

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF NEW MEXICO

UNITED STATES OF AMERICA
and
NEW MEXICO ENVIRONMENT DEPARTMENT,

Plaintiffs,

v.

Civil No.

APACHE CORPORATION,

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 New Mexico Environment Department (“NMED”), 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”) and the New Mexico Air Quality Control Act, NMSA 1978, § 74-2-1 *et seq.* (“AQCA”).

WHEREAS, the Complaint alleges that Defendant, Apache Corporation (“Apache”), violated requirements of (a) the Act, (b) the Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution 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”), (c) 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”), and, with regard to the New Mexico facilities identified in the Complaint, (d) the New Mexico Air Quality Control Act, NMSA 1978, §§ 74-2-1 *et seq.* (“AQCA”), and implementing regulations issued thereunder by NMED and included in an EPA-approved State Implementation Plan (“SIP”). The Complaint further alleges, as to Apache’s Texas facilities named in the Complaint, that Apache violated requirements of the Texas Clean Air Act, Tex. Health and Safety Code Ann. § 382.001 *et seq.* (“TCAA”) and implementing regulations issued thereunder by the Texas Commission on Environmental Quality and included in an EPA-approved SIP.

WHEREAS, these violations are alleged to have occurred at numerous Storage Vessels that are part of Apache’s oil and natural gas production system located in Lea and Eddy Counties in New Mexico and Reeves County in Texas. All of Apache’s oil and natural gas production facilities referenced in the Complaint are located in the Permian Basin, one of the nation’s largest

oil and gas producing regions.

WHEREAS, Apache's oil and natural gas production system separates produced oil and produced water from natural gas at facilities defined herein as Battery Pads. After separation, the produced oil and produced water, also known as "pressurized liquids," are transferred 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" or "VOCs"), are released in a gaseous state.

WHEREAS, VOCs are a precursor to ground-level ozone, commonly known as smog. Ground-level ozone is one of six criteria pollutants for which EPA has promulgated a National Ambient Air Quality Standard ("NAAQS") due to its adverse effects on human health and the environment.

WHEREAS, the ground-level ozone formation is caused, in part, by chemical reactions between VOCs and oxides of nitrogen that occur in the presence of heat and sunlight.

WHEREAS, Apache 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 or through a Vapor Recovery Unit.

WHEREAS, NSPS OOOO, NSPS OOOOa, and NMED's General Construction Permit for Oil and Gas Facilities require owners and operators of certain 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 all emissions from Storage Vessels back to the process stream or to a control device.

WHEREAS, the Texas Oil and Gas Standard Permit (Non-Rule) requires owners and operators of certain facilities that handle gases and liquids associated with the production, conditioning, and processing of crude oil, natural gas, condensate and produced water to capture and direct to an appropriate control device all continuous and periodic emissions on certain process vessels, equipment, and tanks.

WHEREAS, prior to the lodging of this Consent Decree, Apache made improvements to the New Mexico and Texas facilities that are identified as the Advanced Action Battery Pads listed in Appendix B. Apache conducted field inspections, optical gas imaging inspections, performance analyses, repairs, and equipment upgrades at these facilities.

WHEREAS, the Complaint alleges that on April 16-18, 2019, EPA and NMED inspected 12 of Apache's New Mexico oil and natural gas production Battery Pads. At 11 of these Battery Pads, the inspectors observed that Storage Vessels were emitting significant amounts of VOC emissions to the atmosphere.

WHEREAS, the Complaint alleges that, during flyover inspections conducted by EPA on September 11, 2019, September 11-12, 2020, and July 26-27 and August 10-14, 2022, EPA observed significant VOC emissions to the atmosphere at 13 of Apache's Texas and New Mexico Battery Pads and compressor stations.

WHEREAS, the Complaint further alleges that many of the Storage Vessels at Apache's Battery 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, this Consent Decree categorizes Apache's Battery Pads into four groups and the Battery Pads with higher relative oil production levels as of the Date of Lodging were

included in Groups 1 and 2.

WHEREAS, Apache does not admit any liability to the United States or NMED arising out of the occurrences alleged in the Complaint.

WHEREAS, the United States, NMED and Apache (the “Parties”) stipulate, 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 over the Parties, pursuant to CAA Section 113(b), 42 U.S.C. § 7413(b). Venue lies in this 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 some of the violations alleged in the Complaint are alleged to have occurred in, and Apache conducts business in, this judicial district. For purposes of this Consent Decree, or any action to enforce this Consent Decree, Apache consents to the following: (1) this Court’s jurisdiction over this Consent Decree and any such enforcement action, (2) this Court’s jurisdiction over Defendant, and (3) venue in this judicial district.

2. For purposes of this Consent Decree, Apache 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, NMED, and upon Apache and any successors, assigns, or other entities or persons otherwise bound by law, consistent with the provisions of Section XV (Sales or Transfers of Operations). Unless otherwise noted, the obligations of this Consent Decree shall become enforceable on the Effective Date as provided in Section XVI (Effective Date).

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

5. In any action to enforce this Consent Decree, Apache 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

6. Terms used in this Consent Decree that are defined in the Act, 42 U.S.C. § 7401 *et seq.*, the AQCA, the TCAA, or in the regulations promulgated pursuant to those statutes, shall have the meanings assigned to them in the Act, the AQCA, the TCAA, or such regulations, unless otherwise provided in this Consent Decree. Whenever the capitalized terms set forth below are used in this Consent Decree, the following definitions shall apply.

- a. “Action Plan” shall have the meaning described in paragraph 89.
- b. “AVO” shall mean audio, visual, and olfactory.
- c. “Battery Pad” shall mean a property with one or more Storage Vessels capable of receiving Produced Oil from Production Operations. For purposes of this Consent Decree, the term “Battery Pad” includes compressor stations with one or more storage vessels that receive Produced Oil.
- d. “Business Day” shall mean Monday through Friday, with the exception of federal holidays.
- e. “Calendar Day” shall mean any of the seven days of the week. In computing any period of time under this Consent Decree expressed in Days or Calendar Days, except for actions required to be completed in five days or less, where the last day would fall on a Saturday, Sunday or federal holiday, the period shall run until the end of the next Business Day.
- f. “Certification of Completion Report” shall have the meaning described in Paragraph 34.
- g. “Complaint” shall mean the Complaint filed by the United States and the New Mexico Environment Department in this action.
- h. “Completion Report” shall have the meaning described in Paragraph 91.
- i. “Compliance Verification Program” shall have the definition provided in Paragraph 71.
- j. “Compromised Equipment” shall mean equipment associated with a Vapor Control System that shows signs of wear beyond normal wear and tear (and cannot be addressed by routine maintenance such as tightening, cleaning, or

lubricating the equipment) such that the equipment creates a likelihood of VOC emissions in excess of the quantity, rate, opacity or concentration specified by an applicable air quality regulation, permit condition, PBR registration representation or NOI application. Examples include, but are not limited to, indications of inefficient connection of the thief hatch to the Storage Vessel such as cracks or grooves in gaskets, abnormally or heavily corroded equipment, and beveling of surfaces that interferes with effective sealing.

- k. “Consent Decree” or “Decree” shall mean this Consent Decree and all appendices attached hereto.
- l. “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 District of New Mexico.
- m. “Days” or “days” shall mean Calendar Days unless expressly stated to be a Business Day.
- n. “Defendant” or “Apache” shall mean Apache Corporation.
- o. “Design Analysis Methodology” shall mean the approved methodology prepared pursuant to Paragraph 24 of this Consent Decree that Apache shall use in performing the Engineering Evaluations required under Paragraph 25 of this Consent Decree.
- p. “Dispute Resolution” refers to the provisions of Section X of this Consent Decree.
- q. “DOJ” means the United States Department of Justice and any of its successor departments or agencies.
- r. “Effective Date” shall have the definition provided in Section XVI (Effective

Date).

- s. “Engineering Evaluation” shall mean the evaluations performed by Apache as required under Paragraph 25 and in accordance with the Design Analysis Methodology to determine whether the Vapor Control System is adequately designed and sized for PMIVFR, PPIVFR, and Peak Modeled Pressure.
- t. “Environmental Mitigation Project” or “Project” shall mean the requirements specified in Subsection V.N. and Appendix G of this Consent Decree to remedy, reduce, or offset past alleged excess emissions resulting from Apache’s alleged violations of the Clean Air Act, the AQCA, and the TCAA in this matter.
- u. “EPA” shall mean the United States Environmental Protection Agency and any of its successor departments or agencies.
- v. “Facility” or “Subject Facility” shall mean a Battery Pad identified in Appendix A and any Battery Pad where a Storage Vessel System that is identified pursuant to Paragraph 60 is located.
- w. “Field Survey” shall mean the survey performed by Apache as described in Paragraphs 12 through 18.
- x. “Force Majeure” shall have the definition provided in Paragraph 115.
- y. “Heater-Treater” shall mean a unit that heats the reservoir fluid to break oil/water emulsions and to reduce the oil viscosity. The water is then typically removed by using gravity to allow the water to separate from the oil.
- z. “IR Camera Inspection” shall mean an inspection of a 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.

- aa. “Leak Point” shall mean the pressure at which a PRD first opens to release vapors.
- bb. “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.
- cc. “Maximum Design Pressure” shall mean the pressure of each Subject Vapor Control System determined according to an Engineering Evaluation as the highest pressure of a Vapor Control System before over-pressurization occurs.
- dd. “New Mexico Permit Programs” shall mean the air quality registration and permitting requirements under 20.2.70, 20.2.72, 20.2.73, and 20.2.74 NMAC.
- ee. “New Mexico Subject Facilities” shall mean Apache’s Facilities located in New Mexico.
- ff. “Newly Identified Storage Vessel System” shall have the definition provided in Paragraph 60.
- gg. “NMAC” shall mean the New Mexico Administrative Code.
- hh. “NMED” shall mean the New Mexico Environment Department and any of its successor departments or agencies.
- ii. “NOI” shall mean Notice of Intent as set forth in 20.2.73 NMAC.
- jj. “Normal Operations” shall mean all periods of Battery Pad operation, excluding

Malfunctions, periods of well maintenance, or periods of Shut-In. Normal Operations include, but are not limited to, receipt or transfer of liquids from a Separator or Heater-Treater.

- kk. “NSPS OOOO” shall mean the Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution 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.
- ll. “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.
- mm. “Operator” shall mean the operator of record under 19.15.2.7 NMAC, in New Mexico, or under 16 TAC § 5.102, in Texas.
- nn. “Paragraph” shall mean a portion of this Consent Decree identified by an Arabic numeral.
- oo. “Parties” shall mean the United States, NMED, and Apache.
- pp. “PBR” shall mean Permit by Rule as set forth in 30 TAC, Ch. 106.
- qq. “Peak Modeled Pressure” shall mean the highest pressure predicted by the model to be experienced by the Vapor Control System during Normal Operations, as determined according to an Engineering Evaluation.
- rr. “Pilot Monitor” shall have the meaning described in Paragraph 47.
- ss. “Plaintiffs” shall mean the United States and NMED.
- tt. “Plugged and Abandoned” shall have the meaning described in Paragraph 57.

- uu. “Potential Minimum Instantaneous Vapor Flow Rate” or “PMIVFR” shall mean the minimum instantaneous rate of vapors routed to a Vapor Control System during Normal Operations, including flashing, working, breathing, and standing losses, as determined according to an Engineering Evaluation.
- vv. “Potential Peak Instantaneous Vapor Flow Rate” or “PPIVFR” shall mean the maximum instantaneous rate of vapors routed to a Vapor Control System during Normal Operations, including flashing, working, breathing, and standing losses, as determined according to an Engineering Evaluation.
- ww. “Pressure Control Valve” shall mean a valve that automatically controls the flow of vapor based on monitored pressures.
- xx. “Pressure Relief Device” or “PRD” shall mean thief hatches and PRVs.
- yy. “Pressurized Liquids” shall mean pressurized Produced Oil 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.
- zz. “Produced Oil” shall mean oil that is separated from extracted reservoir fluids during Production Operations.
- aaa. “Produced Water” shall mean water that is separated from extracted reservoir fluids during Production Operations.
- bbb. “Production Operations” shall mean the extraction, separation using Separators and/or Heater-Treaters, and temporary storage of reservoir fluids from an oil or natural gas well at a Battery Pad.
- ccc. “Project” or “Environmental Mitigation Project” shall mean the requirements

specified in Subsection V.N. and Appendix G of this Consent Decree to remedy, reduce, or offset alleged past excess emissions resulting from Apache's alleged violations of the Clean Air Act, the AQCA, and the TCAA in this matter.

- ddd. "PRV" shall mean pressure relief valve.
- eee. "PSI" or "psi" shall mean pounds per square inch.
- fff. "QA/QC" shall mean quality assurance and quality control.
- ggg. "Reliable Information" shall mean any of the following information, observations or detections of emissions by employees or contractors of EPA, NMED, or the Texas Commission on Environmental Quality, Apache employees, trained Apache contractors, or the Verifier, from a Subject Vapor Control System: (i) any observance or detection of VOC emissions from a bypass device open to the atmosphere, an open thief hatch, an open PRV, or an open-ended line, while using an optical gas imaging camera, AVO techniques, or EPA Method 21 monitoring techniques; (ii) Visible Smoke Emissions from a combustion control device; (iii) any VOC emissions from an unlit flare; (iv) any instance in which a Pilot Monitor detects the absence of a pilot flame, unless the combustion control device is equipped with an auto-igniter and no waste gas is flowing to the device as described in Paragraph 48; (v) significant staining emanating from a PRD, where such staining was not identified during a Field Survey or previously identified as Reliable Information; (vi) recorded VRU Availability that is less than represented VRU Availability on a rolling 12-month basis, as described in Paragraph 46; (vii) deviations detected by a Storage Vessel Pressure Monitor under circumstances described in Paragraph 39; (viii) a bypass to atmosphere pursuant to Paragraph

45; or (ix) a measurement indicating that the Valve Position Monitor is open when the pressure at the VRU or control device is inconsistent with manufacturer specifications, as described in Paragraph 43. The following shall not be considered Reliable Information:

- (1) Any observation or detection of VOC emissions made during observations conducted by Apache or its contractors from aircraft, drones, satellites, continuous monitoring systems, or other sensing technology not otherwise required under Section V of the Consent Decree or by law;
- (2) Observations or detections of VOC emissions from a lit flare, so long as the flare 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;
- (3) Observations while PRVs and open-ended lines are open for active maintenance, during well unloading, during tank truck load-out conducted without emission controls, during gauging activities, and during onsite active well maintenance (e.g., swabbing, liquids unloading) at an associated production well; and
- (4) Observations while conducting the pressure test required by Paragraph 38.

hhh. "Root Cause Analysis" shall mean an assessment conducted through the 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.

- iii. “Routed to Process” or “Route to Process” shall have the meaning set forth in 40 C.F.R. § 60.5430 or § 60.5430a (as applicable).
- jjj. “SCADA” refers to Supervisory Control and Data Acquisition.
- kkk. “Section” shall mean a portion of this Consent Decree identified by a Roman numeral.
- lll. “Separator” shall mean a pressurized vessel designed to separate reservoir fluids into their constituent components of oil, natural gas, and water.
- mmm. “Set Point” shall mean the lowest pressure at which a PRD is designed to open completely.
- nnn. “Shut-In” shall mean the flow of all liquids and vapor into the Storage Vessel System or piece of equipment has ceased and cannot be resumed without Apache personnel opening valves, activating equipment, or supplying a power source.
- ooo. “Storage Vessel” shall have the meaning set forth in 40 C.F.R. § 60.5430a.
- ppp. “Storage Vessel Pressure Monitor” shall have the meaning described in Paragraph 37.
- qqq. “Storage Vessel System” shall mean one or more Storage Vessels, with at least one Produced Oil Storage Vessel, that share a common Vapor Control System.
- rrr. “Subject Facility” or “Facility” shall mean a Battery Pad identified in Appendix A and any Battery Pad where a Newly Identified Storage Vessel System is located.
- sss. “Subject Vapor Control Systems” shall mean the Vapor Control Systems identified pursuant to Paragraph 23 of this Consent Decree and any Newly

Identified Storage Vessel Systems;

- ttt. “Subsection” shall mean a portion of this Consent Decree within a Section that is identified with a capitalized alphabetical letter.
- uuu. “TAC shall mean “Texas Administrative Code.”
- vvv. “TCEQ” shall mean the Texas Commission on Environmental Quality.
- www. “Texas Construction Permit Facility” means a Facility subject to the requirements of 30 TAC, Ch. 116.
- xxx. “Texas Permit Programs” shall mean the air quality registration and permitting requirements under 30 TAC, Ch. 106, 30 TAC, Ch. 116, and 30 TAC, Ch. 122, and the non-rule Air Quality Standard Permit for Oil and Gas Handling and Production Facilities authorized by Texas Health and Safety Code § 382.05195.
- yyy. “Texas Subject Facilities” shall mean Apache’s Facilities located in Texas.
- zzz. “TPY” or “tpy” shall mean tons per year.
- aaaa. “Trigger Point” shall mean a pressure, selected in accordance with Paragraph 38, that is less than the lowest Leak Point of any of the Subject Vapor Control System’s PRDs and at least 12.5 percent below the lowest Set Point of any of the Subject Vapor Control System’s PRDs.
- bbbb. “United States” shall mean the United States of America, acting on behalf of EPA.
- cccc. “Valve Position Monitor” shall mean a device that records data pertaining to whether the associated Pressure Control Valve is open or closed.
- dddd. “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, vapor control piping, fittings, connectors, liquid knockout vessels, openings on Storage Vessels (such as thief hatches and any other PRD), Vapor Recovery Units and emission control devices.

- eeee. “Vapor Recovery Unit” or “VRU” shall mean a device that captures and compresses vapors from a source and routes such vapors for recovery to a sales line (*i.e.*, “Routes to Process”).
- ffff. “Verifier” shall have the definition provided in Paragraph 71.
- gggg. “Visible Smoke Emissions” shall mean smoke observed pursuant to EPA Method 22 during Normal Operations or Malfunctions for more than one minute during any 15-minute period.
- hhhh. “VOC” shall mean volatile organic compounds as defined in 40 C.F.R. § 60.2.
- iiii. "VRU Availability" shall mean all times that a VRU at a Subject Vapor Control System is connected, functioning, available for use, and either operating or available to operate, regardless of whether vapors are being recovered, excluding any period of VRU Unavailability.
- jjjj. “VRU Exception” shall mean the provisions under 40 C.F.R. § 60.5365(e) or § 60.5365a(e) (as applicable) that provide for the exclusion of vapor from a Storage Vessel that is recovered and routed to a process through a VRU from the potential for VOC emissions determination for purposes of determining storage vessel affected facility status.
- kkkk. "VRU Unavailability" shall mean any time when the VRU is shut down for

planned or unplanned maintenance, shut down due to a Malfunction or any other equipment failure, or fails to recover vapors when the Storage Vessel Pressure Monitor indicates that the pressures are between the VRU set points.

IV. CIVIL PENALTY

7. Within 30 Days after the Effective Date, Apache 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.

8. Apache shall pay \$2,000,000 of the civil penalty due by FedWire Electronic Funds Transfer (“EFT”) to the DOJ account, in accordance with instructions provided to Apache by the Financial Litigation Unit (“FLU”) of the United States Attorney’s Office for the District of New Mexico after the Effective Date. The payment instructions provided by the FLU will include a Consolidated Debt Collection System (“CDCS”) number, which Apache shall use to identify all payments required to be made in accordance with this Consent Decree. The FLU will provide the payment instructions to: Jessica Jackson; Vice President—Environment, Health & Safety; 2000 Post Oak Blvd., Ste. 100, Houston, TX 77056; (713) 296-6000; jessica.jackson@apachecorp.com; on behalf of Apache. Apache 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).

9. Apache shall pay \$2,000,000 of the civil penalty due to the State of New Mexico General Fund, NMED-Air Quality Bureau, 525 Camino de los Marquez, Suite 1, Santa Fe, New Mexico, 87505 by wire transfer (ACH deposit) or by certified or corporate check. On the date that

delivery of funds is initiated, Apache shall notify the Air Quality Bureau by email at ENV-AQB.Settlement.Notifications@state.nm.us.

- a. Wire transfers must be made to Wells Fargo Bank as follows:

Wells Fargo Bank, N.A.
100 W. Washington Street, Floor 20
Phoenix, AZ 85003
Routing Transit Number: 121000248
Deposit Account Number: 4123107799
Descriptor: NMED-AQB-C&E

- b. Certified or corporate checks must be sent to the following address:

New Mexico Environment Department
Air Quality Bureau
c/o Compliance and Enforcement Manager
525 Camino de los Marquez, Suite 1
Santa Fe, New Mexico 87505

10. At the time of payment, Apache 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 DOJ via email or regular mail in accordance with Section XIV; (iii) to EPA in accordance with Section XIV; and (iv) to NMED 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 NMED v. Apache Corporation and shall reference the civil action number, CDCS Number and DOJ case number 90-5-2-1-12523.

11. Apache 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

12. Battery Pad Field Survey. Apache shall conduct a Field Survey at all Battery Pads listed in Appendix A. For purposes of the deadlines for completing Field Surveys and other actions required by this Section V, the Battery Pads in Appendix A are subdivided into four groups. Group 1 is comprised of the 101 Battery Pads listed in Appendices D and E. Group 2 is comprised of 111 Battery Pads. Groups 3 and 4 are collectively comprised of 210 Battery Pads. Apache may redesignate as many as 21 of the Battery Pads from Group 3 to Group 4 by written notice to EPA and NMED when it submits the list of Subject Vapor Control Systems pursuant to Paragraph 23, so long as it simultaneously redesignates the same number of Battery Pads from Group 4 to Group 3. Apache shall complete Field Surveys for the Battery Pads no later than the dates below:

Battery Pads as designated in Appendix A	Days after the Effective Date
Group 1	120
Group 2	210
Group 3	330
Group 4	420

13. During the Field Survey, Apache shall, unless such information is not reasonably available in the field:

- a. Document information pertaining to the equipment and operations at the Battery Pad, including:

- i. an equipment inventory of all emissions units that constitute the stationary source (as defined under the New Mexico Permit Programs or the Texas Permit Programs, as applicable, and 40 C.F.R. § 60.2), including Storage Vessels and the Vapor Control System (documenting piping configurations, including the elevation changes from the top of the piping to a control device and the low spots where liquids can accumulate);
 - ii. a list of all PRVs, thief hatches, VRUs, control devices, and flow-regulating valves associated with a VRU or control device, including the manufacturer and model numbers if available or other identifying information; and
 - iii. a record of whether all components of the Vapor Control System are operating or capable of operating;
- b. Document that all signage at each Battery Pad (1) is of durable construction with lettering legible and large enough to be read under normal conditions at a distance of 50 feet; and (2) meets applicable requirements for the content of information set forth in 19.15.16.8(F) NMAC or 16 TAC 3.3(2), as applicable;
- c. Document information needed for emissions determinations pursuant to Paragraphs 20 through 22, including equipment and process data necessary to calculate emissions for each emissions unit;
- d. Document information needed for the Engineering Evaluation pursuant to Paragraph 25, including:

- i. the pressure set points of PRVs and thief hatches; the set point of any Pressure Control Valves at the inlet of any VRU or control device, unless the VRU or control device is equipped with a pressure gauge that records the set point of the Pressure Control Valve; and the manufacturer designed maximum and minimum inlet pressure or vapor volumetric flow rate and temperature range for each control device and VRU associated with each Vapor Control System or, if such information is not available, Apache shall determine the minimum and maximum flow rates or pressures necessary to achieve the expected destruction efficiency of the control device as part of the Engineering Evaluation conducted pursuant to Paragraph 25;
- e. Document information appropriate to assess the need for corrective action, including:
 - i. the condition of all PRVs, thief hatches (including thief hatch mountings and thief hatch gaskets), VRUs, control devices, flow-regulating valves associated with a VRU or control device, and monitoring systems associated with the Vapor Control System;
 - ii. whether every thief hatch is either welded to the Storage Vessel or bolt-mounted with a suitable gasket to the Storage Vessel, in accordance with good engineering practices and applicable manufacturer specifications;
 - iii. whether every open-ended line in the Vapor Control System is capped;

- iv. the condition of the PRVs, thief hatches (including, mountings and gaskets), VRUs, control devices, monitoring systems and equipment upstream of the Vapor Control System that is associated with the Vapor Control System to identify Compromised Equipment; evidence of significant staining emanating from PRVs; or any observation or detection of VOC emissions from a bypass device open to the atmosphere, an open thief hatch, an open PRV, or an open-ended line;
- v. whether all bypass devices comply with the requirements in 40 C.F.R. §60.5411(c)(3) and §60.5411a(c)(3), if applicable, and are consistent with any applicable permit representations; and
- vi. equipment needed to be repaired, replaced, or upgraded to reduce the likelihood of VOC emissions in excess of the quantity, rate, opacity, or concentration specified by an applicable air quality regulation, permit condition, PBR registration representation, or NOI application.

14. Apache shall ensure that, at the time of the Field Survey, every thief hatch is either welded to or mounted on the Storage Vessel with a suitable gasket, in accordance with good engineering practices and, if applicable, manufacturer specifications.

15. Apache shall confirm, at the time of the Field Survey, using field testing or Supervisory Control and Data Acquisition (“SCADA”) data review (where such data includes inlet pressure and valve position or flow) the set point of any Pressure Control Valves at the inlet

of any control device or VRU, unless the Storage Vessel System is equipped with a pressure gauge that records the set point of the Pressure Control Valve.

16. If, while conducting a Field Survey, Apache observes Compromised Equipment or evidence of significant staining emanating from PRVs, Apache shall as quickly as practicable take appropriate corrective action. Where Compromised Equipment is the cause of observed or detected emissions in excess of the quantity, rate, opacity or concentration specified by an applicable air quality regulation, permit condition, PBR registration representation, or NOI application, Apache shall take appropriate corrective action within five Days or Shut-In all Production Operations associated with that Vapor Control System. Appropriate corrective action may include the repair, replacement, addition, or upgrade of equipment or the temporary removal from service of as much equipment at the Battery Pad (including one or more wells or separators) as is necessary to stop excess VOC emissions until other corrective actions are completed.

17. Nothing herein shall require Apache to repair, replace, or upgrade such equipment at a Storage Vessel System that is Shut-In pursuant to Paragraph 16, except that Apache must repair, replace, or upgrade such equipment prior to resuming Normal Operations. In the event that all Production Operations are temporarily Shut-In pursuant to Paragraph 16, Apache may resume Production Operations for up to five Calendar Days for the sole purpose of taking corrective actions pursuant to Paragraph 16.

18. Apache shall maintain records of the following information collected during the Field Survey:

- a. The date each Battery Pad underwent the Field Survey;
- b. The full name of the employee or contractor who performed the Field Survey;

- c. The documentation required by Paragraph 13;
- d. Whether Compromised Equipment, Reliable Information, or significant staining around potential venting points were observed; and
- e. What, if any, repair, replacement, upgrade, or other corrective action was performed, including a description of the equipment that was repaired, replaced or upgraded and with what equipment it was replaced or upgraded.

B. SAMPLING

19. Pressurized Liquid Sampling. By no later than 90 Days after the Effective Date, Apache shall collect and analyze Pressurized Liquids in accordance with the Sampling and Analysis Plan (“SAP”) attached as Appendix C, provided that Apache may collect and analyze additional Pressurized Liquids samples in accordance with the SAP prior to the applicable deadlines in Paragraph 23, if necessary. Apache shall provide at least 10 Business Days’ written notice to EPA and NMED (as to the New Mexico Subject Facilities) of the date when field sampling events are planned to occur.

