

**CONTRACT FOR OPERATION AND MAINTENANCE  
OF OXYGEN PLANT CITY OF HOUSTON  
69TH STREET WASTEWATER TREATMENT FACILITY**

**THIS CONTRACT FOR OPERATION AND MAINTENANCE OF OXYGEN PLANT AT THE CITY OF HOUSTON 69TH STREET WASTEWATER TREATMENT FACILITY ("Contract")** is made on the Countersignature Date by and between the **CITY OF HOUSTON, TEXAS** ("City"), a municipal corporation and home-rule city of the State of Texas principally situated in Harris County, acting by and through its governing body, the City Council and **AIR PRODUCTS AND CHEMICALS, INC.** ("Contractor"), doing business in the State of Texas.

The initial addresses of the parties, which one party may change by giving written notice of its changed address to the other party, are as follows:

City

Director, Department of Public Works  
and Engineering  
City of Houston  
P.O. Box 1562  
Houston, Texas 77251

Contractor

Air Products and Chemicals, Inc.  
7201 Hamilton Boulevard  
Allentown, PA 18195-1501  
Attn: Global Manager  
Customer Plant Support

Copy to: Corporate Secretary

The City and the Contractor hereby agree to the terms and conditions of this Contract. This Contract consists of the following sections:

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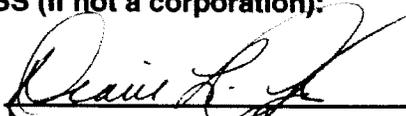
All of the above described sections and documents are hereby incorporated into this Contract by this reference for all purposes.

In the event of any conflict or inconsistency between or among the provisions of such sections or documents, it is agreed that the provisions of this Contract shall control over the provisions of the Exhibits.

**SIGNATURE PAGE**

IN WITNESS HEREOF, the City and the Contractor have made and executed this Contract in multiple copies, each of which is an original.

**ATTEST/SEAL (if a corporation):  
WITNESS (if not a corporation):**

By:   
Name: DIANNE L. GEIST  
Title: Assistant Corp. Sec.

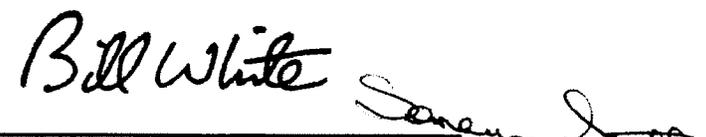
**AIR PRODUCTS AND CHEMICALS,  
INC.**

By:   
Name: Thomas E. Mutchler  
Title: General Manager - Equipment Bus.

**ATTEST/SEAL:**

**CITY OF HOUSTON, TEXAS**  
Signed by:

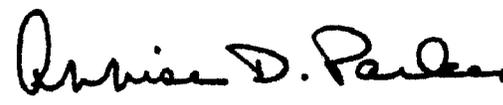
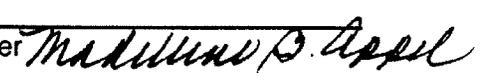
  
City Secretary

  
Mayor

**APPROVED:**

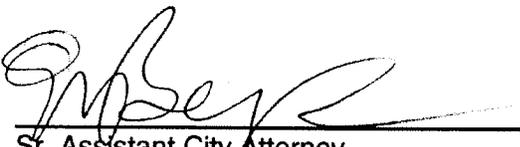
**COUNTERSIGNED BY:**

  
Director, Department of Public Works  
and Engineering

  
City Controller 

**APPROVED AS TO FORM:**

**DATE COUNTERSIGNED:**

  
Sr. Assistant City Attorney  
L.D. File No. 0800100158-004

7-2-07

## I. DEFINITIONS

As used in this Contract, the following terms shall have meanings set out below:

"Additional Services" is defined in Exhibit "A".

"Annual Report" is defined in Exhibit "A" Section C.

"Basic Services" is defined in Exhibit "A".

"City" is defined in the preamble of this Contract and includes its successors and assigns.

"Contract" means this Contract for Operation and Maintenance of Oxygen Plant at the City of Houston 69<sup>th</sup> Street Wastewater Treatment Facility made on the Countersignature Date, between the Contractor and the City.

"Contract Technical Representative" shall mean the representative of the City's Public Works Department who shall administer this Contract on a day-to-day basis as provided herein.

"Contract Term" is defined in Article IV.

"Contractor" is defined in the preamble of this Contract and includes its successors and assigns.

"Countersignature Date" means that date shown as the date countersigned by the City Controller on the signature page of this Contract.

"Director" shall mean the Director of the City Department of Public Works and Engineering, or such person as he or she shall designate.

"Effective Date" is defined in Section IV.A.

"Electric Power Consumption Guarantee" or "Guarantee" is defined in Exhibit "A", Section D.

"Executive Order" is defined in Section V. M.

"Mayor's Policy" is defined in Section V.M.

"Performance Test" is defined in Exhibit "A", Section D.

"Plant" is defined in Exhibit "A".

"Reimbursable Expense" is defined in Exhibit "C".

"69th WWTP" is the City of Houston's 69th Street wastewater treatment facility.

## II. DUTIES OF CONTRACTOR

### A. Scope of Services - General

For and in consideration of the payments specified in this Contract, Contractor shall provide all labor, material, and supervision necessary to perform Basic and Additional Services as fully described in the Scope of Services attached hereto as Exhibit "A".

### B. Payment of Subcontractors

Contractor shall make timely payments to all persons and entities supplying labor, materials or equipment for the execution of this Contract. Contractor agrees to protect, defend, and indemnify the City from any claims or liability arising out of its failure to make such payments.

### C. Personnel of the Contractor

To the extent the Contractor personnel are not in compliance with any of the provisions of this Contract (including the Mayor's Policy and the Executive Order), and the City communicates this in writing to the Contractor, Contractor shall have a reasonable period of time to cure such non-compliance. Such cures shall include but not be limited to additional training, temporary relief or replacement of such personnel. The Director and the Contractor shall mutually agree upon the actual cure.

### D. Insurance

With no intent to limit Contractor's liability provisions set forth herein, the Contractor shall provide and maintain certain insurance in full force and effect at all times during the term of this Contract and any extensions thereto. Such insurance is described as follows:

(a) Risks and Limits of Liability. The insurance, at a minimum, must include the following coverages and limits of liability:

<u>(Coverage)</u>	<u>(Limit of Liability)</u>
Worker's Compensation	Statutory for Worker's Compensation.
Employer's Liability	Bodily Injury by accident \$500,000 (each accident) Bodily Injury by Disease \$500,000 (policy limit)

	Bodily Injury by Disease \$500,000 (each employee)
Commercial General Liability Including Broad Form Coverage, Contractual Liability, Bodily and Personal Injury, and Completed Operations, Explosions Collapse and Underground	Bodily Injury and Property Damage, combined limits of \$2,000,000 each occurrence and \$4,000,000 aggregate.
Owner's and Contractor's Protective	\$1,000,000 each occurrence \$1,000,000 aggregate
Excess Liability	Bodily Injury and Property Damage combined limits of \$2,000,000 each occurrence and \$4,000,000 aggregate
Automobile Liability Insurance (for automobiles used by the Contractor in the course of its performance under this Contract, including Employer's Non-Owned and Hired Auto Coverage)	\$1,000,000 combined single limit per occurrence

Aggregate Limits are per 12-month policy period unless otherwise indicated.

(b) Form of Policies. The insurance may be in one or more policies of insurance, the form of which must be approved by the Director (which approval shall not be unreasonably withheld or delayed). It is agreed, however, that the Director's approval or disapproval shall not relieve the Contractor of its obligation to obtain and maintain the required coverage hereunder, and that the Director's approval or disapproval shall not be construed as a waiver of the City's rights hereunder.

(c) Issuers of Policies. The issuer of any policy must have a rating of at least B+ and a financial size of Class VI or better according to the current year's Best's rating. Each issuer must be responsible and reputable, as determined by the Director in his or her reasonable discretion.

(d) Cancellation. Each policy must expressly state that the insurer shall notify the City at least thirty (30) days in advance of any cancellation or non-renewal of said policy. Contractor shall give written notice to the Director within five days of the date upon which total insurance claims by any party against Contractor reduce the aggregate amount of the applicable insurance coverage below the amount required by this Contract. In the alternative, the policy may contain an endorsement establishing a policy aggregate for the particular project or location covered by this Contract.

(e) **Liability for Premium.** The Contractor shall be solely responsible for payment of all insurance premium requirements hereunder, and the City shall not be obligated to pay any premiums.

(f) **Subcontractors.** Contractor shall require all subcontractors to carry insurance naming the Contractor as an additional insured and meeting all of the above requirements except amount. The amount shall be commensurate with the amount of the subcontract, but in no case shall it be less than \$500,000.00 per occurrence. Contractor shall provide copies of such insurance certificates to the Director.

(g) Contractor may elect to self insure for all required policies except the Owner's and Contractors Protective Liability Insurance, if Contractor can show the Director that it maintains a sufficient financial capability to cover potential liability up to the limit shown in these insurance requirements.

#### Proof of Insurance.

(a) Prior to commencing any services and as reasonably requested by the Director during the Contract Term, Contractor shall furnish Director with certificates evidencing the insurance required hereunder. If requested in writing by the Director, the Contractor shall furnish the City with certified copies of Contractor's actual insurance policies where City is named "certificate holder". Failure of Contractor to provide certified copies, as reasonably requested, may be deemed by the City to constitute a breach of this Contract.

(b) Notwithstanding the proof of insurance requirements set forth above, it is the intention of the parties hereto that Contractor, continuously and without interruption, maintain in force the required insurance coverages or self insurance as set forth above. Failure of the Contractor to comply with this requirement shall constitute a default of Contractor allowing the City, at its option, to immediately suspend or terminate work under this Contract. Contractor agrees that the City shall not be deemed to have waived, or be stopped from asserting, its right to terminate this Contract hereunder solely because of any acts or omissions by the City pursuant to its right to request and/or review insurance documents provided by Contractor, its agents, employees or assigns.

#### Waiver of Subrogation

Contractor shall require that each of its casualty and property insurance policies applicable to its operations at the Plant contains an endorsement for waiver of subrogation against the City, its employees and officers.

