ADDENDUM NO. 2
ISSUED MAY 1, 2018

NEW HANOVER COUNTY
LANDFILL GAS COLLECTION AND CONTROL SYSTEM
CONSTRUCTION

This addendum becomes part of the original Construction Drawings, Contract Documents, and Technical Specifications dated March 30, 2018. All concerned are requested to see that this addendum is incorporated into the Construction Drawings, Contract Documents, and Technical Specifications. Bidder shall acknowledge receipt of this addendum on the Bid Form. Failure to do so does not remove the Bidder from the responsibility to comply with the changes made in this addendum.

A. Additional Information

1. Current and previous vendors providing services to the Landfill are as follows. Providing the vendors by no means endorses any of them listed.

   513 Chestnut St.
   Wilmington, NC  28401
   (910) 762-5573

   Electrical: DPS Electric
   3127 Kitty Hawk Rd.
   Wilmington NC  28405
   (910) 794-1151

   Electrical: North Brunswick Electric
   1618 Leland School Rd. NE
   Leland, NC  28451
   (910) 371-3369

   Seeding: Eco Express, LLC
   418 Hermitage Rd.
   Castle Hayne, NC  28429
   (910) 602-1686
Seeding:  Sides Seeding (was a subcontractor to a prime contractor, Landfill did not contract with them directly)
(877) 733-3464

2. Electricity provider to the Landfill:

Duke Energy Contacts:  Jim Anderson (Account exec)
(910) 256-7224
email:  Jim.anderson4@duke-energy.com
Heidi Carlson (Engineering Tech)
(910) 515-8771
email:  Heidi.carlson@duke-energy.com

3. Request for substituting equipment, materials or methods shown and described within the Contract Documents and Technical Specifications, Construction Drawings, and Addendums can be done so as outlined in Specification Section 012500.

4. General information on components and type for the new 14 ft. x 12 ft. x 7 ft. pre-fabricated metal building shown on the Construction Drawings is included as an attachment. Shop drawing submittal shall be provided and approved before fabrication.

5. General information for what is to be included for the blower skid and flare equipment inspection and maintenance 5-year contract is included as an attachment. Inspections and maintenance shall be completed every 3 months or 4 times a year for 5 years.

B. Contract Documents and Technical Specifications Additions, Revisions, and Clarifications

1. Specification Section 002113; page 7; Article 11; **CLARIFY** that State sales and use taxes should be included in the bid prices and total price on the Base Bid Schedule. Contractor will be reimbursed for the sales and use taxes paid by the Contractor through performance of the work. A detailed listing of State sales and use taxes paid shall be provided with the Contractor’s Pay Application, refer to Section 012200.

2. Specification Section 004113; Bid Form; Base Bid Schedule; **DELETE** the Base Bid Schedule and **REPLACE** with attached Base Bid Schedule.

3. Specification Section 312000; page 3; Article 2.02.; **DELETE** Article 2.02 in its entirety. Stone beneath concrete and for roads shall be classified as Alternate Base Course (ABC).

4. Specification Section 312000; page 7; Article 3.06.C.3.; **DELETE** paragraph and **REPLACE** with:
“C. A conformance survey shall be conducted on all installed pipe and structures prior to backfilling the trench or after using temporary survey markers. The survey shall document the horizontal and vertical location of the top of the landfill gas laterals, air supply lines, and forcemain pipes at a minimum 100-foot interval and at each change in pipe direction, grade break, fitting, connection, pipe crossover, and tie-in along the entire pipeline routes. The survey shall also document the type of pipe, location (horizontal and vertical coordinate) of structures and appurtenances such as, but not limited to, valves, road crossing CMP casing, pipe crossing, and tie-ins. This surveying shall be sealed by a licensed North Carolina Professional Land Surveyor as described in Section 017700, Closeout Procedures.”

5. Specification Section 330523; page 1; Article 2.1.A.1.; **CHANGE** first sentence to read:

   “1. Stainless steel pipe three inches and smaller shall conform to ASTM A312, Grade TP 316.”

6. Specification Section 330533; page 2; Article 2.1.A.; **CLARIFY** that if HDPE PE3408 pipe is not available then PE4710 can be used as a substitute.

7. Specification Section 330533; page 2; Article 2.1.A.3.; **DELETE** paragraph 3 in its entirety.

8. Specification Section 330533; **CHANGE** within Section that specifies ductile iron back-up rings to ASTM 316 stainless steel back-up rings.

9. Specification Section 330533; page 3; 2.2.B.; **CHANGE** paragraph to read:

   “B. Studs and bolts, nuts, and washers for flanges shall be ASTM 316 stainless steel or as shown on the Construction Drawings.

10. Specification Section 441120; page 3; Article 1.04.A.3.; **DELETE** paragraph and **REPLACE** with:

   “3. When rated volumetric capacity is 250 scfm, blowers under the specified inlet conditions shall not surge or overload the motor.”

11. Specification Section 441120; page 3; Article 1.04.B.1.; **CHANGE** “Landfill Gas flow rate, scfm 250 to 3,000” to “Landfill Gas flow rate, scfm 250 to 2,500”

12. Specification Section 441120; page 4; Article 1.04.B.2.; **CHANGE** to read:

   “2. At maximum landfill gas flow rate of 2,500 scfm, the flare system shall require a maximum landfill gas pressure of 10 inches of water column.”
13. Specification Section 441120; page 8; Article 2.02.A.14.a.; **DELETE** paragraph and **REPLACE** with:

   “a.  Butterfly valves located at the inlet of each blower shall be ANSI 150-pound flanged, bubble-tight, 316 stainless steel body, wafer-type with 316 stainless steel disc and stem, acetal stem bushing, and viton replaceable resilient seat.”

