

BEFORE THE METRO COUNCIL

FOR THE PURPOSE OF APPROVING A GAS ) RESOLUTION NO. 93-1766  
EXTRACTION AGREEMENT WITH B.I.O. GAS )  
INDUSTRIES (PORTLAND), INC., FOR ) Introduced by Rena Cusma,  
LANDFILL GAS GENERATED AT THE ) Executive Officer  
ST. JOHNS LANDFILL )

WHEREAS, Metro is in the process of closing the St. Johns Landfill; and

WHEREAS, The collection and disposal of landfill gas is a required part of the closure plan; and

WHEREAS, Metro needs a firm to develop and/or use the landfill gas available at the St. Johns Landfill; and

WHEREAS, Metro issued a request for proposals for firms to develop and/or use the landfill gas available at the St. Johns Landfill; and

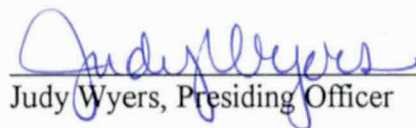
WHEREAS, Metro has selected B.I.O. Gas Industries (Portland) as the preferred firm in response to its request for proposals; and

WHEREAS, Metro has successfully negotiated an agreement with B.I.O. Gas Industries, Inc. for the extraction of gas from the landfill for sale to nearby industrial users; now, therefore,

BE IT RESOLVED,

The Metro Council authorizes the Executive Officer to enter into the Gas Extraction Agreement with B.I.O. Gas Industries (Portland), Inc., attached as Exhibit A.

ADOPTED by the Metro Council this 11th day of March, 1993.

  
Judy Wyers, Presiding Officer

Metro Contract No. 902921

**ST. JOHNS LANDFILL GAS EXTRACTION AGREEMENT**

between

**METRO**

and

**B. I. O. GAS INDUSTRIES (PORTLAND) INC.**

**ST. JOHNS LANDFILL  
GAS EXTRACTION AGREEMENT**

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**ST. JOHNS LANDFILL  
GAS EXTRACTION AGREEMENT**

This Agreement, entered into this \_\_\_\_\_ day of \_\_\_\_\_, 1993, is between Metro, a metropolitan service district organized under chapter 268 of the Oregon Revised Statutes and the Metro Charter, and a municipal corporation and public body of the state of Oregon ("Metro"), and B.I.O. Gas Industries (Portland), Inc. ("BIO"), an Oregon corporation.

**RECITALS**

(a) Metro is the owner of a 238-acre landfill, known as the St. Johns Landfill, located at 9363 N. Columbia Boulevard in Portland, Oregon. Metro is in the process of closing the Landfill, and as part of its Closure activities must collect and properly dispose of LFG being generated by the mixed solid waste in the Landfill.

(b) BIO wishes to extract LFG generated by the Landfill and intends to construct a compressor facility and a pipeline, to market the LFG.

(c) BIO's authority to enter into this Agreement is evidenced by a corporate resolution duly adopted on \_\_\_\_\_, by the Board of Directors of BIO and certified by the Secretary of BIO, a certified copy of which is set forth as Exhibit A to the Agreement.

(d) Metro's authority to enter into this Agreement is evidenced by Resolution No. \_\_\_\_\_, duly adopted by the Metro Council on \_\_\_\_\_, a conformed copy of which is set forth as Exhibit B to this Agreement.

In exchange for the promises and other consideration set forth below, the Parties agree as follows:

1. Definitions

1.1 "BIO Compressor" means the compressor or blower together with ancillary equipment to pressurize LFG to the Bio Pipeline, to be installed, owned, insured, operated and maintained by BIO. The BIO Compressor will be located on the Site as specified on the map in attached Exhibit C.

1.2 "BIO Equipment" means meters, water separators and all equipment, other than the Bio Pipeline, used in the delivery of LFG, which is to be installed, owned, insured, operated and maintained by BIO.

1.3 "BIO LFG Facilities" means the plant as defined in Sections 1.1 and 1.2.

1.4 "BIO Pipeline" means the network of pressure piping downstream of the BIO Compressor, installed, owned, insured, operated and maintained by BIO, portions of which will be located on and off the Site, extending to the End User Pipeline.

1.5 "Btu" means British Thermal Units. MMBtu means one million Btu.

1.6 "Closure" means all activities conducted by Metro pursuant to state and federal law to protect the public and the environment from waste previously deposited in the Landfill.

1.7 "Commencement Date" means the date on which BIO is capable of delivering gas to an End User and the End User is able to take delivery of LFG from BIO.

1.8 "End User" means the party or parties to which BIO delivers and sells the LFG.

1.9 "End User Pipeline" means that portion of the pipeline which is located on the property of the End User and which is connected to the BIO Pipeline.

1.10 "Fiscal Year" means a period beginning on July 1 and ending on June 30.

1.11 "Gas Testing" means the systematic extraction and measurement of LFG from all or selected wells, perforated horizontal collection piping and any other gas collecting apparatus, which will be carried out for the purpose of determining types and production rates of gases, liquids, and particulate produced from within the buried waste at the Site.

1.12 "Gross Revenue" means value received by BIO for delivery of LFG to End Users, prior to deduction of expenses and corporate taxes. "Gross Revenue" also includes the value of Section 29 Federal Energy Tax Credits received by any party as a result of gas extraction under this Agreement.

1.13 "Landfill" or the "Site" means the St. Johns Landfill, consisting of a parcel of land containing approximately 238 acres, as more particularly described on the map in attached Exhibit C.

1.14 "LFG," or "Gas" means all gases produced from the Landfill by the biological decomposition of landfill wastes. LFG includes without limitation, methane, carbon dioxide, hydrogen, waste heat, and other constituents and by-products.

1.15 "MBFF" means the motor blower flare facility owned by Metro.

1.16 "LFG Collection Facilities" means all systems and necessary equipment to extract, collect and deliver LFG to the BIO Compressor.

1.17 "Minimum Heating Value" means 450 Btu per cubic foot (at standard atmospheric conditions) gross energy content based on methane content. One cubic foot of pure methane is deemed to release 1010 Btu when burned.

1.18 "Necessary Government Approvals" means all licenses, permits, inspections and approvals to operate from any federal, state, municipal or other government or agencies thereof which are legally required for BIO to install BIO LFG Facilities and provide the services as contemplated under this Agreement.

1.19 "Necessary Landowner Approvals" means all approvals of all landowners with respect to easements or rights-of-way, if any, necessary to install the BIO Pipeline.

1.20 "Point of Extraction" means the point at which BIO extracts the LFG from the landfill as specified on the map in attached Exhibit C.

1.21 "Point of Measurement" means at or near the point of connection of the BIO Pipeline to the End User Pipeline.

## 2. Term

2.1 The term of this Agreement shall begin on the date of execution by both Parties and shall continue in effect for a period of 15 years unless otherwise terminated or extended as specified herein.

2.2 If quantities of LFG still exist which enable BIO to economically extract LFG beyond the 15-year period specified in this section, BIO may elect to renew this

Agreement, on the same terms and conditions, for a period reasonably agreeable to both Parties.

**3. Test and Evaluation Phase**

3.1 BIO may monitor and review the results of all Gas Testing performed by Metro prior to the Commencement Date. BIO shall be allowed to recommend modifications to the tests performed, and to perform its own tests if Metro's tests are inconclusive or deficient. BIO shall determine in its sole judgment whether LFG can be economically recovered from the Landfill, on the basis of tests performed by Metro and/or BIO.

3.2 Metro shall cooperate in any tests conducted by BIO under this section by allowing BIO to have reasonable access to the Landfill, and by following the test procedures submitted by BIO to the extent mutually agreed by the Parties. BIO shall take steps necessary to ensure that in conducting tests, BIO does not interfere in any manner with Metro's other contractors on the Site.

