

SERVICE AGREEMENT NO. 951

Landfill Gas/Blower Flare Project

THIS **Landfill Gas/Blower Flare Project Agreement** ("Agreement") is entered into by and between the City of Corpus Christi, a Texas home-rule municipal corporation ("City") and Parnel Biogas, Inc. ("Contractor"), effective upon execution by the City Manager or the City Manager's designee ("City Manager").

WHEREAS, Contractor has bid to provide Landfill Gas/Blower Flare Project in response to Request for Bid/Proposal No. 184 ("RFB/RFP"), which RFB/RFP includes the required scope of work and all specifications and which RFB/RFP and the Contractor's bid or proposal response, as applicable, are incorporated by reference in this Agreement as Exhibits 1 and 2, respectively, as if each were fully set out here in its entirety.

NOW, THEREFORE, City and Contractor agree as follows:

1. **Scope.** Contractor will provide Landfill Gas/Flare for the Cefe Valenzuela Landfill ("Services") in accordance with the attached Scope of Work, as shown in Attachment A, the content of which is incorporated by reference into this Agreement as if fully set out here in its entirety, and in accordance with Exhibit 2.
2. **Term.** This Agreement is for 12 months, with performance commencing upon the date of issuance of a notice to proceed from the Contract Administrator or Purchasing Division. This Agreement includes an option to extend the term for up to zero additional zero-month periods ("Option Period"), provided, the parties do so prior to expiration of the original term or the then-current Option Period. The decision to exercise the option to extend the term of this Agreement is, at all times, within the sole discretion of the City and is conditioned upon the prior written agreement of the Contractor and the City Manager.
3. **Compensation and Payment.** The total value of this Agreement is not to exceed \$271,475.64 subject to approved extensions and changes. Payments will be made for Services as follows: 25% upon approval of shop drawings; 25% six weeks after drawings are approved; 25% when flare is ready to ship; and 25% upon system start up, each subject to receipt of an acceptable invoice. All pricing must be in accordance with the attached Bid/Pricing Schedule, as shown in Attachment B, the content of which is

incorporated by reference into this Agreement as if fully set out here in its entirety.

4. **Contract Administrator.** The Contract Administrator designated by the City is responsible for approval of all phases of performance and operations under this Agreement, including deductions for non-performance and authorizations for payment. The City's Contract Administrator for this Agreement is as follows:

Tony Benavides
Solid Waste Department
(361) 826-1633
tonyb@cctexas.com

5. **Insurance; Bonds.**

(A) Before performance can begin under this Agreement, the Contractor must deliver a certificate of insurance ("COI"), as proof of the required insurance coverages, to the City's Risk Manager and the Contract Administrator. Additionally, the COI must state that the City will be given at least 30 days' advance written notice of cancellation, material change in coverage, or intent not to renew any of the policies. The City must be named as an additional insured. The City Attorney must be given copies of all insurance policies within 10 days of the City Manager's written request. Insurance requirements are as stated in Attachment C, the content of which is incorporated by reference into this Agreement as if fully set out here in its entirety.

(B) In the event a payment bond, a performance bond, or both, are required of the Contractor to be provided to the City under this Agreement before performance can commence, the terms, conditions, and amounts required in the bonds and appropriate surety information are as included in the RFB/RFP or as may be added to Attachment C, and such content is incorporated here in this Agreement by reference as if each bond's terms, conditions, and amounts were fully set out here in its entirety.

6. **Purchase Release Order.** For multiple-release purchases of Services to be provided by the Contractor over a period of time, the City will exercise its right to specify time, place and quantity of Services to be delivered in the following manner: any City department or division may send to Contractor a purchase release order signed by an authorized agent of the department or division. The purchase release order must refer to this Agreement, and Services will not be rendered until the Contractor receives the signed purchase release order.

7. **Inspection and Acceptance.** Any Services that are provided but not accepted by the City must be corrected or re-worked immediately at no charge to the City. If immediate correction or re-working at no charge cannot be made by the Contractor, a replacement service may be procured by the City on the open market and any costs incurred, including additional costs over the item's bid/proposal price, must be paid by the Contractor within 30 days of receipt of City's invoice.
8. **Warranty.** The Contractor warrants that all products supplied under this Agreement are new, quality items that are free from defects, fit for their intended purpose, and of good material and workmanship. The Contractor warrants that it has clear title to the products and that the products are free of liens or encumbrances. In addition, the products purchased under this Agreement shall be warranted by the Contractor or, if indicated in Attachment D by the manufacturer, for the period stated in Attachment D. Attachment D is attached to this Agreement and is incorporated by reference into this Agreement as if fully set out here in its entirety.

8.1 Liquidated Damages

(A) Liquidated damages are the specified dollar amount the Contractor shall pay to the City due to the Contractor's failure to complete the Scope of Work within the Completion Time detailed in RFB No. 184 and this Agreement.

(B) The parties recognize and agree that time is of the essence for this Agreement. The parties recognize that the City will suffer financial loss if the Scope of Work is not completed within the times specified. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by the City if the Scope of Work is not completed on time. Accordingly, instead of requiring any such proof, the parties agree that the Contractor will pay liquidated damages for delay if acceptance of the work has not occurred on or before any of the milestone due dates shown in the table below. Liquidated damages will be assessed for each missed milestone listed below and thus may be cumulative. These liquidated damages shall not be construed as a penalty.

(C) Execution of the Agreement shall constitute agreement by the City and Contractor that the amount specified is the minimum value of the costs and actual damage caused by the failure of the Contractor to complete the Scope of Work within the allotted time. Such sum is liquidated damages and may be deducted from payments due the Contractor if such delay occurs.

(D) The City shall have the right to deduct said liquidated damages from any amount due or that may become due to the Contractor, or to collect such liquidated damages from the Contractor or its surety.

(E) The City shall determine whether the Scope of Work has been completed within the time allowed under the Agreement.

(F) Progress payments made by the City are not to be considered a waiver of liquidated damages.

(G) The City expressly denies that any progress payments made after the scheduled completion date constitute a waiver of liquidated damages.

