



February 15, 2016

Mr. Mark Schlagenhauf  
Engineering Integrity Supervisor  
Colorado Oil and Gas Conservation Commission  
1120 Lincoln Street, Suite 801  
Denver, Colorado 80203

Re: Piceance Basin 1101.e Variance Condition of Approval (COA)

Mr. Schlagenhauf,

XTO Energy Inc. was issued a variance to COGCC 1101.e(1) Flowline Testing Requirements approved by the COGCC on February 13, 2015. The related COAs are listed below:

- 1. The operator must supply a GIS map information in suitable format 120 days after the Commission approval of this variance showing the location of flowlines, type of pipe used in each segment, monitor points, valve locations, booster pump locations (if any).**

Map submitted on May 28, 2015

- 2. At the end of each calendar year following approval of the variance, a report describing the system and improvements to the system (if any) shall be provided along with an update to the GIS map. This report shall include a description of the mechanics of the system and any changes or improvements implemented during that year.**

### **Piceance Flowline Overview**

XTO operates approximately 50 miles of carbon steel, flexsteel (double walled), and fiberspar lines that transport water, natural gas and condensate within its Piceance production area. The majority of these lines are less than 12 years old. The proactive monitoring program, proactive mitigations and safety systems that monitor, protect and maintain line integrity are listed below:

- **Pressure test new flowlines, or modified segments of flowlines, prior to operation**
  - All new flowlines, or modified segments of flowlines, are hydrostatically tested to a minimum of 100% of the manufacturer's specified maximum allowable operating pressure prior to entering service.
  
- **24 hour monitoring of real-time pressure readings by technicians qualified to respond**
  - The Piceance control room is a monitoring center that continuously receives pressure and flow data from remote transmitting units for various types of equipment operating in the field, including flowlines.
  - The control room is staffed 24 hours per day, 7 days per week, and has the ability to notify Operators in the event of an alarm or anomaly. Operators are also active in the field 24 hours per day, 7 days per week.
  - The control room Operator can also take action to close shut down valves on major flowlines if necessary.
  - Pressure transducer accuracy is regularly checked with a manual gauge. Calibrations and replacements of transducers are conducted as necessary.
  
- **Supervisory Control and Data Acquisition (SCADA) system targets set to trigger alarms before significant events occur**
  - Set points include the following:
    - + High/low pressure
    - + High/low flow rate
    - + High/low level
  - Set points are based on line operating pressures and ratings, which vary throughout the field and are fit for each application.
  - Emergency shut-in systems, or safety systems, are function checked twice per year to ensure there are no issues.
  - Third party pressure relief valve (PRV) testing is conducted every two years.
  
- **Look-listen "walk-the-line" inspections of flowlines**
  - Walking the line typically consists of look, listen and smell observations.
  - On producing well pads, qualified Operators inspect flowlines daily.
  - Where producing wells are shut-in, Operators inspect flowlines on a weekly basis.
  - Off well pad flowlines are inspected two times per year.

- Flexsteel lines have double walls and test points at surface to allow monitoring of the annular space.
- **Daily chemical pump maintenance to ensure adequate volumes of inhibitors are delivered and weekly verification of chemical injection rates by third party**
  - Flowlines are protected with corrosion inhibitor and biocide to mitigate corrosion and subsequent steel pipe wall loss.
  - Weekly injection rate verifications confirm that chemicals are injected as designed.
- **Third party monthly water sample testing to monitor chemical treatment program**
  - Fluids are sampled at strategic locations along flowlines and tested to ensure that chemical injection rates are maintaining adequate levels.
- **Third party corrosion coupon monitoring on flowlines**
  - Corrosion coupons are removable samples identical to the flowline material that can be measured for corrosion rates that are indicative of flowline corrosion rates.
  - The coupons provide valuable measurements regarding the effectiveness of the chemical treatment program.
  - There are approximately 350 coupons located on flowlines throughout the field.
- **Impressed current cathodic protection (ICCP) on all steel flowlines**
  - Cathodic protection mitigates external corrosion on fusion bond epoxy (FBE) coated steel flowlines. 16 surface and deep anode beds throughout the field. Rectifier readings checked every two months to ensure adequate protection.