14. Specification Section 441120; page 8; Article 2.02.A.14.c.; **DELETE** paragraph in its entirety.

15. Specification Section 441120; page 8; Article 2.02.A.14.d.; **DELETE** paragraph and **REPLACE** with:

   “d.  Check valves on each blower outlet shall be ANSI 150-pound flanged, 316 stainless steel body with 316 stainless steel flapper with a springless, seatless design.”

16. Specification Section 441120; page 10; Article 2.02.B.1.; **CHANGE** paragraph to read:

   “1.  The knock-out pot shall be completely fabricated from HDPE, 3003 alloy aluminum, or type 316 stainless steel.  It shall be of a vertical, cylindrical design with element removal from the top.  A 10-inch flanged, covered, inspection port shall be provided in the side near the bottom for manual clean out of accumulated debris. Nozzle flanges shall meet ANSI 125-pound specifications.”

17. Specification Section 441120; page 10; Article 2.02.B.3.; **CHANGE** paragraph to read:

   “3.  The moisture separator shall have a flow capacity of at least 2,500 scfm.  At the design flow rates, temperatures and pressures, the moisture separator shall not have a pressure drop greater than 3 inches water column and shall be capable of withstanding no less than 4.0 pounds per square inch gauge vacuum.”

18. Specification Section 441120; page 11; Article 2.03.A.1.b.; **DELETE** paragraph and **REPLACE** with:

   “b.  The butterfly valves, for low-pressure/vacuum landfill gas services, shall have 316 stainless steel wafer-style valve body with contoured 316 stainless steel disc, 316 stainless steel stem, acetal stem bushing, and viton replaceable resilient seat. Valves shall be bubble-tight at 150 pounds per square inch differential pressure and shall be suitable for installation between ANSI 150-pound flanges.”

19. Specification Section 441120; page 11; Article 2.03.A.1.d., Article 2.03.A.1.e., and Article 2.03.A.1.f.; **DELETE** the three paragraphs in their entirety.
20. Specification Section 441120; page 12; Article 2.03.B.1.; **CHANGE** paragraph to read:

“1. Piping on the gas handling system skid shall be ASTM 316 stainless steel or ENGINEER approved equal. Flanges shall be stainless steel conforming to ANSI 150-pound specifications. The same specification applies to tees, elbows, wyes, flanges, and other pipe fittings.”

21. Specification Section 441120; page 12; Article 2.03.B.2.; **CHANGE** paragraph to read:

“2. Inlet pipe flow capacity of at least 2,500 scfm.”

22. Specification Section 441120; page 12; Article 2.03.B.3.; **CHANGE** paragraph to read:

“3. The gaskets shall be full-face non-asbestos fiber.”

23. Specification Section 441120; page 13; Article 2.04.C.1.; **DELETE** last sentence in paragraph.

24. Specification Section 441120; page 13; Article 2.04.C.2.d.; **CHANGE** paragraph to read:

“d. Maximum head loss through the flame arrester shall not exceed 2 inches of water column at 2,500 scfm. All grids of the bank shall be arranged for individual removal. The flame arrester shall be UL-approved and manufactured by Whessoe Varec, Enardo, or approved equal.”

25. Specification Section 441120; page 14; Article 2.04.C.5.; **CHANGE** paragraph to read:

“5. Windshield. The flare windshield shall be constructed of 304 stainless steel. The windshield shall extend at least 2 feet above landfill gas exit.”

26. Specification Section 441120; page 15; Article 2.05.C.; **CHANGE** paragraph to read:

“C. The control panel for the landfill gas blower/flare system shall be compliant with NEMA 4X specifications at a minimum. The main control panel shall be sized to accommodate the required controls and shall be provided with a swing out panel, and with a NEMA 3 compliant window in the door through which status annunciators, recorder, controller, etc. may be viewed. The panel shall include, but not be limited to, the following components:”

27. Specification Section 441120; page 17; Article 2.05.C.8.a.2.; **CHANGE** paragraph to read:

“2) Evidence shall be provided to ENGINEER that SCADA system has been used for at least 10 landfill gas blower/flare systems or similar type operations.”
28. Specification Section 441120; page 19; Article 2.05.D.14.; CHANGE to read:

“14. SCADA system.”

29. Specification Section 441120; page 21; Article 2.05.E.2.d.; CHANGE to read:

“d. The SCADA/Remote Data Acquisition System shall be located within its own stainless steel NEMA 4X enclosure, mounted on the blower skid.”

30. Specification Section 441120; page 24; Article 2.07.A.1.; CHANGE last sentence to read:

“The flow meter will be installed in the field and calibrated by the Contractor.”

31. Specification Section 441120; page 25; Article 2.08.A; CHANGE to read:

1. 20 ounces of bearing grease.
2. One each vacuum, pressure and temperature gauge.
3. Two shaft couplings.
4. Two thermocouples.
5. Indicator light package.
6. 1 ultraviolet scanner (if used).
7. One set fuses/relays.
8. Two igniter assemblies.
9. One extra bank assembly for the flame arrestor.

C. Construction Drawings Additions, Revisions, and Clarifications

1. Construction Drawings; Drawing No. 3 and 4; REPLACE with included Drawing No. 3 and 4, which includes updated surface topography and physical features. Note that proposed pipe crossings on southern sideslope berms/stormwater channels are lined with the channel matting Tensar SC250. Matting and grass is required to be restored to at least its current condition or better.

2. Construction Drawings; Drawing No. 9; Detail 2; Access Riser Detail; CLARIFY that the HDPE Flange Adapter shall have ASTM 316 stainless steel backup ring. All costs associated with the change should be included in the Base Bid Schedule, item number 6E.
3. Construction Drawings; Drawing No. 11, 12, and 15; **REPLACE** with included Drawing No. 11, 12, and 15.

