summary - Table 437-1 Rulison Centralized E&P Waste Management Facility Facility ID: 149006 Date: October 8, 2021								
Chemical Name	Units	Analytic Method	Result	Qual	RL	MDL	DF	Table 915-1 Levels
<b>Metals</b>								
Arsenic	MG/L	6010C	0.0055	U	0.01	0.0055	1	
Cadmium	MG/L	6010C	0.00243	U	0.005	0.00243	1	
Chromium	MG/L	6010C	0.000916	J, B	0.01	0.000811	1	
Lead	MG/L	6010C	0.00237	U	0.01	0.00237	1	
Mercury	MG/L	7470A	0.0000263	U	0.0002	2.63E-05	1	
<b>Volatile Organic Compounds</b>								
Benzene	UG/L	SW8260C	0.13	U	1	0.13	1	5
Ethylbenzene	UG/L	SW8260C	0.5	U	1	0.5	1	700
m-Xylene & p-Xylene	UG/L	SW8260C	0.63	U	5	0.63	1	
o-Xylene	UG/L	SW8260C	0.6	U	5	0.6	1	
Xylenes, Total	UG/L	SW8260C	1.6	U	10	1.6	1	1400 to 10000
2-Ethylhexanol	UG/L	SW8260C	200	U	200	200	1	
1,3,5-Trimethylbenzene	UG/L	SW8260C	0.56	U	1	0.56	1	67
1,4-Dioxane	UG/L	SW8260C	200	U	400	200	1	
<b>Semi-volatile Organic Compounds</b>								
N,N-dimethylformamide	UG/L	SW8270D	1.13	J*-	20.4	0.815	2	
<b>Method 8015D - Glycols - Direct Injection (GC/FID)</b>								
2-Butoxyethanol	UG/L	SW8015D	5	U	5	5	1	
<b>Method 8015D - Nonhalogenated Organic Compounds - Direct Injection (GC/FID)</b>								
1-Butanol	UG/L	SW8015D	2.77	U	5	2.77	1	
<b>Field Parameters</b>								
Water temp, field	deg C	YSI 556	18.6					
pH, field	s.u.	YSI 556	7.15					
Specific cond., field	uS/cm	YSI 556	34276					
Conductivity, field	uS/cm	YSI 556	---					
DO saturation, field	%	YSI 556	154.1					
DO, field	mg/L	YSI 556	---					
ORP, field	mv	YSI 556	8.8					
Turbidity, field	ntu	Micro TPI	47.05					
Discharge	cfs		NA					
Color	nu		Light Brown					
Odor	nu		Low					
Effervescence	nu		None					
Sediment	nu		None					
Bubbles	nu		None					
VOA Headspace	nu		None					
<b>Table 437-1 Compounds Not Analyzed</b>								
2-mercaptoethanol								
benzene, 1,1'-oxybis-,tetrapropylene derivatives, sulfonated sodium salts (BOTS)								
butylglycidyl ether								
Quaternary ammonium compounds, dicoco alkyldimethyl chlorides (QAC)								
Bis hexamethylene tiamine penta methylene phosphonic acid (BMPA)								
Diethylenetriamine penta (methylene-phosphonic acid) (DMPA)								
FD&C blue no. 1								
Tetrakis (triethanolaminate)								

Notes: U = not detected at the method detection limit; J = result between RL and MDL, estimated; H = hold time exceeded; NM = not measured; AV = result averaged; VAR = variable; \*- LCS and/or LCSD is outside of acceptable limit, low biased; --- = no standard for this parameter; SS = Suspended solids

Flowback water may be stored in the proposed tanks following completion of initial well completion operations. All flowback water will go through a four-phase separator to separate gas, water, condensate, and sand that may return from the well following well completion and prior to storage in the Harpoon Tanks. Flowback water processed and stored in the Harpoon Tanks will be pumped back into TEP's water management system during flowback operations.

### **Proposed Timeline for Reuse and Recycling**

Produced water will be utilized during well completion operations for the proposed wells on the TR 32-28-597 pad and TR 43-32-597 pad, which is scheduled to occur between August 2025 and March 2027.

### **Anticipated Method of Transport**

Currently produced water is transported from existing Oil and Gas Locations to TEP's existing Centralized E&P Waste Management Facilities via existing pipelines when existing pipelines are available. Produced water from other Oil and Gas Locations that do not have existing water pipeline infrastructure is transported via truck to existing facilities closest to the source location. Water collected and stored at existing Centralized E&P Waste Management Facilities will then be transported via pipeline to the TR 34-16-597 pad for temporary storage prior to well completion operations. When well completion operations begin, produced water will be pumped through the five (5) proposed four-and one-half inch (4.5") temporary surface steel frac lines from the TR 34-16-597 pad to the well or well(s) being completed at the TR 32-28-597 pad or TR 43-32-597 pad.