(H) Failure of the Contractor to complete the Scope of Work within the time allowed will result in damages being sustained by the City. For each consecutive day in excess of the time specified for the completion of work, as adjusted in accordance with the Agreement, the Contractor shall pay to the City, or have withheld from monies due it, the amount of liquidated damages shown in the table of liquidated damages below:

LIQUIDATED DAMAGES		
Milestone	Due Date	Liquidated Damage
Delivery of Flare	182 days from NTP	\$2000 / day
Testing and Training Complete	243 days from NTP	\$2000 / day

(I) All liquidated damages shall be charged at the value indicated for amount of time or any part thereof that the Contractor is late.

(J) These provisions shall not prevent the City, in the case of the Contractor's default under this Agreement, from terminating the right of the Contractor to proceed as provided in the Agreement and seeking all damages and other remedies available to the City under this Agreement or by law.

- 9. Quality/Quantity Adjustments.** Any Service quantities indicated on the Bid/Pricing Schedule are estimates only and do not obligate the City to order or accept more than the City's actual requirements nor do the estimates restrict the City from ordering less than its actual needs during the term of the Agreement and including any Option Period. Substitutions and deviations from the City's product requirements or specifications are prohibited without the prior written approval of the Contract Administrator.

- 10. Non-Appropriation.** The continuation of this Agreement after the close of any fiscal year of the City, which fiscal year ends on September 30th annually, is subject to appropriations and budget approval specifically covering this Agreement as an expenditure in said budget, and it is within the sole discretion of the City's City Council to determine whether or not to fund this Agreement. The City does not represent that this budget item will be adopted, as said determination is within the City Council's sole discretion when adopting each budget.
- 11. Independent Contractor.** Contractor will perform the work required by this Agreement as an independent contractor and will furnish such Services in its own manner and method, and under no circumstances or conditions will any agent, servant or employee of the Contractor be considered an employee of the City.
- 12. Subcontractors.** Contractor may use subcontractors in connection with the work performed under this Agreement. When using subcontractors, however, the Contractor must obtain prior written approval from the Contract Administrator if the subcontractors were not named at the time of bid or proposal, as applicable. In using subcontractors, the Contractor is responsible for all their acts and omissions to the same extent as if the subcontractor and its employees were employees of the Contractor. All requirements set forth as part of this Agreement, including the necessity of providing a COI in advance to the City, are applicable to all subcontractors and their employees to the same extent as if the Contractor and its employees had performed the work.
- 13. Amendments.** This Agreement may be amended or modified only by written change order signed by both parties. Change orders may be used to modify quantities as deemed necessary by the City.
- 14. Waiver.** No waiver by either party of any breach of any term or condition of this Agreement waives any subsequent breach of the same.
- 15. Taxes.** The Contractor covenants to pay payroll taxes, Medicare taxes, FICA taxes, unemployment taxes and all other related taxes. Upon request, the City Manager shall be provided proof of payment of these taxes within 15 days of such request.
- 16. Notice.** Any notice required under this Agreement must be given by fax, hand delivery, or certified mail, postage prepaid, and is deemed received on the day faxed or hand-delivered or on the third day after postmark if sent by certified mail. Notice must be sent as follows:

IF TO CITY:

City of Corpus Christi
Attn: Tony Benavides
Contract Administrator
2397 County Road 20, Robstown, Texas 78380
Fax: (361) 826-1970

IF TO CONTRACTOR:

Parnel Biogas, Inc.
Attn: Jeff Parker
Title: President
5868 S. 129th E. Ave., Tulsa, Oklahoma 74134
Fax: (918) 234-1968

- 17. CONTRACTOR AGREES TO INDEMNIFY, HOLD HARMLESS AND DEFEND THE CITY OF CORPUS CHRISTI AND ITS OFFICERS, EMPLOYEES AND AGENTS ("INDEMNITEES") FROM AND AGAINST ANY AND ALL LIABILITY, LOSS, CLAIMS, DEMANDS, SUITS AND CAUSES OF ACTION OF ANY NATURE WHATSOEVER ON ACCOUNT OF PERSONAL INJURIES (INCLUDING DEATH AND WORKERS' COMPENSATION CLAIMS), PROPERTY LOSS OR DAMAGE, OR ANY OTHER KIND OF INJURY, LOSS, OR DAMAGE, INCLUDING ALL EXPENSES OF LITIGATION, COURT COSTS, ATTORNEYS' FEES AND EXPERT WITNESS FEES WHICH ARISE OR ARE CLAIMED TO ARISE OUT OF OR IN CONNECTION WITH THIS AGREEMENT OR THE PERFORMANCE OF THIS AGREEMENT, REGARDLESS OF WHETHER THE INJURIES, DEATH OR DAMAGES ARE CAUSED OR ARE CLAIMED TO BE CAUSED BY THE CONCURRENT OR CONTRIBUTORY NEGLIGENCE OF INDEMNITEES, BUT NOT IF BY THE SOLE NEGLIGENCE OF INDEMNITEES UNMIXED WITH THE FAULT OF ANY OTHER PERSON. CONTRACTOR MUST, AT ITS OWN EXPENSE, INVESTIGATE ALL CLAIMS AND DEMANDS, ATTEND TO THEIR SETTLEMENT OR OTHER DISPOSITION, DEFEND ALL ACTIONS BASED THEREON WITH COUNSEL SATISFACTORY TO THE CITY ATTORNEY, AND PAY ALL CHARGES OF ATTORNEYS AND ALL OTHER COSTS AND EXPENSES OF ANY KIND ARISING FROM ANY SAID LIABILITY, DAMAGE, LOSS, CLAIMS, DEMANDS, SUITS, OR ACTIONS. THE INDEMNIFICATION OBLIGATIONS OF CONTRACTOR UNDER THIS SECTION SHALL SURVIVE THE EXPIRATION OR EARLIER TERMINATION OF THIS AGREEMENT.**

18. Termination.

(A) The City Manager may terminate this Agreement for Contractor's failure to perform the work specified in this Agreement or to keep any required insurance policies in force during the entire term of this Agreement. The Contract Administrator must give the Contractor written notice of the breach and set out a reasonable opportunity to cure. If the Contractor has not cured within the cure period, the City Manager may terminate this Agreement immediately thereafter.

