

IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF PENNSYLVANIA

UNITED STATES OF AMERICA and
COMMONWEALTH OF PENNSYLVANIA,
DEPARTMENT OF ENVIRONMENTAL PROTECTION,

Plaintiffs,

v.

Civil No. 2:24-cv-1467

XTO ENERGY INC.

Defendant.

CONSENT DECREE

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WHEREAS, the United States of America, on behalf of the United States Environmental Protection Agency (EPA), and the Pennsylvania Department of Environmental Protection (PADEP), have filed a Complaint concurrently with the lodging of this Consent Decree, pursuant to the Clean Air Act, 42 U.S.C. § 7401, *et seq.* (the “Act”).

WHEREAS, the Complaint alleges that Defendant, XTO Energy Inc. (“XTO”), violated requirements of the Act, the Standards of Performance for Crude Oil and Natural Gas Facilities for Which Construction, Modification, or Reconstruction Commenced After August 23, 2011, and on or Before September 18, 2015, 40 C.F.R. Part 60, Subpart OOOO (“NSPS OOOO”), and the Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015, 40 C.F.R. Part 60, Subpart OOOOa (“NSPS OOOOa”). The violations are alleged to have occurred at well pads that are part of XTO’s oil and natural gas production system located in Butler County, Pennsylvania. All of XTO’s oil and natural gas production facilities referenced in the Complaint are located in the Appalachian Basin, one of the nation’s largest oil and gas producing regions.

WHEREAS, XTO’s oil and natural gas production system separates condensate and produced water from natural gas at well pads. After separation, the condensate and produced water, also known as “pressurized liquids,” are emptied into Storage Vessels prior to being transported by pipelines or tanker trucks for sale, reuse, or disposal. As pressurized liquids are transferred into Storage Vessels, the pressure of the fluids decreases and vapors, which include volatile organic compounds (“VOC”), are released in a gaseous state.

WHEREAS, VOC is a precursor to ground-level ozone. Ground-level ozone is one of six criteria pollutants for which EPA has promulgated National Ambient Air Quality Standards (“NAAQS”) due to its adverse effects on human health and the environment.

WHEREAS, ground-level ozone formation is caused by the emissions of VOCs and oxides of nitrogen into the atmosphere.

WHEREAS, XTO has equipped certain Storage Vessels that are part of its oil and natural gas production system with Vapor Control Systems that include covers and closed vents required to route vapors from the Storage Vessels to a control device.

WHEREAS, the Act, NSPS OOOO, NSPS OOOOa, and PADEP's Air Quality General Plan Approval and/or General Operating Permit (GP-5a), where applicable, require owners and operators of oil and natural gas production systems to comply with design and operating requirements associated with the Vapor Control System so that it captures and routes vapors from Storage Vessels back to the process or to a control device, such that emissions are not vented directly to the atmosphere from the Storage Vessels or Vapor Control Systems.

WHEREAS, the Complaint alleges that on October 16-17, 2018, EPA inspected 16 of XTO's oil and natural gas production Well Pads. At 13 of these Well Pads where production was occurring, the inspectors observed that Storage Vessels were emitting VOC emissions to the atmosphere.

WHEREAS, the Complaint alleges that on November 7-8, 2019, EPA inspected 13 of XTO's oil and natural gas production Well Pads. At 10 of these Well Pads where production was occurring, the inspectors observed that Storage Vessels were emitting VOC emissions to the atmosphere.

WHEREAS, the Complaint further alleges that the majority of the Storage Vessels at XTO's Well Pads were equipped with Vapor Control Systems that failed to route all vapors from the Storage Vessel to control devices or to a process, resulting in vapors being emitted directly to the atmosphere.

WHEREAS, XTO represents that it has already taken actions consistent with the obligations of this Consent Decree at some of XTO's Pennsylvania well pads.

WHEREAS, XTO does not admit any liability arising out of the occurrences alleged in the Complaint.

WHEREAS, XTO will pay a civil penalty calculated based on the penalty assessment criteria in 42 U.S.C. § 7413(e).

WHEREAS, the United States, PADEP, and XTO (the "Parties") acknowledge, and the Court by entering this Consent Decree finds, that this Consent Decree has been negotiated by the Parties in good faith and will avoid litigation among the Parties and that this Consent Decree is fair, reasonable, and in the public interest.

NOW, THEREFORE, before the taking of any testimony, without the adjudication or admission of any issue of fact or law except as provided in Section I (Jurisdiction and Venue), and with the consent of the Parties, IT IS HEREBY ADJUDGED, ORDERED, AND DECREED as follows:

I. JURISDICTION AND VENUE

1. This Court has jurisdiction over the subject matter of this action pursuant to 28 U.S.C. §§ 1331, 1345, 1355, and 1367, and Section 113(b) of the Act, 42 U.S.C. § 7413(b), and over the Parties. Venue lies in this judicial district pursuant to Section 113(b) of the Act, 42 U.S.C. § 7413(b), and 28 U.S.C §§ 1391(b) and 1395(a), because violations alleged in the Complaint are alleged to have occurred in, and XTO conducts business in, this judicial district. For purposes of this Consent Decree, or any action to enforce this Consent Decree, XTO consents to: the Court's jurisdiction over this Consent Decree and any such action; the Court's jurisdiction over XTO; and venue in this judicial district.

2. For purposes of this Consent Decree, XTO agrees that the Complaint states claims upon which relief may be granted pursuant to Section 113(b) of the Act, 42 U.S.C. § 7413(b).

II. APPLICABILITY

3. The obligations of this Consent Decree apply to and are binding upon the United States, PADEP, and upon XTO and any successors, assigns, or other entities or persons otherwise bound by law. Unless otherwise noted, the obligations of this Consent Decree shall become enforceable on the Effective Date as provided in Section XV (Effective Date).

4. No transfer of ownership or operation of any Facility, whether in compliance with the procedures of this Paragraph or otherwise, shall relieve XTO of its obligation to ensure that the terms of the Consent Decree are implemented, unless (1) the transferee agrees to be substituted for XTO as a Party under the Consent Decree and thus be bound by the terms thereof and to undertake the obligations required by Section V (Compliance Requirements) of this Consent Decree as to the Facility, (2) the United States consents to relieve XTO of its obligations, and (3) the Court approves a modification of the Consent Decree substituting the transferee for XTO and providing that the transferee will implement the terms of the Consent Decree with respect to the Facility. The United States may refuse to approve such a modification to the Consent Decree if it determines that the proposed transferee does not possess the requisite technical abilities or financial means, taking into account any form of financial assurance provided by XTO and/or transferee, to implement the Consent Decree. If the United States opposes the substitution, the issue shall first be subject to dispute resolution pursuant to Section X (Dispute Resolution). If the United States agrees to the substitution, or upon approval of the substitution following dispute resolution, the Parties will file a joint motion with the Court seeking such substitution.

5. XTO may transfer its interest in any Facility without relieving XTO of its Consent Decree obligations, without consent of other Parties, and without modification of the Consent Decree, provided that, at least 30 Days prior to the closing of such transfer, XTO shall provide a copy of this Consent Decree to the proposed transferee and shall simultaneously provide written notice of the prospective transfer to EPA, DOJ, and PADEP in accordance with Section XIV (Notices) (subject to Confidential Business Information considerations, as referenced in Paragraph 88).

6. XTO shall provide a copy of this Consent Decree to all officers, employees, and agents whose duties include compliance with any provision of this Consent Decree, as well as to any contractor retained to perform work required under this Consent Decree. XTO shall condition any such contract upon performance of the work in conformity with the terms of this Consent Decree.

7. In any action to enforce this Consent Decree, XTO shall not raise as a defense the failure by any of its officers, directors, employees, agents, or contractors to take any actions necessary to comply with the provisions of this Consent Decree.

III. DEFINITIONS

8. Terms used in this Consent Decree that are defined in the Act or in the regulations promulgated thereunder have the meanings assigned to them in the Act or such regulations, unless otherwise provided in this Consent Decree. Whenever the terms set forth below are used in this Consent Decree, the following definitions apply.

- a. “AVO” shall mean audio, visual, and olfactory.
- b. “Business Day” shall mean Monday through Friday, with the exception of federal holidays.

- c. “Calendar Day” shall mean any of the seven days of the week. In computing any period of time under this Consent Decree expressed in Calendar Days, except for actions required to be completed within five Days or less, where the last Calendar Day would fall on a Saturday, Sunday, or federal holiday, the period shall run until the close of the next Business Day.
- d. “Complaint” shall mean the Complaint filed by the United States and PADEP in this action.
- e. “Compromised Equipment” shall mean equipment at a Well Pad that shows signs of wear beyond normal wear and tear (*i.e.*, that cannot be addressed by routine maintenance such as tightening, cleaning, or lubricating the equipment such that the equipment creates a likelihood of excess VOC emissions). Examples include, but are not limited to, indications of inefficient connection of the thief hatch to the Storage Vessel such as cracks in gaskets, abnormally or heavily corroded equipment, or perforated seals.
- f. “Condensate” shall mean oil that is separated from extracted reservoir fluids during Production Operations.
- g. “Consent Decree” or “Decree” shall mean this Consent Decree and all appendices attached hereto.
- h. “Date of Lodging” shall mean the date this Consent Decree is filed for lodging with the Clerk of the Court for the United States District Court for the Western District of Pennsylvania.

- i. “Day” or “day” shall mean a Calendar Day unless expressly stated to be a Business Day.
- j. “Defendant” or “XTO” shall mean XTO Energy Inc.
- k. “Design Analysis Methodology” shall mean the methodology, prepared pursuant to Paragraph 25 of this Consent Decree and Appendix C (Design Analysis Methodology).
- l. “DOJ” means the United States Department of Justice and any of its successor departments or agencies.
- m. “Effective Date” shall have the definition provided in Section XV (Effective Date).
- n. “Engineering Evaluation” shall mean the evaluations performed by XTO in compliance with Paragraph 26 of this Consent Decree.
- o. “Environmental Mitigation Project” shall mean the requirements specified in Subsection J of Section V (Compliance Requirements) and Appendix E (Environmental Mitigation Project) of this Consent Decree to remedy, reduce, or offset past alleged excess emissions resulting from XTO’s alleged violations of the Act in this matter.
- p. “EPA” shall mean the United States Environmental Protection Agency and any of its successor departments or agencies.
- q. “Facility” shall mean each Well Pad identified in Appendix A, Appendix A-1, and any Well Pad where a Storage Vessel System identified pursuant to Paragraph 57 is located.

- r. “Flame Arrestor” shall mean a device in a Subject Vapor Control System which allows gas to pass through it but stops a flame from returning to an ignition source in order to prevent a larger, uncontrolled fire or explosion.
- s. “IR Camera Inspection” shall mean an inspection of a Subject Vapor Control System using an optical gas imaging infrared camera designed for and capable of detecting hydrocarbon and VOC emissions, conducted by trained personnel who maintain proficiency through regular use of the optical gas imaging infrared camera.
- t. “Malfunction” shall mean any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, instrumentation, monitoring system, or a process to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not Malfunctions.
- u. “Maximum Design Pressure” shall mean the highest pressure that the Subject Vapor Control System is designed to accommodate without uncontrolled emissions to the atmosphere due to over-pressurization.
- v. “Normal Operations” shall mean all periods of Well Pad operation, excluding Malfunctions, periods of well maintenance (*e.g.*, swabbing, liquids unloading), or periods of Shut-In. For Storage Vessel Systems, Normal Operations include, but are not limited to, receipt or transfer of liquids from a Separator.
- w. “NSPS OOOO” shall mean the Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or

Reconstruction Commenced after August 23, 2011 and on or before September 18, 2015, set forth at 40 C.F.R. Part 60, Subpart OOOO.

- x. “NSPS OOOOa” shall mean the Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015, set forth at 40 C.F.R. Part 60, Subpart OOOOa.
- y. “PADEP” shall mean Commonwealth of Pennsylvania, Department of Environmental Protection.
- z. “Paragraph” shall mean a portion of this Consent Decree identified by an Arabic numeral.
- aa. “Parties” shall mean the United States, PADEP, and XTO.
- bb. “Peak Modeled Pressure” shall mean the highest pressure predicted to occur in the Subject Vapor Control System during Normal Operations, as determined according to an Engineering Evaluation.
- cc. “Potential Minimum Instantaneous Vapor Flow Rate” or “PMIVFR” shall mean the minimum instantaneous rate of vapors predicted to be routed from a Storage Vessel System to a control device or Routed to a Process during Normal Operations, including flashing, working, breathing, and standing losses, as determined according to an Engineering Evaluation.
- dd. “Potential Peak Instantaneous Vapor Flow Rate” or “PPIVFR” shall mean the maximum instantaneous rate of vapors predicted to be routed from a Storage Vessel System to a control device or Routed to a Process during

Normal Operations, including flashing, working, breathing, and standing losses, as determined according to an Engineering Evaluation.

- ee. “Plaintiffs” shall mean the United States and PADEP.
- ff. “Pressure Control Valve” shall mean a valve that allows the flow of vapor based on pressure measurements at the Storage Vessel or inlet of a control device or VRU.
- gg. “Pressure Relief Device” or “PRD” shall mean a thief hatch or a pressure relief valve (“PRV”) on a Vapor Control System.
- hh. “Pressurized Liquids” shall mean pressurized Condensate upstream of the Storage Vessel(s) that has not been exposed to the atmosphere or pressurized Produced Water upstream of the Storage Vessel(s) that has not been exposed to the atmosphere.
- ii. “Produced Water” shall mean water that is separated from extracted reservoir fluids during Production Operations.
- jj. “Production Operations” shall mean the extraction, separation using Separators, and temporary storage of reservoir fluids from an oil or natural gas well at a Well Pad.
- kk. “PSI” or “psi” shall mean pounds per square inch.
- ll. “QA/QC” shall mean quality assurance and quality control.
- mm. “Reliable Information” shall mean any observation or detection, when collected by trained employees or contractors of EPA or PADEP, trained XTO employees, trained XTO contractors, or the Verifier of: (i) VOC emissions from a Vapor Control System, an open bypass device or any

bypass device as described in Paragraph 45, an open PRD, or open-ended line, while using an optical gas imaging camera, AVO techniques, or EPA Method 21 monitoring techniques; (ii) any deviation or incident indicated by a Subject Storage Vessel Pressure Monitor as specified in Paragraph 36; (iii) any deviation indicated by a Vapor Inlet Monitor or Valve Position Monitor as specified in Paragraph 43; (iv) any deviation as indicated by a VRU monitor or bypass device monitor as specified in Paragraph 45; (v) Visible Smoke Emissions from a combustion control device; (vi) VOC emissions from an unlit combustion control device; (vii) any deviation as indicated by an Auto Pilot Relighter or Pilot Monitor as specified in Paragraphs 48 and 49; (viii) significant staining emanating from a PRD, where such staining was not previously identified during a Field Survey or previously identified as Reliable Information; or (ix) recorded VRU uptime that is less than represented on a rolling 12-month basis, as specified in Paragraph 46. The following shall not be considered Reliable Information, notwithstanding any other provision in this Consent Decree:

- (1) Observations while conducting the pressure test required by Paragraph 35;
- (2) Any observation or detection of VOC emissions made during active maintenance of equipment associated with a Vapor Control System;

- (3) Any observation or detection of VOC emissions from a lit combustion control device, as long as the combustion control device is operated and maintained in conformance with the manufacturer's specifications and the plume of VOC emissions is insignificant and does not extend away from the flare tip or combustion zone;
 - (4) Any observation or detection of VOC emissions made during well unloading, during Storage Vessel truck loadout conducted without a requirement to control emissions, or during gauging activities; or
 - (5) Any observation or detection of VOC emissions made while a XTO representative is onsite performing active well maintenance (*e.g.*, swabbing, liquids unloading) at the well production facility associated with the Storage Vessel System.
- nn. "Root Cause Analysis" shall mean an assessment conducted through a process of investigation to determine the primary cause and contributing cause(s) of Reliable Information, including but not limited to an analysis of relevant historical trends.
- oo. "Routed to a Process" or "Route to a Process" shall have the meaning set forth in 40 C.F.R. § 60.5430a.
- pp. "Section" shall mean a portion of this Consent Decree identified by a Roman numeral.

- qq. “Separator” shall mean a pressurized vessel designed to separate reservoir fluids into their constituent components of Condensate, natural gas, and Produced Water.
- rr. “Set Point” shall mean the rated pressure at which the Storage Vessel PRD is designed to be fully lifted. The Set Point shall be not greater than the manufacturer’s rated pressure of the associated Storage Vessel(s).
- ss. “Shut-In” shall mean the flow of all liquids and vapor into the Storage Vessel System, Storage Vessel, or piece of equipment, has ceased and cannot be resumed without opening valves, activating equipment, or supplying a power source.
- tt. “Storage Vessel” shall mean the definition of “storage vessel” as set forth in 40 C.F.R. § 60.5430a.
- uu. “Storage Vessel System” shall mean one or more Storage Vessels, with at least one Storage Vessel containing Condensate or Produced Water, that are connected through a common Vapor Control System.
- vv. “Subject Vapor Control Systems” shall mean the Vapor Control Systems located at the Well Pads listed in Appendix A and those Vapor Control Systems associated with Storage Vessel Systems identified pursuant to Paragraph 57 (Newly Identified Subject Vapor Control Systems).
- ww. “Subsection” shall mean a portion of this Consent Decree within a Section that is identified with a capitalized alphabetical letter.
- xx. “TPY” or “tpy” shall mean tons per year.

- yy. “United States” shall mean the United States of America, represented by the Department of Justice (“DOJ”) acting on behalf of EPA.
- zz. “Vapor Control System” or “VCS” shall mean the system used to contain, convey, or control vapors from one or more Storage Vessel(s) (including flashing, working, breathing, and standing losses as well as any vapors routed to the Storage Vessel(s) or the Vapor Control System(s)). The Vapor Control System includes the Storage Vessel System, piping to convey vapors from a Storage Vessel System to a combustion device and/or Vapor Recovery Unit and associated fittings and connectors, liquid knockout vessels, openings on Storage Vessels (such as PRDs), the Vapor Recovery Unit (if any), and emission control devices (if any).
- aaa. “Vapor Recovery Unit” or “VRU” shall mean a device that captures and compresses vapors from a Storage Vessel System and Routes to a Process such vapors (*e.g.*, for recovery to a sales line).
- bbb. “Verifier” shall mean the independent third-party verifier retained pursuant to Paragraph 67.
- ccc. “Visible Smoke Emissions” shall mean observations of smoke for any period or periods of duration greater than or equal to one minute in any fifteen-minute period, pursuant to EPA Method 22 of 40 C.F.R. Part 60, Appendix A-7.
- ddd. “VOC” shall mean volatile organic compounds as defined in 40 C.F.R. § 60.2.

eee. “Well Pad” shall mean a property with one or more Storage Vessel(s) capable of receiving Condensate or Produced Water from Production Operations. The Well Pads subject to this Consent Decree are listed in Appendices A and A-1.

IV. CIVIL PENALTY

9. Within 30 Days after the Effective Date, XTO shall pay the sum of \$4,000,000 as a civil penalty, together with interest accruing from the date on which the Consent Decree is lodged with the Court, at the rate specified in 28 U.S.C. § 1961 as of the date of lodging. The civil penalty payment will be divided between the United States and the Commonwealth of Pennsylvania as specified below.