C. EMISSIONS DETERMINATIONS

20. For each Storage Vessel located at a Battery Pad that is identified in Appendix A, except those Storage Vessels located at a Battery Pad that is identified in Appendix D, Apache shall (a) determine the potential for VOC emissions in accordance with 40 C.F.R. § 60.5365(e) or § 60.5365a(e), as applicable; or (b) demonstrate that, the actual uncontrolled VOC emissions from each storage vessel are less than 4 tpy at the time of the emissions calculation, and have been maintained at less than 4 tpy for a period of at least twelve consecutive months dating back to the Date of Lodging or before, as set forth in 40 C.F.R. § 60.5395(d)(2) or § 60.5395a(a)(3), as applicable.

21. For each Battery Pad located in New Mexico and listed in Appendix A except those located in New Mexico and identified in Appendix E, Apache shall determine (a) the potential emission rate of any regulated air contaminant for which there is a National or New Mexico Ambient Air Quality Standard in accordance with 20.2.72 NMAC (construction permits); (b) the potential emission rate of any regulated air contaminant in accordance with 20.2.73 NMAC (notices of intent); and (c) the potential to emit any regulated air pollutant in accordance with 20.2.70 NMAC (operating permits). Apache may use emission rates from approved registrations or applications under the New Mexico Permit Programs if Apache provides documentation to EPA and NMED demonstrating that (a) the equipment identified during the Field Survey matches the equipment in the registration or application, and (b) the sampling data used in determining emission rates in the registration or application were collected and analyzed in a manner that is consistent with the Sampling and Analysis Plan.

22. For each Battery Pad located in Texas and listed in Appendix A, except those located in Texas and identified in Appendix E, Apache shall determine (a) emissions of air contaminants in accordance with 30 TAC, Ch. 106 (PBR) and 30 TAC, Ch. 116 (construction permits), and (b) the potential to emit any air pollutant in accordance with 30 TAC, Ch. 122 (operating permits). Apache may use emission rates from approved registrations or applications under the Texas Permit Programs if Apache provides documentation to EPA demonstrating that (a) the equipment identified during the Field Survey matches the equipment in the registration or application, and (b) the sampling data used in determining emission rates in the registration or application were collected and analyzed in a manner that is consistent with the Sampling and Analysis Plan.

23. No later than 240 Days after the Effective Date for Group 2 Facilities, no later than 360 Days after the Effective Date for Group 3 Facilities, and no later than 450 Days after the Effective Date for Group 4 Facilities, as designated in Appendix A, and based on the emissions determinations required by Paragraphs 20, 21, and 22, and other relevant information, Apache shall submit to EPA, for review and approval after consultation with NMED (as to New Mexico Subject Facilities), a list of Apache's Battery Pads that include one or more Storage Vessels that are operated pursuant to the VRU Exception or are subject to a control device or VRU requirement pursuant NSPS OOOO, NSPS OOOOa, any of the New Mexico Permit Programs or any of the Texas Permit Programs, as applicable. Such list shall include the Group 1 Battery Pads identified on Appendices D and E. The Vapor Control Systems located at the Battery Pads identified on the lists required by this Paragraph shall be referred to herein as the "Subject Vapor Control Systems." For each such Subject Vapor Control System, Apache shall identify Storage Vessels that are operated pursuant to the VRU Exception or are subject to a VRU or control device requirement pursuant to NSPS OOOO, NSPS OOOOa, any of the New Mexico Permit Programs, or any of the Texas Permit Programs. If, at any time, EPA identifies a Storage Vessel at a Battery Pad listed on Appendix A that is operated pursuant to the VRU Exception or is subject to a control device or VRU requirement and such Storage Vessel is located at a Battery Pad that was not included in Apache's lists of Subject Vapor Control Systems, Apache shall comply with the requirements set forth in Paragraphs 12 through 56 at such Battery Pad, to the extent not already completed, in accordance with a schedule approved by EPA after consultation with NMED (as to New Mexico Subject Facilities), as appropriate.

D. COMPLIANCE ASSESSMENT FOR SUBJECT VAPOR CONTROL SYSTEMS

24. Design Analysis Methodology. Prior to the Effective Date, Apache submitted, and EPA reviewed and approved, after consultation with NMED (as to New Mexico Subject Facilities), a written Design Analysis Methodology for all Subject Vapor Control Systems. The Design Analysis Methodology sets forth the methodology for analyzing whether the Subject Vapor Control System is adequately designed and sized for PMIVFR, PPIVFR, and Peak Modeled Pressure. Any modification to the Design Analysis Methodology must be approved by EPA, after consultation with NMED (as to New Mexico Subject Facilities), prior to Apache's implementation of the modification.

25. Engineering Evaluation. Apache shall prepare an Engineering Evaluation for each Subject Vapor Control System that is based on the approved Design Analysis Methodology no later than the dates below:

<u>Battery Pads as designated in Appendix A</u>	<u>Days after the Effective Date</u>
Group 1	180
Group 2	270
Group 3	390
Group 4	480

26. Each Engineering Evaluation shall incorporate relevant information obtained during the Field Survey performed pursuant to Paragraph 12, the results of the pressurized liquid

sampling performed pursuant to Paragraph 19 (Pressurized Liquid Sampling), and an assessment of the minimum and maximum flow rates or pressures necessary to achieve the expected destruction efficiency of the control device if such information was not available during the Field Survey. Each Engineering Evaluation shall include a determination as to whether the Subject Vapor Control System achieves the following objective: the Subject Vapor Control System is adequately designed and sized for PMIVFR, PPIVFR, and Peak Modeled Pressure, as determined in accordance with the approved Design Analysis Methodology. With respect to the Subject Vapor Control System at the Dixieland Lee Compressor Station, the Engineering Evaluation shall also include a determination as to whether the Subject Vapor Control System achieves the following additional objective: the Subject Vapor Control System is adequately designed to Route to Process all gases, vapors, and fumes that are emitted from the material in the Storage Vessels. Where a Subject Vapor Control System is identified by EPA pursuant to Paragraph 23 or is a Newly Identified Subject Vapor Control System, Apache shall complete the Engineering Evaluation in accordance with the schedule approved pursuant to those Paragraphs. For each Subject Vapor Control System that is not adequately designed and sized for the PMIVFR, PPIVFR, and the Peak Modeled Pressure, as determined in accordance with the Design Analysis Methodology, Apache shall determine what design, equipment, operational, or other modifications are necessary to achieve this objective and prepare a revised Engineering Evaluation showing that the Vapor Control System as modified will be adequately designed and sized for PMIVFR, PPIVFR, and Peak Modeled Pressure.

27. Modifications. With respect to each Subject Vapor Control System for which Apache has determined, pursuant to Paragraph 26, that modifications are necessary to achieve the

specified objective in that Paragraph, Apache shall implement the modifications referenced in the revised Engineering Evaluation no later than the dates below:

<u>Battery Pads as designated in Appendix A</u>	<u>Days after the Effective Date</u>
Group 1	270
Group 2	360
Group 3	480
Group 4	570

28. Production Operations Shut-In. If Apache has not prepared the Engineering Evaluation required by Paragraph 25 by the applicable date therein or implemented the modifications required by Paragraph 27, if any, by the applicable date therein, Apache shall immediately Shut-In and cease all Production Operations associated with that Subject Vapor Control System until the requirements of Paragraphs 25 and 26 are met.

29. In the event that all Production Operations are temporarily Shut-In pursuant to Paragraph 28, Apache may resume Production Operations for up to a total of five Calendar Days for the purpose of (i) collecting data and information needed to complete and Engineering Evaluation, (ii) implementing a necessary modification pursuant to paragraph 27 or (iii) conducting an IR Camera Inspection pursuant to Paragraph 30.

30. Verification by IR Camera Inspection. Apache shall verify that each Subject Vapor Control System is adequately designed to achieve the objectives specified in Paragraph 26 by conducting an IR Camera Inspection of each Subject Vapor Control System no later than the dates below:

<u>Battery Pads, as designated in Appendix A</u>	<u>Days after the Effective Date</u>
Group 1	300
Group 2	390
Group 3	510
Group 4	600

31. Where a Subject Vapor Control System has been Shut-In pursuant to Paragraph 28, the IR Camera Inspection shall be conducted within thirty (30) days after completion of the Engineering Evaluation conducted pursuant to Paragraph 25 or, if applicable, after completion of modifications conducted pursuant to Paragraph 27.

32. All IR Camera Inspections must be conducted in accordance with Appendix F (DI/PM Program Requirements) and the approved IR Camera Inspection Standard Operating Procedure (“SOP”). Apache shall maintain, and make available to EPA and NMED (as to the New Mexico Subject Facilities) upon request, a video record for each source of emissions detected during an IR Camera Inspection, or a short video of at least one IR Camera Inspection per Facility if no fugitive emissions were detected.

33. If Apache observes Reliable Information during an IR Camera Inspection, Apache shall comply with the requirements of Paragraphs 49 through 53, as applicable.

34. Certification of Completion Report. Apache shall submit to the EPA and NMED, for a New Mexico Subject Facility, or EPA for a Texas Subject Facility, a Certification of Completion Report, in 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 the Maximum Design Pressure, as determined in accordance with the Design Analysis Methodology;
- c. A description of each modification 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, for the final stage of separation, both the maximum operating pressure and whether the dump valve is set to “throttling” or “on/off”);
- e. The minimum Storage Vessel System thief hatch and PRV settings; and
- 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 if observed during the IR Camera Inspection, the date and time of each corrective action, and the date and method of verification used to determine that the corrective action was successful.

The Certification of Completion Report shall be submitted no later than the dates specified below, provided that for a Subject Vapor Control System that has been Shut-In pursuant to Paragraph 28, the Certification of Completion Report shall be submitted within thirty (30) days after completion of the IR Camera Inspection pursuant to Paragraph 30.

<u>Battery Pads as designated in Appendix A</u>	<u>Days after the Effective Date</u>
Group 1	330
Group 2	420
Group 3	540
Group 4	630

35. Operational or Equipment Changes after the Certification of Completion Report.

After Apache has submitted a Certification of Completion Report for a Subject Vapor Control System in compliance with Paragraph 34, if an operational or equipment change is made such that: (1) the PPIVFR is increased beyond what was evaluated in the Engineering Evaluation or (2) the Subject Vapor Control System capacity decreases, Apache shall:

- a. revise the Engineering Evaluation in the manner set forth in Paragraph 25 within thirty (30) Days of completing the operational or equipment change;
- b. implement all modifications necessary to ensure that the Subject Vapor Control System achieves the objectives specified in Paragraph 26 within sixty (60) Days of completing the operational or equipment change;
- c. if Apache fails to implement the modifications required by subparagraph b, Apache shall immediately Shut-In and cease all Production Operations associated with that Subject Vapor Control System until the modifications are completed;

- d. verify that each Subject Vapor Control System achieves the objectives specified in Paragraph 26 by conducting an IR Camera Inspection in accordance with Paragraph 30; and
- e. submit an updated Certification of Completion Report together with the next Semi-Annual Report required pursuant to Paragraph 93.

E. DIRECTED INSPECTION / PREVENTATIVE MAINTENANCE FOR SUBJECT VAPOR CONTROL SYSTEMS

36. Directed Inspection/Preventive Maintenance Requirements. No later than the Effective Date, Apache shall submit the SOPs as required by Appendix F (DI/PM Program Requirements). For all Facilities listed in Appendices D and E, except those Facilities listed on Appendix B, Apache shall commence implementation of the DI/PM requirements set forth in Appendix F no later than 60 Days after the Effective Date and commence implementation of the SOPs upon approval. For any other Facilities at which a Subject Vapor Control System is located, except those also listed on Appendix B, Apache shall commence implementation of the DI/PM requirements set forth in Appendix F, including SOPs as approved, no later than 60 Days after the Subject Vapor Control System was identified in a list of Subject Vapor Control Systems submitted by Apache pursuant to Paragraph 23. For all Facilities that are listed on Appendix B, Apache shall commence implementation of the DI/PM requirements set forth in Appendix F, including SOPs as approved, no later than 180 Days after the Effective Date.

F. STORAGE VESSEL PRESSURE MONITORING FOR SUBJECT VAPOR CONTROL SYSTEMS

37. No later than 90 Days after the Effective Date for each Subject Vapor Control System located at a Facility listed on Appendix D or Appendix E, and for all other Subject Vapor Control Systems, no later than 60 Days after the identification of such Subject Vapor Control

System on a list submitted pursuant to Paragraph 23, Apache shall, in accordance with manufacturer's recommendations, install, calibrate, maintain, and operate one electronic pressure monitor for each Subject Vapor Control System (collectively, "Storage Vessel Pressure Monitors"). Apache shall ensure the Storage Vessel Pressure Monitors measure pressure data at least once every minute and shall record and transmit one measurement every five minutes to a SCADA system. Apache shall continuously operate the Storage Vessel Pressure Monitors, except during periods of planned or unplanned maintenance or Malfunction of the Storage Vessel Pressure Monitors. If a Storage Vessel Pressure Monitor is identified as Malfunctioning, Apache shall complete corrective action within five Days. Apache shall record all dates, durations, and purpose or suspected cause(s) of Storage Vessel Pressure Monitor maintenance, Malfunctions, and any failures, and report this information as required by Section VI (Periodic Reporting). In the case of a telecommunications failure beyond Apache'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 SCADA system within a reasonable time after the recommencement of telecommunications services.

38. No later than 90 Days after the Storage Vessel Pressure Monitors are installed pursuant to Paragraph 37, Apache shall select the Trigger Point for each Subject Vapor Control System. Apache shall confirm that the Trigger Point is below the Leak Point by using representative Vapor Control System field testing (verified with an IR Camera), or by using representative PRD bench testing. PRD bench testing will be considered representative if such testing is based on a sample of PRDs of sufficient size to generate statistically significant results and all PRDs in the sample have the same make, model and Set Point as the PRD for which a Trigger Point is being confirmed. VCS field testing will be considered representative if such

testing is based on a sample of Vapor Control Systems of sufficient size to generate statistically significant results and each VCS in the sample is equipped with a set of PRDs that have the same make, model and Set Point as the PRDs in the VCS for which a Trigger Point is being confirmed. For any single Subject Vapor Control System, Apache may select a revised higher Trigger Point by demonstrating that the revised Trigger Point is below the Leak Point using Vapor Control System field testing at that Subject Vapor Control System (verified with an IR Camera).

39. At any time after 90 Days after a Storage Vessel Pressure Monitor is installed at a Storage Vessel System pursuant to Paragraph 37, if a Storage Vessel Pressure Monitor (a) measures pressure that exceeds the Trigger Point or (b) indicates that the pressure at the inlet of the VRU or control device is inconsistent with manufacturer specifications, Apache shall ensure that Apache representatives are automatically and immediately notified so that Apache can take prompt corrective action. If a Storage Vessel Pressure Monitor records measurements that exceed the Trigger Point two or more times in a 48-hour period, such record shall constitute Reliable Information and Apache shall comply with the requirements of Paragraphs 49 through 53, as applicable. Additional measurements exceeding the Trigger Point that occur after the occurrence of such a record that constitutes Reliable Information but prior to the completion of the corrective action required by Paragraph 49 must be included in the investigation required by that Paragraph, but will not qualify as separate Reliable Information events for purposes of Paragraphs 49 through 53, as applicable.

G. PRESSURE CONTROL VALVE INSTALLATION AND MONITORING AT SUBJECT VAPOR CONTROL SYSTEMS

40. If an Engineering Evaluation conducted pursuant to Paragraph 25 indicates a Pressure Control Valve is necessary to prevent the flow of vapors to the VRU or control device

when the flow or pressure is inconsistent with manufacturer specifications, Apache shall, no later than 30 Days after completion of the Engineering Evaluation, install, calibrate, maintain and operate (consistent with manufacturer's specifications) a Pressure Control Valve equipped with a Valve Position Monitor.

41. Apache shall ensure that such Valve Position Monitor records the position of the Pressure Control Valve and demonstrates that the Pressure Control Valve is closed at all times when the Storage Vessel Pressure Monitor indicates that the pressure at the VRU or control device is not consistent with the manufacturer specifications or with Apache-prepared operating specifications (when manufacturer specifications are unavailable).

42. Apache shall ensure that each Valve Position Monitor measures position data at least once every minute. Apache shall record and transmit one measurement every hour to a SCADA system. Apache shall continuously operate each Valve Position Monitor, except during periods of planned or unplanned maintenance or Malfunction of the Valve Position Monitor. If a Valve Position Monitor Malfunction is identified, Apache shall complete corrective action within five Days. Apache shall record all dates, durations, and purpose or suspected cause(s) of Valve Position Monitor maintenance, Malfunctions, and any failures, and report this information as required by Section VI (Periodic Reporting). In the case of a telecommunications failure beyond Apache'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 SCADA system within a reasonable time after the recommencement of telecommunications services.

43. At any time after 30 Days after the Valve Position Monitors are installed at a Storage Vessel System pursuant to Paragraph 40, if the Valve Position Monitor measurements indicate that the valve is open when the Storage Vessel Pressure Monitor indicates that the

pressure at the VRU or control device is inconsistent with the manufacturer specifications (or Apache-prepared operating specifications when manufacturer specifications are unavailable), Apache shall ensure that Apache representatives are automatically and immediately notified so that Apache can take prompt corrective action. Such measurements shall constitute Reliable Information and Apache shall comply with the requirements of Paragraphs 49 through 53, as applicable.

H. BYPASS, VRU AVAILABILITY, AND CONTROL DEVICE MONITORING AT SUBJECT VAPOR CONTROL SYSTEMS

44. No later than 90 Days after the Effective Date for each Subject Vapor Control System located at a Facility listed on Appendix D or Appendix E, and for all other Subject Vapor Control Systems, no later than 60 Days after the identification of such Subject Vapor Control System on a list submitted pursuant to paragraph 23, at each Subject Vapor Control System with a VRU or control device equipped with a bypass device that can divert vapor flow to the atmosphere, Apache shall:

- a. secure the bypass device valve installed at the inlet to the bypass device in the non-diverting position using a car-seal or a lock-and-key type configuration, except when a bypass to the atmosphere is necessary to conduct active maintenance on a VRU or control device;
- b. visually inspect the seal or closure mechanism at least once every month to verify that the valve is maintained in the non-diverting position and the vent stream is not diverted through the bypass device; and
- c. maintain records of each inspection and of each time the key is checked out.

45. Whenever a bypass to the atmosphere occurs at a Subject Vapor Control System, except when such bypass is necessary to conduct active maintenance on a VRU or control device, the bypass shall constitute Reliable Information and Apache shall comply with the requirements set forth in Paragraphs 49 through 53, as applicable.

46. VRU Availability Monitoring. No later than 90 Days after the Effective Date for each Subject Vapor Control System located at a Facility listed on Appendix D or Appendix E, and for all other Subject Vapor Control Systems, no later than 60 Days after the identification of such Subject Vapor Control System on a list submitted pursuant to Paragraph 23, Apache shall monitor VRU Availability at Subject Vapor Control Systems for which Apache has made a written representation to a state permitting authority related to VRU availability (except when Apache's permit representation or registration includes an operating scenario of 100 percent VRU downtime). Whenever recorded VRU Availability is less than represented VRU Availability on a rolling 12-month basis, such information shall constitute Reliable Information and Apache shall comply with the requirements set forth in Paragraphs 49 through 53, as applicable. After a Certification of Completion Report is submitted for a Subject Vapor Control System, Apache may remove a VRU from the Facility in accordance with applicable legal requirements if Apache complies with Paragraph 35 (Operational or Equipment Changes after the Certification of Completion Report).

47. Combustion Control Device Pilot Monitoring. No later than 150 Days after the Effective Date for each combustion control device used at a Subject Vapor Control System at a Battery Pad listed in Appendix D or Appendix E, and no later than 60 Days after a Subject Vapor Control System using a combustion control device is included on a list of Subject Vapor Control Systems submitted pursuant to Paragraph 23, Apache shall, in accordance with manufacturer's

recommendations, install, calibrate, maintain, and operate, for each combustion control device at a Subject Vapor Control System, one or more thermocouples or equivalent device(s) to detect the presence of a pilot flame for each combustion control device (collectively, “the Pilot Monitor”). Apache shall ensure that the Pilot Monitor associated with each combustion control device collects data pertaining to the presence of a pilot flame at least once every minute and Apache shall record and transmit one data point pertaining to the presence of a pilot flame every hour to a SCADA system. Apache shall ensure that the Pilot Monitor operates continuously for each combustion control device, except during instances of planned or unplanned maintenance or Malfunction of the Pilot Monitor. If the Pilot Monitor is identified as Malfunctioning, Apache shall complete corrective action within five Days. Apache shall record all dates, durations, and purpose or suspected cause(s) of Pilot Monitor maintenance, Malfunctions, and any failures and report this information as required by Section VI (Periodic Reporting). In the case of a telecommunications failure beyond Apache’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 SCADA system within a reasonable time after the recommencement of telecommunications services.

48. No later than 150 Days after the Effective Date for a combustion device used at a Subject Vapor Control System at a Battery Pad listed in Appendix D or Appendix E, or no later than 60 Days after a Subject Vapor Control System that uses a combustion device is included in a list of Subject Vapor Control Systems submitted pursuant to Paragraph 23, if the Pilot Monitor detects the absence of a pilot flame, Apache shall ensure that Apache representatives are automatically and immediately notified so that Apache can take prompt and appropriate corrective action. Any instance in which the Pilot Monitor detects the absence of a pilot flame, unless the

combustion control device is equipped with an auto-igniter and no waste gas is flowing to the device, shall constitute Reliable Information and Apache shall comply with the requirements of Paragraphs 49 through 53, as applicable.

I. RELIABLE INFORMATION, ROOT CAUSE ANALYSIS AND CORRECTIVE ACTION FOR SUBJECT VAPOR CONTROL SYSTEMS

49. If at any time Apache observes Reliable Information, Apache shall, within five Calendar Days after such observation, either (a) identify the suspected cause of the Reliable Information and complete all necessary corrective actions to address the Reliable Information or (b) Shut-In the Vapor Control System at which Reliable Information was obtained until such time as all corrective actions necessary to address the Reliable Information have been completed. Such requirements apply upon the Effective Date at all Battery Pads listed on Appendices D and E and for other Subject Vapor Control Systems upon their inclusion in the list submitted pursuant to Paragraph 23. Where the cause of Reliable Information is planned maintenance (other than the types of maintenance excluded from the definition of Reliable Information in Paragraph 6(ggg)), Apache shall also record the purpose and duration of such maintenance and report this information as required by Section VI (Periodic Reporting).

50. If at any time Apache observes any improperly open bypass device, thief hatch, or any open-ended line, Apache shall address such observation with corrective action (including by manually closing such device or equipment, if appropriate) as quickly as practicable and no later than 8 hours after the observation. If at any time after the Effective Date Apache observes an improperly open PRV, Apache shall address such observation with corrective action as quickly as practicable and make a first attempt to complete corrective action no later than 8 hours after the observation. Such first attempt may be the identification of (a) one or more replacement parts that

must be purchased or procured to complete the corrective action, or (b) the need for a manlift to complete the corrective action.

51. If Apache becomes aware of: (a) three or more instances of Reliable Information related to any single Subject Vapor Control System in any rolling six-month period that derive from observations or detections from any source of Reliable Information other than the Reliable Information associated with Pilot Monitoring pursuant to Paragraph 48, or (b) three or more instances of Reliable Information related to any single Subject Vapor Control System in any rolling six-month period that derive from observations or detections from the Pilot Monitoring pursuant to Paragraph 48, then Apache shall complete, within 30 Days of the third such instance, a Root Cause Analysis. Apache shall identify the corrective actions to be taken to address any operation, maintenance, or design cause(s) identified and implement such corrective actions no later than 30 Days after the completion of the Root Cause Analysis. Additional instances of Reliable Information at a Subject Vapor Control System at which Apache is performing a Root Cause Analysis at that time shall be added as additional information in that Root Cause Analysis, but such additional instances shall not trigger additional Root Cause Analyses.

52. In the event that a Subject Vapor Control System is temporarily Shut-In pursuant to Paragraph 49, Apache shall proceed as follows:

- a. If the Storage Vessel System has already undergone an Engineering Evaluation pursuant to Paragraph 25, Apache shall: temporarily remove from service as much equipment at the Battery Pad as is necessary to stop VOC emissions or Visible Smoke Emissions that are Reliable Information that have not been addressed by timely repair; and comply with the requirements

of Paragraph 30 (Verification by IR Camera Inspection) within 30 Days of resuming operation of Shut-In equipment.

- b. If the Storage Vessel System has not yet undergone an Engineering Evaluation pursuant to Paragraph 25, all Production Operations shall remain Shut-In until the Engineering Evaluation and all necessary modifications, pursuant to Paragraph 27, have been completed. Apache 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 the Root Cause Analysis indicates that the 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, Apache 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 Apache fails to implement the modifications required by subparagraph (a) of this Paragraph 53 within 90 Days after the completion of the Root Cause Analysis;
- c. submit an updated Certification of Completion Report together with the next Semi-Annual Report required pursuant to Paragraph 93, or with the Semi-

Annual Report due at least 30 Days following completion of all requirements in this Paragraph 53; and

- d. 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.

54. In the event that Production Operations are temporarily Shut-In pursuant to Paragraph 53(b), Apache may resume Production Operations for up to a total of five Days for the purpose of (a) collecting data and information needed to complete an Engineering Evaluation, (b) implementing a necessary modification pursuant to paragraph 27, or (c) conducting an IR Camera Inspection pursuant to Paragraph 30.

J. PERFORMANCE STANDARDS

55. As of the date that Apache submits the Certification of Completion Report for a Subject Vapor Control System required by Paragraph 34, above, Apache shall comply with (a) requirements applicable to Storage Vessels at the Subject Vapor Control System as set forth in NSPS 40 C.F.R. Part 60, Subpart OOOO and OOOOa, as applicable, (b) permitting requirements applicable to the Facility with the Subject Vapor Control System under the New Mexico Permit Programs, as specified by Paragraph 56 and (c) permitting requirements applicable to the Facility with the Subject Vapor Control System under the Texas Permit Programs, as specified by Paragraph 56. After such date, Apache shall not operate the Storage Vessel(s) at the Subject Vapor Control System pursuant to 40 C.F.R. §§ 60.5365(e)(3) or 60.5365a(e)(5).

56. No later than the date that Apache submits the Certification of Completion Report for a Subject Vapor Control System required by Paragraph 34, above, Apache shall submit a registration or application as necessary for the Facility with the Subject Vapor Control System to

comply with requirements applicable under the New Mexico Permit Programs or Texas Permit Programs, as applicable. As to the Dixieland Lee Compressor Station, such registration shall include a representation that the Vapor Control System is adequately designed to Route to Process all gases, vapors, and fumes that are emitted from the material in the storage vessels.

K. PLUGGING & ABANDONMENT AND CONVERSION TO TANKLESS

57. Plugging & Abandonment. The permanent plugging and abandonment of a well in compliance with 19.15.25.10 NMAC (as to New Mexico Facilities) and 16 TAC § 3.14(d) (as to Texas Facilities) (hereinafter, “Plugged and Abandoned”), shall be deemed to satisfy all requirements of this Consent Decree applicable to the well (as long as the well no longer emits or has the potential to emit hydrocarbons) and to a related Storage Vessel System at a Battery Pad listed in Appendix A or newly identified in accordance with Paragraph 60 (as long as all wells associated with the Storage Vessel System have been Plugged and Abandoned). Apache shall maintain copies of all documentation required by 19.15.25.11 NMAC (for New Mexico Facilities) and 16 TAC § 3.14(b)(1) (for Texas Facilities) for inspection and review by EPA and NMED (as applicable) upon request.

