

BEFORE THE METRO COUNCIL

FOR THE PURPOSE OF AUTHORIZING AN )  
EXEMPTION PURSUANT TO METRO CODE )  
SECTION 2.04.054(c) AND AUTHORIZING A )  
SOLE-SOURCE CONTRACT PURSUANT TO )  
METRO CODE SECTION 2.04.062 FOR THE )  
SALE OF LANDFILL GAS TO PORTLAND )  
LFG JOINT VENTURE )

RESOLUTION NO. 97-2494

Introduced by: Mike Burton,  
Executive Officer

WHEREAS, Metro owns and operates the St. Johns Landfill, located in Portland, Oregon; and

WHEREAS, as the owner of the landfill, Metro must collect and properly dispose of landfill gas generated by the mixed solid waste contained within the landfill; and

WHEREAS, Portland LFG Joint Venture is an Oregon general partnership, duly authorized to conduct business in the state of Oregon; and

WHEREAS, Portland LFG has been specially formed for the purpose of purchasing landfill gas and selling to beneficial users landfill gas for beneficial uses in North Portland; and

WHEREAS, Portland LFG has expressed an interest in contracting with Metro for the purchase of the landfill gas collection system at the St. Johns Landfill, for the lease of a portion of the landfill, for the provision of operating services of the gas collection system and for sale of the gas generated at the landfill for beneficial uses in North Portland; and

WHEREAS, the proposal of Portland LFG fulfills the requirements of Metro for the ultimate resale for beneficial use of the landfill gas generated within the landfill; and

WHEREAS, there is limited competitive bidding potential for landfill gas

generated within the St. Johns Landfill, and it is unlikely that an exemption from competitive bidding requirements will encourage favoritism in the awarding of the contract for landfill gas or will substantially diminish competition for public contracts regarding landfill gas; and

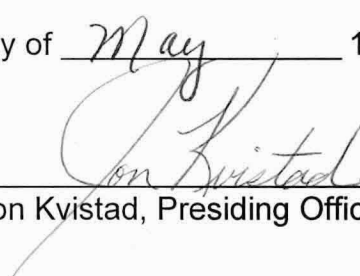
WHEREAS, the awarding of a public contract pursuant to an exemption will result in substantial cost savings to Metro by offsetting the costs of running the St. Johns Landfill; and

WHEREAS, the Executive Officer has reviewed the contracts with Portland LFG for the purchase and resale of landfill gas from the St. Johns Landfill and forwards the agreements to the Council for approval; now, therefore,

BE IT RESOLVED:

That the Metro Council hereby exempts the attached contracts with Portland LFG from Metro's competitive bidding requirements pursuant to Metro Code section 2.04.054(c) and hereby declares Portland LFG Joint Venture to be the sole qualified contractor for the purchase of landfill gas being generated at the St. Johns Landfill, and authorizes execution of forms of contracts substantially similar to those attached hereto as Exhibits A, B, C, and D.

ADOPTED by the Metro Council this 1st day of May 1997.

  
\_\_\_\_\_  
Jon Kvistad, Presiding Officer

APPROVED AS TO FORM:

  
\_\_\_\_\_  
Daniel B. Cooper, General Counsel

## ACQUISITION AND SECURITY AGREEMENT

This Acquisition and Security Agreement (the "Agreement") is made as of May \_\_\_\_, 1997 between Portland LFG Joint Venture, an Oregon general partnership duly authorized to conduct business in Oregon ("Buyer" or "Portland LFG") and Metro, a metropolitan service district organized under the laws of the State of Oregon and the 1992 Metro Charter, located in Portland, Oregon ("Seller" or "Metro").

### RECITALS

(a) Metro is the owner of a 238 acre closed landfill, known as the St. Johns Landfill, located at 9363 N. Columbia Boulevard in Portland, Oregon, which contains a gas collection system and which has all applicable federal, state and local permits.

(b) Portland LFG desires to purchase from Metro, and Metro is willing to sell and assign to Portland LFG, all right, title and interest of Metro in and to the Purchased Assets (as hereinafter defined) upon the terms and conditions set forth in this Agreement.

NOW, THEREFORE, in consideration of the promises and mutual covenants set forth herein, Portland LFG and Metro do hereby agree as follows:

### ARTICLE I - DEFINITIONS

Unless the context indicates otherwise, the capitalized terms used herein shall have the meanings defined as follows:

A. "Actual Production Amount" shall mean, with respect to the Project Facility for any quarter, the amount of energy (expressed in MMBtus) which actually results from the Landfill Gas produced by the Project Facility and sold by Portland LFG or its designee or assignee pursuant to the Gas Purchase Agreement or an Additional Sales Contract during such quarter. The actual amount of such energy shall be based on the information generated by the meters, measuring equipment, charts and records provided for in the Gas Purchase Agreement or the Additional Sales Contract, as the case may be.

B. "Additional Sales Contract" shall mean any contract, but not including the Gas Purchase Agreement, which Portland LFG enters into for the purpose of selling Landfill Gas or Product to any purchaser other than Metro.

C. "Assigned Agreements" shall have the meaning set forth in Article II(D)(7) hereof.

D. "British thermal unit" or "Btu" shall mean that quantity of heat required to raise the temperature of one pound of water one degree Fahrenheit (1 degree F) at thirty-nine point two degrees Fahrenheit (39.2 degrees F).

E. "Closing" shall have the meaning set forth in Article IIG hereof.

F. "Code" shall mean the Internal Revenue Code of 1986, as amended.

G. "Gas and Site Rights" shall mean the rights to the Landfill Gas and the Premises purported to be granted to Portland LFG under Article II of the Lease.

H. "Gas Collection System" shall mean the network of gas collection wells, interconnecting pipes, valves, condensate knockout tanks, blowers, monitoring equipment, and any additional gas extraction equipment installed on the Landfill and used for the purpose of the extraction of Landfill Gas by Portland LFG, including, without limitations, the gas collection system, if any, installed by Metro, if then used by Portland LFG, all as more particularly described in Exhibit A hereto.

I. "Gas Purchase Agreement" shall mean the Gas Purchase Agreement dated as of even date herewith between Portland LFG and Metro pursuant to which Portland LFG will be selling Landfill Gas to Metro.

J. "Good Engineering Practice" means any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known, or which in the exercise of due diligence, should have been known, at the time the decision was made, would have been expected to accomplish the desired result in a manner consistent with reliability, safety, environmental protection, expedition, project economics and applicable laws, ordinances, rules and regulations for similar facilities. Good Engineering Practice is not intended to be limited to consideration of any one practice, method or act, to the exclusion of all others, but rather, is intended to require the consideration of a spectrum of possible practices, methods or acts.

K. "Landfill" means that real estate owned by Metro known as the St. Johns Landfill and located at 9363 N. Columbia Blvd. in Portland, Oregon, which real estate includes the Premises.

L. "Landfill Gas" means any and all gases resulting from the biological decomposition of landfill solid wastes, including, but not limited to, methane, carbon dioxide, hydrogen, and traces of other gases or liquids or any combination thereof.

M. "Lease" shall mean the Landfill Gas Lease between Portland LFG and Metro pursuant to which Portland LFG is acquiring the Gas and Site Rights from Metro.

N. "MMBtu" shall mean 1,000,000 Btus.

O. "O&M Agreement" shall mean the Operation and Maintenance Agreement dated as of even date herewith between Portland LFG and Metro pursuant to which Metro will operate and maintain the Gas Collection System for Portland LFG, or any successor operation and maintenance agreement with respect to the Project Facility.

P. "Permits" means all material authorizations from, permits and licenses issued by, consents and approvals of, filings with, notices from, and registrations with, any and all governmental entities, departments or agencies (including all conditions thereof), which may be required to be held or obtained, from time to time, by Portland LFG for (i) the production or sale of Landfill Gas from the Project Facility, or (ii) the operation, maintenance, possession or ownership of the Project Facility.

Q. "Point of Delivery" shall mean the downstream flange of the wye to each of the four (4) flares as defined in the Landfill Gas Lease.

R. "Premises" means that portion of the Landfill which has been utilized for landfilling, plus up to one acre of undisturbed native soil at, in or on which any portion of the Project Facility has been installed, all as more particularly described in Exhibit A attached to the Lease.

S. "Product" means Landfill Gas, processed gas extracted from Landfill Gas, constituent parts of Landfill Gas, electricity generated from Landfill Gas, heat and combustion by-products from the combustion of Landfill Gas, or any other derivative produced from Landfill Gas or processed gas extracted from Landfill Gas.

T. "Project Acquisition Note" shall mean the promissory note dated as of even date herewith issued by Portland LFG in favor of Metro pursuant to this Agreement, and evidencing the unpaid balance of the purchase price of the Project Facility and the other assets and rights being acquired pursuant hereto.

U. "Project Assets" shall have the meaning set forth in Article II(C)(2) hereof.

V. "Project Facility" means the Gas Collection System (including without limitation, all gas pipelines used to transport gas from the Landfill to any point of delivery), and all modifications, replacements, additions and expansions thereof.

W. "Projected Production Amount" shall mean, with respect to the Project Facility for any quarter, the amount of energy (expressed in MMBtus) which has been projected to result from the Landfill Gas to be produced by the Project Facility. These projections are set forth in Exhibit G attached hereto and made a part hereof.

X. "Purchased Assets" shall have the meaning set forth in Article II(A) hereof.

Y. "Related Agreements" shall mean the Gas Purchase Agreement, the Project Acquisition Note, the O&M Agreement, the Lease and any Additional Sales Contract.

Z. "Security Interest" shall have the meaning set forth in Article II(C)(2) hereof.

For all capitalized terms not specifically defined in this Agreement, the definitions of such terms contained in the Lease shall apply and shall be incorporated by reference herein.

## ARTICLE II - TRANSFER OF ASSETS

A. General. On the terms and conditions set forth in this Agreement, Metro does hereby sell, assign and deliver to Portland LFG, and Portland LFG hereby purchases and accepts from Metro, all right, title and interest of Metro in the following assets, properties and rights (collectively, the "Purchased Assets"):

1. the Project Facility;
2. the Permits;
3. the Assigned Agreements;
4. copies of all relevant permits and plans and specifications attached to Permit applications; and
5. all books, records, operating manuals and booklets, studies and reports owned by Metro relating to its operation of the Project Facility which Portland LFG would reasonably require to operate the Project Facility as presently operated by Metro.

B. Liabilities. Notwithstanding anything contained herein to the contrary, Portland LFG shall assume no obligations or liabilities of Metro (including without limitation, those that relate to or are otherwise attributable to an activity or operation occurring prior to the Closing), except for those arising after the Closing from the performance by Portland LFG of the Assigned Agreements.

### C. Purchase Price; Security Interest.

1. Price. As consideration for the sale, assignment and delivery by Metro to Portland LFG of the Purchased Assets, Portland LFG shall pay Metro a purchase price of \$2,600,000 which shall be evidenced by Portland LFG's Project Acquisition Note which shall be delivered by Portland LFG to Metro at the Closing and shall be substantially in the form and with the terms, including the fact that payments thereunder shall be based and conditioned on Landfill Gas produced and sold, set forth on Exhibit

B attached hereto and made a part hereof. Additionally, Portland LFG shall pay Metro the sum of \$75,000, representing the value of the work completed to date and paid for by Metro pursuant to the agreement attached hereto as Exhibit D. This payment by Portland LFG to Metro shall be due within five days of the first sale of Landfill Gas or Product to the Ash Grove Cement Company pursuant to the Ash Grove Gas Sales Agreement.

2. Security Interest. Portland LFG hereby grants Metro a security interest in the Project Assets (evidenced by such UCC-1 financing statements as Metro may reasonably require) to secure Portland LFG's obligations under the Project Acquisition Note. Metro shall have all the rights and remedies of a secured party under the Uniform Commercial Code of the State of Oregon with respect to the Project Assets in the event of Portland LFG's failure to make any required payments in accordance with the terms and conditions of the Project Acquisition Note.

3. Reporting. Portland LFG shall file all its tax returns in accordance with the purchase price set forth in Article II(C)(1) above and shall report payments of principal and interest under the Project Acquisition Note. Metro shall reflect the purchase price and payments consistently with Section 1 above and the Project Acquisition Note in all reports.

D. Representations and Warranties of Seller. Metro hereby represents, warrants and covenants to Portland LFG that:

1. Organization; Good Standing; and Power. Metro is a metropolitan service district organized under the laws of the State of Oregon and the 1992 Metro Charter, has all requisite corporate power and authority to own, lease and operate its properties, to carry on its business as now being conducted, to enter into this Agreement and each of the Related Agreements to which it is a party, to perform its obligations hereunder and thereunder, and to consummate the transactions contemplated hereby and thereby, and is duly qualified and in good standing to do business in the State of Oregon.

2. Authority; No Violations, etc. The execution and delivery of this Agreement and of the Related Agreements to which it is a party and the consummation of the transactions contemplated hereby and thereby have been duly and validly authorized by all necessary action on the part of Metro. This Agreement and such Related Agreements are each valid and binding obligations of Metro, enforceable in accordance with their respective terms. Neither the execution and delivery of this Agreement or such Related Agreements by Metro nor the consummation by Metro of the transactions contemplated hereby and thereby, nor compliance by Metro with the provisions hereof or thereof will (i) conflict with or result in a breach of any provision of its charter documents or in a default (or give rise to any right of termination, cancellation or acceleration) under any of the provisions of any note, lien, mortgage, lease, agreement or other instrument or obligation to which Metro is a party, or by which Metro

or any of its properties or assets is bound, except for such conflict, breach or default (A) as to which requisite waivers or consents have been obtained (which waivers and consents, if any, are listed on Exhibit C attached hereto and made a part hereof and are in full force and effect on the date hereof) or (B) which, individually or in the aggregate, will not have a materially adverse effect on Metro, the operation, possession or ownership of those portions of the Landfill and remaining facilities appurtenant thereto by Metro or the operation, possession or ownership of the Project Facility by Portland LFG, or (ii) to the best of Metro's knowledge, violate any law, regulation, Permit, judgment, order, writ, injunction or decree of any court, administrative agency or governmental body applicable to Metro or any administrative agency or governmental body applicable to Metro or any of its properties.

3. Governmental Approvals. Except as otherwise set forth in Article II(D)(5) hereof and to the best of Metro's knowledge, no consent, approval or other action by, or filing with any governmental authority is required in connection with the execution and delivery by Metro of this Agreement or the Related Agreements to which it is a party or the consummation by Metro of the transactions contemplated hereby or thereby.

4. Title to Property and Related Matters. Metro has good and marketable title to all the properties and interests which comprise the Purchased Assets, free and clear of all mortgages, liens, pledges, charges, security interests or encumbrances of any kind or character. The assignments, bill of sale and other instruments (including without limitation, the Lease) being executed and delivered by Metro to Portland LFG at the Closing are valid and binding obligations of Metro, enforceable in accordance with their respective terms, and effectively vest in Portland LFG as of the date hereof, good and marketable title to all Purchased Assets, free and clear of all mortgages, liens, pledges, security interests, charges or encumbrances of any kind or character. The Purchased Assets, together with the Gas and Site Rights, include all properties and interests (real, personal and mixed, tangible and intangible, and all leases, Permits and other agreements and instruments) which are reasonably necessary for the successful conduct of the landfill gas collection activities of Metro as presently conducted and such activities of Metro are now being conducted without conflict with any right or asserted right of others. Metro has taken all required action to put Portland LFG in physical possession and operating control of all Purchased Assets.

5. Compliance with Laws; Condition. To the best of Metro's knowledge, the design, construction, installation and operation of all tangible items of property, whether real or personal, comprising the Purchased Assets (i) conform to all applicable laws, rules, regulations, ordinances and orders of governmental or judicial authorities (including without limitation those relating to environmental matters); (ii) have been designed, installed and maintained in accordance with Good Engineering Practice; (iii) are in good working order, condition and repair; and (iv) are suitable for the conduct of Metro's landfill gas collection activities as now being carried on. To the best of Metro's knowledge after due inquiry, Metro is in compliance with all laws, regulations,



ordinances and orders of governmental or judicial authorities in connection with its ownership, use, maintenance and operation of the Project Facility and the conduct of the activities related thereto (including without limitation, environmental matters). Metro is not aware of any facts pertaining to such items which could reasonably be expected to give rise to any such non-compliance by Metro.

6. Environmental Laws.

- (a) To the best of Metro's knowledge after due inquiry, in connection with its ownership, possession, maintenance and operation of the Project Facility, its conduct of the activities related thereto, and its leasing, possession and use of the Premises, Metro is in compliance with all laws, regulations, ordinances and orders pertaining to environmental matters, including without limitation, those relating to the discharge, control, reporting, use, storage, treatment and disposal of Hazardous Materials. Metro is not aware of any facts pertaining to such items which, to the best of Metro's knowledge after due inquiry, could reasonably be expected to give rise to any material non-compliance by Metro. Metro makes no warranty concerning the presence or absence of hazardous materials at the Landfill, except as set forth at (b), below.
- (b) To the best of Metro's knowledge after due inquiry, no Hazardous Materials are present under, at or near the Premises (including without limitation, in aboveground or underground storage tanks) in such quantities or in such manner as to require removal, reporting or other response or remedial action under any law, regulation, ordinance or order pertaining to environmental matters except to the extent that placement of the Landfill on the state's Inventory and Confirmed Release List for Hazardous Substances requires.

7. Completion of Construction. Metro shall complete in a timely manner the installation of the metering equipment, as set forth in the December 23, 1996 Letter of Intent attached hereto as Exhibit H, and the additional wells as set forth in the binding change order referenced therein.

8. Agreements. Exhibit D attached hereto and made a part hereof contains a true and complete list of all material agreements and other instruments to which Metro is a party or by which any of its properties is bound at the date hereof and which pertain to the Landfill Gas collection business of Metro. Metro has furnished to Portland LFG true and correct copies of all such agreements and instruments. Exhibit D hereto also identifies those agreements and instruments listed thereon which are part of the Purchased Assets (hereinafter defined as the "Assigned Agreements").

- (a) Each of the Assigned Agreements is a valid binding and enforceable contract with respect to the parties thereto;
- (b) Metro has not previously assigned any of its rights, title or interest thereunder;
- (c) Neither Metro nor the other parties thereto is currently in default of any provision under any Assigned Agreement;
- (d) There exists no event or condition, which after notice or lapse of time, or both, would constitute such a default by Metro;
- (e) Each of the Assigned Agreements is being concurrently and duly assigned herewith by Metro to Portland LFG; and
- (f) Performance by Portland LFG of its obligations under the Assigned Agreements in accordance with the terms thereof will not conflict with any provision in this Agreement or any of the Related Agreements.

9. Litigation, Etc. There are no actions, suits, claims, complaints, investigations or legal or administrative or arbitration proceedings pending or, to the knowledge of Metro, threatened, whether at law or in equity, whether civil or criminal in nature or whether before any court or before any federal, state or local governmental department, agency or instrumentality, against or affecting Metro or any of its properties, which, if decided adversely to Metro, would have a materially adverse effect on any of the Purchased Assets or their operation. Without limiting the foregoing, there are no such actions, suits, claims, complaints, investigations or proceedings pending or, to the knowledge of Metro, threatened with respect to Metro's compliance with laws, regulations, ordinances and orders pertaining to environmental matters.

10. Permits. Exhibit E attached hereto and made a part hereof contains a true and complete list of all existing Permits affecting Metro's operations at the Landfill. Metro has furnished to Portland LFG true and correct copies thereof, and no other Permits are necessary for Portland LFG to carry out the matters set forth or contemplated in Article II of the Lease to the best of Metro's knowledge, after due inquiry. Such Permits are valid and in full force and effect; Metro and its operations are in material compliance therewith; and there exists no event or condition, which after notice or lapse of time, or both, would constitute a default by Metro thereunder. The assignments and instruments being executed and delivered by Metro to Portland LFG at the Closing effectively vest in Portland LFG as of the date hereof good and marketable title to the Permits (to the extent any person or entity can legally have good and marketable title to a Permit), free and clear of all Restrictions, liens, security interests, charges or encumbrances of any kind or character. For the purposes of this Article II(D)(9), "Restriction" shall mean any restriction, limitation, condition or other

provision which is reasonably likely to materially and adversely affect the operation, maintenance, ownership or possession of the Project Facility or the Premises by Portland LFG. Performance by Portland LFG of its obligations under this Agreement, the Assigned Agreements and the Related Agreements in accordance with their respective provisions will not conflict with the terms and conditions of any Permit.

The parties may mutually agree that for convenience and where it is permitted by applicable laws and regulations, a Permit may be continued to be held after the Closing for an agreed upon time period by and in the name of Metro, on behalf of Portland LFG (or jointly by and in the name of Portland LFG and Metro).

11. Taxes. There are no taxes and assessments based on or measured by, in whole or in part, the ownership of any of the Purchased Assets or the receipt of proceeds therefrom at any time prior to the Closing which are due, or will be due and owing, at or as a result of the Closing.

12. Tax Credits. No person or entity has claimed or reported, or to the best of Metro's knowledge, has the right to claim or report, for Federal income tax purposes, the credits under Section 29 of the Code with respect to the Landfill Gas from the Landfill. Metro shall use its best efforts to ensure that no other person or entity (other than Portland LFG or its assignees) shall be claiming or reporting such credits with respect to the Landfill Gas from the Landfill after the Closing.

13. Other Tax Matters. No funds arising from any of the financing sources set forth in Section 29(b)(3)(A)(i) of the Code were used in connection with the acquisition, construction or installation of the Project Facility or any portion thereof. There has been no action taken by Metro or, to the best of Metro's knowledge, any other person or entity associated with the Project Facility prior to the Closing which could result in the application of Section 29(b)(3), Section 29(b)(4) or Section 29(b)(5) of the Code and a reduction of credits under Section 29 of the Code available from the Project. Metro is unrelated within the meaning of Section 29 of the Code to Portland LFG and its affiliates.

14. Transfer Tax. No transfer, sales or similar tax will be due or payable on the part of Portland LFG, Metro or any other person or party as a result of the consummation of the transactions contemplated by this Agreement.

15. Project Facility Installation. The Project Facility was placed in service (meaning that it was operating or ready to operate on a continuous commercial basis) after January 1, 1993 and has been operating, and collecting and delivering Landfill Gas in commercial quantities since such date of commercial operation, although minor portions of the Project Facility were installed prior to January 1, 1993.

16. Project Facility Costs. Metro has incurred, directly or indirectly, approximately \$2,600,000 to design, permit and construct the Project Facility to date. Metro has incurred, directly or indirectly \$200,000 in operating expenditures in connection with the Project Facility and the other Purchased Assets in each of the 2 calendar years immediately prior to Closing, including without limitation, insurance, taxes, professional, general and administrative expenses, utility charges, repairs, maintenance, and replacements. Metro has no reason to believe that, subject to general inflation in the economy, such expenditures (calculated on an annual basis) will materially increase in the next 10 years.

17. Landfill Gas Flow. The Landfill Gas production schedule set forth on Exhibit F attached hereto and made a part hereof contains a true and complete listing of the following information for each of the 3 years immediately prior to the Closing, and for the prior months in 1996:

- (a) The volume of Landfill Gas produced from the Landfill by the Project Facility; and
- (b) The amount of energy (expressed in MMBtus) which resulted from such Landfill Gas.

The Landfill Gas production projections set forth on Exhibit G attached hereto and made a part hereof contain a good faith estimate by Metro for each of the quarters listed on such Exhibit G of the amount of energy (expressed in MMBtus) which is projected to result from the Landfill Gas to be produced from the Landfill by the Project Facility. Buyer acknowledges that the data provided may contain some inaccuracies and accordingly places no reliance on such projections for purposes of entering into this Agreement.

To Metro's knowledge, there is no condition other than the passage of time and the normal decomposition of waste that would materially decrease the likelihood that the purchaser under the Gas Purchase Agreement would be willing or able to purchase such Landfill Gas at current production levels.

18. Insurance. Since January 1, 1993, Metro has been and continues to be self-insured in respect of its operations at the Landfill to the limitations of the Oregon Tort Claims Act. Metro represents that the amounts, coverages and other terms of such insurance comply with all of Metro's insurance requirements, if any.

19. Landfill and Gas Quality. To the best of Metro's knowledge, the Landfill (including without limitation the Premises) consists primarily of organic waste, municipal waste, industrial waste or sludge. The Landfill Gas produced at or from the Premises has been and, to Metro's knowledge, shall be combustible.

20. Disclosure. To the best of Metro's knowledge after due inquiry, none of the documents or other written information furnished by or on behalf of Metro to Portland LFG pursuant to this Acquisition and Security Agreement or any of the Related Agreements contains any untrue statement of a material fact or omits to state any material fact required to be stated therein or necessary to make the statements contained herein or therein, in the light of the circumstances in which they were made, not misleading. Metro is not aware of any fact peculiar to Metro or any of the Purchased Assets which materially adversely affects or in the future could (so far as Metro can now reasonably foresee) materially adversely affect (i) the activities, assets or financial condition of Metro or (ii) any of the Purchased Assets and which has not been set forth in this Agreement or in other written material furnished to Portland LFG by or on behalf of Metro prior to the date hereof in connection with the transactions contemplated hereby.

E. Representations and Warranties of Buyer. Portland LFG represents and warrants to Metro that:

1. Organization; Good Standing and Power. Portland LFG is a general partnership duly organized and validly existing under the laws of the State of Oregon and is duly authorized to conduct business in the State of Oregon, has all requisite power and authority to own, lease and operate its properties, to carry on its business as now being conducted, to enter into this Agreement and each of the Related Agreements, to perform its obligations hereunder and thereunder, and to consummate the transactions contemplated hereby and thereby.

2. Authority; No Violation; Etc. The execution and delivery of this Agreement and of the Related Agreements and the consummation of the transactions contemplated hereby and thereby have been duly and validly authorized by all necessary action on the part of Portland LFG. This Agreement and the Related Agreements are each valid and binding obligations of Portland LFG, enforceable in accordance with their respective terms. Neither the execution and delivery of this Agreement or such Related Agreements by Portland LFG nor the consummation of the transactions contemplated hereby or thereby by Portland LFG, nor compliance by Portland LFG with the provisions hereof or thereof, will (i) conflict with or result in a breach of any provision of its joint venture agreement, or (ii) to the best of its knowledge, violate any law, regulation, order, writ, injunction or decree applicable to Portland LFG or any of its properties.

3. Appropriate Consents. Portland LFG has obtained all appropriate partner consents, approvals or other actions required in connection with its execution of this Agreement and the Related Agreements contemplated herein.

4. Litigation. There are no actions, suits, claims, complaints, investigations or legal or administrative or arbitration proceedings pending or, to the knowledge of Portland LFG, threatened, whether at law or in equity, whether civil or

criminal in nature or whether before any court or before any federal, state or local governmental department, agency or instrumentality, against or affecting Portland LFG or any of its properties or affiliates, which, if decided adversely to Portland LFG or its affiliates, would have a materially adverse effect on the discharge of its responsibilities under this Agreement or any of the Related Agreements.

**F. Indemnification; Survival of Representations; and Warranties.**

1. **Seller's Indemnity.** To the greatest extent permitted by the Oregon Constitution, the Oregon Tort Claims Act, and the 1992 Metro Charter, Metro shall indemnify, defend and hold harmless Portland LFG and its partners, and Portland LFG's and each such partner's shareholders, directors, officers, employees, representatives and independent contractors, from and against any and all costs, claims, liabilities, damages, expenses (including reasonable attorneys' fees) causes of action, suits or judgments incurred by or involving anyone of the foregoing parties and arising, directly or indirectly, from or in connection with:

(a) Metro's breach of any of its obligations, covenants, representations or warranties contained in this Agreement or made pursuant hereto, provided, however, that for the purposes of this Article II(F)(1) only any and all qualifications or limitations to such obligations, covenants, representations or warranties based on or related to Metro's knowledge shall not be applicable;

(b) Any liability or obligation of Metro (whether absolute, accrued, contingent or otherwise) not specifically assumed by Portland LFG pursuant to this Agreement or not disclosed to Portland LFG in writing pursuant hereto; or

(c) Metro's operation, maintenance, possession or ownership of the Purchased Assets prior to the Closing.