#### E. Warranties

(a) Contractor warrants that all services it provides hereunder shall be performed in a professional manner for work of its kind, free from material defect, and that Contractor shall exert the degree of care and skill in the performance of such services normally exercised by similar professionals under similar circumstances. Contractor shall, at its expense, modify any

such services which are found not to have been performed as herein warranted provided that the City gives the Contractor immediate written notice upon the discovery of the same, and, in any event, within six (6) months after Contractor's performance of such defective service. The foregoing warranty does not apply to goods, parts, components and/or equipment procured by Contractor in connection with the performance of its obligations hereunder; provided, however, the Contractor shall use reasonable efforts to transfer to the City the benefit of any warranties covering such goods, parts, components and/or equipment.

(b) Unless authorized by the Director or in the event of an emergency, Contractor shall procure only new parts, components and/or equipment in connection with the performance of its obligations hereunder. Any used parts, components and/or equipment procured by Contractor shall be provided on an "AS-IS, WHERE IS" basis.

(c) Contractor warrants that any goods or services furnished under this Contract, the design and supply of which are solely under Contractor's control, does not infringe any patent, copyright or trademark granted or registered by the government of the United States of America. If use of said goods or services is enjoined, Contractor shall, at its own expense and at its option, either procure for the City the right to continue using said goods or services, replace the same with a non-infringing equivalent, or modify the same so that it is a non-infringing equivalent. The provisions of this Section II.E.e shall not apply to any goods or services furnished under this Contract manufactured or performed to City's design, nor shall it apply to systems, processes or combinations the City incorporates into the Plant in whole or in part. As to such combinations, processes or systems, Contractor assumes no liability whatsoever.

(d) THE WARRANTIES AND APPLICABLE REMEDIES SET FORTH ABOVE IN THIS SECTION II.E. CONSTITUTE CONTRACTOR'S SOLE WARRANTIES UNDER THIS CONTRACT AND CITY'S SOLE AND EXCLUSIVE REMEDIES FOR BREACH OF SUCH WARRANTIES, AND ARE IN LIEU OF ANY OTHER WARRANTY, EITHER EXPRESS OR IMPLIED, IN FACT OR BY LAW, INCLUDING, WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

(e) Contractor warrants that all liquid oxygen produced by the Contractor and supplied to the City hereunder shall conform to the Contractor's standard specifications and that, at the time of delivery, Contractor shall have good title and right to transfer the same and that the same shall be delivered free of encumbrances. THE FOREGOING WARRANTIES CONSTITUTE CONTRACTOR'S SOLE WARRANTIES WITH RESPECT TO LIQUID OXYGEN UNDER THIS CONTRACT, AND ARE IN LIEU OF ANY OTHER WARRANTY, EITHER EXPRESS OR IMPLIED, IN FACT OR BY LAW, INCLUDING, WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

#### F. Licenses and Permits

Except as otherwise provided herein, the Contractor shall obtain and pay for all licenses, permits and certificates required to perform the Basic Services and the Additional Services by

any statute, ordinance, rule, or regulation of any regulatory body having competent jurisdiction over such services.

G. Compliance with Equal-Opportunity Ordinance

Contractor shall comply with all provisions of the City's Equal Employment Opportunity Ordinance as set out in Exhibit 'B'.

H. Performance Bond

If requested in writing by the Director, the Contractor shall, within seven work days, furnish a performance bond for FIVE HUNDRED THOUSAND AND NO /00 DOLLARS (\$500,000.00) conditioned upon the Contractor's full and timely performance of the Contract (and payment of subcontractors). The bond must be issued in a form approved by the City Legal Department (which approval shall not be unreasonably withheld) by a corporate surety listed on the current list of accepted sureties on federal bonds published by the United States Treasury Department. If the bond is a term bond, i.e. valid for only a stated period of time, such as a year, Contractor must furnish the City with a renewal bond(s) to cover the full term of the Contract. Each such renewal bond must be submitted to the City prior to the expiration date of the previous bond.

I. Contractor's Duties at End of Contract Term

At the end of the Contract Term, subject to the provisions of Section IV.D, Contractor shall leave the Plant in good working order and in a condition substantially equal to its present status, normal wear and tear excepted, and deliver all property, books, data, and other records related to the operation of the Plant to the City. During the Contract Term and thereafter, Contractor shall have a continuing right to inspect or copy such documents for as long as they are maintained by the City.) All Plant equipment, unless otherwise agreed by Contractor and the Director, including equipment installed or modified by the Contractor, shall belong to the City.

J. MWBE Compliance

Contractor shall comply with the City's Minority and Women Business Enterprise ("MWBE") programs as set out in Chapter 15, Article V of the City of Houston Code of Ordinances. Contractor shall make good faith efforts to award subcontracts or supply agreements in at least 3% of the value of this Agreement to MWBEs. Contractor acknowledges that it has reviewed the requirements for good faith efforts on file with the City's Affirmative Action Division and shall comply with them.

Contractor shall require written subcontracts with all MWBE subcontractors and shall submit all disputes with MWBEs to binding arbitration to be conducted in Houston, Texas, if directed to do so by the Affirmative Action Division Director. MWBE subcontracts must contain the terms set out in Exhibit "J". If Contractor is an individual person (as distinguished from a corporation, partnership, or other legal entity), and the amount of the subcontract is \$50,000 or less, the subcontract must also be signed by the attorneys of the respective parties.

### III. DUTIES OF CITY

#### A. Payment; Taxes

For the first contract year, the City shall pay Contractor a lump-sum monthly fee for Basic Services equal to \$25,250 per month (the "Initial Monthly Fee"). Thereafter, the City shall pay Contractor a lump-sum monthly fee for Basic Services equal to the Initial Monthly Fee, as adjusted annually in accordance with Exhibit "D" (the "Adjusted Monthly Fee", and together with the Initial Monthly Fee, the "Monthly Fee"). The Contractor shall invoice the City monthly for the Monthly Fee. From time to time, the City shall also pay the Contractor an amount equal to the Reimbursable Expense for Additional Services, if applicable. Reimbursable Expenses are listed in Exhibit "C".

In order to be paid its Reimbursable Expenses, Contractor must include in its monthly invoice:

- (1) a description of all Additional Services;
- (2) an itemization of man-hours required for Additional Services,
- (3) an itemization of purchases or subcontracts with third parties used for Additional Services, including copies of original invoices to Contractor; and
- (4) copies of written authorization by the City for Additional Services.

All invoices shall be payable within thirty (30) days of receipt by the City of invoice from the Contractor. The City agrees that it shall not unreasonably delay or withhold payment or approval of any invoice.

The price for the Basic Services and the Additional Services set forth in this Contract and the amount of any applicable surcharges do not include any taxes, charges or fees (other than Contractor's net income taxes, Contractor's franchise taxes, and payroll taxes of Contractor's employees). Any other taxes, charges or fees, howsoever denominated and howsoever measured, imposed as a result of the provision of such services hereunder, shall be paid by the City, or if paid by the Contractor shall be invoiced to City as a separate item and paid by the City to the Contractor. The City shall provide the Contractor with properly completed exemption certificates for any tax, charge or fee from which the City claims exemption or other preferential status.

#### B. Limitation of Appropriation - Allocated Funds

(a) The City's duties to pay money to the Contractor for the Basic Services and the Additional Services are limited in their entirety by the provisions of this Section.

(b) In order to comply with Article II, Sections 19 and 19a of the City's Charter and Article XI, Section 5 of the Texas Constitution, the City has appropriated and allocated the sum of \$250,000 to be used to discharge its duties to pay money under this Contract (the "Original Allocation"). The parties recognize that the executive and legislative officers of the City, in the exercise of their sound discretion, may allocate supplemental sums of money for the purpose of

this Contract ("Supplemental Allocation"). Because the City's officers are not obligated to make any such Supplemental Allocations, the parties have agreed to certain procedures and remedies to be followed with respect thereto.

(c) A Supplemental Allocation shall only be deemed to be made when the City sends a notice to the Contractor (which notice must be signed by the Director and the City Controller) in substantially the following form:

**"NOTICE OF SUPPLEMENTAL ALLOCATION OF FUNDS"**

TO: [Name of Contractor]

FROM: City of Houston, Texas (the "City")

DATE: [Date of notice]

SUBJECT: Supplemental Allocation of funds for the purpose of that certain "[title of this Contract]" by and between the City and (name of Contractor) countersigned by the City Controller on (Date of Countersignature) (the "Contract").

I (name of City Controller), City Controller of the City of Houston, do hereby certify that the supplemental sum of \$\_\_\_\_\_, upon the request of the below-signed Director, has been allocated for the purpose of the Contract specified above out of funds appropriated for such purpose by the City Council of the City of Houston. Such Supplemental Allocation has been charged to such appropriation.

The aggregate of all sums allocated for the purpose of such Contract, including the Original Allocation, other Supplemental Allocations (if any) and the supplemental sum specified herein, as of the date of this notice, is \$\_\_\_\_\_.

SIGNED:

\_\_\_\_\_  
(Signature of the City Controller)  
City Controller of the City

REQUESTED:

\_\_\_\_\_  
(Signature of the Director)  
Director

City Council hereby expressly delegates to the Director the authority to approve up to \$8,242,400 in Supplemental Allocations for this Contract without the need to return to the City

Council. Supplemental Allocations in excess of this amount, however, shall be approved by the City Council motion or amendment of this Contract. The City acknowledges and agrees that (i) for the budget year beginning July 1, 2007, the Contractor is planning to render services hereunder with an estimated value of \$1,040,000, (ii) for the budget year beginning July 1, 2008, the Contractor is planning to render services hereunder with an estimated value of \$3,186,000, and (iii) for the budget year beginning July 1, 2009, the Contractor is planning to render services hereunder for an estimated value of \$1,000,000. Accordingly, notwithstanding anything to the contrary herein, if when legally permissible the Director fails to approve Supplemental Allocations in an amount at least sufficient to cover the foregoing estimated values, the Contractor shall have the right to immediately, and without any liability to the City, (i) suspend performance of the services being performed hereunder until such allocations have been approved, and/or (ii) terminate this Contract without opportunity to cure. The foregoing remedies shall be additive to, and shall not in any way limit, any other rights or remedies the Contractor may have at law or in equity.

