

Appendix A

1. Installation of Ultrasonic Flow Meters at all Flares Located at the Sites.

- a) Installation and Verification. Within 30 Days of the Effective Date, Respondent shall install ultrasonic flow meters at the inlet of all High Pressure and Low-Pressure Flares located at the Well Pads or Central Tank Batteries identified in Table 1 of Appendix A (the "Sites"). The ultrasonic flow meters shall measure within +/- 5% accuracy the flow to each flare at all times. Respondent's data recording system shall record volumetric flow rates from each ultrasonic flow meter at a minimum of once every 300-seconds.
- i. Ultrasonic Flow Meter Verification Standard Operating Procedures. Within 15 days of the Effective Date of this Agreement, Respondent shall develop and submit to the EPA for review, a Flow Meter Maintenance and Verification Standard Operating Procedure ("Verification SOP") document that details procedures for appropriate maintenance and field verification of the ultrasonic flow meters. This will incorporate the manufacturer specifications for the ultrasonic flow meters and include Respondent's procedures for verifying that the ultrasonic flow meter is adequately installed and accurate under Appendix A, Paragraph 1(a)(ii)(2).
- ii. Verification Period. Within 45 Days of the submission of the Verification SOP, Respondent shall conduct or confirm that the ultrasonic flow meter's manufacturer conducted the following for each ultrasonic flow meter installed at the Site's flares:
1. Calibrate the ultrasonic flow meters;
 2. Conduct a verification period to validate that the ultrasonic flow meters are adequately installed and have an accuracy of +/- 5%; and
 3. Conduct the testing protocol pursuant to API MPMS Chapter 22.3, Testing Protocol for Flare Gas Metering, First Edition, August 2015.

2. Installation of Digital Pilot Light Monitors at all Flares Located at the Sites.

Within 30 Days of the Effective Date of this Agreement, Respondent shall install digital pilot light monitors that monitor temperature (e.g.,

thermocouples) at all flares located at the Sites. The digital pilot light monitors must meet the following requirements:

- a) The digital pilot light monitors must continuously monitor the flare temperature; and
- b) The digital pilot light monitors must record flare temperature no less than once every 300-seconds.

3. Investigation & Troubleshooting

- a) Inoperable Flares. Any of the following issues or combination of issues constitutes an Inoperable Flare:
 - i. Any time when the flare pilot is continuously operating below the flare manufacturer's minimum recommended pilot temperature to meet the flare's reported performance specifications for ten minutes or more, as detected by the digital pilot light monitors; or
 - ii. For flares with a minimum vent gas flow rate guaranteed to be detectable within +/- 5% accuracy by the flow meter's manufacturer, any time when the vent gas flow rate to the flare is, continuously for 30 minutes or more, outside the flare manufacturer's specifications for maximum and minimum gas flow rates to meet the flare's reported performance specifications or is outside the ultrasonic flow meter's calibrated range where it has been demonstrated to report gas flow within +/- 5% accuracy, as detected by the ultrasonic flow meter; or
 - iii. For flares with a minimum vent gas flow rate not guaranteed to be detectable within +/- 5% accuracy by the flow meter's manufacturer, (a) any time when the vent gas flow rate to the flare is, continuously for 30 minutes or more, outside the flare manufacturer's specifications for maximum gas flow rate to meet the flare's reported performance specifications, as detected by the ultrasonic flow meter, or (b) any time when the pressure transmitter on the flare's purge line detects, continuously for 30 minutes or more, less than the pressure equivalent of the manufacturer's specifications for the minimum flow rate to meet the flare's reported performance specifications.

- b) Investigation and Troubleshooting. Following the Verification Period provided in Appendix A, Paragraph 1(a)(ii), Respondent must begin an investigation within twenty-four (24) hours of an instance of an Inoperable Flare to determine the cause of the Inoperable Flare and identify any corrective actions needed. Each investigation shall be concluded within five (5) calendar days and be documented with a record that includes the cause(s) of the Inoperable Flare; the date, time, and duration of the Inoperable Flare; the measured volume of emissions through the Inoperable Flare, if available; and any corrective actions taken to address the Inoperable Flare.
 - c) Flare Design and Operation Improvements. If the same flare experiences two instances of an Inoperable Flare within 30 days, the investigation under Appendix A, Paragraph 3(b) following the second instance of the Inoperable Flare shall also consider whether design improvements to the Site and/or flare are necessary to improve flare operation (e.g., reducing or increasing vapor lines to the flare; adjusting backpressure regulator settings; replacing the flare make or model), or if operational adjustments (e.g., increased frequency of vent line blowouts; daily AVO inspections) are necessary to improve flare operation. Respondent shall apply any identified design or operational improvements to the Site and/or flare at issue, as well as to any other flares that are located at the Sites included in Table 1 and that are the same manufacturer, make, and model as the flare at issue, unless it is unsafe to do so or Respondent can document a specific reason why the improvement would be detrimental or ineffective at the other Sites.
4. Initial Report. Within 60-Days of the Verification Period required by Appendix A, Paragraph 1(a)(ii), Respondent shall submit an initial report to the EPA that contains the following information for the Sites:
- a) The make and model of each ultrasonic flow meter installed pursuant to Appendix A, Paragraph 1(a);
 - b) The manufacturer specifications for each ultrasonic flow meter installed pursuant to Appendix A, Paragraph 1(a) and Respondent shall highlight the minimum and maximum gas flow range of each flow meter (the range over which the flow meter will be verified to be accurate within +/- 5%);

- c) The minimum and maximum gas flow rates of each flare at which the manufacturer guarantees the flare will meet its reported performance specifications;
 - d) The minimum and maximum operating temperatures of each flare at which the manufacturer guarantees the flare will meet its reported performance specifications;
 - e) The make and model of each digital pilot monitor that measures temperature installed pursuant to Appendix A, Paragraph 2; and
 - f) Issues and corrective actions identified during the Verification Period performed pursuant to Appendix A, Paragraph 1(a)(ii).
5. Periodic Reporting. Following the first full calendar month of operation after the Verification Period, Respondent shall provide the following report on the 10th day of every month (e.g., July 10th for monitoring between June 1-30) for the Sites. The data required by Appendix A, Paragraph 5(a)-(d) shall be submitted utilizing the spreadsheet template at Appendix B.
- a) The total monthly metered volume in standard cubic feet (SCF) measured by each ultrasonic flow meter installed pursuant to Appendix A, Paragraph 1;
 - b) The total monthly oil production in barrels (BBLs);
 - c) The total monthly water production in BBLs;
 - d) The total monthly gas sold in SCF;
 - e) The 300-second flow meter data for the entire month;
 - f) The date, time, duration, and, if available, the measured volume of emissions, associated with each Inoperable Flare; the cause of each Inoperable Flare; and any corrective actions taken to address each Inoperable Flare;
 - g) Well daily production time, excluding any time when the well(s) was not operating; and
 - h) Any design or operational improvements identified and implemented for flares or Sites pursuant to Appendix A, Paragraph 3(c).

Table 1

Site Name	Associated NDIC Well Numbers
Meri/Prairie Triple CCU	35294, 35295, 36236
CCU Pullman CTB #11 Battery	28352, 28353, 28354, 28355, 28363, 28364, 28365, 28366, 28367, 28368, 28369, 37613
CCU Meriwether CTB	17308, 19856, 24245, 24246, 24247, 24481, 24482, 24483, 24484, 24905, 24906
Abercrombie 9 RTB	34221, 31204, 31203, 31205
F Jorgensen 5 RTB	37483, 37480, 37482, 37479, 37481