(B) Alternatively, the City Manager may terminate this Agreement for convenience upon 30 days advance written notice to the Contractor. The City Manager may also terminate this Agreement upon 24 hours written notice to the Contractor for failure to pay or provide proof of payment of taxes as set out in this Agreement.

19. Assignment. No assignment of this Agreement by the Contractor, or of any right or interest contained herein, is effective unless the City Manager first gives written consent to such assignment. The performance of this Agreement by the Contractor is of the essence of this Agreement, and the City Manager's right to withhold consent to such assignment is within the sole discretion of the City Manager on any ground whatsoever.

20. Severability. Each provision of this Agreement is considered to be severable and, if, for any reason, any provision or part of this Agreement is determined to be invalid and contrary to applicable law, such invalidity shall not impair the operation of nor affect those portions of this Agreement that are valid, but this Agreement shall be construed and enforced in all respects as if the invalid or unenforceable provision or part had been omitted.

21. Order of Precedence. In the event of any conflicts or inconsistencies between this Agreement, its attachments, and exhibits, such conflicts and inconsistencies will be resolved by reference to the documents in the following order of priority:

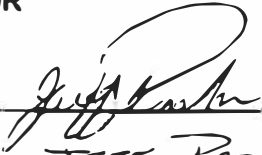
- A. this Agreement and its attachments
- B. the bid solicitation document, including addenda (Exhibit 1)
- C. the Contractor's bid response (Exhibit 2)

22. Certificate of Interested Parties. Contractor agrees to comply with Texas Government Code Section 2252.908, as it may be amended, and to complete Form 1295 "Certificate of Interested Parties" as part of this Agreement.

- 23. Governing Law.** This Agreement is subject to all federal, State, and local laws, rules, and regulations. The applicable law for any legal disputes arising out of this Agreement is the law of the State of Texas, and such form and venue for such disputes is the appropriate district, county, or justice court in and for Nueces County, Texas.
- 24. Entire Agreement.** This Agreement constitutes the entire agreement between the parties concerning the subject matter of this Agreement and supersedes all prior negotiations, arrangements, agreements and understandings, either oral or written, between the parties.

(SIGNATURE PAGE FOLLOWS)

CONTRACTOR

Signature: 
Printed Name: JEFF PARKER
Title: PRESIDENT
Date: 1/9/17

CITY OF CORPUS CHRISTI

Signature: _____
Printed Name: _____
Title: _____
Date: _____

Attached and Incorporated by Reference:

Attachment A: Scope of Work
Attachment B: Bid/Pricing Schedule
Attachment C: Insurance/Bond Requirements
Attachment D: Warranty Requirements

Incorporated by Reference Only:

Exhibit 1: RFB/RFP No. 184
Exhibit 2: Contractor's Bid/Proposal Response

Attachment A: Scope of Work

1.1 General Requirements/Background Information

The Contractor shall provide delivery of a Landfill Gas Blower/Flare for the Cefe Valenzuela Landfill, as outlined in this Scope of Work.

For clarification purposes in the Scope of Work Section (1.2), the Gas Blower/Flare Supplier will be referred to as Contractor and the third party Gas Collection and Control System (GCCS) Contractor will be referred to as Installer.

1.2 Scope of Work

- A. The Contractor shall provide (including freight), related to the landfill gas (LFG) flare and separate equipment skid:
 - 1. LFG Flare System (14-inch candlestick)
 - 2. Gas Handling System
 - 3. Control Panel, Instrumentation, and Operational Logic
- B. In the interest of total system compatibility, reliability, quality, cost, and single source responsibility; the systems and assemblies furnished under this section shall be designed, manufactured, and/or supplied by a single vendor (referred herein as the Contractor).
- C. Equipment, specified herein, will be installed by a qualified Installer, including flare and blower/equipment skid.
- D. Contractor shall provide the modular, blower/equipment skid and flare including all components necessary for a complete and operational system. The 14-inch candlestick flare will be on a separate foundation from the blower/equipment skid. The blower/equipment skid and flare shall be sized as follows:
 - 1. To initially extract, demist and knockout condensate, and compress and combust a maximum of 121.4 MMBtu/hr. (4,000 SCFM @ 50% CH₄) of LFG.
 - 2. Piping, demister and controls on the blower/equipment skid shall be designed and sized to accommodate the following:
 - a. Two (2), 2,000 SCFM blowers with variable frequency drive (VFD) shall be installed initially for operation in parallel (capability to operate simultaneously):
 - b. Space for a third 2,000 SCFM blower and VFD shall be provided, including flange connections and PLC program for installation and operation in the future. Space for third blower shall also accommodate operation in parallel with either of initial blowers; and

- c. Total maximum combined flow rate of the initial two blowers shall be 4,000 SCFM.
- E. The total system shall include three principal sub-systems; 1) LFG Flare System; 2) Gas Handling System (blowers/equipment skid); and 3) Control Panel, Instrumentation, and Operational Logic (Note, the Gas Handling System and Control Panel, Instrumentation, and Operational Logic shall be included on one skid). The subsystems shall include but not be limited to, the following components:
 - 1. LFG Flare System
 - a. Flame Arrester
 - b. Pneumatic shutdown valve
 - c. Flare stack assembly
 - d. Stainless steel burner assembly
 - e. Stainless steel burner shroud
 - f. Isolation valves (interconnecting HDPE piping between flare and blower/equipment skid to be supplied and installed by Installer)
 - g. Internal electrical wiring
 - h. Propane pilot and ignition system
 - 2. Gas Handling System
 - a. Two LFG blowers, with space and flanged process piping to accommodate the addition of a third blower (same size and model) in the future.
 - b. Demister/Filter System
 - c. Process Valves
 - d. Process Piping
 - e. Flow Meter Assembly
 - 3. Control Panel, Instrumentation, and Operational Logic
 - a. Enclosure/cabinets/junction boxes
 - b. Control and annunciation devices
 - c. Interconnecting conduit and wiring
 - d. PLC supervisory control system
 - e. Ethernet switch for remote connection capabilities including cabling to all control devices (Yokogawa Chart recorder, CMore OIP, PLC, etc.) All devices will be factory configured to a common network mask prior to delivery to the project site.
 - f. All required electrical controls, motor controls, annunciation systems, alarm systems and logic systems
- F. Contractor shall perform all equipment and system testing, and demonstrate compliance with performance requirements specified herein.