3.3 If BIO intends to conduct additional LFG tests following Metro's tests, BIO shall submit its proposed testing procedures to Metro at least 10 days prior to scheduled testing, for Metro's review and approval, which approval shall not be unreasonably withheld.

3.4 Gas Testing conducted by BIO at the Landfill may be continued for a period not to exceed 60 days beyond the signing of this Agreement. Within 30 days of the conclusion of BIO tests, or within 60 days of signing of this Agreement if no BIO tests are scheduled, BIO shall notify Metro in writing whether BIO intends to proceed with the project as described herein. If BIO intends to continue with the project, BIO's notice of intent to proceed shall include a schedule for extraction and delivery of LFG to End Users. BIO shall in no instance establish a date for extraction and delivery of LFG that is more than one year from the date on which notice to proceed is given to Metro from BIO. Metro, in turn, shall in no instance establish a date for BIO to commence extraction of LFG, from wells on at least the closed portions of the Landfill, that is more than one year from the date on which notice to proceed is given to Metro from BIO. Time periods in this Section 3.4 may be extended by mutual agreement between the Parties.

3.5 Upon Metro's receipt of written notice from BIO that BIO does not intend to continue the project, this Agreement shall terminate, and all rights under this Agreement shall revert to Metro.

3.6 If BIO fails to commence extraction of LFG by the scheduled date established under Section 3.4 of this Agreement and it is reasonably possible to extract LFG



from the site by such date, Metro may terminate this Agreement without penalty and all rights under this Agreement shall revert to Metro.

3.7 Whether BIO elects to continue or terminate this Agreement pursuant to this section, BIO agrees to provide to Metro copies of all data, test results, and written reports developed as part of tests conducted under this section.

4. Quantity and Quality of LFG

4.1 Metro makes no representation or guarantee to BIO as to the quality, quantity, or identity of any gases or other emissions which may be found in, upon, or may be generated by the Landfill

4.2 All LFG that is generated will be gathered by Metro and BIO. Metro will take reasonable steps to exclude non-combustible components that may be caused by air intrusion and water and to maintain a consistent and higher than Minimum Heating Value of the LFG. The LFG Collection Facilities shall include filtering of particulates in accordance with BIO Equipment specifications, condensate and leachate knock-outs and a blower to pressurize the LFG at the Point of Extraction. Operations and maintenance procedures shall be consistent with the objective of environmental control as well as producing a saleable gas with at least the Minimum Heating Value.

4.3 BIO shall have the exclusive right during the term of this Agreement to extract and to sell all available LFG at an off-site location or locations as specified in this Agreement.

5. Royalty

BIO agrees to pay to Metro, for LFG extracted from the landfill and sold to End Users by BIO, a royalty equal to the annual percentage of Fiscal Year Gross Revenue determined by reference to the chart and formulas in the attached Exhibit D.

6. Billings and Payments

6.1 On or before the tenth day of each month, BIO shall invoice End Users for LFG delivered during the preceding month. BIO shall require all End Users to make payment for LFG deliveries within 20 days of receiving a BIO invoice, and shall take reasonable steps to ensure timely payment by End Users.

6.2 BIO's monthly payment to Metro shall be based on the total Gross Revenue, whether in cash or other value, received by BIO from End Users or otherwise in the preceding month, and shall be computed as follows:

(a) The total Gross Revenue received by BIO in the preceding month shall be multiplied by 12, to estimate a Fiscal Year Gross Revenue ( $G_3$ ) as shown in Exhibit D;

(b) The  $G_3$  figure established under (a) shall be used in Formula No. 1 of Exhibit D (if  $G_3$  is less than or equal to \$800,000) or Formula No. 2 of Exhibit D (if  $G_3$  is greater than \$800,000) to determine the "Actual Royalty Rate" ( $R_3$ ); and

(c) The total Gross Revenue received by BIO in the preceding month shall be multiplied by the  $R_3$  percentage established under (b), to determine the monthly payment due from BIO to Metro.

6.3 BIO's monthly payment to Metro shall be delivered to Metro on or before the last day of each month, and shall include BIO's computation of amounts owed to Metro and copies of all invoices to End Users issued in the preceding month. If the payment is not made within this period, Metro may assess a late charge equal to 1.5 percent of the amount unpaid for each month or portion thereof such charges remain unpaid. Metro may also prevent BIO from taking possession of LFG for failure to make timely payments, without prejudice to any other remedies it may have.

6.4 Upon request by Metro, BIO shall submit to Metro, as part of the monthly payment and billing computation, copies of results from meter testing and calibration.

6.5 On or before August 30 of each year, BIO shall prepare and submit to Metro a statement of reconciliation. The statement shall include:

(a) The total Gross Revenue received by BIO in the preceding Fiscal Year;

(b) Itemization of the amounts invoiced to, and received from each End User;

(c) BIO's calculation of the amount due from BIO to Metro pursuant to Section 5;

(d) A statement of the amount actually paid by BIO to Metro during the preceding Fiscal Year;

(e) A request for reimbursement from Metro if (d) is greater than (c), or a payment to Metro in the amount of the difference if (c) is greater than (d).

6.6 In any period of the contract that is not a complete 12 month Fiscal Year, payment from BIO to Metro shall be based solely on the monthly payments calculated as specified in Section 6.2, without annual reconciliation.

6.7 Upon termination or expiration of this Agreement, all sums remaining due and payable to Metro from BIO shall be paid within one calendar month of the termination or expiration date, subject to the same interest payments specified in Section 6.3 of this Agreement.

6.8 If any overpayment or underpayment shall be discovered by either Party, Metro shall refund the amount of the overpayment or BIO shall pay the amount of the underpayment within thirty (30) days after final determination thereof.

## 7. LFG Metering and Determination of Heating Value

7.1 Instruments used to calculate the total energy value of the LFG consumed by End Users and the resultant payments to be made for any calendar month shall be supplied, maintained and operated by BIO or designated agents.

7.2 Flow meters for calculating LFG volumes shall be supplied, installed and maintained by BIO at the Point of Measurement. Flow meters shall be orifice plate or annubar type instruments coupled to electronic transducers with inputs to continuous totalizing monitors. Other devices with equal or greater accuracy and reliability may be used. Each flow meter shall be calibrated as recommended by the manufacturer and any necessary adjustments made, on a quarterly basis and more often if recommended by the manufacturer, or otherwise as agreed in writing between the Parties. Metro may, at its option, be present for calibration and adjustment of the meter. At Metro's request, BIO shall give Metro notice of the time scheduled for all tests sufficiently in advance to allow Metro to be present for such tests. Following testing, a meter found to be inaccurate shall be adjusted. Either Party may, at any time, request an additional calibration or adjustment. If, upon such additional test, the equipment is found to be registering correctly or to be inaccurate by not more than two percent, the Party requesting the additional test shall pay for the test. If, upon such additional test, the equipment is found to be inaccurate by more than two percent, the Party to whom the request for an additional test is made shall pay for the test. Any amounts due to Metro from BIO under this section shall be added to BIO's payment to Metro, and any amounts due from Metro to BIO under this section shall be deducted from BIO's payment to Metro.

7.3 The heating value of LFG shall be determined monthly from analyses of samples using gas chromatography or methods of similar accuracy. Tests shall be undertaken by an independent laboratory, at BIO's expense. Such devices shall be calibrated according to the manufacturer's recommendations using known gas standards. Samples of the LFG stream shall be extracted at the BIO Compressor at representative time intervals as determined by BIO and as agreed to by the End User and Metro.

7.4 If, upon any such test, the total monthly energy calculation is found to be inaccurate by two percent or more, payments based upon such calculation shall be corrected at the rate of such inaccuracy for any period of inaccuracy which is definitely known or agreed upon. If the period is not definitely known or agreed upon, the rate shall be corrected for a period extending back one-half of the time elapsed since the last day of calibration, not to exceed 45 days.

