



**CRESTONE PEAK**  
RESOURCES

# **Fluid Leak Detection Plan**

**Submitted with Form 2A Application for**

**Blue 3-65 33-32-31**

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**CPR's Fluid Leak Detection Plan was developed in**

**accordance with COGCC Rule 304.c.(13)**

# Fluid Leak Detection Plan

## Introduction

Crestone Peak Resources, LLC (CPR) is committed to safe and environmentally responsible management in compliance with all Colorado Oil and Gas Conservation Commission (COGCC) Rules governing environmental impact prevention and fluid leak detection.

This Fluid Leak Detection Plan advances CPR's safety policies and provides accountability and transparency to our operations. This plan outlines CPR's procedure for fluid leak detection, leak response, as well as preventative maintenance and procedures.

## Site Description

The Blue pad is located on fee surface. The total acres of disturbance planned for the drilling phase is 14.70 acres and the pad will be interim reclaimed to 9.30 acres. The final site elevation will be 5,596'.

The proposed schedule of operations is as follows:

Construction Phase December 2022 – February 2023

Drilling Phase February 2023 - April 2023

Completion Phase April 2023 - August 2023

Production Phase starts October 2023

## Drilling Operations

CPR drilling operations utilize numerous best management practices and strategies to enhance fluid leak detection and minimize spills. During drilling operations, all fluid containing equipment is thoroughly inspected twice a day. Inspections include tanks, piping, and connections to ensure no leaks are present. In the event a leak is detected on equipment, the equipment will be taken out of service and repaired prior to returning to service. All leaks are cleaned up immediately. Inspection findings are logged into a data management system. If routine inspections indicate that the equipment or connections may need serviced, the equipment will be taken out of service and maintenance to ensure all preventive maintenance is taken to minimize leaks or equipment failure. Additional inspections are conducted on a regular basis throughout the day. The following steps are used by drilling operations to detect fluid leaks:

1. Inspections
  - a. Documented equipment inspections logged into data management system twice daily.
  - b. Frequent routine inspections during operations
    - i. Routine inspections are not recorded unless a leak is observed.

In the event of the leak being found through the inspections or best management practices,

personnel will promptly notify CPR on-call personnel and initiate repair and cleanup of the spill in accordance with CPR's Waste Management Plan submitted with the Form 2A in accordance with COGCC Rule 304.c.(11) as well as the COGCC 900 Series Rules.

## Completions Operations

CPR completion operations utilize numerous best management practices and strategies to enhance fluid leak detection and minimize spills.

1. Inspections
  - a. Thorough inspections are conducted after initial installation of all equipment.
  - b. Equipment is tested prior to operation to ensure integrity of each component of the operation.
    - i. Additional testing is conducted as required throughout the operation.
  - c. Frequent routine inspections are conducted during operation.
    - i. Routine inspections are not recorded unless a leak is observed.
    - ii. Location inspections are done daily and recorded in daily logs.

In the event of the leak being found through the inspections or best management practices, personnel promptly notify CPR on-call personnel and initiate repair and cleanup of the spill in accordance with CPR's Waste Management Plan submitted with the Form 2A in accordance with COGCC Rule 304.c.(11) as well as the COGCC 900 Series Rules.

## Construction Operations

CPR construction operations utilize numerous best management practices, training and strategies to enhance fluid leak detection practices and minimize future spills at the facility.

## Spill Prevention and Maintenance

CPR utilizes numerous strategies to prevent leaks on facilities, including:

- Weekly facility inspections include Audio Visual Olfactory (AVO) inspections as well as full site inspections of all production equipment, berms, and the facility pad.
- Annual Spill Prevention Control and Countermeasure (SPCC) inspections include full site inspections of all production equipment as well as verification with SPCC plans secondary containment sizing.
- Equipment Integrity Inspections as described under Facility Maintenance/Test Section.
- Flowline and Pipeline Pressure Testing

### Material Handling

CPR takes multiple steps to ensure that all fluid is handled in a way to minimize potential fluid leaks. CPR employs standard operating procedures for material handlers to ensure that loadout lines and valves are properly drained and closed during loadout operations.

## Monitoring/Inspections

### Weekly Facility Inspections

CPR's Lease Operators follow Best Management Practices and Standard Operating Procedures when conducting weekly facility inspections. Lease Operators inspect the following items for compliance with COGCC regulations:

1. Housekeeping
  - a. Verifying fencing is in good condition and all locks are in place.
  - b. The facility is free of weeds, grasses, and other combustibles.
  - c. The facility is free of trash, unused equipment, and materials.
  - d. Driving and working surfaces are graded.
2. Signage
  - a. Tanks are properly labeled with contents and storage capacity.
  - b. SDS available (if applicable)
  - c. NFPA labeling
  - d. Applicable signage is in place on the location.
  - e. Signage is in good condition and has all required labeling.
3. Water Quality
  - a. Verification the site is free of erosion.
4. Equipment
  - a. Verification of tanks in good condition and free of the following:
    - i. Leaks, pitting, cracking, rust, or corrosion
  - b. Tanks are properly bonded.
  - c. Tanks are free of subsidence.
  - d. Secondary containment around equipment is sufficient and has integrity.
  - e. Loadout valves are locked and properly contained.
  - f. Equipment is free of leaks, spills, and stains.
    - i. Separators
    - ii. Above ground piping
    - iii. Other production equipment
  - g. Partially buried produced water vessels are in good condition.