2. **Buyer's Indemnity.** Buyer shall indemnify, defend and hold harmless Seller, its shareholders, directors, officers, employees, agents, representatives, and independent contractors, from and against any and all costs, claims, liabilities, damages, expenses (including reasonable attorneys' fees based on a standard of those fees and expenses which are reasonable and customary for private counsel in the Portland region with similar experience to those engaged by the prevailing party), causes of action, suits or judgments incurred by or involving any of the foregoing parties and arising, directly or indirectly, from or in connection with (i) any breach by Buyer of its obligations, covenants, representations or warranties contained in this Agreement, (ii) any negligence or omission of Buyer, its officers, directors, agents, employees, invitees, contractors or subcontractors (other

than Metro or any subcontractor thereof), and (iii) any imposition of tax or any related cost if any credits claimed under Section 29 of the Internal Revenue Code are disallowed.

3. Survival. Notwithstanding any provision contained herein or the application of any statute of limitations, the provisions of this Article II (F)(3) shall survive and continue in full force and effect through the Closing and until the Project Acquisition Note has been paid in full, or one (1) year after it has been otherwise terminated, whichever is the later.

G. Closing. The closing of the transactions contemplated by this Agreement ("the Closing") shall take place concurrently herewith when Metro has delivered to Portland LFG this Agreement, all Related Agreements to which it and Portland LFG are parties and all other documents, opinions and reports collateral hereto and thereto, in form and substance satisfactory to Portland LFG, and duly executed by all parties thereto, except Portland LFG, and Portland LFG has delivered to Metro this Agreement, the Project Acquisition Note, and all other documents collateral hereto and thereto, in form and substance satisfactory to Metro, and duly executed by Portland LFG. Each party hereto agrees at any time and from time to time after the Closing, to execute and deliver any and all documents, and to do such other acts and things, as the other party hereto may reasonably request in order to carry out the purposes of this Agreement.

#### H. Assignment.

1. Consent Required. Neither party may assign this Agreement or any of its rights and obligations hereunder to any person or entity (other than an entity that, directly or indirectly, through one or more intermediaries, controls or is controlled by or is under common control with the assignor) without the prior consent of the other party, which consent shall not be unreasonably withheld or delayed. Any attempt at assignment without such consent shall be null and void and of no effect, and shall constitute a material default hereunder.

2. Notes. If (i) Portland LFG assigns all or substantially all of its interest hereunder in accordance with Section H(1) above, (ii) the assignee shall assume all of Portland LFG's obligations hereunder and under the Project Acquisition Note and Metro's security interest granted herein, and (iii) the assignee executes and delivers to the holder of such Note a new Note, in the form and with the terms substantially the same as the form and the terms of the original Note, then as from the date of such assumption Portland LFG shall be released in full from all such obligations, the original Note shall be canceled and promptly returned to Portland LFG, and all UCC statements in respect of the security interest granted herein as are reasonably requested by Portland LFG shall be promptly executed and filed by Metro.

I. Abandonment. The parties acknowledge that in the event that Portland LFG determines in its sole judgment that (a) the continued operation, maintenance, possession or ownership of the Project Facility has become uneconomic or unduly burdensome or involves excessive liabilities, or (b) Landfill Gas or Product is not being sold in commercial quantities and on an ongoing basis pursuant to the Gas Purchase Agreement or one or more Additional Sales Contracts, Portland LFG, as the owner of the Purchased Assets and the Gas and Site Rights, shall have the right to abandon such Assets and Rights by conveying such Purchased Assets and Gas and Site Rights in full and complete satisfaction of the Project Acquisition Note and in lieu of any foreclosure proceedings relating to such Note, to the holder(s) of such Note. In the event Portland LFG so abandons the Purchased Assets and the Gas and Site Rights, Metro shall promptly assume physical possession and operating control of the Project Facility and all other tangible assets owned by Portland LFG at the Landfill, and use its best efforts to acquire title to the Project Facility, such tangible assets, and all intangible assets and rights then owned by Portland LFG and necessary for the operation, maintenance, possession or ownership of the Project Facility by Metro. Portland LFG shall render all reasonable assistance to Metro in such efforts, including the payment of any reasonable costs that Metro incurs as a result of such abandonment. If such abandonment occurs, any amounts due and payable by Portland LFG to Metro to and as of the date of abandonment under this Agreement or any related Agreement shall be paid by Portland LFG to Metro in accordance with the terms of the foregoing.

### ARTICLE III - MISCELLANEOUS

A. Notices. All notices, demands, requests, consents or other communications required or permitted to be given or made under this Agreement shall be in writing and

if to Metro to:

[name]  
Metro Regional Environmental Management  
600 Northeast Grand Avenue  
Portland, OR 97232  
Tel: (503) 797-1700  
Fax: (503) 797-1707

if to Portland LFG to:

Portland LFG Joint Venture  
c/o Palmer Management Corporation  
13 Elm Street, Suite 200  
Cohasset, Massachusetts 02025  
Tel: (617) 383-3200  
Fax: (617) 383-3205



with a copy to:

Rivergate LFG  
c/o Ashgrove Cement Company  
8900 Indian Creek Parkway  
Overland Park, Kansas 66210  
Tel: (913) 451-8900  
Fax: (913) 451-8324

and a copy to:

Jeffrey M. Bernstein, Esq.  
Bernstein, Cushner & Kimmell, P.C.  
One Court Street, Suite 700  
Boston, MA 02108  
Tel: (617) 742-4340  
Fax: (617) 742-0170  
E-Mail: [jmbern@bck.com](mailto:jmbern@bck.com).

Notices hereunder shall be deemed properly served (i) by hand delivery, on the day and at the time on which delivered to the intended recipient at the address set forth in this Acquisition and Security Agreement; (ii) if sent by mail, on the third business day after the day on which deposited in the United States certified or registered mail, postage prepaid, return receipt requested, addressed to the intended recipient at its address set forth in this Agreement; or (iii) if by Federal Express or other reputable express mail service, on the next business day after delivery to such express mail service, addressed to the intended recipient at its address set forth in this Acquisition and Security Agreement. Either party may change its address for the purpose of this Article III (A) by giving the other party prior notice thereof in accordance with this provision.

**B. Successors and Assigns.** Subject to the restrictions on assignment herein contained, the provisions of this Agreement shall be binding upon, and shall inure to the benefit of, the successors, assigns and legal representatives of the respective parties hereto. This Agreement shall not (directly, indirectly, contingently or otherwise) confer or be construed as conferring any rights or benefits on any person or entity not named as a party hereto, except as otherwise provided in Article II(H)(1) hereof.

**C. Applicable Law and Related Matters.** All questions with respect to the construction of this Agreement and the rights and liabilities of the parties hereunder shall be determined in accordance with the laws of the State of Oregon. In any litigation arising from this Agreement or under the Project Acquisition Note, the prevailing party shall be entitled to receive from the non-prevailing party all reasonable costs and expenses (including reasonable attorneys' fees and expenses based on a

standard of those fees and expenses which are reasonable and customary for private counsel in the Portland region with similar experience to those engaged by the prevailing party) incurred by the prevailing party by reason of the event giving rise to such litigation.

Prior to the initiation of litigation, either party may initiate dispute resolution under this section. Dispute resolution will be initiated by either party delivering notice to the other, setting forth the nature of the dispute. The parties agree to meet or otherwise confer expeditiously to resolve the dispute, and to submit the dispute to nonbinding third party mediation if the dispute cannot be resolved within 15 days following the delivery of the notice. If a notice of default has been issued, the period of time allowed to cure the default shall be stayed pending dispute resolution, for a period not to exceed 45 days (including third party mediation) unless otherwise agreed to by the parties hereto. Notwithstanding the foregoing, a party may initiate litigation and shall not be bound by the dispute resolution procedures set forth in this paragraph in case of a situation where such party is seeking temporary or preliminary injunctive relief or where such party certifies, in good faith, that failure to promptly initiate litigation will subject it to the risk of grave harm.

D. Expenses. Each party hereto shall pay all expenses incurred by it in connection with the transactions herein contemplated, including without limitation, all attorneys' fees and expenses.

E. Counterparts. This Agreement may be executed in counterparts, each of which shall be deemed an original and all of which shall constitute a single agreement.

F. Severability. If any provision of this Agreement or the application thereof to any party or circumstance be invalid or unenforceable to any extent, the remainder of this Agreement and the application of such provision to persons and circumstances other than those to which it has been held invalid or unenforceable shall not be affected thereby and each provision of this Agreement shall be valid and enforceable to the fullest extent permitted by law.

G. Entire Agreement; Amendments. This Agreement (including without limitation, the Exhibits hereto) constitutes the entire agreement between the parties hereto with respect to the subject matter hereof and supersedes all oral or written agreements and understandings between the parties relating to the subject matter hereof. This Agreement may only be amended or modified by a written instrument signed by both parties hereto.

H. Waiver. No waiver by either party hereto of any one or more defaults by the other party in the performance of any provision of this Agreement shall operate or be construed as a waiver of any future default, whether of alike or different character. No failure on the part of either party hereto to complain of any action or non-action on the part of the other party, no matter how long the same may continue, shall be deemed to

be a waiver of any right hereunder by the party so failing. A waiver of any of the provisions of this Agreement shall only be effective if made in writing and signed by the party who is making such waiver.

I. No Joint Venture. The relationship between the parties hereto is that of buyer and seller. Nothing in this Agreement is intended or shall be deemed to constitute either party hereto a partner, agent or legal representative of the other party or to create a joint venture or fiduciary relationship between the parties.

J. Joint Workproduct. This Agreement shall be considered the workproduct of all parties hereto, and, therefore, no rule of strict construction shall be applied against any party hereto.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the date first above written.

SELLER: METRO

By: \_\_\_\_\_  
Name/Title

Address: 600 Northeast Grand Avenue  
Portland, OR 97232  
Tel: (503) 797-1700  
Fax: (617) 797-1707

BUYER: PORTLAND LFG JOINT VENTURE  
an Oregon general partnership

By: Portland Landfill Gas Corporation,  
a Massachusetts corporation,  
its managing general partner

By: \_\_\_\_\_  
Name/Title

Address: 13 Elm Street  
Cohasset, MA 02025  
Tel: (617) 383-3200  
Fax: (617) 383-3205

## ACQUISITION AND SECURITY AGREEMENT EXHIBIT LIST

- A. Detailed Description of Existing Gas Collection System
- B. Project Acquisition Note
- C. Consents and Waivers
- D. Assigned Agreements
- E. Permits
- F. Landfill Gas Production Schedule
- G. Landfill Gas Production/Sale Projections
- H. December 23, 1996 Letter of Intent

DRAFTED DATED 4/7/97

EXHIBIT B

PROJECT ACQUISITION NOTE

[\$2,600,000.00]

Boston, Massachusetts  
May \_\_\_\_, 1997

FOR VALUE RECEIVED, PORTLAND LFG JOINT VENTURE, an Oregon general partnership ("Maker"), hereby promises to pay to the order of METRO a metropolitan service district organized under the laws of the State of Oregon and the 1992 Metro Charter ("Holder"), in lawful money of the United States of America, at the principal office of Holder located at 600 Northeast Grand Avenue, Portland, Oregon 97232, or at such other address of which Holder shall notify Maker in accordance with the notice provisions hereof, the principal sum of TWO MILLION SIX HUNDRED THOUSAND DOLLARS (\$2,600,000), together with interest thereon, on or before April 30, 2012, in accordance with the following terms and provisions:

1. Interest Rate and Payments. Interest shall be paid on the unpaid principal balance of this Note outstanding from time to time at the rate of seven percent (7%) per annum. To the extent payments are required to be made pursuant to Section 2(a) below, interest shall be paid quarterly, in arrears, on the same day as such payments are required to be paid, commencing on April \_\_, 1997 and continuing thereafter until the outstanding principal balance of this Note is fully paid. Interest shall be based on the daily average unpaid principal balance hereof outstanding during each calendar quarter, and shall be computed on the basis of a 365-day year for the actual number of days outstanding during such quarter.

2. Payment of Principal and Interest.

(a) Payments under this Note shall be made in quarterly installments (individually, an "Installment") on the 20th business day of January, April, July and October, commencing on July 20, 1997 and continuing thereafter until such principal amount is fully paid. The amount of each quarterly Installment to be paid by Maker hereunder is set forth on Schedule 1 attached hereto and incorporated by this reference as if set forth in full.

(b) Payments made pursuant to Section 2(a) above shall be applied first against interest accrued as of the date of such payment on the principal balance outstanding under this Note, and thereafter against such principal balance.

3. Prepayment. The principal balance of this Note and all accrued interest thereon, if any, may be prepaid in whole or in part at any time with no prepayment

penalty. If a partial prepayment is made, such prepayment shall be applied first against accrued interest due and owing as of the date of such prepayment, and thereafter against the principal balance outstanding under this Note.

4. Acquisition and Security Agreement. This Note is issued in connection with Maker's obligation under an Acquisition and Security Agreement dated as of even date herewith (the "Acquisition Agreement") and a Lease Agreement of even date herewith (the "Lease"), each between Maker and Holder, to pay the purchase price for the Purchased Assets and the Gas and Site Rights (as defined in the Acquisition Agreement and the Lease). The obligations of Maker hereunder are secured by the security interest granted in Article II(C)(2) of the Acquisition Agreement. Any capitalized term used in this Note which is not specifically defined herein shall have the same definition and meaning as set forth in the Acquisition Agreement and the Lease, and such definitions shall be incorporated by reference herein.

5. Adjustments to Installments.

(a) If Maker becomes entitled to any amounts as indemnification under Section II(F)(2) of the Acquisition Agreement, under Article X of the Lease, or under any of the Related Agreements, Maker shall be entitled, upon giving Holder 15 business days' notice thereof, to set off such amount (the "Set Off Amount") against any and all Installments payable thereafter under this Note. If Maker exercises such right of set off, then the Set Off Amount shall be applied, until exhausted, against the Installments due hereunder by Maker to Holder in order of maturity, and the amount of each such Installment shall be reduced accordingly.

(b) Payment by Maker of an Installment, as modified by a Set Off Amount, shall fully satisfy Maker's obligation to pay the Installment in accordance with the terms hereof. Furthermore, notwithstanding any such Set Off Amount with respect to an Installment, the outstanding principal balance of this Note and the accrued interest thereon shall be reduced after the payment of such Installment by the original amount of such Installment, i.e. as if the amount of such Installment had not been reduced by such Set Off Amount.

6. Default and Default Rate. Failure of Maker to pay any Installment hereunder, when due which failure shall have continued for 15 business days after Holder has sent notice of such failure to Maker shall be a default hereunder. For purposes of this Note, notice is deemed received within three business days after sent by certified or registered mail, postage prepaid, return receipt requested, at the address set forth below Maker's signature or at such other address as Maker may specify by giving Holder prior notice thereof in accordance with this provision at Holder's address set forth above. The occurrence of a default hereunder shall (i) entitle Holder to exercise its rights and remedies under the Acquisition Agreement, and (ii) at the option of Holder, cause the entire unpaid principal balance under this Note, together with any interest thereon, to become immediately due and payable without further notice. Any payment

of principal or (to the extent permitted by applicable law) interest not paid when due, whether at stated maturity, by acceleration or otherwise, shall thereafter bear interest at a rate per annum equal to twelve percent (12%) until paid, provided that in no event shall such rate exceed the maximum rate permitted by law.

7. Abandonment. If the Purchased Assets and the Gas and Site Rights are abandoned in accordance with Article II(I) of the Acquisition Agreement, the right of the original holder of this Note to resume possession, operating control and ownership of such Purchased Assets and Gas and Site Rights as more fully described in said Article II(I), shall be deemed to constitute payment in full by Maker of the principal balance of this Note and all accrued interest thereon. Holder shall cancel this Note as of the date of such abandonment and promptly return it to Maker. However, any amounts due and owing under this Note to the date of abandonment shall remain due and owing by Maker.

8. Severability. The parties hereto intend that each provision in this Note comports with all applicable laws and judicial decisions. However, if any provision, or if any portion of any provision, in this Note is found by a court of law to be in violation of any applicable law, regulation or judicial decision, or public policy, and if such court should declare such portion or provision of this Note to be illegal, invalid, unlawful, void or unenforceable as written, then it is the intent of the parties hereto that such portion or provision shall be given force to the fullest extent that it is legal, valid and enforceable, that the remainder of this Note shall be construed as if such illegal, invalid, unlawful, void or unenforceable portion or provision was not contained herein, and that the rights, obligations and interest of Maker and holder hereof under the remainder of this Note shall continue in full force and effect. All agreements herein are expressly limited so that in no event whatsoever shall the amount paid or agreed to be paid to the Holder for the use, forbearance or detention of the money owed hereunder exceed the highest lawful rate permissible under applicable usury laws. If, from any circumstances whatsoever, fulfillment of any provision hereof at the time performance of such provision shall be due, shall involve transcending the limit of validity prescribed by law which a court of competent jurisdiction may deem applicable hereto, then *ipso facto*, the obligation to be fulfilled shall be reduced to the limit of such validity and if from any circumstance the Holder shall ever receive as interest an amount which would exceed the highest lawful rate, such amount which would be excessive interest shall be applied to the reduction of the unpaid principal balance due hereunder and not to the payment of interest.

9. Limitation on Liability. Notwithstanding anything contained herein, the liability of Maker hereunder shall be limited to the Project Assets as defined in the Acquisition Agreement, provided that Holder shall also have recourse against the other assets of Maker and the assets of any general partner of Maker (but not against the assets of any limited partner of Maker or the assets of any shareholder of any corporation which is a general or limited partner of Maker or against the assets of any partner of a partnership which is a general or limited partner of Maker) for (a) intentional fraud, (b) intentional

misapplication of insurance or condemnation proceeds in respect of the Purchased Assets and Gas and Site Rights, and (c) any amounts due Holder hereunder to the date of abandonment if the Purchased Assets and the Gas and Site Rights are abandoned in accordance with Article II(l) of the Acquisition Agreement. Holder expressly waives any rights to proceed against the assets of any general or limited partner of Maker, any shareholder of any corporation which is a partner of Maker, and any partner of a partnership which is a partner of Maker by reason of treatment of the indebtedness as a recourse debt pursuant to 11 U.S.C. 1111(b), or any successor provision.

10. Applicable Laws. This Note shall be governed and controlled by the laws of the State of Oregon as to interpretation, enforcement, validity, construction, effect, choice of law and in all other respects.

11. Transfer. This Note is transferable only on the note register of Maker, upon surrender of this Note for transfer, duly endorsed, or accompanied by a written instrument of transfer duly executed by Holder or the registered holder hereof. Maker may treat the person in whose name this Note is registered as the owner hereof for the purpose of receiving payment and for all other purposes, and Maker shall not be affected by any notice to the contrary. This Note shall be binding upon Maker and Maker's successors, assigns and legal representatives. If (a) Maker assigns all or substantially all of its interest under the Acquisition Agreement and the Lease in accordance with the provisions thereof, (b) the assignee shall assume all of Maker's obligations thereunder and (c) the assignee executes and delivers to Holder a new promissory note in the form and with the terms substantially the same as the form and the terms of this Note, then as from the date of such assumption Maker shall be released in full from its obligations under this Note and this Note shall be canceled and promptly returned to Maker.

12. Default. Any default under this Note by Maker shall constitute a default by Maker under any and all other agreements entered into by and between Maker and Holder as of the date of default hereunder.



IN WITNESS WHEREOF, Maker has executed this Note as of the day and year first set forth above.

**MAKER:** PORTLAND LFG JOINT VENTURE  
an Oregon general partnership

By: Portland Landfill Gas Corporation  
a Massachusetts corporation,  
its managing general partner

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

By: \_\_\_\_\_  
Its Clerk

Address: 13 Elm Street, Suite 200  
Cohasset, MA 02025  
Telephone Number: 617-383-3200  
Fax Number: 617-383-3205

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REQUIRED QUARTERLY PAYMENTS

The amount required to be paid under this Note in respect of a specific quarter (i.e. the "Installment") shall be the product of the Actual Production Amount (as defined below) times 38.75 cents per MMBtu, subject to adjustment as set forth below. Each installment shall be paid on the 20th business day of the next quarter as set forth in Section 2(a) of this Note.

Commencing January 1, 1998, and on an annual basis thereafter, the payment due per MMBtu shall be increased based on the change in the Consumer Price Index ("CPI") for urban wage earners and clerical workers for the Portland, Oregon metropolitan region for the prior year ending June 30, with June 1996 as the base year, unadjusted for seasonal variations, as determined by the Bureau of Labor Statistics of the Department of Labor and as published in such Bureau of Labor Statistics' Detailed Report. If the manner in which the CPI is determined is substantially revised or the CPI shall become unavailable, Portland LFG and Metro agree to cooperate to determine an acceptable alternative, comparable index.

"Actual Production Amount" shall mean, with respect to the Project Facility for any quarter, the amount of energy (expressed in MMBtus) which actually results from the Landfill Gas produced by the Project Facility and sold pursuant to the Gas Purchase Agreement or an Additional Sales Contract during such quarter. The actual amount of such energy shall be based on the information generated by the meters, measuring equipment, charts and records provided for in the Gas Purchase Agreement or the Additional Sales Contract, as the case may be.

EXHIBIT C

Consents and Waivers

1. Franchise Agreement with the City of Portland

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## EXHIBIT D

1. Harding Lawson Associates Agreement
2. All warranties, guarantees and other such agreements related to the Project Facility.

## PERSONAL SERVICES AGREEMENT

THIS AGREEMENT is between Metro, a metropolitan service district organized under the laws of the State of Oregon and the 1992 Metro Charter, located at 600 NE Grand Avenue, Portland, Oregon 97232; and Harding Lawson Associates, referred to herein as "Contractor," located at 227 S.W. Pine Street, Third Floor, Portland, Oregon 97204.

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

1. Duration. This personal services agreement shall be effective on the last signature date below and shall remain in effect until and including December 31, 1996, unless terminated or extended as provided in this Agreement.
2. Scope of Work. Contractor shall provide all services and materials specified in the attached "Exhibit A -- Scope of Work," which is incorporated into this Agreement by reference. All services and materials shall be provided by Contractor in accordance with the Scope of Work, in a competent and professional manner. To the extent that the Scope of Work contains additional contract provisions or waives any provision in the body of this Agreement, the Scope of Work shall control.
3. Payment. Metro shall pay Contractor for services performed and materials delivered in the amount(s), manner and at the time(s) specified in the Scope of Work for a maximum sum not to exceed Two Hundred Sixteen Thousand Four Hundred and Thirty Eight Dollars (\$216,438.00).
4. Insurance.
  - a. Contractor shall purchase and maintain at the Contractor's expense, the following types of insurance, covering the Contractor, its employees, and agents:
    - (1) Broad form comprehensive general liability insurance covering bodily injury and property damage, with automatic coverage for premises, operations, and product liability. The policy must be endorsed with contractual liability coverage; and
    - (2) Automobile bodily injury and property damage liability insurance.

b. Insurance coverage shall be a minimum of \$500,000 per occurrence. If coverage is written with an annual aggregate limit, the aggregate limit shall not be less than \$1,000,000.

c. 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 30 days prior to the change or cancellation.

d. Contractor, its subcontractors, if any, and all employers working under this Agreement that are subject employers under the Oregon Workers' Compensation Law shall comply with ORS 656.017, which requires them to provide Workers' Compensation coverage for all their subject workers. Contractor shall provide Metro with certification of Workers' Compensation insurance including employer's liability. If Contractor has no employees and will perform the work without the assistance of others, a certificate to that effect may be attached, as Exhibit B, in lieu of the certificate showing current Workers' Compensation.

e. If required by the Scope of Work, Contractor shall maintain for the duration of this Agreement professional liability insurance covering personal injury and property damage arising from errors, omissions, or malpractice. Coverage shall be in the minimum amount of \$500,000. Contractor shall provide to Metro a certificate of this insurance, and 30 days' advance notice of material change or cancellation.

5. Indemnification. Contractor shall indemnify and hold Metro, its agents, employees and elected officials harmless from any and all claims, demands, damages, actions, losses and expenses, including attorney's fees, arising out of or in any way connected with its performance of this Agreement, or with any patent infringement or copyright claims arising out of the use of Contractor's designs or other materials by Metro and for any claims or disputes involving subcontractors.

6. Maintenance of Records. Contractor shall maintain all of its records relating to the Scope of Work on a generally recognized accounting basis and allow Metro the opportunity to inspect and/or copy such records at a convenient place during normal business hours. All required records shall be maintained by Contractor for three years after Metro makes final payment and all other pending matters are closed.

7. Ownership of Documents. All documents of any nature including, but not limited to, reports, drawings, works of art and photographs, produced by Contractor pursuant to this Agreement are the property of Metro, and it is agreed by the parties that such documents are works made for hire. Contractor hereby

conveys, transfers, and grants to Metro all rights of reproduction and the copyright to all such documents.

8. Project Information. Contractor shall share all project information and fully cooperate with Metro, informing Metro of all aspects of the project including actual or potential problems or defects. Contractor shall abstain from releasing any information or project news without the prior and specific written approval of Metro.

9. Independent Contractor Status. Contractor shall be an independent contractor for all purposes and shall be entitled only to the compensation provided for in this Agreement. Under no circumstances shall Contractor be considered an employee of Metro. Contractor shall provide all tools or equipment necessary to carry out this Agreement, and shall exercise complete control in achieving the results specified in the Scope of Work. Contractor is solely responsible for its performance under this Agreement and the quality of its work; for obtaining and maintaining all licenses and certifications necessary to carry out this Agreement; for payment of any fees, taxes, royalties, or other expenses necessary to complete the work except as otherwise specified in the Scope of Work; and for meeting all other requirements of law in carrying out this Agreement. Contractor shall identify and certify tax status and identification number through execution of IRS form W-9 prior to submitting any request for payment to Metro.

10. Right to Withhold Payments. Metro shall have the right to withhold from payments due to Contractor such sums as necessary, in Metro's sole opinion, to protect Metro against any loss, damage, or claim which may result from Contractor's performance or failure to perform under this Agreement or the failure of Contractor to make proper payment to any suppliers or subcontractors.

11. State and Federal Law Constraints. Both parties shall comply with the public contracting provisions of ORS chapter 279, and the recycling provisions of ORS 279.545 - 279.650, to the extent those provisions apply to this Agreement. All such provisions required to be included in this Agreement are incorporated herein by reference. Contractor shall comply with all applicable requirements of federal and state civil rights and rehabilitation statutes, rules and regulations including those of the Americans with Disabilities Act.

12. Situs. The situs of this Agreement is Portland, Oregon. Any litigation over this agreement shall be governed by the laws of the state of Oregon and shall be conducted in the circuit court of the state of Oregon, for Multnomah County, or, if jurisdiction is proper, in the U.S. District Court for the District of Oregon.

13. Assignment. This Agreement is binding on each party, its successors, assigns, and legal representatives and may not, under any circumstance, be assigned or transferred by either party.

14. Termination. This Agreement may be terminated by mutual consent of the parties. In addition, Metro may terminate this Agreement by giving Contractor five days prior written notice of intent to terminate, without waiving any claims or remedies it may have against Contractor. Termination shall not excuse payment for expenses properly incurred prior to notice of termination, but neither party shall be liable for indirect or consequential damages arising from termination under this section.

15. No Waiver of Claims. The failure to enforce any provision of this Agreement shall not constitute a waiver by Metro of that or any other provision.

16. Modification. Notwithstanding any and all prior agreements or practices, this Agreement constitutes the entire Agreement between the parties, and may only be modified in a writing signed by both parties.

HARDING LAWSON ASSOCIATES

METRO

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Print name and title

\_\_\_\_\_  
Print name and title

\_\_\_\_\_  
Date

\_\_\_\_\_  
Date



Exhibit A

Scope of Work

1. Statement of Work.

Contractor shall provide engineering services for the design of a landfill gas pipeline and compressor station. These services will include: feasibility studies, design, construction assistance, surveying and assistance in obtaining permits and right of way.

These services are described in Metro RFP #95R-32-REM which is included in this Agreement by reference. The basic services associated with the price shown below under Section 2 of this Exhibit are described in Contractor's Scope of Services which was developed during negotiation and is attached to this Agreement as Exhibit B. The work shall be performed according to the schedule as described in Exhibit B. The dates on the schedule shall be extended so that the starting date is coincident with the date of execution of this Agreement. The Contractor's proposal dated September 7, 1995, is included in this agreement by reference.