7.5 If, for any reason, the measuring equipment is out of service or out of repair so that the value of the LFG delivered through such measuring equipment cannot be ascertained or computed from the readings made, the value of LFG delivered during the period such equipment is out of service or out of repair shall be estimated and agreed upon by the Parties upon the basis of the best available data using the first of the following methods which is feasible, as agreed by both Parties:

(a) By using the recorded flow of the metering equipment if registering accurately;

(b) By correcting the error if the percentage of error is ascertainable by calibration;

(c) By basing such estimate upon LFG usage during preceding periods under similar conditions when the measuring equipment was registering accurately.

## 8. Collection of LFG

8.1 Metro shall construct all systems necessary to collect the LFG consistent with Section 4. All equipment to the BIO Compressor shall be installed, owned, insured, and maintained by Metro. Metro may install, operate, and maintain, at its own expense, equipment for measuring LFG at the BIO Compressor. Metro shall install and maintain, at its own expense, an automatic shut-down valve at the Landfill to be controlled by a fail-safe 120-volt signal which may be activated by BIO under emergency or unusual conditions.

8.2 BIO shall install and insure, at its own risk and expense, all equipment necessary to control, compress, remove condensed liquids from, and deliver LFG from the BIO Compressor to End Users.

8.3 BIO shall proceed with due diligence and in good faith to construct all necessary pipelines and other equipment as may be necessary for extraction of LFG on the date specified by Metro under Section 12.1 or as soon thereafter as, in good faith, BIO can complete construction.

8.4 BIO shall make best efforts at all times during this Agreement to market all LFG extracted from the landfill under this Agreement.

9. BIO Right to Place Facilities on and Enter Metro Property

9.1 Metro hereby grants to BIO the right to construct on Landfill property a compressor facility, pipeline, and ancillary BIO Equipment in the location, and otherwise as specified in the attached Exhibit E. BIO's right to use Landfill property for these purposes shall terminate upon termination or expiration of this Agreement.

9.2 BIO shall have the right to enter Landfill property for the purposes of maintaining BIO LFG Facilities, obtaining LFG information and for operating, monitoring and formulating recommendations for LFG extraction as specified in this Agreement. BIO shall in no instance damage or materially interfere with use of any Landfill property by Metro, Metro's agents, employees, or contractors.

9.3 Unless other written arrangements are made, including but not limited to arrangements specified in Section 15, BIO shall remove all of its equipment from the Site within 90 days of termination or expiration of this Agreement, including any renewals, and restore the Site to Metro's satisfaction. Equipment not removed within the time specified herein shall, at Metro's option, become the property of Metro. In the alternative, Metro shall have the right to exercise any available legal or equitable remedy related to BIO's failure to remove the equipment in a timely manner.

10. Coordination

10.1 BIO agrees to conduct all its activities on the Landfill property in a safe manner so as not to interfere with Closure and other activities being carried out on the Landfill property.

10.2 Metro shall consult with BIO in development of the LFG extraction system and in other aspects of Closure activity.

10.3 Each Party shall provide to the other all information in its possession necessary or useful in promoting the safe and reliable operation of the LFG extraction and transmission systems.

10.4 Except as specified in Sections 3 and 9 above, BIO shall not erect structures on or bring onto or relocate onto Landfill property any equipment, including without limitation, any drills, pipes, pipelines, compressors, vehicles, tools, measuring devices, or storage equipment, without the prior consent of Metro, both as to the type of equipment or structure and as to the intended location thereof on the Landfill property. Metro shall not unreasonably withhold or delay such consent.

10.5 Both Metro and BIO shall file for and prosecute with due diligence, all applications with governmental agencies having jurisdiction, for such permits, certificates, licenses, or other authority as may be necessary for the extraction, delivery to End Users, and sale of LFG under this Agreement.

#### 11. Disposal of Condensate

Metro shall provide adequate facilities for disposal of condensate from the LFG Collection Facilities and MBFF, as well as from the BIO LFG Facilities and BIO Pipeline, at no cost to BIO. BIO will be responsible for all cleanup costs associated with any spill or mishandling of condensate by BIO. If Metro's per unit costs for disposal of condensate increase significantly from such costs on the date of execution of this Agreement, BIO agrees to enter into good faith negotiations toward a modification of this Agreement to share equitably in the increase in the costs of disposal of condensate from the BIO LFG Facility and BIO Pipeline.

#### 12. Construction of LFG Collection System

12.1 Metro shall proceed with due diligence and in good faith to develop the Landfill for the extraction of LFG. In connection therewith Metro shall, at its sole expense, install, and maintain LFG wells, collector lines, MBFF, and such other equipment as may be necessary to extract and deliver LFG as specified herein. Metro will give to BIO at least ninety (90) days prior written notice of the date upon which BIO extraction of LFG will commence.

12.2 Metro's primary responsibility is to protect the public health, safety and welfare, to protect the environment, and to close and maintain proper Closure of the Landfill in conformance with the requirements of applicable law and regulatory permits. To the best extent possible considering Metro's primary responsibility and subject to the provisions of this Agreement, Metro will maintain its LFG wells in good condition and use its best efforts

to maintain the wells and other facilities at the Landfill to meet BIO's quality and pressure requirements.

12.3 During the term of this Agreement BIO shall be responsible for operating the LFG Collection Facilities. During Closure, however, it is necessary for Metro to play an active role in such operation, to facilitate proper Closure. BIO therefore irrevocably assigns to Metro primary operating responsibility during Closure, subject to the restrictions and coordination requirements of Section 12.4. Closure shall be deemed complete when all Closure construction activity is substantially complete. If Closure of the entire Landfill is not substantially complete by December 31, 1996, BIO shall assume responsibility for operation of the LFG Collection Facilities in all closed subareas as of that date. Metro shall retain authority for operation of MBFF and Collection Facilities in subareas still under construction, and shall continue to have authority to operate the entire gas collection system for test purposes, upon reasonable notice to BIO.

12.4 During any period in which Metro is operating the entire Collection Facility or the Facility in any subarea, Metro and its engineering consultant shall seek professional advice from BIO regarding operation of the portion of the Collection Facilities operated by Metro, and personnel operating the Facilities. To the extent practicable, operation of the Collection Facilities or any part of the Facilities, by either Party, shall conform to the Draft "Operations and Maintenance Plan, St. Johns Landfill," dated January 10, 1991 (herein, "Operations Plan"). The Operations Plan will be updated annually in 1993, 1994 and 1995. Metro will receive draft revisions from Metro's engineer, and shall expeditiously make a copy of the draft available to BIO. BIO shall be allowed to comment and offer revisions to those portions of the draft that relate to the Collection Facilities, as well as other portions of the Plan that may directly impact LFG production. Metro shall also seek BIO's written consent to changes in the Operations Plan, at the time of annual updates or otherwise, which consent shall not be unreasonably withheld. Regardless of revisions made, the Operations Plan shall include quality thresholds of minimum CH<sub>4</sub> content of 40 percent, maximum O<sub>2</sub> content of two percent, and minimum flow of 1 CFM for each operating well or collection point, which thresholds shall be considered targets that operators shall endeavor to meet at all times. The Operations Plan shall also include a procedure for correcting events or circumstances which cause the thresholds to be violated. Metro shall ensure BIO participation in Metro decision-making regarding such events or circumstances. At all times during Closure, when BIO exercises its right to offer comments or revisions to the Operations Plan or other professional advice, as specified in this section, Metro shall accept such comments or revisions or implement such advice except where such advice or revisions conflict with the primary goals and responsibilities of Metro in closing the Landfill and maintaining proper Closure.