58. In each Semi-Annual Report submitted pursuant to Paragraph 93, Apache shall report a list of any Storage Vessel Systems (at Battery Pads listed on Appendix A or newly identified in accordance with Paragraph 60) for which all associated wells have been Plugged and Abandoned and the date thereof. Nothing herein shall preclude Apache from reusing any equipment from a Plugged and Abandoned well.

59. Conversion to Tankless. As to any Battery Pad on Appendix A, if all Storage Vessel Systems have been drained, degassed and permanently removed, such that the Produced Oil and Produced Water from all associated wells have been redirected to another Facility

(“Tankless Conversion”), such Tankless Conversion shall be deemed to satisfy all requirements of this Consent Decree applicable to the Storage Vessel System.

L. NEWLY IDENTIFIED STORAGE VESSEL SYSTEMS

60. If, at any time, Apache redirects Produced Oil from a Storage Vessel System at a Battery Pad identified in Appendix A to any Storage Vessel System not identified in Appendix A (*i.e.*, a “Newly Identified Storage Vessel System”), Apache shall:

- a. notify EPA and NMED (as to any Storage Vessel System located in New Mexico) within 30 Days of sending Produced Oil to the Newly Identified Storage Vessel System;
- b. comply with Paragraphs 12 through 56 for such Newly Identified Storage Vessel System within 60 Days of sending Produced Oil to the Newly Identified Storage Vessel System; and
- c. for each Newly Identified Storage Vessel System that is determined, pursuant to Paragraph 23, to include a Subject Vapor Control System, Apache shall submit an updated list of Subject Vapor Control Systems to EPA as part of the next Semi-Annual Report, as required by Paragraph 93.

M. EMISSION CREDIT GENERATION

61. Apache 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.

N. ENVIRONMENTAL MITIGATION PROJECTS

62. Apache shall implement the Environmental Mitigation Project (“Project”) described in Appendix G in compliance with the approved plan and schedule for the Project and other terms of this Consent Decree.

63. Apache shall maintain and, within 30 Days of a request from EPA or NMED, provide copies of all documents to identify and substantiate the costs expended to implement the Project described in Appendix G.

64. All plans and reports prepared by Apache pursuant to the requirements of this Section V.N. (Environmental Mitigation Projects) are required to be submitted to EPA and NMED as provided in Appendix G and Apache shall make any such plan or report available to the public upon request and without charge.

65. Project Certification. As part of each plan submitted to EPA and NMED for the Project, Apache shall certify that:

- a. Apache is not required to perform the Project by any federal, state, or local law or regulation or by any agreement (other than this Consent Decree), grant, or as injunctive relief awarded in any other action in any forum;
- b. The Project is not a project that Apache was planning or intending to construct, perform, or implement other than in settlement of the claims resolved in this Consent Decree; and
- c. Apache has not received and will not receive credit for the Project in any other enforcement action.

66. Apache 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.

67. Apache shall comply with the reporting requirements described in Appendix G.

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

69. Project Completion Notice. No later than 30 Days following the completion of the Project required under this Consent Decree (including any applicable periods of demonstration or testing), Apache shall submit to EPA and NMED 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.

70. Where any compliance obligation under this Section requires Apache to obtain a federal, state, or local permit or approval, Apache shall submit timely and complete applications and take all other actions necessary to obtain all such permits or approvals. Apache 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 Apache has submitted timely and complete applications and has taken all other actions necessary to obtain all such permits or approvals.

O. THIRD-PARTY VERIFICATION PROGRAM

71. Apache shall hire an independent third-party verifier ("Verifier") to conduct a compliance verification program ("Compliance Verification Program") at each Subject Vapor

Control System, along with any Storage Vessel Systems newly identified pursuant to Paragraph 60, to (a) evaluate Apache's compliance with Consent Decree requirements in Section V, paragraphs 12 through 48, with the exception of Paragraph 35 (Operational or Equipment Changes after the Certification of Completion Report) and Paragraph 36 (Directed Inspection/Preventative Maintenance Requirements); and (b) complete a Compliance Verification Program Report as detailed in Paragraph 87 of this Section.

72. Apache shall bear the cost of retaining the Verifier, and shall direct the Verifier to conduct the Compliance Verification Program in accordance with the requirements of this Section.

73. Hiring. Within 30 Days of the Effective Date, Apache shall submit to EPA and NMED the names and qualifications of three proposed Verifiers that meet the following requirements:

- a. The proposed Verifier has expertise and competence in Vapor Control Systems, NSPS OOOO, NSPS OOOOa, the New Mexico Permit Programs, and the Texas Permit Programs (except that Apache may propose two Verifiers that, collectively, have such expertise and competence across the New Mexico and Texas regulatory requirements) and;
- b. The proposed Verifier (including any principals and employees who might be assigned to participate in the Compliance Verification Program) has not been employed by Apache, has not conducted research and/or development for Apache, and has not provided advisory services of any kind (including but not limited to design, construction, financial, engineering, hazardous waste management, legal, or consulting services) to Apache, within three years of

the Effective Date, except that, if Apache is unable to identify an entity satisfying these criteria, Apache may propose a Verifier that has been employed by Apache within three years of the Effective Date and provide details of prior work for Apache and qualifications to EPA for consideration;

- c. The proposed Verifier has not been retained by Apache to satisfy any of the requirements of Section V (Compliance Requirements) of this Consent Decree; and
- d. The proposed Verifier has executed the certification attached to this Consent Decree as Appendix H. A copy of the certification for each proposed Verifier shall be submitted to the United States along with the list of proposed Verifiers.

74. Verifier Approval Procedure. EPA, after consulting with NMED, shall inform Apache in writing which of the proposed Verifiers, if any, it has approved. Within 30 Days of the United States' written approval, Apache shall retain the approved candidate to serve as the Verifier and to perform the activities set forth in this Section. If EPA has not responded within 90 Days of receiving Apache's submission, Apache's proposed Verifier shall be deemed approved, and Apache shall retain the approved candidate(s) to serve as the Verifier and to perform the activities set forth in this Section.

75. If EPA disapproves of all proposed Verifiers, Apache shall, within 21 Days of receipt of EPA's written notification, submit to EPA for approval the names and qualifications of an additional two proposed Verifiers that meet the qualifications set forth in Paragraph 73 of this Section. EPA, after consulting with NMED, shall again provide written approval or disapproval of the proposed Verifiers, per Paragraph 74 of this Subsection.

76. Apache 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 Apache for a period of at least one year following the Verifier's submission of its final Compliance Verification Program Report, except that if Apache is unable to identify an entity satisfying the criteria set forth in Paragraph 73.b and, after consultation with EPA, EPA permits Apache to hire a Verifier that does not meet such criteria, then the Verifier shall be permitted to perform work for Apache, except as specified in Paragraph 73.c, during and after the term of this Consent Decree.

77. Verifier Replacement Procedure. If Apache or EPA determines that the Verifier approved by EPA cannot satisfactorily perform the required Compliance Verification Program, Apache, EPA and NMED shall informally confer. If they agree that a new Verifier should be selected, Apache shall submit to EPA for approval the name and qualifications of two proposed replacement Verifiers that meet the qualifications set forth in Paragraph 73. If Apache and EPA do not agree on the need to select a replacement Verifier, EPA's position shall control, subject to Apache's right to invoke the Dispute Resolution procedures in Section X of this Consent Decree.

78. Nothing in Paragraph 77 precludes EPA from assessing stipulated penalties for missed Compliance Verification Program deadlines associated with the need to replace a Verifier, unless Apache successfully asserts that the inability of the Verifier to perform the required Compliance Verification Program was due to a Force Majeure event in accordance with Section IX (Force Majeure) of this Consent Decree.

79. Conducting the Compliance Verification Program. Apache shall give the Verifier a copy of this Consent Decree and all appendices, the approved Design Analysis Methodology, the Engineering Evaluations, the Certification of Completion Reports developed pursuant to

Paragraph 34, and all other information and access necessary to complete the Compliance Verification Program, subject to the Verifier's compliance with reasonable safety requirements.

80. Apache 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 and reasonable safety requirements, to all records, employees, contractors, and properties under Apache's ownership or control that the Verifier reasonably deems appropriate to effectively perform the duties described in this Section.

81. Apache shall direct the Verifier to evaluate Apache's compliance with the Consent Decree requirements in Section V, paragraphs 12 through 48, with the exception of Paragraph 35 (Operational or Equipment Changes after the Certification of Completion Report) and Paragraph 36 (Directed Inspection/Preventative Maintenance Requirements) at each Facility with a Subject Vapor Control System (as well as any Storage Vessel System newly identified in accordance with Paragraph 60), as of the date of the initiation of the Compliance Verification Program for that Subject Vapor Control System.

82. The Compliance Verification Program shall include a site visit by the Verifier to no fewer than 20 percent of total number of Facilities with a Subject Vapor Control System. The Verifier shall inspect each such Facility in sufficient detail to permit the Verifier to validate the results of the determinations made pursuant to Paragraph 81. Apache shall instruct the Verifier to notify Apache within 24 hours of any observation of Reliable Information during the site visit.

83. One or more representatives of Apache with a reasonable understanding of this Consent Decree shall accompany the Verifier during the on-site portion of the Compliance Verification Program. The representatives of Apache shall not interfere with the independent judgment of the Verifier.

84. Apache shall permit representatives of EPA and NMED (as to New Mexico Subject Facilities) to participate in the on-site portion of the Compliance Verification Program as observers. Apache shall use best efforts to notify EPA and NMED (as to New Mexico Subject Facilities) at least five (5) Business Days before each on-site visit by the Verifier is scheduled to allow EPA and NMED time to make arrangements for observers to be present.

85. As to each Subject Vapor Control System, Apache shall submit the Certification of Completion Report to the Verifier concurrently with its submission to EPA and shall direct the Verifier to commence the Compliance Verification Program at that time.

86. For each Subject Vapor Control System, Apache shall direct the Verifier to begin the Compliance Verification Program no less than 60 Days after the later of (a) the date that Apache submits the Certification of Completion report pursuant to Paragraph 34, and (b) the date that Apache has installed, calibrated, and commenced operation of each monitoring device required for that Subject Vapor Control System under Paragraphs 37 through 48. Apache shall ensure that the Verifier completes the Compliance Verification Program for each Subject Vapor Control System no later than 60 Days after the Compliance Verification Program is commenced.

87. Apache shall direct the Verifier to prepare a Compliance Verification Program Report for each Subject Vapor Control System no later than 30 Days after the Verifier completes the Compliance Verification Program for the Facility. Apache shall direct the Verifier to submit the Compliance Verification Program Reports simultaneously to Apache, EPA and, for any Subject Vapor Control System in New Mexico, to NMED. The Verifier shall not share draft reports with Apache prior to submission of the Compliance Verification Program Report to EPA.

88. The Compliance Verification Program Report shall present the Compliance Verification Program findings and shall, at a minimum, contain the following information:

- a. An identification of the Battery Pad(s) evaluated and the period of time for which site-specific records were reviewed;
- b. If an on-site inspection of the Battery Pad was conducted, the date(s) that the on-site portion of the Verification Program was conducted;
- c. Identification of Verifier's team members;
- d. Identification of representatives of Apache and regulatory agency personnel observing the on-site visit, if applicable;
- e. A summary of the Compliance Verification Program process, including any obstacles encountered;
- f. Detailed Compliance Verification Program findings in accordance with Paragraph 81;
- g. Copies of any photos or videos obtained during the Compliance Verification Program and the names of any Apache representatives or personnel interviewed;
- h. Recommendations by the Verifier, based on the findings and areas of concern, for corrective actions and any proposed schedule for implementation or the date of implementation;
- i. Detailed description of any Reliable Information observed by the Verifier, including the date the Reliable Information was observed; a description of the Reliable Information and basis for observation; the operation, maintenance or design cause(s) identified through Apache's Root Cause Analysis or otherwise; a description of the corrective actions recommended by the Verifier or implemented by Apache, the date corrective actions were

- implemented (or proposed schedule for implementation of such corrective actions), the date the corrective action was verified by an IR Camera Inspection, if known, and a summary of the results of that inspection; and
- j. A certification by the Verifier, in the form set forth in Appendix H, that the Compliance Verification Program was conducted in accordance with the provisions of this Consent Decree.

89. Upon the Verifier's submission of the Compliance Verification Program Report to Apache, EPA and NMED, Apache shall investigate and report to the Verifier, EPA and NMED on any recommendations, areas of concern, or recommended corrective actions identified in the Compliance Verification Program Report, as follows:

- a. Within 60 Days after the Verifier's submission of the Compliance Verification Program Report to Apache, EPA, and NMED, Apache shall submit for the Verifier's review and comment an Action Plan that responds to all recommendations and fully addresses all areas of concern and recommended corrective actions contained in the Compliance Verification Program Report. The Action Plan shall provide specific deliverables, responsibility assignments, and an implementation schedule to address all areas of concern, and recommended corrective actions. Apache shall provide EPA and NMED (as to any New Mexico Subject Facilities) with a copy of the Action Plan on the same Day it is submitted to the Verifier;
- b. Apache shall direct the Verifier to review and comment on the Action Plan. No later than 30 Days after receiving the Action Plan, the Verifier shall

simultaneously send a copy of its comments on the Action Plan to Apache, EPA and NMED (as to New Mexico Subject Facilities); and

- c. Within 30 Days of receiving the Verifier's comments, EPA and NMED (as to any New Mexico Subject Facilities) may provide additional comments, if any, to Apache.

90. Within 30 Days after receiving comments from the Verifier on the Action Plan, Apache shall (i) revise the Action Plan to address comments from the Verifier and comments from EPA and NMED (as to any New Mexico Subject Facilities), if any; (ii) provide a revised Action Plan to EPA and NMED (as to any New Mexico Subject Facilities); 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.

91. Within 30 Days after implementation of the Action Plan is complete, Apache shall submit to EPA and NMED (as to any New Mexico Subject Facilities) 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 contain a certification in the form specified in Paragraph 96 of the Consent Decree.

92. Confidential Business Information. Apache 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 or 20.2.1.115 NMAC by following the procedures set forth in those regulatory provisions.

VI. PERIODIC REPORTING

93. Following entry of this Consent Decree, Apache shall submit to the United States and NMED in accordance with the requirements of Section XIV (Notices), a Semi-Annual Report on or before June 30 for the reporting period of October through March and on or before December 31 for the reporting period of April through September. Each Semi-Annual Report shall contain the following information for the reporting period:

- a. All records required to be maintained pursuant to Paragraph 13 regarding the Field Surveys performed pursuant to Paragraph 12;
- b. All records of pressurized liquid sampling performed pursuant to Paragraph 19, including but not limited to QA/QC assessments and analytical results;
- c. All written emissions determinations performed pursuant to Paragraphs 20, 21, and 22, along with calculations and supporting documentation (including pressurized liquid sampling and analyses). Such determinations shall include, (1) as to the New Mexico Subject Facilities: the potential emission rate of any regulated air contaminant for which there is a National or New Mexico Ambient Air Quality Standard in accordance with 20.2.72 NMAC (construction permits); the potential emission rate of any regulated air contaminant in accordance with 20.2.73 NMAC (notices of intent); and the potential to emit any regulated air pollutant in accordance with 20.2.70 NMAC (operating permits), including the CO, NO_x, and VOC emission factors utilized in the calculations; (2) as to the Texas Subject Facilities: the determination of emissions of air contaminants in accordance with 30 TAC,

Ch. 106 (PBR) and Ch. 116 (construction permits); and the potential to emit any air pollutant in accordance with 30 TAC, Ch. 122 (operating permits); (3) the determination of applicability of NSPS OOOO and NSPS OOOOa, including the maximum average daily throughput (as defined at 40 C.F.R. § 60.5430 or § 60.5430a, as applicable) determined for a 30-day period of production prior to the applicable emission determination deadline specified in 40 C.F.R. § 60.5365(e) or § 60.5365a(e), or the determination that actual uncontrolled VOC emissions from a Storage Vessel are less than 4 tpy at the time of the emissions calculation and have been maintained at less than 4 tpy for a period of at least twelve consecutive months dating back to the Date of Lodging or before, as set forth in 40 C.F.R. § 60.5395(d)(2) or § 60.5395a(a)(3), as applicable. If any emissions determination took into account a legally and practicably enforceable limit in an operating permit or other requirement, it shall identify the applicable permit identification number and/or regulatory provision setting forth such limit, and the potential mass of VOC accounted for in the emissions determination as limited by the legally and practicably enforceable limit.

- d. Any approved modifications to the Design Analysis Methodology;
- e. All Certification of Completion reports prepared pursuant to Paragraph 34, including any updates or modifications to such reports;
- f. Where any Facility was required to be Shut-In pursuant to Paragraphs 16, 28, 35, 49 or 53, identify the Facility, the date such operations were required to

be Shut-In, the cause of the Shut-In, and the date Production Operations resumed;

- g. Identify all Storage Vessel Systems newly identified pursuant to Paragraph 60, including the dates by which Apache must comply with Paragraphs 12 through 56 at such systems.
- h. The DI/PM Plan prepared pursuant to Paragraph 36 and Appendix F, including any updates or modifications to such plan; and
 - (1) the date that the annual review of the DI/PM Program was completed; (2) a discussion of whether Apache identified any recurring or systemic issues; (3) a description of and timing of all modifications, corrective actions, or other actions planned to address recurring or systemic issues and (4) a summary of any non-material updates or changes to the DI/PM Program or any associated SOPs;
- i. the dates of all IR Camera Inspections undertaken pursuant to this Consent Decree and the reasons therefor; and (2) the dates of all AVO inspections undertaken pursuant to this Consent Decree;
- j. Whenever Apache obtains Reliable Information: (1) the date Reliable Information was obtained; (2) a description of the Reliable Information; (3) identification of the Subject Vapor Control System at issue; (4) the suspected cause of the Reliable Information; (5) a description of the corrective actions implemented (including identification of any equipment temporarily removed from service), (6) the date and time corrective actions were implemented (or schedule for implementation of such corrective actions), (7) the date of Shut-

in of equipment or Production Operations, if applicable; (8) the date the corrective action was verified by an IR Camera Inspection; and (9) a summary of the results of that inspection.

- k. The list of Subject Vapor Control Systems prepared pursuant to Paragraph 23, including whether each is subject to NSPS OOOO, NSPS OOOOa, the New Mexico Permit Programs or the Texas Permit Programs;
- l. All dates, durations and purpose or suspected cause(s) of Storage Vessel Pressure Monitor maintenance, Malfunctions, and any failures;
- m. All dates, durations, and purpose or suspected cause(s) of Valve Position Monitor maintenance, Malfunctions, and any failures, pursuant to Paragraph 42;
- n. all dates, durations and purpose or suspected cause(s) of Pilot Monitor maintenance, Malfunctions, and any failures of the Pilot Monitor, pursuant to Paragraph 47;
- o. All dates, purpose(s) and duration of planned maintenance, pursuant to Paragraph 49;
- p. Whenever Apache completes a Root Cause Analysis: (1) the operation, maintenance, or design cause(s) identified in the Root Cause Analysis; and (2) a description of the corrective actions implemented, and the date and time corrective actions were implemented (or schedule for implementation of such corrective actions);
- q. The Compliance Verification Program Report(s), Action Plan(s) and Completion Report(s) prepared pursuant to Paragraphs 86 through 91;

- r. A summary of activities undertaken pursuant to Subsection V.N (Environmental Mitigation Projects), the status of Environmental Mitigation Project milestones set forth in Appendix G, and a summary of costs incurred in the implementation of Subsection V.N since the previous Semi-Annual Report; and
- s. A list of any Storage Vessel Systems for which all associated wells have been Plugged and Abandoned, as set forth in Paragraph 57, together with an identification of the associated wells that have been Plugged and Abandoned and the date thereof.

94. The Semi-Annual Report shall also include a description of any non-compliance 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. If Apache violates, or has reason to believe that it may violate, any requirement of this Consent Decree with an associated stipulated penalty, Apache shall notify the United States, EPA, and NMED (as to New Mexico Subject Facilities) in accordance with the requirements of Section XIV (Notices) of such violation and its likely duration, in writing, within 10 Days of the Day Apache first becomes aware of the violation or potential 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, Apache shall so state in the report. Apache 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 Apache becomes aware of the cause of the violation. Nothing in this Paragraph or the following Paragraph relieves Apache of its obligation to provide the notice required by Section IX (Force

Majeure). If EPA or NMED become aware of any violation of any requirement of this Consent Decree, they will use best efforts to promptly notify Apache of such violation.

95. Whenever any violation of this Consent Decree or of any applicable permits or any other event affecting Apache's performance under this Consent Decree may pose an immediate threat to the public health or welfare or the environment, Apache shall comply with any applicable federal and state or local laws and, in addition, shall notify EPA and NMED (as to any New Mexico Subject Facilities) as per Section XIV (Notices) orally or by electronic or facsimile transmission as soon as possible, but no later than 24 hours after Apache 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.

96. Certification Statement. Each report submitted by Apache under this Section, and each Certification of Completion Report submitted pursuant to the requirements of Paragraphs 34, 35, 53, or 91, 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.

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

98. The reporting requirements of this Consent Decree do not relieve Apache 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.

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

VII. APPROVAL OF DELIVERABLES

100. 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 will, after consultation with NMED (as to any New Mexico Subject Facilities), 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.

101. If the submission is approved pursuant to Paragraph 100(a), Apache 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 100(b) or (c), Apache shall, upon written direction from the EPA (after consulting with NMED), take all actions required by the approved plan, report, or other item that EPA determines are technically severable from any disapproved portions, subject to Apache's right to dispute only the specified conditions or the disapproved portions, under Section X (Dispute Resolution).

102. If the submission is disapproved in whole or in part pursuant to Paragraph 100(c) or (d), Apache 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, Apache shall proceed in accordance with the preceding Paragraph.

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

104. If Apache elects to invoke Dispute Resolution as set forth in Paragraphs 101 or 103, Apache shall do so by sending a Notice of Dispute in accordance with Paragraph 121 within 30 Days (or such other time as the Parties agree to in writing) after receipt of the applicable decision.

105. 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 Apache's obligations under this Consent Decree, the stipulated penalties applicable to the original submission shall be due and payable notwithstanding any subsequent resubmission.

VIII. STIPULATED PENALTIES

106. Apache shall be liable for stipulated penalties to the United States for violations of this Consent Decree, and to the United States and NMED for violations of this Consent Decree

with respect to the New Mexico Subject Facilities, as specified below, unless excused under Section IX (Force Majeure), or reduced or waived by the United States or NMED (if applicable) pursuant to Paragraph 110 of the Consent Decree. 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.

	Penalty per Facility unless otherwise noted
(a) Failure to perform any of the requirements of the Battery Pad Field Survey as specified in Paragraphs 12 through 15.	\$550 per Day for the first 30 Days and \$2,750 per Day thereafter
(b) Following any observation by Apache, during the Field Survey required by Paragraph 12, of Compromised Equipment, evidence of significant staining emanating from pressure relief valves, or any equipment in need of repair or replacement, the failure to take corrective action or, within 5 Days of such observation, Shut-In all Production Operations, as specified in Paragraph 16.	\$1,000 per Day for the first 30 Days and \$5,000 per Day thereafter
(c) Failure to collect and analyze Pressurized Liquids samples, as specified in Paragraph 19.	\$550 per Day for the first 30 Days and \$2,750 per Day thereafter
(d) Failure to prepare an Engineering Evaluation for each Subject Vapor Control System, as specified in Paragraph 25.	\$1,000 per Day for the first 30 Days and \$5,000 per Day thereafter

(e) Failure to Shut-In Production Operations as required in Paragraph 28.	\$1,500 per Day for the first 30 Days and \$7,500 per Day thereafter
(f) Resuming operations for greater than five Calendar Days in violation of Paragraph 29 or 54.	\$1,000 per Day for the first 30 Days and \$5,000 per Day thereafter
(g) Failure to verify that each Subject Vapor Control System is adequately designed by conducting an IR Camera Inspection, as specified in Paragraph 30.	\$550 per Day for the first 30 Days and \$3,300 per Day thereafter
(h) Failure to submit to EPA and NMED a Certification of Completion Report as specified in Paragraph 34.	\$550 per Day for the first 30 Days and \$3,300 per Day thereafter
(i) Failure to revise an Engineering Evaluation, implement the necessary modifications, verify effectiveness with an IR Camera Inspection, or submit an updated Certification of Completion Report, as required by Paragraph 35.	\$550 per Day for the first 30 Days and \$3,300 per Day thereafter
(j) Failure to submit a SOP as required under the DI/PM Program Requirements, Appendix F.	\$550 per Day for the first 30 Days and \$2,750 per Day thereafter
(k) Failure to comply with any of the requirements of the DI/PM Program Requirements, as required by Paragraph 36.	\$550 per Day for the first 30 Days and \$2,750 per Day thereafter

<p>(l) Failure to comply with any of the requirements pertaining to Storage Vessel Pressure Monitoring set forth in Paragraphs 37 through 39.</p>	<p>\$550 per Day for the first 30 Days and \$2,750 per Day thereafter</p>
<p>(m) Failure to comply with any of the requirements pertaining to Pressure Control Valve Installation and Monitoring set forth in Paragraphs 40 through 43.</p>	<p>\$550 per Day for the first 30 Days and \$2,750 per Day thereafter</p>
<p>(n) Failure to comply with any of the requirements pertaining to VRU Availability, Bypass and Control Device Monitoring set forth in Paragraphs 44 through 48</p>	<p>\$550 per Day for the first 30 Days and \$2,750 per Day thereafter</p>
<p>(o) Failure to complete all necessary corrective actions or temporarily Shut-In the Vapor Control System within five Days after obtaining Reliable Information, as required in Paragraph 49.</p>	<p>\$1,500 per Day for the first 30 Days and \$7,500 per Day thereafter</p>
<p>(p) Failure to record and report the cause and duration of maintenance where the cause of Reliable Information is planned maintenance as required in Paragraph 49.</p>	<p>\$2,750 per Storage Vessel System per failure</p>
<p>(q) Failure to take corrective action following any observation of an improperly open bypass device, thief hatch, PRV or open-ended line as required by Paragraph 50.</p>	<p>\$1,500 per Day for the first 30 Days and \$7,500 per Day thereafter</p>
<p>(r) Failure to conduct a Root Cause Analysis as required by Paragraph 51.</p>	<p>\$1,500 per Day for the first 30 Days and \$7,500 per Day thereafter</p>

(s) Failure to comply with any of the requirements applicable to a Subject Vapor Control System, as required in Paragraphs 52 and 53.	\$1,500 per Day for the first 30 Days and \$7,500 per Day thereafter
(t) Failure to comply with the requirements applicable to a Storage Vessel, as required by Paragraph 55.	\$1,500 per Day for the first 30 Days and \$7,500 per Day thereafter
(u) Failure to submit a registration or permit application for a Facility, as required by Paragraph 55 or 56.	\$550 per Day for the first 30 Days and \$3,300 per Day thereafter
(v) Failure to comply with any of the requirements for a Newly Identified Storage Vessel System as required in Paragraph 60.	\$550 per Day for the first 30 Days and \$2,750 per Day thereafter
(w) Failure to implement Environmental Mitigation Project(s) as required by Paragraph 62 and Appendix G.	\$550 per Day for the first 30 Days and \$3,300 per Day thereafter
(x) Failure to comply with any of the reporting requirements as set forth in Paragraphs 93 through 96.	\$550 per Day for the first 30 Days and \$2,750 per Day thereafter
(y) Failure by Apache to comply with any of the requirements pertaining to the Third-Party Verification Program set forth in Paragraphs 71 through 91.	\$550 per Day for the first 30 Days and \$3,300 per Day thereafter

(z) Violation of any other requirement of this Consent Decree.	\$1,000 per Day per violation
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107. Late Payment of Civil Penalty. If Apache fails to pay the civil penalty required to be paid under Section IV (Civil Penalty) when due, Apache shall pay a stipulated penalty of \$2,000 per Day for each Day that the payment is late to the United States or NMED.