- G. Following installation of the system by Installer. Contractor shall also perform the initial system start-up demonstration and testing in the presence of the City and training for City designated personnel. Contractor shall provide a minimum of three days for start-up demonstration and testing. Personnel training shall be performed on the 3rd day of the start-up demonstration and testing.

1.3 Performance

- A. Operating Conditions: The LFG flare and equipment skid components (System) shall be capable of operating under the following performance requirements and operating ranges:
1. Gas flow rates: The System shall be capable of operating at a LFG flow rate and a heat flow content of 10% maximum load rating of the flare (i.e., 400 SCFM) through 100% maximum load rating described in **Part 1.2.D**.
 2. The LFG flare shall be designed in accordance with 40 CFR, Part 60.18 and shall meet the requirements of those criteria throughout the full operation range of the System.
- B. LFG composition: In the absence of actual qualitative gas data, the composition of the LFG for this project shall assumed to be as follows:
1. Composition:
25% to 60% CH₄
25% to 60% CO₂
Remainder air, inert gases, and trace components
 2. Temperature: 100°F
 3. LFG Moisture Content: Saturated
- C. Mechanical:
1. Design Wind Speed (IBC): 130mph (Inland I, Corpus Christi, TX)
 2. Seismic Zone: 4
 3. Site Elevation: 0 ft. above sea level
 4. Electrical Area: Non-hazardous (unclassified)

1.4 Submittals

- A. Shop Drawings: Before any of the materials are delivered to the Site, the Contractor shall submit complete shop drawings to the City for review and approval. Shop drawings shall show all details of:
1. Equipment dimensions, layout plan and profile drawings showing equipment orientation on skid, and component parts and list of materials.
 2. Electrical wiring diagram and details, including a complete Process and instrumentation drawing (P&ID).
 3. Installation and mounting details

4. Skid weights, number and sizes of anchoring locations and dimensions, wind and seismic load calculations, and flare moment calculations.
- B. Materials list: Provide a complete list of all materials and equipment proposed to be furnished and installed under this portion of the Work:
 1. Make
 2. Model
 3. Part Number
 4. List of Manufacturers for Parts
 5. Expected lead time
- C. Plywood or City approved material template for flare mast support (base ring, structural members, etc.) and anchor bolt-hole location.
- D. Contractor shall prepare and deliver three copies of the Operation and Maintenance (O&M) Manuals. Additionally, the O&M manual shall be provided electronically in a searchable PDF format with hyperlinks in the Table of Contents to associated sections to the City on compact disc (CD) and include:
 1. Field Summary for recommended Maintenance & Frequency
 2. Table for recommended parts to keep in stock
- E. Contractor shall submit warranties for all equipment and material supplied for the work specified in this specification.

1.5 Product Handling

- A. Contractor shall deliver materials in manufacturer's original packaging with all tags and labels intact and legible.

1.6 LFG Flare System

- A. The LFG Flare System shall be a candlestick flare unitized and modular system including all piping, valves and components for a complete and operational system except for the HDPE pipe that will run between the equipment skid outlet and the flame arrestor.
- B. The LFG Flare shall be pre-piped and pre-wired to the extent possible, requiring minimal field assembly.
- C. The LFG Flare shall be rated for 400 to 4,000 SCFM, designed and manufactured in compliance with 40 CFR, Part 60.18, and shall include, but not be limited to, the following components which shall meet as a minimum the listed specifications:
 1. Flame arrester: A minimum 12-inch flame arrester shall be provided for the inlet to the flare. The pressure drop it imposes on the system shall be a maximum of 2 inches w.c. The flame arrester shall be constructed with a cast aluminum

housing with aluminum flame element. The flame arrester shall be manufactured by Groth, Varec, Enardo, or City approved equal. The flame arrester shall be provided with pressure monitoring such that both flare backpressure and "flare plus flame arrester" backpressure can be monitored.

2. Flare Shutdown Valve: A minimum 12 inch pneumatically-operated butterfly valve shall be provided, equipped with a 316 stainless steel disk, stem and Teflon seat. The operator shall be provided as a spring-fail-close device and shall close when directed by a logic in less than 2 seconds.
3. Mass flow measurement device manufactured by Fluid Components International, LLC; Sage; Thermal Instruments; Kurz Instruments, Inc.; or City approved equal. The output from this device shall be converted to a 4-20mADC signal and transmitted to the PLC for flow input into digital chart recorder.
4. Flare Stack: The flare mast shall have the following properties and accessories:
 - a. The flare stack shall be fabricated from A53-B carbon steel pipe. The stack shall be self-supporting by an A-36 base ring or structural members with pre-engineered bolt holes sized for stack diameter, height, and wind load.
 - b. The inlet shall be a 90° entrance into the stack.
 - c. The inlet shall project a minimum of 10 inches from the stack and terminate with a 150# ANSI FFSO flange inlet to which the flame arrester assembly shall be attached.
 - d. The inlet nozzle shall contain one (1) ½" FNPT connection on the top of the nozzle for a temperature switch to be mounted.
 - e. A carbon steel inclined floor plate at least 4" below the lowest part of the inlet connection shall be seal welded to the interior of the stack with one (1) 1" 3000# FNPT connection located as a low point drain connection above the inclined plate, on the down slope side.
 - f. The flare mast assembly shall include provision for mounting local junction boxes, ignition transfer box, and propane pilot gas train components.
 - g. The flare mast shall include "uni-strut" type mounting accommodation for the installation of conduit and piping as is required to service the upper levels of the flare assembly.
5. Flare Tip and Shroud: The flare tip assembly shall have the following properties and accessories:
 - a. The flare tip shall be a minimum length of 5 feet, 304 stainless steel, schedule 10S pipe of the same diameter as that of the carbon steel flare stack.
 - b. The flare tip shall be continuously welded to the carbon steel flare stack with a 309 stainless steel weld.