10. XTO shall pay a civil penalty of \$2,000,000, together with interest, to the United States by FedWire Electronic Funds Transfer (“EFT”) to the DOJ account, in accordance with instructions provided to XTO by the Financial Litigation Unit (“FLU”) of the United States Attorney’s Office for the Western District of Pennsylvania after the Effective Date. The payment instructions provided by the FLU will include a Consolidated Debt Collection System (“CDCS”) number, which XTO shall use to identify all payments required to be made in accordance with this Consent Decree. The FLU will provide the payment instructions to: Rodney Barnwell, XTO Energy Inc., 22777 Springwoods Village Pkwy, N1.5B, Spring, TX 77389, email: rodney.b.barnwell@exxonmobil.com on behalf of XTO. XTO may change the individual to receive payment instructions on its behalf by providing written notice of such change to DOJ and EPA in accordance with Section XIV (Notices).

11. XTO shall pay a civil penalty of \$2,000,000, together with interest, to the Commonwealth of Pennsylvania – Clean Air Fund by certified or corporate check made out as follows:

Pennsylvania DEP – Northwest Regional Office
Air Quality Program
230 Chestnut St.
Meadville, PA 16335

Or, by wire transfer according to instructions provided to XTO by PADEP, upon request.

12. At the time of payment, XTO shall send notice that payment has been made: (i) to EPA via email at cinwd_acctsreceivable@epa.gov or via regular mail at EPA Cincinnati Finance Office, 26 W. Martin Luther King Drive, Cincinnati, Ohio 45268; (ii) to the U.S. EPA Regional Hearing Clerk at R3_Hearing_Clerk@epa.gov; (iii) to DOJ via email or regular mail in accordance with Section XIV; (iv) to EPA in accordance with Section XIV; and (v) to PADEP via email or regular mail in accordance with Section XIV. Such notice shall state that the payment is for the civil penalty owed pursuant to the Consent Decree in *United States and the Commonwealth of Pennsylvania, PADEP v. XTO Energy Inc.* and shall reference the civil action number, CDCS Number and DOJ case number 90-5-2-1-12373.

13. XTO shall not deduct any penalties paid under this Consent Decree pursuant to this Section or Section VIII (Stipulated Penalties) in calculating its federal, state or local income tax.

V. COMPLIANCE REQUIREMENTS

A. FIELD SURVEYS

14. Field Survey. By no later than 90 days after the Effective Date, XTO shall conduct a field survey at each Well Pad listed in Appendix A (“Facility Field Survey”).
15. During the Facility Field Survey, XTO shall, with respect to equipment onsite:
 - a. inventory all Storage Vessels, the Vapor Control System (including piping configuration and low spots where liquids can accumulate), PRDs, thief hatch mountings, thief hatch gaskets, VRUs, control devices, flow-regulating valves associated with a VRU or control device, and blowdown valves;
 - b. compile the manufacturer designed minimum inlet pressure and combustion zone temperature during steady state operation for each control device and manufacturer designed minimum inlet pressure for each VRU; if such information is not available or applicable to operating conditions, provide the results of an engineering assessment that determines the minimum and maximum flow rates, pressures, or temperature necessary to achieve the expected destruction efficiency of the control device;
 - c. evaluate the physical condition of all PRDs, flow regulating valves associated with a VRU or control device, blowdown valves, mountings, and gaskets at each Storage Vessel;

- d. evaluate the physical condition of all VRUs and control devices, associated VRU components, associated control device components, and associated monitoring systems; and
- e. identify equipment needed to be repaired, replaced, or upgraded.

16. XTO shall ensure that, at the time of the Facility Field Survey, every thief hatch associated with a Vapor Control System is either welded to or mounted on the Storage Vessel with a suitable gasket, in accordance with good engineering practices and manufacturer specifications.

17. During the Facility Field Survey, XTO shall confirm, using field testing or other parametric data, the set pressure of any backpressure regulating devices at the inlet of any control device or VRU on a Vapor Control System, unless the Storage Vessel System is equipped with a Pressure Control Valve that records the pressure at the inlet to the control device or VRU. Where the Storage Vessel System is equipped with a Pressure Control Valve, XTO shall confirm the set pressures for actuating the control valve using Supervisory Control and Data Acquisition (“SCADA”).

18. If XTO observes Compromised Equipment, or evidence of significant staining emanating from any PRDs associated with any Vapor Control System that is indicative of a hydrocarbon leak, XTO shall take appropriate corrective action, including the repair, replacement, or upgrade of such equipment. If XTO fails to complete appropriate corrective action to address any such observations within five Days of each such observation(s), XTO shall until such time that appropriate corrective action can be completed either (a) temporarily Shut-in and isolate as much equipment at the Facility as is necessary to address such observation, or (b) immediately Shut-In and cease all Production Operations associated with that Vapor Control

System. If XTO observes any other equipment in need of repair or replacement, XTO shall take appropriate corrective action, including the repair, replacement, or upgrade of such equipment, as soon as practicable.

19. Nothing herein shall require XTO to repair, replace, or upgrade such equipment on Shut-In Storage Vessel Systems and their associated Vapor Control Systems except that XTO must repair, replace, or upgrade any equipment identified in Paragraph 15.e. that creates a likelihood of excess VOC emissions prior to resuming Normal Operations. In the event that all Production Operations associated with a Vapor Control System are Shut-In pursuant to Paragraph 18, XTO may resume Production Operations for up to five Calendar Days for the sole purpose of taking corrective actions pursuant to Paragraph 18.

20. XTO shall maintain records of the following information collected during the Facility Field Survey:

- a. The date each Storage Vessel System underwent the Facility Field Survey;
- b. The full name of the person(s) who performed the Facility Field Survey;
- c. A description of the PRDs that includes pressure Set Points, and descriptions of PRDs, blowdown valves, mountings, gaskets, VRUs, control devices, and monitoring systems that include the manufacturer and model number;
- d. Whether Compromised Equipment, Reliable Information, or significant staining indicative of a hydrocarbon leak around potential venting points were observed;
- e. What, if any, repair, replacement, upgrade, or other corrective action was performed, including a description of the PRDs, blowdown valve,

mounting, gasket, VRU, control device, or monitoring system, and a description of how that equipment was repaired or with what it was replaced or upgraded; and

- f. What equipment was temporarily Shut-in and isolated, if any, including the date that such equipment was Shut-in and the date that it was returned to operation.

21. Limited Field Survey. By no later than 90 days after the Effective Date, XTO shall conduct a limited field survey at each Well Pad listed in Appendix A-1 (“Limited Field Survey”). As part of the Limited Field Survey, XTO shall, with respect to equipment onsite:

- a. inventory all Storage Vessels, PRDs, thief hatch mountings, thief hatch gaskets, VRUs, flow-regulating valves associated with a VRU, and blowdown valves;
- b. evaluate the physical condition of all PRDs, flow regulating valves associated with a VRU, blowdown valves, mountings, and gaskets at each Storage Vessel;
- c. ensure that the Separator(s), including dump valve(s), are operating properly; and
- d. identify any equipment needed to be repaired, replaced, or upgraded.

22. If, during the Limited Field Survey, XTO observes any equipment in need of repair, replacement, or upgrade to reduce the likelihood of excess VOC emissions, XTO shall take appropriate action, including the repair, replacement, or upgrade of such equipment within five Days. If XTO observes any other equipment in need of repair, replacement, or upgrade,

XTO shall take appropriate corrective action, including the repair, replacement, or upgrade of such equipment, as soon as practicable.

23. XTO shall maintain records of the following information collected during the Limited Field Survey:

- a. The date of the Limited Field Survey;
- b. The full name of the person(s) who performed the Limited Field Survey;
- c. The information collected in Paragraph 21; and
- d. What, if any, repair, replacement, upgrade, or other corrective action was performed, and a description of how that equipment was repaired or with what it was replaced or upgraded.

B. SAMPLING

24. Pressurized Liquid Sampling. By no later than 90 days after the Effective Date, XTO shall collect and analyze Pressurized Liquids samples from Storage Vessel Systems at the Well Pads listed in Appendix A, in accord with the Sampling and Analysis Plan (“SAP”) under Appendix B. XTO shall provide at least 15 Days’ written Notice (pursuant to Section XIV) to EPA and PADEP of the date when field sampling events are scheduled to occur and will update EPA and PADEP with changes to that schedule as soon as practicable.

C. COMPLIANCE ASSESSMENT FOR SUBJECT VAPOR CONTROL SYSTEMS

25. Design Analysis Methodology. Prior to the Effective Date, XTO submitted a written Design Analysis Methodology in accordance with Appendix C (Design Analysis Methodology) for EPA review and approval, after consultation with PADEP. At any time, XTO may submit a revised Design Analysis Methodology for EPA review and approval, after consultation with PADEP.

26. Engineering Evaluation. No later than 120 days after the Effective Date, XTO shall prepare an Engineering Evaluation for each Subject Vapor Control System that shall be based on the approved Design Analysis Methodology. Each Engineering Evaluation shall incorporate the results of the Facility Field Survey performed pursuant to Paragraphs 14 through 20 (Facility Field Surveys) and the results of the pressurized liquid sampling performed pursuant to Paragraph 24 (Pressurized Liquid Sampling). Each Engineering Evaluation shall include a determination as to whether the Subject Vapor Control System is adequately designed and sized for PMIVFR, PPIVFR, and Peak Modeled Pressure. For each Subject Vapor Control System that the Engineering Evaluation determines is not adequately designed and sized for the PMIVFR, PPIVFR, or Peak Modeled Pressure, XTO shall determine what design, equipment, operational, or other modifications are necessary to achieve this objective and revise the Engineering Evaluation accordingly.

27. Modifications. With respect to each Subject Vapor Control System for which XTO has determined, pursuant to Paragraph 26, that modifications are necessary to ensure that the Subject Vapor Control System is adequately designed and sized for the PMIVFR, PPIVFR, and Peak Modeled Pressure, XTO shall implement the respective modifications referenced in the revised Engineering Evaluation no later than 180 days after the Effective Date.

28. Production Operations Shut-In. If XTO has not completed the Engineering Evaluation required by Paragraph 26 or implemented the modifications required by Paragraph 27, if any, by the dates specified therein, XTO shall immediately Shut-In and cease all Production Operations associated with that Subject Vapor Control System until the Engineering Evaluation required by Paragraph 26 has been completed and the modifications required under Paragraph 27, if any, have been implemented.

29. In the event that Production Operations are temporarily Shut-In pursuant to Paragraph 18 or 28, XTO may resume Production Operations for up to five Calendar Days for the purpose of (i) completing an Engineering Evaluation at a Subject Vapor Control System, or (ii) taking corrective actions pursuant to Paragraph 18.

30. Verification by IR Camera Inspection. No later than 210 days, except as provided in Paragraph 52.b., after the Effective Date or 90 days after the date that EPA approves the IR Camera Inspection Standard Operating Procedure (SOP), whichever is later, XTO shall verify that each Subject Vapor Control System is adequately designed and sized for the PMIVFR, PPIVFR, and Peak Modeled Pressure by conducting an IR Camera Inspection of each Subject Vapor Control System.

- a. Inspections under this Paragraph must be conducted pursuant to the IR Camera Inspection Standard Operating Procedure (SOP) prepared by XTO and approved by EPA pursuant to Appendix D (DI/PM Program). A video record of each IR Camera Inspection performed pursuant to this Paragraph shall be maintained and available to EPA and PADEP upon request.
- b. Each such inspection shall be conducted during Normal Operations, while, and immediately after, Condensate (or liquids in 2-phase separators) is sent to the Storage Vessel System. If multiple separators are capable of sending Condensate simultaneously to the Storage Vessel System, such inspections shall also be conducted when all separators are sending Condensate (or liquids in 2-phase separators) either simultaneously or by manually triggering each separator in succession. Where a 2-phase

separator is present, liquids may include Produced Water and/or Condensate.

- c. If XTO observes Reliable Information during an IR Camera Inspection, XTO shall comply with the applicable requirements of Paragraphs 51 through 55.

31. Certification of Completion Report. No later than 240 days after the Effective Date (or for Subject Vapor Control Systems that remain Shut-In more than 180 days after the Effective Date, no later than 60 days after resuming Production Operations (excepting resumption in accordance with Paragraph 29)), XTO shall submit to EPA and PADEP a Certification of Completion Report, in electronic spreadsheet or database format, that contains the following information for each Subject Vapor Control System:

- a. The results of the Engineering Evaluation (including any revised Engineering Evaluation);
- b. The PMIVFR, PPIVFR, Vapor Control System Capacity, Peak Modeled Pressure, and Maximum Design Pressure;
- c. A description of each modification required by Paragraph 27, if any, made to equipment or to operations as a result of the Engineering Evaluation;
- d. A description of the site-specific or system-wide operational parameters or practices relied upon in the Engineering Evaluation (including but not limited to the maximum operating pressure for final stage of separation, the minimum available headspace in Storage Vessels, and whether the flow to the Storage Vessels is intermittent (i.e., transient) or steady state);
- e. The minimum Storage Vessel System PRD settings;

- f. The date an IR Camera Inspection was completed pursuant to Paragraph 30 (Verification by IR Camera Inspection) and the results of such inspection, along with all corrective actions performed to address Reliable Information, the date and time of each corrective action performed, and the date and method of verification used to determine that the corrective action was successful; and
- g. An identification of any Subject Vapor Control System for which a Certification of Completion Report cannot be submitted because the Engineering Evaluation and/or any necessary modifications has not been completed and the Well Pad where the Subject Vapor Control System is located is Shut-In, along with an explanation describing the reason for the delay and a proposed timeline for submission of a Certification of Completion Report for that Subject Vapor Control System.

32. Changes after the Certification of Completion Report. After XTO has submitted a Certification of Completion Report for a Subject Vapor Control System in compliance with Paragraph 31 and XTO subsequently makes any changes such that: (1) the PPIVFR of the Subject Vapor Control System is increased beyond what was evaluated in the Engineering Evaluation or (2) the Subject Vapor Control System capacity decreases, XTO shall:

- a. revise the Engineering Evaluation required by Paragraph 26 within 30 Days of the change;
- b. implement all modifications necessary to ensure that the Subject Vapor Control System is adequately designed and sized within 60 Days of the change or, in failing to meet such modification deadline, immediately

Shut-In and cease all Production Operations associated with that Subject Vapor Control System;

- c. Within 30 days of completing the modification, or within 30 days of resuming Production Operations if Shut-In under Paragraph 32.b. is required, verify that each Subject Vapor Control System is adequately designed and sized for the PMIVFR, PPIVFR, and Peak Modeled Pressure by conducting an IR Camera Inspection in compliance with Paragraph 30; and
- d. submit an updated Certification of Completion Report with the next Semi-Annual Report required by Paragraph 90 that is due at least 60 Days after the IR Camera Inspection conducted pursuant to Paragraph 32.c.

D. DIRECTED INSPECTION / PREVENTATIVE MAINTENANCE

33. Directed Inspection/Preventative Maintenance Program. Prior to the Effective Date, XTO submitted for review and approval by EPA in consultation with PADEP (pursuant to Paragraph 96) a directed inspection and preventative maintenance (“DI/PM”) Program in accordance with the requirements under Appendix D (DI/PM Program). XTO shall commence implementation of the DI/PM Program, as approved, at all Subject Vapor Control Systems no later than 30 Days after the Effective Date.

E. STORAGE VESSEL PRESSURE MONITORING FOR SUBJECT VAPOR CONTROL SYSTEMS

34. No later than 90 days after the Effective Date, XTO shall, in accordance with manufacturer’s recommendations, install, calibrate, maintain, and operate one electronic pressure monitor for each Subject Vapor Control System (collectively, “Subject Storage Vessel Pressure

Monitors”). These Subject Storage Vessel Pressure Monitors shall record data at least once every 15 seconds and, every five minutes, shall transmit pressure measurement records to a central monitoring station (e.g., a SCADA system). The Subject Storage Vessel Pressure Monitors must be operated and function continuously except during instances of Malfunction, maintenance, calibration, or repair of the Subject Storage Vessel Pressure Monitors. If a Subject Storage Vessel Pressure Monitor is identified as Malfunctioning, XTO shall complete the repair within five Days of discovering the Subject Storage Vessel Pressure Monitor is Malfunctioning or Shut-In all Production Operations at the Storage Vessel System until a repair is completed. XTO shall record all dates and durations of Subject Storage Vessel Pressure Monitor Malfunctions, maintenance, calibration, and repair; and report this information as required by Section VI (Periodic Reporting). In the case of a telecommunications failure beyond XTO’s control, it shall not be a violation of the data transmission requirement in this Paragraph if data recorded during such failure is transmitted to a central monitoring station within a reasonable time after the recommencement of telecommunications services, or if the data is manually downloaded from the site and uploaded to the central monitoring station.

35. No later than 90 Days after the Effective Date, XTO shall:
 - a. conduct an IR Camera Inspection during a pressure test to determine the leak point of each Vapor Control System. During the pressure test, XTO shall pressurize the Vapor Control System up to the highest point at which the PRDs are not emitting (“Leak Point”). The Leak Point shall be no greater than the lowest Set Point of any pressure relief device; and
 - b. determine the pressure point (“Trigger Point”), which must be below the lowest set point of any pressure relief device in the Subject Vapor Control

System and less than the Leak Point. The Trigger Point is the point at which the actions described in Paragraph 36 must be taken.

36. If, at any time after conducting the pressure test and determining the Trigger Point of any Subject Storage Vessel Pressure Monitor, as required pursuant to Paragraphs 35.a and 35.b, a Subject Storage Vessel Pressure Monitor records continuous measurements that exceed the Trigger Point for a duration of three minutes or longer, (a) XTO shall ensure that an automatic notification alerts XTO personnel of such an incident; and (b) XTO shall automatically and immediately Shut-In all Production Operations associated with the Storage Vessel System until XTO verifies that the PRDs are properly seated and sealed and the pressure measurement has fallen below the Trigger Point. Nothing in this paragraph shall prohibit XTO from temporarily Shutting-in and isolating only as much equipment at the Facility as is necessary to address an increase in tank pressure prior to the point at which XTO is required to Shut-In all Production Operations. An incident where a Subject Storage Vessel Pressure Monitor records consecutive measurements that exceed the Trigger Point for a duration of three minutes or longer shall constitute Reliable Information, except that Paragraphs 51 and 52 shall not apply and XTO shall comply with the requirements of Paragraphs 53 through 55. If at any time after conducting the pressure test and determining the Trigger Point of any Subject Storage Vessel Pressure Monitor, as required pursuant to Paragraphs 35.a and 35.b, above, a deviation occurs at that Subject Storage Vessel Pressure Monitor, as described in Paragraphs 36.a. through 36.c., below, an automatic notification shall alert XTO personnel of the deviation and such notification shall constitute Reliable Information except during instances of Malfunction, maintenance, repair, or calibration of the Storage Vessel Pressure Monitor and XTO shall comply with the applicable

requirements of Paragraphs 51 through 55. A Subject Storage Vessel Pressure Monitor deviation is whenever a Subject Storage Vessel Pressure Monitor:

- a. records measurements below 0.5 ounces per square inch gauge for a duration of two minutes or longer at Subject Vapor Control Systems that utilize a control device other than a thermal oxidizer;
- b. records no measurements for a duration of two minutes or longer, or static measurements for a duration of five minutes or longer; or,
- c. indicates that there is a loss of communications to the central monitoring station with the pressure monitor for a period of two hours or longer, unless XTO confirms that the loss of communication is due to factors beyond XTO's control.