(d) The aggregate of the Original Allocation and all Supplemental Allocations effected by notice to the Contractor in substantially the foregoing form, if any, shall be the Allocated Funds. The City shall never be obligated to pay any money for the Basic Services and the Additional Services by, through or under this Contract in an aggregate amount which exceeds the level of the Allocated Funds. It shall be the obligation of Contractor to assure itself that sufficient allocations have been made to pay for services provided. In the event that Allocated Funds are exhausted, Contractor's only remedy shall be suspension or termination of its performance under this Contract, and it shall have no other remedy in law or equity against the City and no right to damages of any kind.

C. Suspension of Performance - Contractor's Right

(a) From time to time, the Contractor may, at its option, compute the unspent portion of the Allocated Funds (the "Unspent Funds") according to the following formula:

$$A - (B + C) = \text{Unspent Funds as of such time.}$$

In the foregoing formula:

"A" is the level of Allocated Funds as of such time.

"B" is the aggregate of all Contract charges actually paid by the City by, through or under this Contract prior to such time.

"C" is the aggregate of all Contract charges which have accrued prior to such time by, through or under this Contract but which have not been actually paid.

(b) The City shall upon written request by the Contractor, provide an accounting of the data necessary to compute the Unspent Funds as such data are shown on the books and records of the City.

(c) If, as of any such time when a computation is made, the level of the Unspent Funds is less than \$45,000.00, then the Contractor shall be entitled to suspend its performance under this Contract by notifying the City at least thirty days prior to the effective date of the suspension. Such effective date must be specified in the Contractor's notice to the City. After such notice is given, the Contractor may, in its sole discretion, extend such effective date to any later date by so notifying the City.

(d) After any notice of suspension is given and prior to the specified effective date, the City may prevent the suspension from taking effect by notifying the Contractor as to one or more Supplemental Allocations in an aggregate amount sufficient to raise the level of the Unspent Funds to at least \$45,000.00 (computed as of the date of delivery of such notice of Supplemental Allocation). Whenever such a sufficient notice of Supplemental Allocation is delivered to Contractor, the preceding notice of suspension shall be null and void.

(e) If prior to the specified effective date of any such suspension, the City fails to prevent such suspension from taking effect, then the Contractor shall be entitled to suspend its performance under this Contract as of the effective date. The City shall then be obligated to pay to the Contractor the lesser of the following: (i) the Contract Charges accrued prior to such suspension date, less any allowable credits and offsets, or (ii) the Unspent Funds as of the date of suspension.

(f) Suspension and payment, as specified in this Section, shall be the Contractor's exclusive remedies in the event that the City fails or refuses to make the Supplemental Allocations necessary to prevent suspension of performance by the Contractor. No such failure or refusal shall constitute a default of breach of this Contract by the City, and the Contractor waives any claim (other than its claim for payment as specified in this Section) it may have now or in the future for financial losses or other damages which may be occasioned by any such failure or refusal.

**D. Other Duties of City**

1. The City shall provide reasonable working and storage area to the Contractor and security therefore.
2. The City shall provide uninterrupted access to and egress from the Plant.
3. The City shall maintain all Plant-related licenses, warranties and easements necessary or appropriate for operation of the Plant.
4. The City shall be responsible for supplying all utilities necessary and appropriate for operation of the Plant, including but not limited to water, wastewater and electricity. Accordingly, the City shall be responsible for paying all utility bills arising out of the provision of such utilities. Contractor hereby acknowledges that the City shall provide electric power through its energy supplier (presently, GLO and Reliant Energy Solutions).
5. The City shall provide a Contract Technical Representative to act as the primary contact for the Contractor and to oversee and administer the Contract on behalf of the City.

6. The City shall be responsible for the removal, transportation and disposal of all waste generated in connection with the performance of this Contract.

#### IV. TERM AND TERMINATION

##### A. Contract Term

This Contract shall be effective on the date of countersignature as shown on the signature page hereof (the "Effective Date"). This Contract shall remain in effect for thirty-six (36) months from and after the Effective Date, unless sooner terminated as provided for in this Contract (the "Initial Term").

##### B. Renewals - Director's Option

Upon expiration of the Initial Term and any Renewal Term (as defined hereinafter), this Contract shall automatically renew for a period of two (2) years (each, a "Renewal Term," and collectively, with the Initial Term, the "Contract Term") upon the same terms and conditions, unless the Director, at his or her sole discretion, makes a written request for termination to Contractor at least 30 days before expiration of the end of the Initial Term or any Renewal Term. Notwithstanding the foregoing, any such renewal shall be null and void if, as of the first day of such Renewal Term, there are not reasonably sufficient Allocated Funds available to pay for the services during such Renewal Term.

##### C. Termination for Cause With Opportunity To Cure

Either party may terminate its performance under this Contract in the event of default by the other party and a failure by that party to cure such default after receiving notice thereof, all as provided in this Section. A "default" shall be deemed to have occurred if either party fails in any material respect to observe or perform any of its duties under this Contract or fails to pay in a timely manner any amounts due hereunder. Should such a default occur, the non-defaulting party shall deliver a written notice to the defaulting party describing such default and the proposed date of termination, which date shall not be sooner than the 30th day following receipt of the notice. The non-defaulting party, at its sole option, may extend the proposed date of termination to a later date. If prior to the proposed date of termination, the defaulting party cures such default, then the proposed termination shall be null and void. If the defaulting party fails to cure such default prior to the proposed date of termination, then the injured party may terminate its performance under this Contract as of such date. The Director has the authority to terminate this Contract for the City under this Section.

##### D. Damages

(a) The City hereby absolutely, irrevocably and unconditionally WAIVES, RELEASES and DISCHARGES the Contractor from any and all claims for damage to or destruction or loss of tangible property owned or leased by the City (i) that is located within the Plant site or the 69thth WWTP site at the time the damage, destruction or loss occurs, (ii) as and to the extent such damage, destruction or loss exceeds \$1,000,000 during the Contract Term, and (iii) as to which the damage, destruction or loss arose out of the activities of either or both of the parties under this Contract, excluding, however, all or any part of any such claim to the extent that such damage, destruction or loss arises out of the gross negligence or willful misconduct of the Contractor. By way of clarification, **IT IS EXPRESSLY INTENDED AND AGREED THAT THE**

**FOREGOING RELEASE SHALL EXTEND TO AND COVER ANY SUCH CLAIM ARISING OUT OF THE ORDINARY NEGLIGENCE OF THE CONTRACTOR.**

(b) The Contractor hereby absolutely, irrevocably and unconditionally WAIVES, RELEASES and DISCHARGES the City from any and all claims for damage to or destruction or loss of tangible property owned or leased by the Contractor (i) that is located within the Plant site or the 69thth WWTP site at the time the damage, destruction or loss occurs, (ii) as and to the extent such damage, destruction or loss exceeds \$1,000,000 during the Contract Term, and (iii) as to which the damage, destruction or loss arose out of the activities of either or both of the parties under this Contract, excluding, however, all or any part of any such claim to the extent that such damage, destruction or loss arises out of the gross negligence or willful misconduct of the City. By way of clarification, **IT IS EXPRESSLY INTENDED AND AGREED THAT THE FOREGOING RELEASE SHALL EXTEND TO AND COVER ANY SUCH CLAIM ARISING OUT OF THE ORDINARY NEGLIGENCE OF THE CITY.**

(c) NEITHER PARTY SHALL BE LIABLE IN CONTRACT (INCLUDING BREACH OF WARRANTY), TORT (INCLUDING NEGLIGENCE OR STRICT LIABILITY) OR OTHERWISE FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY KIND, INCLUDING BY WAY OF ILLUSTRATION AND NOT OF LIMITATION, LOSS OF USE, LOSS OF WORK IN PROCESS, DOWN TIME OR LOSS OF PROFITS, AND SUCH LIMITATION ON DAMAGES SHALL SURVIVE FAILURE OF AN EXCLUSIVE REMEDY; PROVIDED, HOWEVER, THAT THE FOREGOING LIMITATION SHALL NOT LIMIT ANY ACTION FOR PAYMENT EXPRESSLY PROVIDED UNDER THIS CONTRACT.

(d) Notwithstanding clause (c) above, Contractor shall be liable for fines and penalties incurred by the City arising out of any violation of applicable environmental laws which is the direct result of the negligent acts or omissions of the Contractor in connection with the performance of its obligations hereunder.

## **V. MISCELLANEOUS**

### **A. Independent Contractor**

Contractor is engaged as an independent contractor, and all of the services provided for herein shall be accomplished by Contractor in such capacity. The City of Houston shall have no control or supervisory powers as to the detailed manner or method of the Contractors' performance of the subject matter of this Contract. All personnel supplied or used by Contractor shall be deemed employees or subcontractors of Contractor and shall not be considered employees, agents or subcontractors of the City of Houston for any purpose whatsoever. Contractor shall be solely responsible for the compensation of all such personnel, for the withholding of income, social security and other payroll taxes and for the coverage of all worker's compensation benefits.

### **B. Force Majeure**

"Force Majeure" means:

- (a) acts of God, landslides, lightning, earthquakes, hurricanes, tornado, blizzards and other adverse and inclement weather, fires, explosions, floods, acts of a public enemy, wars, blockades, insurrections, riots or civil disturbances;
- (b) labor disputes, strikes, work slowdowns, or work stoppages;
- (c) orders or judgments of any federal, state or local court, administrative agency or governmental body, if not the result of willful or negligent action of the party relying thereon;
- (d) power failure and outages affecting the supply of power to the boundary limits of the Plant; or
- (e) any other cause or event;

But only to the extent that any of the events or causes described in the foregoing clauses (a) through (e) is beyond the reasonable control of the claiming party.

In the event either party is rendered unable, wholly or in part, by Force Majeure, to carry out any of its obligations under this Contract, (except for City's obligation to pay under Article III) it is agreed that, upon such party's giving notice and full particulars of such Force Majeure in writing or by or telefax to the other party within five (5) business days after the occurrence or impact of the cause relied upon becomes known or should have become known by the party giving the notice, then the obligations of the party giving such notice, to the extent it is effected by Force Majeure and to the extent that due diligence is being used to resume performance at the earliest practicable time, shall be suspended during the continuance of any inability so caused as to the extent provided, but for no longer period. Such Force Majeure shall be remedied by the claiming party with all reasonable dispatch.