**D. Response to Prospective Bidder Questions**

1. Can you provide contact information for a surveyor familiar with the site. **Refer to Section A of this Addendum.**
2. Can you provide contact information for an electrician familiar with the facility. **Refer to Section A of this Addendum.**
3. Can you provide information of the existing electrical transformer at proposed service drop. The electricity provided to the Landfill is 480V/3-phase. For further information contact the electricity provider to the Landfill (Duke Energy), contact information is provided in Section A of this Addendum.
4. Can you provide contact information of Duke’s electrical distribution person who handles New Hanover landfill. **Refer to Section A of this Addendum.**
5. Is it required to install full size tees at header to lateral connection, or is acceptable a reducing tee. **Reducing tees are acceptable.**

1. Where will the PC based SCADA system be installed? **Refer to Section B of this Addendum; number 29.**
2. The spec calls for evidence of at least 20 installs in Landfills. Would you accept Trihedral’s VTSCADA. This SCADA solution has been around for a long time and has hundreds of installations in water and waste water. We started using it on landfills and have 2 recent installs and can have you speak with the owners of those systems if you would like. One if the landfillgroup/Enerdyne and the other is Renew Petra/Petra Engineering. Very cost effective and very reliable. **Refer to Section B of this Addendum; number 27; for the SCADA system evidence requirements.** Any approvals of equipment, materials or methods shown and described within the Contract Documents and Technical Specifications, Construction Drawings, and Addendums will be done through the submittal process (Specification Section 013300) or when requesting a substitution per the process outlined in Section 012500.

1. The Flange Bolting Hardware is specified as being 316 S.S. in Section 335120, Paragraph 3.01.A.2. The Flange Bolting Hardware is specified as being S.S., which is typically assumed as 304 S.S., in Section 330533, Paragraph 2.2.B and on the Drawings. Please clarify. Flange bolting hardware shall be ASTM 316 stainless steel. **Refer to Section B of this Addendum; numbers 8 and 9; and this Addendum Section C Construction Drawings.**
2. The Flange Back-Up Rings are specified as being Ductile Iron in Section 330533, Paragraph 2.2.A. and in several other locations. The Flange Back-Up Rings are specified as being Stainless Steel in Detail 2 on Drawing No. 8 and in several other locations. Please clarify. Back-up rings shall be ASTM 316 stainless steel. **Refer to Section B of this Addendum; numbers 8; and this Addendum Section C Construction Drawings.**
3. Detail 2 on Drawing No. 15. The 5’ overall burial depth and the 6’ depth of the trap dimensions are conflicting. Please clarify? Distances were backwards. **Refer to this Addendum Section C Construction Drawings.**
4. Item No. 6E. Should the Units for this Item be EA in lieu of LF? Correct. Refer to this Addendum Bid Form Base Bid Schedule.

5. Item Nos. 8F & 8H. There appears to only be three (3) of each of these shown on the Drawings. Can you please clarify? Refer to this Addendum Bid Form Base Bid Schedule.

6. Item No. 12. There appears to only be three (3) of these shown on the Drawings. Can you please clarify? Refer to this Addendum Bid Form Base Bid Schedule.

7. Are the Existing LFG Well Casing HDPE or PVC? HDPE.

8. Should the Condensate Drain piping at the Blower/Flare be dual contained? No.

9. Item No. 8E. There appears to be twelve (12) of these shown on the Drawings. Can you please clarify? Refer to this Addendum Bid Form Base Bid Schedule.

10. Item No. 8G. There appears to only be three (3) of these shown on the Drawings. Can you please clarify? Refer to this Addendum Bid Form Base Bid Schedule.

11. Under what Bid Item should we include the 3” Forcemain isolation Valve Assemblies? Refer to Section B of this Addendum; number 8J.

1. Please clarify the prequalification requirements for the prime bidders. In one location the document appears to state prequalification is required before submitting a bid, but in another location it states to submit prequalification documentation with the bid. Discussed during pre-bid meeting and addressed in the meeting minutes.

2. There are conflicting statements in the RFB regarding sales & use taxes. Will the Contractor be required to pay sales and use tax on materials / equipment permanently incorporated into the work? If so, will the Contractor be reimbursed for these amounts? Refer to Section B of this Addendum; number 1 for clarification.

3. Can we use survey tubes to perform as-built on the buried piping system once installed? Yes. Refer to Section B of this Addendum; number 4.

4. Please clarify the type of backup rings required for the project. There are conflicts between the drawings and the specifications as to whether backup rings are to be ductile iron or stainless steel. Back-up rings shall be ASTM 316 stainless steel.

5. Note 4 on sheet 13 states that dewatering is going to be required. Addressed during the pre-bid meeting and in the meeting minutes.

6. Note 11 on Sheet 2 states that the Contractor cannot demobilize until the work is fully complete. This requirement is not realistic as the blower/flare/compressor equipment will probably end up arriving after the end of all the other site work. Additionally weather or other unforeseen conditions could force a demobilization. Addressed during the pre-bid meeting and in the meeting minutes.

7. Please provide manufacturer and specification for the prefab building; I’m sure the engineer had a particular make/model in mind when putting together the drawings and I don’t see the need to “reinvent the wheel”. Refer to Section A of this Addendum; number 4.
8. There is a conflict between the drawings and the specifications regarding what material the butterfly valve extensions should be made of; please clarify. Refer to Detail 3 on Drawing No. 11 of this Addendum Construction Drawings.

9. Is there any subsurface data available on the type of materials we will be trenching through for the 12” and 18” line outside the waste limits? And should we expect to hit rock, etc.? No subsurface data is available. Sandy soil and no bedrock will be encountered. Dewatering will be necessary outside of the landfill, groundwater is at approximately elevation 9. It is recommended to employee a service to locate underground utilities.

10. The restoration bid item is 1 LS. Please provide a square footage / acreage for all contractors to assume on both sod and seed so that bids will be apples to apples. Will stay as a lump sum bid item.