12.5 Following Closure of the Landfill or as otherwise specified in Section 12.3, BIO shall assume responsibility for operation of the LFG Collection Facilities. The terms for BIO operation of the Collection Facilities shall be established by good faith negotiation between the Parties to be concluded prior to completion of Closure activities and described in an amendment to this Agreement. BIO shall not be entitled to additional compensation for operating the LFG Collection Facilities, unless otherwise agreed between the Parties. BIO shall be responsible for expenses related to the day-to-day monitoring of the collection system, and Metro shall be responsible for repairs, overhauls, and long-term maintenance. BIO shall provide to Metro all information in its possession useful in determining compliance with the Operations Plan. Metro shall in all circumstances retain the right to assume operation of the facility if, in Metro's reasonable judgment, BIO operation of the facility threatens Metro's ability to protect the public health, safety, and welfare or the environment, or Metro's ability to maintain proper Landfill Closure in conformance with the requirements of applicable law and regulatory permits. If Metro begins operation of the facility, Metro shall at that time take responsibility for expenses related to the day-to-day monitoring of the collection system.

### 13. Insurance

13.1 BIO shall purchase and maintain, the following types of insurance covering BIO, its employees, and agents:

(a) Broad form comprehensive general liability insurance covering bodily injury, property damage, and personal injury with automatic coverage for premises/completed operations and product liability. The policy must be endorsed with contractual liability coverage.

(b) Automobile liability insurance covering bodily injury and property damage.

Insurance coverage shall be on an occurrence basis with an annual aggregate limit of \$5,000,000. Metro, its elected officials, departments, employees, and agents shall be named as additional insureds. Notice of any material change or policy cancellation shall be provided to Metro thirty (30) days prior to the change.

13.2 Workers' Compensation and Employer's Liability Insurance. In addition to the above-specified coverage, BIO, its subcontractors, agents, and all employers working under this Agreement are subject employers under the Oregon Workers' Compensation Law and shall comply with ORS 656.017, which requires them to provide Workers' Compensation coverage for all their subject workers. BIO shall provide Metro with certification of Workers' Compensation Insurance including liability of \$1,000,000.



13.3 Upon request, BIO shall provide to Metro two (2) certified copies of the policies of all insurance herein required to be obtained by BIO except that Workers' Compensation Insurance may be evidenced by a Certificate of Insurance. At Metro's request, BIO shall immediately deliver to Metro the receipts for payment of premiums on any or all such policies.

13.4 During construction of its facilities on the Landfill Site, BIO shall maintain Builders All Risk Insurance coverage for 100 percent of the construction contract. Such insurance shall not exclude coverage for earthquake, landslide, flood, collapse, or loss due to the results of faulty workmanship, and shall name Metro, its elected officials, departments, agents, and employees as insureds.

13.5 All policies of insurance and Certificates of Insurance shall be satisfactory to Metro. Approval of the insurance by Metro shall not relieve or decrease the extent to which BIO or BIO's subcontractors and suppliers of any tier may be held responsible for payment of any and all damages resulting from performance of the work.

13.6 Each such policy or Certificate of Insurance shall bear an endorsement precluding its cancellation, expiration, or any reduction in its coverage without giving to Metro at least sixty (60) days prior written notice. BIO shall file with Metro two (2) certified copies of the required new or renewed policy or two (2) Certificates of Insurance for each such policy, as applicable, before the effective date of such cancellation, change, or expiration.

13.7 If BIO neglects to obtain or maintain in force any such insurance or to deliver such policy or policies, certificates, and receipts to Metro, then Metro may, at its option, obtain and maintain such insurance upon such neglect to obtain or maintain in force. BIO hereby appoints Metro its true and lawful attorney, to do all things necessary to obtain and maintain such insurance. All monies expended by Metro for such insurance shall be charged to BIO and Metro may offset its costs in obtaining and/or maintaining such policies from sums due or to become due to BIO under the Agreement or otherwise collect such sums from BIO. Failure of Metro to obtain or maintain such insurance shall in no way relieve BIO of any of its responsibilities under this Agreement.

13.8 BIO's failure to maintain any item of the required insurance shall be sufficient cause for termination or suspension of this Agreement.

13.9 All insurance required shall be obtained through a company or companies having a policyholders surplus of at least ten (10) times the amount or limit of liability afforded by such insurance company on policies issued for this Agreement. Such company shall be duly and legally licensed to transact business in the state of Oregon and

shall be acceptable to Metro. Said insurance shall be primary over any insurance or self-insurance of Metro.

#### 14. Indemnity

14.1 Metro, its directors, officers, employees, and agents, or any of them, shall not be liable for, and BIO shall defend, hold harmless and indemnify the same from and against any claims, demands, causes of action, expenses, attorneys' fees, liability, costs, losses, direct or consequential damages, or injury, of whatsoever kind or nature ("Claims"), arising out of or resulting from the performance, negligent or otherwise, by BIO of BIO's obligations under this Agreement or arising out of or resulting from the activities of BIO, its contractors or agents, negligent or otherwise, on Landfill property or in operating its facilities, except such Claims as are caused by Metro. In like manner, BIO shall defend, hold harmless and indemnify Metro from any claims arising out of the design, engineering, construction or maintenance of BIO LFG Facilities on the Landfill and BIO Pipeline on and off of Metro's property, and for all claims involving LFG from the point at which it enters BIO Equipment, including, but not limited to, environmental impairment.

14.2 BIO, its directors, officers, employees, and agents, or any of them, shall not be liable for, and Metro shall defend, hold harmless, and indemnify the same from and against any claims, demands, causes of action, expenses, attorneys' fees, liability, costs, losses, direct or consequential damages, or injury, of whatsoever kind or nature ("Claims"), arising out of or resulting from the performance, negligent or otherwise, by Metro of Metro's obligations under this Agreement or arising out of or resulting from the activities of Metro, its contractors or agents on Landfill property to the full extent allowed by the Oregon Constitution and Oregon Law, except such Claims as are caused by BIO. Metro hereby waives any claim of sovereign immunity with respect to any such indemnification claims.

#### 15. Right of First Refusal

15.1 Metro is hereby granted the right of first refusal to purchase the BIO LFG Facilities and BIO Pipeline. Prior to entering into a transaction to transfer beneficial ownership of, or a controlling interest in such LFG Facilities and Pipeline, BIO shall give written notice to Metro, stating the terms and conditions for such transaction that BIO is willing to accept. If BIO receives a purchase offer or purchase contract for such LFG Facilities and Pipeline that BIO is willing to accept, BIO shall notify Metro, and include with the notice to Metro, a complete copy of the offer or contract. Metro shall have 90 days to offer to purchase such LFG Facilities and Pipeline on the same terms as those presented in or with BIO's notice to Metro. Within 30 days of receipt of Metro's offer, BIO and Metro shall enter into a contract for sale and purchase of the LFG Facilities and Pipeline on such terms. Following the execution and delivery of such contract, Metro shall purchase the

Facilities and Pipeline from BIO, and BIO shall sell the pipeline to Metro, in accordance with the terms and conditions of such contract.

15.2 If Metro does not exercise its right of first refusal under Section 15.1 within 90 days after receipt of notice from BIO, BIO may sell its LFG Facilities and Pipeline, under the same terms and conditions specified in or with BIO's notice to Metro, and at a price equal to or greater than the price included in or with such notice. BIO's right to sell such LFG Facilities and Pipeline after Metro's failure to exercise its right of first refusal shall be valid for a period of one year from the date of BIO's notice to Metro.

15.3 Metro's right of first refusal specified herein shall be specifically enforceable.

15.4 Metro's right of first refusal specified herein shall not pertain to foreclosure by a BIO credit provider.

#### 16. Notice and Opportunity to Cure

If at any time either Party determines or becomes aware that the other Party is in default under any of the terms or provisions of this Agreement, the non-defaulting Party shall provide written notice to the other Party as to the nature of such default. Unless the default involves the failure to pay any amounts due under this Agreement (for which the defaulting Party shall have ten (10) days from the date of receipt of a default notice to cure such default), the defaulting Party shall have thirty (30) days from the receipt of said notice to commence actions to cure said default and a reasonable period of time to cure. If the defaulting Party fails to cure the default within a reasonable period of time, the non-defaulting Party may terminate this Agreement. Notwithstanding the foregoing, either Party may request arbitration of any dispute or alleged material breach hereunder pursuant to the provisions of Section 17 of this Agreement.