F. VRU AND CONTROL DEVICE MONITORING AT SUBJECT VAPOR CONTROL SYSTEMS

37. Vapor Inlet Monitors at Subject Vapor Control Systems. No later than 60 days after the Effective Date, XTO shall, in accordance with manufacturer's recommendations, install, calibrate, maintain, and operate a monitor for each vapor inlet to a VRU, if any, and to a control device (collectively, "Vapor Inlet Monitors") at each Subject Vapor Control System that utilizes a control device other than a thermal oxidizer.

38. Each Vapor Inlet Monitor that is installed, calibrated, maintained, and operated at a Subject Vapor Control System in accordance with the preceding Paragraph shall be located and designed to demonstrate that the pressures or flows at the inlet to the VRU or control device are consistent with the VRU and control device manufacturer specifications. Each such Vapor Inlet

Monitor shall continually measure, calculate, and record vapor volumetric flow or pressure, as appropriate.

39. No later than 60 days after the Effective Date, XTO shall, in accordance with 40 C.F.R. § 60.5417a(d), maintain and operate a temperature monitor for each thermal oxidizer combustion zone. This temperature monitor shall record and transmit temperature measurements to a central monitoring station at least once every five minutes.

40. If the Engineering Evaluation indicates that a Pressure Control Valve is necessary to prevent the flow of vapors to the VRU or to the control device when the flow or pressure is inconsistent with manufacturer specifications, XTO shall install, calibrate, maintain, and operate a Pressure Control Valve on each such Subject Vapor Control System, in accordance with the deadline in Paragraph 27.

41. Where a Pressure Control Valve is necessary, XTO shall record the position of such control valve (*i.e.*, open or closed, hereinafter “Valve Position Monitor”) to demonstrate that the valve is closed when the Vapor Inlet Monitor indicates the pressure or flow is not within the pressure range specified by the manufacturer.

42. Each Vapor Inlet Monitor and each Valve Position Monitor shall record data at least once every one minute and, every five minutes, shall transmit measurement records to a central monitoring station. The Vapor Inlet Monitors and Valve Position Monitors must be operated and function continuously except during instances of Malfunction, maintenance, repair, or calibration of the Vapor Inlet Monitor or Valve Position Monitor. If the Vapor Inlet Monitor or Valve Position Monitor is identified as Malfunctioning, XTO shall complete all necessary repairs within five Days. XTO shall record all dates and durations of Malfunction, maintenance,

repair, or calibration of any Vapor Inlet Monitor or Valve Position Monitor and report this information as required by Section VI (Periodic Reporting).

43. For control devices other than thermal oxidizers, no later than 60 Days after each Vapor Inlet Monitor and Valve Position Monitor is installed or 60 Days after the Effective Date, whichever is later, pursuant to Paragraph 37 and Paragraph 41, above, XTO shall begin, and shall thereafter continue, to record: the date, time, location, and flow or pressure measurement at all times whenever the valve is open and the volumetric flow or pressure is less than the minimum, or greater than the maximum, as applicable, specified by the equipment manufacturer. Each such record shall constitute Reliable Information and XTO shall comply with the applicable requirements set forth in Paragraphs 51 through 55.

44. For thermal oxidizers, no later than 60 Days after the monitor required in Paragraph 39 is installed or 60 Days after the Effective Date, whichever is later, XTO shall ensure that an automatic notification alerts XTO personnel whenever the temperature is less than the limit established in accordance with 40 C.F.R. § 60.5417a(f) for more than 15 minutes. Each such record shall constitute Reliable Information and XTO shall comply with the applicable requirements set forth in Paragraphs 51 through 55.

45. Bypass Monitoring at Subject Vapor Control Systems. For each VRU and control device for which a bypass line exists at a Subject Vapor Control System (including a VRU bypass that diverts vapors away from the VRU to a control device), XTO shall comply with the bypass monitoring requirements of 40 C.F.R. §§ 60.5411a(c)(3), 60.5416a(c)(3) and 60.5420a(c)(8). Whenever a bypass to the atmosphere occurs, such bypass shall constitute Reliable Information and XTO shall comply with the applicable requirements set forth in Paragraphs 51 through 55.

46. VRU Availability Monitoring. Starting no later than the Effective Date, XTO shall record VRU uptime for each VRU installed at a Subject Vapor Control System for which XTO has made prior written representation(s) to PADEP regarding such VRU's availability to control vapors. Whenever recorded VRU uptime is less than represented runtime on a rolling 12-month basis, such information shall constitute Reliable Information and XTO shall comply with the applicable requirements set forth in Paragraphs 51 through 55. XTO may remove a VRU in accordance with applicable legal requirements, so long as XTO complies with Paragraph 32 (Changes after the Certification of Completion Report).

47. Combustion Control Device Auto Pilot Relighters and Pilot Monitoring for Subject Vapor Control Systems. For each combustion control device at a Subject Vapor Control System, on or before 60 days after the Effective Date, XTO shall install, calibrate, maintain, and operate, in accordance with manufacturer's recommendations: (i) an automatic ignition system (collectively, "Auto Pilot Relighters"); and (ii) a thermocouple or equivalent device to detect the presence of a flame for each combustion control device (collectively, "Pilot Monitors"). The Auto Pilot Relighters shall relight the pilot whenever the Pilot Monitors indicate that the flare pilot is unlit. The Pilot Monitors shall record data at least once every one minute and, every five minutes, shall transmit data to a central monitoring station. The Auto Pilot Relighters and Pilot Monitors must be operated and must properly function continuously except during instances of Malfunction, maintenance, repair, or calibration of the Auto Pilot Relighters or the Pilot Monitors or when vapors cannot be routed to the control device. If an Auto Pilot Relighter or a Pilot Monitor is identified as Malfunctioning, XTO shall successfully complete the repair or maintenance within five Days. XTO shall record all dates and durations of Auto Pilot Relighters

Malfunctions, Pilot Monitor Malfunctions, maintenance, repair, or calibration and report this information as required by Section VI (Periodic Reporting).

48. If, at any time after the date by which XTO is required to install, calibrate, maintain, and operate Auto Pilot Relighters and Pilot Monitors pursuant to Paragraph 47, a Pilot Monitor records measurements indicating the pilot is not lit for a duration of two minutes or longer, XTO shall ensure that an automatic notification alerts XTO personnel of such deviation and XTO shall ensure that all flow of vapors to the combustion control device is automatically and immediately ceased until the pilot is relit. Such deviation shall constitute Reliable Information, and XTO shall comply with the requirements of Paragraphs 51 through 55.

49. If, at any time after the deadline by which XTO is required to install, calibrate, maintain, and operate Auto Pilot Relighters and Pilot Monitors pursuant to Paragraph 47, a deviation occurs at any Pilot Monitor, as described below in Paragraph 49.a through 49.c an automatic notification shall alert XTO personnel of the deviation and such notification shall constitute Reliable Information and XTO shall comply with the applicable requirements of Paragraphs 51 through 55. A Pilot Monitor deviation is whenever a Pilot Monitor:

- a. records negative measurements for a duration of two minutes or longer;
- b. records no measurements or static measurements less than 100% for a duration of five minutes or longer; or
- c. indicates that there is a loss of communications with the Pilot Monitor for a period of two hours or longer.

G. RELIABLE INFORMATION, ROOT CAUSE ANALYSIS, AND CORRECTIVE ACTION

50. If at any time at a Subject Vapor Control System, a trained XTO employee or contractor observes any improperly open bypass device, improperly open thief hatch, improperly open PRV, or open-ended line, XTO shall address such observation with corrective action (including by manually closing such device or equipment, if appropriate). If the observation is made by an XTO employee, XTO shall address the observation as quickly as practicable and no later than 8 hours after the observation. XTO shall provide training to its contractors to report to XTO open bypass devices, thief hatches, PRVs, and open-ended lines at its Well Pads identified in Appendix A, unless the circumstances clearly indicate that the device, thief hatch, or PRV is not improperly open (e.g. active maintenance on a Storage Tank). If the observation is made by a XTO contractor, XTO shall address the observation as quickly as practicable and no later than 8 hours after it receives notice of the observation.

51. No more than five Calendar Days after XTO obtains Reliable Information, XTO shall either: (i) identify the suspected cause of the Reliable Information and complete all necessary corrective actions to address the Reliable Information; or (ii) temporarily Shut-In in accordance with Paragraph 52. Where the cause of Reliable Information is planned maintenance (other than the types of maintenance excluded from the definition of Reliable Information in Paragraph 8.mm), XTO shall also record the cause and duration of such maintenance and report this information as required by Section VI (Periodic Reporting).

52. If XTO is required to temporarily Shut-In pursuant to Paragraph 51, XTO shall proceed as follows:

- a. If the Subject Vapor Control System has already undergone an Engineering Evaluation pursuant to Paragraph 26, XTO shall temporarily remove from service as much equipment at the Subject Vapor Control System as is necessary to address the Reliable Information until all necessary corrective actions to address the Reliable Information have been completed. XTO shall verify the corrective actions during the next monthly IR Camera Inspection.
- b. If the Subject Vapor Control System has not yet undergone an Engineering Evaluation pursuant to Paragraph 26, all Production Operations shall remain Shut-In until the Engineering Evaluation and all necessary modifications, pursuant to Paragraph 27, and all necessary corrective actions to address the Reliable Information have been completed. XTO shall comply with the requirements of Paragraph 30 (Verification by IR Camera Inspection) at such Storage Vessel System within 30 Days of resuming any Production Operations associated with that Storage Vessel System.

53. If XTO becomes aware of three or more instances of Reliable Information related to any single Subject Vapor Control System in any rolling six-month period, XTO shall: (i) complete, within 30 Days of the third such instance, a Root Cause Analysis and therein identify the corrective actions to be taken to address any operation, maintenance, or design cause(s). XTO shall implement any corrective actions necessary to address operations and maintenance causes no later than 30 Days after the completion of the Root Cause Analysis. Where the Root Cause Analysis identifies any design cause, XTO shall comply with Paragraph 54. Additional

instances of Reliable Information at a Vapor Control System at which XTO is performing a Root Cause Analysis at that time may be added as additional information in that Root Cause Analysis and, if added, shall not trigger a new Root Cause Analysis. If additional instances of Reliable Information at a Vapor Control System at which XTO is performing a Root Cause Analysis are not added to that Root Cause Analysis, the additional instances of Reliable Information shall trigger a new Root Cause Analysis. Instances of Reliable Information that have been addressed by a Root Cause Analysis and corrective action shall not count toward the three instances of Reliable Information in any rolling six-month period.

54. If a Root Cause Analysis identifies any design cause or indicates that any Subject Vapor Control System is not adequately designed and sized for PMIVFR, PPIVFR, and Peak Modeled Pressure, as determined in accordance with the Design Analysis Methodology, XTO shall:

- a. revise the Engineering Evaluation and implement any necessary modifications no later than 90 Days after the completion of the Root Cause Analysis to ensure that the Subject Vapor Control System is adequately designed and sized;
- b. immediately Shut-In and cease all Production Operations associated with that Subject Vapor Control System if XTO fails to implement the modifications required by Paragraph 54.a within 90 Days after the completion of the Root Cause Analysis;
- c. comply with the requirements of Paragraph 30 (Verification by IR Camera Inspection) at each such Subject Vapor Control System during the next monthly IR Camera Inspection; and

- d. submit an updated Certification of Completion Report with the next Semi-Annual Report required by Paragraph 90 that is due at least 60 Days following completion of all requirements in this Paragraph 54.

55. In the event that Production Operations are temporarily Shut-In at any Subject Vapor Control System pursuant to Paragraph 54.b, XTO may resume Production Operations for up to five Days for the purpose of performing an IR Camera Inspection pursuant to Paragraph 30, upon completion of any modifications.

H. PERFORMANCE STANDARDS REQUIREMENTS

56. No later than the date XTO submits the Certification of Completion Report required by Paragraph 31, XTO shall comply with the ongoing requirements for storage vessel affected facilities, on a prospective basis, as set forth in NSPS OOOO and/or NSPS OOOOa (as applicable depending on the date of construction, reconstruction or modification) at each Well Pad listed in Appendix A.

57. Newly Identified Subject Vapor Control Systems. If, at any time, XTO redirects Condensate from a Storage Vessel System at a Well Pad that has a Subject Vapor Control System to any Storage Vessel System at an XTO Well Pad that does not have a Subject Vapor Control System, XTO shall:

- a. notify EPA and PADEP within 30 Days of redirecting Condensate to such newly identified Subject Vapor Control System;
- b. comply with Paragraphs 14 through 55 for such newly identified Subject Vapor Control System within 60 Days of redirecting Condensate to the System; and

- c. identify such newly identified Subject Vapor Control System as part of the next Semi-Annual Report, as required by Paragraph 90.

I. EMISSION CREDIT GENERATION

58. XTO shall not use any emission reductions that result from actions required by this Consent Decree for the purposes of obtaining project decreases, netting reductions, or emission offset credits, including applying for, obtaining, trading, or selling any emission reductions credits. Nothing in this Paragraph shall be construed as prohibiting XTO from selling its natural gas as “certified gas,” “independently certified gas,” or “responsibly sourced gas.”

J. ENVIRONMENTAL MITIGATION PROJECT

59. XTO shall implement the Environmental Mitigation Project (“Project”) described in Appendix E in compliance with the approved plan and schedule for such Project and other terms of this Consent Decree.

60. XTO shall maintain and, within 30 Days of a request from EPA or PADEP, provide copies of all documents to identify and substantiate the costs expended to implement the Project described in Appendix E.

61. All plans and reports prepared by XTO pursuant to the requirements of this Subsection are required to be submitted to EPA and PADEP, and XTO shall make any such plan or report available to the public upon request and without charge.

62. Project Certification. XTO shall certify, as part of each plan submitted to EPA and PADEP for any Project, that:

- a. XTO is not required to perform the Project by any federal, state, or local law or regulation or by any agreement, grant, or as injunctive relief awarded in any other action in any forum;

- b. The Project is not a project that XTO was planning or intending to construct, perform, or implement other than in settlement of the claims resolved in this Consent Decree; and
- c. XTO has not received and will not receive credit for the Project in any other enforcement action.

63. XTO shall use its best efforts to secure as much environmental benefit as possible for the Project, consistent with the applicable requirements and limits of this Consent Decree.

64. XTO shall comply with the reporting requirements described in Appendix E.

65. In connection with any communication to the public or shareholders regarding XTO's actions or expenditures relating in any way to the Project in this Consent Decree, XTO shall include in the communication the information that the actions and expenditures were required as a part of this Consent Decree.

66. Project Completion Notice. In the semi-annual report required by Section VI (Periodic Reporting), which is due no earlier than 60 Days following the completion of the Project required under this Consent Decree (including any applicable periods of demonstration or testing), XTO shall submit to EPA and PADEP a report that documents the date the Project was completed, the results achieved by implementing the Project, including a general discussion of the environmental benefits and, where feasible, the estimated emissions reductions, and the costs expended by XTO in implementing the Project.

K. THIRD-PARTY VERIFICATION PROGRAM

67. XTO shall retain an independent third-party verifier ("Verifier") to conduct a compliance verification program ("Compliance Verification Program") of the Subject Vapor Control System at each of the Well Pads listed in Appendix A, along with any Subject Vapor

Control Systems newly identified pursuant to Paragraph 57, to (a) evaluate and make a determination as to XTO's compliance with Consent Decree requirements in Section V, Subsections A through G; and (b) complete a Verification Program Report as detailed in Paragraph 84 of this Section.

68. XTO shall bear the cost of retaining the Verifier and shall ensure that the Verifier conducts the Compliance Verification Program in accordance with the requirements of this Subsection.

69. XTO shall not employ the Verifier or any of its personnel who managed, conducted, or otherwise participated in this Compliance Verification Program to provide any other commercial, business, or voluntary services to XTO for a period of at least one year following the Verifier's submission of its final Verification Program Report.

70. Retention. Within 30 Days of the Effective Date, XTO shall submit to EPA and PADEP the name(s) and qualifications of one or more proposed Verifiers that meet the following requirements:

- a. The proposed Verifier has expertise and competence in Vapor Control Systems and corresponding requirements in NSPS OOOO and NSPS OOOOa;
- b. The proposed Verifier and its personnel who will be involved in this Compliance Verification Program have not been employed by XTO, have not conducted research and/or development for XTO, and have not provided advisory services of any kind (including but not limited to design, construction, financial, engineering, legal, or consulting services) to XTO, within two years prior to the Effective Date; and

- c. The proposed Verifier has not been retained by XTO to satisfy any of the requirements of Section V (Compliance Requirements) of this Consent Decree.

71. In the event that XTO is unable, after extensive efforts, to identify a Verifier that would satisfy all of the conditions in Paragraph 70, XTO may propose a Verifier who does not meet the requirements of Paragraph 70.b and shall submit to EPA and PADEP:

- a. an explanation of its efforts to find a Verifier that meets the conditions in Paragraph 70;
- b. the names of one or more proposed Verifiers that does not meet the requirement in Paragraph 70.b and an explanation of why this requirement is not being met; and
- c. an explanation of how XTO will ensure that the Verifier will have sufficient independence to objectively and competently perform the Compliance Verification Program.

72. Verifier Approval Procedure. XTO shall direct Proposed Verifiers to submit the Verifier Certification Form (Appendix F) to XTO, EPA, and PADEP simultaneously to the addresses identified in Section XIV. EPA, after consulting with PADEP, shall inform XTO in writing which of the proposed Verifiers, if any, it has approved. Within 30 Days of the EPA's written approval, XTO shall retain an approved candidate to serve as the Verifier and to perform the activities set forth in this Subsection.

73. If EPA disapproves of all proposed Verifiers, XTO shall, within 21 Days of receipt of EPA's written notification, submit to the EPA for approval the names, qualifications, and completed Verifier Certification Form (Appendix F) of one or more additional proposed

Verifiers that meets the qualifications set forth in Paragraph 70, or if necessary in accordance with Paragraph 71. EPA, after consulting with PADEP, shall again provide written approval or disapproval of the proposed Verifiers, per Paragraphs 71 and 72.

74. Verifier Replacement Procedure. If XTO or EPA, after consulting with PADEP, determines that a Verifier approved by EPA cannot satisfactorily perform the required Compliance Verification Program, XTO, EPA and PADEP shall informally confer. If they agree that a new Verifier should be selected, XTO shall submit to EPA for approval the name and qualifications of one or more proposed replacement Verifiers that meet the qualifications set forth in Paragraph 70, or if necessary in accordance with Paragraph 71. If XTO and EPA do not agree on the need to select a replacement Verifier, EPA's position shall control, subject to XTO's right to invoke the dispute resolution procedures in Section X (Dispute Resolution) of this Consent Decree.

75. Nothing in Paragraph 74 precludes EPA from assessing stipulated penalties for missed Compliance Verification Program deadlines associated with the need to replace a Verifier, unless XTO successfully asserts that the inability of the Verifier to perform the required Compliance Verification Programs was due to a Force Majeure event in accordance with Section IX (Force Majeure) of this Consent Decree or due to EPA's unilateral decision on the need to replace the Verifier.

76. Conducting the Compliance Verification Program. XTO shall give the Verifier a copy of this Consent Decree and all appendices, the approved Design Analysis Methodology developed pursuant to Paragraph 25, the Engineering Evaluations developed pursuant to Paragraph 26, the Certification of Completion Reports developed pursuant to Paragraphs 31 and

32, and all other information and access necessary to complete the Compliance Verification Program.