#### C. Severability

In the event any term, covenant or condition herein contained shall be held to be invalid by any court of competent jurisdiction, such invalidity shall not affect any other term, covenant or condition herein contained, provided that such invalidity does not materially prejudice either the Contractor or the City in their respective rights and obligations contained in the valid terms, covenants or conditions hereof.

#### D. Entire Agreement

This Contract merges the prior negotiations and understandings of the parties hereto and embodies the entire agreement of the parties, and there are no other agreements, assurances, conditions, covenants (expressed or implied) or other terms with respect to the subject matter hereof, whether written or verbal, antecedent or contemporaneous, with the execution hereof.

#### E. Notices

Notices shall be addressed to the respective other party at the address prescribed in the preamble of this Contract or at such other address as the receiving party may have prescribed

by notice to the sending party. All notices required or permitted hereunder must be in writing and shall be deemed delivered when actually received. Notices may be by telefax providing it is followed by delivery of an original.

F. Acceptance and Approval

An approval by the Director, or by any other instrumentality of the City, of any part of Contractor's performance shall not be construed to waive compliance with this Contract or to establish a standard of performance other than required by this Contract or by law. The Director is not authorized to vary the terms of this Contract.

G. Inspections, Audits and Enforcement

Subject to the reasonable security and confidentiality requirements of the Contractor and upon reasonable advanced notice, representatives of the City shall have the right to perform (or cause to be performed) at the City's expense, an audit of the books and records of the Contractor to the extent that such books and records relate to this Contract and an inspection of the Plant. The Contractor shall be required to keep such books and records available for such purpose for at least three (3) years after the ceasing of its performance under this Contract. Nothing in this provision shall affect the time for bringing a cause of action nor the applicable statute of limitations.

The City shall have the right upon reasonable notice to the Contractor to inspect the ongoing operation and maintenance of the Plant. Such right to inspect shall be subject to the reasonable confidentiality, safety and security requirements of the Contractor and the obligation of the City not to cause any delay in schedule or to have a negative impact the Contractor's ongoing operations.

H. Parties In Interest

This Contract shall not bestow any rights upon any third party, but rather shall bind and benefit the City and Contractor only.

I. Non-Waiver

Failure of either party hereto to insist on the strict performance of any of the agreements herein or to exercise any rights or remedies accruing hereunder upon default or failure of performance shall not be considered a waiver of the right to insist on, and to enforce by any appropriate remedy, strict compliance with any other obligation hereunder or to exercise any right or remedy occurring as a result of any future default or failure of performance.

J. Assignment

Neither party may assign this Contract at law without the prior written consent of the other.

Except for affiliates, the Contractor shall not delegate any portion of its performance under this Contract without the written consent of the Director. Failure of Contractor to obtain the Director's written consent to the assignment of this Contract shall be an event of default, and

Director, at his or her sole discretion, may immediately terminate this Contract. In the case of an assignment under the provisions of Article 9 of the Texas Business and Commerce Code, Contractor shall immediately furnish the City with reasonable proof of the assignment and the name, telephone number, and address of the Assignee and a clear identification of the fees to be paid to the Assignee.

**K. Hazardous and Toxic Materials**

Contractor shall procure for and transfer to the City all chemical substances in compliance with the Toxic Substances Control Act. Contractor shall furnish Material Safety Data Sheets as required, and shall promptly furnish revisions or supplements as they become available.

**L. Successors**

This Contract shall bind and benefit the parties and their legal successors. This Contract does not create any personal liability on the part of any officer or agent of the City.

**M. Drug Detection and Deterrence**

(a) It is the policy of the City to achieve a drug-free workforce and to provide a workplace that is free from the use of illegal drugs and alcohol. It is also the policy of the City that the manufacture, distribution, dispensation, possession, sale or use of illegal drugs or alcohol by contractors while on City Premises is prohibited. By executing this Contract, Contractor represents and certifies that it meets and shall comply with all the requirements and procedures set forth in the Mayor's Policy on Drug Detection and Deterrence, City Council Motion No. 92-1971 ("Mayors Policy") and the Mayor's Drug Detection and Deterrence Procedures for Contractors, Executive Order No. 1-31 ("Executive Order"), both of which are on file in the Office of the City Secretary.

(b) Confirming its compliance with the Mayor's Policy and the Executive Order, Contractor, as a condition precedent to City's obligations under this Contract, shall have filed with the Contract Compliance Officer for Drug Testing ("CCODT"), prior to the execution of this Contract by the City, (i) a copy of its drug-free workplace policy, (ii) the Drug Policy Compliance Agreement substantially in the format set forth in Exhibit "E", together with a written designation of all safety impact positions and, (iii) if applicable (e.g. no safety impact positions), the Certification of No Safety Impact Positions, substantially in the format set forth in Exhibit "G". If Contractor files a written designation of safety impact positions with its Drug Policy Compliance Agreement, it also shall file every six (6) months during the performance of this Contract or upon the completion of this Contract if performance is less than six (6) months, a Drug Policy Compliance Declaration in a form substantially similar to Exhibit "F". The Drug Policy Compliance Declaration shall be submitted to the CD within thirty (30) days of the expiration of each six (6) month period of performance and within thirty (30) days of completion of this Contract. The first six (6) month period shall begin to run on the date City issues its notice to proceed hereunder or if no notice to proceed is issued, on the first day Contractor begins work under this Contract.

(c) Contractor shall have the continuing obligation to file with the CCODT written designations of safety impact positions and Drug Policy Compliance Declarations at any time

during the performance of this Contract that safety impact positions are added if initially no safety impact positions were designated. Contractor also shall have the continuing obligation to file updated designations of safety impact positions with the CCODT when additional safety impact positions are added to Contractor's employee work force.

(d) Contractor shall require that its subcontractors hereunder comply with the Mayor's Policy and the Executive Order and Contractor shall be responsible for securing and maintaining the required documents for City inspection throughout the term of this Contract.

(e) The failure of Contractor to comply with the above Sections shall be a breach of this Contract, entitling City to terminate in accordance with Article IV.

N. Contractor Debt

IF CONTRACTOR, AT ANY TIME DURING THE CONTRACT TERM, INCURS A DEBT (AS THE WORD IS DEFINED IN SECTION 15-122 OF THE HOUSTON CITY CODE OF ORDINANCES) IT SHALL IMMEDIATELY NOTIFY THE CITY CONTROLLER IN WRITING. IF THE CITY CONTROLLER BECOMES AWARE THAT CONTRACTOR HAS INCURRED A DEBT, SHE SHALL IMMEDIATELY NOTIFY CONTRACTOR IN WRITING. IF CONTRACTOR DOES NOT PAY THE DEBT WITHIN 30 DAYS OF EITHER SUCH NOTIFICATION, THE CITY CONTROLLER MAY DEDUCT FUNDS IN AN AMOUNT EQUAL TO THE DEBT FROM ANY PAYMENTS OWED TO CONTRACTOR UNDER THIS AGREEMENT, AND CONTRACTOR WAIVES ANY RECOURSE THEREFOR. CONTRACTOR SHALL DELIVER TO THE CITY A NEW AFFIDAVIT OF OWNERSHIP, USING THE FORM DESIGNATED BY CITY, BETWEEN FEBRUARY 1 AND MARCH 1 OF EVERY YEAR DURING THE CONTRACT TERM

**EXHIBIT "A"**  
**SCOPE OF SERVICES**  
**DESCRIPTION OF WORK - REQUIREMENTS**

**A. SCOPE OF WORK - IN GENERAL**

The Contractor shall operate and maintain the 160 tons per 24-hour day (TPD) cryogenic pure oxygen generating plant which provides oxygen of at least 98% purity at 2 psig delivery pressure and 95 deg. F wet bulb, for the 200 Million Gallons per day (MGD) Wastewater Treatment Plant located on 69<sup>th</sup> Street (the "Plant").

The primary responsibility of the Contractor shall be to provide a continuous uninterrupted gaseous oxygen supply at rates of up to 160 TPD, 24 hours per day, 365 days per year. However, under special circumstances, the Contractor may be required to provide 160 TPD of oxygen, by placing the larger Cold Box "A" in service.

In addition, the Contractor shall insure that a minimum of 300 tons of liquid oxygen shall be stored in the Driox tanks at all times.

The Contractor shall be responsible for the Operation and Maintenance of the Oxygen Plant Building and all newly installed and remaining equipment within the oxygen generation plant area.

**B. EXISTING EQUIPMENT COVERED**

The Contractor shall be responsible for operation and maintenance of all equipment (including existing, rehabilitated, and replaced equipment) within the Plant area including, but not limited to, the following major equipment:

1. Two (2) Ingersoll-Rand Centac centrifugal compressors, Model 4CI4OM3, identified as B and C MAC and one (1) Cooper turbo compressor, Model TAE-160 identified as A MAC.
2. Two (2) Ingersoll-Rand reciprocating double-acting compressors.
3. Two (2) Lectro-Dryer air dryers, Model T15.
4. One (1) Marley Cooling Tower, Model 327-102, four (4) Gould, 1000 gpm, vertical turbine circulating pumps, and Cooling and Water Treatment Equipment
5. One (1) 600-ton Elevated Driox storage tank.
6. Fuller Type XB, Series 6HXB-S Regeneration blower.
7. Oxygen pipeline from the Plant to the reactor decks.