108. 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. The United States or NMED, or both of the foregoing, after consultation with the other Plaintiff, may seek stipulated penalties under this Section with respect to violations involving the New Mexico Subject Facilities. The United States alone may seek stipulated penalties with respect to violations involving the Texas Subject Facilities. The Plaintiff making a demand for payment of a stipulated penalty shall simultaneously send a copy of the demand to the other Plaintiff.

109. Apache shall pay stipulated penalties to the United States or NMED within 30 Days of a written demand by the United States or NMED. Where both the United States and NMED seek stipulated penalties for the same violation of this Consent Decree, Apache shall pay 50 percent to the United States and 50 percent to NMED.

110. The United States or NMED may, in the unreviewable exercise of their discretion, reduce or waive stipulated penalties otherwise due them under this Consent Decree.

111. Stipulated penalties shall continue to accrue as provided in Paragraph 106, 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 NMED that is not appealed to the Court, Apache shall pay accrued penalties determined to be owing, together with interest, to the United States or NMED within 30 Days of the effective date of the agreement or the receipt of the EPA's or NMED's decision or order;
- b. If the dispute is appealed to the Court and the United States or NMED prevails in whole or in part, Apache 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 Subparagraph c, below;
- c. If any Party appeals the district court's decision, Apache shall pay all accrued penalties determined to be owing, together with interest, within 15 Days of receiving the final appellate court decision.

112. If Apache fails to pay stipulated penalties according to the terms of this Consent Decree, Apache 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 NMED from seeking any remedy otherwise provided by law for Apache's failure to pay any stipulated penalties.

113. Apache shall pay stipulated penalties owing to the United States and NMED in the manner set forth in 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.

114. Stipulated penalties are not the United States' or NMED'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 NMED expressly reserve the right to seek any other relief they deem appropriate for Apache's violation of this Consent Decree or applicable law, including but not limited to an action against Apache 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

115. "Force Majeure," for purposes of this Consent Decree, is defined as any event arising from causes beyond the control of Apache, of any entity controlled by Apache, or of Apache's contractors, that delays or prevents the performance of any obligation under this Consent Decree despite Apache's best efforts to fulfill the obligation. The requirement that Apache exercise "best efforts to fulfill the obligation" includes using best efforts to anticipate any potential Force Majeure event and best efforts to address the effects of any potential Force Majeure event (a) as it is occurring and (b) following the potential Force Majeure, such that the delay and any adverse effects of the delay are minimized. "Force Majeure" does not include Apache's financial inability to perform any obligation under this Consent Decree.

116. If any event occurs or has occurred that may delay the performance of any obligation under this Consent Decree, whether or not caused by a Force Majeure event, Apache shall provide notice to EPA, by email to Williams.Christopher@epa.gov, and to NMED (for any events at New Mexico Subject Facilities) pursuant to Section XIV (Notices), within 72 hours of when Apache first knew that the event might cause a delay. Within 7 Business Days after the initial notice, Apache shall provide in writing to EPA and NMED (for any events at New Mexico Subject Facilities) an explanation and description of the reasons for the delay; the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to prevent or mitigate the delay or the effect of the delay; Apache's rationale for attributing such delay to a Force Majeure event if it intends to assert such a claim; and a statement as to whether, in the opinion of Apache, such event may cause or contribute to an endangerment to public health, welfare or the environment. Apache shall include with any notice all available documentation supporting the claim that the delay was attributable to a Force Majeure. Failure to comply with the above requirements shall preclude Apache from asserting any claim of Force Majeure for that event for the period of time of such failure to comply, and for any additional delay caused by such failure. Apache shall be deemed to know of any circumstance of which Apache, any entity controlled by Apache, or Apache's contractors knew or should have known.

117. If EPA, after a reasonable opportunity for review and comment by NMED (for any events at New Mexico Subject Facilities), agrees that the delay or anticipated delay is attributable to a Force Majeure event, the time for performance of the obligations under this Consent Decree that are affected by the Force Majeure event will be extended by EPA, after a reasonable opportunity for review and comment by NMED (for any events at New Mexico

Subject Facilities), for such time as is necessary to complete those obligations. An extension of the time for performance of the obligations affected by the Force Majeure event shall not, of itself, extend the time for performance of any other obligation. EPA will notify Apache in writing of the length of the extension, if any, for performance of the obligations affected by the Force Majeure event.

118. If EPA, after a reasonable opportunity for review and comment by NMED (for any events at New Mexico Subject Facilities), does not agree that the delay or anticipated delay has been or will be caused by a Force Majeure event, EPA will notify Apache in writing of its decision.

119. If Apache elects to invoke the Dispute Resolution procedures set forth in Section X relative to a claim of Force Majeure, it shall do so no later than 30 Days after receipt of EPA's notice pursuant to the preceding Paragraph. In any such proceeding, Apache shall have the burden of demonstrating by a preponderance of the evidence that the delay or anticipated delay has been or will be caused by a Force Majeure event, that the duration of the delay or the extension sought was or will be warranted under the circumstances, that best efforts were exercised to avoid and mitigate the effects of the delay, and that Apache complied with the requirements of Paragraphs 115 and 116. If Apache carries this burden, the delay at issue shall be deemed not to be a violation by Apache of the affected obligation of this Consent Decree identified to EPA and NMED (for any events at a New Mexico Subject Facility) and the Court.

X. DISPUTE RESOLUTION

120. 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.

121. Informal Dispute Resolution. Any dispute subject to Dispute Resolution under this Consent Decree shall first be the subject of informal negotiations. The dispute shall be considered to have arisen when Apache sends DOJ, EPA and NMED (for disputes concerning New Mexico Subject Facilities) a written Notice of Dispute. Such Notice of Dispute shall state clearly the matter in dispute. The period of informal negotiations shall not exceed 30 Days from the date the dispute arises, unless that period is modified by written agreement. If the Parties cannot resolve a dispute by informal negotiations, then the position advanced by the United States (after consultation with NMED for any disputes concerning New Mexico Subject Facilities) shall be considered binding unless, within 30 Days after the conclusion of the informal negotiation period, Apache invokes formal Dispute Resolution procedures as set forth below.

122. Formal Dispute Resolution. Apache shall invoke formal Dispute Resolution procedures, within the time period provided in the preceding Paragraph, by sending DOJ, EPA and NMED (for any disputes concerning New Mexico Subject Facilities) 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 Apache's position and any supporting documentation relied upon by Apache.

123. The United States, after consultation with NMED (for any disputes concerning New Mexico Subject Facilities), will send Apache its Statement of Position within 45 Days of

receipt of Apache'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 Apache, unless Apache files a motion for judicial review of the dispute in accordance with the following Paragraph.

124. Judicial Dispute Resolution. Apache may seek judicial review of the dispute by filing with the Court and serving on the United States and NMED (for any disputes concerning New Mexico Subject Facilities) a motion requesting judicial resolution of the dispute. The motion must be filed within 14 Days of receipt of the United States' Statement of Position pursuant to the preceding Paragraph. The motion shall contain a written statement of Apache's position on the matter in dispute, including any supporting factual data, analysis, opinion, or documentation, and shall set forth the relief requested and any schedule within which the dispute must be resolved for orderly implementation of this Consent Decree.

125. The United States shall, after consultation with NMED (for any disputes concerning New Mexico Subject Facilities), respond to Apache's motion within the time period allowed by the Local Rules of this Court. Apache may file a reply memorandum, to the extent permitted by the Local Rules.

126. Disputes Concerning Matters Accorded Record Review. Except as otherwise provided in this Consent Decree, in any dispute brought under Paragraph 122 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, Apache 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. For purposes of judicial review under this Paragraph the administrative record shall include all documents exchanged by the Parties during the Dispute Resolution process under Paragraphs 121 through 123, including but not limited to all Statements of Position and supporting factual data, analysis, opinion and other documentation.

127. Other Disputes. Except as otherwise provided in this Consent Decree, in any other dispute brought under Paragraph 122, Apache shall bear the burden of demonstrating that its position complies with this Consent Decree and better furthers the objectives of the Consent Decree.

128. The invocation of Dispute Resolution procedures under this Section shall not, by itself, extend, postpone, or affect in any way any obligation of Apache under this Consent Decree, unless and until final resolution of the dispute so provides. Stipulated penalties with respect to the disputed matter shall continue to accrue from the first Day of noncompliance, but payment shall be stayed pending resolution of the dispute as provided in Paragraph 111. If Apache 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

129. The United States, NMED (as to New Mexico Subject Facilities), 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, 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 NMED in accordance with the terms of this Consent Decree;
- c. obtain samples and, upon request, splits of any samples taken by Apache or its representatives, contractors, or consultants;
- d. obtain documentary evidence, including photographs and similar data; and
- e. assess Apache's compliance with this Consent Decree.

130. Upon request made prior to or during the sampling event, Apache shall provide EPA and NMED (as to any New Mexico Subject Facilities) or their authorized representatives splits of any samples taken by Apache. Upon request made prior to or during the sampling event, EPA and NMED shall provide Apache splits of any samples taken by EPA or NMED.

131. Until five years after the termination of this Consent Decree, Apache 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, but excluding raw monitoring data) 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 Apache'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 NMED (as to any New Mexico Subject Facilities), Apache shall provide copies of any documents, records, or other information required to be maintained under this Paragraph.

132. At the conclusion of the information-retention period provided in the preceding Paragraph, Apache shall notify the United States and NMED (as to any New Mexico Subject

Facilities) at least 90 Days prior to the destruction of any documents, records, or other information subject to the requirements of the preceding Paragraph and, upon request by the United States or NMED (as to any New Mexico Subject Facilities), Apache shall deliver any such documents, records, or other information to EPA or NMED. Apache 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 Apache 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 Apache. 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.

133. Apache may also assert that information required to be provided under this Section is protected as Confidential Business Information (“CBI”) under 40 C.F.R. Part 2 and, if applicable, 20.2.1.115 NMAC. As to any information that Apache seeks to protect as CBI, Apache shall follow the procedures set forth in 40 C.F.R. Part 2 or 20.2.1.115 NMAC.

134. 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 NMED pursuant to applicable federal or state laws, regulations, or permits, nor does it limit or affect any duty or obligation of Apache to maintain documents, records, or other information imposed by applicable federal or state laws, regulations, or permits.

XII. EFFECT OF SETTLEMENT/RESERVATION OF RIGHTS

135. This Consent Decree resolves the civil claims of the United States and NMED for alleged violations of the following provisions of federal and state law through the Date of Lodging at the Facilities listed in Appendix A:

- a. 42 U.S.C. § 7661a;
- b. 40 C.F.R. §§ 60.5365 and 60.5365a;
- c. 40 C.F.R. §§ 60.5370 and 60.5370a;
- d. 40 C.F.R. §§ 60.5395 and 60.5395a;
- e. 40 C.F.R. §§ 60.5410 and 60.5410a;
- f. 40 C.F.R. §§ 60.5411 and 60.5411a;
- g. 40 C.F.R. §§ 60.5412 and 60.5412a;
- h. 40 C.F.R. §§ 60.5415 and 60.5415a;
- i. 40 C.F.R. §§ 60.5416 and 60.5416a;
- j. 40 C.F.R. §§ 60.5417 and 60.5417a;
- k. 40 C.F.R. §§ 60.5420 and 60.5420a;
- l. 40 C.F.R. § 60.18;
- m. 20.2.7.14, 20.2.7.15, 20.2.7.109, 20.2.7.110, 20.2.7.114, and 20.2.7.116
NMAC;
- n. 20.2.38.112 NMAC;
- o. 20.2.61.109 NMAC;
- p. 20.2.70.200, 20.2.70.201, and 20.2.70.300 NMAC;
- q. 20.2.71.110 and 20.2.71.13 NMAC;

- r. 20.2.72.200, 20.2.72.213 and 20.2.72.119 NMAC;
- s. 20.2.73.200 and 20.2.73.300 NMAC;
- t. 20.2.74.200 NMAC;
- u. 20.2.75.10 and 20.2.75.11 NMAC;
- v. 20.2.77.9 NMAC (as to adoption of the provisions of 40 C.F.R. part 60 that are referenced in Paragraph 135 (b) through (l));
- w. 30 TAC § 106.4;
- x. 30 TAC § 106.6;
- y. 30 TAC § 106.352;
- z. 30 TAC § 106.492;
- aa. 30 TAC § 116.110;
- bb. 30 TAC § 116.111;
- cc. 30 TAC § 116.160; and
- dd. 30 TAC § 121.121.

136. The United States and NMED 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 NMED 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 135. The United States and NMED 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 Apache's facilities, whether related to the violations addressed in this Consent Decree or otherwise.

137. In any subsequent administrative or judicial proceeding initiated by the United States or NMED for injunctive relief, civil penalties, other appropriate relief relating to any of Apache's Facilities listed in Appendix A, Apache 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 NMED 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 135.

138. This Consent Decree is not a permit, or a modification of any permit, under any federal, State, or local laws or regulations. Apache is responsible for achieving and maintaining complete compliance with all applicable federal, State, and local laws, regulations, and permits; and Apache'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 NMED do not, by their consent to the entry of this Consent Decree, warrant or aver in any manner that Apache'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.

139. 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 Apache, except as otherwise provided by law.

140. 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

141. The Parties shall bear their own costs of this action, including attorneys' fees, except that the United States and NMED 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 Apache.

XIV. NOTICES

142. Unless otherwise specified in this Consent Decree, materials shall be accompanied by a cover letter identifying the number of files or attachments (to enable the recipient to confirm the completeness of the submittal) and submitted electronically as described below, unless such notices are unable to be uploaded to the CDX electronic system (in the case of EPA) or transmitted by email (in the case of all Parties). For all notices to EPA, Apache shall register for the CDX electronic system and upload the notice at https://cdx.epa.gov/epa_home.asp. Any notice that cannot be uploaded to CDX or transmitted via email shall be submitted via overnight mail (and if any attachment is voluminous, it shall be provided on a disk, hard drive, or other equivalent successor technology) to the addresses below. As to the United States: submit materials to DOJ at the email or, if necessary, the mail address below. As to EPA: submit materials via CDX, email or, if necessary, the mail address below if CDX or email is not possible).

As to DOJ by email (preferred):

eescdcopy.enrd@usdoj.gov
Re: DJ # 90-5-2-1-12523

As 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 # 90-5-2-1-12523

As to DOJ by overnight mail:

4 Constitution Square
150 M Street, N. E.
Suite 2.900
Washington, D.C. 20002
Re: DJ # 90-5-2-1-12523

As to EPA by email (preferred):

AED_Oil_Gas_CD@epa.gov

As to EPA by mail:

Director, Air Enforcement Division
1200 Pennsylvania Avenue NW
William J Clinton South Building
MC 2242A
Washington, D.C. 20460

As to EPA by telephone:

202-564-7889

As to NMED by email (preferred):

ENV-AQB.Settlement.Notifications@state.nm.us

As to NMED by mail:

Air Quality Bureau
Attn: Compliance & Enforcement Section Chief
525 Camino de los Marquez, Suite 1
Santa Fe, NM 87505

As to Apache:

Apache Corporation
ATTN: Vice President—Environment, Health &
Safety

Before April 15, 2024:
2000 Post Oak Blvd., Ste. 100
Houston, TX 77056

After April 15, 2024:
2000 W. Sam Houston Pkwy S.
Houston, TX 77042

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

144. 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. SALES OR TRANSFERS OF OPERATIONS

145. Apache may sell its ownership interest in, or transfer operation of, a well associated with a Facility to a third party (“transferee”) without the consent of Plaintiffs, provided that Apache shall notify EPA and, as to such a well in New Mexico, NMED, in writing within 30 Days of the sale or transfer of operation of a well.

146. Apache may sell or transfer operation of any Facility to a third party without the consent of the Plaintiffs, provided that Apache shall first, at least 30 Days prior to the sale or transfer: (a) notify the United States and, as to Facilities in New Mexico, NMED, of the proposed sale or transfer and of the specific Consent Decree provisions that Apache proposes the transferee assume; (b) submit a statement to the United States and, as to Facilities in New Mexico, to NMED, certifying that the transferee is contractually bound to assume the obligations and liabilities of this Consent Decree as to the Facility proposed to be sold or transferred; and (c) submit a statement with a certification, substantially in the form as shown in paragraph 96, from the transferee describing how the transferee has both the financial and technical ability to assume the obligations and liabilities of this Consent Decree.

147. Notwithstanding any other provision of this Consent Decree, no sale of a Facility or transfer of the operation of a Facility to a third party shall relieve Apache of its obligations to ensure that the terms of this Consent Decree are implemented at that Facility unless and until the Court has approved a modification pursuant to Section XVIII (Modification) of this Consent

Decree, substituting the third party as a party to this Consent Decree with respect to the Facility. The modification shall make the third party a party to this Consent Decree and shall establish, as between Apache and the third party, their respective responsibilities for compliance with requirements of this Consent Decree that may be applicable to the Facility.

148. No earlier than 30 Days after giving notice of a proposed sale of a Facility or transfer of operatorship of a Facility pursuant to Paragraph 146, Apache may file a motion with the Court to modify this Consent Decree in accordance with Section XVIII (Modification) to make the terms and conditions of this Consent Decree specifically relating to the sold or transferred Facility applicable to the transferee. Upon the effective date of such modification of the Consent Decree, Apache shall be released from the specific obligations and liabilities of this Consent Decree relating to the sold or transferred Facility unless the United States opposes the motion and the Court finds that the transferee does not have the financial and technical ability to assume the obligations and liabilities under this Consent Decree.

149. Notwithstanding any other provision of this Consent Decree, Apache may not be released from any obligation under this Consent Decree that is not specific to the sold or transferred Facility that is subject to a Consent Decree modification as described in paragraph 148, including the obligations set forth in Subsection V.N and Appendix G (Environmental Mitigation Project) and Section IV (Civil Penalty).

XVI. EFFECTIVE DATE

150. 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.

XVII. RETENTION OF JURISDICTION

151. 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 XVIII (Modification), or effectuating or enforcing compliance with the terms of this Consent Decree.

XVIII. MODIFICATION

152. 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. Non-material modifications to this Consent Decree shall be effective when signed in writing by the Parties.

153. 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 Paragraphs 126 or 127, 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).

XIX. TERMINATION

154. After Apache has (a) completed the requirements of Paragraphs 12 through 35 for each of the Battery Pads listed in Appendix A, (b) has thereafter maintained continuous 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 Newly Identified Storage Vessel Systems pursuant to Paragraph 60), (c) has complied with all other requirements of this Consent Decree, and (d) has paid the civil penalty and any accrued stipulated penalties as required by this Consent Decree, Apache may serve upon the Plaintiffs a request for termination, stating that Apache has satisfied those requirements, together with all necessary supporting documentation.

155. Partial Termination. Apache may seek consent to terminate the requirements of this Consent Decree with respect to Facilities listed in Appendix A that are to be transferred to an unrelated entity and entirely from Apache' operational control and for which Apache has completed the requirements of Section V (Compliance Requirements) (except ongoing requirements such as the requirements to continuously operate Storage Vessel Pressure Monitors, Valve Position Monitors and Pilot Monitors, pursuant to Paragraphs 37, 42, and 47, respectively, and to continue implementation of the DI/PM Program required under Paragraph 36) by submitting requests for partial termination in accordance with this Paragraph.

- a. Such request for partial termination shall be provided to the United States and NMED (as to New Mexico Subject Facilities) in writing and identify the Facility (or Facilities) to be subject to the partial termination, and for Subject Vapor Control System(s), state the date that a Certification of Completion Report pursuant to Paragraph 34 was submitted for the Subject Vapor Control System(s).
- b. The United States and NMED (as to New Mexico Subject Facilities) may request additional information regarding the Facility (or Facilities) to verify

that Apache has substantially complied with other requirements of this Consent Decree as to the Facility (or Facilities).

- c. Until such time as the United States and NMED (as to New Mexico Subject Facilities) consent to Apache's request for partial termination, Apache's obligations under this Consent Decree shall remain in effect as to such Facility (or Facilities). Such consent shall not be unreasonably withheld or delayed.

156. Apache shall not submit more than three individual requests for partial termination and may not seek partial termination of greater than 15 percent of the Subject Vapor Control Systems identified pursuant to Paragraph 23 and greater than 15 percent of the Facilities associated with Battery Pads listed on Appendix A that are not Subject Vapor Control Systems.

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

158. If the United States, after consultation with the NMED, does not agree that the Consent Decree may be terminated or partially terminated, Apache may invoke Dispute Resolution under Section X (Dispute Resolution). However, Apache shall not seek Dispute Resolution of any dispute regarding termination until 90 Days after service of its request for termination or partial termination.

XX. PUBLIC PARTICIPATION

159. 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 and NMED reserve the right to withdraw or withhold their consent if the comments regarding this Consent Decree disclose facts or considerations indicating that the Consent Decree is inappropriate, improper, or inadequate. Apache 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 this Consent Decree, unless the United States or NMED has notified Apache in writing that it no longer supports entry of this Consent Decree.

XXI. SIGNATORIES/SERVICE

160. Each undersigned representative of Apache and NMED, and the Assistant Attorney General for the Environment and Natural Resources Division of the Department of Justice certifies that he or she is fully authorized to enter into the terms and conditions of this Consent Decree and to execute and legally bind the Party he or she represents to this document.

161. This Consent Decree may be signed in counterparts, and its validity shall not be challenged on that basis. Apache 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. Apache 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

162. This Consent Decree constitutes the final, complete, and exclusive agreement and understanding among the Parties with respect to the settlement embodied in the Consent Decree and supersedes all prior agreements and understandings, whether oral or written, concerning the settlement embodied herein. The Parties acknowledge that there are no representations, agreements, or understandings relating to the settlement other than those expressly contained in this Consent Decree.

XXIII. FINAL JUDGMENT

163. 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, NMED, and Apache.

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

164. 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: (a) Paragraphs 4 (of Section II (Applicability)), 12 through 92 (of Section V (Compliance Requirements)), 93 through 96 (of Section VI (Periodic Reporting)), and 129 through 132 (of Section XI (Information Collection and Retention)); and (b) Appendices C, F, G and H is restitution or required to come into compliance with law.

XXV. APPENDICES

165. The following Appendices are attached to and part of this Consent Decree:
Appendix A: Battery Pads in New Mexico and Texas

Appendix B: Advanced Action Battery Pads in New Mexico and Texas

Appendix C: Sampling and Analysis Plan

Appendix D: Battery Pads with Storage Vessel Systems Subject to 40 C.F.R. § 60.5395(d)(1) or 40 C.F.R. § 60.5395a(a)(2)

Appendix E: Battery Pads with Storage Vessels Subject to a VRU or Control Device Requirement under New Mexico Permit Programs or Texas Permit Programs

Appendix F: DI/PM Program Requirements

Appendix G: Mitigation Project

Appendix H: Verifier Certification

Dated and entered this ___ day of _____, 2024

UNITED STATES DISTRICT JUDGE

FOR THE UNITED STATES OF AMERICA:

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

NICOLE

VEILLEUX

Digitally signed by NICOLE
VEILLEUX
Date: 2024.02.12 17:56:52
-05'00'

Date: _____

NICOLE VEILLEUX
Senior Counsel
Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
Washington, DC 20044-7611

FOR THE U.S. ENVIRONMENTAL PROTECTION
AGENCY:

Date:

2/12/24




DAVID M. UHLMANN
Assistant Administrator
Office of Enforcement and Compliance Assurance
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

ROSEMARIE KELLEY
Director, Office of Civil Enforcement
Office of Enforcement and Compliance Assurance
U.S. Environmental Protection Agency,
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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

FOR THE U.S. ENVIRONMENTAL PROTECTION
AGENCY:

Date: 1/22/2024



CHERYL SEAGER
Director
Office of Enforcement and Compliance Assurance Division
U.S. Environmental Protection Agency, Region 6
1201 Elm Street
Dallas, Texas 75270

FOR THE NEW MEXICO ENVIRONMENT DEPARTMENT:

Date: 1/24/2024



JAMES C. KENNEY
Secretary
New Mexico Environment Department
1190 St. Francis Drive
Santa Fe, New Mexico 87501

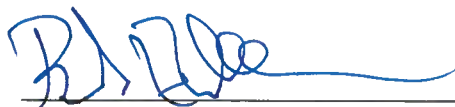
Date: 1-25-24



ZACHARY OGAZ
General Counsel
New Mexico Environment Department
1190 St. Francis Drive
Santa Fe, New Mexico 87501

FOR APACHE CORPORATION:

1/23/2024
Date



BRAD EUBANKS
Senior Vice President—Production Operations

of SF

APPENDIX A
Battery Pads in New Mexico and Texas

#	Facility	County	State	Latitude	Longitude
<u>GROUP 1</u>					
1	A STATE 40	EDDY	NM	32.80564	-104.14209
2	BLACK & TAN 27 FED COM	LEA	NM	32.53768	-103.54848
3	COFFEE FEDERAL	EDDY	NM	32.83753	-103.90978
4	CROW FED BTY	EDDY	NM	32.85418	-103.87027
5	EBDU CTB	LEA	NM	32.48986	-103.12979
6	GHOST RIDER 22-15 FED CTB	LEA	NM	32.2066	-103.66053
7	HUMMINGBIRD FED COM 12	EDDY	NM	32.86713	-103.83112
8	LEE FED BTY	EDDY	NM	32.82247	-103.89726
9	LUSK 34 FED	LEA	NM	32.62253	-103.76183
10	NE DRINKARD UNIT CTB/SAT 3	LEA	NM	32.48713	-103.14418
11	NFE FED	EDDY	NM	32.84257	-103.88661
12	NMGSAU CTB	LEA	NM	32.634167	-103.291667
13	OUTLAW STATE	EDDY	NM	32.8007	-104.1922
14	PALMILLO 0310	EDDY	NM	32.68331	-104.16117
15	PALMILLO 14	EDDY	NM	32.65932	-104.15521
16	PALMILLO 14-15	EDDY	NM	32.66277	-104.15522
17	PALMILLO 21	EDDY	NM	32.64968	-104.18857
18	PALMILLO 26	EDDY	NM	32.63359	-104.13953
19	RAVEN FEDERAL	EDDY	NM	32.84503	-103.91039
20	SALT FORK 3-4 FED COM	EDDY	NM	32.68735	-103.96086
21	THUNDERBIRD A	EDDY	NM	32.8756	-103.96989
22	TONY FEDERAL	EDDY	NM	32.8308	-103.9121
23	WARREN UNIT No. 1 BTY	LEA	NM	32.53022	-103.14688
24	WASHINGTON 33 ST #56 CTB	EDDY	NM	32.78787	-104.1821
25	WBDU SAT 4 / WBDU CTB	LEA	NM	32.48483	-103.17281
26	ALDWELL 0544	REAGAN	TX	31.468551	-101.634893
27	ALDWELL 0611	REAGAN	TX	31.43145	-101.673392
28	ASAU CTB	GAINES	TX	32.958166	-102.291931
29	BENNIE 4342	IRION	TX	31.178664	-101.174832