- c. The flare tip shall incorporate integral flame retention for increased flame stability.
 - d. The flare shroud shall be fabricated from 309/310 stainless steel. The piping shall have attached a minimum of three continuously welded stainless steel attachment supports for the stainless steel shroud.
 - e. The flare shroud shall be designed to induct the proper amount of air into the flame zone for stable combustion throughout the flow range. The free net nozzle area shall be such that the velocities specified in 40 CFR §60.18 are satisfied within the ranges of the specified loading rates.
 - f. The flare tip shall have two (2) type K thermocouple assemblies with 310 stainless steel sheathing. Each thermocouple shall be located such that it detects the main flame throughout the entire design operating range.
6. Pilot Assembly: The pilot assembly shall have the following properties and accessories:
- a. The pilot shall be spark ignited.
 - b. The spark plug shall be located in a position that is not considered a "low point," which can collect water.
 - c. The pilot shall consist of an ignition rod internal to the pilot assembly and shall be weatherproof such that rain or condensation will not cause the ignition rod to "arc out" in a location other than the pilot tip.
 - d. The arc (spark) that ignites the flare pilot shall be located at the pilot tip, such that the base of the pilot flame is directly adjacent to the arc (spark).
 - e. The pilot shall consist of a cast iron self-inspiring capable of achieving the air/gas mixture required for proper pilot flame stability. The educator shall have a windshield around the inlet air opening such that a cross-wind will not affect the operation of the pilot.
 - f. The gas inlet connection to the pilot educator shall be ½" FNPT.
 - g. The pilot tip shall be made from stainless steel and shall be positioned such that the main flare tip is ignited easily.
 - h. The enclosure for the ignition transformer shall meet NEMA 4 criteria and shall receive the 120 VAC power and hi-tension conduits.
7. Finish: High temperature primer over sand-blast prepared metal. Sand blasting shall be to SPC SP-6 guidelines. Stainless steel portions do not require coatings.

D. Flare Sequence of Normal (Automatic Mode) Operation:

1. With the PILOT, SHUTDOWN VALVE, and BLOWER mode switches in the "AUTO" position, turn the FLARE SYSTEM switch from "OFF" to "AUTO".
2. The pilot solenoid valve opens and the spark igniter energizes for up to 1 minute (adjustable) to ignite the pilot gas.
3. The blower starts following an operator-adjustable time delay and pilot proved indication.
4. The safety shutdown valve begins to open following an adjustable time delay after the blower has started.
5. LFG is presented to the burner, and normal operation is achieved.
6. If flare fails to reach normal operating temperature within an adjustable time delay, the system experiences a shutdown, and after an adjustable time delay has elapsed, begins a re-light attempt. The operator may select the number of re-light attempts prior to a "FLAME FAILURE" shutdown.
7. Should the inlet valve fail to close upon logic or manual operator selection demand, the system shall shutdown send a signal to annunciate "inlet Valve Fail." This shutdown shall require operator attention for remediation and manual restart.
8. The flare system may be operated in the "AUTO VACUUM", "AUTO FLOW RATE" or "AUTO TIMER" modes of operation. In the "AUTO TIMER" mode, the operator can select the "ON Time-of-Day" and "OFF Time-of-Day" inputs. In the "AUTO PRESSURE" mode, the operator can select the option to run the "AUTO VACUUM" mode concurrently, as well as "FLARE" mode standby auto and auto timer mode. These operational modes, as well as other control conditions and set-points are selectable on the "Touch Screen" operator interface device mounted on the front of the control panel.

1.7 Gas Handling System

- A. The Gas Handling System shall be equipped with the components described, including all piping and valves for a complete and operational system.
- B. Performance and Design Requirements:
 1. The gas handling system shall be fabricated with two 2,000 SCFM blowers and Variable Frequency Drives (VFD), including piping, valves, primary demister, and any other necessary incidentals thereto. The skid shall be fabricated, including PLC programming **and necessary input and output modules to allow the installation of a third 2,000 SCFM blower and VFD by the same manufacturer at some time in the future.**
 2. **LFG blower(s):** Blowers shall be designed for use with and in the presence of LFG. The blowers shall be VFD, multi-stage centrifugal devices, with cast iron ends and sections, and aluminum cast impellers. The blowers shall be

designed with a highly effective shaft seal, and shall be designed for direct-coupled VFD controlled applications. The blowers shall be capable of exerting at least 60-inch water column (WC) vacuum at the suction side, and shall deliver at least 20-inch WC positive pressure, including all system parasitic restrictions, throughout the full design range of this specification. The blower end and sections shall be provided with a protective Heresite coating.

3. Motor: The blowers shall be furnished with a 60 Hertz, 3-phase, 480 volt, TEFC enclosures, squirrel-cage induction motors with 1.15 minimum service factors, and shall be factory mounted with the blowers. The motors shall be rated for service with a VFD. Motor HPs shall be sufficient to operate the blowers throughout their design ranges.
 - a. Variable Frequency Drive (VFD):
 - i. VFDs suitable for control of the blower/motor assemblies shall be provided. The VFDs shall be capable of controlling the blower motors by either a manually selected speed control or by a 4-20 mADC signal provided by the flow rate or landfill vacuum monitoring system(s).
 - ii. The VFDs shall be equipped with line reactors and 480V surge protection to prevent damage due to power fluctuations and sudden loss of power.
 - iii. The operator shall be able to select a desired LFG flow rate or landfill vacuum at the operator interface console (Touch Screen), and the VFDs will automatically control the blower speed to maintain vacuum or flow.
 - b. Accessories:
 - i. The blowers shall be furnished with vibration sensors, mounted on or near the driven end bearing housing assemblies of the blowers, and shall develop an output of 4-20 mADC representative of in/sec vibrations from the blowers. The PLC shall accept this signal, and shall process the signal for touch screen display as well as adjustable alarm and shutdown levels.
 - ii. Stainless steel valves and tubing (appropriately sized) shall be installed on the bottom of the blowers to drain condensate.
 - c. Installation: All piping will be supported to preclude the possibility of exerting undue forces and moments on the blower flanges. Suitable flexible connectors will be furnished to isolate the blower from the piping system. Each unit shall be mounted flat and level on the gas handling system steel main skid.
 - d. Experience: The blowers shall be manufactured in the United States. Compressor manufacturers shall have a minimum five years' experience in

the design and manufacture of this type of equipment and have a minimum of 25 operating installations in the United States.