8. Electrical equipment located both indoor and outdoor, at the Plant, as follows:

***NOTE: The City of Houston shall provide electrical power supply to the O2 Plant via Westinghouse DHP breakers designated as 52-F13 and 52-F14, in the 138 KV substation, feeding the circuits 1113 and 1114.***

9. All Equipment Located in the outdoor substation, including:
  - (a) 15 KV switches 1L and 2L.
  - (b) 15 KV switches 1M and 2M.
  - © Transformers 1L and 2L.
  - (d) All 600 V breakers contained in the Westinghouse double-ended substation fed by 15 KV switches 1M and 2M.
  - (e) Two (2) 12470 - 480 V transformers fed by 15 KV switches 1M and 2M.
10. Two 160 TPD Coldboxes designed and manufactured by Air Products.
11. Both pothead racks and associated equipment fed by transformers 1L and 2L (12470 - 2400 V transformers).
12. All associated conductors and interconnects.
13. All Equipment contained indoors and inside the Plant switch room, including:
  - (a) 2400 V circuits 10008 and 10007 that feed 2400 V breakers marked XMFR1L and XMFR2L.
  - (b) Switches XMRF1L secondary main breaker, XMFR2L secondary main breaker, and the transfer switch fed by KMFR1L and KMFR2L (shown on existing prints as unit S1).
14. The oxygen pipeline from the Plant including the underground portion up to and including the first flange coming out of the ground for each north and south line.

**C. BASIC SERVICES - GENERAL WORK REQUIREMENTS**

The Basic Services shall be performed according to a schedule mutually acceptable to Contractor and City of Houston Contractor Technical Representative (CTR). The "Basic Services" are the basic operating and maintenance services to be provided by the Contractor hereunder which shall consist of providing all equipment, tools, labor, supervision, transportation, mobile equipment, instrumentation, filters, chemicals and lubricants, cleaners, first aid and safety equipment, consumable materials and spare parts, and any outside

contracted services required to operate and maintain the Plant as required hereby, twenty-four (24) hours per day, seven (7) days per week, 365 days per year, including holidays. Except as otherwise provided herein, the Basic Services includes all overtime, after hours labor, additional manpower, and emergency labor required of Contractor to carry out its obligations hereunder.

Specifically, the Basic Services include the following:

1. The Contractor shall be required to provide a safety plan and a program plan for the operation and maintenance of the facilities, prior to the commencement of work under this Contract.
2. The Contractor shall provide a competent full time (8 hr/day, 40 hrs/week) resident Plant Superintendent/Operator (to be relieved as necessary) to manage the Plant operation and maintenance and shall assign a competent staff of consultants, operators, instrumentation and control technicians, and mechanical, electrical, building maintenance, and janitorial personnel to provide all of the above services and to assure a reliable, safe and efficient plant operation, adhering to all safety codes and practices. The Contractor shall be able to utilize existing electronic remote diagnostic capability for evaluation and troubleshooting the plant performance from a central location.
3. Intentionally Left Blank
4. The Contractor shall provide Contractor staff with all non-system related supplies and equipment, to include but not be limited to general hand tools, first aid supplies, safety equipment, paper and printing costs. The Contractor shall be required to provide these non-system supplies as part of the Monthly Fee. The cost of these non-system supplies shall not be reimbursed by the City.
5. The Contractor shall provide all local travel for the Contractor's dedicated Plant staff and Contractor staff who reside in the Houston area.
6. The Contractor shall maintain the preventive maintenance program currently in place at the Plant or within twenty-one (21) days of the Effective Date of the Contract, Contractor shall submit a detailed preventive maintenance and annual thaw/overhaul schedule, for review and approval. Each turnaround must be coordinated and approved by the City and must be planned to minimize down time. The Contractor is required to follow the operating procedures developed by the original equipment manufacturer unless written permission is obtained from the City to do otherwise. Changes to this program caused by equipment modification and replacement shall be documented in the Annual Report set forth below in this Exhibit "A" Section C.20.
7. The Contractor shall be responsible for evaluating the plant performance and making recommendations to improve the operational efficiency, electric consumption, and production capacity of the Plant. The Plant Superintendent shall perform routine scheduled maintenance. Scheduled preventive maintenance shall be performed during periodic visits by the contractors' maintenance mechanic, electrician, and instrument technicians.

8. The Contractor shall maintain a reasonable inventory of spare parts (mechanical, electrical, and instrumentation) at the oxygen plant, stored in a secure area, or readily available for required service of critical equipment in the process. The Contractor shall establish a system to assure the City that all parts removed from inventory have been installed in the plant. The Contractor and the City shall mutually agree upon the parts inventory.
9. The Contractor shall perform energy audits and operate the Plant in accordance with Section E of this Exhibit "A".
10. The Contractor shall notify the CTR at least three (3) business days prior to any planned Plant downtime which shall exceed twenty-four (24) hours. Any work which must be accomplished within the 69<sup>th</sup> WWTP site shall be done so as to not unreasonably interfere with the 69<sup>th</sup> WWTP operation.
11. The Contractor shall be allowed a maximum seven days per contract year for planned Plant shutdowns (the "Maximum Shutdown Time"), preferably, no more than three (3) consecutive days, during which time the City shall purchase liquid oxygen from the Contractor. If in any contract year the Plant has planned shutdowns for an amount of time which exceeds the Maximum Shutdown Time and such excess planned shutdown time is caused by the Contractor's negligence or fault, the liquid oxygen used by the City during excess planned shutdown time shall be free of charge.

**As soon as is practicable after execution of this Contract but not to exceed sixty (60) days, the Contractor shall demonstrate in reasonable detail how much of the base price of the Market Unit Price (\$MUP per Ton) for liquid oxygen (as set forth in Exhibit "D") is for energy (electricity). The energy (electricity) portion of the price shall be the basis for any future request by the Contractor for price adjustment resulting from energy price fluctuations.**

**The price for liquid oxygen purchased hereunder shall be equal to the lesser of (a) the current monthly price of the delivery of liquid oxygen by the contractor to its best and largest customers with similar quantity and purity in the Houston Galveston Ship Channel Area and (b) the price as determined pursuant to Exhibit "D".**

12. **Intentionally left blank.**
13. Any work that the Contractor intends to subcontract must be clearly specified in a proposal and shall require prior approval from the City (which approval shall not be unreasonably withheld or delayed).
14. The Contractor assumes total responsibility for the quality and quantity of all work performed, whether the Contractor undertakes it or is subcontracted.
15. If subcontractor involvement is required in the use of license, patent, or proprietary process, the Contractor is responsible for obtaining written authorization from the

subcontractor to use the process, or provide another process, comparable to that which is required and deemed acceptable to the City, at no additional cost or liability to the City.

16. Intentionally Left Blank.
17. The Contractor shall bear and pay all federal, state and local taxes based upon or measured by Contractor's net income, and all franchise taxes based upon its corporate existence, or its general corporate right to transact business.
18. Except as otherwise provided in this Contract, the Contractor shall have custody and possession of all facilities within the Plant site, the compressor and control building, the adjacent Driox tank, and the equipment in the fenced area within the Plant Site, and shall use, operate and maintain the Plant as provided herein to provide a continuous supply of oxygen (guaranteed 98% purity).
19. Subject to the provisions of Section V.G of this Contract, the City shall have an entry key, with access restricted to City staff designated for specific tasks.
20. The Contractor shall prepare an annual operating assessment ("Annual Report") to summarize the Plant operation over the prior year. The Annual Report shall include but not be limited to documentation of the most recent Performance Test, an update to the spare parts inventory (if any), production and reliability data for the past year and copies of maintenance requests for that year. The first such Annual Report shall be due at the start of the second contract year. The Annual Report shall include the following detailed information:
  - (a) Operational history of the Plant by month showing the number of on stream hours in the month, number of hours the plant was run, number of hours that the Plant was shutdown Force Majeure or maintenance.
  - (b) Oxygen Gas Production and % Purity by month.
  - (c) Specific Power (KWH per Tons Produced per day) for each month of the year.
  - (d) All expenditures for repairs completed during the time period of the report.
  - (e) List and number of all replacement parts installed.
  - (f) List and quantities of inventory replaced.
21. The Annual Report shall be in written form, and submitted to the Contract Technical Representative within thirty (30) calendar days after each Performance Test.
22. The Contractor shall, on a weekly basis, submit to the 69<sup>th</sup> WWTP Operations Manager a report on oxygen production, purity and liquid oxygen in LOX storage. The weekly reports shall be delivered to the Operation Control Room in the 69<sup>th</sup> Street

Administration Building by noon each Friday, unless Friday is a City holiday, then the report shall be delivered on the day previous to the holiday.

23. A monthly report shall also be prepared and submitted to the CTR, which reports shall include the weekly information and copies of any maintenance requests opened that month. Contractor shall maintain a log of activities that is intended to document the hours Contractor's staff and Contractor's subcontractors are at the Plant. This shall be available for review by the User Department Representative (UDR) and kept in the Plant control room.
24. The Contractor shall be obligated to keep City personnel current in process implementation and shall advise the City of recommended improvements to reduce operation and maintenance costs. All recommendations shall include an estimate of costs for these recommended improvements accompanied by projected return on investment calculations. If requested, the Contractor shall provide the CTR with cost/benefit analysis twelve (12) months after installation/implementation of any improvements recommended to the City by the Contractor.

#### **D. ADDITIONAL SERVICES**

Contractor shall perform the Additional Services on a reimbursable cost basis in accordance with the Contractor rate schedule as set forth in this Section D of this Exhibit "A" and in Exhibit "C". Timing of any Additional Services shall be mutually agreed upon between CTR and the Contractor.

**D.1. Additional Services:** The term "Additional Services" means the following:

- (1) Procure liquid oxygen as necessary due to events set forth in this Exhibit "A" Section C.11 or in the event that the City has demands in excess of the Plant capacity as documented in the initial Performance Test.
- (2) Procure/provide equipment, material and labor for work items not found on the preventive maintenance program or not performed by the on-site Plant staff. This is intended to include all parts not set forth in the preventive maintenance program parts list and included herein as Exhibit "H".
- (3) Perform miscellaneous services, including maintenance of overhead cranes, lighting systems, roof, janitorial services, ground maintenance, maintenance of the air conditioning system and maintenance of the oxygen pipeline from the Plant to the reactors as more fully defined in this Exhibit "A" Section B.11.
- (4) Paint the Plant as needed.
- (5) Purchase spare parts to maintain inventory.
- (6) Repair the Plant. If the results of the annual Performance Test do not meet required standards, the Contractor shall submit a proposal to improve system efficiency to meet or

exceed the minimum required levels. This proposal must be submitted to the CTR within ten (10) calendar days after the date of the failed Performance Test.