#	Facility	County	State	Latitude	Longitude
30	BLACK DOG 4231	UPTON	TX	31.555456	-101.894084
31	BLACKFOOT ST UN/CHEROKEE/MOHICAN	REEVES	TX	31.214808	-103.899851
32	BRAGG CTB	REEVES	TX	31.662322	-103.834543
33	BULL RUN	REEVES	TX	31.661128	-103.8799
34	BURNSIDE	REEVES	TX	31.668425	-103.882624
35	CAGE CTB	GLASSCOCK	TX	31.745048	-101.760654
36	CAMPBELL, SETH N	WINKLER	TX	31.880081	-103.064524
37	CAMPBELL, SETH S	WINKLER	TX	31.876	-103.061403
38	CARMICHAEL CTB	ANDREWS	TX	32.211897	-102.798103
39	CC 36-37HZ	UPTON	TX	31.547	-102.01932
40	CC 42/43	UPTON	TX	31.531457	-101.997497
41	CECIL	GLASSCOCK	TX	32.071362	-101.626794
42	CHAPARRAL 89 CTB	LOVING	TX	31.749108	-103.653926
43	CLEVELAND 5	GLASSCOCK	TX	31.746889	-101.52106
44	CLINCH 4238	IRION	TX	31.147274	-101.254949
45	CONNELL 38/47/48 CTB/CGC	UPTON	TX	31.551956	-101.932153
46	COOK 21	GLASSCOCK	TX	31.8175	-101.5207
47	CYPRESS STATE	REEVES	TX	31.290367	-103.985549
48	DIXIELAND GRANT CS	REEVES	TX	31.668428	-103.851169
49	DIXIELAND LEE CS	REEVES	TX	31.659712	-103.872385
50	DRIVER-SCHROCK 1423	MIDLAND	TX	31.77205	-101.79008
51	EAGLE / WOODPECKER 36	GLASSCOCK	TX	31.805994	-101.456946
52	EAST TIPPETT	MIDLAND	TX	31.6921	-102.135897
53	FALCON 2 CTB	LOVING	TX	31.752518	-103.635541
54	FALCON CENTRAL TANK BATTERY	LOVING	TX	31.753252	-103.642701
55	FALCON CS	LOVING	TX	31.751644	-103.638912
56	FALCON PARKS-COYOTE 1506	MIDLAND	TX	31.772722	-102.163456
57	GOODSPEED	GLASSCOCK	TX	31.725844	-101.727148
58	GOODSPEED X-CAL	GLASSCOCK	TX	31.725703	-101.726736
59	GRANT CTB	REEVES	TX	31.668497	-103.845571
60	HARLEY CTB	WINKLER	TX	31.751967	-102.925758
61	HARTGROVE 0401/0304	REAGAN	TX	31.413949	-101.677092
62	JACKSON	REEVES	TX	31.661811	-103.847479
63	JUNE TIPPETT 1213	MIDLAND	TX	31.708299	-102.175933
64	KETCHUM MTN 27	IRION	TX	31.258068	-101.066449
65	LATZEL 34	UPTON	TX	31.571086	-101.959492
66	LATZEL 3946	UPTON	TX	31.564249	-101.953724

#	Facility	County	State	Latitude	Longitude
67	LEE CTB	REEVES	TX	31.659738	-103.872395
68	LUMBERJACK 32	GLASSCOCK	TX	31.700038	-101.396568
69	LYNCH A CTB	MIDLAND	TX	31.718769	-102.165804
70	MAGPIE CARDINAL CTB	LOVING	TX	31.7585	-103.6031
71	MCELROY RANCH	UPTON	TX	31.422002	-102.168005
72	MILLER 37 / 3748 / KASHMIR	UPTON	TX	31.568969	-101.916425
73	MOCKINGBIRD 9-2 CTB	LOVING	TX	31.753751	-103.619367
74	MONT BLANC/BLACKFOOT ST/WINTOON CTB	REEVES	TX	31.214223	-103.901727
75	NAVAJO	REEVES	TX	31.23344	-103.72318
76	NIGHT FLIGHT 4738	UPTON	TX	31.517109	-102.023677
77	NIX 16	GLASSCOCK	TX	31.836756	-101.523031
78	OSPREY STATE UN	LOVING	TX	31.754757	-103.62214
79	ROBIN CS & CTB (S PECOS BEND CS)	REEVES	TX	31.6991	-103.6615
80	SCHROCK 34 CTB	MIDLAND	TX	31.7204	-101.7881
81	SCHROCK, WM 2326	MIDLAND	TX	31.753153	-101.782586
82	SCOTT SUGG 5051E 5051W 4948	IRION	TX	31.25582	-101.109053
83	SCOTT SUGG NE UN	IRION	TX	31.2556	-101.0321
84	SCOTT-SUGG SE UN	IRION	TX	31.255612	-101.032109
85	SEAGULL-PELICAN CTB	LOVING	TX	31.727455	-103.631883
86	SHACKELTON 31	GLASSCOCK	TX	32.341887	-102.613117
87	SRH 12	REAGAN	TX	31.461385	-101.444716
88	SRH 13	REAGAN	TX	31.470225	-101.45928
89	SRH CENTRAL (SEC. 16) HORIZ	REAGAN	TX	31.470821	-101.46499
90	SRH EASTERN (SEC 13) HORIZ	REAGAN	TX	31.470603	-101.447099
91	SRH NORTH 14/15	REAGAN	TX	31.482243	-101.485958
92	SRH WESTERN (SEC. 11)	REAGAN	TX	31.471535	-101.4976
93	SSH UNIT CTB	IRION	TX	31.207581	-101.085208
94	STONE	UPTON	TX	31.18194	-101.897679
95	SUGG 0807	IRION	TX	31.211625	-101.04459
96	TOMAHAWK-POLARIS	UPTON	TX	31.366806	-101.811107
97	TORPEDO 1048	UPTON	TX	31.3586	-101.824306
98	UNIV 2303/2404	REAGAN	TX	31.3152	-101.6163
99	UNIV 2505 / 25W	REAGAN	TX	31.308614	-101.587431
100	WARHEAD 0405	UPTON	TX	31.315481	-101.818261

#	Facility	County	State	Latitude	Longitude
101	WEATHERBY 1231/1232 CTB	REAGAN	TX	31.33025	-101.623917
<u>Group 2</u>					
102	BIRDIE FEDERAL	EDDY	NM	32.83212	-103.9977
103	CEDAR LAKE PAD 27W	EDDY	NM	32.85159	-103.88276
104	CEDAR LAKE PAD 30W	EDDY	NM	32.84692	-103.88289
105	CURRY, MAE F	LEA	NM	32.49863	-103.2001
106	EBDU SAT 1	LEA	NM	32.49743	-103.13793
107	EBDU SAT 2	LEA	NM	32.49729	-103.12113
108	EBDU SAT 3	LEA	NM	32.48439	-103.1213
109	GHOST RIDER 22-15 SOUTH SAT	LEA	NM	32.196842	-103.659133
110	GRIZZELL BATTERY	LEA	NM	32.42273	-103.20059
111	HAWK /B-03/	LEA	NM	32.50738	-103.14435
112	L & M	LEA	NM	32.59667	-103.1231
113	LAUGHLIN, W H	LEA	NM	32.58852	-103.26178
114	LOCKHART B-12	LEA	NM	32.49973	-103.1101
115	LOCO FEDERAL	EDDY	NM	32.82467	-103.97622
116	LYNCH, WALTER	LEA	NM	32.42409	-103.12089
117	M & M #1,2,3,4,5,6,7	LEA	NM	32.56012	-103.142
118	MCDONALD STATE AC 2	LEA	NM	32.3964	-103.22195
119	NE DRINKARD UNIT SAT 1	LEA	NM	32.50516	-103.13583
120	NE DRINKARD UNIT SAT 3A	LEA	NM	32.4828	-103.1452
121	NE DRINKARD UNIT SAT 4	LEA	NM	32.48065	-103.17918
122	NE DRINKARD UNIT SAT 4A	LEA	NM	32.46136	-103.15541
123	NE DRINKARD UNIT SAT 5	LEA	NM	32.46187	-103.13137
124	NE DRINKARD UNIT SAT 5A	LEA	NM	32.46527	-103.14041
125	NMGSAU BTY 89	LEA	NM	32.606749	-103.261255
126	NMGSAU BTY 98	LEA	NM	32.589657	-103.260631
127	OWEN, MARK 1-5,8,28,29	LEA	NM	32.43182	-103.13816
128	OWEN, MARK 7,9,10,15- 18,20	LEA	NM	32.433166	-103.14015
129	PINOT/WHITE OWL	LEA	NM	32.60704	-103.12104

#	Facility	County	State	Latitude	Longitude
130	RINEWALT	LEA	NM	32.42442	-103.16995
131	STATE D A	LEA	NM	32.47678	-103.17254
132	WASHINGTON 33 STATE	EDDY	NM	32.79134	-104.18136
133	ALTA	REEVES	TX	31.038533	-103.765071
134	ANDERSON 26	GLASSCOCK	TX	31.929816	-101.516762
135	ARROW HEMDALE CTB	REEVES	TX	31.686585	-103.988741
136	ASH CTB	REEVES	TX	31.274396	-103.81426
137	ASPEN STATE	REEVES	TX	31.263731	-104.024917
138	BETTY JO	GLASSCOCK	TX	31.891006	-101.515875
139	BIRCH UNIT	REEVES	TX	31.273565	-103.831122
140	BLACK HAWK STATE	REEVES	TX	31.1372	-103.7925
141	BLACKLINE /BROWN BOMBER	WINKLER	TX	31.682839	-102.84495
142	BONSAI ST UN	REEVES	TX	31.31549	-103.921808
143	BRAHANEY UNIT CTB	YOAKUM	TX	33.1567	-102.8874
144	BRAHANEY UNIT SAT 1	YOAKUM	TX	33.172895	-102.894558
145	BRENNAN DALE CTB	LOVING	TX	31.85121	-103.64335
146	CATALINA CTB	WARD	TX	31.639835	-103.32866
147	CHALK, OTIS	HOWARD	TX	32.106341	-101.290687
148	CHEYENNE	REEVES	TX	31.0534	-103.7488
149	CHINOOK	REEVES	TX	31.169457	-103.790856
150	CLARKE, FRANK NCT-1	ANDREWS	TX	32.1476	-102.5756
151	CONDOR	LOVING	TX	31.7416	-103.6226
152	CONOCO POWELL DEEP #1,2,3	CROCKETT	TX	31.01995	-101.5999
153	CREE ST UN	REEVES	TX	31.122182	-103.759279
154	DEADWOOD NORTH GATHERING	GLASSCOCK	TX	31.945144	-101.48541
155	DEADWOOD SOUTH GATHERING/ DEADWOOD GATHERING	GLASSCOCK	TX	31.864366	-101.491372
156	DORADO 18	GLASSCOCK	TX	31.83095	101.54995
157	DRAGON CTB	REEVES	TX	31.67796	-103.980998
158	DXL 20	GLASSCOCK	TX	31.731625	-101.410454
159	E D B 10	GLASSCOCK	TX	31.848599	-101.5145
160	E W COWDEN	WINKLER	TX	31.787971	-103.095467
161	ED BOOKS 1	GLASSCOCK	TX	31.873869	-101.490054
162	ED BOOKS 17	GLASSCOCK	TX	31.826703	-101.540981
163	ED BOOKS 35	GLASSCOCK	TX	31.8054	-101.4776
164	FOX CTB	REEVES	TX	31.114265	-103.76263
165	FURY	REEVES	TX	30.972209	-103.612154

#	Facility	County	State	Latitude	Longitude
166	HORNET SATELLITE	MIDLAND	TX	31.700258	-102.191978
167	HUCKLEBERRY	REEVES	TX	31.299426	-103.917961
168	HUFF DOBACK CTB	LOVING	TX	31.85484	-103.655336
169	HYPERION	REEVES	TX	30.929533	-103.626301
170	IROQUOIS ST UN	REEVES	TX	31.193704	-103.879065
171	JUNIPER CTB	REEVES	TX	31.279394	-104.07605
172	KICKAPOO	REEVES	TX	31.185531	-103.797701
173	KING FLICKA	PECOS	TX	30.776903	-103.487944
174	LONGS PEAK ST UN	REEVES	TX	31.037411	-103.772634
175	LYNCH A NORTH SATELLITE	MIDLAND	TX	31.730088	-102.165963
176	LYNCH TIPPETT 4801 SAT	MIDLAND	TX	31.73056	-102.183586
177	MAUI 5	GLASSCOCK	TX	31.752609	-101.508317
178	MOHICAN UNIT	REEVES	TX	31.210965	-103.925987
179	MONT BLANC #2H & #3H	REEVES	TX	31.214131	-103.895395
180	NIGHTHAWK CTB	REEVES	TX	31.684959	-103.988218
181	PALM UNIT	REEVES	TX	31.27817	-103.828833
182	PHANTOM SATELLITE (LYNCH A SOUTH SAT)	MIDLAND	TX	31.706666	-102.161388
183	PINE STATE	REEVES	TX	31.278998	-104.022745
184	PRESTIGE WORLDWIDE	REEVES	TX	31.739518	-103.868307
185	REDWOOD	REEVES	TX	31.311374	-104.089871
186	RETAMA ST UN	REEVES	TX	31.328987	-103.936181
187	SANDERS TR A	MIDLAND	TX	31.6674	-102.2214
188	SAU MARINER 12-1/3/4	REAGAN	TX	31.454246	-101.669942
189	SAU MARINER 17-1	REAGAN	TX	31.439517	-101.647931
190	SAU MARINER 18-1/3	REAGAN	TX	31.430652	-101.647131
191	SAU MARINER 18-2/4	REAGAN	TX	31.421267	-101.648831
192	SAU MARINER 2-1/TR39	REAGAN	TX	31.429004	-101.654207
193	SAU MARINER 28-1/2/3/4	REAGAN	TX	31.532195	-101.645599
194	SAU MARINER 32-1/2/3, 32-2A	REAGAN	TX	31.519695	-101.654402
195	SAU MARINER 40	REAGAN	TX	31.503965	-101.634263
196	SAU MARINER 4-1/1B	REAGAN	TX	31.478486	-101.625995
197	SAU MARINER 44-2/3/4/TR15-4	REAGAN	TX	31.488736	-101.644833
198	SAU MARINER 8-1/8-3	REAGAN	TX	31.464698	-101.639793
199	SAU MARINER 9-1/3	REAGAN	TX	31.464176	-101.626219
200	SCHWARTZ 2	GLASSCOCK	TX	31.864381	-101.507437
201	SCOTT 34	IRION	TX	31.26048	-101.085288

#	Facility	County	State	Latitude	Longitude
202	SEALY SMITH A&B	WINKLER	TX	31.725396	-102.932338
203	SPORTSTER 10-18-1H	WINKLER	TX	31.762139	-102.946011
204	STATE DESERT GOLD UNIT	REEVES	TX	30.911359	-103.625896
205	STORM CAT UNIT	REEVES	TX	31.071524	-103.642766
206	SUNDOWN SEALY SMITH	WINKLER	TX	31.708928	-102.957867
207	THREE BAR CENTRAL	ANDREWS	TX	32.1546	-102.8087
208	WAHOO 20	GLASSCOCK	TX	31.8148	-101.5376
209	WEAVER 23	GLASSCOCK	TX	31.8193	-101.4864
210	WEISSMIES	REEVES	TX	31.021998	-103.742601
211	WEST TIPPETT	MIDLAND	TX	31.6979	-102.17345
212	WILLOW ST UN	REEVES	TX	31.310161	-103.905244
<u>GROUP 3</u>					
213	A STATE 42	EDDY	NM	32.8069	-104.14213
214	AAO FED SOUTH	EDDY	NM	32.77681	-104.23153
215	AAO FEDERAL 1 & 22	EDDY	NM	32.78217	-104.2336
216	AB STATE 647	EDDY	NM	32.78672	-104.20049
217	APACHE STATE Q	LEA	NM	32.57116	-103.25058
218	BARNSDALL FEDERAL	EDDY	NM	32.8118	-104.05828
219	BUTLER, EDITH B	LEA	NM	32.39021	-103.11227
220	CHESHER/COLL/PLUMLEE BTTY	LEA	NM	32.49132	-103.11997
221	D STATE	EDDY	NM	32.79986	-104.14387
222	D STATE 49	EDDY	NM	32.7948	-104.1371
223	D STATE 74	EDDY	NM	32.78448	-104.15542
224	ELLIOTT EM 20 FED	LEA	NM	32.37968	-103.19225
225	EMPIRE ABO UNIT D40 CTB	EDDY	NM	32.79973	-104.13948
226	HARE, J G	LEA	NM	32.43098	-103.17264
227	HAWK /A/	LEA	NM	32.49984	-103.18035
228	HAWK FED B-1 69 & 70	LEA	NM	32.49179	-103.16741
229	HIGH PLAINS ST	LEA	NM	33.09662	-103.48896
230	HUMMINGBIRD SOUTH FED COM	EDDY	NM	32.86089	-103.83158
231	LAUGHLIN, V	LEA	NM	32.59307	-103.26043
232	LUSK S 28 FED	LEA	NM	32.62608	-103.77736
233	MJ STATE	EDDY	NM	32.78097	-104.25488
234	MONUMENT ABO	LEA	NM	32.61168	-103.33244
235	MUNCY, J L	LEA	NM	32.37346	-103.11241

#	Facility	County	State	Latitude	Longitude
236	N B TWEEN STATE	EDDY	NM	32.80789	-104.12469
237	TOBY, G W WN	LEA	NM	32.22288	-103.21574
238	TURNER BATTERY	LEA	NM	31.3405	-101.7113
239	TURNER, WM	LEA	NM	32.44815	-103.18302
240	WALDEN, E W	LEA	NM	32.38878	-103.15572
241	WARD, L W (SHENCK)	LEA	NM	33.20057	-103.06493
242	WARN STATE AC 1	LEA	NM	32.79199	-103.49967
243	WARN STATE AC 2	LEA	NM	32.77049	-103.49917
244	WARREN MCKEE BTY	LEA	NM	32.54195	-103.1716
245	WARREN UNIT No. 5 BTY	LEA	NM	32.54414	-103.14276
246	WARREN UNIT No. 6 BTY	LEA	NM	32.55267	-103.16436
247	WARREN UNIT No. 7 BTY	LEA	NM	32.5449	-103.1551
248	WEIR, W A 'B'	LEA	NM	32.63575	-103.32851
249	WERTA FEDERAL	LEA	NM	32.61004	-103.11798
250	WOOD, EUGENE	LEA	NM	32.38034	-103.14796
251	WORTHAN, LOU	LEA	NM	32.41002	-103.62252
252	ANDREWS UN	ANDREWS	TX	32.338648	-102.593004
253	ANDREWS UN E SAT	ANDREWS	TX	32.341042	-102.577824
254	ASAU CS	TERRY	TX	32.963889	-102.301554
255	AWU BATT	TERRY	TX	32.97105	-102.310601
256	BAKKE CENTRAL	ANDREWS	TX	32.2788	-102.5197
257	BAKKE SATELLITE 4	ANDREWS	TX	32.2685	-102.5333
258	BICE, SARAH	GAINES	TX	32.936932	-102.2668
259	BROWN BOMBER A 27	WINKLER	TX	31.705872	-102.874512
260	BUSBY 10	IRION	TX	31.312725	-101.018529
261	CC 36	UPTON	TX	31.554451	-102.021081
262	CC 37	UPTON	TX	31.540866	-102.014853
263	FLANAGAN	GAINES	TX	32.55167	-102.707358
264	GMK CTB	GAINES	TX	32.810647	-102.524785
265	GMK WEST UN	GAINES	TX	32.820687	-102.547417
266	GRIERSON B	REAGAN	TX	31.130428	-101.657094
267	GRIERSON SPRINGS CS (UNIV 6-7)	REAGAN	TX	31.104954	-101.674016
268	HART, C W	ANDREWS	TX	32.2884	-102.5316
269	HENDRICK, IDA T-88-N	WINKLER	TX	31.846201	-103.1596
270	HOGG G D	WINKLER	TX	31.743328	-102.95091
271	HOLLEY/TURNER 1208UN	REAGAN	TX	31.328664	-101.640077
272	KETCHUM MTN CLFK BTY	IRION	TX	31.251771	-101.10442
273	KETCHUM MTN EAST	IRION	TX	31.260452	-101.059477

#	Facility	County	State	Latitude	Longitude
	BAT 12				
274	KETCHUM MTN EAST BAT 14	IRION	TX	31.288724	-101.059334
275	KETCHUM MTN EAST BAT 2	IRION	TX	31.300968	-101.031639
276	KMEU 28	IRION	TX	31.25023	-101.072726
277	KMEU CENTRAL (KMEU 14 NORTH)	IRION	TX	31.295631	-101.058072
278	LINK, LC	ANDREWS	TX	32.3515	-102.5989
279	MCCLINTIC TRUST	MIDLAND	TX	31.960759	-101.820573
280	MCFARLAND CENTRAL	ANDREWS	TX	32.467874	-102.50825
281	MILLER 36	UPTON	TX	31.578125	-101.920291
282	NEAL 38	UPTON	TX	31.529979	-102.033125
283	PARKER, JE H	ANDREWS	TX	32.3288	-102.589
284	PARKER, JE J	ANDREWS	TX	32.3084	-102.5629
285	PARKER, OLA STATE 6	ANDREWS	TX	32.220478	-102.81479
286	PETRO GRANDE A 30	WINKLER	TX	31.73641	-102.899759
287	POGUE /M/	GAINES	TX	32.6011	-102.6905
288	SAU MARINER 20-1/2/3/4	REAGAN	TX	31.545049	-101.662337
289	SAU MARINER 21-1/2/3/4	REAGAN	TX	31.552643	-101.64951
290	SAU MARINER 31-1	REAGAN	TX	31.509682	-101.675498
291	SAU MARINER 42-4	REAGAN	TX	31.504699	-101.659106
292	SAU MARINER 45-1/2/4	REAGAN	TX	31.496609	-101.631901
293	SCOTT SUGG W UN	IRION	TX	31.255833	-101.108625
294	SCOTT-SUGG 1110	IRION	TX	31.256012	-101.045168
295	SCOTT-SUGG 1213	IRION	TX	31.260007	-101.052828
296	SCOTT-SUGG 3332	IRION	TX	31.257925	-101.084549
297	SCOTT-SUGG 5554	IRION	TX	31.255102	-101.121638
298	SHAFTER LAKE UNIT	ANDREWS	TX	32.341887	-102.613117
299	SOFTAIL 10-17 #2H	WINKLER	TX	31.759981	-102.953542
300	SPIKE S UNIT	IRION	TX	31.296748	-101.128351
301	SPRINGER 10-23	WINKLER	TX	31.739743	-102.927993
302	SRH 11 & 14	REAGAN	TX	31.472664	-101.483055
303	SRH 16-1	REAGAN	TX	31.459	-101.461538
304	SRH 16-2	REAGAN	TX	31.445829	-101.477314
305	SRH 17/18	REAGAN	TX	31.440723	-101.459177
306	SUGG 2829	IRION	TX	31.256534	-101.060006
307	T.J. GOOD BATTERY	BORDEN	TX	32.601027	-101.60718
308	THREE BAR SATELLITE WEST(SHALLOW)	ANDREWS	TX	32.143702	-102.810169

#	Facility	County	State	Latitude	Longitude
309	UNIV 2536	REAGAN	TX	31.186596	-101.677162
310	UNIVERSITY 184	REAGAN	TX	31.237049	-101.679809
311	UNIVERSITY 185	REAGAN	TX	31.237017	-101.679811
312	UNIVERSITY 25-C	REAGAN	TX	31.242151	-101.671053
313	UNIVERSITY BAR 36	ANDREWS	TX	32.204814	-102.824958
314	UNIVERSITY F	REAGAN	TX	31.119178	-101.647819
315	WEBER 47	UPTON	TX	31.524656	-102.034945
316	WESTBROOK OIL CORP BLOCK 4	ANDREWS	TX	32.511119	-102.544731
317	WESTBROOK OIL CORP BLOCK 9	ANDREWS	TX	32.5004	-102.5447
<u>GROUP 4</u>					
318	ADAMS 26	GLASSCOCK	TX	31.8132	-101.4857
319	ALFORD, DL A	UPTON	TX	31.351639	-101.789861
320	AMBERJACK 39	GLASSCOCK	TX	32.031093	-101.463099
321	BALLENGER	GLASSCOCK	TX	31.92228	-101.478491
322	BALLENGER 32	GLASSCOCK	TX	31.915837	-101.468393
323	BALLENGER 41	GLASSCOCK	TX	31.905702	-101.455906
324	BALLENGER 42	GLASSCOCK	TX	31.9083	-101.4789
325	BARBA-NEAL 21	GLASSCOCK	TX	31.955103	-101.453641
326	BARRACUDA 45	GLASSCOCK	TX	31.895993	-101.440399
327	BELL 22	GLASSCOCK	TX	31.8236	-101.4973
328	BURNS 27	GLASSCOCK	TX	31.816147	-101.498826
329	CHANEY 43	UPTON	TX	31.732963	-103.662994
330	CLAY 166	GLASSCOCK	TX	32.0622	-101.3186
331	CONNELL COWDEN 48	UPTON	TX	31.530926	-102.01073
332	COONS, W A UNIT	HOCKLEY	TX	33.394453	-102.453848
333	COPELAND 27	GLASSCOCK	TX	31.9208	-101.5412
334	DEAN, C S /A/ UN	COCHRAN	TX	33.507788	-102.739766
335	DOLPHIN 12	GLASSCOCK	TX	31.852	-101.483
336	DORA ROBERTS	HOWARD	TX	32.104413	-101.331924
337	DUFF 7	GLASSCOCK	TX	31.979874	-101.50716
338	EAST MALLET UNIT	HOCKLEY	TX	33.471817	-102.540909
339	ED BOOKS 11	GLASSCOCK	TX	31.852916	-101.50009
340	ED BOOKS 13	GLASSCOCK	TX	31.8483	-101.4721
341	ED BOOKS 2-2	GLASSCOCK	TX	31.871	-101.4994
342	ED BOOKS 2A	GLASSCOCK	TX	31.866797	-101.499832
343	EDWARDS 3	GLASSCOCK	TX	31.999474	-101.450961

#	Facility	County	State	Latitude	Longitude
344	ELLWOOD A & B (SAT 1)	HOCKLEY	TX	33.654612	-102.185595
345	ELLWOOD SAT 4	HOCKLEY	TX	33.640035	-102.186468
346	ELLWOOD SAT 5	HOCKLEY	TX	33.627924	-102.189094
347	ELLWOOD SAT 6	HOCKLEY	TX	33.611076	-102.178282
348	ELLWOOD SAT 7	HOCKLEY	TX	33.656169	-102.148874
349	EMERALD BATT	YOAKUM	TX	32.96077	-102.75168
350	FOXTROT 31	GLASSCOCK	TX	31.6896	-101.4105
351	FREEWILLY 41	GLASSCOCK	TX	31.8972	-101.5525
352	GIBSON 7B & 7C	GLASSCOCK	TX	31.8568	-101.4685
353	GLASS 15	GLASSCOCK	TX	31.842271	-101.507121
354	GLASS 3-1	GLASSCOCK	TX	31.871382	-101.51893
355	GOODNER 22	GLASSCOCK	TX	31.8254	-101.5052
356	GRAY 24-1	GLASSCOCK	TX	31.830177	-101.471327
357	GREATWHITE 44	GLASSCOCK	TX	31.900133	-101.461845
358	HALL COWDEN 42 STOP	UPTON	TX	31.569551	-101.903117
359	HAMMERHEAD 33	GLASSCOCK	TX	31.925246	-101.444869
360	HARDY 18-1	GLASSCOCK	TX	31.846899	-101.451203
361	HARTLEY 38	GLASSCOCK	TX	31.898525	-101.602321
362	HEIDI 37	GLASSCOCK	TX	31.7963	-101.4596
363	HIS BLESSING 34	GLASSCOCK	TX	31.904281	-101.533224
364	HIS BLESSING 35	GLASSCOCK	TX	31.912143	-101.513661
365	HOWARD GLASSCOCK CENTRAL (STOCKTON B)	HOWARD	TX	32.159267	-101.241691
366	HUITT 25	GLASSCOCK	TX	31.929513	-101.495227
367	KEATHLEY 46	GLASSCOCK	TX	31.878713	-101.522559
368	KESTREL 38	GLASSCOCK	TX	31.790114	-101.472061
369	KLOH BATTERY (EAST, MARATHON)	HOWARD	TX	32.09933	-101.433271
370	KLOH OIL AND GAS PRODUCTION FACILITY	HOWARD	TX	32.09961	-101.433244
371	LEE 59 4H	GLASSCOCK	TX	31.563609	-101.270286
372	LYNDA-NEAL 28	GLASSCOCK	TX	31.939763	-101.450398
373	MACK 6 CARTER 43	GLASSCOCK	TX	31.989707	-101.508998
374	MACK 8-2	GLASSCOCK	TX	31.9742	-101.4855
375	MALLET NORTH TEST NO 3	COCHRAN	TX	33.476342	-102.607588
376	MAPLE WILSON CTB 1	HOCKLEY	TX	33.523118	-102.468885
377	MARLIN 47H	GLASSCOCK	TX	32.01977	-101.443632
378	N MALLET	HOCKLEY	TX	33.473008	-102.586036
379	NANNIE MAY	YOAKUM	TX	33.227368	-102.953721

