



FLUID LEAK DETECTION PLAN

CPX Piceance Holdings, LLC (CPX) owns and operates Tepee Park Ranch (TPR) in Garfield County, Colorado. CPX has prepared this Leak Detection Plan for its proposed Temporary Water Support Pad 25B. The sections below correspond to Colorado Oil & Gas Conservation Commission (COGCC) Rule 304.c.(13) to prepare a Leak Detection Plan.

1.0 Introduction and Site Description

1.1 Site Description

Pad 25B will provide a location for temporary water storage during well development on TPR. Pad 25B will not contain wells. The location for Pad 25B is listed in Table 1.

Table 1. Pad 25B Location

Legal Description	Location Coordinates	County
SW ¼ SE ¼, Section 25, Township 7 South, Range 94 West	Latitude: 39.404901 Longitude: -107.831352	Garfield

Two types of water are planned for storage:

- (1) recycled produced water to use during well completions; and
- (2) water from well completions to be used for future well completions or stored for disposal in a proposed Class II Underground Injection Control (UIC) well on CPX's existing Well Pad 25A.

TPR is fee surface for development of fee minerals.

The Pad 25B site elevation is 9069 feet.

The Pad 25B Oil and Gas Location is 4.1 acres. The Working Pad Surface is 1.8 acres.

1.2 Proposed Timeframe and Duration

After well development on TPR is complete, Pad 25B will be decommissioned. The anticipated timeframes for Pad 25B are listed in Table 2.

Table 2. Anticipated Timeframes

Location	Months	Quarter
Construction	1	Q4 2022
Completions Support	8 each well pad	Q1 2023
Reclamation	1	Q4 2025
Production	The location will be decommissioned after well development and will not support production	

1.3 Pipelines

Pipelines associated with Pad 25B are listed in Table 3.

Table 3. Pipelines Associated with Pad 25B

From	To	Pipeline
Recycled Produced Water		
Terra Energy Partners (TEP) Beaver Creek Pit ¹	CPX Pad 2 Tanks ²	Temporary 8" Surface Polyethylene ³
Pad 2 Tanks	Pad 25B	Existing 8" Buried Flexsteel
Pad 25B	Remote Frac Pad	Temporary 4" Surface Steel
Water From Well Completions		
Drill Pad	Pad 25B	Temporary 4" Surface Steel
Pad 25B	UIC Well	Temporary 4" Surface Steel

¹Beaver Creek Pit (Location ID 432702) 39.4592 / -107.82296

²Pad 2 Tanks (Location ID 455779) 39.432770 / -107.833430

³CPX will evaluate using a buried 5-inch flexpipe flowline from the Beaver Creek Pit to the Pad 2 Tanks if feasible.

The 4-inch steel lines will be located on TPR property and along the private Tepee Park Ranch Road. The road has no public access. It is approximately 20 feet wide. Surface lines will be separated from vehicles by locating them adjacent to the road. The lines are rated to withstand heavy equipment and are pressure tested to 9,500 psi. Where a line crosses a stream, it will be encased in a 12-inch diameter welded steel pipe, which acts as a sleeve around the line. A lined catch basin will be installed on either side of the crossing to capture fluid in case of a leak. The catch basin will be sized to contain the volume of the line run. Fluid captured in the catch basin would be removed by vacuum truck for reuse for completions.

1.4 Equipment

Pad 25B will not contain wells or drilling fluids. Equipment on Pad 25B will be:

- 10 – 15 10,000-bbl or 15,000-bbl Modular Large Volume Tanks (MLVTs)
- 2 110-HP Fluid Transfer Pumps
- 2 125-kW Generators

The tanks will be sourced from third-party vendors based on availability. They will be placed inside of lined secondary containment in accordance with Rule 603.o.(1). The liner will be 30 – 50 mil polyethylene.

Secondary containment will have a 4-foot-high polyethylene muscle wall. The muscle wall will have 10-inch-thick interlocking sections, secured with locking pins. The liner will overlap and clamp to the top of the muscle wall.

The perimeter of the pad will have a 2-foot earthen berm, compacted to 95 percent soil/moisture density.

A 12-inch manifold will separate each row of tanks. There will be a blind flange on each end of the manifold.