#### 17. Arbitration

17.1 Both Parties shall, in good faith, attempt to negotiate resolutions to all disputes arising out of this Agreement. Subject to the conditions and limitations of this paragraph, any controversy or claim arising out of or relating to this Agreement which remains unresolved after such negotiations shall be exclusively settled by arbitration under the laws of the state of Oregon, in accordance with the Commercial Arbitration Rules of the American Arbitration Association (AAA). All disputes shall be heard and decided by one arbitrator and all arbitration proceedings shall be held in Portland, Oregon.

17.2 Both Parties agree to consolidation of any arbitration between Metro and BIO with any other arbitration involving, arising from, or relating to this Agreement.

17.3 Either Party shall have the option of electing resolution of the controversy or claim, regardless of the amount, by the Expedited Procedures of the Commercial Arbitration Rules of the American Arbitration Association (Rules 54 through 58).

17.4 Following good faith negotiations, either Party may request arbitration of a dispute by delivery to the other Party, by certified mail or personally, of a notice requesting arbitration and briefly describing the matter or matters to be subject to arbitration. Within 15 days of an arbitration request, the Parties shall choose one arbitrator from a panel of persons qualified with the Arbitration Service of Portland (ASP) or AAA and knowledgeable in the area which is the subject of the dispute in question. If the Parties cannot agree on an arbitrator, the arbitrator shall be appointed by the ASP, or if the ASP is not available, the appointing authority of the AAA.

17.5 In arriving at a decision, the arbitrator shall consider the pertinent facts and circumstances and be guided by the terms and conditions of this Agreement, as applicable. If a resolution of the dispute is not found in the terms and conditions of this Agreement, the arbitrator shall apply the principles of the laws of the state of Oregon. The arbitration award shall be considered an Oregon award. The decision and award of the arbitrator shall be final and binding.

17.6 In making any award, the arbitrator shall, if possible, designate the Party which is the prevailing party and the Party which is the non-prevailing party with respect to the dispute in question. The arbitration fees and costs, including reasonable attorneys' fees for the prevailing party, shall be borne by the non-prevailing party. If the arbitrator does not or is unable to designate a single prevailing party with respect to the dispute in question, the arbitrator shall determine the proportion of the costs, expenses, and attorneys' fees incurred in connection with such arbitration which are to be borne by each Party.

17.7 Any award involving the payment of any sums by one Party to the other (other than any payments relating to the costs, expenses, and attorneys' fees incurred in connection with such arbitration or any payments to be made in the future by one Party to the other pursuant to the terms of this Agreement) shall include interest from the date of any breach or other violation of this Agreement or, if the award does not specify the date of such breach or other violation, from the date of such award. The arbitrator shall also fix an appropriate rate of interest from the date of the breach or other violation to the date when the award is paid in full which rate shall be the prime commercial lending rate published by the

United States National Bank of Oregon at its principal office in Portland, Oregon, for ninety (90) day loans for responsible and substantial commercial borrowers.

17.8 In the course of arbitration, the terms and provisions of this Agreement which are then in effect shall be continuously executed by both Parties, except to the extent that any such terms and provisions are the subject matter of the pending arbitration.

17.9 All notices to be given in connection with the arbitration shall be in writing. All notices may be delivered personally, or shall be sent by registered or certified mail, return receipt requested to the addresses of the Parties as stated in this Agreement, as amended from time to time.

18. Termination

Either Party may terminate this Agreement upon written notice to the other Party that:

(a) A force majeure has occurred, as specified in Section 20.2 of this Agreement, and has continued for a period in excess of 180 days.

(b) The other Party has defaulted in its obligations under this Agreement and has failed to cure the default as specified in Section 16 of this Agreement. A timely request for arbitration under Section 17 of this Agreement shall stay termination for cause under this section until receipt of the arbitrator's decision.

19. State Law Constraints

19.1 Both Parties shall comply with the public contracting provisions of ORS chapter 279. To the extent those provisions apply to this Agreement and are required to be included in this Agreement, they are incorporated herein by this reference.

19.2 BIO and Metro agree that ORS 279.348 to 279.363, requiring payment of prevailing rates of pay, are not applicable to this Agreement. However, if a determination is made that this Agreement is subject to the provisions of ORS 279.348 to 279.363, (1) such determination shall not constitute a change of law; (2) BIO shall pay the existing prevailing rate of wage as so required, and as set forth in Exhibit F; (3) this paragraph shall be construed as meeting the requirements of ORS 279.352; and (4) BIO shall hold Metro harmless from payment of wages determined to be due, as well as liquidated damages.

## **20. General Provisions**

**20.1 Time of Essence.** Time is of the essence of the performance of all obligations under this Agreement.

**20.2 Force Majeure.** Whenever the time for performance of any act hereunder is limited and such performance is prevented or delayed by any factor or circumstance beyond Metro's or BIO's control and which Metro or BIO could not have avoided by the use of due diligence, such as fire, floods, strike, walkout, sabotage, blockage, riot, insurrections or mob violence, embargoes, war, epidemic, landslide, lightning, earthquake, storm, flood, washout, explosion, temporary failure of LFG supply because of breakage or accident, freezing of delivery facilities or obstructions of pipe, failure of electrical power supply, inability to obtain pipe, materials or equipment, the binding order of any governmental authority precluding delivery or acceptance of LFG, or other disabling causes, then the time for the performance of any such act or obligation shall be extended for a period equal to the extent of such delay. No force majeure shall relieve a Party of liability in the event of the Party's concurring negligence or in the event of its failure, except in the case of strike or lockout, to use diligence to remedy the situation and to remove the cause in an adequate manner and with all reasonable dispatch, nor shall a force majeure relieve a Party from making payments of amounts then due under this Agreement.

**20.3 Relationship of Parties.** Nothing in this Agreement shall be construed to create, expressly or by implication, a partnership, joint enterprise, relationship of master and servant, or of principal and agent, or the like, between the Parties. Notwithstanding any provision of this Agreement or any exhibit hereto, BIO expressly disclaims any obligation, liability, or interest arising from or related to Metro's waste disposal and Landfill, or Closure operations on the Landfill property. Metro agrees that it is and shall remain fully responsible for waste disposal, Closure activities, and other Landfill operations.

**20.4 Assignability.** This Agreement may be assigned by any Party, for security or other reason, subject to the approval of the other Party, which approval may not be unreasonably withheld. Among the conditions of approval, the Party of whom approval has been requested may require of the assignee or transferee an appropriate document under which such assignee or transferee agrees to be bound by all the terms of this Agreement. No assignment shall be valid that endeavors to relieve the assigning Party of any obligations to make payments hereunder that accrued prior to the date of assignment.

**20.5 Sale of Property Without Assignment.** Any sale of BIO's LFG Facilities without an assignment of this Agreement shall be deemed a breach of BIO's obligations under this Agreement.

20.6 **Negotiated Agreement.** This Agreement is the product of negotiations between the Parties, and shall not, for any reason, be construed as having been drafted by a single party.

20.7 **Modifications.** This Agreement may be modified only by written instrument, signed by an authorized representative of each Party.

20.8 **Nonwaiver.** Waiver of performance of any provision of this Agreement shall not be a waiver of nor prejudice the Party's right otherwise to require performance of the same provision or any other provision.

20.9 **Succession.** Subject to the limitations on transfer of interest with respect to assigns contained in this Agreement, this Agreement shall bind and inure to the benefit of the Parties, their respective heirs, successors, and assigns.