#	Facility	County	State	Latitude	Longitude
380	NCLU BATT 1	COCHRAN	TX	33.619495	-102.626717
381	NCLU BATT 2	HOCKLEY	TX	33.619523	-102.580947
382	NCLU BATT 3	HOCKLEY	TX	33.610973	-102.544626
383	NCLU TRACT 39	HOCKLEY	TX	33.621588	-102.5757
384	NICHOLS 22	GLASSCOCK	TX	31.93848	-101.53871
385	NICHOLS 23	GLASSCOCK	TX	31.9384	-101.5387
386	PALOMEDA	GLASSCOCK	TX	32.0082	-101.492698
387	PHILLIPS 58	GLASSCOCK	TX	31.9884	-101.3948
388	PHILMAC	GLASSCOCK	TX	31.9644	-101.3901
389	PLAINS UNIT	YOAKUM	TX	33.199134	-102.844233
390	RED SNAPPER 14	GLASSCOCK	TX	31.979115	-101.43355
391	RED SNAPPER-NEAL 16H	GLASSCOCK	TX	31.966734	-101.463266
392	REDTAIL 48	GLASSCOCK	TX	31.782492	-101.453497
393	RILEY 37	GLASSCOCK	TX	31.90031	-101.48973
394	RILEY 47	GLASSCOCK	TX	31.885572	-101.508304
395	RILEY 48	GLASSCOCK	TX	31.88795	-101.495653
396	ROBERTS UNIT BATTERY 1	YOAKUM	TX	33.028716	-102.978446
397	ROBERTS UNIT BATTERY 2	YOAKUM	TX	33.0088	-102.9306
398	ROBERTS UNIT BATTERY 3	YOAKUM	TX	32.9983	-102.9333
399	ROBERTS UNIT BATTERY 4	YOAKUM	TX	33.02531	-102.892361
400	ROBERTS UNIT BATTERY 5	YOAKUM	TX	33.0255	-102.8842
401	ROBERTS UNIT BATTERY 6	YOAKUM	TX	33.00703	-102.9299
402	RUNNER 17	GLASSCOCK	TX	31.958348	-101.482151
403	S MALLET	COCHRAN	TX	33.4459	-102.60102
404	SAWFISH 37	GLASSCOCK	TX	32.0427	-101.4273
405	SCHWARTZ / HUITT	GLASSCOCK	TX	31.922013	-101.498489
406	SCHWARTZ 36	GLASSCOCK	TX	31.917835	-101.495245
407	SHOOK, R B /A/ D	YOAKUM	TX	33.192997	-102.927041
408	SPEARFISH 27	GLASSCOCK	TX	31.9414	-101.4378
409	SPENCER 7	GLASSCOCK	TX	31.8473	101.5632
410	SQUIRE 4	GLASSCOCK	TX	32.002235	-101.47329
411	SQUIRE 9-1	GLASSCOCK	TX	31.9861	-101.4654
412	SW LEVELLAND UNIT	COCHRAN	TX	33.548392	-102.714646
413	UNIVERSITY 4 TAYLOR DRAW	UPTON	TX	31.145239	-101.778162

#	Facility	County	State	Latitude	Longitude
414	WALKER FARMS 14	GLASSCOCK	TX	31.8418	-101.4889
415	WEEMS, L R (BRONCO 5)	YOAKUM	TX	33.206809	-103.058043
416	WLU NO 1	COCHRAN	TX	33.600367	-102.685666
417	WLU NO 2	COCHRAN	TX	33.593753	-102.609179
418	WLU ROBERTS COBLE B BTY	HOCKLEY	TX	33.5996	-102.52119
419	WOODLEY, F L	COCHRAN	TX	33.49509	-102.63357
420	XIT UNIT	COCHRAN	TX	33.50445	-102.80825
421	ZPZ 1055	UPTON	TX	33.757151	-102.420631
422	ZPZ FEE	UPTON	TX	31.18994	-102.077763

APPENDIX B
Advanced Action Battery Pads in New Mexico and Texas

Facility	County	State	Latitude	Longitude
BIRDIE FEDERAL	EDDY	NM	32.83212	-103.9977
BLACK & TAN 27 FED COM	LEA	NM	32.53768	-103.54848
COFFEE FEDERAL	EDDY	NM	32.83753	-103.90978
CROW FED BTY	EDDY	NM	32.85418	-103.87027
CURRY, MAE F	LEA	NM	32.49863	-103.2001
GHOST RIDER 22-15 FED CTB	LEA	NM	32.2066	-103.66053
LOCO FEDERAL	EDDY	NM	32.82467	-103.97622
LUSK 34 FED	LEA	NM	32.62253	-103.76183
NE DRINKARD UNIT CTB/SAT 3	LEA	NM	32.48713	-103.14418
OUTLAW STATE	EDDY	NM	32.8007	-104.1922
PALMILLO 14-15	EDDY	NM	32.66277	-104.15522
PALMILLO 26	EDDY	NM	32.63359	-104.13953
RAVEN FEDERAL	EDDY	NM	32.84503	-103.91039
SALT FORK 3-4 FED COM	EDDY	NM	32.68735	-103.96086
TONY FEDERAL	EDDY	NM	32.8308	-103.9121

Facility	County	State	Latitude	Longitude
ALDWELL 0611	REAGAN	TX	31.43145	-101.673392
ANDERSON 26	GLASSCOCK	TX	31.929816	-101.516762
ASAU CTB	GAINES	TX	32.958166	-102.291931
ASPEN STATE	REEVES	TX	31.263731	-104.024917
BENNIE 4342	IRION	TX	31.178664	-101.174832
BLACK HAWK STATE	REEVES	TX	31.1372	-103.7925
BLACKFOOT ST UN/CHEROKEE/MOHICAN	REEVES	TX	31.214808	-103.899851
BRAGG CTB	REEVES	TX	31.662322	-103.834543
BULL RUN	REEVES	TX	31.661128	-103.8799
BURNSIDE	REEVES	TX	31.668425	-103.882624
CC 36-37HZ	UPTON	TX	31.547	-102.01932
CC 42/43	UPTON	TX	31.531457	-101.997497
CECIL	GLASSCOCK	TX	32.071362	-101.626794
CHAPARRAL 89 CTB	LOVING	TX	31.749108	-103.653926
CHEYENNE	REEVES	TX	31.0534	-103.7488
CLEVELAND 5	GLASSCOCK	TX	31.746889	-101.52106
CLINCH 4238	IRION	TX	31.147274	-101.254949
CONDOR	LOVING	TX	31.7416	-103.6226
CONNELL 38/47/48	UPTON	TX	31.551956	-101.932153
COOK 21	GLASSCOCK	TX	31.8175	-101.5207

Facility	County	State	Latitude	Longitude
CYPRESS STATE	REEVES	TX	31.290367	-103.985549
DIXIELAND GRANT CS	REEVES	TX	31.668428	-103.851169
DIXIELAND LEE CS	REEVES	TX	31.659712	-103.872385
DRIVER-SCHROCK 1423	MIDLAND	TX	31.77205	-101.79008
E D B 10	GLASSCOCK	TX	31.848599	-101.5145
EAGLE / WOODPECKER 36	GLASSCOCK	TX	31.805994	-101.456946
ED BOOKS 35	GLASSCOCK	TX	31.8054	-101.4776
FALCON 2 CTB	LOVING	TX	31.752518	-103.635541
FALCON CENTRAL TANK BATTERY	LOVING	TX	31.753252	-103.642701
FALCON CS	LOVING	TX	31.751644	-103.638912
FOX CTB	REEVES	TX	31.114265	-103.76263
GOODSPEED X-CAL	GLASSCOCK	TX	31.725703	-101.726736
GRANT CTB	REEVES	TX	31.668497	-103.845571
HARTGROVE 0401/0304	REAGAN	TX	31.413949	-101.677092
JACKSON	REEVES	TX	31.661811	-103.847479
JUNE TIPPETT 1213	MIDLAND	TX	31.708299	-102.175933
KETCHUM MTN 27	IRION	TX	31.258068	-101.066449
LATZEL 3946	UPTON	TX	31.564249	-101.953724
LEE CTB	REEVES	TX	31.659738	-103.872395

Facility	County	State	Latitude	Longitude
LUMBERJACK 32	GLASSCOCK	TX	31.700038	-101.396568
LYNCH A CTB	MIDLAND	TX	31.718769	-102.165804
LYNCH A NORTH SATELLITE	MIDLAND	TX	31.730088	-102.165963
LYNCH TIPPETT 4801 SAT	MIDLAND	TX	31.73056	-102.183586
MAGPIE CARDINAL CTB	LOVING	TX	31.7585	-103.6031
MILLER 37 / 3748 / KASHMIR	UPTON	TX	31.568969	-101.916425
MOCKINGBIRD 9-2 CTB	LOVING	TX	31.753751	-103.619367
MONT BLANC/BLACKFOOT ST/WINTOON CTB	REEVES	TX	31.214223	-103.901727
OSPREY STATE UN	LOVING	TX	31.754757	-103.62214
PALM UNIT	REEVES	TX	31.27817	-103.828833
PINE STATE	REEVES	TX	31.278998	-104.022745
ROBIN CS & CTB (S PECOS BEND CS)	REEVES	TX	31.6991	-103.6615
SCHROCK 34 CTB	MIDLAND	TX	31.7204	-101.7881
SCHROCK, WM 2326	MIDLAND	TX	31.753153	-101.782586
SCOTT SUGG 5051E 5051W 4948	IRION	TX	31.25582	-101.109053

Facility	County	State	Latitude	Longitude
SCOTT-SUGG SE UN	IRION	TX	31.255612	-101.032109
SEAGULL-PELICAN CTB	LOVING	TX	31.727455	-103.631883
SHACKELTON 31	GLASSCOCK	TX	32.341887	-102.613117
SRH CENTRAL (SEC. 16) HORIZ	REAGAN	TX	31.470821	-101.46499
SRH EASTERN (SEC 13) HORIZ	REAGAN	TX	31.470603	-101.447099
SRH NORTH 14/15	REAGAN	TX	31.482243	-101.485958
SRH WESTERN (SEC. 11)	REAGAN	TX	31.471535	-101.4976
SSH UNIT CTB	IRION	TX	31.207581	-101.085208
STONE	UPTON	TX	31.18194	-101.897679
TOMAHAWK-POLARIS	UPTON	TX	31.366806	-101.811107
TORPEDO 1048	UPTON	TX	31.3586	-101.824306
UNIV 2303/2404	REAGAN	TX	31.3152	-101.6163
UNIV 2505 / 25W	REAGAN	TX	31.308614	-101.587431
WARHEAD 0405	UPTON	TX	31.315481	-101.818261
WEATHERBY 1231/1232 CTB	REAGAN	TX	31.33025	-101.623917
WEISSMIES	REEVES	TX	31.021998	-103.742601

APPENDIX C

Sampling and Analysis Plan

PRESSURIZED LIQUID SAMPLING PROTOCOL FOR EQUATION OF STATE MODELING AT OIL & GAS PRODUCTION FACILITIES

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1. PURPOSE AND OBJECTIVE

This protocol governs how Apache shall collect and analyze pressurized liquids as required under Paragraph 20 of the Consent Decree. This protocol includes requirements and guidance for obtaining pressurized liquid and stock oil samples from oil and gas wells suitable for use in thermodynamic equation of state (EOS) process simulation modeling (PSM) to estimate the volumetric flow and mass emission rates of speciated hydrocarbon vapors evolved from pressurized liquids entering atmospheric storage tanks from production separators (known commonly as “flash gas”). The EOS used in the models are predictive of steady-state, equilibrium conditions, which also represent preferred, normal operating conditions in functional separators. It is critically important that a pressurized liquid sample used in EOS PSM to be as near equilibrium as possible in order for the underlying equations to predict flashing emissions under normal conditions. While it is acknowledged that a separator may not operate at or near equilibrium conditions, such conditions cannot be modeled using equations of state and must be measured directly.

Further, the EOS PSM requires speciated analysis of the light phase (methane to nonanes) and information about the heavy phase (decane and heavier, referred to as C10+). Since it is impractical and cost-prohibitive to analyze the thousands of isomers of hydrocarbons in the heavy phase, the EOS PSM will use information on the physical properties including molecular weight and density to approximate the heavy phase composition from correlations curves built into the model environment.

It is also important that the sample collected be homogeneous (i.e., only containing pressurized liquid) and single phase (i.e., containing only hydrocarbon and not include entrained vapor or aqueous phase). Failure to do so will present a sample that is neither representative of normal operating conditions nor a pressurized liquid at equilibrium conditions that can be represented by EOS.

EOS PSM requires a record of sampling conditions and process parameters to adequately predict flash emissions based on the obtained samples. As with all models, EOS PSM requires a comparison to field-measured values to evaluate the model's performance. While modeling techniques are not the subject of this protocol, it addresses appropriate field measurements and other samples required to support adequate PSM and model performance evaluation.

This protocol will provide preferred and required practices to:

- Verify and document the sampled process is functioning normally and stable prior to sampling;
- Obtain homogeneous, single-phase pressurized hydrocarbon liquid;
- Obtain properly speciated light end (C1 to C9) composition and physically specified heavy end (C10+);
- Verify pressurized liquid samples are near equilibrium in accordance with defined acceptance criteria; and
- Obtain relevant data to confirm standard/design operating conditions (relevant temperatures/pressures, Reid vapor pressure, API gravity).

2. SAMPLE SITE SELECTION AND PRE-SAMPLING REQUIREMENTS

2.1 Process Conditions

For an EOS PSM to accurately estimate flash emissions, the process being sampled must be stable at normal operating conditions. Production separators are process vessels that separate high-pressure mixed-phase liquids into hydrocarbon gas, hydrocarbon liquid, and water through controlled depressurization and gravimetric separation of immiscible liquids. These process vessels are often heated to encourage gas evolution and demulsify mixed-phase liquids. This process requires sufficient residence time to allow for gas evolution and liquid separation.

Prior to sampling, the operator must verify that the process has remained stable. If available, the operator shall monitor the separator temperature and pressure. If any of the following critical indicators are met, the process *shall not be sampled* because it may not be stable and therefore the sample may not be representative:

- The separator temperature fluctuated by more than 20°F in the last 24 hours;
- The separator pressure fluctuated by more than +/- 10% from setpoint in the last 24 hours;
- Separator maintenance has occurred in the last 72 hours; or
- Maintenance, disruption, or interruption to upstream operations (e.g., workovers, shut-ins) or downstream takeaway has occurred within the last 72 hours.

The sampler must allow the separators to stabilize after a dump cycle before sample collection. In such an event, the sampling must be delayed or the sampler must choose a different site (still meeting representativeness criteria) from which to collect the sample. Similarly, if a separator has proportional (or throttling) level control, then the sample must be collected during a period when the flow is stable.

2.2 Pre-Sampling Requirements

2.2.1 Pressurized Liquid and Produced Water

Per CARB Protocol § 7.1 and §7.2, the sampler must record the separator identification number, separator pressure, and separator temperature. If the separator has instrumentation, the sampler shall record pressure and temperature from field instruments as well. Temperature data from the first downstream atmospheric tank or separator shall also be provided if it is available and safe to collect.

2.2.2 Flowing Natural Gas

The sampler must follow the GPA 2166 pre-sampling requirements for flowing natural gas sampling. At a minimum, the sampler must record the separator identification number, separator temperature, and separator pressure. If the separator has instrumentation, the sampler shall record pressure and temperature from field instruments as well.

2.2.3 Atmospheric Liquid

For automated samples, API MPS Chapter 8.2, ASTM D4177, or ISO 3171 pre-sampling guidance is applicable. For manual samples, the sampler must follow pre-sampling requirements from

either ASTM D4057 or ISO 3170. At a minimum, the sampler must record the tank identification and tank temperature on the sample identification tag and data collection form prior to collecting the sample.

2.3 Sample Location

The pressurized liquid or produced water sample must be pulled from a dedicated sample port or dump valve connection located after the separator discharge, but before first flow control valve to ensure a pressurized sample is obtained. Care must be taken to ensure that the sample is a homogeneous oil sample and that there is no gas entrained. To ensure homogeneity, samples must not be collected from the sight glass or similar device at the gas/liquid interface. Sight glass sampling can result in gas entrainment from the gas/liquid interface or sampling of a mixed phase sample resulting in a sample that is not representative of separator operation. Stock oil samples must be pulled from an atmospheric tank through the thief hatch or other sample port. Gas samples must be pulled from a dedicated sample port from the same separator as the pressurized liquid sample. All dedicated sample ports must be purged in accordance with reference methods prior to sampling. When multiple samples are taken from a separator, the sample should be collected on the same day and to the extent practicable, as close as possible to the same time.

3. SAMPLING METHODS AND PROCEDURES

3.1 Sample Procedures

Pressurized liquid (oil or water) and stock oil samples shall be collected in accordance with Gas Producers Association Method (GPAM) 2174 *Obtaining Liquid Hydrocarbon Samples for Analysis by Gas Chromatography*. This method employs a pressured extraction cylinder to maintain the sample at separator pressure. To maintain sample pressure, the method employs the displacement fluids, either water or an inert gas. While either fluid is satisfactory for the purposes of this protocol, water displacement method is advantageous and preferred as it insulates the sample better than the gas to minimize shrinkage and maintains pressure better. In addition, the sampling cylinder must be warmed above separator temperature during sampling to prevent sample shrinkage.

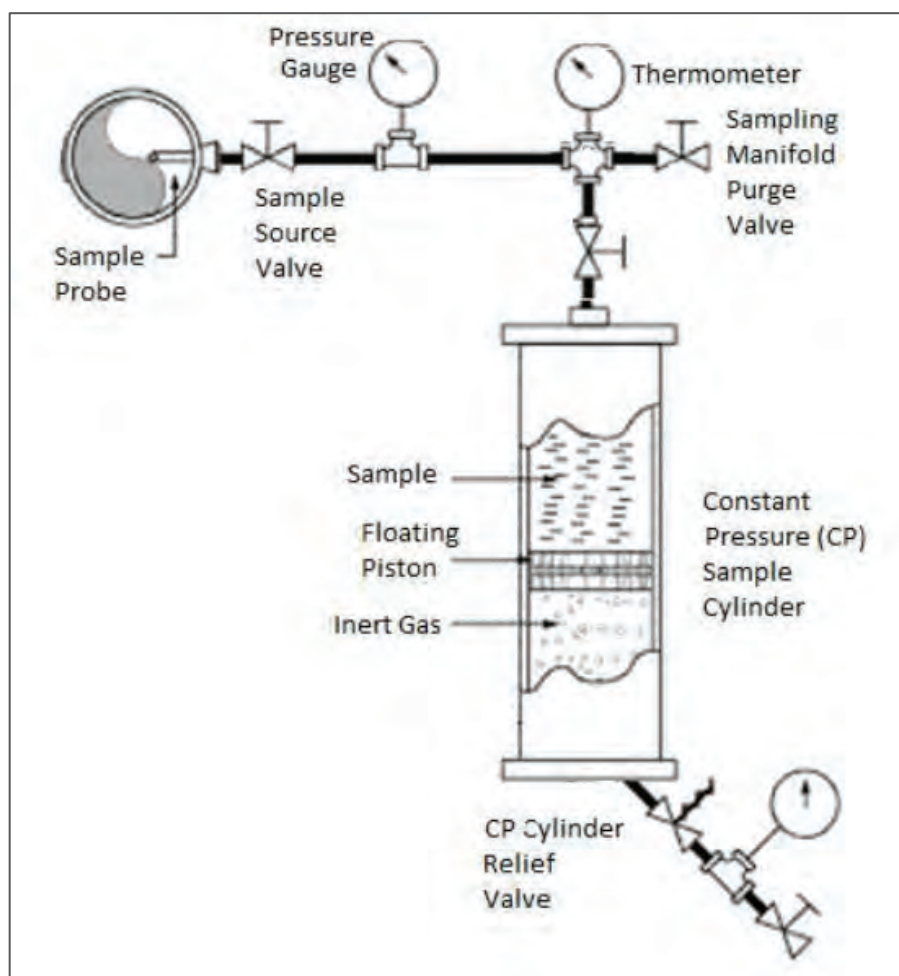


Figure 3-1 Constant Volume Cylinder Sampling System ¹

Samplers should use sample tubing with a diameter greater than ¼" to ensure sufficient flow. The sampling rate should not exceed 60 milliliters per minute (mL/min)². A sampling rate above this range may result in mixed-phase sample. Samples pulled at a rate greater than 60 mL/min shall be flagged. The sampler must observe the sample cylinder for water or gas entrainment. If water or gas is observed, the sampling shall be discontinued, and the sample rejected. The sampler shall record the sample pressure and temperature from a gauge as close as possible to the sampling point. The following values must also be recorded: 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 the requirements of California Air Resource Board (CARB) Protocol § 5.1 to 5.2 as follows:

- 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 .

For stock oil tanks, the sampler must record the surface temperature of bulk liquid. Ideally, this is done using a calibrated field temperature probe or infrared sensor inserted through the thief hatch or other sampling port. Process instrumentation may be used but the sensor height should be as close to the liquid surface level as possible. If process instrumentation is used, the liquid height and sensor height shall be recorded. Flashing emissions occur at the gas/liquid interface of the tank and the flashing emissions are very sensitive to temperature. As such, it is imperative that the temperature recorded be representative of the surface temperature to obtain an accurate representation of emissions.

After sample collection, a leak check must be performed to validate the integrity of the sample cylinder or container.

- 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.

3.2 Sample Documentation

Samplers shall record pre-sampling conditions and sampling parameters to document separator conditions and verify conformity to sampling protocols. This includes noting any upset or abnormal events that occur during sampling. This information is critical to evaluate the representativeness of a sample to normal, stable operating conditions and verify the sample is suitable for EOS PSM.

In addition, any unusual circumstances that occur during sampling that might be useful context for modeling or laboratory analysis (e.g., broken field instrumentation or presence of gas) shall be recorded in the field notes. Photo documentation is helpful but should only be performed in accordance with operator health and safety standards (if allowed at all). A field checklist and sampling record is provided in **Appendix A**.

4. LABORATORY ANALYSIS

4.1 Sample Conditioning

The sample must be conditioned to separator conditions prior to analysis by slowly heating and returning it to homogeneous, single phase for accurate results. If wax crystals are observed within the sample upon receipt, that is an indication of multi-phase behavior and must be noted in the laboratory results. The laboratory technician shall observe if any gas or aqueous phase is observed in the sample cylinder and note that as well. The sample pressure should be at sample conditions upon receipt. Samples requiring re-pressurization have lost vapor integrity and shall not be analyzed.

4.2 Sample Analysis

Table 4-1 presents a summary of approved methods for selected analytes that may be used for sample analysis under this protocol.

Table 4-1. Summary of approved analytical methods for potentially relevant parameters.

Parameter	Subparameter	Approved Methods
Flash Gas Composition	H ₂ S (low level)	<ul style="list-style-type: none"> • EPA Method 15 and Method 16 • ASTM D-1945M • ASTM D-5504 • ASTM D-6228 • ASTM D-4810 • USOP 163
	N ₂ , CO ₂ , H ₂ S (high level), and C1 to C10+	<ul style="list-style-type: none"> • ASTM D-1945 • GPA 2286
	Benzene, Toluene, Ethylbenzene and Xylene (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	O ₂ , N ₂ , CO ₂ , H ₂ S (high level), and C1 to C10+	<ul style="list-style-type: none"> • GPA 2186 • GPA 2103
	BTEX	<ul style="list-style-type: none"> • GPA 2186 • GPA 2103.
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, Heating Value, and Density	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 D6377
Oil Cut in Water	TPH	<ul style="list-style-type: none"> • EPA 1664b

Pressurized liquid samples collected for EOS PSM must be speciated for all hydrocarbon isomers from methane (C1) to nonanes (C9) requiring extended analysis. The following GPAM analyses are recommended:

- GPAM 2103-20 *Method for Analysis of Natural Gas Condensate Mixtures Containing Nitrogen and Carbon Dioxide by Gas Chromatography*
- GPAM 2186-14 *Method for the Extended Analysis of Hydrocarbon Liquid Mixtures Containing Nitrogen and Carbon Dioxide by Temperature Programmed Gas Chromatography*

For pressurized oil samples, a concurrent flash liberation analysis (FLA), which includes measuring the flash gas to oil ratio (FGOR), and extended gas analysis shall be conducted for comparison to EOS PSM results as a quality control measure. For pressurized produced water samples, a FLA and extended gas analysis must be conducted which includes measuring the flash gas to water ration (FGWR) associated with hydrocarbons dissolved in the water. To conduct the FLA, an accurately measured volume of reconditioned pressurized liquid from the sample is transferred to a flash vessel conditioned to stock tank field conditions for atmospheric pressures and stock tank temperatures. The volume of gas can then be measured with a gasometer and collected for analysis. The FGOR or FGWR is calculated from the measured gas and liquid volumes. The gas can be analyzed for composition using GPAM 2286 *Extended Analysis of Natural Gas and Similar Gas Mixtures by Program Gas Chromatography*.

In addition, physical properties of the heavy ends (C10+) of the pressurized liquid must be analyzed and specified, including density (API gravity) and molecular weight. This process first requires distillation of the C10+ cut from the pressurized liquid using ASTM D86M *Modified Atmospheric Distillation* where the boiling temperature is set to remove C1 to C9 and leave C10+ remaining. Density can be measured using an API hydrometer per ASTM D287 or a digital densitometer per ASTM D5002. Molecular weight can be determined by using a cryoscope or distillation method. Stock oil samples only require definition of the density (API gravity) for model performance evaluation and sampling quality assurance. Produced water liquids are not analyzed.

5. OPERATIONAL PERFORMANCE CHECKS AND REPRESENTATIVENESS CRITERIA

5.1 Operational Performance Checks – Pressurized Liquid

It is key to understand that while a sample may be valid by meeting quality assurance criteria for sampling and analysis methods, it may not be representative of normal, stable operations suitable for the purpose of EOS PSM. EOS PSM uses equations of state approximate the partition of vapor and liquid phases of a sample at any given pressure and temperature at steady-state equilibrium. Therefore, the PSM requires pressurized liquid samples be as close to steady-state equilibrium as possible, which is at the point of the phase envelope where liquid begins to evolve into vapor, known as the bubble point. Therefore, a sample integrity verification must be performed on the pressurized liquid sample by empirically deriving bubble point pressure in the laboratory at the sample collection temperature. The CARB procedures for this check shall be followed.³ The phase envelope is derived based on the sample composition and aggregates the thermodynamic properties of each constituent as shown in **Appendix B**. If the sample pressure and temperature deviate too far from the phase envelope, this indicates that the sample is too far from equilibrium conditions to be suitable for EOS PSM. A sample phase envelope is shown in Figure 5-1.