11. I do not think the stone specification given in section 312000-3 (2.02) matches the intent of the design shown on drawings 6 and 16 for use as stabilized base under the concrete foundations and blower/flare compound. Please clarify whether the stone should be standard road base or the washed LFG “well” stone shown in the specifications. Refer to Section B of this Addendum; number 3.

12. Drawing 06 of 16 - Would it be acceptable to move the fail closed valve from the flow span to the discharge of the moisture separator to reduce field installation and blower bearing leak potential? Yes.

13. Drawing 06 of 16 – Should a check valve be included prior to the flare downstream of the flow meter to prevent air intrusion or would this be included with future connection project? No.

14. Question: Section 4321251, Part 2, 2.01 - The air compressor will be placed in a building, is outdoor rated required? The air compressor will generate heat during operation, will the building have environmental controls to prevent the air compressor from overheating? No outdoor rating is required for the air compressor. The building is not specified to have mechanical air conditioning. Ventilation using the two roll-up doors and vents in the building walls.

15. Question: Section 431251 Part 3, 3.02B - Is the air compressor manufacturer required to startup the air compressor or can the flare manufacturer provide this service? No.

16. Question: Section 441120 Part 1 1.04A, 2 & 3 – 250 scfm minimum blower capacity would require a recirculation loop to prevent the blower from operating in surge. Excessive discharge temperature may require an aftercooler for the recirculation. Would adjusting blower’s minimum capacity to 900 scfm be acceptable? Based on other similar projects, operating the blowers between 250 and 2,500 scfm is an acceptable range.

17. Question: Section 441120 Part 2, 202 A 18 - Would Atlas Copco, National Turbine, Continental Blower, and Lone Star Blower also be acceptable blower manufacturers? Any approvals of equipment, materials or methods shown and described within the Contract Documents and Technical Specifications, Construction Drawings, and Addendums will be done through the submittal process (Specification Section 013300) or when requesting a substitution per the process outlined in Section 012500.

18. Question: Section 441120 Part 2, 2.04C, 2 - Will the fail closed valve be set up to operate with compressed air or nitrogen? Compressed air from the air compressor.

19. Question: Should the flare skid piping and moisture separator only be sized for 3,000 scfm flow? Or for the full capacity of 2 blowers 5,000 scfm? Sized for 2,500 scfm.
20. Drawing 06 of 16 – Alternatively, would it be acceptable to locate the fail closed valve (future control valve) downstream of the flow meter to reduce inaccuracies in the flow measurement? Yes.

21. Question: Section 441120 Part 1 1.04 A 2 – Is the trace H2S content for the flare system below 1000 ppm? Unknown.

22. Question Section 441120 Part 1 1.04 A 2 – Please verify the 140F inlet temperature. If this is over predicted, this will grossly oversize the blower and affect the turn down capabilities of these blowers. Maintain at 140°F for bidding purposes.

23. Question Section 441120 Part 1 1.04 B 1 – Please verify the 140F flare inlet temperature. If blower inlet is 140F the centrifugal blower will have a temperature rise ranging between 160F to 200F. Maintain at 140°F for bidding purposes.

24. Question: Section 441120, Part 2, 2.05C, 10b – Should the power distribution at the flare be sized for the flare to operate 3 blowers simultaneously or will this system only run a maximum of 2 blowers at once and the 3rd blower would be a backup? A maximum of two blowers operating, if a 3rd blower is added in the future. Current operations will only have one blower operating at a time.

25. Question: Section 441120 Part 2, 2.02A – Please clarify if the valves and pipe spools are required with this scope for the future 3rd blower or would these be provided with the future blower. No.

26. Question: Section 441120 Part 2, 2.02A, 8 – Does this statement exclude blowers that have internally manifolded stage drains? Also, 1/2" NPT valves are industry standard would this size be acceptable? Any approvals of equipment, materials or methods shown and described within the Contract Documents and Technical Specifications, Construction Drawings, and Addendums will be done through the submittal process (Specification Section 013300) or when requesting a substitution per the process outlined in Section 012500.

27. Question: Section 441120 Part 2, 2.02A, 10 – In order to further extend the life of the motors typical adders are included for shaft grounding and motor space heater. However, if installed in a TEFC, Class 1, Div. 2, Group D motor, the motor manufacturer unclassifies the motor. To keep the rating the motor would need to be upgraded to explosion proof. Would it be acceptable to propose these adder with the original Class 1, Div. 2, Group D motor, with shaft grounding and space heaters in as TEFC motor? Yes.

28. Question: Section 441120 Part 2, 2.02A, 14a – Should the blower inlet isolation valves have Viton seats like the automatic shut off valve? Yes. Refer to Section B of this Addendum; number 13 and 18.

29. Question: Section 441120 Part 2, 2.02A, 14d – Would a wafer style by Flexi- Hinge check valve also be approved? Any approvals of equipment, materials or methods shown and described within the Contract Documents and Technical Specifications, Construction Drawings, and Addendums will be done through the submittal process (Specification Section 013300) or when requesting a substitution per the process outlined in Section 012500.

30. Question: Section 441120 Part 2, 2.02 B, 6 – It appears the high level sensor is a digital input to the system. Would FM rated mechanical level switch installed in an oversized port to provide protection from debris be acceptable for high level sensor? Any approvals of equipment, materials or methods shown and described within the Contract Documents and Technical Specifications, Construction Drawings, and Addendums will
be done through the submittal process (Specification Section 013300) or when requesting a substitution per the process outlined in Section 012500.

31. Question: Section 441120 Part 2, 2.03 B, 1 - 304L/316L is called out as the material of piping construction; however, these are different. Are either acceptable, or is there a preference? ASTM 316. Refer to Section B of this Addendum; number 20.

32. Question: Section 441120 Part 2, 2.03 B, 3 - Is the rubber gasket requirement a carry-over from HDPE piping? Should this be a non-Asbestos fiber gasket? Refer to Section B of this Addendum; number 22.