20.10 **Notices.** Notices under this Agreement shall be in writing, effective when delivered, or if mailed, effective on the second day after mailed postage prepaid to the address for the Party stated in this Agreement, or to such other address as Party may specify by notice to the other.

20.11 **Attorneys' Fees.** In the event action is instituted to interpret or enforce the terms of this Agreement, the prevailing Party shall be entitled to recover from the other Party such sum as is adjudged reasonable as attorneys' fees at trial, on appeal, and on any petition for review, in addition to all other sums provided by law.

20.12 **Applicable Law.** This Agreement shall be construed, applied, and enforced in accordance with the laws of the state of Oregon.

20.13 **Compliance with Law.** Both Parties shall fully comply with all federal, state, regional and local laws, rules, regulations, ordinances and orders pertaining in any manner to this Agreement.

20.14 **Prior Agreements.** This Agreement (including the exhibits incorporated into this Agreement by this reference as though fully set forth in this Agreement) is the entire, final, and complete agreement of the Parties with respect to the matters set forth in this Agreement, and supersedes and replaces all prior written and oral agreements between the Parties or their representatives with respect to such matters.

20.15 **Validity of Provisions.** If any provision in this Agreement shall be invalid, illegal, or unenforceable in any respect, the validity of the remaining provisions contained in this Agreement shall not be affected.

20.16 Counterparts. This Agreement may be executed in any number of counterparts, each of which shall be deemed an original.

20.17 Survival. All indemnifications of the Parties, and all liabilities which have accrued prior to date of termination, shall survive the termination of this Agreement, in accordance with the terms of this Agreement.

20.18 Confidentiality. Subject to applicable laws relating to disclosure of public information, if information designated as proprietary or confidential is furnished to the other Party pursuant to this Agreement, the Party to whom such information is disclosed agrees to retain it in confidence.

20.19 Maintenance of Records. Both Parties shall maintain complete records regarding this Agreement, work performed and goods delivered pursuant to this Agreement, for a period including negotiation of this Agreement and extending for a period of at least six years following termination of this Agreement. Financial and accounting records shall be maintained in accordance with law and in accordance with generally accepted accounting principles.

20.20 Right to Audit. Metro shall have the right to inspect and audit, upon reasonable notice and during regular business hours, all books, records, maps, plans, income tax returns, financial statements, and other like materials of BIO that are directly related to this Agreement. Prior to allowing access to such materials, BIO may require Metro to provide reasonable, written assurances that Metro will protect the confidentiality of such materials.

The Parties have executed this Agreement on the dates indicated.

**METRO**

**B.I.O. GAS INDUSTRIES (Portland), Inc.**

By: \_\_\_\_\_

By: \_\_\_\_\_

Name: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

Date: \_\_\_\_\_



Addresses for Notice Purposes

Metro  
2000 S.W. First Avenue  
Portland, OR 97201-5398

BIO Gas Industries (Portland), Inc.

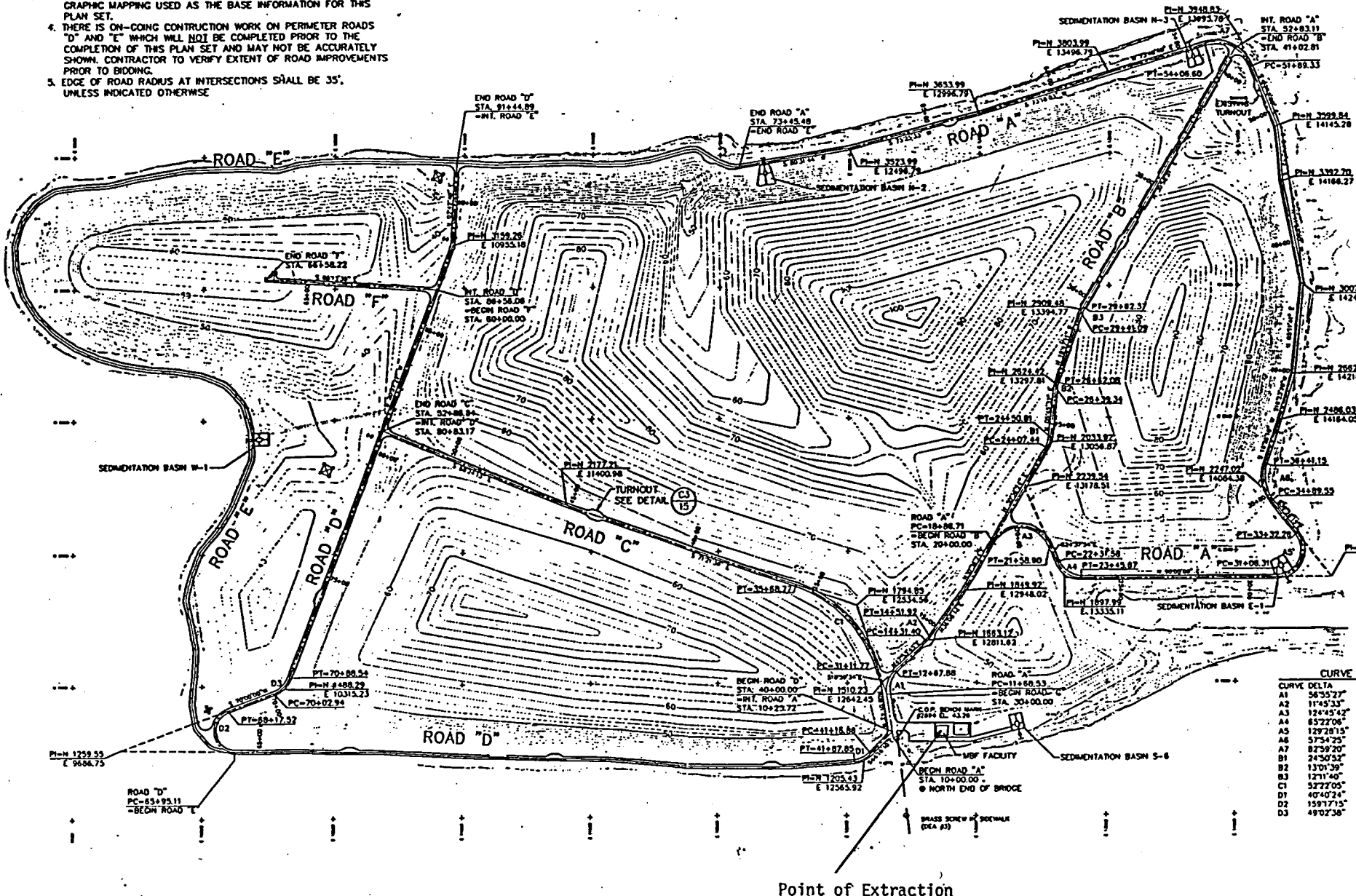
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1085b

NOTES:

1. FOR ACCESS ROAD PROFILES SEE SHEETS 10-12.
2. SEE SHEETS 13-15 FOR ROAD SECTIONS.
3. PERMETER ROADS "D" AND "E" HAVE HAD ROAD CONSTRUCTION WORK PERFORMED SUBSEQUENT TO THE CURRENT AERIAL TOPOGRAPHIC MAPPING USED AS THE BASE INFORMATION FOR THIS PLAN SET.
4. THERE IS ON-GOING CONSTRUCTION WORK ON PERMETER ROADS "D" AND "E" WHICH WILL NOT BE COMPLETED PRIOR TO THE COMPLETION OF THIS PLAN SET AND MAY NOT BE ACCURATELY SHOWN. CONTRACTOR TO VERIFY EXTENT OF ROAD IMPROVEMENTS PRIOR TO BIDDING.
5. EDGE OF ROAD RADII AT INTERSECTIONS SHALL BE 35', UNLESS INDICATED OTHERWISE.