- e. Acceptable Manufactures:
 - 1. Atlas Copco
 - 2. Hibon (Ingersoll Rand)
 - 3. Continental Blower, LLC.
 - 4. Gardner Denver/Lamson
- 4. Primary Demister Filter: The demister filter enclosure shall be completely fabricated from high-density polyethylene (HDPE), 304L stainless steel, or other City approved material. It shall be of a vertical, cylindrical design with element removal from the top. The top shall be a flanged top with stainless steel QED Easy Bolts. Nozzle flanges shall meet ANSI 125# specifications. The demister shall be able to remove 100% of droplets > 10 micron and shall also remove Particulates having a density equal to or greater than water which are > 10 micron in size.
- 5. At the design flow rates, temperatures and pressures, the demister shall not have a clean pressure drop greater than 2 in. WC. The demister/filter vessel shall be capable of withstanding no less than 80 in. WC vacuum.
 - a. Demister/Filter Elements: The demister/filter pad elements shall be manufactured from polypropylene fiber and woven pads. Over 90% of the fiber shall be perpendicular to the flow of the gas. There shall be three groups of pads. Each group of pads shall have the following number of layers, gauge size fibers and percent void space: 1st – 4 layers/37/97; 2nd – 5 layers/16/96; and 3rd – 4 layers/8/96.
 - b. Condensate Removal: There shall be a minimum 2-inch IPS flange connection in the bottom of the filter for condensate removal.
 - c. Pressure drop monitoring: There shall be two minimum-sized ¼-inch pipe couplings in the side of the filter, one each upstream and downstream of the filter element material, for the purpose of connecting a differential pressure monitoring device. The vessel shall be provided with a differential pressure gauge installed with valving for isolation and atmospheric calibration.
 - d. The demister/filter system shall be equipped with a level switch for monitoring high condensate level in the base of the vessel.
 - e. Experience: Demister/Filter assemblies shall be manufactured in the United States. Manufacturers shall have a minimum of **5 years' and shall have a minimum of 10 units operating successfully on LFG in this country.**

- f. The demister/filter assembly shall be located, installed and pre-plumbed on the gas handling system skid.
6. Butterfly Valves: Butterfly Valves in the gas piping shall be gear operated, lug type, cast iron-bodied valves with Buna resilient seats and stainless steel disc and shaft. No Part of the cast iron body shall be in contact with the LFG. The shaft seals shall be designed for the LFG service. Valves shall be selected for a minimum pressure of 50 PSIG. At a minimum, appropriately sized butterfly valves shall be installed in the suction and discharge piping to proposed blowers.
7. Check Valves: Check valves shall be water type, double door, aluminum-bodied, with Buna seats, Technocheck 5412 or City approved equal. Check valves shall be installed on each blower discharge.
8. Piping: All piping on the gas handling skid shall be of a material sufficient for imposed loads and heat radiation from the flare (HDPE, schedule 10 304L stainless steel, or City approved material). The same specification shall apply to tees, elbows, wyes, etc., except that carbon steel flanges may be used provided the piping is provided with welded stainless steel stub ends. All flanges shall conform to ANSI 125# drilling specifications. All welding of piping and appurtenances shall conform to the appropriate applicable material specifications.
9. Flexible Connectors: System piping shall be provided where required to relieve expansion and/or vibration stresses with rubber flex connectors, connected to the stainless steel flanges using stainless steel backup rings and bolts. At a minimum, these devices shall be employed at the inlet and outlet of each blower.
10. Packaging: The complete gas handling system shall be designed and manufactured as a pre-packaged, pre-plumbed, pre-conduited, pre-wired and factory pre-tested system.
11. Structural Skid: The structural skid shall be manufactured from ASTM A-36 structural members. The sizes, weights and shapes of the structural members shall be engineered to support all assemblies and sub-assemblies in loading, transport and operation. Design, criteria for the structure(s) shall be 130 mph wind overturn loading (IBC, Inland I, Corpus Christi, Texas) and zone 4 seismic loading. All welding shall be accomplished per American Welding Society Section 1.1.

12. Gauges and Instrumentation Transmitters / Transducers: Where direct read-out pressure gauges are required, Dwyer Capsuhelic or City approved equal shall be employed, and shall be selected in appropriate ranges and/or scales. Where analog transmitters / transducers are required for installation on the system process piping or in the control panels(s) for compliant control, such transducers shall be provided and installed as 2-wire, 4-20 mADC devices. Pressure, vacuum and differential pressure transducers shall be provide as ITT/Barton, Rosemount, Honeywell products. For temperature signals, thermocouple type sensing devices selected for the appropriate temperature ranges are acceptable, with the thermocouple EMF signals processed in the system PLC. The minimum required list of devices for this system are:

- a. Landfill vacuum gauge.
- b. LFG temperature gauge, 4-1/2" dial.
- c. Landfill vacuum transmitter.
- d. Demister differential pressure gauge.
- e. Common blower discharge pressure gauges.
- f. Common blower discharge temperature gauges, 4 ½ dial.
- g. Blower inlet bearing vibration transmitters.
- h. Flame arrester pressure gauge and thermocouple.

13. Combination Methane and Oxygen Analyzer: A LANDTEC / QED GA3000 PLUS or City approved equal combined package, providing continuous measurement of percent oxygen, carbon dioxide and total volume percent methane shall be installed. Methane and carbon dioxide detection occurs with a microprocessor based analyzer utilizing dual wavelength, non-dispersive infrared absorption. Oxygen detection occurs with a microprocessor based analyzer utilizing a micro-fuel cell. The unit shall be field configurable and with 4-20 mA output signals and interposing relays for any alarm or recording interfacing.