77. XTO shall ensure that the Verifier will evaluate XTO's compliance with the Consent Decree requirements in Section V, Subsections A through G at each Well Pad listed in Appendix A (as well as any Subject Vapor Control System newly identified pursuant to Paragraph 57), as of the date of the initiation of the Verification Program for that Subject Vapor Control System, including but not limited to whether:

- a. the site-specific inputs and assumptions were correctly identified in the Engineering Evaluation, as informed by the Design Analysis Methodology prepared in accordance with Appendix C;
- b. each Subject Vapor Control System is adequately designed and sized for PMIVFR, PPIVFR, and Peak Modeled Pressure; and
- c. all modifications made pursuant to Paragraphs 27 have been fully and correctly implemented in accordance with the requirements of this Consent Decree.

78. The Compliance Verification Program shall include a site visit to all Well Pads listed in Appendix A (including any Vapor Control Systems newly identified in accordance with Paragraph 57) by the Verifier and shall be conducted in sufficient detail to permit the Verifier to validate the results of the determinations made pursuant to Paragraph 77. XTO shall instruct the Verifier to notify XTO within 24 hours of any observation of Reliable Information during the site visit.

79. One or more representatives of XTO with a comprehensive understanding of this Consent Decree shall accompany the Verifier during the onsite portion of the Compliance

Verification Program. While the representatives of XTO may confer with and assist the Verifier, XTO shall not interfere with the independent judgment of the Verifier.

80. XTO shall permit representatives of EPA and PADEP to participate in the onsite portion of the Compliance Verification Program as observers. XTO shall notify EPA and PADEP at least 14 Days before each site visit by the Verifier and shall update EPA and PADEP of changes to that schedule.

81. As to each Subject Vapor Control System, the Compliance Verification Program shall begin no earlier than 90 Days after XTO submits the Certification of Completion Report pursuant to Paragraphs 31 or 32 and shall be completed no later than 120 Days after commencement of the Compliance Verification Program.

82. XTO shall cooperate fully with any reasonable requests of the Verifier, and provide the Verifier with access, upon reasonable notice and taking into account operational impacts, to all records, employees, contractors, and properties under XTO's ownership or control that the Verifier reasonably deems appropriate to effectively perform the duties described in this Subsection.

83. XTO shall direct the Verifier to prepare a Compliance Verification Program Report in accordance with Paragraph 84 for each Subject Vapor Control System. XTO shall direct the Verifier to simultaneously send a copy of a Compliance Verification Program Report for each Subject Vapor Control System to XTO, EPA, and PADEP no later than 60 Days after the completion of the site visit conducted pursuant to Paragraph 78. XTO shall ensure the Verifier does not share draft reports with XTO prior to submission of the Compliance Verification Program Report to EPA.

84. The Compliance Verification Program Report shall present the Compliance Verification Program findings and shall, at a minimum, contain the following information:
- a. Verification Program scope, including the period of time covered by the Verification Program and an identification of all Well Pads evaluated;
 - b. The date(s) the on-site portion of the Verification Program was conducted;
 - c. Identification of Verifier's team members;
 - d. Identification of representatives of XTO and regulatory agency personnel observing the Compliance Verification Program;
 - e. A summary of the Compliance Verification Program process, including any obstacles encountered;
 - f. Detailed Compliance Verification Program findings, including a determination as to XTO's compliance with the requirements of Section V, Subsections A through G of the Consent Decree, including but not limited to the requirements referenced in Paragraph 77;
 - g. Copies of any photos or videos obtained during the Compliance Verification Program and the names of any XTO representatives or personnel interviewed;
 - h. Recommendations by the Verifier, based on the findings and any areas of concern, for corrective actions;
 - i. Detailed description of any Reliable Information observed, including the date the Reliable Information was observed; a description of the Reliable Information; identification of the Subject Vapor Control System at issue; the operation, maintenance or design cause(s) identified through XTO's

Root Cause Analysis or otherwise; a description of the corrective actions recommended or implemented, the date corrective actions were implemented (or proposed schedule for implementation of such corrective actions), the date that each corrective action was verified by an IR Camera Inspection, and a summary of the results of that Inspection; and

j. A certification by the Verifier, in the form set forth in Paragraph 93.

85. Upon the Verifier's submission of the Compliance Verification Program Report to XTO, EPA and PADEP, XTO shall investigate and report to the Verifier, EPA, and PADEP on any recommendations, areas of concern, or recommended corrective actions identified in the Compliance Verification Program Report to the extent required for compliance with Section V, Subsections A through G, as follows:

- a. Within 30 Days after Verifier's submission of the Compliance Verification Program Report, if XTO identifies any factual errors or incorrect data, statements or other details requiring correction in the report, XTO shall provide that feedback to the Verifier, EPA, and PADEP.
- b. Within 60 Days after the Verifier's submission of the Compliance Verification Program Report, or within 90 days after the Verifier's submission of the Compliance Verification Program Report if XTO identifies any factual errors or incorrect data, statements or other details requiring correction in the report pursuant to Paragraph 85.a, to XTO, EPA, and PADEP, XTO shall submit for the Verifier's review and comment an Action Plan to fully address all recommendations, areas of concern, and recommended corrective actions contained in the

Compliance Verification Program Report to the extent required for compliance with Section V, Subsections A through G. The Action Plan, as necessary, shall provide specific deliverables and an implementation schedule to address all recommendations, areas of concern, and recommended corrective actions to the extent required for compliance with Section V, Subsections A through G. XTO shall submit a copy of the Action Plan to EPA and PADEP on the same Day it is submitted to the Verifier;

- c. XTO shall direct the Verifier to review and comment on the Action Plan, and direct the Verifier to simultaneously send a copy of its comments on the Action Plan to XTO, EPA and PADEP no later than 30 Days after the Verifier receives the Action Plan; and
- d. Within 30 Days of receiving the Verifier's comments, EPA and PADEP may provide additional comments, if any, to XTO.

86. No later than 60 Days after receiving comments from the Verifier, XTO shall (i) revise the Action Plan to address comments from the Verifier and comments from EPA, if any; (ii) submit a revised Action Plan to EPA and PADEP; and (iii) implement the Action Plan in accordance with the requirements and schedules set forth therein unless otherwise notified in writing by EPA within 30 Days of receiving the revised Action Plan.

87. Within 30 Days after implementation of the Action Plan is complete, XTO shall submit to EPA and PADEP a Completion Report explaining how each item in the Action Plan was addressed and certifying that implementation of the Action Plan is complete. The

Completion Report shall comply with the certification requirements of Paragraph 93 of the Consent Decree.

88. Confidential Business Information. XTO may assert that any information required to be provided under this Section is protected as Confidential Business Information (“CBI”) under 40 C.F.R. Part 2 and 35 Pa. Stat. § 4013.2 by following the procedures set forth in those regulatory or statutory provisions.

VI. PERIODIC REPORTING

89. Within 15 Days of the Effective Date, XTO shall submit to EPA and PADEP for review a list of deadlines included in this Consent Decree. For any deliverable required by the Consent Decree, the list shall indicate whether EPA and PADEP approval is required. The list shall be in substantially the same form as Appendix G and shall be submitted in an electronic format (*e.g.*, unlocked electronic spreadsheet or similar format agreed to by the Parties). Within 15 Days of modification of any deadline under this Consent Decree, XTO shall submit an updated list reflecting changes to the future schedule. In the event of conflict between the list generated pursuant to this Paragraph and the Consent Decree, the Consent Decree shall control.

90. Following the Effective Date, XTO shall submit to EPA and PADEP in accordance with the requirements of Section XIV (Notices), a Semi-Annual Report no later than 60 Days after the end of each half of the calendar year (*i.e.*, January through June, and July through December). If the Effective Date is in either June or December, the initial Semi-Annual Report shall not be due until the next six-month reporting period. Each Semi-Annual Report shall contain the following information for the relevant six-month reporting period, if applicable:

- a. All records required to be maintained regarding the Facility Field Survey performed pursuant to Paragraph 14, as specified in Paragraph 20;

- b. All records required to be maintained regarding the Limited Field Survey performed pursuant to Paragraph 21, as specified in Paragraph 23;
- c. All records of pressurized liquid sampling performed pursuant to Paragraph 24, including but not limited to QA/QC assessments and analytical results;
- d. The Design Analysis Methodology prepared pursuant to Paragraph 25, including any updates or modifications to such Methodology;
- e. All Certification of Completion reports prepared pursuant to Paragraph 31 and 32, including any updates or modifications to such reports;
- f. Where any equipment, Storage Vessel, or Storage Vessel System was required to be Shut-In pursuant to Paragraphs 18, 28, or 48, identify the Storage Vessel System, the date such operations were required to be Shut-In, the cause of the Shut-In, and the date(s) Production Operations or other equipment resumed;
- g. Identify all Subject Vapor Control Systems newly identified pursuant to Paragraph 57, including the dates by which XTO must comply with Paragraphs 14 through 32 at such Systems and whether each is subject to NSPS OOOO or NSPS OOOOa;
- h. Any updates or modifications to the DI/PM Program;
- i. A summary of the records of all IR Camera inspections, AVO inspections, new or modified maintenance or inspection schedules or replacement program, and a summary of any reviews of or modifications to the spare

parts program, prepared in accordance with Paragraph 33 and Appendix D;

- j. Whenever XTO obtains Reliable Information, the date Reliable Information was obtained; a description of the Reliable Information (including but not limited to observations obtained during AVO or IR camera inspections, pressure monitor data, control device or VRU monitor data); identification of the Subject Vapor Control System at issue; the operation, maintenance or design cause(s) identified in the Root Cause Analysis; a description of the corrective actions implemented and the date and time corrective actions were implemented (or schedule for implementation of such corrective actions); and the date the corrective action was verified by an IR camera inspection or other inspection methods meeting any EPA Method 21 standard and a summary of the results of that inspection;
- k. The date(s) of submittal of the Compliance Verification Program Report and Action Plan required pursuant to Section V, Subsection K (Third-Party Verification Program), if submitted during the applicable reporting period;
- l. All dates, durations and causes of failures of the Storage Vessel Pressure Monitor, pursuant to Paragraph 34;
- m. Any Leak Point(s) and Trigger Point(s) identified pursuant to Paragraph 35;

- n. All dates, durations, and causes of failures of the Vapor Inlet Monitor or Valve Position Monitor, pursuant to Paragraph 42;
- o. All dates, durations and causes of failures of the Auto Pilot Relighter or Pilot Monitor pursuant to Paragraph 47;
- p. 12-month rolling VRU runtime records pursuant to Paragraph 46 (VRU Availability Monitoring);
- q. A summary of activities undertaken pursuant to Section V, Subsection J (Environmental Mitigation Project), the status of Environmental Mitigation Project milestones set forth in Appendix E, and a summary of costs incurred in the implementation of Subsection J since the previous Semi-Annual report;
- r. An updated list of Subject Vapor Control Systems pursuant to Paragraph 147; and
- s. The Semi-Annual report shall also include a description of any non-compliance of which XTO is aware with the requirements of this Consent Decree and an explanation of the violation's likely cause and of the remedial steps taken, or to be taken, to prevent or minimize such violation.

91. If XTO violates, or has reason to believe that it may violate, any requirement of this Consent Decree with an associated stipulated penalty in Section VIII (Stipulated Penalties), XTO shall notify the United States, EPA, and PADEP in accordance with the requirements of Section XIV (Notices) of such violation and its likely duration, in writing, within 10 Days of the Day XTO first becomes aware of the violation, with an explanation of the violation's likely cause and of the remedial steps taken, or to be taken, to prevent or minimize such violation. If

the cause of a violation cannot be fully explained at the time the report is due, XTO shall so state in the report. XTO shall investigate the cause of the violation and shall then submit an amendment to the report, including a full explanation of the cause of the violation, within 30 Days of the day XTO becomes aware of the cause of the violation. Nothing in this Paragraph or the following Paragraph relieves XTO of its obligation to provide the notice required by Section IX (Force Majeure). If EPA or PADEP become aware of any violation of any requirement of this Consent Decree, they will use best efforts to promptly notify XTO of such violation.

92. Whenever any violation of this Consent Decree or of any applicable permit(s) or any other event affecting XTO's performance under this Consent Decree may pose an immediate threat to the public health or welfare or the environment, XTO shall comply with any applicable federal and state or local laws and, in addition, shall notify EPA and PADEP as per Section XIV (Notices) by electronic transmission as soon as possible, but no later than 24 hours after XTO first knew of the violation or event. This notice requirement is in addition to the requirement to provide notice of a violation of this Consent Decree set forth in the preceding Paragraph.

93. Certification Statement. Each report submitted by XTO under this Section, and each Certification of Completion Report submitted pursuant to the requirements of Paragraphs 31 or 32 shall be signed by an official of the submitting party and include the following certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

This certification requirement does not apply to emergency notifications where compliance would be impractical.

94. The reporting requirements of this Consent Decree do not relieve XTO of any reporting obligations required by the Act, or implementing regulations, or by any other federal, state, or local law, regulation, permit, or other requirement.

95. Any information provided pursuant to this Consent Decree may be used by the United States or PADEP in any proceeding to enforce the provisions of this Decree and as otherwise permitted by law.

VII. APPROVAL OF DELIVERABLES

96. After review of any plan, report, or other item that is required to be submitted for EPA's approval pursuant to this Consent Decree, EPA, after consultation with PADEP, will in writing: (a) approve the submission; (b) approve the submission upon specified conditions; (c) approve part of the submission and disapprove the remainder; or (d) disapprove the submission.

97. If the submission is approved pursuant to Paragraph 96(a), XTO shall take all actions required by the plan, report, or other document, in accordance with the schedules and requirements of the plan, report, or other document, as approved. If the submission is conditionally approved or approved only in part pursuant to Paragraph 96(b) or (c), XTO shall, upon written direction from the EPA (after consulting with PADEP), take all actions required by the approved plan, report, any specified conditions or other item that EPA determines are technically severable from any disapproved portions, subject to XTO's right to dispute only the specified conditions or the disapproved portions, under Section X (Dispute Resolution).

98. If the submission is disapproved in whole or in part pursuant to Paragraph 96(c) or (d), XTO shall, within 45 Days or such other time as the Parties agree to in writing, correct all deficiencies and resubmit the plan, report, or other item, or disapproved portion thereof, for approval, in accordance with the preceding Paragraphs. If the resubmission is approved in whole or in part, XTO shall proceed in accordance with the preceding Paragraph.

99. If a resubmitted plan, report, or other item, or portion thereof, is disapproved in whole or in part, EPA after consulting with PADEP may again require XTO to correct any deficiencies, in accordance with the preceding Paragraphs, subject to XTO's right to invoke Dispute Resolution and the right of EPA or PADEP to seek stipulated penalties as provided in Section VIII (Stipulated Penalties).

100. If XTO elects to invoke Dispute Resolution as set forth in Paragraphs 97 or 99, XTO shall do so by sending a Notice of Dispute in accordance with Paragraph 120 within 30 Days (or such other time as the Parties agree to in writing) after receipt of the applicable decision.

101. Any stipulated penalties applicable to the original submission, as provided in Section VIII (Stipulated Penalties), accrue during the 45 Day period or other specified period, but shall not be payable unless the resubmission is untimely or is disapproved in whole or in part; provided that, if the original submission was so deficient as to constitute a material breach of XTO's obligations under this Consent Decree, the stipulated penalties applicable to the original submission shall be due and payable notwithstanding any subsequent resubmission.

102. Where any compliance obligation under this Section requires XTO to obtain a federal, state, or local permit or approval, XTO shall submit timely and complete applications and take all other actions necessary to obtain all such permits or approvals. XTO may seek relief

under the provisions of Section IX (Force Majeure) for any delay in the performance of any such obligation resulting from a failure to obtain, or a delay in obtaining, any permit or approval required to fulfill such obligation, if XTO has submitted timely and complete applications and has worked cooperatively with the relevant federal, state, and/or local authority to obtain all such permits or approvals.

VIII. STIPULATED PENALTIES

103. XTO shall be liable for stipulated penalties to the United States and PADEP for violations of this Consent Decree, as specified below, unless the violation is excused under Section IX (Force Majeure), or reduced or waived pursuant to Paragraph 107. A violation includes failing to perform any obligation required by the terms of this Consent Decree, including any work plan approved under this Consent Decree, according to all applicable requirements of this Consent Decree and within the specified time schedules established by or approved under this Consent Decree.

Violation	Penalty per Facility (unless otherwise noted)
(a) Failure to perform any of the requirements associated with the Facility or Limited Field Surveys, as specified in Paragraphs 14 through 17 and 19 through 23 at each Well Pad listed in Appendices A and A-1.	\$675 per Day for the first 30 Days and \$3,300 per Day thereafter
(b) Failure to take corrective action in accordance with Paragraph 18, or Shut-In, as specified in Paragraph 18.	\$1,800 per Day for the first 30 Days and \$9,000 per Day thereafter
(c) Failure to collect and analyze Pressurized Liquids samples from Storage Vessel Systems at the Well Pads listed in Appendix A, as specified in Paragraph 24.	\$675 per Day for the first 30 Days and \$3,300 per Day thereafter
(d) Failure to prepare an Engineering Evaluation for each Subject Vapor Control System, as specified in Paragraph 26.	\$1,200 per Day for the first 30 Days and \$6,000 per Day thereafter

(e) Failure to Shut-In and cease Production Operations as required in Paragraph 28.	\$1,800 per Day for the first 30 Days and \$9,000 per Day thereafter
(f) Failure to verify that each Subject Vapor Control System is adequately designed by conducting an IR Camera Inspection as specified in Paragraph 30.	\$675 per Day for the first 30 Days and \$4,000 per Day thereafter
(g) Failure to submit to EPA and PADEP a Certification of Completion Report as specified in Paragraph 31.	\$675 per Day for the first 30 Days and \$4,000 per Day thereafter
(h) Failure to revise an Engineering Evaluation, implement the necessary modifications, verify adequacy with an IR Camera Inspection, or submit an updated Certification of Completion report, as required by Paragraph 32.	\$675 per Day for the first 30 Days and \$4,000 per Day thereafter
(i) Failure to comply with the DI/PM Program requirements as specified in Paragraph 33.	\$675 per Day for the first 30 Days and \$3,300 per Day thereafter
(j) Failure to comply with any of the requirements pertaining to Storage Vessel Pressure Monitoring set forth in Paragraphs 34 through 36.	\$675 per Day for the first 30 Days and \$3,300 per Day thereafter
(k) Failure to comply with any of the requirements pertaining to VRU, Bypass, Control Device, and Pilot Monitoring set forth in Paragraphs 37 through 47.	\$675 per Day for the first 30 Days and \$3,300 per Day thereafter
(l) Failure to comply with any of the requirements pertaining to Pilot Monitor deviations, as specified in Paragraphs 48 and 49.	\$1,800 per Day for the first 30 Days and \$9,000 per Day thereafter
(m) Failure to comply with any of the requirements pertaining to an improperly open bypass device, thief hatch, or PRV, or an open-ended line, as set forth in Paragraph 50.	\$1,800 per Day for the first 30 Days and \$9,000 per Day thereafter
(n) Failure to comply with any of the requirements pertaining to the observation of Reliable Information set forth in Paragraphs 51 and 52.	\$1,800 per Day for the first 30 Days and \$9,000 per Day thereafter
(o) Failure to complete a Root Cause Analysis and complete all necessary corrective actions or modifications or Shut-In all Production Operations associated with the Subject Vapor Control System, as required in Paragraphs 53 and 54.	\$1,800 per Day for the first 30 Days and \$9,000 per Day thereafter

(p) Unless subject to another stipulated penalty under this Consent Decree for the same conduct, failure to comply with requirements applicable to a storage vessel affected facility, as required in Paragraph 56.	\$1,650 per Day for the first 30 Days and \$8,250 per Day thereafter
(q) Failure to comply with any of the requirements for Newly Identified Subject Vapor Control Systems, as required in Paragraph 57.	\$675 per Day for the first 30 Days and \$3,300 per Day thereafter
(r) Failure to implement the Environmental Mitigation Project, as required by Paragraphs 59 through 66.	\$675 per Day for the first 30 Days and \$4,000 per Day thereafter, assessed on a companywide basis (not per facility)
(s) Failure to comply with the Periodic Reporting requirements as set forth in Paragraphs 89 through 93.	\$675 per Day for the first 30 Days and \$4,000 per Day thereafter, assessed on a companywide basis (not per facility)
(t) Failure to comply with any of the requirements pertaining to the Third-Party Verification Program set forth in Paragraphs 67 through 83 and 85 through 88.	\$675 per Day for the first 30 Days and \$4,000 per Day thereafter, assessed on a companywide basis (not per facility)

104. Late Payment of Civil Penalty. If XTO fails to pay the civil penalty required to be paid under Section IV (Civil Penalty) when due, XTO shall pay a stipulated penalty of \$2,400 per day for each day that the payment is late.