All determinations of the precedence of the Contract documents shall be made by Metro, but in general, precedence will be in accordance with the following list with the highest precedence item at the top:

1. Metro Personal Services Agreement
2. Exhibit A, Scope of Work
3. Exhibit B and attached schedules and exhibits
4. Metro Request for Proposals
5. Contractor's Proposal

Contractor shall maintain Professional Liability Insurance as described in Article 4 of this Agreement.

2. Payment and Billing.

Contractor shall provide the above services at the hourly rates shown on the attached Schedule of Charges for a price not to exceed Two Hundred Sixteen Thousand Four Hundred Thirty Eight Dollars (\$216,438.00), which is detailed in the Contractor's project budget in Exhibit C. All the charges, fees

and rates set forth in the Schedule of charges and attached tables shall not be increased during the term of this Contract. In the event Metro wishes for Contractor to provide services beyond those which can be accomplished for the price noted above, Contractor shall provide such services as authorized in writing by Metro, at the rates shown in Exhibit C, Schedule of Charges. The price of the work described above and any additional services requested in writing, shall not exceed the maximum price shown in Section 3 of this Agreement, without written amendment.

The maximum price includes all fees, costs and expenses of whatever nature. Each of Metro's payments to Contractor shall be based on the hourly rates for the work performed and the expenses incurred by the Contractor during the billing period. Contractor's billing statements will include an itemized statement of work done and expenses incurred during the billing period, will not be submitted more frequently than once a month, and will be sent to Metro, Attention Regional Environmental Management. Metro will pay Contractor within 30 days of receipt of an approved billing statement. Metro will not pay any late fees or charges, or interest, of any kind or description.

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## EXHIBIT B

### CONTRACTOR'S SCOPE OF SERVICES

#### DESIGN SERVICES FOR ST. JOHNS LANDFILL GAS PIPELINE AND COMPRESSOR STATION

This scope of work provides the engineering services necessary for the design of the St. Johns Landfill gas (LFG) pipeline and compressor station. Included in these services is a feasibility study to determine if the sale of LFG is cost effective under the current market conditions, a preliminary and final design of both the LFG pipeline and compressor station, assistance in permitting and right-of-way acquisition, and assistance during construction and start-up.

Listed in the paragraphs that follow are descriptions of the services that will be provided by the project team under this scope of work.

##### Task 1 - Site Evaluation/Feasibility Study

Under this task, the project team will meet with Metro personnel to establish the design criteria, requirements, and milestones. The primary goal of this task is to evaluate the feasibility of this project. For that, the project team will develop an order of magnitude construction cost estimate ( $\pm 30\%$ ) for the project. Preliminary equipment sizing and specifications from the data base available on previous projects and prior experience, will be used for budget prices from vendors. Construction cost will be developed using standard factors from prior experience. Similarly, the pipeline costs will be developed based on preliminary sizing and a route analysis. The estimate (feasibility study) will be submitted to Metro. The cost estimate will be revised in Task 2.C by correcting for the final sizing and selection of equipment, pipeline layout and compressor station layout.

##### 1A - Scope Meeting and Project Definition

Key personnel of the project team will meet with the Metro project management staff to confirm the project definition and goals. The primary objectives of the meeting will be as follows:

- Understand the status including terms and conditions of the sales gas contract with the LFG end user.
- Identify potential technical, environmental, and economic concerns.
- Discuss Metro's requirements, expectations and preferences in the design of the compressor station and pipeline.
- Agree on the project schedule and milestones.
- Gather available reports, site drawings, history of operating data and other relevant documents.

##### 1B - Site Inspections

Under this task, the project team will review the flare operation and historic field data to develop a typical gas analysis and identify inlet gas conditions for the compressor station design.

A meeting will be held with Ash Grove Cement Co., the LFG end user to review the site conditions and to understand their mode of operations. This information will be used to define the sales gas requirements at the boundary of the end user site.

Formal contacts with the Union Pacific Railroad will be established. Our technical staff will present the proposed pipeline route to them and will propose design criteria. Union Pacific Railroad concerns will be identified so that they can be incorporated in the pipeline design analysis.

##### 1C - Compressor Station Feasibility Study

Following the site evaluations, the project team will estimate the equipment and vessel sizing for the compressor station based on previously developed data from other projects and local conditions. Vendors will be contacted by phone for the budget prices of major equipment. The construction cost will be estimated from the preliminary layout schematic, which was shown in the proposal, and equipment cost. The schematic and an order of magnitude cost estimate ( $\pm 30\%$ ) will be presented in a technical memorandum.

### **1D - Pipeline Route Alternatives Analysis**

The project team will identify pipeline route alternatives and prepare conceptual level cost estimates for the pipeline. It is anticipated that a route along the Union Pacific Railroad right-of-way will be identified and evaluated. In addition, two alternative alignments will be evaluated.

A technical memorandum will be prepared that describes the route analysis. Included in the memorandum for each alternative will be a map showing their alignment; a listing of the permits and agreements that would be required for their implementation, along with the procedure and schedule required for their acquisition; and an order of magnitude ( $\pm 30\%$ ) cost estimate.

### **Task 2 - Preliminary Design**

Under this task, the project team will prepare the preliminary design for the new facilities. The primary goal will be to establish the design criteria for the compressor station and pipeline. The design criteria will identify design standards that will meet the requirements of Metro, the LFG end user (Ash Grove Cement Co.), the Union Pacific Railroad, and local codes and ordinances. As a part of this design task, the project team will develop design criteria and generate a heat and material balance for sizing and specifying equipment. The process flow diagram will show process operating conditions, equipment and line sizes, and critical process controls.

A cursory technical evaluation will be performed to determine the type of compressor for the site. It is our opinion, based on prior experience, that a reciprocating compressor will be cost effective for this application. This assumption will be verified in the limited time budgeted for the compressor evaluation. A technical memorandum will be prepared that describes the characteristics of the compressor selected and the number of units required.

Based on our previous experience, it is anticipated that a chilled water system will be utilized for gas dew point control. The fee estimate assumes that

analysis of other types of systems will not be required.

The project team will develop a process flow diagram for the compressor station that will identify key components of the system. Capital and operating costs will be estimated based on the preliminary design of the compressor station and pipeline.

### **2A - Compressor Station Preliminary Design**

The work under this task will include the development of a process flow diagram (PFD) for the compressor station. The PFD will identify major equipment, critical controls, and the interface between the flare and the compressor system. The PFD will also identify the normal process conditions and preliminary line sizing. Once the process scheme is defined, the project team will perform the process simulation and develop a heat and material balance for the compressor station.

In addition, the project team will perform a cursory engineering and economic evaluation to determine the type of compressor(s) to be used for the compressor station. The project team will include in the design a chilled water system for the dew point control of landfill gas.

The project team will prepare a facility plan showing equipment layout and a plot plan requirement for the compressor station. A floor plan for the compressor building will be developed detailing layout of major equipment and other systems that will be housed in the building.

The compressor building will be placed on the landfill and will require a methane barrier and a methane monitoring system for alarm and shutdown of the facility on detection of methane gas.

It is anticipated that the compressor building will be designed as a floating foundation based on previous geotechnical investigations in the area. Settlement is expected to occur in the area that has been set aside for the compressor station due to the decomposition of refuse. Provisions will be made within the design for the re-leveling of equipment and flexible connecting joints for piping, tubing, conduits, etc. to

accommodate minor subsidence of the compressor station slab due to differential settlement.

### **2B - LFG Pipeline Preliminary Design**

The optimum size of the pipeline will be determined after performing an engineering and economic evaluation of line size as a function of pressure drop, cost of pipe, and compressor horsepower. We will also verify our preliminary estimate of the SDR rating of HDPE pipe.

Based on the results of Tasks 1B and 1C, a preliminary design for the preferred alternative will be developed utilizing existing maps and aerial photos that are available. Details showing the method of installation proposed for the bridge crossing will be included in the preliminary design.

For the purposes of the fee estimate, it is anticipated that up to one day of survey crew time will be required to develop mapping in critical areas.

### **2C - Construction and Operating Cost Estimate**

After preparing preliminary design criteria and specifications for the compressor station and pipeline, the project team will review the order of magnitude cost that was developed previously under Task 1. The order of magnitude cost estimate will be estimated to a class II construction cost estimate ( $\pm 20\%$ ). Operating and maintenance cost will be based on estimated utility consumption, prior experience with similar sites, and the maintenance history of the proposed equipment.

### **2D - Preliminary Design Report**

Under this task, the project team will prepare a preliminary design report that will summarize the findings of this phase of the work. Ten copies will be submitted to Metro for distribution. The preliminary design report will include:

- Design criteria
- Process flow diagram and facility description
- Compressor evaluation and pipeline sizing
- Preliminary specifications of major equipment

- Material and heat balance, including process conditions of major process streams
- A proposed horizontal alignment for the pipeline
- Railroad and bridge crossing details

### **Task 3 - Final Design**

After securing approval of the preliminary design, the project team will proceed with the final engineering design, technical specifications, and construction drawings. Technical specifications will be prepared for the construction contractor to purchase and fabricate the skid-mounted units such as the refrigeration system, dehydration skid, and compressor skid. The construction contractor will be required to provide all shop drawings, including but not limited to the control wiring on the skid and the design and fabrication of respective control panels.

### **3A - Base Map Preparation**

Under this task, the project team will prepare the base maps for the pipeline and compressor station design. The base map will include major features along the pipeline route, including the bridge crossing, overhead utility/transmission lines and towers, underground utilities, railroad trackage, sideslope pilings, road crossings, edges of water bodies, and steep slope areas. The bridge crossing details will show the location of the roadway and existing hanger locations.

A survey will be performed that will identify x, y, and z coordinate information that is suitable to establish 1-foot contour intervals along the selected route width of 25 feet and 2-foot contour levels for an additional 12.5 feet on each side of the 25-foot strip, or as necessary for final design. The location of available Union Pacific Railroad monumentation and stationing relative to the final route alignment and available monumentation of the North Lombard and Rivergate Boulevard crossings and end user property will be identified.

For the purposes of the fee estimate, it is assumed that the pipeline route will be up to 10,500 feet long and that no major brush cutting will be required.

### **3B - Process Design**

Under this task, process and instrument diagrams and technical specifications for instruments, equipment, and vessels will be developed. The work will also include line sizing and sizing and specification for control valves and relief valves.

### **3C - Mechanical Design**

The project team will prepare overall piping plans with sections and elevations of interconnecting skid piping. The plans will also include instrumentation details and equipment layout.

It is not the intent to provide final piping, structural, instrumentation, and electrical drawings of the vendor-supplied skids. The vendor shall be responsible for these drawings. The project team will review all vendor drawings for conformance to the preliminary drawings, process flow diagrams, and specifications under Task 5.

### **3D - Electrical Design**

The project team will prepare technical specifications for the electrical switch gear, transformers, compressor motor starters, and motor control center. They will perform electrical load calculations and develop wiring and conduit schedules. Drawings will include:

- Single line diagram
- Electrical area classification
- Electrical control schematics
- Wiring and conduit layout
- Grounding plan
- Lighting details
- Control panel details
- Switch gear and motor control center layout details

For the purposes of the fee estimate, it is assumed that 4160, 440 and 110 volt power supplies are available at the site. It is assumed that negotiations with the power company will be performed by Metro personnel.

### **3E - Civil and Structural Design**

The project team will prepare a final grading and drainage plan, foundation design for all equipment and skids, pipe support details, and a compressor building structural plan and details under this task. A methane gas barrier system and a compressor building gas monitoring system will be incorporated into the design.

It is anticipated that the foundation for the compressor building will utilize a floating slab type of design. For the purposes of the fee estimate, it is assumed that no additional geotechnical investigations will be required.

### **3F - Pipeline Design**

Utilizing the base maps prepared under Task 3A, the project team will prepare the design for the LFG pipeline. Technical specifications for the pipe, bridge hangers, and underground rail crossings will be developed. Union Pacific requirements that the construction contractor will need to adhere to will be specified.

Test pits will be excavated and logged along the pipeline route at 1000 foot intervals. For the purposes of the fee estimate, it is assumed that two days of a backhoe with operator will be required.

Drawings will include the following:

- Plan and profile sheets
- Bridge crossing details
- Condensate return system details
- Rail crossing plans and cross-sections
- Geotechnical boring and test pit logs

For the purposes of the fee estimate, it is assumed that up to 11 drawings will be required for the pipeline design.

### **3G - Preparation of Contract Documents**

The project team will compile all the work completed under this phase into a set of plans and specifications that are suitable for bidding. It is anticipated that the documents will be reviewed at

the 35 and 80 percent review stages under this task. Five sets of prints will be provided for each review.

Upon completion, the specifications for the improvements will be provided in Microsoft Word 6.0. Camera-ready mylar originals of the drawings will also be provided.

The bid documents will be set up so that the cost of improvements on the end user's site can be clearly identified.

#### **Task 4 - Right-of-Way Assistance**

The project team will assist in the identification of existing real property owners, agencies, or utilities requiring permits or easements to cross or encumber their property or right-of-way under this task.

Potential agency or property owners affected may include but are not limited to Union Pacific Railroad, the City of Portland, the Port of Portland, Oregon Department of Transportation, Metro, and telephone, gas, electric, water, and sewer utilities. The project team will assist in the preparation of descriptions, plans, attachments, and permits as they relate to the location of the LFG pipe alignment.

The route alignment, the number of property owners, the number or types of agreements or permits that will be required will not be known until after Task 1D has been completed. For the purposes of the fee estimate, the following time has been allocated to complete this task:

Project Manager	40 hours
Senior Engineer	24 hours
Staff Engineer	24 hours
CAD Drafter	40 hours
Word Processor	8 hours

Preparation of easement descriptions and surveys; wetland surveys; and other environmental field studies; are not part of this scope of work and, if required, will be performed under a separate work authorization.

#### **Task 5 - Construction Management**

It is our understanding that Metro will provide construction inspection and contract administration.

The project team will assist Metro with the submittal review, evaluation of change order requests, and interpretation of the intent of the design during the bidding and construction phases.

It is anticipated that the project manager will attend the prebid conference and pre-construction conference and will visit the site once a month during the construction of the facility to review the progress of construction and to ensure that the work is being completed in conformance with the construction documents.

In addition, the compressor station design engineers will be available for two site visits during construction and will provide two days of engineering assistance during the facility start-up.

For the purposes of the fee estimate, it is assumed that inspection of the compressors and refrigeration system at the factory will be performed by Metro's engineers.

It is anticipated that the equipment suppliers will provide operation and maintenance manuals for their equipment. An O&M manual will be prepared by assembling vendor-supplied O&M manuals and providing overall process description, control strategy, and start-up sequence. A camera-ready copy of the originals will be submitted to Metro upon completion.

**EXHIBIT C**  
**LANDFILL GAS PIPELINE AND COMPRESSOR STATION AT JOHNS LANDFILL**  
**SCHEDULE OF CHARGES**

<b>Professional Services</b>	Staff Engineer and Scientist.....	\$ 60.00/hour
	Project Engineer and Scientist.....	75.00/hour
	Senior Engineer and Scientist .....	95.00/hour
	Associate Engineer and Scientist.....	105.00/hour
	Principal Engineer and Scientist .....	125.00/hour
	Consulting Vice President .....	150.00/hour
<b>Technical Services</b>	Clerical .....	\$40.00/hour
	Technical Word Processor .....	45.00/hour
	Drafter/CAD Operator .....	50.00/hour
	Administrator/Coordinator .....	50.00/hour
	Technical Editor.....	50.00/hour
	Technician .....	50.00/hour
	Senior Technician.....	60.00/hour
<b>Contract Labor</b>	From time to time, Harding Lawson Associates retains outside Professional and Technical labor on a temporary basis to meet peak work load demands. Such contract labor will be charged at regular Schedule of Charges rates.	
<b>Litigation Support</b>	Expert testimony in (and preparation for) depositions, hearings, mediation, and trials will be charged at 200 percent of the above rates.	
<b>Travel Time</b>	Travel time will be charged as regular hourly rates, for actual time involved.	
<b>Equipment</b>	CAD/Microcomputer.....	\$25.00/hour
	Personal Computer.....	15.00/hour
	Truck and Field Test Equipment .....	15.00/hour
	4-Wheel Drive Truck.....	15.00/hour
	1/2- to 1-Ton Pickup Truck.....	10.00/hour
	Automobile .....	10.00/hour
	Geophysical Equipment.....	Separate Schedule
	Geotechnical and Environmental Monitoring Equipment.....	Separate Schedule
Other Computer Services.....	Separate Schedule	
<b>Outside Services</b>	Rental of equipment not ordinarily furnished by Harding Lawson Associates and all other costs such as special printing, common photographic work, travel by carrier, subsistence, subcontractors, etc.	cost + 5%
<b>Communication &amp; Reproduction</b>	In-house costs for long distance telephone, telex, telecopier, postage, and printing	project labor charges x 3%
<b>Terms</b>	Billings are payable upon presentation and are past due 30 days from invoice date. A finance charge of 1.5 percent per month, or the maximum amount allowed by law, will be charged on past-due accounts. Harding Lawson Associates makes no warranty, either expressed or implied, as to its findings, recommendations, specifications or professional advice, except that they are prepared and issued in accordance with generally accepted professional practice.	

Harding Lawson Associates reserves the right to revise its Schedule of Charges with changes in its practice.





**TABLE 1: ESTIMATED HLA HOURS FOR ST. JOHNS LANDFILL GAS PIPELINE AND COMPRESSOR STATION**

Description	Vice President	Principal	Associate Engineer	Senior Engineer	Project Engineer	Staff Engineer	Administrator	Technical Editor	CADD Drafter	Word Processor	Total Manhours
<b>Task 1 - Feasibility Studies</b>											
IA - Project Scoping	0	2	16	0	0	0	4	0	0	4	26
IB - Site Inspections	0	0	12	8	0	0	0	0	0	0	20
IC - Compressor Station	0	0	2	4	0	0	0	0	0	0	6
ID - Route Analysis	0	0	16	16	0	40	0	0	24	4	100
Subtotal- Task 1	0	2	46	28	0	40	4	0	24	8	152
<b>Task 2 - Preliminary Design</b>											
2A - Compressor Station	0	1	4	4	16	0	2	0	4	0	31
2B - LFG Pipeline	0	2	24	16	12	60	2	0	40	4	160
2C - Cost Estimates	0	0	2	0	0	8	0	0	0	0	10
2D - Design Report	0	1	16	0	0	8	0	2	8	4	39
Subtotal- Task 2	0	4	46	20	28	76	4	2	52	8	240
<b>Task 3 - Final Design</b>											
3A - Base Map Preparation	0	0	8	0	0	0	2	0	8	0	18
3B - Process Design	0	2	12	0	0	0	2	0	0	0	16
3C - Mechanical Design	0	0	0	0	0	0	0	0	0	0	0
3D - Electrical Design	0	0	0	0	0	0	0	0	0	0	0
3E - Civil/Structural Design	0	0	4	12	24	16	0	0	40	0	96
3F - Pipeline Design	0	0	40	40	0	80	0	0	80	8	248
3G - Contract Document Prep	0	0	24	0	0	24	8	4	24	16	100
Subtotal- Task 3	0	2	88	52	24	120	12	4	152	24	478
<b>Task 4 - Right of Way Assistance</b>											
Task 4 - Right of Way Assistance	0	0	40	24	0	24	0	0	40	8	136
<b>Task 5 - Construction Management</b>											
Task 5 - Construction Management	0	0	60	0	0	16	0	0	16	8	100
<b>TOTAL</b>	<b>0</b>	<b>8</b>	<b>280</b>	<b>124</b>	<b>52</b>	<b>276</b>	<b>20</b>	<b>6</b>	<b>284</b>	<b>36</b>	<b>1106</b>

**TABLE 2: ESTIMATED LABOR FEES FOR HARDING LAWSON ASSOCIATES PERSONNEL**

Description	Vice President	Principal	Associate Engineer	Senior Engineer	Project Engineer	Staff Engineer	Administrator	Technical Editor	CADD Drafter	Word Processor	Labor Fees
	\$150.00	\$125.00	\$105.00	\$95.00	\$75.00	\$60.00	\$50.00	\$50.00	\$50.00	\$45.00	
<b>Task 1 - Feasibility Studies</b>											
IA - Project Scoping	\$0	\$250	\$1,680	\$0	\$0	\$0	\$200	\$0	\$0	\$180	\$2,310
IB - Site Inspections	\$0	\$0	\$1,260	\$760	\$0	\$0	\$0	\$0	\$0	\$0	\$2,020
IC - Compressor Station	\$0	\$0	\$210	\$380	\$0	\$0	\$0	\$0	\$0	\$0	\$590
ID - Route Analysis	\$0	\$0	\$1,680	\$1,520	\$0	\$2,400	\$0	\$0	\$1,200	\$180	\$6,980
<b>Subtotal - Task 1</b>	\$0	\$250	\$4,830	\$2,660	\$0	\$2,400	\$200	\$0	\$1,200	\$360	\$11,900
<b>Task 2 - Preliminary Design</b>											
2A - Compressor Station	\$0	\$125	\$420	\$380	\$1,200	\$0	\$100	\$0	\$200	\$0	\$2,425
2B - LFG Pipeline	\$0	\$250	\$2,520	\$1,520	\$900	\$3,600	\$100	\$0	\$2,000	\$180	\$11,070
2C - Cost Estimates	\$0	\$0	\$210	\$0	\$0	\$480	\$0	\$0	\$0	\$0	\$690
2D - Design Report	\$0	\$125	\$1,680	\$0	\$0	\$480	\$0	\$100	\$400	\$180	\$2,965
<b>Subtotal - Task 2</b>	\$0	\$500	\$4,830	\$1,900	\$2,100	\$4,560	\$200	\$100	\$2,600	\$360	\$17,150
<b>Task 3 - Design</b>											
3A - Base Map Preparation	\$0	\$0	\$840	\$0	\$0	\$0	\$100	\$0	\$400	\$0	\$1,340
3B - Process Design	\$0	\$250	\$1,260	\$0	\$0	\$0	\$100	\$0	\$0	\$0	\$1,610
3C - Mechanical Design	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
3D - Electrical Design	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
3E - Civil/Structural Design	\$0	\$0	\$420	\$1,140	\$1,800	\$960	\$0	\$0	\$2,000	\$0	\$6,320
3F - Pipeline Design	\$0	\$0	\$4,200	\$3,800	\$0	\$4,800	\$0	\$0	\$4,000	\$360	\$17,160
3G - Contract Document Prep	\$0	\$0	\$2,520	\$0	\$0	\$1,440	\$400	\$200	\$1,200	\$720	\$6,480
<b>Subtotal - Task 3</b>	\$0	\$250	\$9,240	\$4,940	\$1,800	\$7,200	\$600	\$200	\$7,600	\$1,080	\$32,910
<b>Task 4 - Right of Way Assistance</b>	\$0	\$0	\$4,200	\$2,280	\$0	\$1,440	\$0	\$0	\$2,000	\$360	\$10,280
<b>Task 5 - Construction Management</b>	\$0	\$0	\$6,300	\$0	\$0	\$960	\$0	\$0	\$800	\$360	\$8,420
<b>TOTAL</b>	\$0	\$1,000	\$29,400	\$11,780	\$3,900	\$16,560	\$1,000	\$300	\$14,200	\$2,520	\$80,660

TABLE 3: SUMMARY OF ESTIMATED FEES FOR ST JOHNS LFG PIPELINE AND COMPRESSOR STATION

Description	Labor	HLA Labor		HLA Computer		Subcontractor			# of Trips	Travel	Other	Fee %	Subtotal	Total Fees
		Fee 3%	Subtotal	Hours	Charges	DPA	TWI	HLA Fee 5%						
Task 1 - Feasibility Studies														
1A - Project Scoping	\$2,310	\$69	\$2,379	0	\$0	\$2,220	\$0	\$111	0	\$0	\$50	\$3	\$53	\$4,763
1B - Site Inspections	\$2,020	\$61	\$2,081	0	\$0	\$1,391	\$0	\$80	1	\$250	\$250	\$25	\$525	\$4,276
1C - Compressor Station	\$590	\$18	\$608	0	\$0	\$3,698	\$0	\$183	0	\$0	\$0	\$0	\$0	\$4,491
1D - Route Analysis	\$6,980	\$209	\$7,189	4	\$60	\$0	\$0	\$0	1	\$250	\$100	\$18	\$368	\$7,617
Subtotal- Task 1	\$11,900	\$357	\$12,257	4	\$60	\$7,509	\$0	\$373	2	\$300	\$400	\$45	\$945	\$21,146
Task 2 - Preliminary Design														
2A - Compressor Station	\$2,425	\$73	\$2,498	0	\$0	\$15,100	\$0	\$755	0	\$0	\$0	\$0	\$0	\$18,353
2B - LFG Pipeline	\$11,070	\$332	\$11,402	0	\$0	\$1,329	\$0	\$66	1	\$250	\$100	\$18	\$368	\$13,165
2C - Cost Estimates	\$690	\$21	\$711	4	\$60	\$2,441	\$0	\$122	0	\$0	\$0	\$0	\$0	\$3,334
2D - Design Report	\$2,965	\$89	\$3,054	0	\$0	\$1,689	\$0	\$84	0	\$0	\$300	\$15	\$315	\$5,142
Subtotal- Task 2	\$17,150	\$515	\$17,665	4	\$60	\$20,559	\$0	\$1,028	1	\$250	\$400	\$33	\$683	\$39,994
Task 3 - Final Design														
3A - Base Map Preparation	\$1,340	\$40	\$1,380	0	0	\$0	\$20,000	\$1,000	0	\$0	\$50	\$3	\$53	\$22,433
3B - Process Design	\$1,610	\$48	\$1,658	0	0	\$12,113	\$0	\$606	0	\$0	\$0	\$0	\$0	\$14,377
3C - Mechanical Design	\$0	\$0	\$0	0	0	\$14,070	\$0	\$704	0	\$0	\$0	\$0	\$0	\$14,774
3D - Electrical Design	\$0	\$0	\$0	0	0	\$15,079	\$0	\$754	0	\$0	\$0	\$0	\$0	\$15,833
3E - Civil/Structural Design	\$6,320	\$190	\$6,510	16	240	\$3,502	\$0	\$175	0	\$0	\$0	\$0	\$0	\$10,427
3F - Pipeline Design	\$17,160	\$515	\$17,675	24	360	\$2,966	\$0	\$148	0	\$0	\$3,000	\$150	\$3,150	\$24,299
3G - Contract Document Prep	\$6,480	\$194	\$6,674	8	120	\$7,415	\$0	\$371	0	\$0	\$500	\$25	\$525	\$15,105
Subtotal - Task 3	\$32,910	\$987	\$33,897	48	\$720	\$55,145	\$20,000	\$3,757	0	\$0	\$3,550	\$178	\$3,728	\$117,247
Task 4 - Right of Way Assistance	\$10,280	\$308	\$10,588	8	120	\$0	\$0	\$0	2	\$500	\$0	\$25	\$525	\$11,233
Task 5 - Construction Management	\$8,420	\$253	\$8,673	4	60	\$17,173	\$0	\$859	0	\$0	\$50	\$3	\$53	\$26,817
<b>TOTAL</b>	<b>\$80,660</b>	<b>\$2,420</b>	<b>\$83,080</b>	<b>68</b>	<b>\$1,020</b>	<b>\$100,386</b>	<b>\$20,000</b>	<b>\$6,019</b>	<b>5</b>	<b>\$1,250</b>	<b>\$4,400</b>	<b>\$283</b>	<b>\$5,933</b>	<b>\$216,438</b>

## EXHIBIT C

### Consents and Waivers

1. Franchise Agreement with the City of Portland

## EXHIBIT D

1. **Harding Lawson Associates Agreement**
2. **All warranties, guarantees and other such agreements related to the Project Facility.**

Exhibit A  
Acquisition and Security Agreement

**LANDFILL GAS COLLECTION SYSTEM**

**Introduction**

The St. Johns Landfill gas collection system consists of 64 single completion extraction wells, 21 double completion extraction wells, 21 horizontal gas collection trenches, a perimeter gas extraction trench system, and a manifold system consisting of pipes varying in size from 3-inches to 16-inches in diameter. The gas collection system also includes the blowers and their controls located at the Motor Blower Flare Facility(MBF). The condensate collection system consisting of 4-inch piping and a number of vacuum stations, valve stations, pumping stations and the condensate knock-outs at the MBF is an integral part of the gas collection system. The building, flares and ancillary equipment at the MBF are not part of the gas collection system. A map showing the general layout of the gas collection system and its major components is included at the end of this narrative description.