33. Question: Section 441120 Part 2, 2.04 C, 1 – Should the automatic shutoff valve be fitted with a pneumatic positioner and designed for back pressure control or will this scope be covered in future work with this site? No.

34. Question: Section 441120 Part 2, 2.04C, 2d – Would a Groth (FM approved) flame arrestor be acceptable? Should the flame arrestor be eccentric to prevent liquid build up from blocking the cross-sectional area? Any approvals of equipment, materials or methods shown and described within the Contract Documents and Technical Specifications, Construction Drawings, and Addendums will be done through the submittal process (Specification Section 013300) or when requesting a substitution per the process outlined in Section 012500.

35. Question: Section 441120 Part 2, 2.04C, 5 – Requires 310 stainless steel windshield. The higher grade stainless steel may be required for certain proprietary burner designs. If the flare manufacturer anticipates 20+ years operation without failure using 304 stainless steel, would 304 stainless steel also be acceptable? Use 304 stainless steel. Refer to Section B of this Addendum; number 25.

36. Question: Section 441120, Part 2, 2.05C – Due to safety concerns, the flare manufacturer prefers to keep low voltage panels separate from 460 VAC panels. And recommends utilizing separate control cabinets for the PLC/Control panel and for the power distribution. This provides more room in on the panel door that does not require a swing panel and more depth for a laptop computer to fit internally. A window kit is provided to cover the face of the controllers. Would this be an acceptable configuration? Provide separate panels for low voltage, PLC/Control, VFDs, and SCADA. Window kit is acceptable.

37. Question: Section 441120 Part 2, 2.05C, 4 – Is the purpose of the NEMA4X enclosures to prevent ambient conditions such as H2S from degrading the enclosures? Or is it to prevent condensation from an air conditioned panel from degrading the enclosure? If the flare manufacturer’s control components in the panels are designed to not need any additional cooling. Can the air conditioner requirement be removed and NEMA4 panels be used and only use NEMA4X panels if additional cooling is required? Enclosures shall be rated NEMA 4X. Panels located within a NEMA 4X enclosure can be rated NEMA 1.

38. Question: Section 441120 Part 2, 2.05C, 6 – Would a GE VersaMax PLC also be acceptable? The parts called out in this section would be cross referenced for similar functionality. Any approvals of equipment, materials or methods shown and described within the Contract Documents and Technical Specifications, Construction Drawings, and Addendums will be done through the submittal process (Specification Section 013300) or when requesting a substitution per the process outlined in Section 012500.

39. Question: Section 441120 Part 2, 2.05C, 10b & 2.05D, 4 – Should VFD’s be used for blower motor control? If so: If the flare manufacturer includes their standard packaged
drives that have proven operation with centrifugal blowers in outdoor landfill conditions under similar ambient temperatures, which have UL Type 3R enclosures would this be acceptable? Type 4 panels require a custom VFD package with air conditioning and significantly increase the project cost. Additionally, if the cabinet material is a concern, stainless steel enclosures could be provided to replace the carbon steel enclosure; the drive still carry a UL Type 3R rating, would this be acceptable? VFD enclosures shall be rated NEMA 4X with air conditioning.

40. Question: Section 441120, Part 2, 2.05C, 10b - Should the power distribution at the flare be sized for the flare to operate 3 blowers simultaneously or will this system only run a maximum of 2 blowers at once and the 3rd blower would be a backup? Should the switch be included in the touch screen to allow selection of active blowers and blower priority? This would allow for remote activation would be a simple program modification to add the future 3rd blower; no wiring would need to change. A maximum of two blowers operating, if a 3rd blower is added in the future. Current operations will only have one blower operating at a time. The capability of selecting which blower to operate is specified at the control panel as well as remotely.

41. Question: Section 441120, Part 2, 2.05C, 12 - Is supplemental fuel required for this project? If so, what fuel should be used? Propane in bottles. Refer to Specification Section 441120; Section 2.04.C.6.

42. Question: Section 441120, Part 2, 2.05D – The flare power transformer and power distribution do not require additional cooling and would typically have NEMA 3R/4 rated enclosures. Would the purpose of the material rating on the flare control panel also affect these enclosures? Yes.

43. Question: Section 441120, Part 2, 2.05D, 14 - Is the 3rd Party SCADA system collecting data from the equipment provided in 2.05E or directly from the PLC/HMI from equipment by others. There is no equipment by others. All equipment shall be provided by the Contractor. SCADA collects data from the PLC.

44. Question: Section 441120, Part 2, 2.05D, 16 - If room is available in the panel, would a NEMA 1 enclosure be acceptable for this UPS? Yes.

45. Question: Section 441120, Part 2, 2.05E - If the cellular modem comes pre-configured to transfer these signals via Modbus communications and allow for user adjustment for alarming similar to described would this be acceptable? If this is small enough to fit in the control panel is this location acceptable? Yes to both.

46. Question: Section 441120, Part 2, 2.07A, 1 & Section 441120, Part 3, 3.02D - The accuracy of the specified meter would be reliant on proper installation and requires additional parts such as flow element, RTD, and differential pressure transmitter for field installation. Field calibration would require a 3rd party to complete each time. The thermal dispersion flow meter is more forgiving when it comes to field installation and in most cases can be field calibrated by the flare manufacturer. Would a thermal dispersion flow meter also be acceptable? Any approvals of equipment, materials or methods shown and described within the Contract Documents and Technical Specifications, Construction Drawings, and Addendums will be done through the submittal process (Specification Section 013300) or when requesting a substitution per the process outlined in Section 012500.
47. Question: Section 441120, Part 2, 2.08 – Spare parts are listed in 2 places (also Section 441120, Part 2, 2.02A, 15) which governs? Both. Refer to Section B of this Addendum; number 31.

48. Question: Section 441120, Part 2, 2.08A, 10 – Are the nitrogen tanks required if the valve will be supplied with compressed air? No. Refer to Section B of this Addendum; number 31.