105. Stipulated penalties under this Section shall begin to accrue on the day after performance is due or on the day a violation occurs, whichever is applicable, and shall continue to accrue until performance is satisfactorily completed or until the violation ceases. Stipulated penalties shall accrue simultaneously for separate violations of this Consent Decree.

106. XTO shall pay stipulated penalties to the United States and PADEP within 30 Days of a written demand by the United States or PADEP, except as provided in Paragraph 108.

XTO shall pay 50% of the total stipulated penalty amount due to the United States and 50% to PADEP. The Plaintiff making a demand for payment of a stipulated penalty shall simultaneously send a copy of the demand to the other Plaintiff and, where PADEP is the demanding Plaintiff, PADEP shall also send notice of such stipulated penalty demand to EPA Region III via email to the U.S. EPA Region III Regional Hearing Clerk at R3_Hearing_Clerk@epa.gov.

107. Either Plaintiff may, in the unreviewable exercise of its discretion, reduce or waive stipulated penalties otherwise due it under this Consent Decree.

108. Stipulated penalties shall continue to accrue as provided in Paragraph 105, during any Dispute Resolution, but need not be paid until the following:

- a. If the dispute is resolved by agreement or by a decision of EPA or PADEP that is not appealed to the Court, XTO shall pay accrued penalties determined to be owing, together with interest, to the United States or PADEP within 30 Days of the effective date of the agreement or the receipt of the EPA's or PADEP's decision or order;
- b. If the dispute is appealed to the Court and the United States or PADEP prevails in whole or in part, XTO shall pay all accrued penalties determined by the Court to be owing, together with interest, within 60 Days of receiving the Court's decision or order, except as provided in Paragraph 108.c, below;
- c. If any Party appeals the District Court's decision, XTO shall pay all accrued penalties determined to be owing, together with interest, within 15 Days of receiving the final appellate court decision.

109. If XTO fails to pay stipulated penalties according to the terms of this Consent Decree, XTO shall be liable for interest on such penalties, as provided for in 28 U.S.C. § 1961, accruing as of the date payment became due. Nothing in this Paragraph shall be construed to limit the United States or PADEP from seeking any remedy otherwise provided by law for XTO's failure to pay any stipulated penalties.

110. XTO shall pay stipulated penalties owing to the United States and PADEP in the manner set forth and with the confirmation notices required by Section IV (Civil Penalty) except that the transmittal letter shall state that the payment is for stipulated penalties and shall state for which violation(s) the penalties are being paid.

111. The payment of penalties and interest, if any, shall not alter in any way XTO's obligation to complete the performance of the requirements of this Consent Decree.

112. Stipulated penalties are not the United States' or PADEP's exclusive remedy for violations of this Consent Decree. Subject to the provisions of Section XII (Effect of Settlement/Reservation of Rights), the United States and PADEP expressly reserve the right to seek any other relief they deem appropriate for XTO's violation of this Consent Decree or applicable law, including but not limited to an action against XTO for statutory penalties, additional injunctive relief, mitigation or offset measures, and/or contempt. However, the amount of any statutory penalty assessed for a violation of this Consent Decree shall be reduced by an amount equal to the amount of any stipulated penalty assessed and paid pursuant to this Consent Decree.

IX. FORCE MAJEURE

113. "Force majeure," for purposes of this Consent Decree, means any event arising from causes beyond the control of XTO, of any entity controlled by XTO, or of XTO's

contractors, that delays or prevents the performance of any obligation under this Consent Decree despite XTO's best efforts to fulfill the obligation. Given the need to protect public health and welfare and the environment, the requirement that XTO exercise "best efforts to fulfill the obligation" includes using best efforts to anticipate any potential force majeure and best efforts to address the effects of any potential force majeure (a) as it is occurring and (b) following the potential force majeure, such that any delay or non-performance is, and any adverse effects of the delay or non-performance are, minimized to the greatest extent possible. "Force majeure" does not include financial inability to perform any obligation under this Consent Decree.

114. If any event occurs for which XTO will or may claim a force majeure, XTO shall provide notice to EPA and PADEP pursuant to Section XIV (Notices). The deadline for the initial notice is 10 Days after XTO first knew or should have known that the event would likely delay or prevent performance. XTO shall be deemed to know of any such circumstance of which any contractor of, subcontractor of, or entity controlled by XTO knew or should have known.

115. If XTO seeks to assert a claim of force majeure concerning the event, within 10 Days after the notice under Paragraph 114, XTO shall submit a further notice to EPA and PADEP that includes (a) an explanation and description of the event and its effect on XTO's completion of the requirements of the Consent Decree; (b) a description and schedule of all actions taken or to be taken to prevent or minimize the delay or non-performance and/or other adverse effects of the event; (c) if applicable, the proposed extension of time for XTO to complete the requirements of the Consent Decree; (d) XTO's rationale for attributing such delay to a force majeure if it intends to assert such a claim; (e) a statement as to whether, in the opinion of XTO, such event may cause or contribute to an endangerment to public health or welfare or

the environment; and (f) all available proof supporting any claim that the delay was attributable to a force majeure.

116. Failure to submit a timely or complete notice or claim under Paragraph 114 or 115 regarding an event precludes XTO from asserting any claim of force majeure regarding that event, provided, however, that EPA may, in its unreviewable discretion, excuse such failure if it is able to assess to its satisfaction whether the event is a force majeure, and whether XTO has exercised its best efforts, under Paragraph 113.

117. After receipt of any claim of force majeure, EPA, after a reasonable opportunity for review and comment by PADEP, will notify XTO of its determination whether XTO is entitled to relief under Paragraphs 102 and 113, and, if so, the excuse of, or the extension of time for, performance of the obligations affected by the force majeure. An excuse of, or extension of the time for performance of, the obligations affected by the force majeure does not, of itself, excuse or extend the time for performance of any other obligation.

118. If XTO elects to invoke the dispute resolution procedures set forth in Section X (Dispute Resolution), it shall do so no later than 30 Days after receipt of EPA's notice. In any such proceeding, XTO has the burden of proving that it is entitled to relief under Paragraphs 102 and 113, that its proposed excuse or extension was or will be warranted under the circumstances, and that it complied with the requirements of Paragraphs 113 to 115. If XTO carries this burden, the delay or non-performance at issue shall be deemed not to be a violation by XTO of the affected obligation of this Consent Decree identified to EPA, PADEP, and the Court.

X. DISPUTE RESOLUTION

119. Unless otherwise expressly provided for in this Consent Decree, the dispute resolution procedures of this Section shall be the exclusive mechanism to resolve disputes arising

under or with respect to this Consent Decree. XTO's failure to seek resolution of a dispute under this Section concerning an issue of which it had notice and an opportunity to dispute under this Section prior to an action by the United States to enforce any obligation of XTO arising under this Decree precludes XTO from raising any such issue as a defense to any such enforcement action. The deadlines in this Section may be extended by mutual written agreement of the Parties, unless subject to Local Rules of this Court.

120. Informal Dispute Resolution. Any dispute subject to Dispute Resolution under this Consent Decree shall first be the subject of informal negotiations. The dispute shall have arisen (see "the date the dispute arises," below) when XTO sends DOJ, EPA and PADEP a written Notice of Dispute. Such Notice of Dispute shall state the matter in dispute. The period of informal negotiations shall not exceed 30 Days from the date the dispute arises unless the Parties mutually agree in writing to extend the period of informal negotiations. If the Parties cannot resolve a dispute by informal negotiations, the position advanced by the United States (after consultation with PADEP) shall be considered binding unless, within 30 Days after the conclusion of the informal negotiation period, XTO invokes formal dispute resolution procedures as set forth below.

121. Formal Dispute Resolution. XTO shall invoke formal dispute resolution procedures, within the time period provided in the preceding Paragraph, by sending DOJ, EPA and PADEP a written Statement of Position regarding the matter in dispute. The Statement of Position shall include, but need not be limited to, any factual data, analysis, or opinion supporting XTO's position and any supporting documentation relied upon by XTO.

122. The United States, after consultation with PADEP, will send XTO its Statement of Position within 45 Days of receipt of XTO's Statement of Position. The United States'

Statement of Position shall include, but need not be limited to, any factual data, analysis, or opinion supporting that position and any supporting documentation relied upon by the United States. The United States' Statement of Position is binding on XTO, unless XTO files a motion for judicial review of the dispute in accordance with the following Paragraph.

123. Judicial Dispute Resolution. XTO may seek judicial review of the dispute by filing with the Court and serving on the United States and PADEP a motion requesting judicial resolution of the dispute. The motion (a) must be filed within 45 Days of receipt of the United States' Statement of Position pursuant to the preceding Paragraph; (b) may not raise any issue not raised in informal dispute resolution pursuant to Paragraph 120, unless the Plaintiffs raise a new issue of law or fact in the Statement of Position; (c) shall contain a written statement of XTO's position on the matter in dispute, including any supporting factual data, analysis, opinion, or documentation, and (d) shall set forth the relief requested and any schedule within which the dispute must be resolved for orderly implementation of the Consent Decree.

124. The United States shall, after consultation with PADEP, respond to XTO's motion within the time period allowed by the Local Rules of this Court. XTO may file a reply memorandum, to the extent permitted by the Local Rules.

125. Standard of Review

- a. Disputes Concerning Matters Accorded Record Review. Except as otherwise provided in this Consent Decree, in any dispute brought under Paragraph 121 pertaining to the adequacy or appropriateness of plans, procedures to implement plans, schedules or any other items requiring approval by EPA under this Consent Decree; the adequacy of the performance of work undertaken pursuant to this Consent Decree; and all

other disputes that are accorded review on the administrative record under applicable principles of administrative law, XTO shall have the burden of demonstrating, based on the administrative record, that the position of the United States is arbitrary and capricious or otherwise not in accordance with law.

- b. Other Disputes. Except as otherwise provided in this Consent Decree, in any other dispute brought under Paragraph 121, XTO shall bear the burden of demonstrating that its position complies with this Consent Decree and better furthers the objectives of the Consent Decree.

126. The invocation of dispute resolution procedures under this Section shall not, by itself, extend, postpone, or affect in any way any obligation of XTO under this Consent Decree, unless and until final resolution of the dispute so provides. If XTO does not prevail on the disputed issue, stipulated penalties shall be assessed and paid as provided in Section VIII (Stipulated Penalties).

XI. INFORMATION COLLECTION AND RETENTION

127. The United States, PADEP and their representatives, including attorneys, contractors, and consultants, shall have the right of entry into any Facility covered by this Consent Decree, at all reasonable times, subject to any applicable federal and state health and safety laws and regulations, upon presentation of credentials, to:

- a. monitor the progress of activities required under this Consent Decree;
- b. verify any data or information submitted to the United States or PADEP in accordance with the terms of this Consent Decree;

- c. obtain samples and, upon request, splits or duplicates of any samples taken by XTO or its representatives, contractors, or consultants related to activities under this Consent Decree;
- d. obtain documentary evidence, including photographs and similar data related to activities under this Consent Decree; and
- e. assess XTO's compliance with this Consent Decree.

128. Upon request, XTO shall provide to EPA and PADEP or their authorized representatives splits or duplicates of any pressurized liquid samples taken by XTO at a Storage Vessel System or other associated equipment as required by this Consent Decree. Upon request, EPA and PADEP shall provide XTO splits or duplicates of any samples taken for purposes of this Consent Decree by EPA or PADEP or their authorized representatives. In both cases, such request shall be made prior to sampling whenever possible to ensure that appropriate XTO personnel are present and adequate sample volume is obtained.

129. Until two years after the termination of this Consent Decree, XTO shall retain, and shall instruct its contractors and agents to preserve, all non-identical copies of all documents, records, or other information (including documents, records, or other information in electronic form) in its or its contractors' or agents' possession or control, or that come into its or its contractors' or agents' possession or control, and that relate in any manner to XTO's performance of its obligations under this Consent Decree. This information-retention requirement shall apply regardless of any contrary corporate or institutional policies or procedures. At any time during this information-retention period, upon request by the United States or PADEP, XTO shall submit copies of any documents, records, or other information required to be maintained under this Paragraph.

130. No later than 15 days prior to the conclusion of the information-retention period provided in the preceding Paragraph, USEPA and/or PADEP may, in writing, request that XTO provide copies of any documents, records, or other information subject to the requirements of the preceding Paragraph prior to destruction of these documents. XTO may assert that certain documents, records, or other information is privileged under the attorney-client privilege or any other privilege recognized by federal law. If XTO asserts such a privilege, it shall provide the following: (a) the title of the document, record, or information; (b) the date of the document, record, or information; (c) the name and title of each author of the document, record, or information; (d) the name and title of each addressee and recipient; (e) a description of the subject of the document, record, or information; and (f) the privilege asserted by XTO. However, no documents, records, or other information created or generated pursuant to the requirements of this Consent Decree shall be withheld on grounds of privilege.

131. XTO may also assert that information required to be provided or submitted under this Section is protected as CBI under 40 C.F.R. Part 2 and 35 Pa. Stat. § 4013.2. As to any information that XTO seeks to protect as CBI, XTO shall follow the procedures set forth in 40 C.F.R. Part 2 and 35 Pa. Stat. § 4013.2.

132. This Consent Decree in no way limits or affects any right of entry and inspection, or any right to obtain information, held by the United States or PADEP pursuant to applicable federal or state laws, regulations, or permits, nor does it limit or affect any duty or obligation of XTO to maintain documents, records, or other information imposed by applicable federal or state laws, regulations, or permits.

XII. EFFECT OF SETTLEMENT/RESERVATION OF RIGHTS

133. This Consent Decree resolves the civil claims of the United States and PADEP for (a) the violations alleged in the Complaint filed in this action, (b) violations identified in the Clean Air Act Notice of Violation and Opportunity to Confer dated March 9, 2022, and (c) any other violations of the following provisions of federal and state law through the Date of Lodging as to each of the Facilities identified in Appendices A and A-1:

- a. 42 U.S.C. § 7661a;
- b. 40 C.F.R. §52.2020(c), as it relates to the corresponding state provisions identified in Paragraphs 133.p and 133.q;
- c. 40 C.F.R. §§ 60.5365 and 60.5365a;
- d. 40 C.F.R. §§ 60.5370 and 60.5370a;
- e. 40 C.F.R. §§ 60.5395 and 60.5395a;
- f. 40 C.F.R. §§ 60.5410 and 60.5410a;
- g. 40 C.F.R. §§ 60.5411 and 60.5411a;
- h. 40 C.F.R. §§ 60.5412 and 60.5412a;
- i. 40 C.F.R. §§ 60.5413 and 60.5413a;
- j. 40 C.F.R. §§ 60.5415 and 60.5415a;
- k. 40 C.F.R. §§ 60.5416 and 60.5416a;
- l. 40 C.F.R. §§ 60.5417 and 60.5417a;
- m. 40 C.F.R. §§ 60.5420 and 60.5420a;
- n. 40 C.F.R. § 60.8;
- o. 40 C.F.R. § 60.18;

- p. Title 25, § 122.3 of the Pennsylvania Code, as to adoption of the provisions of 40 C.F.R. Part 60 that are referenced in Paragraphs 133.c through 133.o;
- q. Title 25, §§ 127.11, 127.402 and Chapter 127, Subchapter G of the Pennsylvania Code; and
- r. Section 6.1(a) and (b) of the Pennsylvania Air Pollution Control Act, 35 P.S. § 4006.1(a) and (b).

134. The United States and PADEP reserve all legal and equitable remedies available to enforce the provisions of this Consent Decree. This Consent Decree shall not be construed to limit the rights of the United States or PADEP to obtain penalties or injunctive relief under the Act or implementing regulations, or under other federal or state laws, regulations, or permit conditions, except as expressly specified in Paragraph 133. The United States and PADEP further reserve all legal and equitable remedies to address any imminent and substantial endangerment to the public health or welfare or the environment arising at, or posed by, any of XTO's Facilities, whether related to the violations addressed in this Consent Decree or otherwise.

135. In any subsequent administrative or judicial proceeding initiated by the United States or PADEP for injunctive relief, civil penalties, or other appropriate relief relating to any of XTO's Facilities, XTO shall not assert, and may not maintain, any defense or claim based upon the principles of waiver, res judicata, collateral estoppel, issue preclusion, claim preclusion, claim-splitting, or other defenses based upon any contention that the claims raised by the United States or PADEP in the subsequent proceeding were or should have been brought in the instant case, except with respect to claims that have been specifically resolved pursuant to Paragraph 133.

136. This Consent Decree is not a permit, or a modification of any permit, under any federal, state, or local laws or regulations. XTO is responsible for achieving and maintaining complete compliance with all applicable federal, state, and local laws, regulations, and permits; and XTO's compliance with this Consent Decree shall be no defense to any action commenced pursuant to any such laws, regulations, or permits, except as set forth herein. The United States and PADEP do not, by their consent to the entry of this Consent Decree, warrant or aver in any manner that XTO's compliance with any aspect of this Consent Decree will result in compliance with provisions of the Act, 42 U.S.C. § 7401, *et seq.*, or with any other provisions of federal, state, or local laws, regulations, or permits.

137. This Consent Decree does not limit or affect the rights of any of the Parties against any third parties, not party to this Consent Decree, nor does it limit the rights of third parties, not party to this Consent Decree, against XTO, except as otherwise provided by law.

138. This Consent Decree shall not be construed to create rights in, or grant any cause of action to, any third party not party to this Consent Decree.

XIII. COSTS

139. The Parties shall bear their own costs of this action, including attorneys' fees, except that the United States and PADEP shall be entitled to collect the costs (including attorneys' fees) incurred in any action necessary to collect any portion of the civil penalty or any stipulated penalties due but not paid by XTO.

XIV. NOTICES

140. Unless otherwise specified in this Consent Decree, whenever notifications, submissions, or communications are required by this Consent Decree, they shall be sent as follows:

As to the United States:

To DOJ by email (preferred): eescdcopy.enrd@usdoj.gov
Re: DJ # 90-5-2-1-12373

To DOJ by mail: EES Case Management Unit
Environment and Natural Resources Division
U.S. Department of Justice
P.O. Box 7611
Washington, D.C. 20044-7611
Re: DJ # 90-5-2-1-12373

To EPA by email (preferred): r3_orc_mailbox@epa.gov
R3_Hearing_Clerk@epa.gov
augustine.bruce@epa.gov
deluca.dean@epa.gov
hall.kristen@epa.gov

Note: notifications, submissions, or communications for the R3_Hearing_Clerk@epa.gov are for payment of civil penalty and stipulated payments only.