The following are descriptions of the major components of the landfill gas collection system at the St. Johns Landfill.

**Trenches**

Each gas extraction trench consists of a 5-foot deep, 3-foot-wide trench cut into the top of the subgrade before the installation of the final cover. The lower 3 feet of the trench is backfilled with gravel to allow the gas to migrate into the trench. A 6-inch-diameter perforated, corrugated, high-density polyethylene (HDPE) line is installed 12 inches from the bottom of the trench. The total length of perimeter gas trenches is about 17,800 feet.

**Extraction Wells**

The single completion LFG extraction wells are typically drilled to the depth of the landfill at each well location. These wells are between 40 and 60 feet deep. Single completion wells are completed with a single 6-inch diameter polyvinyl chloride (PVC) casing. The upper 25 feet (approximately) of casing is a solid 4-inch PVC riser. All casing below 25 feet is perforated pipe, which extends to the bottom of the well.

The double completion LFG extraction wells were also drilled to 100% of the depth of the landfill at each location, generally 60-100 feet deep. These wells were completed using 6 and 8-inch diameter PVC casings. Double completion wells are constructed with one casing installed to approximately one half the total depth of the well. This casing is perforated between 25 feet from ground surface

Exhibit A  
Acquisition and Security Agreement

to the bottom of the completion. The second completion is installed to the full depth of the well and perforated from the bottom of the shallow completion to the bottom of the casing.

**Landfill Gas Manifold**

The LFG manifold, is constructed of high-density polyethylene pipe that connects all gas extraction wells and trenches to the Motor Blower/Flare Facility. The LFG manifold is sloped to allow condensate to drain to low-point drains. Expansion loops are designed into the manifold routing normally at high points, to allow the pipe to expand and contract. The following table shows the approximate length of each size of manifold piping. Valves are placed at various points along the manifold piping to isolate sections of the system.

**Landfill Gas Manifold Pipe Sizes**

<i>Pipe Diameter (inches)</i>	<i>Length (feet)</i>
3	21,520
4	4,680
6	6,430
8	5,450
10	5,560
12	2,970
16	3,410
<b>Total</b>	<b>50,020</b>

**Condensate Drainage System**

Condensate forms as warm, moist landfill gas from the wells and trenches cools in the gas manifold. The condensate drainage system is designed to extract condensate from the gas manifold and dispose of it by pumping it to the manhole (MH-1) at the Blower / Flare Facility. The major components are as follows:

- Vacuum Valve Stations
- Remote Condensate Pump Stations T-1, T-2, T-3, T-4, and T-5
- Vacuum Pump Stations VS#1 and VS#2
- Manhole MH-1
- Condensate drainage, condensate pump discharge, and vacuum piping.



Exhibit A  
Acquisition and Security Agreement

The following sections describe in more detail the basic design and function of each major component.

### **Vacuum Valve Stations**

There are 31 vacuum valve stations, each located at a low point in the gas manifold. The vacuum valve stations are designed to extract condensate from the gas manifold and admit it into the condensate system.

The major components of a valve station are as follows:

- Fabricated condensate drip leg
- Air release valve
- Balancing valve
- Meter box.

### **Remote Condensate Pump Stations**

There are three remote pump stations, T-1, T-2, T-3, T-4, and T-5. The pump stations are designed to collect condensate from a portion of the landfill and pump it to MH-1 or to the leachate wet well.

The major pump station components are as follows:

- Condensate collection tank
- Condensate pumps.
- Isolation valves
- Electrical controls

There is one 2 hp Meyers WG20-43 condensate pumps at each station. Each is capable of approximately 18 GPM against 40-feet of head.

### **Vacuum Pump Station**

The two vacuum pump stations are located with two of the remote condensate pump stations, and consist of duplex vacuum pumps and a reserve tank. The vacuum pump stations are designed to provide vacuum for the condensate system as well as collect condensate draining from the landfill.

The major components are as follows:

- Vacuum pumps and reserve tank
- Condensate collection tank

Exhibit A  
Acquisition and Security Agreement

- Condensate pumps
- Isolation valves
- Electrical controls

#### **10.1.4.4 Manhole MH-1**

Manhole MH-1 is designed to collect the condensate that is discharged from the remote pump stations and pump it to the leachate wet well. The manhole is equipped with a submersible effluent pump capable of about 55 GPM against a 30-foot head.

#### **Condensate Drainage, Pump Discharge, and Vacuum Piping**

The condensate drainage piping consists of about 13,760 feet of four inch diameter high-density polyethylene (HDPE). The system is designed for vacuum assisted gravity drainage. The 4"-HDPE pipe is sloped from the vacuum valve stations to the condensate collection tanks. Vacuum is supplied from the vacuum pump stations through the collection tanks. Condensate cleanouts are located approximately every 300 feet along the pipe. This system also includes about 8,450 feet of one-inch diameter PVC vacuum line and 10,250 feet of two-inch PVC discharge line.

#### **Condensate Extraction and Discharge**

Landfill gas enters the MBF from the north through two 16 inch HDPE pipes. The gas goes through the condensate knock-out tanks (SCR-1 and SCR-2). These tanks extract condensate and filter the gas. Gas from these two knock-out tanks drains by gravity to Manhole-1(MH-1)

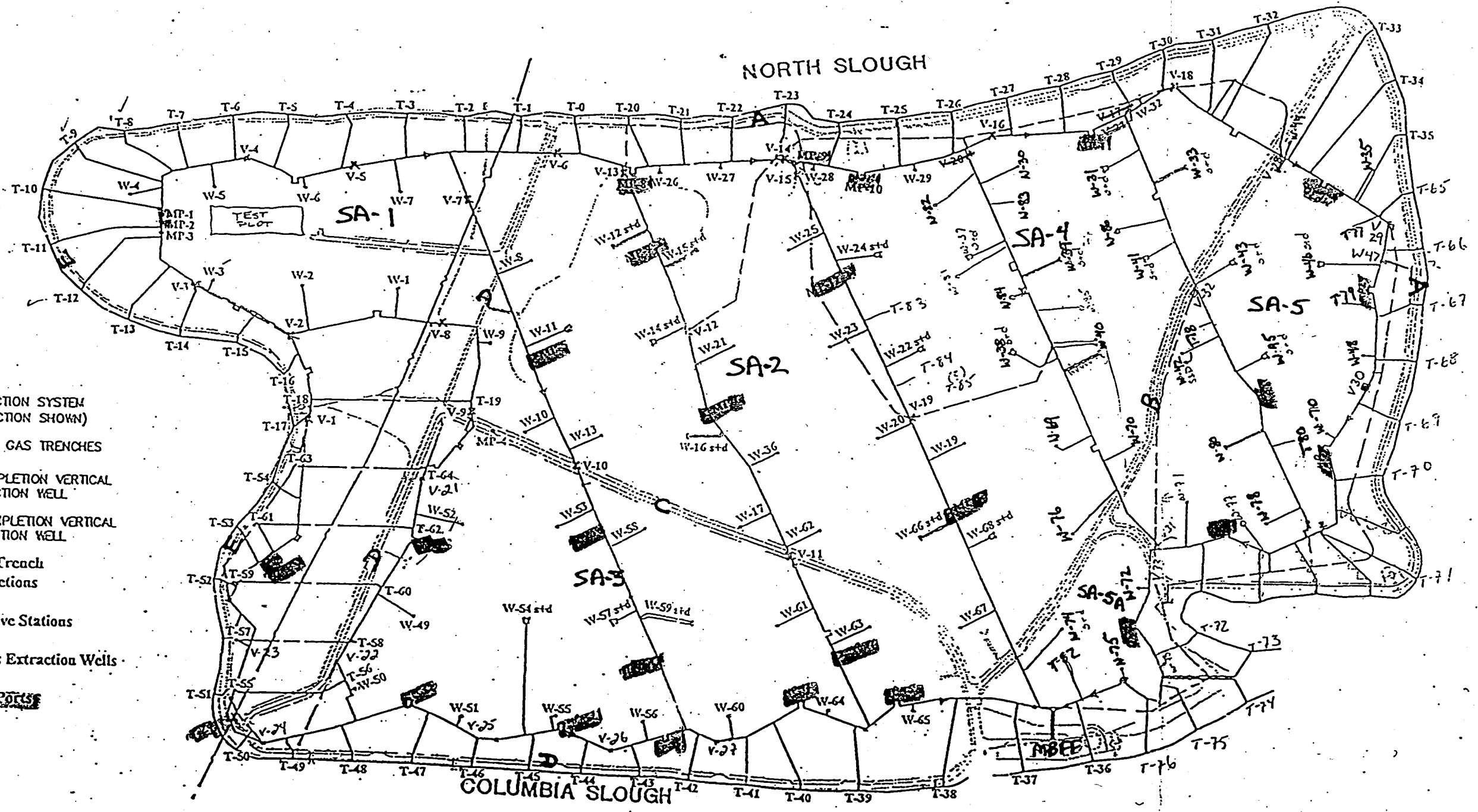
Condensate from MH-1 is discharged by a 2 hp Meyers pump to the leachate collection manhole at the northeast end of the landfill. The condensate mixes with leachate and is pumped to the sewer by the 1&1/2 hp Little Giant pump in the well.

#### **Blowers**

The three blowers are Hauck model TBGB9-081-291-E, with a 50 horse motor. The blowers run at 4300 RPM and are rated at 2250 standard cubic feet per minute (SCFM) (air) at 68"WC of vacuum. As flow increases past approximately 2250 SCFM the total system vacuum decreases. Multiple blower operation is required when the landfill gas flow rate exceeds a single blower's capacity to maintain sufficient vacuum.

Exhibit A  
Acquisition and Security Agreement

The blowers are equipped with surge controls that regulate the positioning of the volume damper on the suction side of each blower.



LEGEND

- GAS COLLECTION SYSTEM (FOLW DIRECTION SHOWN)
- HORIZONTAL GAS TRENCHES
- SINGLE COMPLETION VERTICAL GAS EXTRACTION WELL
- DOUBLE COMPLETION VERTICAL GAS EXTRACTION WELL
- T: Horizontal Trench Well Completions
- V: Vacuum Valve Stations
- W: Vertical Gas Extraction Wells

MP: Monitoring Ports

FIGURE 10-4  
LANDFILL GAS MANIFOLD  
ROUTING - PLAN VIEW

**Exhibit E**  
**Acquisition and Security Agreement**

The following permits for the St. Johns Landfill are included in this exhibit:

1. City of Portland Wastewater Discharge Permit 400-018
2. DEQ Air Contaminant Discharge Permit #26-3310
3. DEQ Solid Waste Disposal Site Closure Permit #116
4. Permit To Appropriate The Public Waters File Nol. S-72126



# CITY OF PORTLAND ENVIRONMENTAL SERVICES



1120 S.W. Fifth Ave., Room 400, Portland, Oregon 97204-1972  
(503) 823-7740, FAX (503) 823-6995

Expiration Date: 10/21/97  
Permit Number: 400-018  
Page: i

## MUNICIPAL PRETREATMENT PROGRAM WASTEWATER DISCHARGE PERMIT

ISSUED TO: METRO ST. JOHNS  
SANITARY LANDFILL

SIC CODE: 4953

PLANT TYPE: SANITARY LANDFILL (CLOSED)

EPA CATEGORY: 400

LOCATION: 9363 N. COLUMBIA BLVD.  
PORTLAND, OREGON 972

MAILING ADDRESS: 600 NE GRAND  
PORTLAND, OREGON 97232

RESPONSIBLE OFFICIAL: SAM CHANDLER  
PHONE NUMBER: (503) 797-1698  
FAX NUMBER: (503) 797-1795

APPLICATION FEE RECEIVED: OCTOBER 15, 1992

EFFECTIVE DATE: SEPTEMBER 15, 1993

EXPIRATION DATE: OCTOBER 21, 1997

INDUSTRIAL AND SOLID WASTE MANAGER: Susan D. Keil DATE: 8-18-93  
Susan D. Keil

PREPARED BY: Gary R. Barnes

CHECKED BY: YDN  
MJS  
GWB

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revision date 3/22/94

INTRODUCTION

PERMITTED ACTIVITIES

The permittee is authorized to discharge industrial wastewater including condensate from methane recovery to the City of Portland's sewer system in compliance with Chapter 17.34 of the City Code, the Bureau of Environmental Services Administrative Rules and any applicable provisions of federal or state laws or regulations and in accordance with discharge point(s), effluent limitations, monitoring requirements, and all other conditions set forth herein.

revision date 3/22/94



SCHEDULE A  
WASTEWATER DISCHARGE LIMITATIONS

Expiration Date: 10/21/97  
Permit Number: 400-018  
Page: A1 of 2

Schedule A  
WASTEWATER DISCHARGE LIMITATIONS

Waste Discharge Limitations Not To Be Exceeded After 7/01/93.  
(See note 1.)

Applicable Regulations: Chapters 17.34 and 17.36 of the Code of the City of Portland and 40 CFR 403.

The point of compliance with the discharge limitations shall be the Sampling Location #0. (See Appendix 2: sampling location map).

Pollutant Property	Daily Maximum Concentration mg/L	
* Ammonia.....	50.0	
Arsenic..(total).....	0.3	
* Cadmium..(total).....	0.7	
* Chromium (total).....	3.8	
* Copper... (total).....	2.3	
Cyanide..(total).....	1.2	
* Nickel... (total).....	3.0	
* Lead.....(total).....	0.7	
* Mercury..(total).....	0.014	
* Zinc.....(total).....	4.0	
Silver... (total).....	0.4	
Sulfate.....	500.0	
Sulfide.....	50.0	
* Phenolics.....	1.0	(See note 4)
* Chlorinated Hydrocarbons.....	0.5	(See note 5)
* Total Toxic Organics (TTO).....	2.13	(See note 6)
Fats Oil and Grease.....		(See note 7)
	* (non-polar) ..100.0	
	(polar).....500.0	
pH. (range).....	5.5-11.5	
* Closed Cup Flash Point.....	Discharges <140° F prohibited	

Notes:

1. This schedule may be revised upon written notification by the City to accommodate process changes by the permittee or as determined by the Director of Environmental Services.
2. In addition to the limits stated in Schedule A, the permittee shall comply with all other applicable City, State and Federal regulations.

Notes: (continued)

3. The pollutant parameters marked with an asterisk (\*) are the pollutants of concern. At a minimum, the permittee is required to monitor for pollutants of concern. All limits are applicable at the point of compliance.

4. The Phenolics group regulated by this limitation are the sum of all measurable values for the pollutants listed in Appendix 6. The method listed below shall be used for analysis of your sample.

	Method
Acidics	625

5. The Chlorinated Hydrocarbons group regulated by the limitations are the sum of all measurable values for the pollutants listed in Appendix 7. The method listed below shall be used for analysis of your sample.

	Method
Purgeables	624
Base/Neutrals and Acids	625

6. The Total Toxic Organics group (TTOs) regulated by this limitation are the sum of all measurable values for the pollutants listed in Appendix 8. The methods listed below shall be used for analysis of your sample.

	Method
Purgeables	624
Base/Neutrals and Acids	625

7. The permittee should instruct its laboratory that, if the oil and grease (total) concentration exceeds 100 mg/L, the laboratory should determine the concentration of the non-polar oil and grease fraction.

8. Only indirect discharge of wastewater from methane recovery condensate is allowed. The condensate must first be commingled with leachate and rainwater in the "Big Pond". All "Big Pond" discharges will be made via Batch Discharge procedures.

revised 3/22/94

**Schedule B  
MONITORING AND  
REPORTING REQUIREMENTS**

Minimum Monitoring and Reporting Requirements

I. Periodic Compliance Report (Continuous Requirement)

<u>MONITORING PARAMETER</u>	<u>SAMPLE TYPE</u>	<u>SAMPLING FREQUENCY</u>	<u>REPORTING REQUIREMENTS CRITICAL DATE(S)</u>
pH	grab	8/yr	See Note 1
Ammonia	grab	8/yr	See Note 1
Cadmium (total)	composite	2/yr	See Note 1
Chromium (total)	composite	2/yr	See Note 1
Copper (total)	composite	2/yr	See Note 1
Iron (total)	composite	2/yr	See Note 1
Lead (total)	composite	2/yr	See Note 1
Mercury (total)	composite	2/yr	See Note 1
Nickel (total)	composite	2/yr	See Note 1
Zinc (total)	composite	2/yr	See Note 1
Total Toxic Organics	grab	2/yr	See Note 1
Chlorinated Hydrocarbons	grab	2/yr	See Note 1
Phenols	grab	2/yr	See Note 1
Oil & Grease (non-polar)	grab	2/yr	See Note 1
Closed cup Flash Point	grab	2/yr	See Note 1

revised 3/22/94

Minimum Monitoring and Reporting Requirements

I. Periodic Compliance Report (Continuous Requirement)

Notes:

1. Periodic Compliance Reports are to be submitted to Source Control Management by the 15th of the month following the conclusion of the reporting period. Sampling, analysis, and reporting will follow the schedule below:

<u>Sample Month</u>	<u>Sample Frequency</u>	<u>Report Due Date</u>
January	8/yr	15 February
February	8/yr	15 March
March	8/yr	15 April
April	8/yr & 2/yr	15 May
May	8/yr	15 June
June	none required	
July	none required	
August	none required	
September	none required	
October	8/yr	15 November
November	8/yr & 2/yr	15 December
December	8//yr	15 January

2. All official sampling shall be taken at the approved sampling location #0. (See Appendix 2: sampling location map.)
3. The permittee shall analyze samples for all listed parameters plus any other which might be expected to be present in significant quantities.
4. The permittee shall submit all self-monitoring results to Source Control Management (see page B5) as part of their monitoring and reporting requirements.

revision date 3/22/94

Minimum Monitoring and Reporting Requirements

I. Periodic Compliance Report (cont.)

Notes:

5. The permittee should instruct its laboratory that, if the oil and grease (total) concentration exceeds 100 mg/L, the laboratory should determine the concentration of the polar and non-polar oil and grease fractions.
6. Batch discharges from "Big Pond" must be requested with 48 hours prior notice using the City's Batch Discharge request form.

revision date 3/22/94

- A. All monitoring results are to be mailed to:
- Source Control Management  
Bureau of Environmental Services  
City of Portland  
1120 S.W. 5th Avenue, Room 400  
Portland, Oregon 97204-1972
- B. Any industrial discharger subject to final Compliance Report requirements shall submit to the Source Control Management Section a report indicating the nature and concentration of all prohibited or regulated substances contained in its discharge and average and maximum daily flow in gallons. The report shall state whether the applicable pretreatment standards or requirements are being met on a consistent basis and, if not, what additional operation, maintenance and pretreatment is necessary to bring the discharges into compliance.
- C. Periodic Compliance Reports are to be submitted by the 15th of each month, following the report period for each sampling location. The reports shall consist of:
- a. Statement of compliance/noncompliance, signed by the officially designated contact person
  - b. Sample analysis report submitted on City form No. 13-1
  - c. Copies of all laboratory analysis sheets showing analytical methods used and quality assurance/quality control
  - d. Copies of pH charts showing violation
  - e. Any other reports that may be required
  - f. Calculations of monthly average, if appropriate
- D. The City may reduce or increase the frequency of sampling, based on the analytical results submitted.
- E. As per 40CFR 403.12(g)(5), if an industrial user subject to the reporting requirements of Schedule B monitors any parameter, from the official sampling location, more frequently than required, using procedures specified in Schedule E4(c), the results of their monitoring must be submitted in the required report.

revision date 3/22/94

**Schedule C**  
**COMPLIANCE SCHEDULE**

1. Plans for long term handling of wastewater discharges from St. Johns Landfill will be submitted no later than JANUARY 31, 1995.

revision date 3/22/94

revised  
SCHEDULE D  
SPECIAL CONDITIONS

Expiration Date: 10/21/97  
Permit Number: 400-018  
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Schedule D  
SPECIAL CONDITIONS

1. As per 17.34.040(c), the Director of Environmental Services may limit the characteristics or volume of the storm water discharged to the City sewer system if the permittee's discharge damages the sewer system, causes interference with the operations of the City sewer system, endangers City personnel or causes degradation to the receiving waters.
2. The permittee is authorized to discharge industrial wastewater including condensate from methane recovery to the City of Portland's sewer system. Such discharge is allowed only if the condensate from methane recovery is first commingled with the waters of "Big Pond". Discharges from "Big Pond" are allowed only under batch discharge procedures.



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Schedule E  
GENERAL CONDITIONS

1. Authorized Discharge

All discharge and activities authorized herein shall be consistent with the terms and conditions of this permit, Chapter 17.34 of the City Code and the Administrative rules. The discharge of any pollutant in excess of these limits shall constitute a violation of the terms and conditions of this permit.

2. Accidental Spill Prevention Plan

To comply with Section 17.34.090 of the City Code, the permittee shall submit a new or revised Accidental Spill Prevention Plan (ASPP) to the Industrial Wastewater Management Section 90 days after the effective date of this permit. The plans shall include the following elements.

- a. A description of the hazardous substances handled and their potential points of entry into the City sewer system or storm runoff
- b. A description of the measures to be taken to prevent entry at the described points before a spill occurs
- c. Measures to be taken to contain a spill if one occurs
- d. A description of employee training in the prevention and control of spills
- e. A posted notice informing employees of the requirement to notify the Bureau of Environmental Services in case of spills or uncontrolled discharges.

3. Records Retention

All records of monitoring activities and results, including all original strip chart recordings for continuous monitoring instrumentation (and calibration and maintenance records), shall be retained by the permittee for a minimum of three years. This retention period shall be extended during the course of any unresolved litigation pertaining to the discharge of pollutants by the permittee, or whenever it is requested by the City.

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4. Monitoring

- a. The permittee shall record the following information:
- \* The exact date, time, and place of sampling
  - \* Name of person who collected the sample(s)
  - \* Type of sample(s) collected
  - \* The dates analyses were performed
  - \* Who performed the analyses
  - \* The analytical techniques or methods used
  - \* The results of all required analyses
  - \* Whether quality assurance and quality control laboratory procedures are followed
- b. Samples and measurements, taken to meet the requirements of the above condition, shall be representative of the effluent. Grab samples must be collected for pH, cyanide, phenol, sulfide, volatile organic compounds and oil and grease monitoring.
- c. All sampling and analytical methods used to meet the monitoring requirements specified in this permit shall, unless otherwise approved in writing by the City, conform to the Guidelines Establishing Test Procedures for the Analysis of Pollutants as specified in 40CFR, Part 136. Laboratory quality assurance and quality control programs should be documented. EPA QA/QC programs should be followed.
- d. The permittee is required to document proper installation, and maintenance of flow monitoring and sampling equipment.
- e. If the results of the permittee's wastewater analysis indicate that a noncompliance has occurred, the permittee must notify the City's Source Control Management Section within 24 hours of becoming aware of the noncompliance. The permittee must also repeat the sampling within 24 hours of the effluent noncompliance or next process day and submit the analysis to the City within 30 days after becoming aware of the noncompliance.

SCHEDULE E  
GENERAL CONDITIONS

Expiration Date: 10/21/97  
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4. Monitoring (continued)

- f. The permittee shall take all reasonable steps to minimize or correct any adverse impact to the POTW or the environment resulting from noncompliance with this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.
- g. If requested, the permittee shall provide or split discharge samples with the City of Portland Water Pollution Control Laboratory.

5. Reporting Requirements

a. Accidental or Slug Loading

The permittee shall notify the City immediately, either in person or by telephone (Duty Officer Pager # 323-3398 and Lead Operator CBWTP # 823-2300), if accidental or slug loading to the sanitary sewer occurs. A formal written report, discussing circumstances and remedies, shall be submitted to the City within 5 days of the occurrence.

b. Changes in Wastewater Characteristics

The permittee shall give notice to the Source Control Management Section 90 days before any facility expansion, production increase, or process modifications that result in new or substantially increased discharges or a change in the nature of the discharge.

c. Change in representative

If the responsible corporate official changes, notify the City within 10 days, as per 40CFR 403.12 (1) (4).

6. Upset

a. Definition:

For the purposes of this section, upset means an exceptional incident in which there is unintentional and temporary noncompliance with applicable pretreatment standards, because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

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6. Upset (continued)

b. Effect of an Upset:

An upset will constitute an affirmative defense to an action brought for noncompliance with applicable pretreatment standards, if the requirements of paragraph c are met.

c. Conditions Necessary for a Demonstration of an Upset:

A permittee who wishes to establish the affirmative defense of an upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

- (1) An upset occurred and the permittee can identify the specific cause(s) of the upset.
- (2) The facility was, at the time, being operated prudently, efficiently, and in compliance with applicable operation and maintenance procedures.
- (3) The permittee has submitted the following information to the Source Control Management Section within 24 hours of becoming aware of the upset (if this information is provided orally, a written submission must be provided within 5 days).
  - \* A description of the indirect discharge and cause of noncompliance
  - \* The period of noncompliance, including exact dates and times or, if not corrected, the anticipated duration of noncompliance
  - \* Steps planned or now being taken to reduce, eliminate, and prevent recurrence of the noncompliance

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6. Upset (continued)

d. Burden of Proof

In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset shall have the burden of proof.

e. Permittee Responsibility in Case of an Upset.

If reduction, loss, or failure of its treatment facility occurs, the permittee shall control production of all discharges in order to maintain compliance with applicable pretreatment standards until the facility is restored or an alternative method of treatment is provided. This requirement especially applies if the primary source of the treatment facility power is reduced, lost, or failed.

7. Bypass or Diversion

The diversion or bypass (the intentional diversion of wastestreams from any portion of a permittee's treatment facility) of any discharge, from facilities used by the permittee, to maintain compliance with the terms and conditions of this permit is prohibited except:

- a. When unavoidable to prevent loss of life or severe property damage.
- b. When excessive storm drainage or runoff would damage facilities necessary for compliance with the terms and conditions of this permit.

The permittee shall immediately notify the City in writing of each such diversion or bypass, in accordance with the procedure specified in condition No. 16.

8. Property Rights or Privileges

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges; it does not authorize any injury to private property or any invasion of personal rights; and it does not authorize any infringements or federal, state, or local laws or regulations.

SCHEDULE E  
GENERAL CONDITIONS

Expiration Date: 10/21/97  
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9. Permit Suspension or Termination

- a. Violation of any terms or conditions of this permit or any applicable rule, standard, or order of the director of the Bureau of Environmental Services.
- b. Obtaining this permit by misrepresentation or failure to fully disclose all relevant facts.
- c. Falsifying self-monitoring reports.
- d. Tampering with monitoring equipment.
- e. Refusing to allow prompt access to the facility premises and records.
- f. Failure to meet effluent limitations.
- g. Failure to pay fines.
- h. Failure to meet compliance schedules.

10. Permit Modification

This permit may be modified with 30 days prior written notification, in whole or in part, for causes including but not limited to the following:

- a. A change in the City's NPDES permit or any other condition that requires either a temporary or permanent elimination of any authorized discharge.
- b. To incorporate new or revised federal, state, or local pretreatment standards or requirements.
- c. Information indicating that the permitted discharge poses a threat to the City's collection and treatment system, POTW personnel, or the receiving waters and sludge.
- d. To correct typographical or other errors in the permit.
- e. Any significant change in the volume of a permitted discharge.

SCHEDULE E  
GENERAL CONDITIONS

Expiration Date: 10/21/97  
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11. Permit Renewal

This permit is issued to a specific entity and cannot be transferred by the industrial user and must be renewed pursuant to Section 17.34.070 of the Code of the City of Portland and Permit Applications must be received 90 days prior to:

- a. Expiration date of current permit.
- b. In the event the permittee plans to cease operations at the present location, and plans to relocate within the City of Portland's jurisdiction and continue the same permitted activities.
- c. The permitted industrial process being significantly altered or changed so that pollutants not specifically mentioned in the current permit are present in the permittee's discharge.