CURVE D

CURVE DELTA	R
A1	56°55'27"
A2	11°45'33"
A3	124°45'42"
A4	85°27'06"
A5	129°28'15"
A6	57°34'25"
A7	82°59'20"
B1	24°50'52"
B2	130°1'39"
B3	127°1'40"
C1	52°27'05"
D1	40°40'24"
D2	159°17'15"
D3	49°02'36"

Point of Extraction

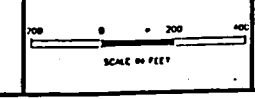
NOT FOR

**Parametrix, Inc.**  
 1200 Northway Blvd  
 Suite 200, Northway Plaza  
 200-530-9977 Fax: 200-530-9978  
 1500 Avenue of the Stars, Suite 200  
 Parametrix, Northway Plaza  
 200-530-9977

DESIGNED	NAME	DATE
CHECKED	EMF	
DRAWN	ME	
CHECKED	CA	
DESIGN REVIEWER	EMF	



**METROPOLITAN SERVICE DISTRICT**  
 Solid Waste Department  
 Jim Watkins, Engineering Manager  
 Dennis O'Neil, Project Manager



**ST. JOHNS LANDFILL  
 CLOSURE IMPROVEMENTS  
 ROAD PLAN**

## Exhibit D

Target Gross Revenue (G)	Target Royalty Rate (R)
100,000	7.00%
200,000	7.00%
300,000	7.00%
400,000	7.00%
500,000	8.00%
600,000	12.00%
700,000	14.00%
800,000	15.00%
900,000	18.80%
1,000,000	22.00%
1,100,000	24.50%
1,200,000	26.70%
1,300,000	28.50%
1,400,000	30.00%
1,500,000	31.30%
1,600,000	32.50%
1,700,000	33.50%
1,800,000	34.40%
1,900,000	35.30%
2,000,000	36.00%
2,100,000	36.67%
2,200,000	37.27%
2,300,000	37.83%
2,400,000	38.33%
2,500,000	38.80%
2,600,000	39.23%
2,700,000	39.63%
2,800,000	40.00%
2,900,000	40.34%
3,000,000	40.67%
3,100,000	40.97%
3,200,000	41.25%
3,300,000	41.52%
3,400,000	41.76%
3,500,000	42.00%
3,600,000	42.22%
3,700,000	42.43%
3,800,000	42.63%
3,900,000	42.82%
4,000,000	43.00%
4,100,000	43.17%

Continue according to Formula 2

$G_1$  = Lower Target Gross Revenue

$G_2$  = Upper Target Gross Revenue

$G_3$  = Actual Gross Revenue

$R_1$  = Lower Target Royalty Rate

$R_2$  = Upper Target Royalty Rate

$R_3$  = Actual Royalty Rate

**Formula 1:** To be used to determine actual royalty rate for Gross Revenue amounts between \$0 and \$800,000.

$$R_3 = R_1 + \left( \frac{G_3 - G_1}{G_2 - G_1} \right) (R_2 - R_1)$$

**Example:** Gross Revenue equals \$723,968.

$$14\% + \left( \frac{723,968 - 700,000}{800,000 - 700,000} \right) (15\% - 14\%) = 14.24\%$$

**Formula 2:** To be used to determine actual royalty rate for Gross Revenues in amounts greater than \$800,000.

$$R_3 = \frac{(120,000 + (G_3 - 800,000) \cdot 5)}{G_3}$$

**Example:** Gross Revenue equals \$1,645,987.

$$\frac{(120,000 + (1,645,987 - 800,000) \cdot 5)}{1,645,987} = 32.99\%$$

## SOLID WASTE COMMITTEE REPORT

CONSIDERATION OF RESOLUTION NO. 93-1766, FOR THE PURPOSE OF APPROVING A GAS EXTRACTION AGREEMENT WITH B.I.O. GAS INDUSTRIES, INC., FOR LANDFILL GAS GENERATED AT THE ST. JOHNS LANDFILL

---

Date: March 3, 1993

Presented by: Councilor McFarland

**Committee Recommendation:** At the March 2 meeting the Committee voted unanimously to recommend Council adoption of Resolution 93-1766. Voting in favor: Councilors Buchanan, McFarland, McLain, Washington and Wyers.

**Committee Issues/Discussion:** As waste decays at the the St. Johns Landfill, methane and other gases will be produced. Federal and state environmental regulations require that these gases cannot be allowed to escape directly into the atmosphere. As the agency responsible for closing the landfill, Metro must either burn or flare these gases or find an alternative use. The purpose of this resolution is approve an agreement with B.I.O. Gas Industries to allow the gases collected at the landfill to be transmitted and sold to nearby industrial users. Metro would receive a royalty payment based on gas sale revenue.

Chuck Geyer, Solid Waste Staff, reviewed the staff report and responded to questions submitted by Council staff. He noted that the gas collection system has been completed in Sub Area 1 and that the Sub Area 2 system would be completed by this fall. B.I.O. Gas Industries will attempt to have its transmission lines in place and began accepting gas by the fall.

Geyer explained that the flaring of gas would generally occur only when B.I.O. was unable to market or transmit all of the gas being produced. He noted that B.I.O. has two similar agreements in British Columbia to provide landfill gas to industrial users.

Jim Watkins, Solid Waste Engineering Manager, explained that the \$85,000 estimate of annual Metro revenue from the agreement was calculated based on estimated gas production and prices and known B.I.O. expenses. He noted that this revenues would initially be placed in the department's unappropriated balance.

Councilor McFarland asked about separate construction of the collection and transmission systems. Geyer explained that the timing of closure-related construction allowed Metro to include the collection system in other closure-related contracts.

McFarland asked about the nature of the gases coming from the landfill, indicating that is was her understanding that it was similar to natural gas. Watkins responded that methane would constitute about 50% of the gas and therefore the gas mixture would be different than natural gas, though when used for industrial purposes it could be substituted for natural gas.

## STAFF REPORT

### CONSIDERATION OF RESOLUTION NO. 93-1766, FOR THE PURPOSE OF APPROVING A GAS EXTRACTION AGREEMENT WITH B.I.O. GAS INDUSTRIES (PORTLAND), INC., FOR LANDFILL GAS GENERATED AT THE ST. JOHNS LANDFILL

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Date: February 16, 1993

Presented by: Jim Watkins  
Chuck Geyer

## PROPOSED ACTION

Pass Resolution No. 93-1766, approving a contract with B.I.O. Gas Industries (Portland), Inc., to extract and sell landfill gas generated at the St. Johns Landfill.

## FACTUAL BACKGROUND & ANALYSIS

In September, 1991, Metro issued a Request for Proposals (RFP) for the Development of Landfill Gas Resources at the St. Johns Landfill. The RFP solicited proposals for two types of development options. The first option was for proposers to use the landfill gas once Metro had installed the planned gas collection and flare systems. The second option was for proposers to both install the gas collection and flare systems, as well as to use the gas collected.

In October of 1991, Metro received four proposals, two for each option. An evaluation committee evaluated the proposals based on the following criteria: 1) technical adequacy of the proposed systems ; 2) minimization of environmental impacts; 3) efficient use of the gas resource; 4) risk; and 5) economic benefits to Metro. In January, 1992, the committee recommended entering into negotiations with B.I.O.

The B.I.O. proposal was based on option #1. B.I.O. proposed to take the landfill gas from the Metro collection system and pipe it to users at a nearby industrial park as a substitute for natural gas. During negotiations, Metro was in the process of closing the first portion of the landfill which included the installation of the collection system, and additional gas collection wells for that portion of the landfill to be closed in 1993. Since the quantity and quality of gas projected to be collected from the landfill was critical to negotiations, negotiations were extended until the wells in Sub-Areas 1, 2 and 4 could be tested for production. The tests were completed in the Fall of 1993.