(7) Conduct the initial inspection and repair of electrical equipment listed in this Exhibit "A" Section B.10. Within twenty-one (21) days of the initial inspection the Contractor shall submit to the CTR a list of the recommended corrective repairs, a proposed schedule for effecting these repairs and a budgetary estimate.

(8) Perform any other services relating to repairs of the Plant or connecting systems not otherwise described as a Basic or Additional Service agreeable to the CTR and the Contractor.

(9) Use its commercially reasonable efforts to assist the City with the removal, transportation and disposal of waste generated in connection with the operation of the Plant; provided, however, in no event shall the Contractor be responsible for such removal, transportation or disposal. The City shall be deemed owner of all waste generated at the Plant.

**D.2.** The Contractor shall be responsible for engineering, equipment, labor, tools, material, supervision, installation, startup, dismantle of used and unwanted parts of existing equipment scheduled for rehabilitation, including but not limited to the following major equipment. The following Additional Services must be requested by contractor and authorized by the CTR in writing prior to commencement of any such services:

**D.2.1 Coldbox/Train "A":** Rehabilitate the existing Coldbox "A", which has been out of service, in order that Train "A" becomes a stand-alone system to provide 160 TPD of oxygen, 24hours, 365 days per year. The rehabilitation to include all required new equipment, new instrumentation; and new control system. The Contractor shall use the control panel and hardware purchased by City under another contract that was designed and fabricated by others. The contractor shall be responsible for all installations, additional hardware, and all software to ensure completion of all work to make Coldbox/Train "A" a stand-alone system. ***NOTE: The City of Houston shall provide Air Products with previously purchased and manufactured control system equipment for installation. Air Products shall only invoice for installation of City provided equipment and purchase and install additional equipment as necessary.***

**D.2.2 Coldbox/Train "B":** Rehabilitate the existing Coldbox "B", which has been in service, in order that Train "B" becomes again a stand-alone system to provide 160 TPD of oxygen, 24hours, 365 days per year. The rehabilitation to include all required new equipment, new all control panel and associated hardware, new instrumentation; and new control system. The contractor shall be responsible for all installations, and all software to ensure completion of all work to make Coldbox/Train "B" a stand-alone system. The rehabilitation of Coldbox/Train "B" shall include replacement of the existing Heat Exchanger with a new one.

**D.2.3 Ambient Vaporizer Unit:** Dismantle and assist disposal of the existing Hot Water vaporizer of the Backup LOX Delivery System. Replace the existing vaporizer with new

low-maintenance Ambient Vaporized unit. Rehabilitate and reconfigure vaporizer system piping, instrumentation, and safety, manual, and control-actuated valves as necessary.

**D.2.4 Instrument Air Supply Compressor System:** Dismantle and assist disposal of the existing air supply (PD compressors) system and replace it with new Centrifugal air compressor system. Rehabilitate and reconfigure compressor piping and instrumentation as necessary.

**D.2.5 New PLC Control System:** Purchase and install any components of Siemens 545 Programmable Logic Controller (PLC) Systems, Wonderware INTOUCH Human-Machine-Interface (HMI) application licenses, HP 380 Series servers and communication/hardware interfaces (Microsoft Windows 2003 platform).

**D.3 Rehabilitation turnaround of Cold Boxes "A" and "B":** The Contractor shall perform the following installation and rehabilitation work on Cold Boxes "A" and "B" as Additional Services:

**D.3.1.** As the Plant is over 20 years old, and there is the need to replace Original Equipment Manufacturer (OEM) equipment and parts with the best available and feasibly cost effective equipment, Contractor shall evaluate the original design specifications.

**D.3.2.** Contractor shall provide the documentation of all installation and rehabilitation changes and furnish the City with the as built design drawings and spare parts list.

**D.3.3.** All payments for executed work, parts, equipment, and services by others shall be based on the submission of the ORIGINAL(s) documents of services performed and parts and equipment installed, including any quoted markups.

## **E. PERFORMANCE TEST - BASIC SERVICES**

As a Basic Service, within sixty days of the Effective Date, an initial energy performance test ("Performance Test") shall be conducted by the Contractor to establish a baseline for electric power consumption of the Plant.

The Performance Test must be for a duration of four (4) hours for each of the three (3) main air compressors at an oxygen purity of ninety-eight percent (98%) and continuous oxygen production rate of 160 tons per day, or at the Plant's actual production and purity capability if less than 160 TPD and 98% (the "Test Production and Purity Rates"). The electric power consumption shall be measured and adjusted to reflect ambient conditions and liquid production at the time of the test in accordance with procedures mutually agreed upon by the Managing Engineer, 69<sup>th</sup> WWTP and the Contractor. The results of the Performance Test shall establish the "Electric Power Consumption Guarantee". The Performance Test shall be conducted in the

presence of the CTR and scheduled with a minimum of two (2) weeks written notice to the CTR.

Thereafter, as a Basic Service, the Performance Test shall be conducted annually by the Contractor within sixty (60) days of the anniversary of the Effective Date. During the annual Performance Test power consumption for each main air compressor at the Test Production and Purity Rates shall be calculated and compared to the Electric Power Consumption Guarantee (in Kwh per ton of oxygen) adjusted by adding 5/10th's of one percent (0.5%) per year for normal power degradation. A three percent (3%) allowance for error in the measuring equipment shall be allowed. It shall be discretionary on the part of the City to bring air compressor unit A and/or B back to performance test standard.

If the results of any Performance Test other than the first one demonstrate failure of equipment to meet Electric Power Consumption Guarantee, the Contractor shall submit a proposal to improve system efficiency to meet or exceed the Electric Power Consumption Guarantee. This proposal must be submitted to the CTR within ten (10) calendar days of the date of the failed performance test.

If during the Contract Term a compressor is replaced or one is decommissioned in favor of replacement equipment, the Contractor shall establish an Electric Power Consumption Guarantee for the new or replacement equipment. The new equipment shall be subject to the above annual testing requirements thereafter.

Except as otherwise provided herein, each Performance Test shall be performed in accordance with the procedures and standards shown in Exhibit "I".

## EXHIBIT "B"

### EQUAL EMPLOYMENT OPPORTUNITY

1. The contractor, subcontractor, vendor, supplier, or lessee shall not discriminate against any employee or applicant for employment because of race, religion color, sex, national origin, or age. The contractor, subcontractor, vendor, supplier, or lessee shall take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to their race, religion color, sex, national origin, or age. Such action shall include, but not be limited to, the following: employment; upgrading; demotion or transfer; recruitment advertising; layoff or termination; rates of pay or other forms of compensation and selection for training including apprenticeship. The contractor, subcontractor, vendor, supplier or lessee agrees to post in conspicuous places available to employees, and applicants for employment, notices to be provided by the City setting forth the provisions of this Equal Employment Opportunity Clause.
2. The contractor, subcontractor, vendor, supplier, or lessee states that all qualified applicants shall receive consideration for employment without regard to race, religion, color, sex, national origin or age.
3. The contractor, subcontractor, vendor, supplier, or lessee shall send to each labor union or representatives of workers with which it has a collective bargaining agreement or other contract or understanding, a notice to be provided by the agency contracting officer advising the said labor union or workers representative of the contractor's and subcontractor's commitments under Section 202 of Executive Order No. 11246, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
4. The contractor, subcontractor, vendor, supplier, or lessee shall comply with all provisions of Executive Order No.11246 and the rules, regulations, and relevant orders of the Secretary of Labor or other Federal Agency responsible for enforcement of the equal employment opportunity and affirmative action provisions applicable and shall likewise furnish all information and reports required by the Mayor and/or Contractor compliance Officer(s) for purposes of investigation to ascertain and effect compliance with this program.
5. The contractor, subcontractor, vendor, supplier, or lessee shall furnish all information and reports required by Executive Order No. 11246, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and shall permit access to all books, records, and accounts by the appropriate City and Federal Officials for purposes of investigations to ascertain compliance with such rules, regulations, and orders. Compliance reports filed at such times as directed shall contain information as to the employment practice policies, program, and work force statistics of the contractor, subcontractor, vendor, supplier, or lessee.
6. In the event of the contractor's, subcontractor's, vendor's, supplier's, or lessee's non-compliance with the non-discrimination clause of this Contract or with any of such rules, regulations, or orders, this Contract may be canceled, terminated, or suspended in whole or in part, and the contractor, subcontractor, vendor, supplier, or lessee may be declared ineligible for further City contracts in accordance with procedures provided in Executive Order No. 11246,

and such other sanctions may be imposed and remedies invoked as provided in the said Executive Order, or by rule, regulation, or order of the Secretary of Labor, or as may otherwise be provided by law.

7. The Contractor shall include the provisions of paragraphs 1-8 of this Equal Employment Opportunity Clause in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order No. 11246 of September 24, 1965, so that such provisions shall be binding upon each subcontractor or vendor. The contractor shall take such action with respect to any subcontractor or purchase order as the contracting agency may direct as a means of enforcing such provisions including sanctions for noncompliance; provided, however, that in the event the contractor becomes involved in, or is threatened with litigation with a subcontractor or vendor as a result of such direction by the contracting agency, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

8. The Contractor shall file and shall cause of his subcontractors, if any, to file compliance reports with the City in the form and to the extent as may be prescribed by the Mayor. Compliance reports filed at such times as directed shall contain information as to the practices, policies, programs, and employment policies and employment statistics of the contractor and each subcontractor.

## EXHIBIT "C"

### REIMBURSABLE EXPENSE FOR ADDITIONAL SERVICES

#### 1.0 GENERAL

It is understood that prior to commencement of any non-emergency Additional Services, Contractor must make a written proposal describing the work to be done and a good faith estimate of the cost for such work. The proposal must also indicate whether Contractor requires overtime work or shall utilize subcontractors. Contractor shall proceed with such non-emergency Additional Services only after approval of the proposal by the CTR. Reimbursable Costs for Additional Services are calculated as shown in Exhibits "C" and "D". Emergency Additional Services shall not require advance approval to commence work. However, this shall not relieve Contractor of providing a written proposal as defined above, at the earliest time possible following the start of such emergency Additional Services. An emergency Additional Service shall be deemed any failure or alarm that, in Contractor's sole opinion, causes an unsafe condition at the Plant or limits Contractor's ability to meet the wastewater treating process oxygen demand.