14. Two Field Methane and Oxygen Analyzers: LNOTECH or City approved equal.

1.8 Control Panel, Instrumentation, and Operational Logic

- A. General: The control panel for the system shall be compliant with NEMA 12/3R specifications at a minimum. The panel shall be equipped with a sun/rain shield that extends 3 feet from the panel on the door side and 2 feet from each end of the panel. The control panel shall be fully pre-wired to the extent possible by the Contractor. The complete control system shall be specifically designed for the performance of the electrical and logical control requirements of this project. The control panel shall bear the official UL label confirming UL classification as a "Flame

Control Panel". The panel shall include at a minimum, but not be limited to, the following components.

1. A load center for all motors, fixtures, controls, and devices included with the system. The electrical system shall include voltage transformer(s), disconnects, main and branch circuit protectors and any other protection and/or control devices required for complete operation of the system based on a single electrical service supply of 480 VAC, 3-Phase, 60 Hz.
2. Panel Temperature Control: The electrical motor control panel(s) and/or the logical control panels shall be provided with thermostatically controlled heating and cooling systems as required to provide proper operation of all motor control and logical supervisory control sub-systems.
3. A PLC based control center (CompactLogix or City approved equal) to receive all the signals from the various safeties, controls and monitoring equipment, and to automatically control all the various components of the system. The PLC system shall be capable of Ethernet communication. The PLC system shall be connected to a remote telemetry system, such that the control system can be viewed remotely by authorized personnel. The PLC shall be capable of being integrated with a future landfill gas-to-energy facility to be installed in the future.
4. An operator interface panel (OIP), C-More EA9-T6CL or City approved equal to allow either manual or automatic selection for the control of the operational components of the system (set point changes, status, alarms, shutdown indications, etc.). Such operator interface shall be provided as a "Touch Screen", shall have Ethernet and USB capabilities, and shall be fully compatible with the PLC and shall be designed for industrial duty application.
5. A Yokogawa FX1006 digital process order City approved equal capable of collecting, accumulating, storing and presenting digital records (flare flow, temperature, vacuum, discharge pressure, and two spares) of monitored systems shall be installed by the Contractor. The device shall also have Ethernet capability for remote monitoring, internal storage capacity of 400 MB, capability to save to a compact flash memory card. The process recorder shall be connected to the PLC.
6. One (1) 8-port managed Ethernet Switch (N-TRON) 708TX or equal shall be installed within the control panel. All devices will be programmed to a common IP mask and network prior to delivery.

7. Safeties: The system shall be equipped with the following safeties as a minimum:
 - a. Blower motor over-current and vibration.
 - b. Blower motor undercurrent (surge).
 - c. Flame failure.
 - d. High condensate level for demister.
 - e. Control panel 120v surge protection and universal power supply (UPS) for control panel and associated components.
8. Control Panel Face Mounted Devices: The system shall be equipped with the following control panel face mounted devices as a minimum.
 - a. Remote telemetry system comprised of one (1) FleetZoomFZ400 or City approved equal, including monitoring services for one year. This device must be capable of transmitting up to 14 digital inputs, 10 analog inputs and 4 digital outputs. PLC shall provide necessary outputs for connection to the FZ400 10 analog inputs. Some of these inputs may be shared outputs to the digital chart recorder.
 - b. Alarm and shutdown message annunciation (touchscreen display).
 - c. Load center circuit breakers as required for full system operation.
 - d. Blower selector switch.
 - e. Test/Off/Auto switch for the blowers.
 - f. Test/Off/Auto switch for the system.
 - g. Open/Closed/Auto switch for the flare shutdown valve.
 - h. Flame failure annunciation for the flare (touch screen).
 - i. Shutdown valve failure annunciation (touch screen).
 - j. Low LFG flow rate annunciation (touch screen).
 - k. Test/Off/Auto switch for the pilot ignition system.
 - l. Flame failure reset.

1.9 Start-up and Testing

A. Factory Test

1. The entire system, including all controls shall be tested at the Contractor's plant before shipment. Complete test reports shall be made available to the City which shall show all system controls operate correctly prior to shipment.

B. Start-up

1. The Contractor shall furnish a factory trained Technician and Operations Engineer, if necessary, for a minimum of 3 days of start-up demonstration and testing, in accordance with Scope of Work Part G. Personnel training shall be performed on the 3rd day of the start-up demonstration and testing. The Technician will remain on site until start-up of the system has been completed to the City's satisfaction.

C. Functional and Validation Tests

1. Upon completion of the installation functional and validation tests shall be performed by the Contractor with the assistance of the Installer. The Contractor shall demonstrate compliant operation of the systems to the City's satisfaction, including but not limited to sensor, instrumentation, electrical components, mechanical components, etc. Should the system NOT perform to the requirements of this specification, the expense of any re-testing, if required, will be borne by the responsible entity (i.e., either Installer or the Contractor), as determined by the City.

D. Instructions

1. When all required approvals of this portion of the work have been obtained, and at a time designated by the City, the Contractor shall thoroughly demonstrate to the City and selected representatives of the City the operation and maintenance of all items installed under this specification.
2. The instructions shall be separate from the installation, start-up, and equipment adjustment services.

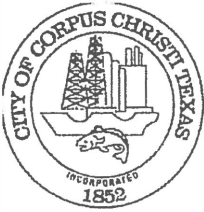
1.10 Work Site and Conditions

The work shall be performed at the Cefe Valenzuela Landfill located at 2397 County Road 20, Robstown, Texas (Entrance at the intersection of Farm to Market Road 2444 and County Road 20).

1.11 Contractor Quality Control and Superintendence

The Contractor shall establish and maintain a complete Quality Control Program that is acceptable to the Contract Administrator to assure that the requirements of the Contract are provided as specified. The Contractor will also provide supervision of the work to insure it complies with the contract requirements.

Attachment B: Bid / Pricing Schedule



CITY OF CORPUS CHRISTI BID FORM

PURCHASING DIVISION

RFB No. 184

Landfill Gas Blower / Flare for the Cefe Valenzuela Landfill

PAGE 1 OF 1

Date: 12/21/2016

Bidder: Parnel Bigas Inc.