Upon completion of the weekly facility inspection, the report is entered into the environmental management system. If a deficiency is noted during the inspection, the issue is promptly corrected. If a leak or other abnormality is discovered, the item is reported to the emergency on-call as soon as possible and not to exceed 24 hours.

### Audio Visual Olfactory Inspections (AVO)

During routine operations, CPR personnel perform AVO inspections in accordance with COGCC Rule 609.d. and Air Quality Control Commission Regulation 7.

## Annual SPCC Inspections

CPR maintains a SPCC plan in accordance with 40 Code of Federal Regulations (CFR) Part 112. Site specific plans are prepared and signed by a professional engineer 6 months of the last well on location flowing through permanent equipment. Annual inspections of SPCC-regulated equipment are conducted in accordance with 40 CFR Part 112. During annual SPCC inspections, inspectors visually inspect the following:

1. Tanks
  - a. Foundation Integrity
  - b. Signs of leaks or distortion
  - c. Coating condition
  - d. Signs of overflow
  - e. Tank roof integrity
2. Secondary containment
  - a. Structural soundness of the berms
  - b. Oil staining
  - c. Presence of objects, trash, or vegetation within the containment.
3. Piping
  - a. Signs of leaks
  - b. Coating condition
  - c. Proper supports
4. Other Equipment
  - a. Signs of leaks or seeps
  - b. Staining
  - c. Coating condition

If a leak or other abnormality is discovered, the item is reported to the emergency on-call as soon as possible and not to exceed 24 hours. The issue will be promptly investigated and repaired.

## Facility Maintenance/Testing

When repairs or maintenance is required on facility equipment, testing will be performed to verify the equipment's integrity prior to returning it to service. Tanks and process equipment will be maintained and repaired in accordance with applicable American Society of Mechanical Engineers (ASME) and American Petroleum Institute (API) specifications. Flowlines will be maintained in accordance with applicable ASME and API specifications as well as the rules outlines in COGCC 1100 Series Rules.

### Tank Integrity Inspections

CPR follows all COGCC Rules regarding the integrity management of production tanks. Production tanks are subject to yearly static head tests. If visual inspections or other testing indicates that the condition of a tank or vessel is unsatisfactory. Internal and external condition inspections will be conducted by a qualified inspector using checklists in accordance with API Recommended Practice 12R1 Appendix A and Appendix H.

## Separator Integrity Inspections

CPR adheres to all relevant rules and guidance standards regarding the integrity management of other oil-filled operational equipment (40 CFR 112.7(k)) and flow-through process vessels (40 CFR 112.9(c)(5)). CPR adopts a proactive approach to repair and maintenance to components on sites. Fluid handling equipment is subject to yearly proactive cleanout operations. During cleanout operations, equipment is cleaned to minimize material buildup and corrosion potential as well as inspect components for corrosion, and other conditions that may lead to a discharge during. Internal and external condition inspections will be conducted by a qualified inspector to determine operational life of the components and equipment.

## Pipeline Pressure Testing

CPR adheres to all COGCC 1100 series rules regarding the integrity management of flowlines. All pipelines that will be placed into service on the location will be subject to an initial pressure test of at least four (4) hours. After placing lines into service, flowlines will adhere to the following integrity management programs:

1. Below-Ground Dump Lines (1104.c.)
  - a. Annual Static Head Test
  - b. Monthly audio, visual, olfactory (AVO) survey of the entire line.
2. Above-Ground On-Location Flowlines (1104.d)
  - a. Monthly AVO survey of the entire line
3. Below-Ground On-Location Flowlines (1104.e)
  - a. Pressure test to maximum anticipated operating pressure every three years.
4. Off-Location Flowlines and Crude Oil Transfer Lines (1104.f)
  - a. Annual pressure test to maximum anticipated operation pressure.

If a flowline is found to lack integrity. CPR will follow all of 1104.k regarding the investigation, cleanup, and repair of the failure.

## Facility Cleanup

If a fluid leak is detected from facility equipment. Spills will be reported in accordance with COGCC 912 Series rules as well as applicable CDPHE, US EPA CERCLA, and EPCRA reporting requirements.