#### 2.0 HOME OFFICE

The following rates and conditions apply to the services of personnel within the below-listed disciplines for performance of Additional Services.

These rates shall be reviewed annually on the anniversary of the Effective Date of the Contract and adjusted in accordance with the formula found in Exhibit "D".

<b>Classification</b>	<b>Base Rate (per Hour)</b>	<b>Overtime Rate (per Hour)</b>
1. "Engineer, all"	\$189.00	\$285.00
2. "Construction Advisor"	\$162.00	\$243.00
3. "Designer/Technician"	\$137.00	\$205.00

#### 3.0 REHABILITATION OF COLDBOX "A" AND COLDBOX "B" AND OTHERS REHABILITATION WORK ASSOCIATED WITH THE UPGRADE OF THE SYSTEM

➤ Project Manager	\$189/hour.
➤ Project Designer/Technician	\$137/hour.
➤ Engineer	\$189/hour.
➤ Construction Supervision	\$162/hour.
➤ Construction Labor Cold Box A	\$38.40/hour.

- Construction Labor Cold Box B \$42/hour.
- Construction Labor Heat Exchanger Replacement \$42/hour.
- Construction labor Instrumentation Air \$42/hour.
- PLC Installation Labor \$120/hour.
- Construction Labor Vaporizers \$42/hour.
- Commissioning Engineer \$189/hour.
- Commissioning Technician \$137/hour.

➤ Material @ Cost + 25% Markup

Freight @ Cost + zero % Markup

➤ Sub-contractor Labor for "Installation and Rehabilitation Work" @Cost + 20% markup.

Job categories not specified herein shall be referred to the City Purchasing Agent for negotiation with contractor.

#### 4.0 FIELD SERVICES

These rates shall be reviewed annually on the anniversary of the Effective Date of the Contract and adjusted in accordance with the formula found in Exhibit "D".

The classifications and respective base and overtime rates for Contractor personnel for field services are:

<b>Classification</b>	<b>Base Rate (per hour)</b>	<b>Overtime Rate (per Hour)</b>
1. "Construction Supervisors/Advisors"	\$162.00	\$243.00
2. "Engineers, All"	\$189.00	\$285.00
3. "Welders, Fitters, Mechanics and other specialized services	cost plus 20%	cost plus 20%
4. "Sub-Vendor Representative	cost plus 20%	cost plus 20%

Field personnel are billed per man-day for each day of service or fraction thereof. Base rates cover work done not-to-exceed 40 hours per week, consisting of eight hours per day for each individual. Working days are normally Monday through Friday, but if required by local conditions, may be any five (5) consecutive calendar days as mutually agreeable to the CTR and Contractor. Non-working days are normally Saturday and Sunday; however, where working days other than Monday through Friday are agreed upon, the two days following any five consecutive working days shall be non-working days.

The same rates as shown above are applicable to travel time to and from the Plant, except that the City may not be charged for more than eight hours travel time per day. All traveling, living and other necessary expenses shall be invoiced at cost and shall be computed to and from Allentown, Pennsylvania, or other Contractor locations as applicable.

In addition to the basic rate, if approved in advance by the CTR, City shall be charged at the overtime rate for any hours worked in excess of eight hours on a working day or for any work or travel on a non-working day or holiday observed by the City. If the combination of a maximum of eight hours of travel plus time worked in any day exceeds eight hours, the excess over eight hours shall be considered work related and shall be invoiced at the overtime rate. Advance approval for overtime work shall not be required for emergency Additional Services.

Contractor shall charge for standby time at the basic straight-time eight hours per day rate as above, i.e., when a man is available at the job site but not working due to no fault of Contractor. Non-working days and holidays observed by the City shall not be considered as standby time.

Home office support time for field services shall be billed at the appropriate home office rate.

## EXHIBIT D COST ADJUSTMENT

The prices charged for Basic Services, Additional Services, and liquid oxygen shall be subject to adjustments as follows:

### **A. Home Office and Field Service Labor Rates**

During the Contract Term at each anniversary of the Effective Date of the Contract the rates for Additional Services shown in Exhibit C shall be adjusted and made effective according to the following formula:

$$\text{Rates for Contract year (N + 1)} = \text{Exhibit "C" rate} * (\text{ECI}_1 / \text{ECI}_0)$$

Where :

ECI = The index for "Employment Compensation Index-Compensation for Professional and Technical Workers" as published in Table 3 in the "Employment and Earnings" section, published by the U.S. Department of Labor's Bureau of Labor Statistics.

N = 1, 2, 3 or 4, corresponding to the Contract year just ended

ECI<sub>1</sub> = ECI for the first quarter of Contract year N+1

ECI<sub>0</sub> = ECI for the first quarter of Contract year N

The ECI value shall be the current published quarter.

### **B. Purchased Liquid Oxygen (LOX)**

During the Contract Term at each anniversary of the Effective Date, the price for liquid oxygen shall be adjusted and made effective according to the following formula:

$$\text{Liquid Oxygen, \$ / Ton @ Year (N + 1)} = \$ \text{ MUP} * [.5 * (\text{ECI}_1 / \text{ECI}_0) + .5 * (\text{PPI}_1 / \text{PPI}_0)]$$

Where:

MUP is the one month (30 days) average Market Unit Price (\$ per Ton) immediately prior the NOTICE TO PROCEED is issued for the delivered liquid oxygen by the Contractor. It shall be the lowest Market Unit Price (\$ per Ton) delivered by the Contractor **to its best and largest customers with similar quantity and purity requirements in the Houston Galveston Ship Channel Area**

N = 1,2,3 or 4 corresponding to the Contract year just ended.

PPI = Shall mean the index for the "Producer Price Index No. 0543 for U.S. Industrial Power" as published by the U.S. Department of Labor's Bureau of Labor Statistics.

ECI = as defined in Section A of this Exhibit D

ECI<sub>1</sub> = first quarter Contract year (N+1)

ECI<sub>0</sub> = first quarter Contract year N

PPI<sub>1</sub> = January of year (N+1)

PPI<sub>0</sub> = January of year N

The PPI value shall be the current published quarter.

**C. Basic Service Payment**

During the Contract Term at each anniversary of the Effective Date, the Monthly Fee shall be adjusted and made effective according to the following formula:

Rates for Contract year (N + 1) = \$25,250 \* (ECI<sub>1</sub> / ECI<sub>0</sub>)

Where:

ECI = Shall mean the index for "Employment Compensation Index-Compensation for Professional and Technical Workers" as published in Table 3 in the "Employment and Earnings" section, published by the U.S. Department of Labor's Bureau of Labor Statistics.

N = 1, 2, 3 or 4, corresponding to the Contract year just ended

ECI<sub>1</sub> = ECI for the first quarter of Contract year N+1

ECI<sub>0</sub> = ECI for the first quarter of Contract year N

The ECI value shall be the current published quarter.

**EXHIBIT "E"**  
**DRUG POLICY COMPLIANCE AGREEMENT**

I, \_\_\_\_\_ as an owner or officer of  
(Name; Print/ Type) (Title)  
\_\_\_\_\_  
(Name of Company) (Contractor)

have authority to bind Contractor with respect to its bid, offer or performance of any and all contracts it may enter into with the City of Houston; and that by making this Agreement, I affirm that the Contractor is aware of and by the time the contract is awarded shall be bound by and agree to designate appropriate safety impact positions for company employee positions, and to comply with the following requirements before the City issues a notice to proceed:

1. Develop and implement a written Drug Free Workplace Policy and related drug testing procedures for the Contractor that meet the criteria and requirements established by the Mayor's Amended Policy on Drug Detection and Deterrence (Mayor's Drug Policy) and the Mayor's Drug Detection and Deterrence Procedures for Contractors (Executive Orders No. 1-31).
2. Obtain a facility to collect urine samples consistent with Health and Human Services (HHS) Guidelines and a HHS certified drug testing laboratory to perform the drug tests.
3. Monitor and keep records of drug tests given and the results; and upon request from the City of Houston, provide confirmation of such testing and results.
4. Submit semi-annual Drug Policy Compliance Declarations.

I affirm on behalf of the Contractor that full compliance with the Mayor's Drug policy and Executive Order No. 1-31 is a material condition of the contract with the City of Houston.

I further acknowledge that falsification, failure to comply with or failure to timely submit declarations and/or documentation in compliance with the Mayor's Drug Policy and/or Executive Order No. 1-31 shall be considered a breach of contract with the City and may result in non-award or termination of the contract by the City of Houston.

\_\_\_\_\_  
Date

\_\_\_\_\_  
Contractor Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

**EXHIBIT "F"**  
**DRUG POLICY COMPLIANCE DECLARATION**

I, \_\_\_\_\_ as an owner or officer of  
 \_\_\_\_\_  
 (Name; Print/ Type) (Title)  
 \_\_\_\_\_ (Contractor)  
 \_\_\_\_\_ (Name of Company)

have personal knowledge and full authority to make the following declarations:

This reporting period covers the preceding 6 months from \_\_\_\_\_ to \_\_\_\_\_, 20\_\_.

\_\_\_\_\_ A written Drug Free Workplace Policy has been implemented and employees  
 Initials notified. The policy meets the criteria established by the Mayor's Amended  
 Policy on Drug Detection and Deterrence (Mayor's Policy).

\_\_\_\_\_ Written drug testing procedures have been implemented in conformity with the  
 Initials Mayor's Drug Detection and Deterrence Procedures for Contractors, Executive  
 Order No. 1-31. Employees have been notified of such procedures.

\_\_\_\_\_ Collection/testing has been conducted in compliance with federal Health and  
 Initials Human Services (HHS) guidelines.

\_\_\_\_\_ Appropriate safety impact positions have been designated for employee  
 Initials positions performing on the City of Houston contract. The number of employees  
 in safety impact positions during this reporting period is  
 \_\_\_\_\_.