49. Question: Section 441120, Part 3, 3.02B & C - Are these 3 days only for training or should a portion of this time be used to functional and validation testing after installation for a total of 3 days? The demonstration, testing, and validating operations period is separate from the 3-days of training specified. Refer to specification Section 3.03.

END OF ADDENDUM
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<td>LS</td>
<td>1</td>
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<tr>
<td>3</td>
<td>Electrical</td>
<td>LS</td>
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<tr>
<td>4</td>
<td>Landfill Gas Blower Skid and Flare</td>
<td></td>
<td></td>
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<tr>
<td>4A</td>
<td>Supply and Delivery of Landfill Gas Blower Skid and Flare Equipment</td>
<td>LS</td>
<td>1</td>
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<tr>
<td>4B</td>
<td>Installation of Landfill Gas Blower Skid and Flare Equipment</td>
<td>LS</td>
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<tr>
<td>4C</td>
<td>Site Work, Equipment Concrete Slabs, and Gravel Paving</td>
<td>LS</td>
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<tr>
<td>4D</td>
<td>3-days of Start-Up, Testing, and Training</td>
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<tr>
<td>4E</td>
<td>Landfill Gas Blower Skid and Flare Equipment 2-Year Warranty</td>
<td>LS</td>
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<tr>
<td>4F</td>
<td>Landfill Gas Blower Skid and Flare Equipment 5-Year Service and Maintenance</td>
<td>LS</td>
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<td>5</td>
<td>Air Compressor</td>
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<tr>
<td>5A</td>
<td>Rotary Screw Air Compressor with 120-gallon Receiver Tank Supply, Delivery,</td>
<td>LS</td>
<td>1</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>and Installation</td>
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<tr>
<td>5B</td>
<td>Pre-Fabricated Painted Metal Building (14 ft. x 12 ft. x 7 ft.) and Concrete</td>
<td>LS</td>
<td>1</td>
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<tr>
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<td>Slab</td>
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<tr>
<td>6</td>
<td>Landfill Gas Collection Piping and Fittings</td>
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<tr>
<td>6A</td>
<td>6-inch Diameter HDPE SDR-17 Pipe</td>
<td>LF</td>
<td>5,036</td>
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<tr>
<td>6B</td>
<td>8-inch Diameter HDPE SDR-17 Pipe</td>
<td>LF</td>
<td>476</td>
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<tr>
<td>6C</td>
<td>12-inch Diameter HDPE SDR-26 Pipe</td>
<td>LF</td>
<td>3,481</td>
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<tr>
<td>6D</td>
<td>18-inch Diameter HDPE SDR-26 Pipe</td>
<td>LF</td>
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<tr>
<td>6E</td>
<td>8-inch Diameter LFG Pipe Access Risers</td>
<td>EA</td>
<td>1</td>
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<tr>
<td>6F</td>
<td>6-inch (SDR-17) Tie-in to Leachate Clean-outs</td>
<td>EA</td>
<td>4</td>
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<tr>
<td>6G</td>
<td>Corrugated Metal Pipe for LFG Pipe Casing</td>
<td>LF</td>
<td>161</td>
<td></td>
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<tr>
<td>7</td>
<td>Landfill Gas Liquids Management Air and Forcemain Piping and Fittings</td>
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<tr>
<td>7A</td>
<td>2-inch Diameter SDR 9 Air Pipe and Fittings</td>
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<td>9,366</td>
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<td>7B</td>
<td>4-inch (SDR-11) by 8-inch (SDR-17) Dual Containment Forcemain Pipe and Fittings</td>
<td>LF</td>
<td>4,946</td>
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<td>7C</td>
<td>3-inch (SDR-11) by 6-inch (SDR-17) Dual Containment Forcemain Pipe and Fittings</td>
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<td>7D</td>
<td>4-inch (SDR-11) Single Wall Forcemain Pipe and Fittings</td>
<td>LF</td>
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<td>Unit Price</td>
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<tr>
<td>7F</td>
<td>Connect New Forcemain to Existing Pump Station</td>
<td>EA</td>
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<tr>
<td>7G</td>
<td>Forcemain Valve Vault (includes valves and piping inside of vault)</td>
<td>EA</td>
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<tr>
<td>7H</td>
<td>Dual Containment Forcemain Pipe Cleanout</td>
<td>EA</td>
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<tr>
<td>8</td>
<td>Valves</td>
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<tr>
<td>8A</td>
<td>6-inch Landfill Gas Valve Assembly</td>
<td>EA</td>
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<tr>
<td>8B</td>
<td>8-inch Landfill Gas Valve Assembly</td>
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<tr>
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<td>12-inch Landfill Gas Valve Assembly</td>
<td>EA</td>
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<tr>
<td>8D</td>
<td>18-inch Landfill Gas Valve Assembly</td>
<td>EA</td>
<td>2</td>
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<tr>
<td>8E</td>
<td>2-inch Air Isolation and Blow-off Valve Assembly</td>
<td>EA</td>
<td>11</td>
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<tr>
<td>8F</td>
<td>2-Inch Air Termination Valve Assembly</td>
<td>EA</td>
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<tr>
<td>8G</td>
<td>4-inch Forcemain Isolation Valve Assembly (Dual Containment)</td>
<td>EA</td>
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<tr>
<td>8H</td>
<td>4-inch Forcemain Termination Valve Assembly (Dual Containment)</td>
<td>EA</td>
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<tr>
<td>8I</td>
<td>4-inch Forcemain Termination and Blow-off Valve Assembly</td>
<td>EA</td>
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<tr>
<td>8J</td>
<td>3-inch Forcemain Isolation Valve Assembly (Dual Containment)</td>
<td>EA</td>
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</tr>
<tr>
<td>Item No.</td>
<td>Description</td>
<td>Unit</td>
<td>Estimated Quantity</td>
<td>Unit Price</td>
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</tr>
<tr>
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<tr>
<td>9</td>
<td>Condensate Sump including Pneumatic Pump</td>
<td>EA</td>
<td>5</td>
<td></td>
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<tr>
<td>10</td>
<td>LFG Extraction Well Pneumatic Pump including Dual Extraction Well Cap, Hosing, and Fittings</td>
<td>EA</td>
<td>17</td>
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<tr>
<td>11</td>
<td>Landfill Gas Extraction Well Connection to Collection Piping, Includes New Wellhead</td>
<td>EA</td>
<td>20</td>
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<td></td>
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<tr>
<td>12</td>
<td>Connection to Ventilation Risers</td>
<td>EA</td>
<td>15</td>
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<tr>
<td>13</td>
<td>Remote Wellhead</td>
<td>EA</td>
<td>11</td>
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<td>14</td>
<td>Restoration</td>
<td>LS</td>
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<tr>
<td>15</td>
<td>Surveying and Record Drawings</td>
<td>LS</td>
<td>1</td>
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</tr>
</tbody>
</table>