As to PADEP:

By mail: Regional Air Quality Program Manager
Pennsylvania Department of Environmental Protection
230 Chestnut Street
Meadville, PA 16335

And

Electronically using: PADEP's Public Upload with Payment system at:
<https://greenport.pa.gov/ePermitPublicAccess/PublicSubmission/ValidatePublicSubmission>

If submission of materials best viewed in electronic format is not possible due to system limitations, XTO will provide materials on a USB drive by mail.

As to XTO by email: ButlerCountyPA.XTO.ConsentDecree@exxonmobil.com

As to XTO by mail: Attn: Regulatory Manager
XTO Energy Inc.
190 Thorn Hill Road
Warrendale, PA 15086

141. Any Party may, by written notice to the other Parties, change its designated notice recipient or notice address provided above.

142. Notices submitted pursuant to this Section shall be deemed submitted upon mailing or transmission by email, unless otherwise provided in this Consent Decree or by mutual agreement of the Parties in writing.

XV. EFFECTIVE DATE

143. The Effective Date of this Consent Decree shall be the date upon which this Consent Decree is entered by the Court or a motion to enter the Consent Decree is granted, whichever occurs first, as recorded on the Court's docket.

XVI. RETENTION OF JURISDICTION

144. The Court shall retain jurisdiction over this case until termination of this Consent Decree, for the purpose of resolving disputes arising under this Consent Decree or entering orders modifying this Consent Decree, pursuant to Sections X (Dispute Resolution) and XVII (Modification), or effectuating or enforcing compliance with the terms of this Consent Decree.

XVII. MODIFICATION

145. The terms of this Consent Decree, including any attached appendices, may be modified only by a subsequent written agreement signed by all the Parties. Where the modification constitutes a material change to this Consent Decree, it shall be effective only upon approval by the Court.

146. Any disputes concerning modification of this Consent Decree shall be resolved pursuant to Section X (Dispute Resolution), provided, however, that, instead of the burden of proof provided by Paragraph 125, the Party seeking the modification bears the burden of

demonstrating that it is entitled to the requested modification in accordance with Federal Rule of Civil Procedure 60(b).

XVIII. PLUGGING AND ABANDONMENT

147. Effect of Plugging and Abandonment. The permanent plug and abandonment of all wells (“P&A”) associated with a Subject Vapor Control System shall be deemed to satisfy all requirements of this Consent Decree applicable to: (a) that Subject Vapor Control System, as long as the wells were properly plugged in accordance with applicable regulations and XTO conducts a survey of the plugged wells with an optical gas imaging (OGI) camera and confirms no emissions are imaged coming from the equipment and components associated with the Well Pad, including the well) and (b) the associated Storage Vessel System, as long as the Storage Vessel System and Vapor Control System is no longer servicing wells that have not been plugged and abandoned). To P&A a well, XTO must submit to EPA and PADEP verified reporting of plugging made in accordance with 25 Pa. Code § 78.124 or 25 Pa. Code § 78a.124, as appropriate. XTO shall maintain copies of all documentation, including results of the survey and OGI video, required by this Paragraph for inspection and review by EPA and PADEP. In each Semi-Annual Report under Paragraph 90, XTO shall update the list of Subject Vapor Control Systems to reflect any Well Pads where all servicing wells have been permanently plugged and abandoned. Nothing herein shall preclude XTO from reusing any equipment from a plugged and abandoned well.

XIX. TERMINATION

148. After XTO (a) has completed the requirements of Paragraphs 14 through 31 for each of the Subject Vapor Control Systems listed in Appendices A and A-1, as applicable, (b) has thereafter maintained satisfactory compliance with this Consent Decree for a period of three

years at all Subject Vapor Control Systems (except that such three-year requirement shall not apply at those Storage Vessel Systems identified pursuant to Paragraph 57), (c) has completed the Environmental Mitigation Project under Section V, Subsection J, and (d) has paid the civil penalty and any accrued stipulated penalties as required by this Consent Decree, XTO may serve upon the Plaintiffs a Request for Termination, stating that XTO has satisfied those requirements, together with all necessary supporting documentation.

149. Following receipt by the United States and PADEP of XTO's Request for Termination, the Parties shall confer informally concerning the Request and any disagreement that the Parties may have as to whether XTO has satisfactorily complied with the requirements for termination of this Consent Decree. If the United States, after consultation with PADEP, agrees that the Consent Decree may be terminated, the Parties shall submit, for the Court's approval, a joint stipulation terminating the Consent Decree.

150. If the United States, after consultation with the PADEP, does not agree that the Consent Decree may be terminated, XTO may invoke Dispute Resolution under Section X (Dispute Resolution). However, XTO shall not seek Dispute Resolution of any dispute regarding termination until 90 Days after service of its Request for Termination.

XX. PUBLIC PARTICIPATION

151. This Consent Decree shall be lodged with the Court for a period of not less than 30 Days for public notice and comment in accordance with 28 C.F.R. § 50.7. The United States reserves the right to withdraw or withhold its consent if the comments regarding the Consent Decree disclose facts or considerations indicating that the Consent Decree is inappropriate, improper, or inadequate. XTO consents to entry of this Consent Decree without further notice and agrees not to withdraw from or oppose entry of this Consent Decree by the Court or to

challenge any provision of the Consent Decree, unless the United States has notified XTO in writing that it no longer supports entry of the Consent Decree.

XXI. SIGNATORIES/SERVICE

152. Each undersigned representative of XTO, PADEP, and the Assistant Attorney General for the Environment and Natural Resources Division of the Department of Justice identified on the DOJ signature page below, certifies that that person is fully authorized to enter into the terms and conditions of this Consent Decree and to execute and legally bind the Party that person represents to this document.

153. This Consent Decree may be signed in counterparts, and its validity shall not be challenged on that basis. XTO agrees to accept service of process by mail with respect to all matters arising under or relating to this Consent Decree and to waive the formal service requirements set forth in Rules 4 and 5 of the Federal Rules of Civil Procedure and any applicable Local Rules of this Court including, but not limited to, service of a summons. XTO need not file an answer to the complaint in this action unless or until the Court expressly declines to enter this Consent Decree.

XXII. INTEGRATION

154. This Consent Decree, including deliverables that are subsequently approved pursuant to this Decree, constitutes the entire agreement among the Parties regarding the subject matter of the Decree and supersedes all prior representations, agreements and understandings, whether oral or written, concerning the subject matter of the Decree herein.

XXIII. FINAL JUDGMENT

155. Upon approval and entry of this Consent Decree by the Court, this Consent Decree shall constitute a final judgment of the Court as to the United States, PADEP, and XTO.

XXIV. 26 U.S.C. SECTION 162(f)(2)(A)(ii) IDENTIFICATION

156. For purposes of the identification requirement of Section 162(f)(2)(A)(ii) of the Internal Revenue Code, 26 U.S.C. § 162(f)(2)(A)(ii), performance of the requirements set out in: Section II (Applicability), Paragraph 6; Section V (Compliance Requirements), Paragraphs 14 through 88; Section VI (Periodic Reporting), Paragraphs 89 through 93; Section XI (Information Collection and Retention), Paragraphs 127 through 132; and Appendices A, A-1, B, C, D, and E is restitution or required to come into compliance with law.

XXV. APPENDICES

157. The following Appendices are attached to and part of this Consent Decree:

“Appendix A” is the list of XTO Well Pads subject to the terms of this Consent Decree (except for the requirements in Paragraphs 21 through 23 pertaining to Limited Field Surveys);

“Appendix A-1” is the list of XTO Well Pads subject to the requirements in Paragraphs 21 through 23 pertaining to Limited Field Surveys;

“Appendix B” is the Sampling and Analysis Plan;

“Appendix C” is the Design Analysis Methodology;

“Appendix D” is the DI/PM Program;

“Appendix E” is the Environmental Mitigation Project;

“Appendix F is the Verifier Certification; and

“Appendix G” is the Consent Decree Deliverables Template.

Dated and entered this __ day of _____, 2024

UNITED STATES DISTRICT JUDGE

FOR THE UNITED STATES OF AMERICA:

Date: _____

TODD KIM
Assistant Attorney General
Environment and Natural Resources Division
U.S. Department of Justice

**MARK
ELMER**

Digitally signed by
MARK ELMER
Date: 2024.10.22
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MARK C. ELMER
U.S. Department of Justice
Environmental Enforcement Section
999 18th Street, South Terrace, Suite 370
Denver, Colorado 80202
Tel: (303) 844-1352 | Fax: (303) 844-1350
Email: mark.elmer@usdoj.gov

FOR THE U.S. ENVIRONMENTAL PROTECTION
AGENCY:

DAVID
UHLMANN

Digitally signed by DAVID
UHLMANN
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DAVID M. UHLMANN
Assistant Administrator
Office of Enforcement and Compliance Assurance
U.S. Environmental Protection Agency
Washington, D.C. 20460

ROSEMARIE KELLEY
Director, Office of Civil Enforcement
Office of Enforcement and Compliance Assurance
U.S. Environmental Protection Agency,
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

MARY E. GREENE
Director, Air Enforcement Division
Office of Enforcement and Compliance Assurance
U.S. Environmental Protection Agency,
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

ALEX CHEN
Attorney, Air Enforcement Division
Office of Enforcement and Compliance Assurance
U.S. Environmental Protection Agency,
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

FOR THE U.S. ENVIRONMENTAL PROTECTION
AGENCY:

ADAM
ORTIZ

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ORTIZ
Date: 2024.10.22
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[Digital Signature and Date]

ADAM ORTIZ

Regional Administrator

U.S. Environmental Protection Agency, Region 3

ALLISON
GARDNER

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ALLISON GARDNER
Date: 2024.10.21
15:29:47 -04'00'

[Digital Signature and Date]

ALLISON F. GARDNER

Acting Regional Counsel

U.S. Environmental Protection Agency, Region 3

JENNIFER
ABRAMSON

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JENNIFER ABRAMSON
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09:10:16 -04'00'

JENNIFER M. ABRAMSON

[Digital Signature and Date]

Senior Assistant Regional Counsel

Office of Regional Counsel

U.S. Environmental Protection Agency, Region 3

FOR THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION:


Date: 10/17/24



CARL D. BALLARD
Assistant Counsel
Northwest Regional Counsel
Pennsylvania Department of Environmental Protection



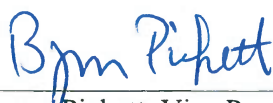
ERIN K. WELLS
Northwest Regional Director
Pennsylvania Department of Environmental Protection



LORI L. MCNABB
Northwest Regional Air Quality Program Manager
Pennsylvania Department of Environmental Protection

FOR XTO ENERGY INC.:

Date: 7 October 2024



Bryan Pickett, Vice President and Eastern Business Unit
General Manager

APPENDIX A**XTO WELL PADS SUBJECT TO DECREE**

Well Pad Name	Surface Latitude	Surface Longitude	Street Address	County	State
AK STEEL WELL PAD A	40.846578	-79.935133	236 Schaffner Road	Butler	PA
AK STEEL WELL PAD B	40.840358	-79.943647	265 Sawmill Run Road	Butler	PA
AK STEEL WELL PAD C	40.836944	-79.950278	267 Sawmill Run Road	Butler	PA
AK STEEL WELL PAD D	40.822283	-79.940106	367 McCalmont Road	Butler	PA
ANGERT WELL PAD	40.913019	-79.748289	440 Chicora-Fenelton Road	Butler	PA
BRISTON WELL PAD	40.820019	-79.900208	181 Dutchtown Road	Butler	PA
CLOUSE WELL PAD	40.91605	-79.823397	140 Hoffman Road	Butler	PA
CRATTY WELL PAD	40.914436	-80.015367	170 Election House Road	Butler	PA
DREHER WELL PAD	40.851761	-79.823442	16 Keel Lane	Butler	PA
GEIBEL WELL PAD	40.865617	-79.783928	549 Keck Road	Butler	PA
GUIHER LUTHERLYN WELL PAD	40.8747	-80.013886	1100 Whitestown Road	Butler	PA
HINCH SMITH UNIT PAD	40.829922	-79.888389	146 Wise Road	Butler	PA
ISAACS WELL PAD	40.895197	-79.971217	146 Heinz Road	Butler	PA
KOZIK BROTHERS UNIT	40.843111	-79.831383	559 Bonniebrook Road	Butler	PA
KYNE WELL PAD	40.885153	-80.008444	101 Eisler Lane	Butler	PA
LANDGRAF A B WELL PAD	40.902731	-79.764514	130 Landgraf Road	Butler	PA
LASSINGER UNIT 1H	40.836667	-79.884461	950 Bullcreek Road	Butler	PA

LESNEY WELL PAD	40.880467	-79.978133	647 New Castle Road	Butler	PA
MARBURGER FARM DAIRY INC UNIT	40.757428	-80.045967	1526 Mars-Evans City Road	Butler	PA
MCCALL WELL PAD	40.933547	-79.737339	275 Chicora-Fenelton Road	Butler	PA
MOUNTAIN GATHERING WELL PAD	40.807411	-79.948336	200 Hicks Road	Butler	PA
MOURER WELL PAD	40.943311	-79.714761	139 Garing Road	Butler	PA
PATTON UNIT PAD	40.877231	-80.034858	1313 Whitestown Road	Butler	PA
SALVATORA UNIT	40.840772	-79.848778	561 Bonniebrook Road	Butler	PA
STEIN WELL PAD	40.918153	-80.001997	123 Stein Road	Butler	PA
WALTMAN	40.926983	-79.748547	324 Chicora-Fenelton Road	Butler	PA
WELTER WELL PAD	40.898358	-79.779203	195 Welter Road	Butler	PA

APPENDIX A-1

XTO WELL PADS SUBJECT TO FACILITY SURVEY ONLY

CHRISTENSEN WELL PAD	40.80045	-79.8436	727 Saxonburg Road	Butler	PA
PRAGER WELL PAD	40.825397	-79.829808	250 Simon Drive	Butler	PA
BACHELDER WELL PAD	40.796194	-79.881942	465 Crisswell Road	Butler	PA

APPENDIX B:
SAMPLING AND ANALYSIS PLAN

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1 INTRODUCTION

This document provides the requirements for the sampling, analytical, and data collection activities needed to support the assessment of peak atmospheric emissions from crude oil, condensate, and produced water storage tanks at oil and natural gas production facilities. Atmospheric emissions from crude oil and condensate tanks may be attributed to flashing, working, and breathing losses. The emissions from produced water tanks may be attributed to working and breathing losses and flashing of associated hydrocarbon dissolved in the water and carry-over of entrained crude oil or condensate in the water.

The primary information required to estimate peak air emissions from each tank includes the type of liquid received, temperature and pressure of the received liquid from the upstream pressure vessel (sampling point), temperatures of the stored liquid and vent gas, flash gas factor, composition of the vent gas, Reid vapor pressure (RVP) and API gravity of the weathered sales oil or condensate, and, in the case of produced water tanks, the extent of entrained crude oil or condensate carry-over. This information and data on design and maximum activity levels and operating conditions are needed to conduct sizing and capacity reviews of vapor collection and control systems.

The sampling technician and laboratory technician shall use checklists and/or appropriate documentation to implement the requirements stated in the following sections.

2 SAMPLING REQUIREMENTS

1. **Pre-Sampling Requirements** – These requirements vary according to the type of sample to be collected:
 - a. For pressurized liquid samples, data required to conduct this procedure shall be provided to the sampling contractor prior to the contractor conducting the sampling methods specified in this procedure. Field sampling shall not be performed until, at a minimum, the following data is recorded on the sample cylinder identification tag and the sampling checklist (see Appendix 1): (a) the separator identification number or description, (b) the separator temperature and pressure, and (c) first downstream atmospheric tank or separator temperature, where such equipment is present.
 - b. For flowing natural gas samples, apply the pre-sampling requirements of GPA 2166. At a minimum, record the following information on the sample identification

tag and data collection form prior to collecting the sample: the separator identification number and the separator temperature and pressure.

- c. For atmospheric liquid samples, apply the pre-sampling requirements of either ASTM D4057 or ISO 3170 for manual samples, and either API MPS Chapter 8.2, ASTM D4177 or ISO 3171 for automated samples. At a minimum, record the following information on the sample identification tag and data collection form prior to collecting the sample: the tank identification number and temperature.
 - d. To accurately estimate emissions, samples should be taken at normal operating conditions at the facility.
2. **Samples to be Collected** – The extent and location of samples to be collected depends on the circumstances and proposed emissions assessment approach (see Section 3):
- a. For hydrocarbon liquid, collect a pressurized crude oil or condensate sample from a pressurized vessel located upstream of the tank farm. However, a pressurized crude oil or condensate sample shall not be collected from a vapor recovery tower. A hydrocarbon liquid sample can be collected from the inlet separator, or an intermediate separator immediately before the atmospheric tank (e.g., heater treater). A sample of the sales oil or condensate from the atmospheric storage tank shall also be collected and analyzed for the API Gravity and Reid Vapor Pressure and hydrocarbon composition for a 2-phase separation site that produces oil or condensate.
 - b. For 2-phase separation sites that produce oil or condensate, the flash contributions from the liquids sent to atmospheric storage shall be determined for the produced water and oil or condensate streams via a process model. The model shall comprise of two parts: (1) use back-blending to determine the composition and flowrate for the bulk fluid (“reference fluid”) entering the separator using a sample composition and flowrate of the separator off-gas, sales oil/condensate and produced water at the measured separator and tank operating conditions, and then (2) predicting the flashing losses associated with the reference fluid flowrate and worst-case separator and tank operating conditions (i.e., the highest separator pressure, lowest separator temperature, and highest tank temperature). The first part may require an iterative solution to determine a reference fluid composition and flowrate that when input to the process simulation model accurately predicts the measured output results for the selected sampling event.
 - c. For 3-phase separation sites, the flash gas contributions from: (1) hydrocarbon dissolved in the aqueous phase; and (2) oil phase carryover shall be determined for the produced water stream. Collect a sample of the pressurized produced water from

the upstream pressure vessel and determine the flash gas contribution from hydrocarbon dissolved in the aqueous phase by performing a flash liberation laboratory analysis on or by applying Henry's law to the sample. Document the method used for determining flash gas contribution from the aqueous phase. Collect and analyze a pressurized oil sample from the upstream separator where the produced water is first separated and perform flash calculations on the extended hydrocarbon analysis to determine the Flash Gas-to-Oil Ratio (FGOR). Predict the flash gas contribution from oil carryover into the produced water stream by assuming 1% oil carryover by volume from the upstream separator applied to the FGOR or utilizing site-specific data or analysis, such as skim oil records. The flash gas contribution from the produced water stream shall be the sum of the flash gas contribution from hydrocarbon dissolved in the aqueous phase and the flash gas contribution from oil carryover in the produced water stream.

- d. If the natural gas composition at the pressure vessel mentioned in Section 2 Item 2.a. is required for simulation purposes (*see* Section Item 3.b.), then collect a sample of the associated natural gas.
- e. Collect all samples from a given pressure vessel on the same date and as close as possible to the same time.

3. Pressurized Liquid Sample Collection Point Selection, Conditions, & Purging – Apply the following guidance:

- a. Collect a pressurized liquid sample at a temperature and pressure that is representative of normal operating conditions in the separator. The sample point should be located as close to the separator and as far upstream of the dump valve as possible.
- b. Document the methodology used to correct sampling results to represent highest anticipated operating conditions (i.e., highest pressure and lowest temperature), such as back blending as described in Section 4 Item 2.
- c. Purge the process connection used for sampling (for example the sight glass), prior to connecting the sampling assembly. This will flush any static fluid from the connection and ensure that the connection is free of any blockage.