12. Plant Closure

In the event the permittee plans to cease operations at the present business location, and not to relocate within the City of Portland's jurisdiction, the permittee shall inform this office, in writing, 90 days prior to plant closure.

13. Appeal

The permittee may request reconsideration of the terms of this permit within thirty (30) days of the effective date. This request must be in writing; failure to submit a request for reconsideration shall be deemed a waiver of the appeal.

14. Liability

The City of Portland, its officers, agents or employees shall not sustain any liability due to the issuance of this permit or the construction or maintenance of facilities resulting from this permit.

15. Severability

The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to the other circumstances and the remainder of this permit shall not be affected.

SCHEDULE E  
GENERAL CONDITIONS

Expiration Date: 10/21/97  
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16. Notification of Slug Load

If the permittee is unable to comply with all the conditions of this permit due to a breakdown of equipment or facilities, an accident caused by human error or negligence, or any other cause such as an act of nature, or should any condition cause the release of any slug load, the permittee shall:

- a. Immediately take action to stop, contain, clean up the unauthorized discharges, and correct the problem.
- b. Immediately call the Lead operator of the Columbia Boulevard Wastewater Treatment Plant (823-2300) so that plant personnel can evaluate the impact of the discharge and take corrective action. Notify Source Control by calling the Duty Officer, pager # 323-3398.
- c. Within five (5) days submit a detailed written initial report to the City describing the breakdown, the actual quantity of resultant waste discharges, the corrective action taken, the steps taken to prevent recurrence, and any other pertinent information.

Samples shall be taken immediately upon discovery of the Slug load. Within 15 days, a follow-up report shall be submitted. The report shall contain analysis of samples taken during such discharge and samples taken after normal conditions have been restored. The samples, at a minimum, shall be analyzed for the parameters required in Schedule B. Sampling shall be continued until all parameters are within discharge limits.

17. Continuous Compliance

Compliance with Schedule E, No. 16 shall not relieve the permittee from responsibility to maintain continuous compliance with the conditions of this permit.



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18. Inspection and Entry

The permittee shall, at all reasonable times, allow authorized representatives of the City:

- a. To enter the permittee's premises where an effluent source or disposal system is located or where any records associated with this permit are kept.
- b. To have access to any required records and permission to copy these records. At no time can wastewater effluent data be claimed or held as confidential information.
- c. To inspect and evaluate any monitoring equipment or monitoring methods required by this permit.
- d. To sample any discharge to the sewer system.

19. Certification

Legible copies of all applications, reports, and information submitted to the City shall be signed and certified as follows in accordance with 40CFR 403.12.

*I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*

20. Extra-Strength Sewer Charge (ESSC)

Discharges exceeding 300 mg/L for the 5-day biochemical oxygen demand (BOD) or 350 mg/L total suspended solids (TSS) concentrations (as defined in Section 17.36.060(1) of the City Code) shall be subject to the extra-strength sewer charge (ESSC) established in Section 17.36.060(1).

21. Chemical Storage

Chemical storage shall conform to hazardous waste storage requirements, as stipulated in the DEQ Hazardous Waste Management Rules, contained in Oregon Administrative Rules Chapter 340.

Chemicals shall be stored in a manner that will prevent the entry of these substances into the sanitary, combined sewer, or storm sewer system, or waters of the state.

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22. Enforcement Provision

A violation of any conditions, standards or requirements of this permit constitutes a violation of Chapter 17.34 of the City Code and any rules promulgated thereunder. Therefore, the City may seek any or all of the remedies or penalties provided for in Section 17.34.110 of the City Code, including recovery of costs incurred by the City, in response to the following:

- a. Any violation by the permittee of the provisions in this Industrial Wastewater Discharge Permit.
- b. Any violation by the permittee of the provisions of the City Code.
- c. Any violation by the permittee of an Enforcement Action requirement with respect to provisions set forth in this Industrial Wastewater Discharge Permit and the City Code and Administrative Rules.

The range or severity of enforcement actions taken by the City against the permittee will be determined by, but not limited to, the nature, magnitude, duration, and frequency of the violation as provided by City Code and Administrative Rules.

23. Hazardous Waste Notification

The industrial user shall notify the Source Control Management Section, the POTW, the EPA Regional Waste Management Division Director, and State hazardous waste authorities in writing of any discharge into the POTW of a substance, which, if otherwise disposed of, would be a hazardous waste under 40 CFR Part 261. Such notification must include the name of the hazardous waste as set forth in 40 CFR Part 261, the EPA hazardous waste number, and the type of discharge (continuous, batch, or other). If the industrial user discharges more than 100 kilograms of such waste per calendar month to the POTW, the notification shall also contain the following information, to the extent such information is known and readily available to the industrial user: an identification of the hazardous constituents contained in the wastes, an estimation of the mass and concentration of such constituents in the wastestream discharged during that calendar month, and an estimation of the mass of constituents in the wastestream expected to be discharged during the following 12 months.

24. Dilution Prohibition

It is unlawful for a discharger to use dilution as a partial or complete substitute for adequate treatment to achieve compliance with the standards and limitations set forth in this permit. The Director may impose mass limitations on dischargers who are using dilution to meet the applicable pretreatment standards or the requirement set forth in this permit.

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Appendix 1  
DEFINITIONS

Abbreviations

BOD <sub>5</sub>	Five-day biochemical oxygen demand
mg/L	Milligrams per liter
k	Kilograms
m <sup>3</sup> /d	Cubic meters per day
ppm	Parts per million (assumed equal to milligrams per liter)
POTW	Publicly owned treatment works
WPCL	Water Pollution Control Laboratory

Averages for BOD, TSS, and chemical parameters are based on arithmetic mean of samples taken.

Definitions

Bypass

The intentional diversion of wastestreams from any portion of a permittee's treatment facility..

Compatible Pollutant

Biochemical oxygen demand, suspended solids, pH and fecal coliform bacteria, and additional pollutants that the City treatment works is designed to treat.

Conventional Pollutants

Classification of industrial pollutants, which includes BOD (biochemical oxygen demand), suspended solids, fecal coliform, pH (acidity/alkalinity), and other pollutants so designated by EPA, as defined by Section 304(a)(4) of the Clean Water Act.

Director of Environmental Services

The Director of Environmental Services of the City of Portland, Oregon, or that person's duly authorized representative or agent.

City, or City of Portland

The municipality of Portland, Oregon, a municipal corporation of the State of Oregon, acting through the City Council or any board, committee, body, official, or person to whom the Council shall have lawfully delegated the power to act on behalf of the City. Unless a particular board, committee, official, or person is specifically designated in these rules and regulations, wherever action by the City is explicitly required or implied herein, it shall be understood to mean action by the Director of Environmental Services of Portland, Oregon, or that person's duly authorized representative or agent.

Effective Date of this Permit

The date this permit is signed by the Director of the Bureau of Environmental Services.

Expiration Date

From 1 to 5 years beyond the effective date of this permit.

Hazardous or toxic substances

Hazardous or toxic substances are those substances referred to in section 101(14) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (42 U.S. Code 9601 et seq.), section 502(13) of the Clean Water Act, and any other substances so designated by the Director of Environmental Services and contained in rules adopted pursuant to this Chapter.

Industrial Waste

Any liquid, solid, or gaseous substance (or combination thereof) resulting from any process of industry, manufacturing, commercial food processing, business, agriculture, trade, or research, including but not limited to the development, recovery, or processing of natural resources and leachate from landfills or other disposal sites.

Industrial Wastewater Discharge Permit

A permit to discharge industrial wastewater into the City sewer system issued under the authority of the City Code, which prescribes certain discharge requirements and limitation.

Interference

Interference means a discharge which, alone or in conjunction with a discharge or discharges from other sources, inhibits or disrupts the normal operation of the City sewer system, or which causes a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or any increase in the cost of treatment of sewage or in the cost of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (including Title II, more commonly referred to as the Resource Conservation and Recovery Act), and including State regulations contained in any State sludge management plan prepared pursuant to Subtitle D of RCRA, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Maximum Daily Discharge Limitation

The highest allowable daily discharge.

Nonconventional Pollutants

All pollutants that are not specifically designated as either conventional or toxic.

Oil and Grease

Fats, Oils and Grease. Fats, oils and grease are those substances which are measured by Standard Methods, current edition, freon extraction Method 5520B.

- (a) Non-polar fats, oils and grease are that portion of fats, oils and grease which is measured as non-polar (from petroleum sources) by Standard Methods, current edition, Method 5520F.
- (b) Polar fats, oils and grease are that portion of fats, oils and grease which is determined to be polar (of animal or vegetable origin) by Standard Methods, current edition, Method 5520F.

Pass Through

Pass through means a discharge which exits the POTW into waters of the United States in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation).

POTW

POTW means Publicly Owned Treatment Works, which includes any devices and systems, owned by a State or municipality, used in the collection, transportation, storage, treatment, recycling and reclamation of wastewater.

Pretreatment

The reduction of the amount of pollutants, the elimination of pollutants, or the alternation of the nature of pollutant properties in wastewater to a non-harmful state, prior to or in lieu of discharge of such pollutants into the City sewer system.

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Sampling

- a. The "monthly average" other than pH is the arithmetic mean of samples collected during a calendar month.
- b. The "daily maximum" is defined as the greatest allowable value for any calendar day.
- c. A "24-hour composite" sample shall mean a flow-proportioned mixture of not less than eight discrete aliquots. Each aliquot shall be a grab sample of not less than 100 ml and shall be collected and preserved in accordance with 40CFR part 136 and amendments.
- d. A "Grab" sample is an individual sample collected in less than 15 minutes, without regard for flow or time.
- e. A "Grab-Composite" is a minimum of four grab samples collected and preserved over a 24-hour period and combined to provide a representative sample of effluent being discharged.

Schedule of Compliance

A schedule of remedial measures, including an enforceable sequence of actions or operations leading to compliance with an effluent limitation or other limitation, prohibition, or standard.

Severe Property Damage

Substantial physical damage to the treatment facilities that causes them to become inoperable, or substantial and permanent loss of natural resources that can occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

Slugload

A slugload is any discharge of a non-routine, episodic nature, including but not limited to an accidental spill or a non-customary batch discharge.

Solid Waste

Any garbage, refuse, or sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges that are point sources subject to permits.

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Solid Waste Disposal

The final placement of refuse that cannot be salvaged or recycled.

Solvent Management Plan

A plan that specifies the toxic organic compounds used, the method of disposal used (instead of dumping into wastestreams), and procedures for ensuring that toxic organics do not spill or leak into wastewater discharged to the City sewer system.

Total Dissolved Solids

The total dissolved (filterable) solids as determined by use of the method specified in the list of approved test procedures.

Total Organic Active Ingredients

The sum of all organic active ingredients covered by the organic pesticide chemicals manufacturing subcategory, which are manufactured at a facility subject to the effluent guidelines for pesticides chemicals manufacturing.

Total Solids

The sum of dissolved and undissolved constituents in water or wastewater, usually expressed as milligrams per liter.

Total Suspended Solids

Total suspended matter that either floats on the surface or is in suspension in water or wastewater and that are removable by laboratory filtering (as described in *Standard Methods for the Examination of Water and Wastewaters*, current edition) or Guidelines Establishing Test Procedures for the analysis of Pollutants, contained in 40CFR 136, as published in the *Federal Register*. (Bureau of Environmental Services Administrative Rules I[22])

Upset

"Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with applicable pretreatment standards, because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

Waste

Unwanted materials left over from manufacturing processes, or refuse from places of human or animal habitation.

APPENDIX 1  
DEFINITIONS

Expiration Date: 10/21/97  
Permit Number: 400-018  
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Wastewater

Industrial waste, sewage, or any other waste, including that which may be combined with any groundwater, surface water, or stormwater that may be discharged to the city sewer system.

Water Pollution

The addition of enough harmful or objectionable material to damage water quality.



APPENDIX 2  
SAMPLING LOCATION MAP

Expiration Date: 10/21/97  
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Appendix 2  
SAMPLING LOCATION MAP

# ST. JOHNS SANITARY LANDFILL



NO.	DATE	REVISION

**REUSE OF DOCUMENTS**  
 This document and the ideas and designs incorporated herein, as an instrument of professional service, is the property of Dresser and is not to be used in whole or in part for any other project without the written authorization of Dresser.

**NOTES**  
 1. See also drawings...  
 2. See also drawings...  
 3. See also drawings...

Drawing Ferris Industries  
 St. Johns Landfill  
 Portland, Oregon

OPERATION RECORD DRAWINGS  
 LEACHATE COLLECTION PIPE

APPENDIX 3  
ACCIDENTAL SPILL PREVENTION PLAN

Expiration Date: 10/21/97  
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Appendix 3  
ACCIDENTAL SPILL PREVENTION PLAN

Accidental Spill Prevention Plan- St. Johns Landfill SOURCE CONTROL MANAGEMENT

a) *A description of the hazardous substances handled and their potential points of entry into the City sewer system or storm runoff*

The St. Johns Landfill is a closed municipal solid waste landfill. No hazardous substances are handled. However, there is a potential for hazardous substances that are contained in buried garbage to be carried into the landfill's leachate collection system, and introduced to the City sewer system through the landfill's sewer main, which connects to the City sewer system under Columbia Boulevard. Any hazardous substance that could be contained in buried garbage could possibly be introduced in this manner.

b) *A description of the measures to be taken to prevent entry at the points described before a spill occurs*

While entry to the City sewer system would not occur via a spill, entry could occur via leachate, as described above. To prevent this, ongoing monitoring of the leachate is conducted, as required under the landfill's Industrial Discharge Permit.

c) *Measures to be taken to control a spill if one occurs and*

d) *A description of employee training in the prevention and control of spills*

N/A- entry to the City sewer system would not occur via a spill

e) *A posted notice informing employees of the requirement to notify the Bureau of Environmental Services in case of spills or uncontrolled discharges*

A notice of this type has been posted (see attached)

In the event of any spill or unanticipated release of hazardous materials into the leachate system or sewer main that might result in a permit violation, the following notifications should occur:

Metro

Notify

Jim Quinn 797-1662

If he cannot be reached, contact  
Deedie Bassham or Janell Davis in the landfill office, 286-9614,  
or downtown, 797-1650

or

Pete Hillman, in the construction trailer 283-0809, or downtown 797-1696

or

Sam Chandler, 797-1698, or mobile 260-8854

City Bureau of Environmental Services

Contact Gary Barnes, 823-7383

if he cannot be reached,  
contact the wastewater treatment plant duty officer at 323-3398.

APPENDIX 4  
PHENOL LIST

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Appendix 6  
Phenol List

2-chlorophenol  
2-nitrophenol  
2,4-dichlorophenol  
2,4-dimethylphenol  
2,4-dinitrophenol  
2,4,6-trichlorophenol  
4-nitrophenol  
4,6-dinitro-o-cresol  
Parachlorometa cresol  
Pentachlorophenol  
Phenol

APPENDIX 6  
CHLORINATED HYDROCARBON LIST

Expiration Date: 10/21/97  
Permit Number: 400-018  
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Appendix 7  
Chlorinated Hydrocarbons

1,1-dichloroethane  
1,1-dichloroethylene  
1,1,1-trichloroethane  
1,1,2-trichloroethane  
1,1,2,2-tetrachloroethane  
1,2-dichlorobenzene  
1,2-dichloroethane  
1,2-dichloropropane  
1,2-trans-dichloroethylene  
1,2,4-trichlorobenzene  
1,3-dichlorobenzene  
1,3-dichloropropylene (1,3-dichlororpropene)  
1,4-dichlorobenzene  
2-chloroethyl vinyl ether (mixed)  
2-chloronaphthalene  
3,3-dichlorobenzidene  
4-bromophenyl phenyl ether  
4-chlorophenyl phenyl ether  
Bis(2-chloroethoxy)methane  
Bis(2-chloroethyl)ether  
Bis(2-chloroisopropyl)ether  
Bromoform (tribromomethane)  
Carbon tetrachloride (tetrachloromethane)  
Chlorobenzene  
Chlorodibromomethane  
Chloroethane  
Chloroform (trichloromethane)  
Cichlorobromomethane  
Hexachlorobenzene  
Hexachlorobutadiene  
Hexachlorocyclopentadiene  
Hexachloroethane  
Methyl chloride (chloromethane)  
Methyl bromide (bromomethane)  
Methylene chloride (dichloromethane)  
Tetrachloroethylene  
Trichloroethylene  
Vinyl chloride (chloroethylene)

APPENDIX 7  
TOTAL TOXIC ORGANICS LIST

Expiration Date: 10/21/97  
Permit Number: 400-018  
Page: .1 of 2

Appendix 8  
Total Toxic Organics

Acenaphthene  
Acrolein  
Acrylonitrile  
Benzene  
Benzidine  
Carbon tetrachloride (tetrachloromethane)  
Chlorobenzene  
1,2,4-trichlorobenzene  
Hexachlorobenzene  
1,2-dichloroethane  
1,1,1-trichloroethane  
Hexachloroethane  
1,1-dichloroethane  
1,1,2-trichloroethane  
1,1,2,2-tetrachloroethane  
Chloroethane  
Bis(2-chloroethyl) ether  
2-chloroethyl vinyl ether (mixed)  
2-chloronaphthalene  
2,4,6-trichlorophenol  
Parachlorometa cresol  
Chloroform (trichloromethane)  
2-chlorophenol  
1,2-dichlorobenzene  
1,3-dichlorobenzene  
1,4-dichlorobenzene  
3,3-dichlorobenzidine  
1,1-dichloroethylene  
1,2-trans-dichloroethylene  
2,4-dichlorophenol  
1,2-dichloropropane  
1,3-dichloropropylene (1,3-dichloropropene)  
2,4-dimethylphenol  
2,4-dinitrotoluene  
2,6-dinitrotoluene  
1,2-diphenylhydrazine  
Ethylbenzene  
Fluoranthene  
4-chlorophenyl phenyl ether  
4-bromophenyl phenyl ether  
Bis(2-chloroisopropyl) ether  
Bis(2-chloroethoxy) methane  
Methylene chloride (dichloromethane)  
Methyl chloride (chloromethane)  
Methyl bromide (bromomethane)  
Bromoform (tribromomethane)  
Dichlorobromomethane  
Chlorodibromomethane  
Hexachlorobutadiene  
Hexachlorocyclopentadiene  
Isophorone  
Naphthalene  
Nitrobenzene  
2-nitrophenolthylamine  
4-nitrophenolenylamine  
2,4-dinitrophenol  
4,6-dinitro-o-cresol  
N-nitrosodimethylamine  
N-nitroxodiphenylamine  
N-nitrosodi-n-propylamine  
Pentachlorophenol  
Phenol  
Bis(2-ethylhexyl)phthalate  
Butyl benzyl phthalate  
Di-n-butyl phthalate  
Di-n-octyl phthalate  
Diethyl phthalate  
Dimethyl phthalate  
1,2-benzanthracene  
(benzo(a)anthracene)  
Benzo(a)pyrene (3,4-benzopyrene)  
3,4-Benzofluoranthene  
(benzo(b)fluoranthene)  
11,12-benzofluoranthene  
(benzo(k)fluoranthene)  
Chrysene  
Acenaphthylene  
Anthracene  
1,12-benzoperylene  
(benzo(ghi)perylene)  
Fluorene  
Phenanthrene  
1,2,5,6-dibenzanthracene  
(dibenzo(a,h)anthracene)  
Indeno(1,2,3-cd)pyrene  
(2,3-o-phenylene pyrene)  
Pyrene  
Tetrachloroethylene  
Toluene  
Trichloroethylene  
Vinyl chloride (chloroethylene)  
Aldrin  
Dieldrin  
Chlordane (technical mixture and metabolites)  
4,4-DDT  
4,4-DDE (p,p-DEX)  
4,4-DDD (p,p-TDE)  
Alpha-endosulfan  
Beta-endosulfan



APPENDIX 7  
TOTAL TOXIC ORGANICS LIST

Expiration Date: 9/99/99  
Permit Number: 400-018  
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Appendix 8  
Total Toxic Organics (cont)

Endosulfan sulfate  
Endrin  
Endrin aldehyde  
Heptachlor  
Heptachlor epoxide  
(BHC-hexachlorocyclohexane)  
    Alpha-BHC  
    Beta-BHC  
    Gamma-BHC  
    Delta-BHC  
(PCB-polychlorinated biphenyls)  
    PCB-1242 (Arochlor 1242)  
    PCB-1254 (Arochlor 1254)  
    PCB-1221 (Arochlor 1221)  
    PCB-1232 (Arochlor 1232)  
    PCB-1248 (Arochlor 1248)  
    PCB-1260 (Arochlor 1260)  
    PCB-1016 (Arochlor 1016)  
Toxaphene  
2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD)

GENERAL PERMIT  
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM  
STORM WATER DISCHARGE PERMIT

Department of Environmental Quality  
811 Southwest Sixth Avenue, Portland, OR  
Telephone: (503) 229-5696

Issued pursuant to ORS 468.740 and The Federal Clean Water Act

ISSUED TO:

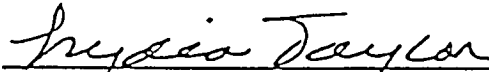
Issued: 5/22/92 GEN12G Multnomah/NWR  
File No. 55966 OR003068-6

Metropolitan Service District  
2000 SW First Avenue  
Portland OR 97201

Re: St. Johns Landfill, 9464 N Columbia Blvd

SOURCES COVERED BY THIS PERMIT:

Landfills and open dumps along with other activities located at the site such as: leachate treatment and disposal facilities, garbage composting facilities, recycling facilities, waste container staging areas, soil stockpiling areas, and vehicle maintenance facilities.

  
Lydia Taylor, Administrator

SEP 24 1991  
Date

PERMITTED ACTIVITIES

Until this permit expires or is modified or revoked, the permittee is authorized to construct water pollution control facilities and to discharge storm water to public waters in accordance with a storm water pollution control plan which has been prepared by the permittee and any other limitations specified in this permit. All discharges shall be in accordance with the attached schedules:

	<u>Page</u>
Schedule A - Controls and Limitations for Discharge.....	2-5
Schedule B - Minimum Monitoring and Reporting Requirements.....	6-7
Schedule C - Compliance Conditions and Schedules.....	8
Schedule D - Special Conditions.....	9
General Conditions.....	Attached

Each other direct and indirect waste discharge to public waters is prohibited unless covered by another NPDES permit.

This permit does not relieve the permittee from responsibility for compliance with any other applicable federal, state, or local law, rule, standard, ordinance, order, judgment, or decree.

b. Controls Each operator covered by this permit shall develop a description of controls appropriate for the site and a time line for implementing such controls. The following minimum components shall be addressed along with a schedule for implementation:

(1) Storm Water Management - The plan shall contain a narrative description of the materials and storm water management practices employed or scheduled for employment, to minimize contact of significant materials with storm water runoff; structural and non-structural control measures to reduce pollutants in storm water runoff; treatment (if any) and ultimate disposal of solid or fluid wastes other than by surface discharge. In developing the plan the permittee shall consider but not be limited to the following management practices:

- A. Containment - All hazardous chemicals shall be stored within berms or other secondary containment devices to prevent leaks and spills from entering storm water runoff.
- B. Oil & Grease Separation - Oil/water separators, booms, skimmers or other methods should be employed to minimize oil contaminated storm water discharge.
- C. Debris & Sediment Control - Screens, booms, sediment ponds or other methods should be employed to reduce debris and sediment in storm water discharge.
- D. Waste Chemical Disposal - Waste chemicals such as antifreeze, degreasers, used oils, etc. shall be recycled or disposed of in an approved manner and in a way which prevents them from entering stormwater discharges.
- E. Storm Water Diversion - Wherever possible, storm water should be diverted away from materials manufacturing, storage and other areas of potential storm water contamination.
- F. Covered Storage or Manufacturing Areas - Wherever practicable, fueling operations, materials manufacturing and storage areas should be covered to prevent contact with storm water.

(2) Spill Prevention and Response Procedures - Areas where potential spills of significant materials can impact storm water runoff and their associated drainage points shall be clearly identified. Methods to prevent spills along with cleanup and notification procedures shall be identified in the plan and made available to the appropriate personnel. The required cleanup equipment must be on site or readily available.

3. Storm water carrying pollutants regulated by this permit shall not be allowed to discharge to seepage ponds, seepage pits, dry wells, injection wells, or any other on-site disposal facilities if discharge to surface waters is possible. If discharge to surface waters is not possible and on-site disposal methods are used, the storm water discharge limitations and monitoring requirements of this permit shall still apply, in addition to the limitations and restrictions found in OAR 340-44-050, Waste Disposal for Surface Drainage and OAR 340, Division 40, Groundwater Quality Protection.

4. **Specific Storm Water Discharge Limitations**  
(These limitations apply at each point source discharge.)

<u>Parameters</u>	<u>Limitations</u>
Oil & Grease	Shall not exceed 10 mg/L
pH	Shall be between 6 and 9
Toxicity	No discharge of toxic chemicals in "toxic concentrations"* permitted

\* Toxic concentrations is defined in the definitions, page 7 of attached General Conditions.

5. Allowable Mixing Zone - Notwithstanding the effluent limitations in this permit, no wastes shall be discharged and no activities shall be conducted which will violate applicable water quality standards as adopted in OAR 340, Division 41, except within a mixing zone in the receiving stream of a size which would provide a 10:1 dilution of the storm water discharged.

6. Storm Water Only - This permit regulates the discharge of storm water only. It does not authorize the discharge of process wastewaters, vehicle wash waters, cooling waters, leachate or any other wastewaters associated with the facility. Other discharges must be addressed in a separate NPDES permit.

3. Records Retention and/or Reporting - Permittees are required to tabulate the data and submit it to the appropriate DEQ Regional Office by July 1 of each year. All records shall be retained by the permittee for a period of at least 5 years.
4. Representative Sampling - All sampling shall be representative of the discharge.

SCHEDULE D

Special Conditions

1. Waste Load Allocation - If storm water monitoring indicates that a pollutant parameter, for which a stream is water quality limited, is discharging to a water quality limited stream in significant quantities, the permit may be reopened and a waste load allocation for the pollutant added.
2. Additional Limitations or Monitoring Required - If storm water monitoring indicates that certain pollutants are being discharged in quantities which may be a threat to the water quality of the receiving stream, the permit may be reopened and additional effluent limits and/or monitoring requirements added.
3. Releases in Excess of Reportable Quantities - This permit does not relieve the permittee of the reporting requirements of 40 CFR 117 and 40 CFR 302. The discharge of hazardous substances in the storm water discharge(s) from a facility shall be minimized in accordance with the applicable storm water pollution control plan for the facility required by this permit, and in no case, during any 24-hour period, shall the discharge(s) contain a hazardous substance equal to or in excess of reporting quantities.
4. Disposition of SWPCP - The Storm Water Pollution Control Plan, required by Schedule A, Condition 1, shall be kept at the site and made available to the Department upon request.
5. Reporting to Municipality - Any permitted facility discharging to a municipal storm sewer shall provide the municipality with a copy of the monitoring report required by Schedule B. A copy of the SWPCP shall also be provided the municipality upon request.
6. Landfill Closure - When a landfill has been closed under a valid solid waste closure permit issued by the Department and all of the closure requirements have been met, the monitoring requirements under this permit shall be automatically terminated and this permit will no longer be required.

STORM WATER NPDES PERMIT GENERAL CONDITIONS

SECTION A. STANDARD CONDITIONS

1. Duty to Comply

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Oregon Revised Statutes (ORS) 468.720 and is grounds for enforcement action; for permit termination; suspension or modification; or for denial of a permit renewal application.

2. Penalties for Violations of Permit Conditions

Oregon Law (ORS 468.990) classifies a willful or negligent violation of the terms of a permit or failure to get a permit as a misdemeanor and a person convicted thereof shall be punishable by a fine of not more than \$25,000 or by imprisonment for not more than one year, or by both. Each day of violation constitutes a separate offense.

In addition to the criminal penalties specified above, Oregon Law (ORS 468.140) also allows the Director to impose civil penalties up to \$10,000 per day for violation of the terms or conditions of a permit.

3. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment and human health resulting from noncompliance with this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

4. Permit Actions

The Department may revoke a general permit as it applies to any person and require such person to apply for and obtain an individual NPDES permit if:

- a. The covered source or activity is a significant contributor of pollution or creates other environmental problems;
- b. The permittee is not in compliance with the terms and conditions of this general permit; or
- c. Conditions or standards have changed so that the source or activity no longer qualifies for a general permit.