Subtotal Price $ 

Contingency at 10 percent of Subtotal $ 

Total Base Bid Price $ 

TOTAL BASE BID $ (in words) 

($ _______________________) (in figures)
## Alternate Bid Item

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Description</th>
<th>Unit</th>
<th>Estimated Quantity</th>
<th>Unit Price</th>
<th>Extended Total Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>6C</td>
<td>12-inch Diameter HDPE SDR-17 Pipe</td>
<td>LF</td>
<td>3,481</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6D</td>
<td>18-inch Diameter HDPE SDR-17 Pipe</td>
<td>LF</td>
<td>1,020</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
PW @ scseng.com

15’ long roof
(overhang @
each end &
sides

12’

8’

8’ x 11’

Same on back
end

Richard
Goings
Overall length varies depends on number and spacing of bows.

Side elevation

Scale: NTS

Note:
This structure is in compliance with the international residential code, 2000 edition, including minimum 130 MPH (3 second wind gust) wind loads.

Wind speed (3 sec. wind gust) 120 MPH 130 MPH
Importance factor 0.87 0.87
Building category 2 2
Exposure C C
Internal pressure coefficient +1.08 +1.08
Component and cladding pressure walls +32.7-23.9 PSF +48.9-66.9 PSF
Roof +14.8-30.5 PSF +32.8-62.7 PSF
Structure type Partially enclosed
Snow loading 30 PSF

Table 1:

<table>
<thead>
<tr>
<th>Post Height</th>
<th>Post Size</th>
<th>Post Bow Gage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>120 mph</td>
<td>130 mph</td>
</tr>
<tr>
<td>5'-0&quot;</td>
<td>TS 2 1/2&quot; x 2 1/2&quot;</td>
<td>14 GA</td>
</tr>
<tr>
<td>5'-0&quot;</td>
<td>TS 2 1/2&quot; x 2 1/2&quot;</td>
<td>14 GA</td>
</tr>
<tr>
<td>10'-0&quot;</td>
<td>TS 2 1/2&quot; x 3 1/2&quot;</td>
<td>14 GA</td>
</tr>
<tr>
<td>12'-0&quot;</td>
<td>TS 2 1/2&quot; x 2 1/2&quot;</td>
<td>12 GA</td>
</tr>
</tbody>
</table>

* Corner brace required

Table 2:

<table>
<thead>
<tr>
<th>Bow Span</th>
<th>Bow Spacing</th>
</tr>
</thead>
<tbody>
<tr>
<td>12'-0&quot;</td>
<td>5'-0&quot;</td>
</tr>
<tr>
<td>24'-0&quot;</td>
<td>3'-0&quot;</td>
</tr>
</tbody>
</table>

Notes:
1. All steel tubing shall be 50 ksi steel.
2. Locate anchors at each end of bow.
3. Fasten metal roof panels to bow frame with 1/4" x 1" self drilling fasteners @ 8" o.c. max.
4. All field connections shall be 1/4" x 1" self drilling screws.
5. All shop connections shall be welded.
SOIL BASE RAIL ANCHORAGE

**SCALE:** 1 1/2" = 1'-0"

- Drill 5/8" hole through the base rail and secure to anchor eye with 1/2" diameter through bolt.
- Ground anchor 3/4" x 20" with 2-4" held and 3/4" eye bolt.

**INSTALL 1/2" X 8" EXPANSION ANCHOR THROUGH BASE RAIL WITHIN 8" OF EACH BOW**

CONCRETE BASE RAIL ANCHORAGE (OPTIONAL)

**SCALE:** 3/4" = 1'-0"

- Concrete shall have a minimum specified compressive strength of 2500 psi at 28 days.
- Cover over reinforcing steel: For foundations, minimum concrete cover over reinforcing bars shall be 3 inches in foundations where the concrete is cast against and permanently in contact with the earth or exposed to the earth or weather and 1 1/2 inches elsewhere. Reinforcing bars embedded in grouted cells shall have a minimum clear distance of 1/4 inch for fine grout or 1/2 inch for coarse grout between reinforcing bars and any face of a cell. Reinforcing bars used in masonry walls shall have a masonry cover (including grout) of not less than 2 inches for masonry units with face exposed to earth or weather or less than 1 1/2 inches for masonry units not exposed to earth or weather.
- Reinforcing steel: The reinforcing steel shall be minimum grade 40.
- Galvanization: Metal accessories for use in exterior wall construction and not directly exposed to the weather shall be galvanized in accordance with ASTM A 183, Class B-2. Metal plate connectors, screws, bolts and nails exposed directly to the weather shall be stainless steel or not dipped galvanized.
- Reinforcement may be bent in the shop or the field provided:
  1. All reinforcement is bent cold.
  2. The diameter of the bend, measured on the inside of the bar, is not less than six-bar diameters and
  3. Reinforcement partially embedded in concrete shall not be field bent.
- Exception: Where bending is necessary to align dowel bars with a 1/4" self-drilling bolt, reinforcing bars partially embedded in concrete shall be permitted to be bent at a slope of not more than 1 inch of horizontal displacement to 6 inches of vertical bar length.
PANEL ATTACHEMENT
SCALE: 1" = 1'-0"
(ALTERNATE FOR VERTICAL ROOF PANELS)