Two key features of the contract to be approved between B.I.O. and Metro are those involving control of the landfill and the sharing of revenue from the sale of the gas. Metro will retain control of gas collection system operation during closure of the landfill. Once the landfill is closed, B.I.O. will become the operator of the system, in conformance with Metro specifications. Metro will reserve the right to resume operational control if

necessary to maintain closure goals. An analysis of the air emissions is provided in Attachment #1.

The sharing of revenue from the project is based on the gross revenue generated from the sale of landfill gas to end users. As gross revenue to B.I.O. increases, a larger percentage of the revenue is paid to Metro. The arrangement for the sharing of gross revenues is described in Section 6 of the contract and the formulas contained in Exhibit D to the contract.

#### Budget Impacts

Award of this contract is expected to reduce the number of flares needed for closure and the operational costs of the gas collection system. It is estimated that Metro will receive approximately \$85,000 annually from the project. The project is estimated to be economically viable for 15 years.

#### EXECUTIVE OFFICER'S RECOMMENDATION

The Executive Officer recommends adoption of Resolution No. 93-1766.



**METRO**

2000 S.W. First Avenue  
Portland, OR 97201-5398  
503/221-1646

# Memorandum

ATTACHMENT #1

TO: John Houser, Council Analyst  
FROM: <sup>JW</sup> Jim Watkins, Engineering & Analysis Manager  
DATE: February 19, 1993  
RE: Methane Gas Emissions at St. Johns Landfill

At the January 5, 1993 Solid Waste Committee meeting several questions were asked concerning the gas collected at the St. Johns Landfill. To aid the committee's understanding of gas collection and marketing, staff (with assistance from Parametrics Inc.) has developed the following responses:

1) What is the nature of the gas as it emerges from the landfill? Is it pure methane, a mixture of gases, are there any contaminants in the gas?

To evaluate the nature of the gas if it were simply vented into the air, without flaring, quantities were derived from emission testing performed on the Cathcart Sanitary Landfill in Washington State, which is similar to St. Johns Landfill. The following table summarizes estimated quantities of the primary constituents based on landfill gas containing 55% methane, 44% carbon dioxide, and 1% of trace contaminants:

TABLE 1  
EMISSION RATES - WITHOUT FLARING

<u>COMPOUND</u>	<u>ESTIMATED QUANTITY</u>
Volatile Organic Compounds	35.9 Tons/Yr
Methane	27,000 Tons/Yr
Carbon Dioxide	60,000 Tons/Yr

Although methane is not considered a primary pollutant, there are two specific concerns with emitting methane into the air. Methane is explosive in nature and is a hydrocarbon known to contribute to the greenhouse effect and other chemical reactions which pollute the atmosphere.

2) Is flaring of the gas regulated by federal, state or local environmental agencies and if so what is the nature of this regulation?

Flaring is regulated by the Department of Environmental Quality (DEQ). DEQ enforces the Clean Air Act which is a federal regulation written by the Environmental Protection Agency (EPA).

The Air Contaminant Discharge Permit requirements are dependent on the type of facility proposed and the amount and type of emissions. For flaring, a permit is required if the flare emits over 10 tons per year of any pollutant. It also requires that a flare be 98% efficient in removing volatile organic compounds.

3) What will be emitted into the atmosphere if the gas is flared.

Emission rates for primary pollutants were estimated by Parametrics for the years 1994-95. Quantities for the primary pollutants were derived from emission testing performed on the Cathcart Sanitary Landfill. The results were then applied to projected flow rates for St. Johns Landfill and are summarized in Table 2, below:

TABLE 2

EMISSION RATES - GAS USED AS FUEL

POLLUTANT	1994 Tons/Yr	1995 Tons/Yr
Carbon Monoxide	9.7	9.3
Sulfur Dioxide	8.4	8.1
Nitrogen Oxides	19.8	18.9
Volatile Organic Comp.	0.02	0.015

Particulates are not shown in the table since landfill gas is essentially a "clean burning" fuel which will not add significant amounts to the emissions. A facility which currently utilizes natural gas would see no change in particulate emissions. A facility which uses other fuel sources(i.e. coal) would see a reduction in particulate emissions.

Based on the projected values of Nitrogen Oxides, which exceeds 10 tons per year, Metro would be required to obtain a permit before operating the Motor Blower Flare Facility at St. Johns Landfill. Also regarding the Volatile Organic Compounds, only benzene, toluene, and xylene, out of a total of 24 different compounds, were not completely destroyed during flaring.

The values presented in Table 2 are conservative estimates of flare stack releases. It does show that flaring the gas significantly reduces and in some cases eliminates pollutants that would otherwise be emitted into the atmosphere. A process with higher operating temperatures and/or longer retention times, flame controls, pollution control equipment and process constraints that are available, as with the primary user contemplated under the gas agreement, would produce even lower emission rates.





# METRO

2000 SW First Ave.  
Portland, OR 97201-5398  
(503) 221-1646

## Procurement Review Summary

To: Procurement and Contracts Division

Vendor

From

Date 2/16/93

B.I.O. Gas Industries  
1273 Howe Street

Department Solid Waste

Subject

Vancouver, BC, V6Z 1R3

Division Engineering

Name Chuck Geyer

Bid

Contract

Vendor no.

Title Senior SW Planner

RFP

Other

Contract no. 902921

Extension 231

Purpose Gas Extraction at SJLF

### Expense

Procurement  Personal/professional services  Services (LM)  Construction  IGA

### Revenue

Contract

Grant

Other

Budget code(s)

531 310000 344000 - 00000\*

Price basis

Unit

Total

Other

Term

Completion

Annual

Multi-year\*\*

This project is listed in the  
199 2-199 3 budget.

Yes

Type A

No

Type B

Payment required

Lump sum

Progress payments

2/93

Beginning date

2/2008

Ending date

Total commitment	Original amount	\$ <u>approx 1 million</u>
	Previous amendments	\$ _____
	This transaction	\$ _____
	Total	\$ <u>approx 1 million</u> *
	A. Amount of contract to be spent fiscal year _____	\$ <u>N/A</u>
	B. Amount budgeted for contract _____	\$ <u>N/A</u>
	C. Uncommitted/discretionary funds remaining as of _____	\$ <u>N/A</u>

\*over 15 year period

### Approvals

Jim Watkins  
Division manager

Bill McIntire  
Department director

Labor

Fiscal

Budget

Risk

Legal



# METRO

2000 SW First Ave.  
Portland, OR 97201-5398  
(503) 221-1646

## Memorandum

To: Solid Waste Committee Members

From: John Houser, Council Analyst

Date: February 24, 1993

Re: Resolution No. 93-1766, For the Purpose of Approving a Gas Extraction Agreement with B.I.O. Gas Industries (Portland), Inc., for Landfill Gas Generated at the St. Johns Landfill

Resolution No. 93-1766 is scheduled to be considered by the Committee at the March 2 meeting

### Background

This resolution culminates an 18-month effort to find and negotiate an agreement with a vendor for the marketing of the gases produced at the St. Johns Landfill. The successful vendor is B.I.O. Gas Industries, which proposes pipe the gas to a nearby industrial park. Metro will retain control of the gas collection system during the closure process. After closure is completed, BIO will operate the system in conformance with Metro specifications.

Staff estimates that Metro's annual share of project revenue will be \$85,000. The contract is for 15 years, the estimated period for which economically recoverable gas will be produced by the landfill. BIO will have the option of extending the agreement under its original terms should gas continue to be available for recovery.

### Issues and Questions

The committee may wish to consider the following issues and questions related to this resolution:

- 1) Based the current status of landfill closure when is the estimated date for the transmission of gas under this contract?
- 2) Will flaring continue after the transmission of gas begins under this contract?
- 3) Does BIO Gas operate any similar landfill-based gas distribution and marketing systems?
- 4) How was the Metro revenue estimate of \$85,000 determined?
- 5) Will project revenue accrue to the closure fund, the solid waste revenue fund, or some other fund?