On producing well pads, high-pressure three phase fluids flow in partially buried steel flowlines from the wellhead to the choke (or choke manifold) and continue mostly above ground in insulated steel lines to the gas processing unit (GPU). The flowline segments downstream of the chokes are subject to the highest risk of being eroded or "cut out" due to pressure drop. The above ground installation of these lines allows for daily visual inspection on producing wells.

From the GPU, gas is carried in steel lines and metered upstream of the tie-in to the

gas gathering system. Per the 100 Series Definitions, the gas gathering lines are not flowlines because those lines are downstream of "the gas metering equipment". However, BMPs similar to those for flowlines are in place on the gas gathering lines.

Upon exiting the GPU, liquids (condensate and produced water) are metered and loaded via automated transfer valves into the Combined Liquids Line (CLL) flowline for additional processing and separation at central processing facilities. Automated transfer valves (or dump valves) are located inside the GPU building to allow for visual inspection of lines immediately downstream of the valves, and a majority of locations have secondary containment integral to the GPU building. The CLL is a combination of flexsteel and fiberspar lines from immediately off well locations down to the valley, where the main trunk of the CLL is steel.

After further separation, produced water is pumped into the Produced Water Distribution and Disposal (PWDD) flowline system. The PWDD pipeline system is a loop system that allows produced water to be injected in multiple disposal wells, the Love Ranch Pond, or well pads for completion activities. The construction of the PWDD lines are similar to the CLL, where there is a main steel line in the valley that transitions to a combination of flexsteel and fiberspar lines up on top of the mesa where water is distributed to the disposal wells.

Figure 1 on the following page provides a simplified graphic of the typical system configuration described above.