4. Pressurized Liquid Sample Timing Relative to Dumping Events –The following shall apply:

- a. If the vessel features on/off level control, then take each sample immediately after and not during a dumping event (i.e., regardless of where the sample point is located).
 - b. If a dumping event occurs during the collection of a sample or if there is insufficient time between dumping events, then reject that sample and collect a new one.
 - c. If a separator has proportional (or throttling) level control, then collect the sample during a period when the flow is stable.
5. **Referenced Sampling Method** – Table 1 below summarizes the sampling method options. The most current version of each selected option shall apply.

Table 1: Summary of approved sampling methods for pressurized liquids, flowing natural gas, and atmospheric crude oil or condensate.

Sample Type	Method Type	Approved Methods
Pressurized Liquid	Manual	<ul style="list-style-type: none"> • GPA 2174
Flowing Natural Gas	Manual	<ul style="list-style-type: none"> • GPA 2166
Atmospheric Crude Oil or Condensate	Manual	<ul style="list-style-type: none"> • ASTM D4057 • ISO 3170
	Automatic	<ul style="list-style-type: none"> • API MPS Chapter 8.2 • ASTM D 4177 • ISO 3171

6. **Pressurized Liquid Sampling Rate** – The pressurized liquid sampling rate shall not exceed 60 milliliters per minute and shall be verified by timing the fill indicator on the cylinder used during collection.
7. **Measurement of the Source Temperature and Pressure** – Measure the source pressure and temperature using calibrated instruments and record the following values: the initial source pressure and temperature, the minimum pressure observed during the purging stage, and the minimum pressure observed during the sampling stage. The measurement equipment shall comply with these requirements:
- a. An intrinsically safe pressure gauge capable of measuring liquid pressures of up to 2,000 pounds per square inch absolute within ± 0.1 percent accuracy.
 - b. A temperature gauge capable of reading liquid temperature within $\pm 2^\circ\text{F}$ and within a range of 32°F to 250°F .

8. **Leak Checks** – Perform a leak check of the sample cylinder or container after each sample collection.

9. **Sample Preservation**

- a. For pressurized cylinders, wrap the external valve connections with Teflon tape and then cap them using threaded metal caps.
- b. For atmospheric sample containers, tighten the cap snugly and then tape around the edge of the cap for added sealing.

3 ANALYTICAL METHODS AND QUALITY ASSURANCE

1. **Analytical Methods for Selected Parameters** -Table 2 presents a summary of approved methods for selected parameters potentially applicable to the necessary emission rate determinations.

Table 2: Summary of approved analytical methods for potentially relevant parameters.*

Parameter	Subparameter	Approved Methods
Gas Composition	H2S (low level)	<ul style="list-style-type: none"> • EPA Method 15 and Method 16 • ASTM D-1945 • ASTM D-5504 • ASTM D-6228 • ASTM D-4810 (Stain tube) for ppm range, only • GPA 2377 (Stain tube) for ppm range, only
	O2, N2, CO2, H2S (high level), and C1 to C6+	<ul style="list-style-type: none"> • ASTM D-1945 • ASTM D-3588 • ASTM D-2597
	C1 to C10+, BTEX	<ul style="list-style-type: none"> • EPA 8021 B • ASTM D-3170¹ • GPA 2286 • EPA 8260B • EPA TO-14 • EPA TO-15
Pressurized Hydrocarbon Liquid Composition	O2, N2, CO2, H2S (high level), and C1 to C10+, BTEX	<ul style="list-style-type: none"> • GPA 2186 • GPA 2103

Table 2: Summary of approved analytical methods for potentially relevant parameters.*

Parameter	Subparameter	Approved Methods
Density or API Gravity	None	<ul style="list-style-type: none"> • ASTM D-287 • ASTM D-5002
Specific Gravity of Pre-flash liquid phase crude oil or condensate	None	<ul style="list-style-type: none"> • ASTM D-4052 • ASTM D-70 • ASTM D-5002 • ASTM D-287 (calculation method).
Flash Gas Molecular Weight	All	<ul style="list-style-type: none"> • ASTM D-3588
Percent Water Cut	All	<ul style="list-style-type: none"> • ASTM D-4007 (BS&W)
RVP	All	<ul style="list-style-type: none"> • ASTM D-6377
Flash Liberation Analyses (to be used for produced water and/or quality assurance check of Gas-to-Oil Ratio only)	O ₂ , N ₂ , CO ₂ , H ₂ S (high level), and C ₁ to C ₁₀₊ , BTEX, Gas-to-Oil Ratio	<ul style="list-style-type: none"> • Method for the Physical Determination of Volume and Composition of Flash Gas Liberation from Pressurized Liquid Hydrocarbon Samples • Colorado Department of Public Health & Environment (CDPHE) PS Memo 17-01 for conducting FLA on pressurized produced water samples, excluding Section 3.1.2.

*For evaluation of a site, not all parameters or sub-parameters are required.

2. **Flash Gas Factor and Composition Determination Methodology** – Assess the flash gas factor and composition for each applicable tank using the following approach:

Computational Flash of the Pressurized Liquid Analysis:

- a. Perform an extended analysis of hydrocarbons using GPA Standard 2103 (Method for the Analysis of Natural Gas Condensate Mixtures Containing Nitrogen and Carbon Dioxide by Gas Chromatography) or GPA Standard 2186 (Method for the Extended Analysis of Hydrocarbon Liquid Mixtures Containing Nitrogen and Carbon Dioxide by Temperature Programmed Gas Chromatography) for each collected pressurized liquid hydrocarbon sample.

- b. Perform an integrity verification of the analysis results for the pressurized liquid hydrocarbon sample by equation of state modeling of the composition. The sample integrity verification is to demonstrate that the pressurized liquid hydrocarbon sample was obtained correctly in the field and has not been compromised prior to testing. The bubble point verification achieves this by comparing the bubble point pressure at field sample collection temperature with the field measured sample collection pressure and temperature.
- c. Perform the bubble point calculation from the pressurized liquid composition for the vapor pressure at sample collection temperature, T_{sep} . If the calculated bubble point pressure is $\pm 30\%$ from the field sample pressure, then that sample shall not be used. Where the stated acceptance criterion is not achieved, resample the source, analyze, and verify the integrity of the new results.
- d. Determine the flash gas factor and flash gas composition by performing flash calculations on the extended hydrocarbon laboratory compositional analysis of the separator fluid. The flash gas factor shall be determined by simulating the flashing of the fluid from the separator conditions to the atmospheric storage tank conditions, accounting for any intermediate separation steps (e.g., low pressure separator, VRT, etc.) as further described in 2.f, below. The simulation shall model the actual field equipment conditions from the point of sample collection to the storage tank conditions with pressures and temperatures taken from field measurements.
- e. The flash calculations shall incorporate a suitable Equation of State (“EOS”) model (e.g., Peng-Robinson, BWRS, and Peng-Robinson VT.) and shall be performed using process simulation software. Additionally, the flash gas factor of the separator fluid may be determined by physical measurement in a laboratory using the Method for the Physical Determination of Volume and Composition of Flash Gas Liberation from Pressurized Liquid Hydrocarbon Samples (Flash Liberation Analyses) and compared with the flash calculations as a quality assurance check.
- f. Where intermediate separation stages may occur before the liquids are routed from the point of sample collection to storage tanks, separate flash calculations for each intermediate separation stage may be modeled with a process simulator. Wherever a VRT is used as an intermediate separation stage between the point of sample collection and the stock tank, a two-step flash calculation shall be performed: (1) involving transfer of fluids from the point of sample collection to the VRT, and (2) involving transfer of fluids from the VRT to the atmospheric oil storage tank.

4 SELECTION OF REPRESENTATIVE SAMPLES

1. **Representative Sample Selection Criteria** - A sample shall be considered sufficiently representative for use in emissions determinations, design analysis methodologies, and/or engineering evaluations for a subject facility if it satisfies all the following criteria:
 - a. Produces from the same geologic formation(s) and within a twenty-five mile radius of subject facility.
 - b. Operating conditions of sampled separator at representative facility must be within 20 psig of subject site separator operating conditions.
 - c. Operating conditions of sampled separator at representative facility must be within 30 degrees Fahrenheit of subject site separator operating conditions.
 - d. If more than one sufficiently representative sample exists for a subject facility, then document the reason for selecting a particular representative sample. Address the following factors, at a minimum, in the explanation: relative similarity of separator operating conditions, relative similarity of geological substrates, relative physical proximity of surface sites, and the apparent validity of the representative samples under consideration. Alternatively, if the resultant flash volume at the tanks from a sample XTO selects to model a facility is greater than that produced by a representative sample that meets the requirements of 1.b and 1.c above, XTO shall provide an explanation, including the flash factor for the tanks for each sample, demonstrating that the selected sample was appropriate for use.
2. **Use of a Representative Sample** - Where a representative or subject facility sample was not collected at the highest separator pressure and lowest separator temperature for the subject facility, based on normal operating conditions, perform simulated back blending of the modeled liquid sample with a gas stream having a composition appropriate to the subject facility (i.e., based on an empirical analysis of subject facility heater treater gas or sales gas) to define a representative separator inlet fluid. The purpose of the simulated back blending procedure is to ensure that the pre-flash modeled system has a system pressure and temperature consistent with the worst-case operating pressure and temperature of the separator at the subject facility.

5 REPORT REQUIREMENTS

Upon completion of all applicable sampling and analysis activities and any associated process simulations, prepare a comprehensive report stating all assumptions and providing details and results of the completed measurements, analyses, calculations. The report documents must include the following:

- a. Example Sampling Checklist (COC or Appendix 1).
- b. Sample identification.
- c. Date and time sampled.
- d. Data analyzed to determine maximum operating pressure and minimum operating temperature.
- e. Description of vessel sampled (e.g., inlet separator, name of well sampled).
- f. Facility name and location.
- g. Local ambient temperature and barometric pressure.
- h. Maximum and annual oil throughput for the vessel.
- i. Results of analysis (hydrocarbons C₁ through C₁₀₊, benzene-toluene-ethylbenzene-xylene components, CO₂, and N₂).
- j. Relative specific gravity of decanes (C₁₀₊) fraction (calculated).
- k. Average molecular weight.
- l. Average molecular weight of decanes (C₁₀₊) fraction (calculated).
- m. Reid vapor pressure of the sales oil or condensate.
- n. Flash gas factor expressed in cubic feet gas per gallon of liquid, as ideal gas (calculated or measured);
- o. API gravity of the sales oil or condensate.
- p. Bubble point temperature (°F) and pressure (psig);
- q. Conditions (temperature in °F and pressure in psig) at time of liquids and gas sample collection.
- r. Conditions (temperature in °F and pressure in psig) at time of liquids and gas sample analysis in the laboratory.
- s. Start and stop times for sampling.
- t. Quality assurance data, including data flags (if any).
- u. Identification of the methodology used to correct sampling results to represent highest anticipated operating conditions (i.e., highest pressure and lowest temperature).
- v. Field data sheets and checklists.
- w. Calibration certificates for field instruments for temperature and pressure.

6 REFERENCES CITED

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ASTM. 2020. ASTM D4177: Standard Practice for Automatic Sampling of Petroleum and Petroleum Products.

ASTM. 2020. ASTM D5504-20: Standard Test Method for Determination of Sulfur Compounds in Natural Gas and gaseous Fuels by gas Chromatography and Chemiluminescence.

ASTM. 2020. ASTM D6377-20: Standard Test Method for Determination of Vapor Pressure of Crude Oil: VPCRx (Expansion Method).

ASTM. 2020. ASTM D7169-20e1: Standard Test Method for Boiling Point Distribution of Samples with Residues Such as Crude Oils and Atmospheric and Vacuum Residues by High Temperature Gas Chromatography.

ASTM. 2019. ASTM D287-12b: Standard Test Method for API Gravity of Crude Petroleum and Petroleum Products (Hydrometer Method).

ASTM. 2019. ASTM D1945-14: Standard Test Method for Analysis of Natural Gas by Gas Chromatography.

ASTM. 2019. ASTM D4057: Standard Practice for Manual Sampling of Petroleum and Petroleum Products.

ASTM. 2019. ASTM D5002-19: Standard Test Method for Density, Relative Density, and API Gravity of Crude Oils by Digital Density Analyzer.

ASTM. 2019. ASTM D6228-19: Standard Test Method for Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Flame Photometric Detection.

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ASTM. 2010. ASTM D2597-10: Standard Test Method for Analysis of Demethanized Hydrocarbon Liquid Mixtures Containing Withdrawn by ASTM. Nitrogen and Carbon Dioxide by Gas Chromatography. [**Withdrawn 2016; no replacement.**]

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ISO. 2004. ISO 3170, Petroleum Liquids – Manual Sampling.

ISO. 1998. ISO 3171, Petroleum Liquids – Automatic Pipeline Sampling.

US EPA Method 15: Determination of Hydrogen Sulfide, Carbonyl Sulfide, and Carbon Disulfide Emissions from Stationary Sources.

US EPA Method 16: Semi-continuous Determination of Sulfur Emissions from Stationary Sources.

US EPA Method 8021B: Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors.

US EPA Method 8260B: Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS).

US EPA Method TO-14A: Determination of Volatile Organic Compounds (VOCs) in Ambient Air Using Specially Prepared Canisters with Subsequent Analysis by Gas Chromatography.

US EPA Method TO-15: Determination of Volatile Organic Compounds (VOCs) in Air Collected in Specially-Prepared Canisters and Analyzed by Gas Chromatography/Mass Spectrometry (GC/MS).

7 APPENDIX 1

Example Sampling Checklist	
*Sample Date (mm/dd/yyyy):	
*Sample Time	
*Production Company Name:	
*Production Company Address:	
*Production Company City:	
*Production Company Contact:	
*Production Company Contact Phone:	
*Facility Name:	
Facility Location:	
Facility County:	
Facility Contact Name:	
Facility Contact Phone:	
*Sampling Company Name:	
*Sampling Company Address:	
*Sampling Company City:	
*Sampling Company – Name of Tech conducting Sampling:	
*Sampling Company – Phone # of Tech conducting Sampling:	
SAMPLING EQUIPMENT INFORMATION	
*Cylinder Type (Double Valve or Piston)	
*Sample Type (crude oil, condensate, produced water, gas)	
*Cylinder ID	
*Cylinder Volume (ml	
*Displacement Liquid Type (for Double Valve)	
*Sample Volume: (mL, for Double Valve)	
*Outage Displaced: (mL, for Double Valve)	
*Purging State Minimum Pressure Observed (psig)	
SAMPLED VESSEL/SOURCE INFORMATION	
*Sampled Vessel ID: (i.e., inlet separator + well name)	
*Sample Point Location / distance to dump valve, upstream/downstream of dump valve (describe):	
* Sampled Source Description:	
*Ambient Temperature (°F):	
*Initial Separator/Source Operating Temperature (°F):	
*Final Separator/Source Operating Temperature (°F):	

*Location Where Separator/Source Operating Temperature Obtained (describe):	
*Method Used to Obtain Separator/Source Operating Temperature (describe):	
* Initial Separator/Source Operating Pressure (psig):	
*Final Separator/Source Operating Pressure (psig):	
* Sampling State Minimum Pressure Observed (psig)	
*Location Where Separator/Source Operating Pressure Obtained (describe):	
*Method Used to Obtain Separator/Source Operating Pressure (describe):	
*Liquid Surface Temperature of Downstream Storage Tank (°F)	
*Location Where Liquid Surface Temperature Obtained (describe)	
Method Used to Obtain Liquid Surface Temperature (describe) (if applicable):	
*MEASUREMENT EQUIPMENT INFORMATION	
*Pressure Measurement Device Serial Number / ID:	
*Pressure Measurement Device Current Calibration Record Attached (Y/N)	
**Does Pressure Measurement Device meet accuracy and range requirements? (Y/N)	
*Temperature Measurement Device Serial Number / ID:	
*Temperature Measurement Device Current Calibration Record Attached (Y/N)	
**Does Temperature Measurement Device meet accuracy and range requirements? (Y/N)	
Post-Sampling Checklist	
*Sample Temperature (°F):	
*Sample Pressure (psig):	
*Sample Collection Rate (mL/min):	
*Sampling Rate > 60 mL/min?	
Two Phase Sample Observed?	
Abnormal Events Encountered?	
Comments / Notes	

* Denotes mandatory information that must be included in the checklist used for sampling under this Sampling and Analysis Plan.** An intrinsically safe pressure gauge capable of measuring liquid pressures of up to 2,000 pounds per square inch absolute within ± 0.1 percent accuracy; A temperature gauge capable of reading liquid temperature within $\pm 2^{\circ}\text{F}$ and within a range of 32°F to 250°F .

APPENDIX C:

DESIGN ANALYSIS METHODOLOGY

I. SCOPE AND APPLICABILITY

1. XTO shall develop a Design Analysis Methodology for Engineering Evaluations of Subject Vapor Control Systems as outlined below, and revise it as required by this Consent Decree.

II. VAPOR FLOW RATE AND PRESSURE MODELING

2. XTO shall determine the PMIVFR, PPIVFR and Peak Modeled Pressure for each Storage Vessel System with a Subject Vapor Control System. The PPIVFR shall (i) reflect the maximum potential rate of vapors routed to the Subject Vapor Control System during Normal Operations, and (ii) be expressed in standard cubic feet per day.
3. The Design Analysis Methodology shall address the following, where applicable:
 - a. All vapor sources (*e.g.*, atmospheric Storage Vessels and transfer and loading systems) tied or to be tied into the Subject Vapor Control System;
 - b. The maximum operating pressure and minimum operating temperature from the last stage of separation prior to the Storage Vessel System;
 - c. Maximum potential Storage Vessel liquid temperature;
 - d. Vapor pressure of the final weathered product transported from the Storage Vessel(s);

- e. The recycling of liquids, if any, from the Storage Vessel(s) back to the upstream process equipment;
- f. Estimation of highest potential flow rate of flash gas to the Vapor Control System utilizing: representative or site-specific pressurized and atmospheric liquid sampling according to Appendix B; lab analyses, including representative or site-specific flash gas to oil ratio according to Appendix B; process simulation; correlations; or any combination thereof;
- g. Volume and duration of individual dump events, including the nature of the flow of liquids to and from the Separator (*i.e.*, steady flow, slug flow, intermittent flow due to discrete well cycling events), and the maximum number of dump events associated with a single well cycle with slug or intermittent flow, and the minimum time between dump events, including where applicable:
 - (1) The type of dump valve control (*e.g.*, proportional, on/off) and dump valve size and trim size;
 - (2) Size, length and fittings of the liquid transfer line between the last stage of separation and the Storage Vessel(s);
 - (3) Simultaneous dump events to the same Storage Vessel System (unless all potential simultaneous dump events have been precluded through installation of timers, automation, or other measures);

- (4) The maximum potential daily oil and water production rates and diurnal variations in these flows;
- (5) The calculation methods or simulation tools for processing the data inputs; and
- (6) The accuracy of the input data and results (*e.g.*, uncertainty of empirical correlations, representativeness of samples, process conditions).