If cleanup is required, the fluid will be disposed of in accordance with CPR's Waste Management Plan submitted with the Form 2A in accordance with COGCC Rule 304.c.(11) as well as the COGCC 900 Series Rules.

## Record Keeping

Written procedures associated with the inspection and testing activities conducted per the requirements of this Plan will be maintained. Along with the referenced procedures, records of inspections and tests required by this Plan will be signed by the appropriate personnel and retained for a period of five years or as indicated in COGCC's rules. Inspection records and associated information will be maintained with a copy of this Plan. CPR personnel ensure that all contractors, subcontractors, and personnel directly under CPR's control receive training related to essential job functions as well as training on the following record retention requirements:

- All records are maintained in compliance with COGCC Rules and Regulations.
- All records of the Blue facility are maintained and readily available at CPR's local field office.
- Records and reports related to the Blue Pad will be transferred to and maintained by any subsequent Operator in the event of a change of Operator.
- CPR will maintain all records required by COGCC Rules for five (5) years.
- During flowline construction, all inspections records and third-party inspector certification and qualifications will be maintained in accordance with COGCC Rules.
- All flowline related records are maintained for the life of the flowline until the flowline is abandoned per COGCC Rule 1105.

## Training

CPR personnel and contractors ensure that all contractors, subcontractors, and personnel directly under CPR's control receive training related to essential job functions as well as training to ensure that personnel conduct operations with regard for safety, preservation, and conservation of property, as well as minimize adverse impacts to public health, safety, welfare, environmental, wildlife resources. CPR follows the requirements of COGCC Rule 602 in regard to general safety requirements, including the following:

1. Operation Specific Training
  - a. Initial and annual employee training to ensure that training and review of standard operating procedures (SOP) and best management practices are followed for all job functions including leak detection and prevention.
2. Spill Control and Countermeasure Training
  - a. Annual training for all personnel in accordance with 40 CFR Part 112.
  - b. Yearly inspector training for SPCC visual inspections.
3. Incident command training for relevant personnel on an as needed basis.

## Site-Specific Best Management Practices

### Drilling/Completions Operations

- Frequent and thorough inspections throughout all stages of operations.
- Procedures and training on equipment use in place to avoid and mitigate spills.
- Double-walled storage tanks will be used where applicable.
- Continuous monitoring and third-party systems will be used to track fluid volumes and monitor for leaks.
- Rig will be placed on an impervious plastic liner including four-inch to six-inch high berm walls.
- Closed loop drilling systems will be utilized.
- Temporary portable containers (e.g., drums) are stored inside plastic-lined or other impervious containment.
- General secondary containment (impervious liner) will be placed under equipment.
- Active drilling fluid tanks will be equipped with a third-party measurement and alarm system (Pason Pit Volume Totalizer) to track tank volumes and changes during the drilling operation.
- Fluid storage tanks on the location will be equipped with mechanical (visual) level indicators that are inspected by operation personnel.
- Third-party continuous monitoring on integral systems in addition to routine inspections. In the event of an upset condition, Operators are notified and respond immediately.
- Regular preventative maintenance schedules followed for equipment.

### Facility Construction

- Qualified third-party inspectors will inspect equipment to evaluate compliance with COGCC Rules and Regulations and applicable technical standards.
- Secondary containment will be installed with an impervious liner.
- Secondary containment will be sized to 150% of the largest storage tank.
- Production tanks will be lined where applicable.
- Pressure and Integrity testing prior to placing equipment into service.
- All equipment will be installed and tested in accordance with applicable American Society of Mechanical Engineers (ASME) and American Petroleum Institute (API) standards.
- Underground piping on the facility will be electronically inspected prior to installation using coating deficiency detectors per COGCC 1102.I.(1).
- Flowlines will be inspected by a qualified third-party inspector who is trained in accordance with 1102.h prior to placing into service.
- Flowlines will be integrity tested per 1100 Series Rules.
- All production tanks are built in accordance with API 12F standards.
- Produced water production tanks at the facility utilize an internal liner.
- Test ports for integrity testing are installed on insulated tanks.



## Spill Prevention and Material Handling

- Inspections of all production equipment including temporary equipment.
  - Routine operational checks on the facility.
  - Documented weekly inspections.
  - Audio, Visual, Olfactory (AVO) inspections in accordance with COGCC Rule 609.d. and Air Quality Control Commission Regulation 7
  - Annual Spill Prevention and Control Countermeasure Inspections.
- Periodic operator training on spill prevention best management practices and equipment operations.
- Fluid handling equipment will have valves and caps to mitigate leaks.
- Internal and External Tank integrity Inspections.
- Annual separator and flow through process equipment cleanouts and integrity evaluations.
- Pressure testing of all flowlines.

## Spill Response

- Response to all spills and release in accordance with COGCC 900 Series Rules including timely reporting, response, and investigation.