Please see the Well Completions and Flowline Map attached to the Form 4, which depicts the location of the TR 34-16-597 Pad (remote frac pad), TR 32-28-597 Pad (drill pad), TR 43-32-597 Pad (drill pad), and the proposed location of the temporary surface frac lines.

### **Final Disposition of the Waste**

Produced water will be utilized during well stimulation operations for the proposed wells by pumping the produced water downhole to stimulate the target formation. Any produced water that is returned during flowback operations will be reused and recycled at the TR 34-16-597 pad for completion of the remaining wells. Following well completion operations, flowback / produced water will be handled as described in the Produced Water section above.

### **RECORD KEEPING**

TEP will comply with ECMC Rule 905.b.(3), Waste Generator Requirement, which states that operators that generates E&P Waste transported off-site will maintain records of invoices, bills, or tickets for a minimum of five (5) years including the following information:

1. The date of the transport;
2. The identity of the waste generator;
3. The identity of the waste transporter;
4. The location of the waste pickup site;
5. The type and volume of waste; and
6. The name and location of the treatment or disposal site.

Records will be maintained in compliance with ECMC Rule 206, Recordkeeping and Access to Records. Records will be maintained at TEP's main field office in Parachute, CO. TEP will maintain facility inspection forms, maintenance documentation, analytical sample data, storm water management and weed

control documentation, operational data, and any other information relative to the operation of this facility.

### **BEST MANAGEMENT PRACTICES**

- 1) TEP will properly characterize and dispose of all waste streams at facilities approved for acceptance of each waste stream.
- 2) TEP will properly characterize and dispose of all waste at the appropriate specific landfill/waste disposal location that allows for acceptance of the particular waste stream.
- 3) Any trash generated during the project will be disposed of properly at a commercial disposal facility.
- 4) Spill response materials and equipment will be staged in close proximity to the Oil and Gas Location for rapid response in the event of a spill or release.

### **SUMMARY**

Use of the TR 34-16-597 pad is necessary to support well completion operations on the TR 32-28-597 pad and TR 43-32-597 pad. The storage of large volumes of recycled produced water within the Harpoon Tanks on this location is necessary for the safe, efficient, and effective development of the proposed wells. Utilizing recycled produced water for well completion operations minimizes the need for fresh water and protects and minimizes impact to Colorado's freshwater resources. TEP will implement BMPs at the TR 34-16-597 pad to re-use and recycle produced water in a way that avoids, minimizes, and/or mitigates adverse impacts to public health, safety, welfare, the environment, and wildlife resources.

TEP believes re-occupation of the TR 34-16-597 pad for remote well completion operations and the utilization of Harpoon Tanks for water storage is the most efficient and effective means of storing produced water for completion of the proposed wells. The utilization of Harpoon tanks will overall minimize impacts on public health, safety, welfare, the environment, and wildlife resources to the greatest extent possible.

**Table 7, Waste Handling Summary**

<b>Waste Type</b>	<b>Waste Classification</b>	<b>Waste Content Description</b>	<b>Waste per Well</b>	<b>Total Waste</b>	<b>Disposal Frequency</b>	<b>Containment Description</b>	<b>Disposal Type</b>	<b>Disposal Location</b>
<b>Sewage</b>	Non-hazardous Solid Waste	Sewage	200bbl	NA	Weekly	Chemical toilets or enclosed sewer system	Haul to Commercial Facility	Commercial disposal facility
<b>Garbage</b>	Non-hazardous Solid Waste	Garbage/Trash	4000lb	NA	Weekly	Enclosed trash containers	Haul to Commercial Facility	Commercial disposal facility
<b>Produced Water</b>	E&P Waste	Produced water after well is turned over to production. The volume reported is not accurate nor known at this time.	100+bbls	NA	One Time	Water is piped into existing infrastructure	Recycled/Off-Lease Injection/Commercial Facility	Private / TEP E&P CWMF or Injection Facility
<b>Contaminated Soils</b>	E&P Waste	Contaminated soils from spill or release of <u>produced water</u> or <u>condensate</u> .	NA	NA	As needed	Excavation and direct placement into dump trucks or temporary storage bins	Haul to approved disposal facility.	Private / Commercial disposal facility
<b>Contaminated Soils</b>	Hazardous Waste or Substance	Contaminated soils from spill or release of <u>diesel fuel</u> or <u>chemicals</u>	NA	NA	As needed	Excavation and direct placement into dump trucks or temporary storage bins	Haul to approved commercial disposal facility	Commercial disposal facility
<b>Miscellaneous P&amp;A scrap metal waste</b>	Non-hazardous Solid Waste	Cellar rings, un-usable tubing, casing, flowline, etc.	Varies per well	Varies per well	One Time Only	Open top scrap metal roll-off bin	Metal will be recycled at an approved scrap metal recycler.	Commercial disposal facility