III. VAPOR CONTROL SYSTEM CAPACITY DETERMINATION

4. The Design Analysis Methodology shall include:

- a. Vapor control equipment installed on the Subject Vapor Control System including the size, design and manufacturer specifications for minimum and maximum flow or pressure for each VRU and control device, the Maximum Design Pressure and capacity of the Vapor Control System and the set points for each Pressure Control Valve and the Set Points for each Subject Vapor Control System pressure relief device.
- b. Size and design of the piping system between the Storage Vessel(s) and the emission control device, including any associated pressure losses (*e.g.*, liquid knock-out drums, control device Flame Arrestors) and consideration of equivalent pipe length and back pressure valves or other restrictions on vapor flow;

- c. Volume and duration of individual dump events; the nature of the flow of liquids to and from the Separator (*i.e.*, steady flow, slug flow, intermittent flow (*e.g.*, due to discrete well cycling events)); the minimum time between dump events; and the maximum number of dump events associated with a single well cycle with slug or intermittent flow;
- d. Minimum available headspace in the Storage Vessel(s); and
- e. Engineering design considerations applied to account for issues associated with the Vapor Control System (*e.g.*, fouling, potential for liquids accumulation in lines, winter operations) and variability of data.

APPENDIX D:
DIRECTED INSPECTION / PREVENTATIVE MAINTENANCE PROGRAM

1. On August 30, 2024, XTO submitted a Directed Inspection/Preventative Maintenance (“DI/PM”) Plan, which EPA has approved, that includes: (a) a schedule for the performance of all requirements set forth in this Appendix D, and (b) Standard Operating Procedures (“SOPs”) for each of the inspection and maintenance programs listed in Paragraph 2, below.

2. On August 30, 2024, XTO submitted Standard Operating Procedures (“SOP”), which EPA has approved, that set forth procedures for the following aspects of the DI/PM Plan:

- a. **Weekly AVO and Equipment Inspections.** XTO shall perform an AVO Inspection at each Subject Vapor Control System on a calendar week basis. XTO shall develop an SOP, informed by the Engineering Evaluations, for AVO Inspections. XTO shall identify the variable, verifiable, and critical parameters and practices (*e.g.*, production rate, temperatures, pressures) relied upon in determining whether the Vapor Control System is adequately designed and sized for the PMIVFR, PPIVFR, and the Peak Modeled Pressure in the Engineering Evaluation, and make them available to XTO’s inspectors while on location. In each AVO Inspection, XTO shall verify that the equipment is operating consistent with all such parameters and practices. In addition, the SOP for weekly AVO inspections shall include:

- (1) Definitions for “audio,” “visual,” and “olfactory” components of AVO inspections to assist in training of the personnel who will conduct these inspections; and
- (2) Procedures for walk-around AVO inspection of all Vapor Control Systems and associated production equipment (*e.g.*, Separators) on a weekly basis (including while Storage Vessel(s) are receiving Condensate from Production Operations) to ensure that all equipment is operating properly and to check for audio, visual, or olfactory evidence of VOC emissions (*e.g.*, hissing, hydrocarbon odors, new stains). In addition, the procedures shall include, but not be limited to:
 - (i) As to the Separators: check for final stage of separation maximum operating pressure and minimum temperature, set point of any device restricting final stage Separator dump flow rate, where applicable, and ensure the valves are in the correct position.
 - (ii) As to the Vapor Control System: check to ensure that PRDs are properly sealed; thief hatches are closed, latched, and properly sealed; other valves are in the correct position (*e.g.*, blowdown valve is not open); and that Storage Vessel piping (*e.g.*, load line, blowdown line, vapor line) have no other observed or detected emissions.

- (iii) As to the VRUs and control devices: check to ensure that the pressure monitoring equipment and Pressure Control Valve (if installed) are operating such that the valve is closed whenever the Vapor Inlet Monitor indicates the pressure is inconsistent with manufacturer specifications, and that the Valve Position Monitor is recording the valve position.
- (iv) As to the combustion control devices: ensure that burner is operational and that there is no smoke observed; confirm the presence of a pilot light and that the liquid knockout is drained as necessary, inlet valves are functioning properly, and that the auto-ignitor is in good working condition. Where smoke is observed from a combustion control device, XTO shall determine whether Visible Smoke Emissions are present.
- (v) As to the Pilot Monitor, Storage Vessel Pressure Monitor, the Vapor Inlet Monitor and the Valve Position Monitor: ensure that the data is being recorded at the required interval and being transmitted to a central monitoring station (e.g., a SCADA system).

- b. **Monthly IR Camera Inspection Program.** XTO shall develop an SOP for monthly IR Camera Inspections that includes, but is not limited to, the following procedures:

- (1) XTO shall perform an IR Camera Inspection at each Subject Vapor Control System on a calendar month basis.
- (2) XTO shall record the date and time of all IR Camera Inspections and record and maintain a video of any emissions detected from the Vapor Control System during an IR Camera Inspection.
- (3) XTO shall maintain and submit the following records pertaining to each IR Camera Inspection in an electronic spreadsheet form in the Semi-Annual Report required pursuant to Paragraph 90 of the Consent Decree:
 - (i) The date, time, Well Pad, Subject Vapor Control System, number of Storage Vessels inspected, and number of combustion devices inspected;
 - (ii) The make, model, and serial number of each IR camera used in inspections. Also, the name(s) of personnel conducting the IR Camera Inspections;
 - (iii) The description of any VOC emissions detected by the IR camera that constitute Reliable Information under Paragraph 8.mm.(i) or (vi); and
 - (iv) Any combustion devices found with: a) VOC emissions observed (indicating incomplete combustion); or b) no pilot light present that constitute Reliable Information under Paragraph 8.mm.

- c. **Other Monthly Inspections.** XTO shall perform the bypass device inspection that is required by 40 C.F.R. § 60.5416a(c)(3), to the extent XTO operates any bypass devices.

- d. **Preventative Maintenance.** XTO shall develop an SOP for Preventative Maintenance on Subject Vapor Control Systems that includes, but is not limited to, maintenance, inspection, and replacement schedules for equipment subject to wear and tear. Such SOP shall include, but not be limited to, the following actions:
 - (1) Clean and check PRD and thief hatch seals and gaskets for integrity, check that the spring in the thief hatch/PRD aligns with the parameter identified in the Engineering Evaluation (through visual observation), repair or replace any Compromised Equipment, clean or replace Flame Arrestor and air-intake, clean or replace burner tray on control devices other than thermal oxidizers, check proper operation of dump valve on Separator by manually actuating the dump valve and visually observing its operation (unless actuation occurs without manual activation during the inspection), and perform any other appropriate maintenance and inspection activities. These activities shall occur no less frequently than semi-annually, except where otherwise noted

- (2) If applicable, where Separator dump valve orifices are present, check to ensure they are in good condition and replace them as necessary. This shall occur no less frequently than annually.
- (3) Clear liquids from any lines where liquids can accumulate no less frequently than quarterly, except the knock-out pot should be drained no less frequently than semi-annually. Should maintenance activities or other inspection activities, including any Root Cause Analysis or abnormal pressure fluctuations identified by the Tank Pressure Monitor or Vapor Inlet Monitor, indicate that liquids are accumulating in vapor lines and causing VOC emissions, XTO shall perform this maintenance more frequently to minimize the accumulation of liquids in vapor lines, including but not limited to the knockout pot.

- e. **Spare Parts Program**. XTO shall develop an SOP for a Spare Parts Program for the Subject Vapor Control Systems that supports normal operation, routine maintenance, and replacement requirements. The SOP shall include written procedures for the acquisition of parts on an emergency basis (*e.g.*, vendor availability on an expedited basis), and evaluate appropriate parts to be kept on hand (*e.g.*, gaskets and seals for thief hatches kept on trucks and replacement PRDs kept at a regional storage location). No later than 30 Days after the Effective Date, XTO shall ensure that a current employee has been designated with the responsibility to maintain an adequate spare parts inventory.

- f. **Recordkeeping and Reporting**. XTO shall establish and implement requirements for documentation of compliance with DI/PM practices and procedures (organized by Subject Vapor Control System as identified in Appendix A), including documentation of the date of the inspection/maintenance activity, the observation of any Reliable Information, and the performance of any Corrective Action. XTO shall report all observations of Reliable Information (and instances of corrective action in conducting inspections pursuant to the DI/PM Plan) as required by Paragraph 90 of the Consent Decree.
- g. **Reliable Information**. As to the Subject Vapor Control Systems, XTO shall develop procedures for addressing Reliable Information, including performing Root Cause Analysis when required by and in accordance with Paragraphs 53 and 54, and implementing corrective action.
- h. **Training**. XTO shall ensure that all persons (*e.g.*, employees and contractors) responsible for implementation or execution of any part of the DI/PM program, except for independent contractors solely responsible for servicing equipment (*e.g.*, combustor manufacturer personnel replacing a burner tray), have completed training on the aspects of the DI/PM program, including any SOPs, that are applicable to the person's duties. XTO shall develop a training program to ensure that refresher training is performed once per calendar year and that new personnel are sufficiently trained prior to any involvement in the DI/PM program. New personnel training will include a job shadowing program, and the initial refresher

training for new personnel shall include on-the-job review by supervising personnel or personnel familiar with the requirements of this Consent Decree and SOPs.

i. **Annual Review.** XTO shall perform the following during each Calendar year for each Subject Vapor Control System, and any other equipment subject to the DI/PM program:

(1) A DI/PM program-trained employee or contractor of XTO, whose primary responsibilities do not include performing duties in the DI/PM program on a routine basis for the particular Subject Vapor Control System under evaluation, shall undertake the following for each Subject Vapor Control System, and any other equipment subject to the DI/PM, in consultation with persons performing DI/PM program duties for that particular Subject Vapor Control System:

(i) Verify that maintenance and inspection schedules and the replacement program have been followed at the appropriate frequency;

(ii) Review maintenance and corrective action work records required to be maintained by this Consent Decree and records necessary to implement the DI/PM program for the Vapor Control System to confirm proper recordkeeping, timely response to all issues (*e.g.*, emissions or other operational issues), and determine if there are recurrent or

systemic issues associated with a particular Vapor Control System; and

- (iii) Recommend any appropriate updates to the DI/PM program, including SOPs.
- (2) Upon completion of review of all Subject Vapor Control Systems, XTO shall evaluate whether there are recurrent or systemic issues across XTO's Subject Vapor Control Systems.
- (3) If XTO determines that actions need to be taken to address operations or maintenance activities at one or more Vapor Control Systems based on XTO's review described in this Paragraph 2.i, such as making appropriate updates to the DI/PM program, including SOPs, XTO shall take such actions as soon as practicable, but no later than 30 Days after completion of the Annual Review of all Subject Vapor Control Systems.
- (4) XTO shall complete the review required by this Paragraph 2.i for no fewer than half of its Subject Vapor Control Systems during the first semi-annual period of each Calendar year (*e.g.*, XTO shall review its 2024 records for no fewer than half of its Subject Vapor Control Systems between January 1 and June 30 of 2025).
- (5) With each Semi-Annual Report, XTO shall submit documentation of the following information: (a) the date that the annual review of the Subject Vapor Control System was completed; (b) a discussion of whether XTO identified any systemic issues; and (c) the nature

and timing of all modifications, corrective actions, or other actions planned or undertaken as a result of this review.

APPENDIX E:
ENVIRONMENTAL MITIGATION PROJECT

XTO shall comply with the requirements of this Appendix E and with Section V.J (Environmental Mitigation Project) of the Consent Decree to implement and secure the environmental benefits of the Orphan Well Closure Project (the “Project”) described in this Appendix.

I. General

1. At least 30 days prior to the proposed date for project initiation, XTO shall submit a proposed plan (“Project Plan”) to EPA and PADEP. The Project Plan is subject to review and approval by EPA.

2. XTO may submit more than one Project Plan to allow completion of the requirements of this Project in phases.

3. Any proposed Project Plan shall include:

- a. A plan for implementation of the Project;
- b. A summary-level budget for the Project;
- c. A detailed description of how XTO identified wells proposed for plugging;
- d. A schedule for implementation of the Project;
- e. If XTO chooses to engage a third-party to accomplish this Project, the terms of that arrangement shall be disclosed; and
- f. A proposed method to verify the anticipated environmental benefits of the Project, which may include methods described in 40 C.F.R. 98 Subpart W.

4. Upon approval by EPA of the Project Plan, XTO shall complete the approved Project in accordance with the approved Project Plan.

5. Nothing in this Appendix shall relieve XTO of its obligation to comply with all applicable federal, state, and local laws and regulations, including, but not limited to, any obligations to obtain any permits pursuant to the Clean Air Act.

II. Orphan Well Closure Project

6. General Requirements. XTO shall plug and restore orphan wells in Pennsylvania in accordance with the applicable statutory and regulatory requirements in 25 Pa. Code §§ 78.92

– 78.98. For the purposes of this Project, plugging and restoration may include pre-plugging due diligence; sampling, obtaining necessary permits, road bonds, approvals, or permissions required to complete the work; clearing and construction necessary to access the well(s); downhole work necessary to plug the well(s); post plugging regulatory reporting; and basic site restoration to the approximate contour present prior to plugging. Restoration excludes abatement or remediation of any environmental contamination not caused or contributed to by XTO or its agents.

7. Plugging Criteria. In selecting wells to be plugged, XTO shall prioritize the reduction of VOC and methane emissions and other related environmental benefits, including working with PADEP to identify priority orphan or abandoned wells in or around Butler County. XTO may also consider feasibility, as well as logistical and technical considerations.

8. Minimum spend. In carrying out this Project, XTO shall spend no less than \$1,400,000. None of the \$1,400,000 may be used to abate or remediate any environmental contamination caused or contributed to by XTO or its agents. As part of completing the Project, XTO may need to spend additional funds to complete a well plugging in process when the minimum spend has been reached. In this case, the well plugging will be completed and the additional costs above the minimum spend will be paid by XTO.

9. Environmental Benefits. The Project is anticipated to reduce VOC and methane emissions, as well as provide significant environmental benefit in the Commonwealth of Pennsylvania. As part of the Project, XTO shall estimate and report methane and VOC emissions reductions based on the 20-year crediting period of the American Carbon Registry (ACR) Methodology for the Quantification, Monitoring, Reporting and Verification of Greenhouse Gas Emissions Reductions and Removals from Plugging Orphan Oil and Gas Wells in the U.S. and Canada (Ver. 1.0 May, 2023).

10. Environmental Good Samaritan Act. Nothing in the Appendix or Consent Decree shall prohibit XTO, or any third-party that XTO partners with to accomplish this Project, from being afforded the protections of the Environmental Good Samaritan Act (27 Pa. C.S.A. §§ 8101-14), if otherwise applicable, for the work completed under this Project.

11. Deadline for Completion of Project. XTO shall complete this Project no later than December 31, 2027, unless otherwise agreed upon in writing among EPA, PADEP, and XTO.

12. Reporting Requirements. XTO's reporting requirements for this Project under Paragraph 90.q of the Consent Decree shall be satisfied by:

- a. Identification of the orphan oil and gas wells surveyed, assessed, from which emissions were quantified, plugged or restored under this Project during the period covered by the Semi-Annual Report;
- b. Photographs or other records establishing the orphan oil and gas wells involved during the period covered by the Semi-Annual Report;
- c. Any pre- and post-project emissions testing verifying the emissions reductions from any orphan oil and gas wells under this Project during the period covered by the Semi-Annual Report;
- d. Upon completion, a summary of expenditures on this Project through the date of the report; and
- e. Upon completion, a summary of emissions benefits from the Project based on the American Carbon Registry (ACR) Methodology for the Quantification, Monitoring, Reporting and Verification of Greenhouse Gas Emissions Reductions and Removals from Plugging Orphan Oil and Gas Wells in the U.S. and Canada (Ver. 1.0 May, 2023).

APPENDIX F:
VERIFIER CERTIFICATION

[VERIFIER] makes the following certifications and representations in connection with its proposed appointment as the Independent Compliance Auditor to oversee compliance aspects of the consent decree entered in *United States and PADEP v. XTO Energy Inc.*:

“VERIFIER” means [VERIFIER], and the employees or contractors who would provide the oversight described above.

“The XTO” means XTO Energy Inc.

1. Financial interests.
 - a. [VERIFIER] has no financial interest in the XTO or any of its subsidiaries or affiliates.
 - b. If, between the date of this certification and when [VERIFIER]’s term as the Independent Compliance Auditor expires, [VERIFIER]’s financial interests with respect to the XTO change, [VERIFIER] agrees to notify the EPA in writing as soon as reasonably possible after becoming aware of the change. [VERIFIER] is aware that acquiring a financial interest in the XTO could disqualify it from continuing the oversight work described above.
2. Employment, professional relationships, and affiliations.
 - a. [VERIFIER] is not a party to any employment, consulting, agency, attorney-client, auditing or other professional relationship or affiliation with the XTO, or any of its subsidiaries or affiliates.
 - b. [VERIFIER] has not been a party to such a professional relationship or affiliation with the XTO within the past 3 years.

- c. [VERIFIER] agrees not to engage in such a professional relationship or affiliation with XTO during its term as the Independent Compliance Auditor or for a period of at least one year after the termination of its term as the Independent Compliance Auditor.
- d. After the date of this certification, to the extent that the services of additional personnel will be utilized in the proper discharge of the Independent Compliance Auditor's duties, prior to engaging any such personnel, [VERIFIER] agrees to review the backgrounds of all such personnel to determine whether said personnel or any other entity with which said personnel is affiliated, is or has been a party to any employment, consulting, agency, attorney-client, auditing or other professional relationship or affiliation with the XTO or any of its subsidiaries or affiliates. To the extent any such relationship or affiliation exists, [VERIFIER] will notify the EPA to seek a determination whether it is appropriate to engage said personnel to assist in the monitorship of the XTO.

Date: _____

Name:
On behalf of [VERIFIER]

**APPENDIX G:
CONSENT DECREE DELIVERABLES TEMPLATE**

Field	Instructions
Deliverable/Obligation	<p>This should contain a description of the specific deliverable or obligation (a single line of succinct text for plans, reports, data, penalty payments and any other item due under the consent decree). In the case of repeating or ongoing deliverables/obligations (e.g., annually recurring deliverables), enter each repeating or ongoing deliverable/obligation as a distinct line item. For consent decrees that cover multiple facilities, a separate deliverable/obligation line should be included for each item (e.g., a plan, a report) that must be submitted individually for each facility and the deliverable/obligation name should be provided in the following format: "Facility Name – Deliverable/Obligation Name." If a single item (e.g., a plan, a report) is required for all facilities, a single, aggregated deliverable/obligation line should be included for this one item and a note should be included in the "Comments" field indicating that this item addresses all of the facilities.</p>
Due Date	<p>Enter the due date for the deliverable in MM/DD/YYYY format.</p>
Comments	<p>Enter any comments or details specific to the deliverable/obligation. If the exact deliverable/obligation due date is not known (e.g., it is contingent upon the completion of another deliverable), enter a description for the deliverable/obligation due date.</p>
Approval Required?	<p>Enter "Yes" or "No" to indicate whether the deliverable/obligation requires written approval by EPA and/or PADEP.</p>
Facility Name	<p>Enter the facility name associated with the deliverable/obligation. The facility name will be consistent across all deliverables/obligations for single-facility consent decrees. For multi-facility consent decrees, each deliverable/obligation for each facility must be entered as a separate line and the facility name associated with each deliverable/obligation will be entered accordingly. If the deliverable line pertains to all facilities, leave the Facility Name field blank.</p>

Deliverable/Obligation	Due Date	Comments	Approval Required?	Facility Name
[Type Input]	[MM/DD/YYYY]	[Type Input]	[Select "Yes/No" Input]	[Type Input]