NOTE:
EXTERIOR WINDOWS AND GLASS DOORS SHALL BE TESTED BY AN APPROVED INDEPENDENT TESTING LABORATORY, AND BEAR AN ANA OR WMFA OR OTHER APPROVED LABEL IDENTIFYING THE MANUFACTURER, PERFORMANCE CHARACTERISTICS AND APPROVED PRODUCT EVALUATION ENTITY TO INDICATE COMPLIANCE WITH THE REQUIREMENTS OF THE FOLLOWING SPECIFICATION:

ANSI AAMA/WWDA 101.352.2/07
THE CONSTRUCTION SHALL BE TESTED IN ACCORDANCE WITH ASTM E 59, STANDARD TEST METHODS FOR STRUCTURAL PERFORMANCE OF EXTERIOR WINDOWS, CURTAIN WALLS, AND DOORS BY UNIFORM STATIC AIR PRESSURE.

<table>
<thead>
<tr>
<th>CARPORT WIDTH</th>
<th>MAX DOOR WIDTH</th>
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<tr>
<td>16'</td>
<td>8'</td>
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<tr>
<td>18'</td>
<td>10'</td>
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<tr>
<td>20'</td>
<td>12'</td>
</tr>
<tr>
<td>22'</td>
<td>12'</td>
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<tr>
<td>24'</td>
<td>16'</td>
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<tr>
<td>26'</td>
<td>16'</td>
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<tr>
<td>28'</td>
<td>16'</td>
</tr>
<tr>
<td>30'</td>
<td>16'</td>
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</tbody>
</table>
END POST TO BOW CONN. DETAIL

END POST TO HEADER/RAIL CONN.

HEADER TO POST CONN. DETAIL

END BOW/BASE RAIL CONN.

2.5x2.5x12 GA END POST
2.5x2.5x12 GA HEADER
2.5x2.5x12 GA END POST
2.5x2.5x12 GA END POST

HEADER TO POST
SECURE TO POST AND BOW
ON BOTH SIDES.

HEADER TO HEADER
SECURE TO POST AND BOW
ON BOTH SIDES.

END POST TO BOW CONN.
SECURE TO POST AND BOW
ON BOTH SIDES.
TYPICAL SIDE EXTENSION SECTION

SCALE: NTS

12" LONG
TS 2.25 x 2.25 x 12 GA
NIPPLE SECURE POST
TO NIPPLE W/ .125" x 1" SDFs
ONE ON NEAR SIDE, ONE ON
FAR SIDE AND ONE ON EACH
FACE, LOCATED @ 3" DOWN
FROM MEMBER END

36" x 2" x 2.5" 16 GA BRACE
(10' LEG ONLY)

6" LONG
TS 2.25 x 2.25 x 12 GA
NIPPLE SECURE POST
TO NIPPLE W/ .125" x 1" SDFs
ONE ON NEAR SIDE, ONE ON
FAR SIDE AND ONE ON EACH
FACE, LOCATED @ 3" DOWN
FROM MEMBER END

BOW/POST DETAIL

SCALE: 3/4" = 1'-0"
Step 6  Choose Your Colors

Select colors for your roof, ends and sides.

Change building orientation

Front  Back  Left  Right

12' x 21' x 8'

*Colors may vary

Roof:

Sides:

Ends:

Trim:
TYPICAL BLOWER/FLARE SYSTEM EQUIPMENT INSPECTION AND MAINTENANCE
(TO OCCUR AND DOCUMENTED EVERY 3-MONTHS)

The following maintenance summary is designed only as a guideline and does not identify all areas or components requiring maintenance attention. A maintenance program must be developed considering the equipment, operational experience, and manufacturer requirements. This operating manual is to be used in conjunction with, and does not replace any individual components manufacturer’s requirements.

General
1. Inspection and maintenance of the Blowers shall be per manufacturer’s instructions.
2. Review the calibration and operation of all instruments per manufacturer information and recommendations.
3. Inspect all flanges and connections for indications of leaking. Repair or replace if necessary.

Flare
1. Visually inspect the flare stack and windshield for damage or deterioration.
2. Inspect all thermocouple assemblies and replace at least once each year.
3. Inspect the pilot assembly, ignition rod, electrode, and insulators for damage. Repair or replace if necessary.
4. Verify pilot gas supply pressure and pilot ignition.
5. Remove the flame arrester element for cleaning every six months. Measure the pressure differential across the flame arrester element. If the value exceeds the allowed, then clean the element.

Panel and Controls
1. Confirm the control logic is functioning properly and all input and output signals are correct.
2. Verify proper operating sequence and all safety shutdown devices.
3. Inspect all electrical enclosures for any apparent corrosion or moisture.
4. Confirm all enclosure and actuator air conditioning equipment are functioning.
5. Confirm the integrity of conduit seals, if applicable.
6. Verify the supply power voltage.
7. Verify power to motor starters.
8. During operation, measure gas blower line current and voltage.
9. Confirm chart recorder operation.

Miscellaneous
1. Remove and clean any filter elements or mesh strainers.
2. Knock-out Pot; verify the allowed value for the differential pressure appears on the gauge. If the value exceeds the allowed differential pressure, then clean the mist elimination element inside.
3. Press the "Hand" button for the gas blower to verify proper operation.
4. Verify sufficient pressure is available from the compressed air source.
5. Inspect any gauges and valves for deterioration.
6. Annual calibration, as a minimum, for any analyzer or flow meter.