## SECTION B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

### 1. Proper Operation and Maintenance

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control which are installed or used by the permittee to achieve compliance with the conditions of this permit.

### 2. Duty to Halt or Reduce Activity

Upon reduction, loss, or failure of a storm water treatment or control facility, the permittee shall, to the extent necessary to maintain compliance with its permit, control all discharges until the facility is restored or an alternative method of treatment is provided.

### 3. Bypass of Treatment Facilities

Bypassing of treatment facilities is generally prohibited.

### 4. Removed Substances

Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering public waters, creating a nuisance or creating a health hazard.

## SECTION C. MONITORING AND RECORDS

### 1. Representative Sampling

Sampling and measurements taken as required herein shall be representative of the monitored discharge. All samples shall be taken at the monitoring points specified in this permit and/or the Storm Water Pollution Control Plan, unless otherwise specified, before the effluent joins or is diluted by any other waste stream, body of water, or substance. Monitoring points shall not be changed without notification to and the approval of the Department.

### 2. Monitoring Procedures

Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit.



## 8. Inspection and Entry

The permittee shall allow the Department, or an authorized representative upon the presentation of credentials and other documents as may be required by law, to:

- a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
- b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit, and
- d. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the Clean Water Act, any substances or parameters at any location.

## SECTION D. REPORTING REQUIREMENTS

### 1. Anticipated Noncompliance

The permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

### 2. Transfers

This permit may be transferred to a new permittee provided the transferee acquires a property interest in the permitted activity and submits a transfer application within 60 days of the change in property interest. The transfer application will require the transferee to commit to fully comply with all the terms and conditions of the permit and the rules of the Commission.

### 3. Twenty-Four Hour Reporting

The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally (by telephone) within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within 5 working days of the time the permittee becomes aware of the circumstances. The written submission shall contain:

7. Falsification of Reports

The Clean Water Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than six months per violation, or by both.

SECTION E. DEFINITIONS AND ACRONYMS

1. "BOD<sub>5</sub>" means five-day biochemical oxygen demand.
2. "COD" means chemical oxygen demand.
3. "Department" means Department of Environmental Quality
4. "FC" means fecal coliform bacteria.
5. "MGD" means million gallons per day.
6. "mg/L" means milligrams per liter.
7. "mL/L" means milliliters per liter.
8. "Point Source Discharge" means a discharge from any discernible, confined, and discrete conveyance, including, but not limited to, any pipe, ditch, channel, tunnel, or conduit.
9. "Reportable Quantities" means those quantities of hazardous substances listed in Table 117.3 of The Code of Federal Regulations, 40 CFR 117.
10. "Significant material" includes, but is not limited to: raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under Section 101(14) of CERCLA; any chemical the facility is required to report pursuant to Section 313 of Title III of SARA; fertilizers; pesticides; and waste products such as ashes, slag and sludge that have the potential to be released with storm water discharges.
11. "TOC" means total organic carbon
12. "TOX" means total organic halides
13. "TSS" means total suspended solids (non-filterable residue).

DENNIS J. J.

RECEIVED Oregon

MAY 22 1992

FILE CODE  
METRO SOLID WASTE DEPT.

DEPARTMENT OF  
ENVIRONMENTAL  
QUALITY

NORTHWEST REGION

MAY 22 1992

Sam Chandler  
Metropolitan Service District  
2000 SW First Avenue  
Portland OR 97201

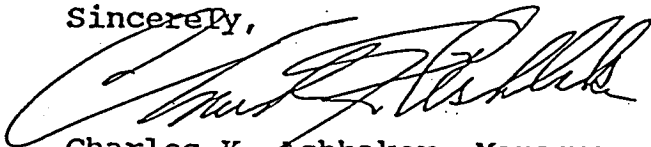
Re: Storm Water Permit  
St. Johns Landfill  
File Number 55966  
Multnomah County

Enclosed is your National Pollutant Discharge Elimination System (NPDES) storm water permit. We apologize for getting this out so late. As you can imagine, we have received a number of applications.

The permit requires sampling twice per year. We request that you take the first sample from the next rainfall event which produces runoff. It is hoped that will still be this spring. The next sample can be taken next fall near the first rainfall event which produces runoff. That should give an indication of the level of pollutants which might accumulate over the dry weather period. We do not have a special monitoring report for your use. All monitoring data must be tabulated and submitted by July 1 of each year. If there are no collectable rainfall events which occur between the time you get your permit and July 1, send us a note stating that fact.

Please read the permit carefully so that you understand all that is required of you. If you have any questions regarding the permit or its conditions, please call Walter West at 229-5263, Ext. 269 or write to him at this address.

Sincerely,



Charles K. Ashbaker, Manager  
Water Quality, Northwest Region

cc: Industrial & On-Site Waste Section, DEQ  
File



1500 SW First Avenue  
Suite 750  
Portland, OR 97201-5884  
(503) 229-5263

DEQ-1

**SOLID WASTE DISPOSAL SITE CLOSURE PERMIT**

Department of Environmental Quality  
811 SW Sixth Avenue, Portland, OR 97204-1390  
Telephone: (503) 229-5733

Issued in accordance with the provisions of ORS Chapter 459 and 459A.

**ISSUED TO:**

METRO  
600 N.E. Grand Avenue  
Portland, OR 97232-2736

**FACILITY COVERED BY THIS PERMIT:**

**FACILITY NAME:**

St. Johns Landfill

**OWNER: METRO**

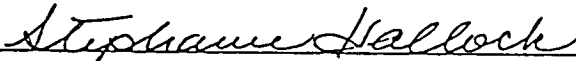
**FACILITY TYPE AND LOCATION:**

**OPERATOR: METRO**

Sanitary Landfill  
Sec. 36, T2N, R1W, W.M.  
Multnomah County

**ISSUED IN RESPONSE TO:** Final cover design changes and missed submittal dates for information requested by DEQ's April 15, 1991 conditional closure plan approval letter.

**ISSUED BY DEPARTMENT OF ENVIRONMENTAL QUALITY**

  
Stephanie Hallock, Division Administrator  
Hazardous and Solid Waste Division

7-23-93  
Date

**ADDENDUM NO. 3**

In accordance with Oregon Administrative Rules 340-14-040, Solid Waste Disposal Site Closure Permit No. 116 is hereby amended as follows:

**Add Schedule C, Condition 5 as follows:**

Submit contract documents for closing Subareas 4 & 5 to DEQ at least 45 days prior to awarding a construction contract.

**Add Schedule C, Condition 6 as follows:**

By November 1, 1993, submit to DEQ for review and approval a work plan and schedule for conducting an endangerment assessment in accordance with Section I of DEQ's April 15, 1991 letter.

**Add Schedule C, Condition 7 as follows:**

By November 1, 1993 submit to DEQ for review and approval a work plan and schedule for developing a leachate seepage control plan and related information in accordance with Section D of DEQ's April 15, 1991 letter.

**Add Schedule C, Condition 8 as follows:**

Within six months after final landfill cover construction is completed and certified, submit to DEQ for review and approval a final post-closure care plan in accordance with DEQ's April 29, 1992 letter.

**Add Schedule E, Condition 14 as follows:**

The permittee shall maintain positive site drainage, except for depressions in the final cover that are smaller than those requiring repair in accordance with METRO's December 8, 1992 letter which is attached and included in the permit by reference. Depressions in the final cover must be identified and repaired as detailed in METRO's December 8, 1992 letter, and with the added condition that annual aerial photographs must be taken during the period from February through April of each year and submitted to DEQ with the annual report for as long as the site is subject to a solid waste closure permit.

This addendum shall be attached to and made a part of Solid Waste Disposal Site Closure Permit No. 116.

This modification shall become effective 20 days after receipt.

PSW116A3 (6/93)

# METRO

2000 SW First Avenue  
Portland, OR 97201-5398  
(503) 221-1646  
Fax 241-7417

December 8, 1992

Mr. Joe Gingerich, Environmental Engineer  
Solid Waste Permits and Compliance Section  
Oregon Department of Environmental Quality  
811 S.W. 6th Avenue  
Portland, Oregon 97204

RECEIVED  
DEC 9 1992  
Hazardous & Solid Waste Division  
Department of Environmental Quality

Dear Mr. Gingerich:

SW # 116

In an October 16, 1992 letter from Bob Martin to Charles Donaldson, Metro proposed that the geonet composite layer be eliminated from the top slope (Type B) cover profile from St. Johns Landfill. Metro also proposed 5% minimum slopes before settlement. In an early November conversation, you stated your desire that Metro propose ways to maintain positive drainage after cover is applied based on these proposals. During this conversation, we also discussed the issue of membrane rupture due to membrane stretching caused by differential settlement. The information below covers both membrane rupture/thinning and positive drainage.

To address the issue of membrane rupture due to differential settlement, we contacted a membrane manufacturer, Gundie Lining Systems, Inc. and obtained multiaxial test data for geomembranes. The multiaxial test is the most appropriate test to simulate the strain that the geomembrane will experience during differential settlement. The multiaxial test stretches the membrane simultaneously in 360° with no exposed edges, similar to blowing a balloon until it bursts. This is similar to the way the membrane would be stretched into a depression caused by differential settlement. During the gradual deformation of the test specimen, the peak point of deflection is monitored resulting in deflection readings until failure of the specimen occurs. The attached stress-stain curve, submitted by Gundie Lining Systems, Inc., indicates that a 40 mil VLDPE membrane can increase its surface area up to 120% (2.2 times) before it ruptures.

As operator of St. Johns Landfill since 1980 we have observed that positive drainage has been more of a problem as a result of differential settlement which produces depressions in the cover surface than by inadequate overall percent slopes. Therefore our post-closure strategy will be to detect and repair areas of significant differential settlement. This strategy is set forth below.

To detect areas of significant differential settlement, Metro will obtain one aerial topographic map of the landfill during the first six months of each year for up to ten (10) years after closure. Areas of apparent differential settlement will be marked for further ground inspection. Further action will depend on the severity of differential settlement.

Executive Officer  
Cusma  
to Council  
Jardner  
Sizing Officer  
Wyers  
Presiding  
McLain  
Bauer  
Devlin  
P. Gronke  
Van Bergen  
McFarland  
Collier  
Buchanan  
Washington  
Hansen

Permit Number: 116  
Expiration Date: 6/30/98  
Page 1 of 2 Pages

SOLID WASTE DISPOSAL SITE CLOSURE PERMIT

Department of Environmental Quality  
811 Southwest Sixth, Portland, OR 97204  
Telephone: (503) 229-5913


Issued in accordance with the provisions of ORS Chapter 459 and based on the land use compatibility findings included in the permit record.

---

ISSUED TO:	FACILITY COVERED BY THIS PERMIT:
Metropolitan Service District 2000 SW First Portland, OR 97201	FACILITY NAME: St. Johns Landfill
OWNER: Metropolitan Service District	FACILITY TYPE AND LOCATION:
OPERATOR: Metropolitan Service District	Sanitary Landfill Sec. 36, T2N, R1W, W.M. Multnomah County

ISSUED IN RESPONSE TO: An application dated June 26, 1991.

ISSUED BY DEPARTMENT OF ENVIRONMENTAL QUALITY

  
Stephanie Hallock, Division Administrator  
Hazardous and Solid Waste Division

August 30 1991  
Date

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ADDENDUM NO. 2

In accordance with Oregon Administrative Rules 340-14-040, Solid Waste Disposal Site Closure Permit No. 116 is hereby amended to transfer "OWNER" and "OPERATOR" status to the Metropolitan Service District.

This addendum shall be attached to and made a part of Solid Waste Disposal Site Closure Permit No. 116.

This modification shall become effective 20 days after receipt.

PSW116A2 (8/91)

### EXAMPLE 1

Volume = 5,000 cubic feet

Depth = 1 foot

Perimeter of depression = 50 feet by 100 feet = 300 feet

Area = 5,000 square feet

Surface Area = (300 feet) (1 foot) + 5,000 square feet = 5,300 square feet

Geomembrane strain =  $\frac{(5,300 - 5,000) \text{ square feet}}{5,000 \text{ sq. ft.}} = .06 = 6\% \text{ elongation } (<60\%)$

### EXAMPLE 2

Volume = 5,000 cubic feet

Depth = 2 feet

Perimeter of depression = 50 feet by 50 feet = 200 feet

Area =  $\frac{V}{D} = 5,000 \text{ cubic feet} / 2 \text{ feet} = 2,500 \text{ square feet}$

Surface Area = (Perimeter) (Depth) + Area = (200 ft)(2 ft) + 2,500 sq. ft. = 2,900 sq. ft.

Geomembrane strain =  $\frac{(2,900 - 2,500) \text{ square feet}}{2,500 \text{ sq. ft.}} = .16 = 16\% \text{ elongation } (<60\%)$



SOLID WASTE DISPOSAL SITE CLOSURE PERMIT

Department of Environmental Quality  
811 Southwest Sixth, Portland, OR 97204  
Telephone: (503) 229-5913

Issued in accordance with the provisions of ORS Chapter 459 and based on the land use compatibility findings included in the permit record.

ISSUED TO:

Metropolitan Service District  
2000 SW First  
Portland, OR 97201

FACILITY COVERED BY THIS PERMIT:

FACILITY NAME:

St. Johns Landfill

OWNER: City of Portland

FACILITY TYPE AND LOCATION:

OPERATOR: BFI

Sanitary Landfill  
Sec. 36, T2N, R1W, W.M.  
Multnomah County

ISSUED IN RESPONSE TO: An application dated July 23, 1990.

ISSUED BY DEPARTMENT OF ENVIRONMENTAL QUALITY

Stephanie Hallock  
Stephanie Hallock, Division Administrator  
Hazardous and Solid Waste Division

10-11-90  
Date

ADDENDUM NO. 1

In accordance with Oregon Administrative Rules 340-14-040, Solid Waste Disposal Site Closure Permit No. 116 is hereby amended as follows:

Schedule C, Condition 3, is changed to the following:

Construction of gas and leachate control facilities, identified in a DEQ approved closure plan, shall be started in 1991, completed in 1995, and certified by December 30, 1995, in accordance with OAR 340-61-036.

Schedule D, Condition 8, is changed to the following:

The permittee shall cover compacted wastes with a layer of at least six (6) inches of compacted soil or other approved cover material daily. The area of exposed waste materials on the active landfill face shall not exceed 40,000 square feet at any time.

Schedule E, Condition 1, is changed to the following:

The permittee shall place interim cover in phases as filling progresses. As soon as weather permits after filling is complete in any area, and before final cover is constructed, that area shall be covered with at least 1.5 feet of approved compacted soil. Final cover shall be constructed in accordance with a DEQ approved closure plan.

Schedule E, Condition 2, is changed to the following:

After the landfill is closed in accordance with a DEQ approved closure plan, the permittee shall maintain the final surface contours of the disposal site so that rainfall is shed without creating either erosion or ponded water and so that all waste remains covered in accordance with the approved plans. The permittee shall refill with approved soil, grade, and seed all areas that have settled or where water ponds and all areas where the cover soil has been damaged by cracking or erosion. Areas where vegetation has not been fully established shall be fertilized, re-seeded, and maintained.

This addendum shall be attached to and made a part of Solid Waste Disposal Site Closure Permit No. 116.

This modification shall become effective 20 days after receipt.

PSW116A (10/90)

Permit Number: 116  
Expiration Date: 6/30/98  
Page 1 of 7 Pages

**SOLID WASTE DISPOSAL SITE CLOSURE PERMIT**

Department of Environmental Quality  
811 Southwest Sixth, Portland, OR 97204  
Telephone: (503) 229-5913

Issued in accordance with the provisions of ORS Chapter 459 and based on the land use compatibility findings included in the permit record.

**ISSUED TO:**

Metropolitan Service District  
2000 S.W. First  
Portland, OR 97201

**FACILITY COVERED BY THIS PERMIT:**

**FACILITY NAME:**

St Johns Landfill

**OWNER:** City of Portland

**FACILITY TYPE AND LOCATION:**

**OPERATOR:** BFI

Sanitary Landfill  
Sec. 36, T2N, R1W, W.M.  
Multnomah County

**ISSUED IN RESPONSE TO:** An application received December 17, 1986.

**ISSUED BY DEPARTMENT OF ENVIRONMENTAL QUALITY**

*Fred Hansen*  
Fred Hansen, Director

JUL 19 1988

Date

Permitted Activities

Until such time as this permit expires or is modified or revoked, the permittee is authorized to establish, operate, close, and maintain a solid waste land disposal site in conformance with the requirements, limitations, and conditions set forth in attached schedules as follows:

	<u>Page</u>
Schedule A--Authorized and Prohibited Activities	2
Schedule B--Minimum Monitoring and Reporting Requirements	2
Schedule C--Compliance Conditions and Schedules	3
Schedule D--Special Conditions	4
Schedule E--Closure and Post-Closure Maintenance Requirements	5
Schedule F--Financial Assurance Requirements	7
General Conditions and Disclaimers	Attached

This permit does not relieve the permittee from responsibility for compliance with other applicable federal, state, or local laws, rules, or standards.

SCHEDULE A

Authorized and Prohibited Activities

1. The permittee is authorized to accept for disposal solid wastes as defined in ORS 459.005, except that nondigested sewage sludges, septic tank pumpings, and quantities of liquids exceeding 25 gallons shall not be accepted unless specifically authorized by the Department.
2. The authorization to accept solid wastes shall terminate at the time that the disposal site closes. After that time no solid waste may be accepted without written authorization by the Department.
3. The permittee is prohibited from accepting hazardous waste as defined in ORS 466.005, except as provided in the Department's Administrative Rules.
4. Any prohibited solid wastes discovered at the disposal site shall be removed and be transported to a disposal site authorized to accept such waste, within 48 hours, unless otherwise approved by the Department. In the event that hazardous wastes are discovered, the permittee shall notify the Department and initiate the administrative procedures to remove the wastes, within 48 hours. Hazardous wastes must be removed from the disposal site within 90 days, unless otherwise approved by the Department. Temporary storage and transportation shall be carried out in accordance with the rules of the Department.
5. No burning of any material shall be allowed at the disposal site.
6. Empty rigid pesticide containers may be accepted for disposal or recovery if they have been properly decontaminated by jet or multiple rinsing and crushing. Empty non-rigid pesticide containers (bags) need not be decontaminated prior to acceptance and disposal.
7. Salvaging and recycling are authorized, if conducted in a controlled and orderly manner. Salvaging of food products is prohibited.

SCHEDULE B

Minimum Monitoring and Reporting Requirements

1. The permittee shall monitor the disposal site operation and maintain records of the following required data to be submitted to the Department of Environmental Quality:

<u>Item or Parameter</u>	<u>Minimum Monitoring Frequency</u>
a. Tons of solid waste received	Monthly total
b. Static water level in each well	Each winter (January or February) and each summer (July or August)

- c. Sample each monitoring well and test for: color, pH, total alkalinity, hardness, conductivity, total organic carbon, iron, chloride, sulfate, ammonia nitrogen, nitrate-nitrite nitrogen, calcium, magnesium, manganese, chemical oxygen demand and any other parameters requested in writing by the Department.
- Each winter (January or February) and each summer (July or August)
2. Monitoring results shall be reported on approved forms. The reporting period is the calendar quarter. Reports must be submitted to the Department's Hazardous and Solid Waste Division, 811 SW Sixth Avenue, Portland, Oregon 97204, by the 15th day of the month following the end of each quarter.
3. The permittee shall report to the Department any changes in ownership of the disposal site or of the permittee's or operator's name or address within ten days of such change.

#### SCHEDULE C

#### Compliance Conditions and Schedules

1. The disposal site and transfer station shall be constructed and operated in compliance with the plans which were approved by the Department on November 30, 1976, June 23, 1980, and July 17, 1984 and any amendments to those plans approved in writing by the Department.
2. The permittee shall develop and submit to the Department an acceptable revised closure package including financial assurance for closure and post closure activities in accordance with the following time schedule:
- |                           |   |
|---------------------------|---|
| July 31, 1988             | Develop scope of work for further study, obtain council approval for contracts.       |
| December 31, 1988         | Contractor provides updated monitoring system, develop water budget.                  |
| January 31, 1989          | Contract with financial consultant to develop a financial plan.                       |
| January 31, 1989          | Develop conceptual designs for mitigation and order of magnitude of costs of systems. |
| December 1988 to May 1989 | Submit results of studies and recommended mitigation to public review.                |

May 1989                      Submit recommendations to Metro council.

June 30, 1989                Submit revised closure package to DEQ.

At a minimum the final submission must include an appropriate recommendation for revised monitoring system, leachate control for the entire landfill and gas collection, and time schedule for implementation.

3. All control facilities identified in the closure plan as necessary for leachate and gas control shall be started during the 1990 construction season and completed by December 31, 1991.
4. The permittee shall pay the Annual Compliance Determination Fee and Recycling Program Implementation Fee prior to July 1 of each year this permit is in effect. An invoice indicating the amount of the fee, set in accordance with the Department's regulations, will be mailed prior to the date due.

#### SCHEDULE D

##### Special Conditions

1. The permittee shall provide a place for receiving the source separated recyclable material identified by the Department in the attachment to this permit and any subsequent lists identified in writing by the Department. The place for receiving recyclable materials shall be located either at the disposal site or at another location more convenient to the population served by the disposal site. The recyclable material receiving point must be available to every person whose solid waste enters the disposal site.
2. The permittee shall not mix any source separated recyclable material brought to the site with any other solid waste.
3. The permittee shall not landfill or dispose of any source separated recyclable material brought to the disposal site. All source separated recyclable materials shall be reused or recycled.
4. The permittee shall provide recycling information to disposal site users. Information shall be provided on printed handbills. Information to be provided must include the following:
  - a. The location of the recycling center at the disposal site or at another location.
  - b. The hours of operation of the recycling center.
  - c. The materials accepted for recycling.
  - d. Instructions for correct preparation of accepted source separated recyclable materials.
  - e. Reasons why people should recycle.

5. All recyclable materials, except car bodies, white goods and other bulky items, shall be stored in containers unless otherwise approved by the Department. The permittee shall maintain the recyclable material storage area in an orderly manner and keep the area free of litter. Recyclable materials shall be removed at sufficient frequency to avoid creating nuisance conditions.
6. After the permittee's disposal site closes, the permittee shall be exempted by rule (OAR 340-60-065) from the requirements of ORS 459.250 to provide a place for receiving source separated recyclable materials, and conditions 1,2,3,4, and 5 of this schedule shall no longer be in effect.
7. The permittee shall spread all solid wastes deposited into thin layers and thoroughly compact it at least once each day.
8. The permittee shall cover compacted wastes with a layer of at least six (6) inches of compacted soil or other approved cover material daily. The area of exposed waste materials on the active landfill face shall not exceed 200' X 200' at any time.
9. Equipment of adequate size and design to properly operate the disposal site shall be available at all times. In the event of equipment breakdown, alternative equipment must be provided, unless a specific exemption is granted in writing by the Department.
10. Roads from the landfill property line to the active operational area shall be constructed and maintained so as to minimize traffic hazards, dust and mud, and to provide reasonable all-weather access for vehicles using the site.
11. Signs clearly stating disposal area rules shall be posted to assure compliance with the approved operational plan. A clearly visible and legible sign(s) shall be erected at the entrance stating the following:
  - Name of facility.
  - Emergency telephone number
  - Days and hours site is open
  - Authorized or prohibited wastes
12. All recyclable yard debris shall be removed at sufficient frequency to avoid creating nuisance conditions. The yard debris pile awaiting processing shall not exceed 3 months receipts and an area 150 feet by 250 feet by 10 feet high.

#### SCHEDULE E

##### Closure and Post-Closure Maintenance Requirements

1. The permittee shall close the disposal site in phases as filling progresses. As soon as filling is completed in any area, that area shall be covered with 2 feet of approved compacted soil, graded, and seeded as specified in the approved plans. Unless otherwise authorized in writing by

the Department, final cover shall be applied to completed fill areas within sixty (60) days, except in the event of inclement weather, in which case, final cover shall be applied as soon as possible.

(Note: 3 feet of approved cover soil will be required over the areas of this landfill which close after January 1, 1989.)

2. The permittee shall maintain the final surface contours of the disposal site so that rainfall is shed without creating either erosion or ponded water and so that all waste remains covered with soil. The permittee shall refill with approved soil, grade, and seed all areas that have settled or where water ponds and all areas where the cover soil has been damaged by cracking or erosion. Areas where vegetation has not been fully established shall be fertilized, re-seeded, and maintained.
3. The permittee shall establish and maintain suitable vegetation over the closed areas of the disposal site consistent with the proposed final use.
4. The permittee shall maintain the disposal site in a manner which minimizes leachate production. Leachate shall be collected and treated or otherwise controlled in a manner approved by the Department so as to prevent malodors, public health hazards, and escapement to public waters in violation of any applicable state or federal water quality rules or regulations.
5. The permittee shall not allow the introduction of any substance from the landfill into a groundwater aquifer, which impairs the aquifer's recognized beneficial uses beyond the solid waste boundary of the disposal site or an alternative boundary specified by the Department after consideration of OAR 340-61-040(4)(c).
6. The permittee shall construct, operate, and maintain, in good working order, the leachate containment, collection, removal, and treatment system approved by the Department.
7. The permittee shall construct, operate, and maintain, in good working order, the landfill gas containment, collection, removal, and treatment system approved by the Department so that nuisance odors are minimized and so that the methane concentration does not exceed 1.25 percent within on-site structures (excluding gas control or gas recovery system components) or exceed 5 percent of the soil atmosphere beyond the landfill property boundary.
8. The permittee shall protect and maintain each groundwater or surface water monitoring well or device so that samples, representative of actual conditions, can be collected. Any damage shall be immediately reported to the Department and the wells or devices shall be replaced or repaired within sixty (60) days unless otherwise approved in writing by the Department.
9. The permittee shall protect, maintain, and operate each landfill gas monitoring well or device so that samples, representative of actual conditions, can be collected. Any damage shall be immediately reported to the Department and the wells or devices shall be replaced or repaired within 14 days unless otherwise approved in writing by the Department.



10. The permittee shall divert surface water drainage away from areas where solid waste has been placed and shall maintain such surface water diversion ditches or structures to allow the free flow of water at all times.
11. The permittee shall immediately and thoroughly extinguish any fires and within 24 hours report them to the Department's Northwest Region office at 229-5263.
12. The permittee shall maintain the closed disposal site so that it is reasonably free of litter at all times.
13. This closure permit remains in effect and is a binding obligation of the permittee until it expires or until the Department terminates the permit according to OAR 340-61-028(6) or (7), or upon issuance of a new closure permit for the site to another person following receipt of a complete and acceptable application.

#### SCHEDULE F

##### Financial Assurance Requirements

1. As part of the revised closure package required in condition C-2 an acceptable amount and method of financial assurance for closure and post closure maintenance shall be submitted to the Department.
2. The permittee is subject to audit by the Department (or Secretary of State) and shall allow the Department access to all records during normal business hours for the purpose of determining compliance with the financial assurance plan and rules of the Department.

RLB:f

General Conditions and Disclaimers

- G1. Terms in this permit are used as defined in Oregon Administrative Rule 340-61-010.
- G2. The conditions of this permit shall be binding upon the permittee. The permittee shall be responsible for all acts and omissions of all of the permittee's contractors and agents.
- G3. The disposal site shall be operated in compliance with Oregon Administrative Rules, Chapter 340, Division 61, regarding disposal of solid waste.
- G4. The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations.
- G5. The Department of Environmental Quality, its officers, agents, or employees shall not sustain any liability on account of the issuance of this permit or on account of the construction or maintenance of facilities because of this permit.
- G6. The permittee shall allow representatives of the Department of Environmental Quality access to the disposal facility at all reasonable times for the purpose of making inspections, surveys, collecting samples, obtaining data, and carrying out other necessary functions related to this permit.
- G7. This permit may be modified, suspended, or revoked in whole or in part during its term for cause including but not limited to the following:
  - a. Violation of any terms or conditions of this permit or any applicable rule, standard, or order of the Commission;
  - b. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts;
  - c. A significant change in the quantity or character of solid waste received or in the method of disposal site operation.
- G8. This permit, or a photocopy thereof, shall be displayed where it can be readily referred to by operating personnel.
- G9. The permittee may not store more than 100 tires at the disposal site without specific permission in Schedule A of this permit.
- G10. After July 1, 1989 only tires chipped to Department specifications (OAR 340-62) may be landfilled.
- G11. This permit supersedes all previously issued permits for this disposal site.