4-inch rubber hoses will connect the manifold to individual tanks. Each hose will have a 4-inch butterfly valve on either end of the hose to shut down the line. There will be no relief valves on the manifold or hoses.

There will be no vehicle access inside the muscle wall. The muscle wall will form a barrier. A straddle ladder will provide personnel with access inside the muscle wall.

2.0 Completion Fluids

Pad 25B will provide storage for completion fluids. When completions are finished on TPR, the pad will be decommissioned. There will be no production-related water storage.

2.1 Monitoring

Operators will be on location 24/7 during completions. Between completions when there is no activity, an operator will be on location an estimated 5 days per week to monitor Pad 25B.

Operators will monitor tanks, manifolds, hoses, secondary containment, generators, and fluids transfer twice daily to coincide with shift changes.

Monitoring will look for signs of leaks, malfunction, or deterioration. A supervisor will visually monitor frac lines during operations by driving from end to end and verifying that no leaks are detected.

Operators also will monitor frac lines continuously for pressure drops. The frac lines will be equipped with pressure transducers at numerous points along the lines that record and display data multiple times per second to monitor pressure and immediately detect a leak during completions. During a pressure drop, the line or section will be isolated and removed from service to address the source of a pressure loss. This could include welding a new section, followed by x-ray testing.

A spill or leak will be treated with the spill response material maintained on site and disposed of appropriately as oily waste at a disposal facility authorized to accept the waste.

The frac line will not be continuously pressured in between stages of completions.

Each tank will have a float assembly to provide the volume in the tank. The operator will record the volumes daily. The data will be used to identify any fluid loss and to prevent overfilling.

In the event of a significant water loss on Pad 25B, water will be contained inside of secondary containment and will flow to a 5-foot steel sump installed at grade on the pad. If the capacity of the sump is exceeded, a 5-hp pump will be used to pump water to an emergency standby tank on CPX's Pad 2. Water will flow to Pad 2 using CPX's existing bidirectional 8" flexsteel water line. Residual water, if any, will be removed using a vacuum truck. The emergency standby tank on Pad 2 will be 10,000 or 15,000 bbl.

2.2 Inspection

An MLVT manufacturer's representative will provide on-site support for installation, set up, inspection, and testing prior to putting MLVTs in use.

Access to the tanks will be limited to operations personnel.

Tanks will be maintained according to the manufacturer's specifications. The vendor will provide service support, including integrity checks of tank seals. CPX will regularly change out ball valves on isolation valves.

CPX will maintain the manufacturer's recommended freeboard in each tank. Personnel will conduct periodic testing and reinspection of equipment. The frequency will be identified in Standard Operating Procedures (SOPs) developed for Pad 25B.

Personnel will inspect the tanks, appurtenances, and surrounding area for integrity. Inspection will consist of the following:

- Listen for leaks or noise that is out of the ordinary.
- Look for visual signs of a fluid drip, leak, staining, or leaking around components.
- Look for visual signs of seeping or leaking around tanks. Check for fluids in containment. Check valving to ensure valves are closed tight and there is no seeping or leaking.
- Inspect for wet spots not associated with natural conditions (rain, snow, runoff, etc.).
- Check for odors not normally associated with the site.

Signs of drips, leakage, or wear will be repaired promptly with recordkeeping for the repair.

During active completions, fluid circulating equipment will be visually inspected before each shift to ensure it is properly connected and there are no leaks.

Routine inspections will be performed by qualified personnel who are knowledgeable on facility operations, the equipment, its components, and the characteristics of the material stored and transferred.

Stormwater inspections will be conducted by personnel trained and qualified in stormwater preventative measures, practices, controls, and maintenance in the field. The operations manager and field operator are experienced with stormwater management and maintenance practices from current operations. Stormwater controls on the location and access road will be inspected at an estimated frequency of daily during completions. A documented stormwater inspection will be conducted at least every 14 days and more frequently after significant storm or snowmelt events.

2.3 Testing

Weekly, personnel will test the Minion bladder pop off control at the specified pressure and the Harpoon level indicator.

Scheduled cycling (e.g., weekly) will be performed on the MLVTs. Cycling will consist of opening and closing valves to keep the rubber seal moisturized and to demonstrate a seal.