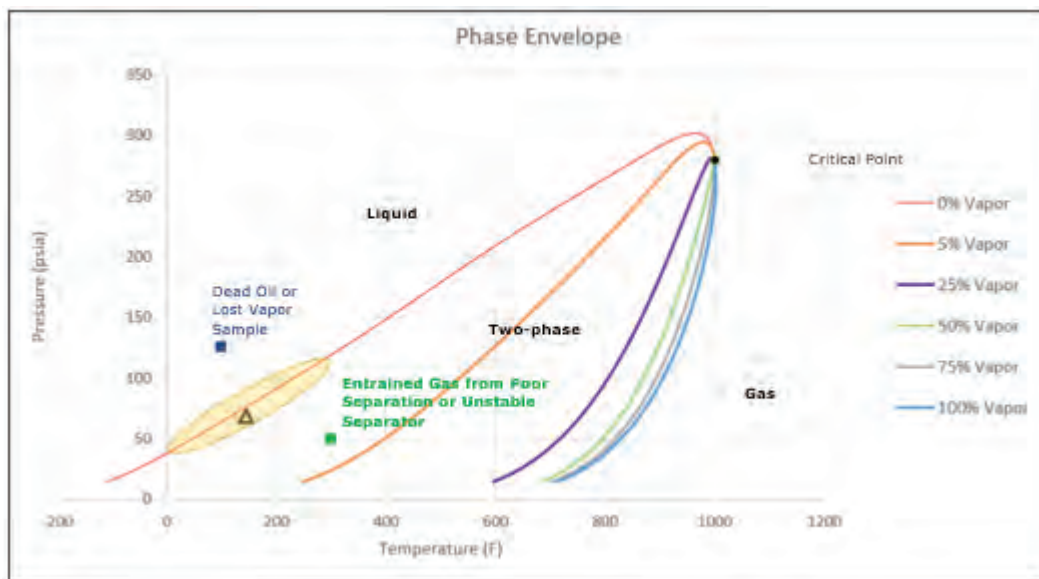


Figure 5-1. Phase Envelope

Deviation from the sample pressure indicates a sample not in equilibrium and indicative of improper sampling, lost sample integrity, or separator upset. Sample pressures too far above bubble point indicate entrained gas from sampling or separator carryover while sample pressures too far below indicate the vapor was lost or the sample has no vapor phase at sampling conditions (e.g., dead oil). Flash emissions are exponentially sensitive to pressure, so the acceptance criteria must become more stringent as pressure increases. Any sample where the

³[https://govt.westlaw.com/calregs/Document/I3ED9DDCC703047C3A585C7556D0A2504?viewType=FullText&originationContext=documenttoc&transitionType=CategoryPageItem&contextData=\(sc.Default\)](https://govt.westlaw.com/calregs/Document/I3ED9DDCC703047C3A585C7556D0A2504?viewType=FullText&originationContext=documenttoc&transitionType=CategoryPageItem&contextData=(sc.Default))

field sample pressure deviates from the empirical bubble point pressure by more than the indicated values in Table 5-1 shall not be used for EOS PSM.

Table 5-1. Sample Acceptance Criteria, Sample Pressure Compared to Bubble Point Pressure (at Sample Temperature)

For Field Sample Pressures in the Following Range (psig)	Acceptable Difference (in percent)
Greater than or equal to 500	+/- 5%
250 to 499	+/- 7%
100 to 249	+/- 10%
50 to 99	+/- 15%
20 to 49	+/- 20%
Less than 20	+/- 30%

5.2 Operational Performance Checks – Stock Oil

The stock oil API gravity obtained from sales or haul tickets may be used to indicate issues with the laboratory analysis. Because the oil contained in storage vessels is weathered, the API gravity of stock oil indicated on run tickets should always be lower than the API gravity determined in the laboratory using a fresh oil sample. An API gravity produced in the laboratory that is lower than the API gravity indicated on sales or haul tickets is indicative of vapor loss during the sampling event itself, sample transit or laboratory analysis. Such a sample shall not be utilized for process simulation purposes.

5.3 Sample Representativeness Criteria

Operators and agencies may wish to use a sample from one location to be representative of operations and emissions at another as it may be impractical to obtain site-specific samples at every location. In addition, regulatory agencies may wish to group samples into group to determine emission factors. Due to variances in geologic conditions and site operations, a representative sample (i.e., one that is not site-specific) must meet the following requirements:

- Be obtained from the same geologic reservoir formation as the facility to be modeled;
- Be within the same separator operating pressure range (+/- 20 psig for separators operating at or above 30 psig; for separators operating below 30 psig, representative sample must not be less than half of actual facility operating pressure);
- Be within the same temperature operating range (+/- 20 °C); and
- Be obtained from a sample set of at least 10% of the facilities in each representative group (e.g., formation, pressure range, temperature range) with at least two samples per group.

Where a facility may have more than one sample that is representative, modeling should prefer to a sample that has an equivalent separator configuration. Barring that, the sample with a sample pressure that is closest to the operating pressure in the represented separator should be selected.

6. DOCUMENTATION

6.1 Field Documentation

Samplers must document the pre-sampling and sample conditions using the forms provided in Appendix A. Form A-1 shall be completed by the facility operations contact to verify operational conditions and document that the location is able to be sampled. This form must be completed prior to sampling. Form A-2 shall be completed by the sampler during the sampling event. Each form must be completed for each sample. Sampling companies may use alternate forms provided they contain at least the information provided in Appendix A. All field forms must be retained with the sample and provided in the laboratory report.

6.2 Laboratory Report

The sampling laboratory shall provide a report for each sample analyzed that includes the following information:

1. Facility name, identification number, and location
2. Identification of sampling company and sampling personnel
3. Contact information for sampling company and sampling personnel
4. Identification and description of vessel sampled, including identification number
5. Identification of sampled material (pressurized liquid, produced water, stock oil)
6. Start and stop date/time of sampling
7. Date of analysis
8. Description of sampling and analytical methods
9. Summary of sampling conditions
 - a. Separator/vessel pressure (psig)
 - b. Separator/vessel temperature (psig)
10. Results of analysis, as applicable:
 - a. Flash gas factor (FGOR or FGWR), in standard cubic feet per barrel (scf/bbl)
 - b. Compositional analysis as specified in Table 4-1
 - c. Specific gravity and molecular weight of heavy fraction (C10+)
 - d. API gravity and Reid Vapor Pressure of sales oil or condensate
11. Quality assurance procedures and results of operational performance checks
 - a. Phase envelope with comparison of sample pressure to bubble point pressure at sample temperature
 - b. Data flags, if any
12. Appendices
 - a. Field data sheets and checklists
 - b. Calibration certificates for field instrumentation

6.3 Summary Report

Upon completion of all sampling and analysis activities, Apache shall prepare a report that summarizes the results. The summary report shall identify all samples analyzed and provide a summary table of the following for each sample:

1. Facility name, identification number, and location
2. Identification of sampling company
3. Identification and description of vessel sampled, including identification number

4. Identification of sampled material (pressurized liquid, produced water, stock oil)
5. Date of sampling
6. Date of analysis
7. Description of sampling and analytical methods
8. Summary of production data of oil/condensate, produced water, and associated gas
 - a. Highest daily production in past 12 months
 - b. Daily average production in past 12 months
 - c. Highest 12-month rolling total in past 60 months
 - d. Permitted allowable production (if applicable)
9. Summary of sampling conditions
 - a. Separator/vessel pressure (psig)
 - b. Separator/vessel temperature (psig)
10. Summary results of analysis, as applicable:
 - a. Flash gas factor (FGOR or FGWR), in standard cubic feet per barrel (scf/bbl)
 - b. Compositional analysis as specified in Table 4-1
 - c. Specific gravity and molecular weight of heavy fraction (C10+)
 - d. API gravity and Reid Vapor Pressure of sales oil or condensate
11. Results of Quality Assurance
 - a. Identification if sample passed laboratory quality assurance
 - b. Identification of any laboratory data flags
 - c. Identification if sample passed operational performance checks
 - d. Sample pressure
 - e. Bubble point pressure at sample temperature

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APPENDIX A – DOCUMENTATION FORMS

Form A-1: Pre-Sampling Checklist

Site Identification

Site Name / ID		
Site Location	Lat/Long in Decimal Deg.	
	County/State	

Administrative Information

Facility Contact	
Contact Email / Phone No.	

Separator Temperature Parameters (Where Available)

Minimum separator temperature in last 24 hours (°F):	
Maximum separator temperature in last 24 hours (°F):	
Describe method of temperature measurement (e.g., SCADA, local gauge, etc.):	
Has separator temperature fluctuated by more than +/- 20°F in the last 24 hours?	<input type="checkbox"/> Yes <input type="checkbox"/> No

*If yes, **stop here.** Sampling cannot be performed as a representative sample will not be obtained.*

Separator Pressure Parameters (Where Available)

Minimum separator pressure in last 24 hours (psig):	
Maximum separator pressure in last 24 hours (psig):	
Describe method of pressure measurement (e.g., SCADA, local gauge, etc.):	
Has separator pressure fluctuated by more than +/- 10% from setpoint in the last 24 hours?	<input type="checkbox"/> Yes <input type="checkbox"/> No

*If yes, **stop here.** Sampling cannot be performed as a representative sample will not be obtained.*

Separator Operating Parameters (Where Available)

Has separator maintenance, upstream operations (e.g., workovers) or downstream takeaway occurred within the last 72 hours?	<input type="checkbox"/> Yes <input type="checkbox"/> No Describe:
Is there any indication that the separator is not operating properly?	<input type="checkbox"/> Yes <input type="checkbox"/> No Describe:

*If yes, **stop here.** Sampling cannot be performed as a representative sample will not be obtained.*

Additional Notes:

Form A-2: Sampling Record

Section I: General Site Information

Sample Date (mm/dd/yyyy):		
Site Name / Site ID		
Sampling Company Name		
Sampler Name / Email		
Site Location (Lat/Long, County/State)		
Sample Point Location (describe):		
Ambient Temperature (°F):		

Section II: Separator Operating Parameters

Separator Operating Temperature (°F):		
Location Where Separator Operating Temperature Obtained (describe):		
Method Used to Obtain Separator Operating Temperature (describe):		
Separator Operating Pressure (psig):		
Location Where Separator Operating Pressure Obtained (describe):		
Method Used to Obtain Separator Operating Pressure (describe):		

Section III: Downstream Storage Tank Operating Parameters Collect Only When Safe To Do So and Information is Available

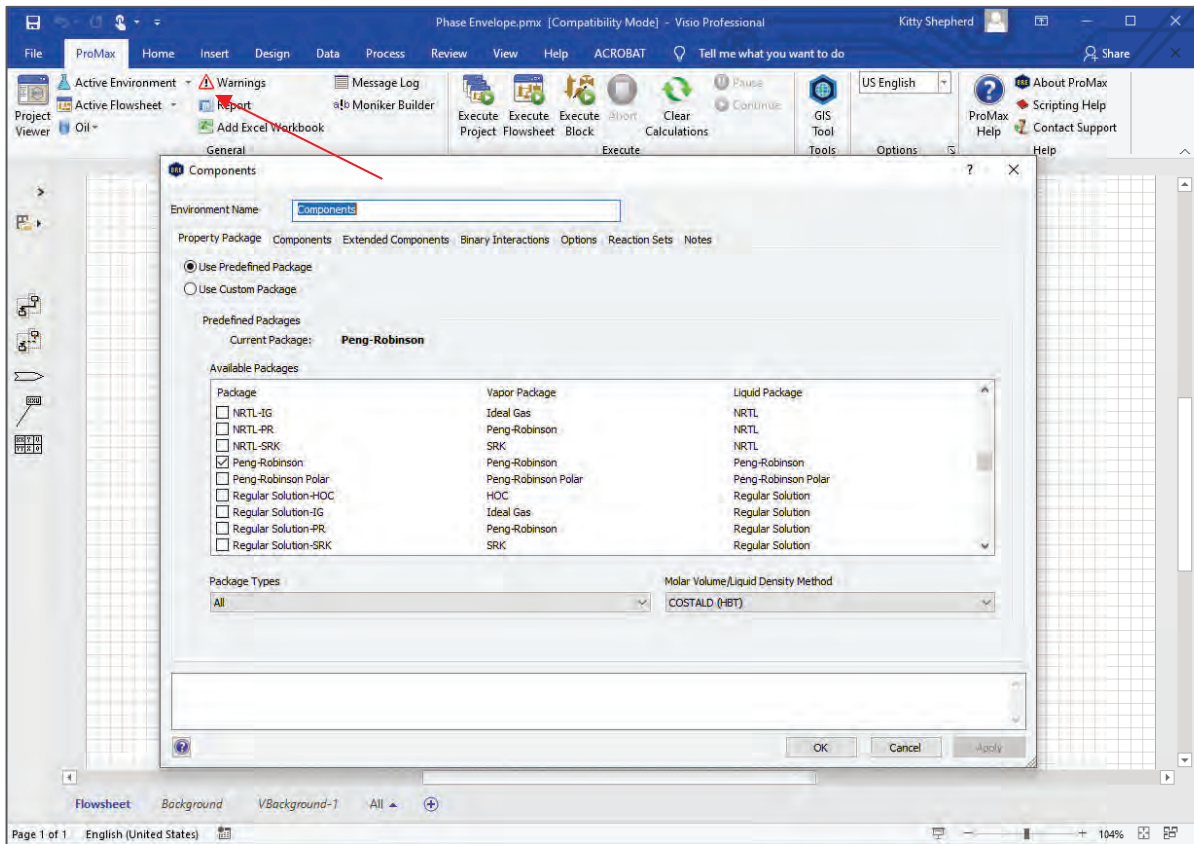
Liquid Surface Temperature of Downstream Storage Tank (°F):		
Location Where Liquid Surface Temperature Obtained (describe):		
Method Used to Obtain Liquid Surface Temperature (describe):		
Quantity of Downstream Storage Tanks (qty):		

Section IV: Sample Information	
Pressure Separator ID	
Sample Temperature (°F):	
Sample Pressure (psig):	
Sample Collection Rate (mL/min):	
Sample Type (check one)	<input type="checkbox"/> Crude Oil <input type="checkbox"/> Condensate <input type="checkbox"/> Produced Water
Two Phase Sample Observed?	<input type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes, discard sample. Sample cannot be analyzed.</i>
Leaks Observed in Sample Cylinder/Container?	<input type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes, discard sample. Sample cannot be analyzed.</i>
Cylinder Type (check one)	<input type="checkbox"/> Double Valve <input type="checkbox"/> Piston
Cylinder ID	
Cylinder Volume (mL)	
Displacement Liquid	
Sample Volume (ml)	
Outage Displaced (ml)	
Sampling Rate < 60 mL/min?	<input type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes, discard sample. Sample cannot be analyzed.</i>
Abnormal Events Encountered?	<input type="checkbox"/> Yes <input type="checkbox"/> No <i>If yes, discard sample. Sample cannot be analyzed.</i> If yes, describe:
Section V: Additional Notes	

APPENDIX B – OPERATIONAL PERFORMANCE CHECK

After the sample has been collected, the laboratory shall confirm that the sample is at bubble point through either physical methods or by using the phase analysis capabilities of an equation-of-state process simulator. The second of these methods is outlined below using BR&E's ProMax process simulator as an example.

STEP 1 - Create an Environment Within the Simulation.

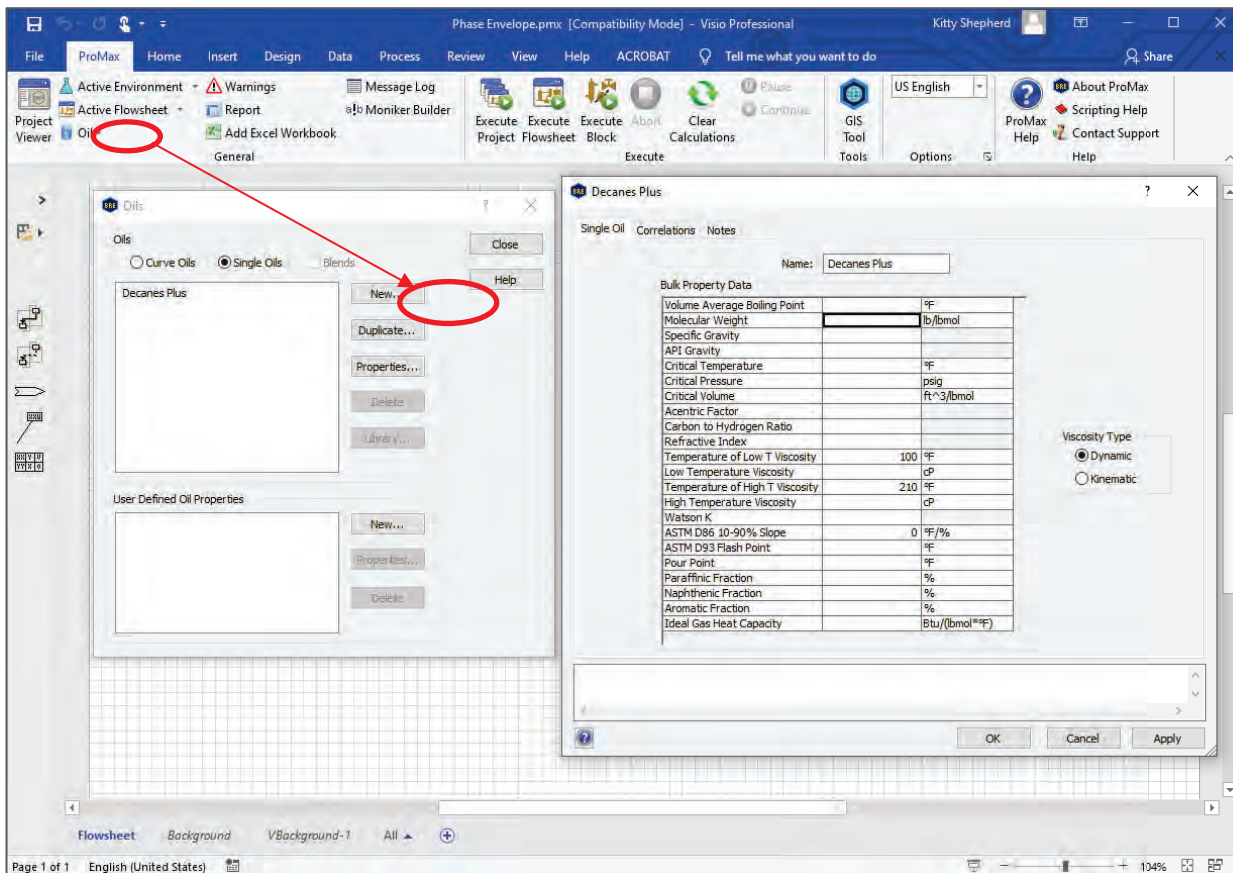


STEP 2 – Add Components.

The screenshot shows the ProMax software interface with the 'Components' dialog box open. The 'Extended Components' tab is selected and circled in red. The dialog box displays a list of available components (11580) and installed components (24). The 'Available Components' list includes Hydrogen, Monatomic; Hydrogen Radical; Hydrogen, Atomic; H*; Hydrogen, diatomic, equilibrium; Hydrogen, diatomic, para; Hydrogen, diatomic, ortho; Hydrogen; Hydrogen (para); and Hydrogen (ortho). The 'Installed Components' list includes TEG, Water, H2S, Carbon Dioxide, Nitrogen, Methane, Ethane, Propane, Isobutane, n-Butane, Isopentane, n-Pentane, i-C6, Heptane, Octane, and Nonane.

Name	CASRN	Formula	MW (lb/l)	NBP (°F)
Hydrogen, Monatomic	12385-13-6	H	1.00794	
Hydrogen Radical	12385-13-6	H	1.00794	
Hydrogen, Atomic	12385-13-6	H	1.00794	
H*	12385-13-6	H	1.00794	
Hydrogen, diatomic, equilibrium	1333-74-0	H2	2.01588	
Hydrogen, diatomic, para	800000-49-1	H2	2.01588	
Hydrogen, diatomic, ortho	800000-50-4	H2	2.01588	
Hydrogen	800000-51-5	H2	2.01588	
Hydrogen (para)	800000-49-1	H2	2.01588	
Hydrogen (ortho)	800000-50-4	H2	2.01588	
TEG	112-27-6	C6H14O4	150.173	551.0
Water	7732-18-5	H2O	18.0153	211.9
H2S	7783-06-4	H2S	34.0809	-76.6
Carbon Dioxide	124-38-9	CO2	44.0095	-109.2
Nitrogen	7727-37-9	N2	28.0134	-320.4
Methane	74-82-8	CH4	16.0425	-258.6
Ethane	74-84-0	C2H6	30.069	-127.7
Propane	74-98-6	C3H8	44.0956	-43.6
Isobutane	75-28-5	C4H10	58.1222	10.9
n-Butane	106-97-8	C4H10	58.1222	31.1
Isopentane	78-78-4	C5H12	72.1488	82.11
n-Pentane	109-66-0	C5H12	72.1488	96.9
i-C6	107-83-5	C6H14	86.1754	140.4
Heptane	142-82-5	C7H16	100.202	209.1
Octane	111-65-9	C8H18	114.229	258.2
Nonane	111-84-2	C9H20	128.255	303.4

STEP 3 – Add Heavy Component Properties.



STEP 4 – Create a new stream and specify stream conditions (temperature, pressure, flow rate, composition).

The screenshot shows the ProMax software interface. On the left, the 'Shapes' panel has a red circle around the 'Stream' icon. In the center, the 'Project Viewer' window displays a table of stream properties. Red arrows point from the 'Mole Fraction Vapor' and 'Mole Fraction Heavy Liquid' rows in the table to the 'Stream' shape in the 'Shapes' panel.

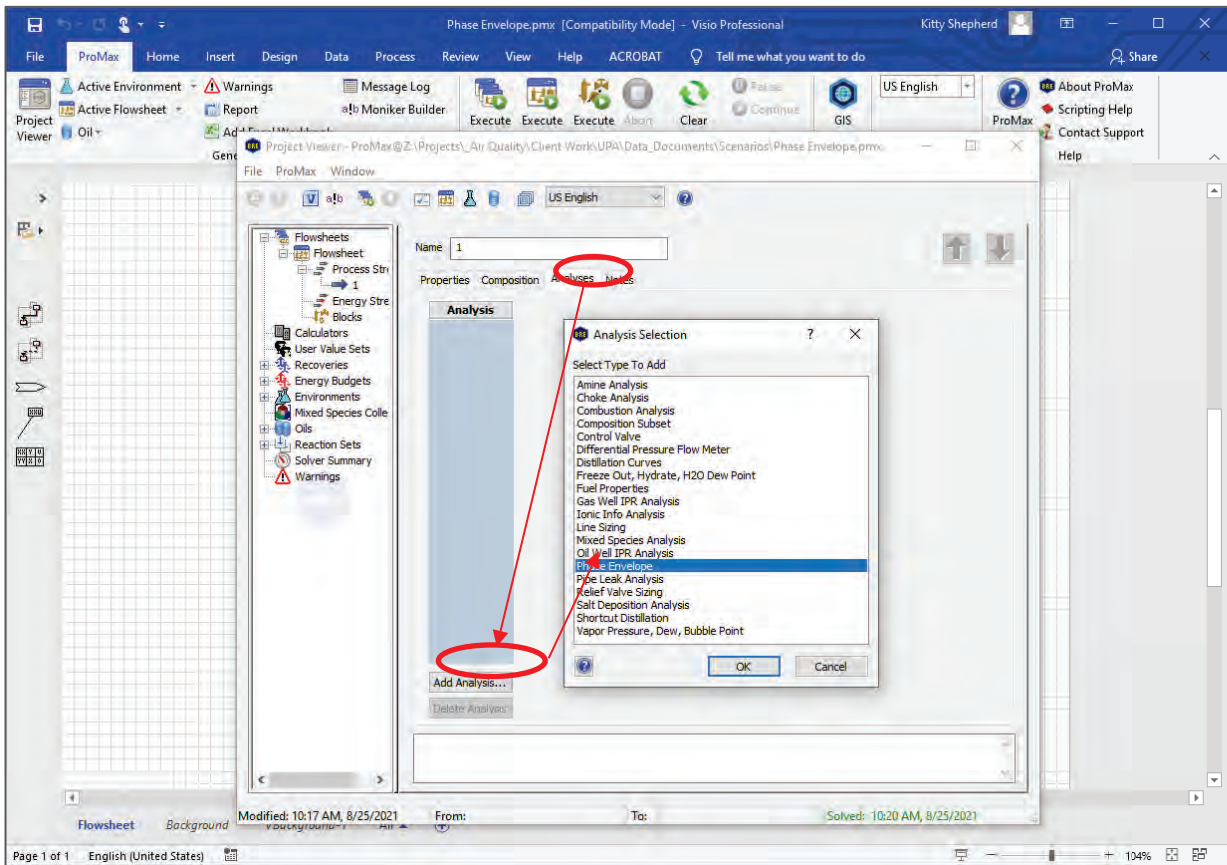
		Total	Vapor	Light Liquid	Heavy Liquid
Temperature	°F	67		67	
Pressure	psig	344.7		344.7	
Mole Fraction Vapor	%	0		0	
Mole Fraction Light Liquid	%	100		100	
Mole Fraction Heavy Liquid	%	0		0	
Molecular Weight	lb/bmol	270.738		270.738	
Mass Density	lb/ft ³	53.5063		53.5063	
Molar Flow	lbmol/h	0.0463306		0.0463306	
Mass Flow	lb/h	12.5434		12.5434	
Std Vapor Volumetric Flow	MMSCFD	0.000421962		0.000421962	
Std Liquid Volumetric Flow	bbld	1		1	
Compressibility		0.321133		0.321133	
Specific Gravity		0.85793		0.857903	
API Gravity		32.9063		32.9063	
Net Ideal Gas Heating Value	Btu/ft ³	13121.8		13121.8	
Net Liquid Heating Value	Btu/lb	18242.9		18242.9	
Gross Ideal Gas Heating Value	Btu/ft ³	13968.1		13968.1	
Gross Liquid Heating Value	Btu/lb	19429.1		19429.1	

STEP 4 – Continued

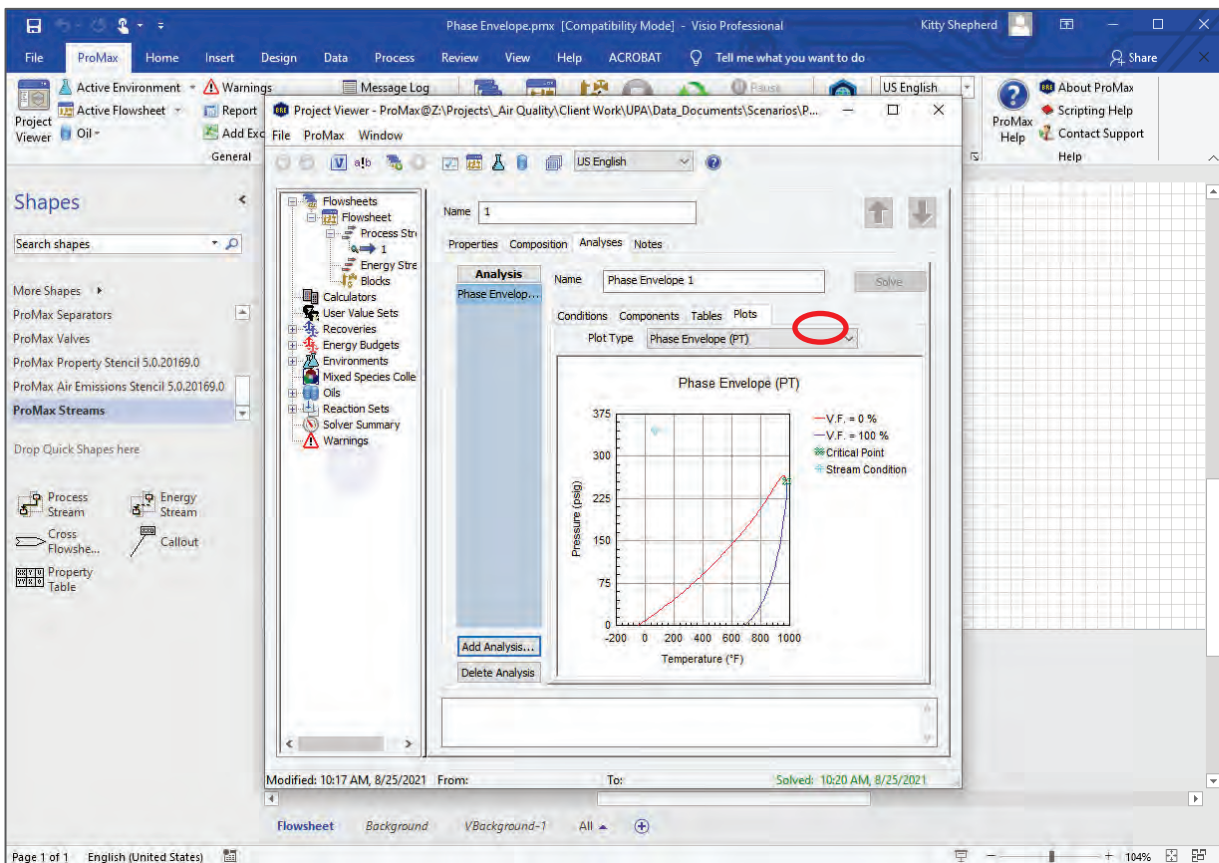
The screenshot displays the ProMax software interface. The main window shows a 'Composition Specification for 1' dialog box on the right and a 'Properties' window on the left. The 'Properties' window has a red circle around the 'Analyses' tab. The 'Composition Specification' dialog box is open to the 'Composition Basis' section, where 'Mole Fractions' is selected. Below this, a list of species and their percentages is shown. The 'Total' column in the 'Properties' window is also visible.