AIR CONTAMINANT DISCHARGE PERMIT

Department of Environmental Quality  
811 S.W. Sixth Avenue  
Portland, OR 97204-1390  
Telephone: (503) 229-5696

Issued in accordance with the provisions of ORS 468A.040 and based on the land use compatibility findings included in the permit record.

ISSUED TO:

Metropolitan Service District  
600 Northeast Grand Avenue  
Portland, OR 97232-2736

INFORMATION RELIED UPON:

Application No.: Department  
Initiated  
Date: August 9, 1995

PLANT SITE LOCATION:

St. Johns Landfill  
9363 N. Columbia Blvd.  
Portland, OR 97220

LAND USE COMPATIBILITY STATEMENT:

From: City of Portland  
Dated: 5-28-93

ISSUED BY THE DEPARTMENT OF ENVIRONMENTAL QUALITY

  
Thomas R. Bispham, Northwest Region Administrator

NOV 06 1995  
Dated

ADDENDUM NO. 1

In accordance with OAR 340-14-040, Air Contaminant Discharge Permit No. 26-3310, Conditions 6 through 11, now read as follows:

PLANT SITE EMISSION LIMITS

6. Emissions of Particulate Matter on a plant site basis shall not exceed 24.9 tons per year or 9.1 pounds per hour.
7. Emissions of Sulfur Dioxide on a plant site basis shall not exceed 9.1 tons per year or 2.5 pounds per hour.
8. Emissions of Nitrogen Oxides on a plant site basis shall not exceed 21.0 tons per year or 5.8 pounds per hour.
9. Emissions of Carbon Monoxide on a plant site basis shall not exceed 10.1 tons per year or 2.8 pounds per hour.

10. Emissions of Volatile Organic Compounds (VOC) on a plant site basis shall not exceed 0.7 tons per year or 0.2 pounds per hour.
11. The PSELS are based on a landfill gas flow to the flares of 4,600 dry standard cubic feet (dscf) per minute or 2,000 million dscf per year. Any increases above these levels must receive the prior approval of the Department. The permittee shall notify the Department if the landfill gas flow rate to the flares approaches or reaches either or both of these levels. Flows in excess of 4,600 dscf per minute or 2,000 million dscf per year will require a permit modification.

The following emission factors shall be used to determine compliance with the PSELS:

<u>Pollutant</u>	<u>Emission factors,</u> <u>lb/million cubic feet landfill gas</u>	
	<u>Hourly</u>	<u>Annual</u>
Particulate	32.9	24.9
SO <sub>2</sub>	9.1	9.1
NO <sub>x</sub>	21.0	21.0
CO	10.1	10.1
VOC	0.7	0.7

ALL INQUIRIES SHOULD BE DIRECTED TO:

Department of Environmental Quality  
Northwest Region  
2020 SW Fourth Avenue  
Suite 400  
Portland, OR 97201-4987  
Telephone: (503) 229-5554

GFD:ED  
November 3, 1995  
P263310A

Department of Environmental Quality  
 Air Quality Division

REVIEW REPORT  
 AIR CONTAMINANT DISCHARGE PERMIT MODIFICATION ADDENDUM 1

Metropolitan Service District  
 600 Northeast Grand Avenue  
 Portland, OR 97232-2736

PSEL CRED	SOURCE TEST	CMS	AMB MON	COMPL SCHED	SPEC COND	REPORT			EXCESS		NSPS	NSR	PSD	NESHAP	SIZE		PUBL NOTC
						A	Q	M	R	N					A1	A2	
					X	X			X							X	

GENERAL BACKGROUND INFORMATION

- Metropolitan Service District of Portland (METRO) operates the St. Johns Landfill located at 9363 N. Columbia Blvd. in Portland, Oregon. The facility was operated as a landfill and accepted municipal solid waste until 1991. The current activities focus on closure of the site. The landfill has been capped and a landfill gas recovery system has been installed. A gas flare system was added in 1993 to burn the waste landfill gas.
- An Air Contaminant Discharge Permit for the gas flares was issued in December, 1993. The emission limitations in the original permit were based on source test results for a similar existing operation. The review report for the original permit included the following statement (paragraph 7):
  - Source test information for a similar application at a landfill in the Northwest was provided by the engineering consultant for this facility. The gas composition is unique for each landfill. This requires a source test be performed at St. Johns to verify emissions.
- Source testing of the landfill flares has been completed. The initial source tests indicated exceedences of the permit limits, and also suggested that the flares were not operating at full efficiency and effectiveness. Modifications were made to the flare system, resulting in a combustion temperature of 1750°F and a retention time of nearly 1.5 seconds, which should provide for efficient destruction of landfill gases.
- Emissions were retested on January 5, 1995. The retest indicates that the flares can meet the limits in the original permit, with the exception of the limits on Particulate Matter and VOCs.

In view of the acknowledged unique composition of waste gases from each landfill, and the results of the January 5, 1995, source test, the Department proposes to revise the permit limits for VOCs.

The original Plant Site Emission Limits (PSELs) for Particulate and VOC were based on the emission factors indicated below.

<u>Contaminant Emitted</u>	<u>Operating parameter</u>	<u>Emission factor</u>	<u>Reference</u>	<u>Estimated Emissions</u>
Particulate	2,418 million cu.ft/yr	1.05 lbs/ million ft <sup>3</sup>	Regulatory Limit	1.3 ton/ year
VOC	2,418 million cu.ft/yr	0.015 lbs/ million ft <sup>3</sup>	Model Source Test	0.02 ton/ year

The January 5, 1995, source tests gave the following results:

<u>Parameter, units</u>	<u>Run 1</u>	<u>Run 2</u>	<u>Run 3</u>	<u>Average</u>
Inlet gas flow, dscf/min	1,470	1,480	1,480	1,480
Inlet gas flow, million dscf/hr	0.0882	0.0888	0.0888	0.0888
Particulate, gr/dscf	0.016	0.014	0.024	0.018
Particulate, lb/hr	1.97	1.74	2.92	2.21
VOC, lb/hr	0.06	0.06	0.05	0.06

The source is in compliance with the general Particulate emission limitation of 0.1 grain/dscf as specified in the permit.

Emission factors based on the source test results above are:

<u>Parameter, units</u>	<u>Run 1</u>	<u>Run 2</u>	<u>Run 3</u>	<u>Average</u>
Particulate, lb/million dscf inlet gas	22.34	19.59	32.88	24.89
VOC, lb/million dscf inlet gas	0.68	0.68	0.56	0.68

The Department has recalculate the annual Particulate and VOC emission rates using the average emission factors listed above, and recalculated the hourly emission rates using the maximum emission factors listed above.

<u>Contaminant Emitted</u>	<u>Operating parameter</u>	<u>Emission factor</u>	<u>Reference</u>	<u>Estimated Emissions</u>
Particulate	2,418 million cu.ft/yr	24.9 lbs/ million ft <sup>3</sup>	Jan. 5, 1995 Source Test	30.1 ton/ year
	4,600 cu.ft/min (0.276 million cu.ft/hr)	32.9 lbs/ million ft <sup>3</sup>	same	9.1 lb/hr
VOC	2,418 million cu.ft/yr	0.7 lbs/ million ft <sup>3</sup>	Jan. 5, 1995 Source Test	0.85 ton/ year
	4,600 cu.ft/min (0.276 million cu.ft/hr)	0.7 lbs/ million ft <sup>3</sup>	same	0.2 lb/hr

11. The Significant Emission Rate (SER) for Particulate Matter is 25 tons per year. If a source exceeds the SER, New Source Review is required. Since the calculated emission rate for Particulate exceeds the SER, METRO has requested that the PSEL be set below the SER. The Department proposes to set the annual PSEL for Particulate at 24.9 ton/yr.

12. To ensure that Particulate emissions do not exceed 24.9 tons per year, the Department is also proposing to set a limit on the total amount of landfill gas that may be burned in the flares each year. The limit will be back-calculated from the Particulate limit of 24.9 ton/yr, as follows:

$$24.9 \text{ ton/yr} \times 2000 \text{ lb/ton} / 24.9 \text{ lbs/million ft}^3 = 2,000 \text{ million ft}^3 \text{ (MMcf).}$$

13. The Department proposes to revise all PSELs based on the gas limit above and the corrected emission factors as applicable:

<u>Pollutant</u>	<u>Operating Parameter</u>	<u>Emission factor lbs/million cf</u>	<u>Reference</u>	<u>Emission Lim. ton/yr(lb/hr)</u>
Particulate	2,000 MMcf/yr	24.9	1995 Source	24.9
	4,600 cf/min (0.276 MMcf/min)	(32.9)	Test	(9.1)
SO <sub>x</sub>	same as above	9.1	Model Source Test	9.1 (2.5)
NO <sub>x</sub>	same as above	21.0	Model Source Test	21.0 (5.8)
CO	same as above	10.1	Model Source Test	10.1 (2.8)
VOC	same as above	0.7	1995 Source Test	0.7 (0.2)

SEL INCREASES

4. Annual PSEL changes are detailed below.

<u>Pollutant</u>	<u>Original PSEL tons/yr</u>	<u>Proposed PSEL (tons/yr)</u>	<u>Correction (tons/yr)</u>	<u>Actual Increase (tons/yr)</u>
Particulate	1.3	24.9	23.6	0.0
SO <sub>x</sub>	11.2	9.1	- 2.1	0.0
NO <sub>x</sub>	25.0	21.0	- 4.0	0.0
CO	12.0	10.1	- 1.9	0.0
VOC	0.02	0.7	0.68	0.0

SIGNIFICANT EMISSION RATE

5. The Plant Site Emission Limit increases over baseline are less than the Significant Emission Rates (SERs) as defined in OAR 340-28-110(83) and are shown below. No further air quality analysis is required.

<u>Pollutant</u>	<u>Baseline Emissions tons/yr</u>	<u>Current PSEL (tons/yr)</u>	<u>Increase (tons/yr)</u>	<u>SER (tons/yr)</u>
Particulate	0	24.9	24.9	25
SO <sub>x</sub>	0	9.1	9.1	40
NO <sub>x</sub>	0	21.0	21.0	40
CO	0	10.1	10.1	100
VOC	0	0.7	0.7	40

PUBLIC NOTICE

16. The proposed increase to the Particulate and VOC PSELS is due to a correction only and does not represent an actual increase in emissions; therefore, no public notice is necessary.



AIR CONTAMINANT DISCHARGE PERMIT

Department of Environmental Quality  
811 S.W. Sixth Avenue  
Portland, OR 97204-1390  
Telephone: (503) 229-5696

Issued in accordance with the provisions of ORS 468A.040 and based on the land use compatibility findings included in the permit record.

ISSUED TO:

Metropolitan Service District  
600 Northeast Grand Avenue  
Portland, OR 97232-2736

INFORMATION RELIED UPON:

Application No.: 13247  
Received: 8-24-93

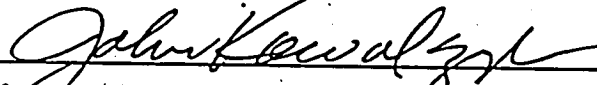
PLANT SITE LOCATION:

St. Johns Landfill  
9363 N. Columbia Blvd.  
Portland, OR 97220

LAND USE COMPATIBILITY STATEMENT:

From: City of Portland  
Dated: 5-28-93

ISSUED BY THE DEPARTMENT OF ENVIRONMENTAL QUALITY

  
John Kowalczyk, Acting Administrator

DEC 14 1993

Dated

Source(s) Permitted to Discharge Air Contaminants:

TYPE OF FACILITY (FROM TABLE 4, OAR 340-28-1750)

STANDARD INDUSTRY CODE

61.c. Sources installed in or after 1971 which would emit 10 or more tons of any air contaminants if uncontrolled (low cost).

SIC: 4953

PERMITTED ACTIVITIES

The permittee is herewith allowed to discharge exhaust gases containing air contaminants only in accordance with the permit application and the limitations contained in this permit. Until such time as this permit expires or is modified or revoked, the permittee is herewith allowed to discharge exhaust gases from those processes and activities directly related or associated thereto in accordance with the requirements, limitations, and conditions of this permit from the air contaminant source(s) listed above.

Compliance with the specific requirements, limitations and conditions contained herein does not relieve the permittee from complying with all other laws, rules and standards administered by the Department, nor does it allow significant levels of emissions of air contaminants not limited in this permit or contained in the permit application.

#### PERFORMANCE STANDARDS AND EMISSION LIMITS

1. The permittee shall at all times maintain and operate all air contaminant generating processes and all air contaminant control equipment at full efficiency and effectiveness, such that the emissions of air contaminants are kept at the lowest practicable levels.
2. Particulate emissions from any single air contaminant source shall not exceed any of the following:
  - a. 0.10 grains per standard cubic foot, corrected to 12% CO<sub>2</sub> or 50% excess air, for sources installed, constructed, or modified after June 1, 1970; and
  - b. An opacity equal to or greater than twenty percent (20%) for a period aggregating more than thirty (30) seconds in any one (1) hour, excluding uncombined water vapor.
3. Particulate matter which is larger than 250 microns and which may be deposited upon the real property of another person shall not be emitted.
4. The permittee shall not allow the emission of odorous matter or other fugitive emissions so as to create nuisance conditions off the permittee's property. Nuisance conditions will be verified by Department personnel. The creation of nuisance conditions may, in addition to any other action the Department may take, result in a permit modification to require a compliance schedule to control the nuisance conditions.
5. The permittee shall minimize fugitive dust emissions by treating vehicular traffic areas of the plant site under the control of the permittee.

#### PLANT SITE EMISSION LIMITS

6. Emissions of Particulate Matter on a plant site basis shall not exceed 1.3 tons per year or 0.3 pounds per hour.
7. Emissions of Sulfur Dioxide on a plant site basis shall not exceed 11.2 tons per year or 2.5 pounds per hour.
8. Emissions of Nitrogen Oxides on a plant site basis shall not exceed 25 tons per year or 5.8 pounds per hour.
9. Emissions of Carbon Monoxide on a plant site basis shall not exceed 12.2 tons per year or 2.8 pounds per hour.

10. Emissions of Volatile Organic Compounds (VOC) on a plant site basis shall not exceed 0.02 tons per year or 0.004 pounds per hour.
11. The PSEL is based on a landfill gas flow of 4,600 CFM or 2,418 million cubic feet per year. Any increases above these levels must receive the prior approval of the Department. The permittee shall notify the Department if the landfill gas flow rate approaches or reaches 4,600 CFM. Flows in excess of that amount will require a permit modification.

#### SOURCE TESTING REQUIREMENTS

12. By no later than 90 days after startup of the gas flares, the permittee shall demonstrate that the waste gas flare system is capable of operating at the maximum operating capacity achieved, in continuous compliance with Conditions 2: and 6. thru 11. by conducting a source test for particulate, NO<sub>x</sub>, carbon monoxide, SO<sub>2</sub>, and VOC emissions.

All tests shall be conducted in accordance with the testing procedures on file at the Department and with the pretest plan submitted at least 15 days in advance and approved by the Source Test Coordinator in the Air Quality Division of the Department in Portland (unless otherwise notified). All test data and results shall be submitted for review to the Source Test Coordinator within 30 days after testing.

Only regular operating staff may adjust the combustion system and emission control parameters during the source performance tests and within two (2) hours prior to the tests. Any operating adjustments made during the source performance tests, which are a result of consultation during the tests with source testing personnel, equipment vendors or consultants, may render the source performance test invalid.

During the source test the following parameters should be monitored and recorded:

- a. opacity readings on the exhaust stack following the procedures of EPA Method 9
- b. process operating parameters during the emissions source test, including air flow and gas flows, and combustion temperature
- c. operating parameters of emission control equipment, including but not limited to pressure drop across the scrubber and oxygen sensor readings during the emissions source tests.
- d. analysis of the waste gas constituents, including methane, carbon dioxide, hydrogen sulfide, chlorides, volatile organic compounds (Method 25A), and the BIU content.
- e. analysis of stack gas for toxic air contaminants (Method 18).

SPECIAL CONDITIONS

13. The permittee shall minimize fugitive odorous emissions by complying with the following conditions:
  - a. The plant facilities and piping shall be inspected at least weekly for leaks and any leakage found repaired within 48 hours of discovery.
14. The permittee shall provide the Regional Office of the Department with written notification within five days of all nuisance complaints received by the permittee during the operation of the facility. Documentation shall include date of contact, time of observed nuisance condition, description of nuisance condition, location of receptor, and status of plant operation during the observed period.

The condition shall be investigated by a plant representative immediately following the receipt of the nuisance complaint and a log of all complaints shall be maintained. A plant representative shall provide a response to the complainant within 24 hours.
15. The permittee shall analyze the landfill gas composition on an annual basis for methane, carbon dioxide, hydrogen sulfide, chlorides and volatile organic compounds (Method 25A), and the BIU content.

MONITORING REQUIREMENTS

16. The permittee shall effectively inspect and monitor the operation and maintenance of the plant and associated air contaminant control facilities and shall implement the procedures necessary to monitor and record the following parameters. A record of all such data shall be maintained for a period of two years at the plant site for inspection by the authorized representatives of the Department.
  - a. All operating and production parameters to be reported to the Department annually as required in Condition 17.
  - b. Excess emissions records as defined in OAR 340-28-1400 through 340-28-1440 (recorded on occurrence)
  - c. A description of any maintenance to the air contaminant control system (recorded on occurrence).
  - d. A log of all nuisance complaints received
  - e. A log of all gas analyses per Conditions 12. and 15.

REPORTING REQUIREMENTS

17. The permittee shall submit to the Department by January 15 of each year this permit is in effect two (2) copies of the following information for the preceding calendar year:
  - a. Operating parameters:
    - i. Amount of landfill gas flared on an annual basis

- ii. Highest hourly flow rate of gas observed during the year.
  - iii. Annual analysis of landfill gas per Condition 15.
- b. A log of all planned and unplanned excess emissions in accordance with OAR 340-28-1440.
  - c. A summary of all odor complaints received during the year; by specifying the number of complaints on each date that complaints were received.
  - d. Explain any permanent changes made in the plant process or production which would effect air contaminant emissions, and indicate when changes were made.
  - e. List all major maintenance performed on air pollution equipment
  - f. The report shall be sent to the Air Quality Division, 811 SW Sixth, Portland, OR 97204 unless otherwise noted. The permit number must be prominently displayed on the report.

#### FEE SCHEDULE

- 18. The Annual Compliance Determination Fee for this permit is due on August 1 of each year this permit is in effect. An invoice indicating the amount, as determined by Department regulations, will be mailed prior to the above date. The fee shall be submitted to the Business Office of the Department in Portland (unless otherwise notified).

#### GENERAL CONDITIONS AND DISCLAIMERS

- G1. The permittee shall allow Department of Environmental Quality representatives access to the plant site and pertinent records at all reasonable times for the purposes of making inspections, surveys, collecting samples, obtaining data, reviewing and copying air contaminant emission discharge records and otherwise conducting all necessary functions related to this permit in accordance with ORS 468.095.
- G2. The permittee shall have available at the facility at all times a copy of the Air Contaminant Discharge Permit.
- G3. The permittee is prohibited from conducting open burning.
- G4. The permittee shall at all times conduct dust suppression measures to meet the requirements set forth in "Fugitive Emissions" and "Nuisance Conditions" in OAR 340-21-050 through 340-21-060 and in OAR 340-30-440.
- G5. The permittee shall immediately (i.e. as soon as possible but in no case more than one hour after the beginning of the excess emission period) notify the Department by telephone or in person of any excess emissions which are of a nature that could endanger public health, in accordance with OAR 340-28-1430. Follow-up reporting shall be made in accordance with Department direction and OAR 340-28-1430(3) and 340-28-1440.

Notification shall be made to the appropriate regional or branch office.  
Current Departmental telephone numbers are:

Portland	229-5263	Medford	776-6010
Salem	378-8240	Coos Bay	269-2721
Bend	388-6146	Roseburg	440-3338
Pendleton	276-4063		

In the event of any excess emissions which are of a nature that could endanger public health and occur during nonbusiness hours, weekends, or holidays, the permittee shall immediately notify the Department by calling the Oregon Accident Response System (OARS). The current number is 1-800-452-0311.

- G6. The permittee shall notify the Department in writing using a Departmental "Notice of Construction" form, or "Permit Application Form", and obtain approval in accordance with OAR 340-28-800 through 340-28-820 before:
- Constructing or installing any new source of air contaminant emissions, including air pollution control equipment, or
  - Modifying or altering an existing source that may significantly affect the emission of air contaminants, or
  - Making any physical change which increases emissions, or
  - Changing the method of operation, the process, or the fuel use, or increasing the normal hours of operation to levels above those contained in the permit application and reflected in this permit and which result in increased emissions.
- G7. Application for a modification of this permit must be submitted not less than 60 days prior to the source modification. A Filing Fee and an Application Processing Fee must be submitted with an application for the permit modification.
- G8. The permittee shall notify the Department in writing using a Departmental "Permit Application Form" within 60 days after the following:
- legal change of the registered name of the company with the Corporations Division of the State of Oregon, or
  - sale or exchange of the activity or facility.
- Applicable Permit Fees must be submitted with an application for the name change.
- G9. Application for renewal of this permit must be submitted not less than 60 days prior to the permit expiration date. A Filing Fee, an Application Processing Fee and an Annual Compliance Determination Fee must be submitted with the application for the permit renewal.

- G10. The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations.
- G11. This permit is subject to revocation for cause as provided in OAR 340-14-045.

ALL INQUIRIES SHOULD BE DIRECTED TO:

Department of Environmental Quality  
Northwest Region  
1500 SW 1st Avenue #750  
Portland, OR 97201-5884  
Telephone: (503) 229-5263

PERMITS\P263310

Department of Environmental Quality  
 Air Quality Division

AIR CONTAMINANT DISCHARGE PERMIT APPLICATION REVIEW REPORT

Metropolitan Service District  
 600 Northeast Grand Avenue  
 Portland, OR 97232-2736

PSEL CRED	SOURCE TEST	CMS	AMB MON	COMPL SCHED	SPEC COND	REPORT			EXCESS		NSPS	NSR	PSD	NESHAP	SIZE		FUBL NOTC
						A	Q	M	R	N					A1	A2	
	X				X	X				X						X	X

GENERAL BACKGROUND INFORMATION

1. Metropolitan Service District of Portland (METRO) operates the St. Johns Landfill located at 9363 N. Columbia Blvd. in Portland, Oregon. The facility was operated as a landfill and accepted municipal solid waste until 1991. The current activities focus on closure of the site. The landfill has been capped and the cap is currently being upgraded with a landfill gas recovery system. A gas flare system is to be installed in 1993 to burn the waste landfill gas. Energy recovery is being actively considered for this site.
2. The source is located in a nonattainment area for carbon monoxide and ozone. This source is an insignificant source of carbon monoxide and precursors for ozone formation (VOC and NO<sub>x</sub>). The area is in attainment for all other pollutants.
3. A Land Use Compatibility Statement signed by the City of Portland on May 28, 1993 granted approval subject to the following conditions:
  - a. subject to development standards of the zoning code
  - b. may be subject to Environmental Review if the development is shifted to an area now covered by an environmental overlay zone.
4. Other permits issued by the Department of Environmental Quality for this source include a Solid Waste Disposal Site Permit #116 and an N.P.D.E.S. Stormwater Permit #1200-G. Leachate is discharged to the City of Portland sewer under a City of Portland permit.
5. Operation of the facility in compliance with Department of Environmental Quality emission limitations will be verified by the Department.
6. Existing air contaminant sources at the facility consist of the following:



- a. Four landfill gas flares with two knock-out drains on the feed gas installed in 1993. The system includes fuel/air mixture controls and oxygen sensors for emission control.
- b. fugitive gas leaks from the landfill cap resulting from the decomposition of solid waste material.

7. Source test information for a similar application at a landfill in the Northwest was provided by the engineering consultant for this facility. The gas composition is unique for each landfill. This requires a source test be performed at St.Johns to verify emissions.

8. The proposed permit is a new permit for a new source.

PLANT SITE EMISSION LIMIT (PSEL) INFORMATION

ORIGINAL PLANT SITE EMISSION LIMIT

9. The Baseline Emission Rate for this source is zero since it was constructed after 1978.

PLANT SITE EMISSION LIMIT

10. The normal operating schedule for the gas flares is 24 hrs/day x 365 days/yr. = 8760 hrs/yr.

11. The maximum landfill gas burn rate is 4600 CFM or 276,000 cubic feet per hour.

12. The Plant Site Emission Limit for normal operation is shown below.

GAS FLARE EMISSIONS

<u>Contaminant Emitted</u>	<u>Operating parameter</u>	<u>Emission factor</u>	<u>Reference</u>	<u>Estimated Emissions</u>
Particulate	2,418 million cu.ft/yr	1.05 lbs/ million ft <sup>3</sup>	Regulatory Limit	1.3 tons/ year
SO <sub>x</sub>	same as above	9.1 lbs/ million ft <sup>3</sup>	Model Source Test	11.2 tons/ year
NO <sub>x</sub>	same as above	21.0 lbs/ million ft <sup>3</sup>	Model Source Test	25 tons/ year
CO	same as above	10.1 lbs/ million ft <sup>3</sup>	Model Source Test	12.2 tons/ year
VOC	same as above	0.015 lbs/ million ft <sup>3</sup>	Model Source Test	0.02 tons/ year

NOTE: Emission factors from the Model Source Test have been increased by a factor of 20% to allow for differences in landfill gas composition and flare burner design.

#### SIGNIFICANT EMISSION RATE

13. The Plant Site Emission Limit increase over baseline is less than the Significant Emission Rate (SER) as defined in OAR 340-28-110(83) for all pollutants and is shown below. No further air quality analysis is required for those pollutants. An analysis for compliance with the Highest and Best Practicable Treatment and Control requirement considered the gas collection and flare system as a control device for the fugitive landfill gas emissions. Without flares, the landfill cap will leak methane, carbon dioxide, and VOCs in significant quantities uncontrolled. The combustion process consumes the ozone precursors and hazardous air pollutants, as well as odiferous organic compounds produced by the decomposing solid waste. The flare burners are designed for up to 300% excess air to assure complete combustion. This method meets the requirement of Highest and Best Practicable Control of the landfill emissions.

<u>Pollutant</u>	<u>Baseline Emissions</u> <u>tons/yr</u>	<u>Current PSEL</u> <u>(tons/yr)</u>	<u>Increase</u> <u>(tons/yr)</u>	<u>SER</u> <u>(tons/yr)</u>
Particulate	0	1.3	1.3	25
SO <sub>x</sub>	0	11.2	11.2	40
NO <sub>x</sub>	0	25	25	40
CO	0	12.2	12.2	100
VOC	0	0.02	0.02	40

#### AIR TOXICS

14. A review of toxic air pollutant emissions indicates that emissions of the compounds listed below would be less than the Department's Significant Emission Rate.

<u>Compound</u>	<u>Estimated Emission Rate</u>	<u>Significant Emission Rate</u>
Benzene	10 lbs/yr	3,100 lbs/yr
Toluene	0.011 lbs/8 hr	685 lbs/8 hr
Xylenes	0.008 lbs/8 hr	795 lbs/8 hr

Note: based on flaring of 2,418 million cu. ft. per year of landfill gas.

ADDITIONAL REQUIREMENTS

15. Source testing requirements contained in the permit include testing for criteria pollutants.
16. Special conditions contained in the permit include fugitive odor emissions abatement requirements and specific responses to nuisance complaints, including notification of the Department. Annual analysis of the composition of the landfill gas is required.
17. The source is required to submit reports to the Department annually.
18. The source is not subject to immediate (within one hour) reporting of excess emissions, except when the emissions may endanger public health.
19. This source is not subject to federal regulations for New Source Performance Standards (NSPS).
20. This source is not subject to federal regulations for New Source Review.
21. This source is not subject to federal regulations for Prevention of Significant Deterioration (PSD).
22. This source is not subject to federal regulations for National Emissions Standards for Hazardous Air Pollutants (NESHAP).