Hydrostatic testing will be performed above maximum operating pressure for the frac lines. Lines will be hydrotested and recorded for 30 minutes to 9,500 psi. CPX's lines are allowed 0 percent leak-off. If a line is not being used, the line will be drained at the lowest point to prevent any leaks from occurring from the line. CPX would weld in a drain in the lowest geographic location of the frac line. The fluid would be drained to a vacuum truck for reuse for completions.

If a leak is detected from a frac line, the operator will take the line out of service and drain it using a drain point installed at the lowest point in the line. This will allow the operator to immediately remove fluid to minimize the amount of water left in the line. Once the leak is located, a root cause analysis (RCA) will be performed. Depending on the outcome of the RCA, the operator will either cut out the section of the line and replace it or remove the entire frac line and install new line followed by pressure testing.

2.4 Maintenance

CPX will develop site-specific standard operating procedures (SOPs) for Pad 25B.

Tanks will be maintained according to the manufacturer's specifications. The vendor will provide service support, including integrity checks of tank seals. CPX will regularly change out ball valves on isolation valves.

CPX will maintain the manufacturer's recommended freeboard in each tank. Personnel will conduct periodic testing and reinspection of equipment. The frequency will be identified in the SOPs developed for Pad 25B.

Fluid mats will be installed under generators. In the event a leak is detected, the equipment will be inspected, repaired, and tested to avoid a future leak. Equipment showing signs of deterioration and wear will be replaced.

When MLVTs are taken out of service, they will be pressure washed. Any accumulated sludge in the bottom of a tank will be removed and haul by Greenleaf Environmental Services for disposal.

3.0 Recordkeeping

CPX will maintain records at its Houston, Texas office. Records will include equipment specifications, maximum anticipated operating pressures, pressure or other integrity test results, inspections, repairs,

integrity management documentation, applicable technical standard(s) used, design, installation, topsoil management and reclamation, marking, maintenance and corrosion controls. Inspection results will be maintained in CPX's Rifle, Colorado office or on site. Physical and/or electronic records will be kept for a minimum of 5 years. Documents and records may be available to COGCC upon request.

4.0 Site-Specific Best Management Practices

Table 4. Best Management Practices

Best Management Practices
<ul style="list-style-type: none"> Site personnel will be trained in spill prevention, response, and response equipment before equipment is put into service and periodically thereafter. Training will include how spills or releases will be investigated, controlled, and contained in accordance with Rule 912.a.
<ul style="list-style-type: none"> If a spill or release meets criteria in Rule 912.b, it will be reported as specified in the 900 Series Rules.
<ul style="list-style-type: none"> Site personnel will be trained to conduct tank, equipment, and surface line inspections.
<ul style="list-style-type: none"> Tanks, equipment and surface lines will be monitored daily during completions for signs of drips, leaks, or spills, which will be corrected promptly.
<ul style="list-style-type: none"> A 4-foot muscle wall containment area will be maintained around the MLVTs.
<ul style="list-style-type: none"> A 2-foot earthen berm will be maintained around the perimeter of the pad.

Attachments

Attachment A – Spill Report Form



CPX SPILL REPORT FORM

Date of Spill:		Time of Spill:			
Spill Reported by:		Spill Reported To:			
Company		Weather Conditions			
Location Description	Location Name	Pipeline Vicinity	Other:	County	
Scope of Spill (Select 1 or more)	Confined to Secondary Containment	Outside Secondary Containment	Confined to Bermed Surface of Pad	Outside Bermed Surface of Pad	
Provide Additional Information Per Selection					
Discharge to Water	Yes	No	Additional Information		
Type of Fluid/Material Spilled					
Estimated Volume of Spill	(Indicated Gallons or Barrels)	Estimated Volume of Fluid/Material Recovered	(Indicated Gallons or Barrels)		
Method of Recovery			Disposal	Yes	No
Additional Actions Taken Toward Containment/Recovery:					
Detailed Description of Event (include additional pages as necessary)					
Cause of Event					
Photo Record Collected By		Sent to			
Notifications Made				Date	
1					
2					
3					
Signature				Date	