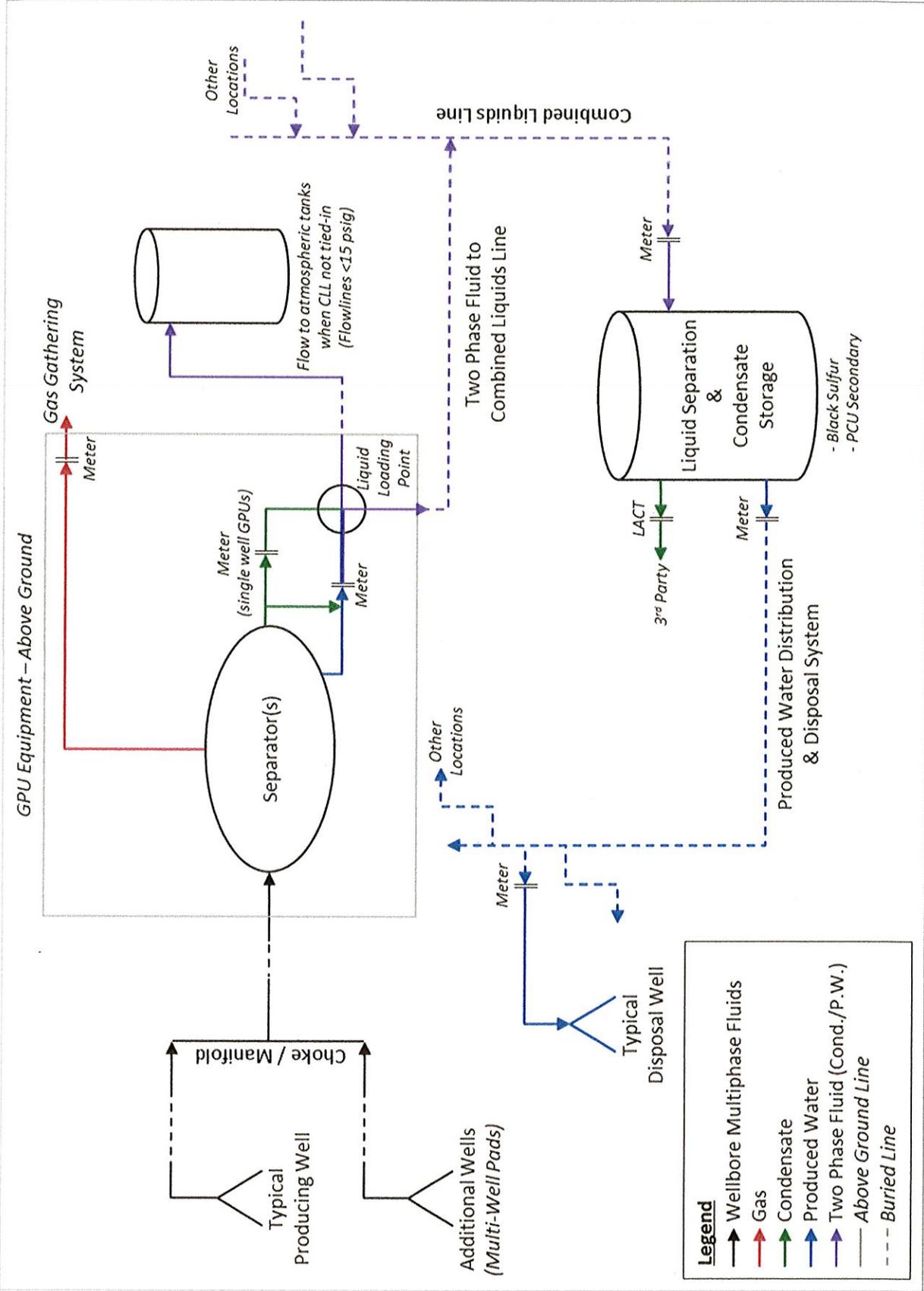


Figure 1 - Simplified XTO Piceance Flow Diagram (Typical Pad)

Table 1 provides system changes and improvements:

**Table 1 System Changes and Improvements\***

<b>Location(s)</b>	<b>Activity</b>	<b>Description</b>
Artificial Lift Wells	Improved 24 hr monitoring capabilities	Completed enhancement of real time pressure reading capabilities on Artificial Lift wells
NP 197-15A1	Supervisory Control and Data Acquisition (SCADA) alarms installed	SCADA alarms installed at new facilities and/or as system upgrades
PCU T18X-12G Cormorant Pump	Supervisory Control and Data Acquisition (SCADA) alarms installed	SCADA alarms installed as system upgrades
NP 197-15A1	Corrosion coupons installed	Corrosion coupons installed at new facilities
PWDD Pipeline	Corrosion coupons installed	Corrosion coupons installed as system upgrades; three (3) additional coupons installed on PWDD Pipeline
PCU 297-13A	Produced Water Distribution and Disposal (PWDD) line upgraded	Steel line upgraded to Flex Steel (~400 feet) tied location into PWDD system
PCU 297-13A	Combined Liquids Line (CLL) upgraded	Steel line upgraded to Flex Steel (~1400 feet), tied location to CLL
PCU T18X-12G	Combined Liquids Line (CLL) upgraded	Steel line upgraded to Flex Steel (~300 feet), tied location into CLL system
PCU T18X-12G	Produced Water Distribution and Disposal (PWDD) line installed	Flex Steel line installed (300 feet), tied location into PWDD system
PCU Secondary	10" Produced Water line temporarily abandoned	10" Produced Water line running from PCU Secondary to Black Sulphur Tank Battery temporarily abandoned

\*All system changes and improvements completed according to applicable COGCC rules and regulations; 2015 GIS map attached (see Appendix 1).

3. As part of the annual report, the operator shall, summarize in tabular form any spill or release associated with pipelines, valve sets, or system operations, on or off well pads and provide a root cause analysis as well as why each spill was not prevented by the monitoring system.

Date	Site	Material Spilled	Spill Vol. (bbls)	Root Cause	Incident Summary
1/8/2015	PCU T23X-18G	Prod. Water	>5 and <100	Internal Corrosion	Form 19 Doc# 400767949, Form 27 REM# 9186, DOC# 2495192. Failure identified by routine inspections as part of monitoring system/BMPs.
10/30/2015	PCU Secondary ROW	Prod. Water	>1 and <5	Internal Corrosion	Facility# 443854, Form 19 DOC# 2400928623, Form 27 DOC# 400977736. The pipeline pressure drop from pinhole release was not sufficient to activate alarm. Failure identified by routine Walk The Line inspections, spill identified by monitoring system/BMPs.

4. This variance shall be valid for a period of five (5) years from the approval date. A review of this variance, annual reports, and root cause analysis shall be conducted by the operator presented to the Director for continued variance at that time and every five (5) years thereafter.

Initial variance approval: February 13, 2015  
 Operator review date: February 13, 2020

If you should have any further questions or concerns please feel free to contact me at your earliest convenience (970) 675-4122.

Respectfully,

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