Authorized
Signature

1. Refer to "Instructions to Bidders" and Contract Terms and Conditions before completing bid.
2. Quote your best price for each item. Cost includes all work outlined in the scope of work including start-up and testing.
3. In submitting this bid, Bidder certifies that:
 - a. The prices in this bid have been arrived at independently, without consultation, communication, or agreement with any other Bidder or competitor, for the purpose of restricting competition with regard to prices;
 - b. Bidder is an Equal Opportunity Employer; and the Disclosure of Interest information on file with City's purchasing office, pursuant to the Code of Ordinances, is current and true.
 - c. Bidder is current with all taxes due and company is in good standing with all required governmental agencies.
 - d. Bidder acknowledges receipt and review of all addenda for this RFB.

Item	Description	UNIT	QTY	Total Price
1	Landfill Gas Blower / Flare	LS	1	\$ 271,475.64

Attachment C: Insurance Requirements

CONTRACTOR'S LIABILITY INSURANCE

- A. Contractor must not commence work under this contract until all insurance required has been obtained and such insurance has been approved by the City. Contractor must not allow any subcontractor, to commence work until all similar insurance required of any subcontractor has been obtained.
- B. Contractor must furnish to the City's Risk Manager and Contract Administrator one (1) copy of Certificates of Insurance with applicable policy endorsements showing the following minimum coverage by an insurance company(s) acceptable to the City's Risk Manager. The City must be listed as an additional insured on the General liability and Auto Liability policies **by endorsement**, and a waiver of subrogation **endorsement** is required on GL, AL and WC if applicable. **Endorsements** must be provided with Certificate of Insurance. Project name and/or number must be listed in Description Box of Certificate of Insurance.

TYPE OF INSURANCE	MINIMUM INSURANCE COVERAGE
30-day advance written notice of cancellation, non-renewal, material change or termination required on all certificates and policies.	Bodily Injury and Property Damage Per occurrence - aggregate
COMMERCIAL GENERAL LIABILITY including: 1. Commercial Broad Form 2. Premises – Operations 3. Products/ Completed Operations 4. Contractual Liability 5. Independent Contractors 6. Personal Injury- Advertising Injury	\$1,000,000 Per Occurrence \$2,000,000 Aggregate
AUTO LIABILITY (including) 1. Owned 2. Hired and Non-Owned 3. Rented/Leased	\$1,000,000 Combined Single Limit
WORKERS'S COMPENSATION (All States Endorsement if Company is not domiciled in Texas) Employers Liability	Statutory and complies with Part II of this Exhibit. \$500,000/\$500,000/\$500,000

- C. In the event of accidents of any kind related to this contract, Contractor must furnish the Risk Manager with copies of all reports of any accidents within 10 days of the accident.

ADDITIONAL REQUIREMENTS

- A. Applicable for paid employees, Contractor must obtain workers' compensation coverage through a licensed insurance company. The coverage must be written on a policy and endorsements approved by the Texas Department of Insurance. The workers' compensation coverage provided must be in statutory amounts according to the Texas Department of Insurance, Division of Workers' Compensation. An All States Endorsement shall be required if Contractor is not domiciled in the State of Texas.
- B. Contractor shall obtain and maintain in full force and effect for the duration of this Contract, and any extension hereof, at Contractor's sole expense, insurance coverage written on an occurrence basis by companies authorized and admitted to do business in the State of Texas and with an A.M. Best's rating of no less than A- VII.
- C. Contractor shall be required to submit renewal certificates of insurance throughout the term of this contract and any extensions within 10 days of the policy expiration dates. All notices under this Exhibit shall be given to City at the following address:

City of Corpus Christi
Attn: Risk Manager
P.O. Box 9277
Corpus Christi, TX 78469-9277

- D. **Contractor agrees that, with respect to the above required insurance, all insurance policies are to contain or be endorsed to contain the following required provisions:**
 - List the City and its officers, officials, employees, and volunteers, as additional insureds by endorsement with regard to operations, completed operations, and activities of or on behalf of the named insured performed under contract with the City, with the exception of the workers' compensation policy;
 - Provide for an endorsement that the "other insurance" clause shall not apply to the City of Corpus Christi where the City is an additional insured shown on the policy;
 - Workers' compensation and employers' liability policies will provide a waiver of subrogation in favor of the City; and
 - Provide thirty (30) calendar days advance written notice directly to City of any, cancellation, non-renewal, material change or termination in coverage and not less than ten (10) calendar days advance written notice for nonpayment of premium.
- E. Within five (5) calendar days of a cancellation, non-renewal, material change or termination of coverage, Contractor shall provide a replacement Certificate of Insurance and applicable endorsements to City. City shall have the option to suspend Contractor's performance should there be a lapse in coverage at any time during this

contract. Failure to provide and to maintain the required insurance shall constitute a material breach of this contract.

- F. In addition to any other remedies the City may have upon Contractor's failure to provide and maintain any insurance or policy endorsements to the extent and within the time hereinrequired, the City shall have the right to order Contractor to stop work hereunder, and/or withhold any payment(s) which become due to Contractor hereunder until Contractor demonstrates compliance with the requirements hereof.
- G. Nothing herein contained shall be construed as limiting in any way the extent to which Contractor may be held responsible for payments of damages to persons or property resulting from Contractor's or its subcontractor's performance of the work covered under this contract.
- H. It is agreed that Contractor's insurance shall be deemed primary and non-contributory with respect to any insurance or self insurance carried by the City of Corpus Christi for liability arising out of operations under this contract.
- I. It is understood and agreed that the insurance required is in addition to and separate from any other obligation contained in this contract.

2016 Insurance Requirements
Utilities
Gas Flare Delivery
10/26/2016 mv Risk Management

Attachment C: Bond Requirements

No bond required for the Service Agreement

Attachment D: Warranty Requirements

The equipment to be free from defects in material or workmanship for 18 months from date of notification to ship or 12 months after start-up whichever occurs first.