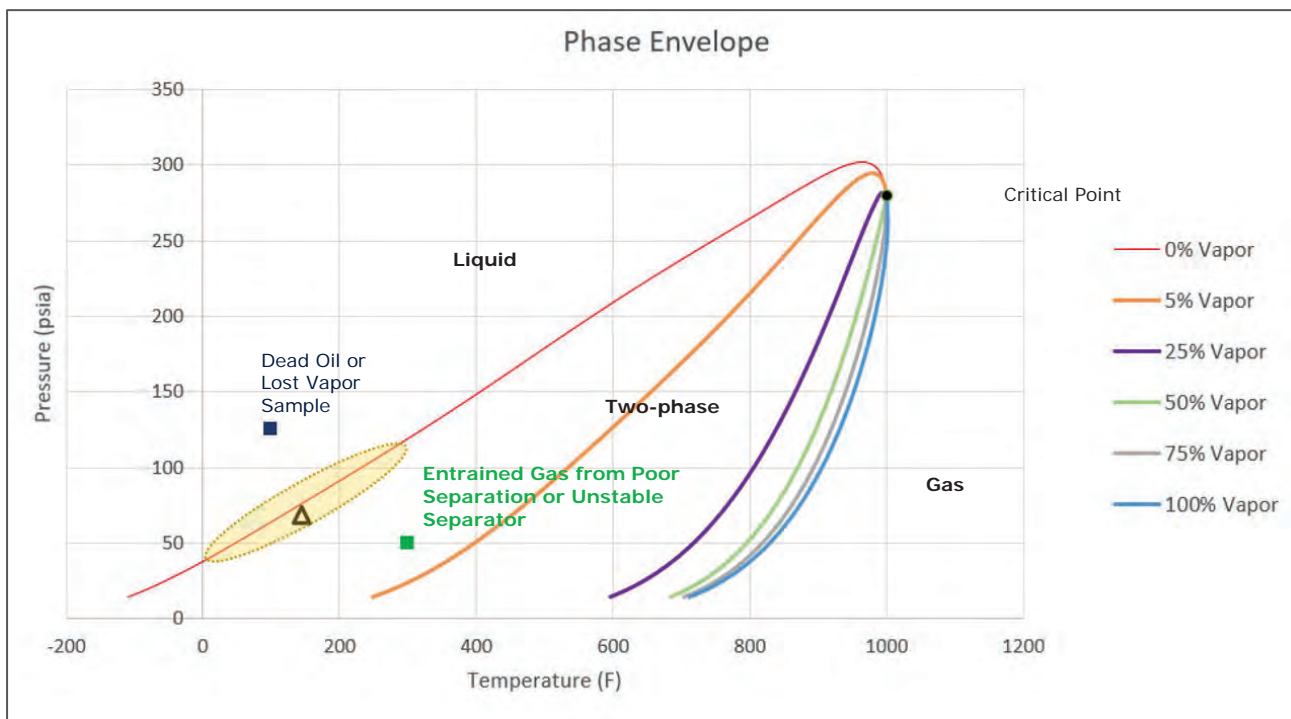
Species	Total (%)
Carbon Dioxide	0.0147081
Nitrogen	0
Methane	1.17854
Ethane	0.539797
Propane	0.61408
Isobutane	0.214204
n-Butane	0.481079
Decanes Plus	79.9543

STEP 5 – Add Phase Envelope Analysis.



STEP 6 – View Phase Envelope and Evaluate Sample Validity.





APPENDIX D**Battery Pads with Storage Vessel Systems Subject to
40 C.F.R. § 60.5395(d)(1) or § 5395a(a)(2)**

Facility	County	State	Latitude	Longitude
NE DRINKARD UNIT CTB/SAT 3	LEA	NM	32.48713	-103.14418
OUTLAW STATE	EDDY	NM	32.8007	-104.1922
SALT FORK 3-4 FED COM	EDDY	NM	32.68735	-103.96086
TONY FEDERAL	EDDY	NM	32.8308	-103.9121
BRAGG CTB	REEVES	TX	31.66232	-103.834543
BULL RUN	REEVES	TX	31.661128	-103.8799
CHAPARRAL 89 CTB	LOVING	TX	31.74911	-103.653926
FALCON 2 CTB	LOVING	TX	31.752518	-103.635541
FALCON CENTRAL TANK BATTERY	LOVING	TX	31.753252	-103.642701

APPENDIX E**Battery Pads with Storage Vessels Subject to a VRU or Control Device Requirement under
New Mexico Permit Programs or Texas Permit Programs**

Facility Name	County	State	Latitude	Longitude
A STATE 40	EDDY	NM	32.80564	-104.14209
BLACK & TAN 27 FED COM	LEA	NM	32.53768	-103.54848
COFFEE FEDERAL	EDDY	NM	32.83753	-103.90978
CROW FED BTY	EDDY	NM	32.85418	-103.87027
EBDU CTB	LEA	NM	32.48986	-103.12979
GHOST RIDER 22-15 FED CTB	LEA	NM	32.2066	-103.66053
HUMMINGBIRD FED COM 12	EDDY	NM	32.86713	-103.83112
LEE FED BTY	EDDY	NM	32.82247	-103.89726
LUSK 34 FED	LEA	NM	32.62253	-103.76183
NE DRINKARD UNIT CTB/SAT 3	LEA	NM	32.48713	-103.14418
NFE FED	EDDY	NM	32.84257	-103.88661
NMGSAU CTB	LEA	NM	32.634167	-103.291667
OUTLAW STATE	EDDY	NM	32.8007	-104.1922
PALMILLO 0310	EDDY	NM	32.68331	-104.16117
PALMILLO 14	EDDY	NM	32.65932	-104.15521
PALMILLO 14-15	EDDY	NM	32.66277	-104.15522
PALMILLO 21	EDDY	NM	32.64968	-104.18857
PALMILLO 26	EDDY	NM	32.63359	-104.13953
RAVEN FEDERAL	EDDY	NM	32.84503	-103.91039
SALT FORK 3-4 FED COM	EDDY	NM	32.68735	-103.96086
TONY FEDERAL	EDDY	NM	32.8308	-103.9121
WARREN UNIT No. 1 BTY	LEA	NM	32.53022	-103.14688
WASHINGTON 33 ST #56 CTB	EDDY	NM	32.78787	-104.1821
WBDU SAT 4 / WBDU CTB	LEA	NM	32.48483	-103.17281
ALDWELL 0544	REAGAN	TX	31.468551	-101.634893
ALDWELL 0611	REAGAN	TX	31.43145	-101.673392
ASAU CTB	GAINES	TX	32.958166	-102.291931
BENNIE 4342	IRION	TX	31.178664	-101.174832
BLACK DOG 4231	UPTON	TX	31.555456	-101.894084

Facility Name	County	State	Latitude	Longitude
BLACKFOOT ST UN/CHEROKEE/MOHICAN	REEVES	TX	31.214808	-103.899851
BRAGG CTB	REEVES	TX	31.662322	-103.834543
BULL RUN	REEVES	TX	31.661128	-103.8799
BURNSIDE	REEVES	TX	31.668425	-103.882624
CAGE CTB	GLASSCOCK	TX	31.745048	-101.760654
CAMPBELL, SETH N	WINKLER	TX	31.880081	-103.064524
CAMPBELL, SETH S	WINKLER	TX	31.876	-103.061403
CARMICHAEL CTB	ANDREWS	TX	32.211897	-102.798103
CC 36-37HZ	UPTON	TX	31.547	-102.01932
CC 42/43	UPTON	TX	31.531457	-101.997497
CECIL	GLASSCOCK	TX	32.071362	-101.626794
CHAPARRAL 89 CTB	LOVING	TX	31.749108	-103.653926
CLEVELAND 5	GLASSCOCK	TX	31.746889	-101.52106
CLINCH 4238	IRION	TX	31.147274	-101.254949
CONNELL 38/47/48	UPTON	TX	31.551956	-101.932153
COOK 21	GLASSCOCK	TX	31.8175	-101.5207
CYPRESS STATE	REEVES	TX	31.290367	-103.985549
DIXIELAND GRANT CS	REEVES	TX	31.668428	-103.851169
DIXIELAND LEE CS	REEVES	TX	31.659712	-103.872385
DRIVER-SCHROCK 1423	MIDLAND	TX	31.77205	-101.79008
EAGLE / WOODPECKER 36	GLASSCOCK	TX	31.805994	-101.456946
EAST TIPPETT	MIDLAND	TX	31.6921	-102.135897
FALCON 2 CTB	LOVING	TX	31.752518	-103.635541
FALCON CENTRAL TANK BATTERY	LOVING	TX	31.753252	-103.642701
FALCON CS	LOVING	TX	31.751644	-103.638912
FALCON PARKS-COYOTE 1506	MIDLAND	TX	31.772722	-102.163456
GOODSPEED	GLASSCOCK	TX	31.725844	-101.727148
GOODSPEED X-CAL	GLASSCOCK	TX	31.725703	-101.726736
GRANT CTB	REEVES	TX	31.668497	-103.845571
HARLEY CTB	WINKLER	TX	31.751967	-102.925758
HARTGROVE 0401/0304	REAGAN	TX	31.413949	-101.677092
JACKSON	REEVES	TX	31.661811	-103.847479
JUNE TIPPETT 1213	MIDLAND	TX	31.708299	-102.175933
KETCHUM MTN 27	IRION	TX	31.258068	-101.066449
LATZEL 34	UPTON	TX	31.571086	-101.959492
LATZEL 3946	UPTON	TX	31.564249	-101.953724
LEE CTB	REEVES	TX	31.659738	-103.872395

Facility Name	County	State	Latitude	Longitude
LUMBERJACK 32	GLASSCOCK	TX	31.700038	-101.396568
LYNCH A CTB	MIDLAND	TX	31.718769	-102.165804
MAGPIE CARDINAL CTB	LOVING	TX	31.7585	-103.6031
MCELROY RANCH	UPTON	TX	31.422002	-102.168005
MILLER 37 / 3748 / KASHMIR	UPTON	TX	31.568969	-101.916425
MOCKINGBIRD 9-2 CTB	LOVING	TX	31.753751	-103.619367
MONT BLANC/BLACKFOOT ST/WINTOON CTB	REEVES	TX	31.214223	-103.901727
NAVAJO	REEVES	TX	31.23344	-103.72318
NIGHT FLIGHT 4738	UPTON	TX	31.517109	-102.023677
NIX 16	GLASSCOCK	TX	31.836756	-101.523031
OSPREY STATE UN	LOVING	TX	31.754757	-103.62214
ROBIN CS & CTB (S PECOS BEND CS)	REEVES	TX	31.6991	-103.6615
SCHROCK 34 CTB	MIDLAND	TX	31.7204	-101.7881
SCHROCK, WM 2326	MIDLAND	TX	31.753153	-101.782586
SCOTT SUGG 5051E 5051W 4948	IRION	TX	31.25582	-101.109053
SCOTT SUGG NE UN	IRION	TX	31.2556	-101.0321
SCOTT-SUGG SE UN	IRION	TX	31.255612	-101.032109
SEAGULL-PELICAN CTB	LOVING	TX	31.727455	-103.631883
SHACKELTON 31	GLASSCOCK	TX	32.341887	-102.613117
SRH 12	REAGAN	TX	31.461385	-101.444716
SRH 13	REAGAN	TX	31.470225	-101.45928
SRH CENTRAL (SEC. 16) HORIZ	REAGAN	TX	31.470821	-101.46499
SRH EASTERN (SEC 13) HORIZ	REAGAN	TX	31.470603	-101.447099
SRH NORTH 14/15	REAGAN	TX	31.482243	-101.485958
SRH WESTERN (SEC. 11)	REAGAN	TX	31.471535	-101.4976
SSH UNIT CTB	IRION	TX	31.207581	-101.085208
STONE	UPTON	TX	31.18194	-101.897679
SUGG 0807	IRION	TX	31.211625	-101.04459
TOMAHAWK-POLARIS	UPTON	TX	31.366806	-101.811107
TORPEDO 1048	UPTON	TX	31.3586	-101.824306
UNIV 2303/2404	REAGAN	TX	31.3152	-101.6163
UNIV 2505 / 25W	REAGAN	TX	31.308614	-101.587431
WARHEAD 0405	UPTON	TX	31.315481	-101.818261

Facility Name	County	State	Latitude	Longitude
WEATHERBY 1231/1232 CTB	REAGAN	TX	31.33025	-101.623917

APPENDIX F

Directed Inspection / Preventative Maintenance (“DI/PM”) Program Requirements

This Appendix outlines the directed inspection and preventative maintenance (“DI/PM”) requirements to be implemented by Apache at all Facilities with a Subject Vapor Control System in accordance with the schedule in Paragraph 36 of the Consent Decree.

I. Standard Operating Procedures

Prior to the Effective Date, Apache submitted, and EPA approved after consultation with NMED, Standard Operating Procedures (“SOPs”) for the directed inspection and preventative maintenance requirements identified in Sections II and III below. Such SOPs include procedures for verifying that a Subject Vapor Control System is operating consistent with parameters and practices relied upon in the Engineering Evaluation and included in the Certification of Completion Report.

Prior to any modification or revision of the SOPs, Apache shall submit such proposed revised SOP to EPA for approval pursuant to Section VII of the Consent Decree (Approval of Deliverables).

II. Directed Inspections

A. Equipment to be Inspected.

The weekly AVO Walk-Around Inspections and Periodic IR Camera Inspections shall include an inspection of the following equipment if present at the Facility:

1. well head (if on site);
2. separators;
3. heater treaters;
4. vapor recovery towers (“VRTs”);
5. liquid dump valves;
6. tanks (including all oil, condensate, produced water, and gun barrel tanks);
7. tank thief hatches;

8. tank pressure relief valves (“PRVs”);
9. tank blowdown valves, if any and other tank-related valves;
10. tank piping (e.g., load line and blowdown line, if any);
11. control devices (e.g., flares and combustors);
12. liquid knock out pots (e.g., control device knockout pot, scrubber/knockout pot for VRU or compressor);
13. vapor recovery units (“VRUs”);
14. vapor control system piping and equalizer lines;
15. pressure control valves;
16. VRU or flare bypass devices; and
17. storage vessel pressure, backpressure regulator valve position, bypass device, and combustion control pilot monitors.

B. Weekly AVO Inspections.

Apache shall conduct a calendar weekly audio, visual, and olfactory (“AVO”) walk-around inspection at each Facility with a Subject Vapor Control System in accordance with the approved SOPs for weekly AVO walk-around inspections, which include the inspection types described in Section II.B.1 and the SOPs described on Section II.B.2 for all equipment listed in Section II.A.2 that are present at the Facility. Emissions detected from Subject Vapor Control Systems during the weekly AVO walk-around inspections shall be documented as Reliable Information in accordance with the recordkeeping requirements identified in Section IV below.

1. Descriptions of each inspection type:

a. Audio:

An inspection that determines whether any hissing, bubbling, or other sounds can be heard that indicate the presence of emissions.

b. Visual:

An inspection that determines whether there is evidence of emissions visible to the naked eye, including:

- i. wave refraction in the air (if not caused by heat);
- ii. wave refraction shadows on equipment or the ground around equipment (if not caused by heat);
- iii. active bubbling or any other visual cues indicating emissions;
- iv. significant new staining since the last AVO inspection that may indicate abnormal operation; and
- v. evidence of a significant spill since the last AVO inspection that may indicate abnormal operation.

c. Olfactory:

An inspection that determines whether there is evidence of hydrocarbon emissions that can be smelled.

2. Standard Operating Procedures for the weekly AVO inspections:

Apache shall perform the weekly walk-around AVO inspections in accordance with the approved SOPs, which include but are not limited to the following additional inspections:

- a. As to the Separators and Heater-Treaters: check for final stage of separation maximum operating pressure and minimum temperature, set point of any device restricting final stage Separator or Heater-Treater dump flow rate, and ensure the valves are in the correct position.
- b. 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., bypass valve is not open); and that tank piping (e.g., load line, bypass line, vapor line) have no other observed or detected emissions.
- c. As to the VRUs and all control devices: check to ensure that the flow or 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 or flow is

inconsistent with manufacturer specifications.

- d. As to the combustion control devices: ensure that burner is operational and that there are no Visible Smoke Emissions; 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.
- e. As to the pilot monitor and the storage vessel pressure monitor: ensure that the data is being recorded at the required interval and being transmitted to a SCADA system.

C. IR Camera Inspections.

- 1. Apache shall conduct initial verification and periodic infrared (“IR”) camera inspections at each Facility with a Subject Vapor Control System in accordance with the approved SOPs for IR Camera Inspections for all equipment listed in Section II.A above that are present at the Facility. Emissions detected from Subject Vapor Control Systems during any IR camera inspections shall be documented as Reliable Information in accordance with the recordkeeping requirements identified in Section IV below. Periodic IR camera inspections shall include:
 - a. Inspections of the equipment listed in Section II.A.2 above, where present at a Facility with a Subject Vapor Control System; and
 - b. Inspection of signage at the Battery Pad associated with each Subject Vapor Control System to ensure that it (i) is of durable construction with lettering legible and large enough to be read under normal conditions at a distance of 50 feet; and (ii) meets applicable requirements for the content of information set forth in 19.15.16.8(F) NMAC or 16 TAC 3.3(2), as applicable.
- 2. Apache 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. Apache shall maintain and provide the following records pertaining to each IR Camera Inspection in a spreadsheet form in the Semi-Annual Report required pursuant to Paragraph 93 of the Consent Decree:
 - a. The date, time, Battery Pad, Subject Storage Vessel System, number of Storage Vessels inspected, and number of combustion devices inspected; and

- b. The date, time and description of any Reliable Information that is observed.

III. Preventative Maintenance

Apache shall perform quarterly, semi-annual, and annual preventative maintenance at each Facility with a Subject Vapor Control System in accordance with the approved SOPs for preventative maintenance, which include but are not limited to the following:

- A. Clean and check PRV and thief hatch seals and gaskets for integrity, check that the spring in the thief hatch/PRV 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, inspect and clear blockages from any control device pilot orifice, check proper operation of dump valve on Separators, and perform any other appropriate maintenance and inspection activities. These activities shall occur no less frequently than semi-annually.
- B. 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.
- C. Clear liquids from any below-grade lines where liquids can accumulate no less frequently than quarterly. Should maintenance activities or other inspection activities, including any Root Cause Analysis, indicate that liquids are accumulating in vapor lines and causing VOC emissions, Apache shall perform this maintenance more frequently to minimize the accumulation of liquids in vapor lines.

IV. Recordkeeping and Reporting

Apache shall establish and implement requirements for documentation of compliance with DI/PM program requirements, including documentation of the date of the inspection or maintenance activity, the observation of any Reliable Information, and the implementation of any corrective action. While conducting the required inspection or maintenance activities, Apache may utilize field data collection software to document inspection or maintenance work, including any corrective action. Apache shall report all observations of Reliable Information and corrective action implemented as required by Paragraph 93(j) of the Consent Decree.

V. Spare Parts Program

Apache shall evaluate what parts are appropriate to maintain in inventory for Battery Pad workers; procure and maintain a spare parts inventory adequate to support normal operating, maintenance, and replacement requirements; and establish a list of suppliers to assist with the

acquisition of parts on an emergency basis. Apache shall designate a department with the responsibility for maintaining the required spare parts inventory.

VI. Training

Apache shall train each person (except for independent contractors solely responsible for servicing equipment) responsible for implementing any part of the DI/PM program. This training shall include a review of this Appendix, a review of the relevant SOPs approved in accordance with Section I above and Section VII of the Consent Decree, a review of the use of field software and devices to document activities under the DI/PM program, and the requirements set forth in the Consent Decree regarding Reliable Information. Apache shall ensure that refresher training for each such person is performed once per calendar year. New personnel must be trained prior to implementing any part of the DI/PM program and such training shall include a job shadowing component.

Apache shall maintain records indicating the successful completion of training by each person for which training is required. Apache shall maintain records of all Thermography Certifications held by any person conducting IR camera inspections. Apache shall make the records required under this Section available to EPA upon request.

VII. Annual Review

An Apache representative (whose primary duties do not include performing duties in the DI/PM program on a routine basis) will by June 1 of each year complete an annual review of DI/PM program records from the previous calendar year in consultation with persons performing DI/PM duties.

This annual review shall:

- A. analyze all directed inspection, preventative maintenance, equipment monitoring, and corrective action data completed at each Facility with a Subject Vapor Control System;
- B. evaluate whether the directed inspection and preventative maintenance requirements were implemented at the required frequencies;
- C. evaluate whether records of directed inspection, preventative maintenance, and corrective action activities were maintained properly;
- D. evaluate whether training and qualification records were maintained properly;
- E. evaluate whether corrective action or Shut-In was timely performed in response to the observation of Reliable Information;
- F. evaluate whether there are recurring or systemic issues associated with any

particular Facility with a Subject Vapor Control System; and

- G. evaluate whether there are recurring or systemic issues across multiple Facilities with a Subject Vapor Control System.

On the basis of each annual review, Apache shall identify any changes or updates to the DI/PM program or any associated SOPs that may be needed. Apache shall submit any material changes or updates to the DI/PM program as described in this Appendix or to SOPs to EPA for approval pursuant to Section VII of the Consent Decree, including any proposed changes to inspection or maintenance frequencies. Apache shall implement any non-material changes or updates without need for EPA's approval, such as updated repair methods or improved training documents, and shall include a summary of such changes or updates in the next Semi-Annual Report, submitted pursuant to Paragraph 93 of the Consent Decree.

APPENDIX G

Mitigation Project

1. By no later than December 31, 2024, Apache shall replace no fewer than 406 intermittent bleed Pneumatic Controllers at facilities for which it is the Operator in the States of New Mexico and Texas with Non-emitting Controllers (“the Project”). Nothing in the Consent Decree or in this Appendix shall prohibit Apache from including, as part of the Project, Apache’s replacements of intermittent bleed Pneumatic Controllers with Non-emitting Controllers where such replacements were conducted after August 31, 2023.

2. In accordance with Section VI (Periodic Reporting) of the Consent Decree, Apache shall submit the following information in each Semi-Annual Report:

- a) the cumulative number of intermittent bleed Pneumatic Controllers that have been replaced with Non-emitting Controllers;
- b) the number of intermittent bleed Pneumatic Controllers that have been replaced with Non-emitting Controllers during the relevant Semi-Annual reporting period; and
- c) a cumulative list of all facilities at which Apache has completed the replacement of intermittent bleed Pneumatic Controllers with Non-emitting Controllers, together with the number of devices that were replaced at each facility.

3. Nothing in this Appendix shall relieve Apache of its obligation to comply with all applicable federal, state and local laws and regulations in implementing the Project, including any requirement to obtain permits under the Act or the AQCA.

4. For purposes of this Appendix:

- a) “Pneumatic Controller” means a device that monitors a process parameter such as liquid level, pressure, or temperature and uses pressurized gas (which may be released to the atmosphere during normal operation) and sends a signal to a control valve in order to control the process parameter. Controllers that do not utilize pressurized gas are not Pneumatic Controllers;
- b) “Non-emitting Controller” means a device that monitors a process parameter such as liquid level, pressure, or temperature and sends a signal to a control valve in order to control the process parameter and which does not emit natural gas to the atmosphere. Examples of Non-emitting Controllers include but are not limited to instrument air or inert gas pneumatic controllers, electric controllers, mechanical controllers and routed pneumatic controllers; and

- c) “Routed Pneumatic Controller” means a Pneumatic Controller of any type that releases natural gas to a process, sales line, or to combustion device instead of directly to the atmosphere.

APPENDIX H

Verifier Certification

[VERIFIER] makes the following certifications and representations in connection with its proposed appointment as the Independent Third-Party Verifier to oversee compliance aspects of the consent decree entered in *United States and NMED v. Apache Corporation*:

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

“Apache” means Apache Corporation.

1. Financial interests.
 - a. [VERIFIER] has no financial interest in Apache or any of its subsidiaries or affiliates. For purposes of this certification, financial interest does not include any direct or indirect ownership by [VERIFIER] of publicly traded securities in affiliates of Apache, where such securities comprise less than five percent of the [VERIFIER]’s total assets.
 - b. If, between the date of this certification and when [VERIFIER]’s term as the Independent Third-Party Verifier expires, [VERIFIER]’s financial interests with respect to Apache change, [VERIFIER] agrees to notify the U.S. Department of Justice in writing as soon as reasonably possible after becoming aware of the change. [VERIFIER] is aware that acquiring a financial interest in Apache 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 Apache, or any of its subsidiaries or affiliates other than the agreement under which [VERIFIER] was retained by Apache as a Third-Party Verifier, except for any such relationship or affiliation that has been disclosed to and approved by EPA and NMED.

- b. [VERIFIER] has not been a party to such a professional relationship or affiliation with Apache within the past 3 years, or if it has been a party to such a professional relationship or affiliation with Apache, this relationship or affiliation has been disclosed to EPA and NMED, who have approved [VERIFIER] as a Third-Party Verifier.
- c. [VERIFIER] agrees not to engage in such a professional relationship or affiliation with Apache during its term as the Independent Third-Party Verifier or for a period of at least one year after the termination of its term as the Independent Third-Party Verifier, except where such relationship or affiliation has been disclosed to and approved by EPA and NMED.
- 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 Third-Party Verifier'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 Apache or any of its subsidiaries or affiliates. To the extent any such relationship or

affiliation exists, [VERIFIER] will notify the EPA and the U.S. Department of Justice to seek a determination whether it is appropriate to engage said personnel to assist [VERIFIER] with regard to Apache.

Date:

Name:

On behalf of [VERIFIER]