\_\_\_\_\_ From \_\_\_\_\_ to \_\_\_\_\_ the following test has occurred  
 Initials (Start Date) (End Date)

	<u>Random</u>	<u>Reasonable Suspicion</u>	<u>Post Accident</u>	<u>Total</u>
Number Employees Tested _____	_____	_____	_____	
Number Employees Positive _____	_____	_____	_____	
Percent Employees Positive _____	_____	_____	_____	

\_\_\_\_\_ Any employee who tested positive was immediately removed from the City  
 Initials worksite consistent with the Mayor's Policy and Executive Order No. 1-31.

\_\_\_\_\_ I affirm that falsification or failure to submit this declaration timely in accordance  
 Initials with established guidelines shall be considered a breach of contract.

I declare under penalty of perjury that the affirmations made herein and all information contained in this declaration are within my personal knowledge and are true and correct.

\_\_\_\_\_  
(Date)

\_\_\_\_\_  
(Typed or Printed Name)

\_\_\_\_\_  
(Signature)  
(Title)



**EXHIBIT "H"**  
**PREVENTIVE MAINTENANCE PARTS LIST**

The following consumable spare parts list covers those parts generally associated with preventive maintenance activities for the Plant. The list is meant to be a guide to those parts that shall be replaced by Contractor on an as-needed basis during regular preventive maintenance.

- |                                |   |
|--------------------------------|---|
| 1.) Chemicals and Lubricants   | 16.) Contacts                                       |
| 2.) Coupling Flexible Elements | 17.) Belts  |
| 3.) Pressure Gauges            | 18.) Overload Elements                              |
| 4.) Filter Elements            | 19.) Fuses  |
| 5.) Lube Oil Analyses          | 20.) Bulbs  |
| 6.) Oil Filters                | 21.) Gaskets  |
| 7.) Valve Packing              | 22.) Safety Valve Tests (excluding rebuild charges) |
| 8.) Springs                    | 23.) Analyzer Calls                                 |
| 9.) Valve Boots and Seals      | 24.) Screens  |
| 10.) Rupture Discs             | 25.) Nuts and Bolts                                 |
| 11.) Diaphragms                | 26.) Chains   |
| 12.) Hoses                     | 27.) Cables and Wire                                |
| 13.) Oil Rings                 | 28.) Tubings  |
| 14.) Switches                  | 29.) Fittings                                       |
| 15.) Relays                    |   |

**EXHIBIT "I"**  
**TEST PROCEDURE**

**I. Test Procedure**

Before the start of the test, the oxygen analyzer, AIT-752, is to be calibrated and verified by a qualified City representative. Display AR-752 on the Honeywell computer indicates the instantaneous oxygen purity. The gaseous oxygen (GOX) purity recording chart shall be included with the test report and provides a record of the oxygen purity during both the test and the analyzer calibration.

A flow transmitter on the oxygen plant discharge line, FT-753, transmits the GOX flow signal to the computer. A pressure indicator, PT-753, and a temperature indicator, TT-753, also transmit signals to the computer. The Honeywell computer compensates for pressure and temperature and indicates the GOX flow in SCFH on display FIC-753-2.

Display LIC-776 on the Honeywell computer indicates the percent level in the LOX transfer tank. Whenever the level reaches 80 percent, the tank empties some LOX into the main storage tank and retains a level of approximately 20 percent. The level increase on LIC-776 determines the LOX production during the test.

The Honeywell computer also provides the cooling water temperature for the plant.

The compressor monitoring report on the DEC computer provides the instantaneous main air compressor power usage in KW and the discharge pressure in psig. A control panel adjacent to the compressor also indicates the discharge pressure, but this figure is used only as a reference.

A weather radio supplies the ambient temperature, barometric pressure, and relative humidity.

Contractor employees record all logs during the performance test. Readings are taken every hour. A City representative, if present, shall initial the log sheet(s).

**II. Required Data/Results**

**GOX Produced (SCFH)**

**GOX Produced (Tons/Day)**

**O2 Purity (%O2)**

**LIC 776 (%)**

LOX Production (Tons/Day)

Equivalent GOX (Tons/Day)

Total O2 Produced (Tons/Day)

**MAC A, B, C**

Date \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Raw Mac Power (KW)**

\_\_\_\_\_

**Ambient Temperature ( ° F)**

\_\_\_\_\_

**Cooling H2O Temperature ( ° F)**

\_\_\_\_\_

Barometric Pressure (mmHg)

\_\_\_\_\_

Relative Humidity

\_\_\_\_\_

LB H2O/LB Dry Air

\_\_\_\_\_

Corrected Mac Power (KW)

\_\_\_\_\_

**Spec Power (KWH/Ton)**

\_\_\_\_\_

**Note: Boldface items are recorded raw data.**

**III. Sample Calculations**

(Averages are calculated using the five hourly readings.)

A) GOX purity

Average GOX purity = \_\_\_\_\_ %

B) Gaseous Oxygen production (GOX):

Average GOX flow = \_\_\_\_\_ SCFH

GOX flow in T/D = SCFH \* 24 hr/day \* (ton/24,152 SCF) \* (purity/98.00%)

GOX production = \_\_\_\_\_ T/D @ 98% purity

C) Liquid Oxygen production (LOX):

Equivalent LOX in T/D = % level change \* .44 tons/100%

= \_\_\_\_\_%/4 \* 24 hr/hr day \* .44/100%

LOX production = \_\_\_\_\_ T/D

(Power usage is based on GOX production so the LOX production is converted to its equivalent GOX amount.)

Equivalent GOX in T/D = LOX (T/D) \* 2.857

ETD GOX = \_\_\_\_\_ T/D

D) Total GOX production = \_\_\_\_\_ T/D (GOX from B) + \_\_\_\_\_ T/D (ETD from C)

= \_\_\_\_\_ T/D

E) Power Usage:

Average raw power usage = \_\_\_\_\_ KW

(Since the ambient and design conditions for the compressor differ, the power usage is converted to design conditions so that the results from this test compare easily with previous and subsequent test results.)

Corrected Kilowatt Consumption = CKW

$$CKW = KW * TC * PC * HC$$

<b>where:</b>	<b>TC = corrected temperature</b> <b>PC = corrected pressure</b> <b>HC = corrected relative humidity</b> <b>KW = measured KW (raw)</b> <b>CKW = corrected KW</b>
---------------	--

$$TC = \frac{[TD + 2 (TCWD)]/3 + 460}{[TA + 2(TCWA)]/3 + 460}$$

<b>where:</b>	<b>TD = design ambient temperature (90°F)</b> <b>TCWD = design cooling water temp. (80°F)</b> <b>TA = actual ambient temperature (61.8°F)</b> <b>TCWA = actual cooling water temp. (65.4°F)</b>
---------------	--

$$PC = \frac{\ln [(PD + D)/D]}{\ln [(PD + A)/A]}$$

<b>where:</b>	<b>PD = actual discharge pressure (71.2 psig)</b> <b>D = design barometric pressure (14.7 psig)</b> <b>A = actual barometric pressure (14.72 psig)</b>
---------------	--

$$HC = \frac{[1 + (\text{lb water/lb dry air})] \text{ design}}{[1 + (\text{lb water/lb dry air})] \text{ test}}$$

(Use a psychrometric chart, ambient temperature, and relative humidity to find lb water/lb dry air.)

<b>Design Conditions</b>	<b>T = 90°F</b> <b>RH = 70%</b> <b>lb water/lb dry air = .0215</b>
--------------------------	--

<b>Test Conditions</b>	T = _____ °F RH = _____ % lb water/lb dry air = _____
------------------------	---

F. Performance

Specific power in KWH/TON = (CKW \* 24) / Tons Total GOX per Day

**EXHIBIT "J"**  
**MWBE SUBCONTRACT TERMS**

Engineer shall insure that all subcontracts with MWBE subcontractors and suppliers are clearly labeled **"THIS CONTRACT IS SUBJECT TO ARBITRATION ACCORDING TO THE TEXAS GENERAL ARBITRATION ACT"** and contain the following terms:

1. \_\_\_\_\_ (MWBE subcontractor) shall not delegate or subcontract more than 50% of the work under this subcontract to any other subcontractor or supplier without the express written consent of the City of Houston's Affirmative Action Director ("the Director").
2. \_\_\_\_\_ (MWBE subcontractor) shall permit representatives of the City of Houston, at all reasonable times, to perform (1) audits of the books and records of the subcontractor, and (2) inspections of all places where work is to be undertaken in connection with this subcontract. Subcontractor shall keep such books and records available for such purpose for at least four (4) years after the end of its performance under this subcontract. Nothing in this provision shall affect the time for bringing a cause of action nor the applicable statute of limitations.
3. Within five business days of execution of this subcontract, Engineer (prime engineer) and Subcontractor shall designate in writing to the Director an agent for receiving any notice required or permitted to be given pursuant to Chapter 15 of the Houston City Code of Ordinances, along with the street and mailing address and phone number of such agent.
4. As concluded by the parties to this subcontract, and as evidenced by their signature hereto, any controversy between the parties involving the construction or application of any of the terms, covenants or conditions of this subcontract shall, on the written request of one party served upon the other or upon notice by Director served on both parties, be submitted to arbitration, under the Texas General Arbitration Act (Tex. Civ. Prac. & Rem. Code Ann., Ch. 171 -- "the Act"). Arbitration shall be conducted according to the following procedures:
  - a. Upon the decision of the Director or upon written notice to the Director from either party that a dispute has arisen, the Director shall notify all parties that they must resolve the dispute within thirty (30) days or the matter may be referred to mediation or arbitration.
  - b. If the dispute is not resolved within the time specified, any party or the Director may submit the matter to arbitration conducted by the American Arbitration Association under the rules of the American Arbitration Association, except as otherwise required by the City's contract with American Arbitration Association on file in the Office of the City's Affirmative Action Division.
  - c. Upon submittal of the matter to arbitration each party shall pay all fees required by the American Arbitration Association and sign a form releasing the American Arbitration Association and its arbitrators from liability for decisions reached in the arbitration.



d. In the event the American Arbitration Association no longer administers Affirmative Action arbitration for the City, the CTR shall prescribe alternate procedures as necessary to provide arbitration by neutrals in accordance with the requirements of Chapter 15 of the Houston City Code of Ordinances.

e. All arbitrations shall be conducted in Houston, Texas unless the parties agree to another location in writing.