PUBLIC NOTICE

23. The proposed new permit for a new source was placed on public notice from October 22, 1993 to November 22, 1993. No comments were received from the public during that time.

STATE OF OREGON

COUNTY OF MULTNOMAH

PERMIT TO APPROPRIATE THE PUBLIC WATERS

THIS PERMIT IS HEREBY ISSUED TO

METRO REGIONAL ENVIRONMENTAL MANAGEMENT  
600 NE GRAND AVENUE  
PORTLAND, OREGON 97232-2736

The specific limits for the use are listed below along with conditions of use.

APPLICATION FILE NUMBER: S-72126

SOURCE OF WATER: COLUMBIA SLOUGH, A TRIBUTARY OF WILLAMETTE RIVER

PURPOSE OR USE: CONSTRUCTION (CLOSURE OF ST. JOHN LANDFILL)

RATE/VOLUME: 0.56 CFS

PERIOD OF ALLOWED USE: YEAR ROUND

DATE OF PRIORITY: January 6, 1992

POINT OF DIVERSION LOCATION: NE 1/4 SW 1/4, SECTION 36, T2N, R1W, W.M.;  
1602 FEET NORTH & 2242 FEET EAST FROM SW CORNER, SECTION 36

THE PLACE OF USE IS LOCATED AS FOLLOWS:

SW 1/4 SW 1/4  
SECTION 25  
NW 1/4 NE 1/4  
SW 1/4 NE 1/4  
SE 1/4 NE 1/4  
NE 1/4 NW 1/4  
NW 1/4 NW 1/4  
SW 1/4 NW 1/4  
SE 1/4 NW 1/4  
NE 1/4 SW 1/4  
NW 1/4 SW 1/4  
NE 1/4 SE 1/4  
NW 1/4 SE 1/4  
SW 1/4 SE 1/4  
SECTION 36

TOWNSHIP 2 NORTH, RANGE 1 WEST, W.M.

Measurement, recording and reporting conditions:

- A. Before water use may begin under this permit, the permittee shall install a meter or other suitable measuring device as approved by the Director. The permittee shall maintain the meter or measuring device in good working order.

- B. The permittee shall allow the watermaster access to the meter or measuring device; provided however, where the meter or measuring device is located within a private structure, the watermaster shall request access upon reasonable notice.
- C. The Director may require the permittee to keep and maintain a record of the amount (volume) of water used and may require the permittee to report water use on a periodic schedule as established by the Director. In addition, the Director may require the permittee to report general water use information, the periods of water use and the place and nature of use of water under the permit. The Director may provide an opportunity for the permittee to submit alternative reporting procedures for review and approval.

The permittee shall install, maintain, and operate fish screening and by-pass devices as required by the Oregon Department of Fish and Wildlife to prevent fish from entering the proposed diversion. The required screens and by-pass devices are to be in place, functional, inspected and approved by an ODFW representative prior to diversion of any water.

This permit shall expire on January 17, 2001.

#### STANDARD CONDITIONS

The use shall conform to such reasonable rotation system as may be ordered by the proper state officer.

Failure to comply with any of the provisions of this permit may result in action including, but not limited to, restrictions on the use, civil penalties, or cancellation of the permit.

This permit is for the beneficial use of water without waste. The water user is advised that new regulations may require the use of best practical technologies or conservation practices to achieve this end.

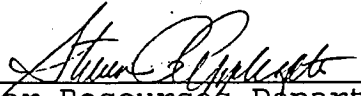
By law, the land use associated with this water use must be in compliance with statewide land-use goals and any local acknowledged land-use plan.

The use of water allowed herein may be made only at times when sufficient water is available to satisfy all prior rights, including prior rights for maintaining instream flows.

The Director finds that the proposed use of water described by this permit, as conditioned, will not impair or be detrimental to the public interest.

Actual construction work shall begin within one year from permit issuance and shall be completed on or before October 1, 1998. Complete application of the water to the use shall be made on or before October 1, 1999.

Issued January 17, 1996

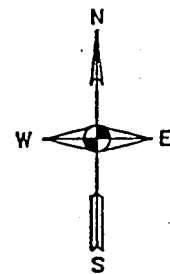
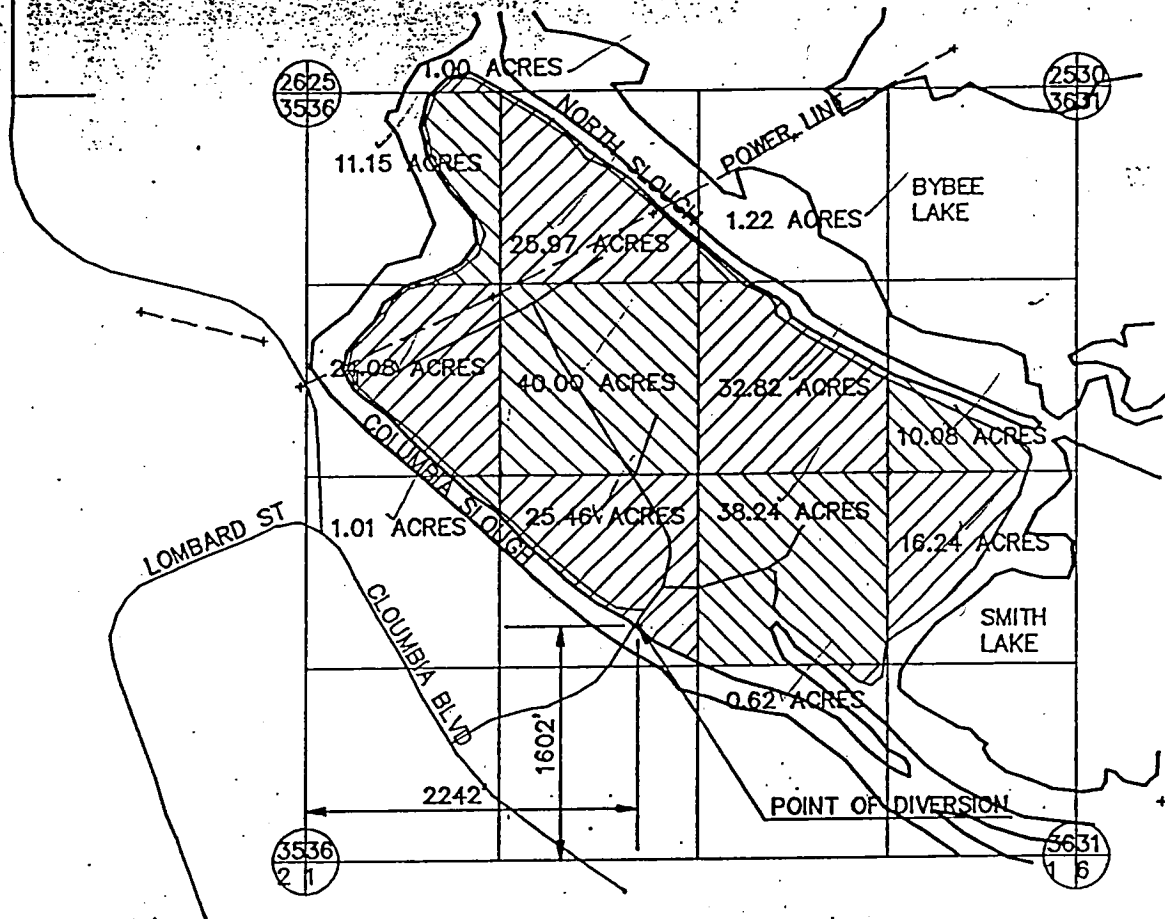


Water Resources Department

for Martha O. Pagel  
Director

APPLICATION MAP Application No. 72126  
 IN THE NAME OF Permit No. 51891  
 METROPOLITAN SERVICES DISTRICT SOLID WASTE DEPT

T2N R1W SEC 36



SCALE: 1"=1320'

THE PURPOSE OF THIS MAP IS TO IDENTIFY THE WATER RIGHT. IT IS NOT INTENDED TO PROVIDE LEGAL DIMENSIONS OR TO SHOW THE LOCATION OF PROPERTY OWNERSHIP LINES.

**kpff**

CONSULTING ENGINEERS  
 707 S.W. WASHINGTON ST.  
 SUITE 600  
 PORTLAND, OREGON 97206  
 (503) 227-8251

DRAWN BY: STK  
 KPFF JOB NO: 91052  
 DATE: JULY 11, 1991

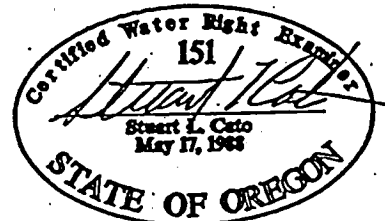


Exhibit F  
Aquisition and Security Agreement

<b>St. Johns Landfill Gas Production</b>				
<b>1994-1996</b>				
<b>Month</b>	<b>CH4 (%)</b>	<b>Flow (scfm)</b>	<b>Energy (Btu/hr.)</b>	<b>Energy (MMBTU)</b>
<b>1994</b>				
January-94	54.9%	2,266	75,503,347	56,174
February-94	55.1%	2,495	83,431,232	62,073
March-94	56.1%	2,576	87,754,680	65,289
April-94	57.0%	2,379	82,324,297	61,249
May-94	54.0%	2,246	73,627,250	54,779
June-94	53.0%	2,870	92,354,756	68,712
July-94	52.0%	2,654	83,798,458	62,346
August-94	46.8%	2,924	82,995,322	61,749
September-94	47.3%	2,627	75,492,501	56,166
October-94	50.0%	3,567	108,294,120	80,571
November-94	44.7%	1,840	50,130,503	37,297
December-94	47.0%	2,628	75,581,918	56,233
<b>1994 Summary</b>	<b>51.5%</b>	<b>2,589</b>	<b>80,940,699</b>	<b>722,639</b>
<b>1995</b>				
January-95	51.5%	2,743	85,948,796	63,946
February-95	50.2%	2,909	88,975,053	59,791
March-95	51.3%	2,803	86,704,961	64,508
April-95	52.2%	2,717	87,083,057	62,700
May-95	50.9%	2,427	71,376,182	53,104
June-95	48.4%	2,209	57,865,674	41,663
July-95	51.6%	2,528	80,744,572	60,074
August-95	50.0%	2,696	84,594,926	62,939
September-95	48.3%	3,042	90,880,873	65,434
October-95	49.6%	2,748	75,255,415	55,990
November-95	50.0%	5,558	135,400,281	97,488
December-95	47.2%	3,982	107,259,383	79,801
<b>1995 Summary</b>	<b>50.1%</b>	<b>3,030</b>	<b>87,674,098</b>	<b>767,439</b>
<b>1996</b>				
January-96	47.9%	4,198	117,063,172	87,095
February-96	48.4%	3,630	112,676,178	78,423
March-96	45.7%	3,794	101,176,385	75,275
April-96	45.9%	3,696	97,739,633	70,373
May-96	45.4%	3,573	94,823,353	70,549
June-96	43.4%	3,660	89,460,537	64,412
July-96	41.4%	4,557	96,696,312	71,942
August-96	36.4%	4,317	85,381,117	63,524
September-96	39.7%	3,851	80,555,349	58,000
October-96	42.7%	4,105	97,203,559	72,319
November-96	44.0%	4,493	109,095,641	78,549
December-96	45.9%	4,206	104,134,997	77,476
<b>1996 Summary</b>	<b>43.9%</b>	<b>4,007</b>	<b>98,833,853</b>	<b>867,936</b>



GAS PRODUCTION/SALES PROJECTIONS  
(x 1000 MMBTU)

Year	To Ash Grove	To Metro	Total
1997	73	636	709
1998	876	94	970
1999	876	9	885
2000	806	0	806
2001	735	0	735
2002	671	0	671
2003	611	0	611
2004	558	0	558
2005	510	0	510
2006	466	0	466
2007	425	0	425



**METRO**

December 23, 1996

Mr. Douglas M. Kinney  
Palmer Capital Corporation  
920 E. Deerpath  
Lake Forest, IL 60045

Re: Letter of Intent

Dear Mr. Kinney:

This letter serves as a letter of intent on behalf of Metro, a metropolitan service district organized under the laws of the State of Oregon and the 1992 Metro Charter, to enter, subject to consideration of and approval by the Metro Council, into the agreements with Portland LFG Joint Venture (a joint venture to consist of designees of Palmer Capital Corporation and Ash Grove Cement Company) as set forth below and substantially in the form attached to this letter. These agreements are designed to allow Portland LFG to develop, construct and operate a methane recovery project at the St. Johns Landfill and provide a beneficial user for the methane gas. These agreements would include the following primary contracts (and exhibits thereto):

- 1) a Landfill Gas Lease giving Portland LFG Joint Venture, among other things, the exclusive rights to all of the landfill gas produced at the landfill and related site rights to construct and operate a project in exchange for certain payments to be made to Metro;
- 2) an Acquisition and Security Agreement whereby Metro will sell the existing gas collection system and other related equipment and intangible assets to Portland LFG in exchange for a substantial initial cash payment and a promissory note;
- 3) a Project Acquisition Note setting forth the terms of Portland LFG's payments over time for the assets purchased under the Acquisition and Security Agreement;
- 4) a Gas Purchase Agreement whereby Metro agrees, with certain conditions, to purchase landfill gas from Portland LFG's project and establishing the terms of such sale;

- 5) an Operations and Maintenance Agreement whereby Portland LFG will hire Metro to perform certain operational and maintenance responsibilities with respect to the project to Metro and establishing the terms and conditions thereof; and
- 6) a Gas Transportation Agreement (if Metro owns a proposed new pipeline from the Landfill to an outside purchaser's property line) setting forth the terms and conditions whereby Portland LFG Joint Venture transports gas across such pipeline running from its facilities at the Landfill to a point of delivery.

Due to the press of other matters which had to be resolved before year's end, Metro staff has been unable to finalize these agreements with Portland LFG before December 31st as we had initially hoped. However, Metro staff agrees to use its best efforts to finalize these agreements early in 1997, and to that end, will get its final comments on the drafts attached hereto to Portland LFG early next year. We then expect that final agreements could be prepared which we would recommend for approval to both the Metro Council's Regional Environmental Management Committee and the full Metro Council.

The facility which will produce landfill gas for sale by Portland LFG is largely complete. The remaining portion of the facility is expected to be constructed early in 1997 under a binding change order to the existing general contract. Metro stands ready to assign that contract to Portland LFG, if necessary, at the same time the above-described agreements are executed. In addition, Metro agrees to promptly proceed to install a metering device to measure the total volume of the landfill gas produced by the facility. We anticipate that the meter will be installed before July 1, 1997 by Metro or its subcontractor.

We look forward to finalizing and recommending the agreements necessary to bring this project to fruition early in 1997.

Sincerely,  
  
Mike Burton  
Metro Executive Officer

Enclosures

cc: Bruce Warner  
Roosevelt Carter  
Jim Watkins  
Marv Fjordbeck

DRAFT DATED 4/7/97

## **LANDFILL GAS LEASE**

This Landfill Gas Lease ("Lease") is entered into this May \_\_\_ 1997 between Metro, a metropolitan service district organized under the laws of the State of Oregon and the 1992 Metro Charter, located in Portland, Oregon, ("Lessor") and Portland LFG Joint Venture, an Oregon general partnership duly authorized to conduct business in Oregon ("Lessee" or "Portland LFG").

WHEREAS, Lessor desires to lease to Lessee, and Lessee desires to lease from Lessor, certain of Lessor's interests and rights, including without limitation, the exclusive right to recover and sell Landfill Gas from the Landfill.

NOW THEREFORE, in consideration of the promises and mutual covenants contained herein, Lessor and Lessee do hereby agree as follows:

### **ARTICLE I - DEFINITIONS**

Unless the context indicates otherwise, as used herein, the capitalized terms used herein shall have the meanings defined as follows:

A. "Additional Customer" shall mean Ash Grove Cement Company ("Ash Grove") pursuant to the Ash Grove Gas Sales Agreement, between Portland LFG Joint Venture ("Portland LFG") and Ash Grove, or any other third party, other than Metro, which enters into a contract with Portland LFG to purchase Landfill Gas for beneficial purposes.

B. "Additional Sales Payment" means the amount payable pursuant to Article IV hereof with respect to the Landfill Gas rights granted hereunder.

C. "British thermal unit" or "Btu" means that quantity of heat required to raise the temperature of one pound of water one degree Fahrenheit (1 degree F) at thirty-nine point two degrees Fahrenheit (39.2 degrees F).

D. "*Force Majeure*" means acts of God; winds; hurricanes; tornadoes; fires; epidemics; landslides; earthquakes; floods; other natural catastrophes; strikes; lock-outs or other industrial disturbances; acts of public enemies; acts, failures to act or orders of any kind of any governmental authorities acting in their regulatory or judicial capacity, provided, however, that any such discretionary facts, failures to act or orders of any kind by Lessor may not be asserted as an event of *Force Majeure* by Lessor; insurrections; military action; war, whether or not it is declared; sabotage; riots; civil disturbances; explosions; or any other cause or event, not reasonably within the control of the party (and its subcontractors and suppliers) claiming *Force Majeure* (other than

the financial inability of such party), which precludes that party from carrying out, in whole or in part, its obligations under this Lease. Nothing in this provision is intended to excuse any party from performing due to any governmental act, failure to act, or order, where it was reasonably within such party's power to prevent, correct, anticipate, or guard against such act, failure to act, or order.

E. "Gas and Site Rights" shall mean the rights to the Landfill Gas and Premises granted to Lessee by Lessor under Article II hereof.

F. "Gas Collection System" shall mean the network of gas collection wells, interconnecting pipes, valves, condensate knockout tanks, blowers, monitoring equipment, and any additional gas extraction equipment installed on the Landfill and used for the purpose of the extraction of Landfill Gas by Portland LFG, including, without limitation, the gas collection system, if any, installed by Metro, if then used by Portland LFG, all as more particularly described in Exhibit A hereto.

G. "Hazardous Material" means the following:

- (i) Any "hazardous substance" as defined pursuant to the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C.A. 9601(14) as amended by the Superfund Amendments and Reauthorization Act or pursuant to any other analogous Federal or state statute, and including any judicial interpretations thereof;
- (ii) Any "pollutant or contaminant" as defined in 42 U.S.C.A. 9601(33);
- (iii) Any material defined as "hazardous waste" pursuant to 40 C.F.R. Part 260;
- (iv) Any "hazardous chemical" as defined pursuant to 29 C.F.R. Part 1910;
- (v) Any petroleum, including crude oil or any fraction thereof; and
- (vi) Natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel.

H. "Landfill" means that real estate owned by Lessor known as the St. Johns Landfill and located at 9363 N. Columbia Blvd. in Portland, Oregon, which real estate includes the Premises.

I. "Landfill Gas" means any and all gases resulting from the biological decomposition of landfill solid wastes, including, but not limited to, methane, carbon dioxide, hydrogen, and traces of other gases or liquids or any combination thereof.

J. "Point of Delivery" means the downstream flange of the wye to each of the four (4) flares, as shown in Exhibit A.

K. "Premises" means that portion of the Landfill which has been utilized for landfilling, plus up to one acre of undisturbed native soil at, in or on which any portion of the Project Facility has been installed, all as more particularly shown in Exhibit B attached hereto and made a part hereof.

L. "Product" means Landfill Gas, processed gas extracted from Landfill Gas, constituent parts of Landfill Gas, electricity generated from Landfill Gas, heat and combustion by-products from the combustion of Landfill Gas, or any other derivative produced from Landfill Gas or processed gas extracted from Landfill Gas.

M. "Project Facility" means the Gas Collection System and all modifications, replacements, additions and expansions thereof.

N. "Purchaser" means any person or entity who purchases any Landfill Gas or Product produced at the Landfill.

O. "Site Rental" means the rental payable pursuant to Article IV hereof with respect to the right to use the Premises granted hereunder.

## **ARTICLE II - GAS AND SITE RIGHTS GRANTED**

A. Lessee's Rights to Premises and Landfill Gas. Lessor hereby leases to Lessee the Premises, and hereby grants to Lessee the exclusive right to explore for, mine and extract the Landfill Gas on, under and from the Premises, including without limitation, the right to conduct all operations necessary or incidental to the conduct of such mining and extraction, and the right to drill gas wells, to lay pipelines and to construct and remove related structures and facilities necessitated by such operations. Lessee shall have the right to install and locate on or under the Premises, modify, improve, expand, operate, remove and otherwise deal with, the Project Facility and all components thereof, and all other rights which are necessary or desirable for the conduct of Lessee's activities hereunder. Lessee shall also have the right to evaluate, collect, test, enhance the production of, treat, process, compress, market, sell, utilize and transport all Landfill Gas collected by the Project Facility and Product, subject to the other provisions set forth in this Lease. Lessee recognizes and agrees that in the exercise of the rights granted hereunder, it must comply with all applicable permits and shall take reasonable precautions to protect the environmental safeguards already installed at the Landfill by Lessor. Lessee agrees to provide advance information about its planned activities at the Landfill so as to enable Lessor to make suggestions about design and/or operational measures to achieve these objectives and further, Lessee agrees to consider such suggestions in good faith. Lessee shall conduct no activities, other than those set forth in the foregoing sentences, on the Landfill without the prior written consent of Lessor, but if proposed activities are reasonably related to activities

specified above, such consent shall not be unreasonably withheld. Subject to Article V(A) below, exclusive title to the Landfill Gas and Product shall vest in Lessee.

B. Lessee's Right of Access. Lessee, and its employees, agents, representatives and independent contractors (provided that such independent contractors have appropriate insurance covering Lessor as an additional insured) shall have the right to use for access, by foot or otherwise, to the Project Facility or any part thereof such part of the Landfill (including in and through the surface and subsurface of the Landfill) as Lessee or such Purchaser deems reasonably necessary for the conduct of its operations. Lessee and its employees, agents, representatives and independent contractors shall have the right to transport over such routes of access all goods and services necessary for the conduct of such operations on the Premises. These rights of access shall be available on a 24-hour a day and 7-day a week basis. Lessor further agrees to maintain the means of access and roads to and within the Landfill to permit such reasonable access to Lessee. The rights granted above pursuant to this Article II shall be known collectively as the "Gas and Site Rights."

### **ARTICLE III - TERM**

A. Lease Term. Subject to the other provisions hereof, this Lease shall be effective immediately and shall remain in force for a term of 15 years after the execution hereof unless sooner terminated in accordance with Article VII hereof. This Lease may be extended upon the mutual agreement of the parties.

B. Memorandum of Lease. Promptly after the execution of this Lease, the parties hereto shall execute a Memorandum of Lease in the form of Exhibit C attached hereto and made a part hereof, and Lessor shall immediately thereafter record said Memorandum in the appropriate County Recorder's office for the county in which the Landfill is located. Upon the termination of this Lease, Lessee agrees to execute a quitclaim deed or similar instrument, releasing all of its rights granted herein except those rights which expressly survive the termination of this Lease, and to deliver the same to Lessor within 30 days after the effective date of termination.

### **ARTICLE IV - ADDITIONAL SALES PAYMENT AND SITE RENTALS**

Lessee shall pay for the rights created under this Lease the amounts set forth in the Acquisition and Security Agreement between Lessor and Lessee dated the date hereof.

### **ARTICLE V - ADDITIONAL REPRESENTATIONS AND COVENANTS**

A. Title to Premises, the Landfill Gas and Improvements. Lessor represents that it has furnished Lessee with a true and correct copy of all documents evidencing its title to the Landfill. Lessor represents and warrants that: (i) it has good and marketable title

to the Landfill, all real estate pertaining hereto, and the Landfill Gas at or in the Landfill; (ii) it holds exclusive rights to collect, sell, dispose and deal with the Landfill Gas at or in the Landfill, to conduct all the other rights and activities set forth in Article II (A) and (B), and to lease and grant all such rights and interests hereby; and (iii) all such rights and interests are free from all liens, encumbrances, restrictions or options of any kind whatsoever. Lessor further agrees that: (i) it shall, at its own expense, defend or cause the defense of, the title to the Premises and to the Landfill Gas at or in the Landfill during the term of this Lease, and any extension hereof; and (ii) Lessee's quiet and peaceful enjoyment of the Premises and its rights hereunder shall not be disturbed or interfered with by Lessor or any person or entity claiming by, through or under Lessor. Subject to the provisions of Article VIII hereof, all improvements and fixtures that are built or installed on, in or under the Premises by or on behalf of Lessee shall remain the property of Lessee once so built or installed.

**B. Damages to Project Facility.** Lessor (i) shall not interfere with Lessee's operation of its mining or gas extraction process, damage any part of the Project Facility or knowingly cause the disruption or destruction of the biological decomposition of landfill solid wastes producing Landfill Gas, and (ii) shall use its best efforts to prevent any of its independent contractors or any other person or entity from committing such interference or damage or causing such disruption or destruction, except as reasonably required to ensure protection of environmental safeguards installed by Lessor at the Landfill which are required for compliance with appropriate federal and state permits and compliance with appropriate permits. To the extent that any damage occurs to any part of the Project Facility or the Premises proximately caused by the activities of Lessor, or any of its contractors, agents representatives, employees or invitees, all such damages shall be the responsibility of Lessor. Any third party damages to the Project Facility or the Premises other than those set forth above, shall be the responsibility of Lessee to repair.

**C. Adverse Agreements and Liens.** Lessor shall not enter into any agreement in connection with the production or sale of Landfill Gas which would adversely affect the operation, possession or ownership by Lessee or any Sublessee of the Project Facility or any part thereof, without the consent of Lessee, which consent shall not be unreasonably withheld. Lessor shall not take any action which would create a lien or encumbrance on the Project Facility, any Permit, or any interest therein.

**D. Permits; Compliance with Laws.** Lessor represents that it has obtained, or will obtain if required, all material permits, licenses, authorizations or approvals, from any governmental authority required in order to carry out its obligations hereunder or to allow Lessee to carry out its obligations or exercise its rights hereunder. Each party agrees that its performance of its obligations under this Lease shall be in compliance with all applicable laws, ordinances, rules and regulations, and with any and all applicable orders, decrees and judgments of any governmental or judicial authority. In



addition, each party shall not cause, by its actions or failures to act under or in connection with this Lease, the other party to be in violation of any of the foregoing. Without limiting the foregoing, in its ownership, possession and use of the Landfill, Lessor shall comply with all laws, regulations, ordinances, and orders pertaining to environmental matters, including without limitation, those relating to the discharge, control, reporting, use, storage, treatment and disposal of Hazardous Materials; and Lessor shall carry out, at its own expense, all repairs, maintenance and regrading to the Landfill or to the Project Facility required pursuant to state and federal regulations and otherwise in accordance with Lessor's operating plan, including, without limitation, Lessor's plans for the Landfill and the Project Facility due to the closing of the Landfill.

E. Condensate. If allowed by law or regulation, Lessee shall have the right to return to the Landfill any matter solid or liquid (including condensate) removed, as a result of collecting and/or processing Landfill Gas or Product from the Landfill in a manner which ensures protection of Lessor's environmental safeguards at the Landfill. Notwithstanding the foregoing, any matter liquid (including condensate) removed or collected off the Premises may not be returned to the Landfill. Otherwise, Lessee shall have no rights in or to such matter. Lessor shall be responsible for any off-site disposal of such matter collected on the premises, whether required by Lessor or any regulatory authority, including, without limitation, any additional processing or treatment thereof and the resulting expenses. Title to, and responsibility for, all such matter so removed, whether or not it is thereafter returned to the Landfill, shall remain with Lessor.

F. Insurance. Lessee shall secure and maintain, at its own expense, throughout this Lease comprehensive commercial general liability insurance of at least \$1,000,000 combined single limit and excess liability coverage of at least \$5,000,000, with insurers, coverages and special provisions reasonably satisfactory to the Lessor. Lessor is, and shall continue to be, self-insured to the limitations of the Oregon Tort Claims Act and shall cooperate with Lessee, to the extent reasonably requested by Lessee, in Lessee's procurement of additional insurance on behalf of Lessor. Each party shall provide the other with evidence, reasonably satisfactory to the other, of such party's insurance hereunder upon the other party's reasonable request therefor, from time to time.

G. No Bankruptcy Filings. Notwithstanding any other provision to the contrary, each party hereby covenants with the other that it shall not file voluntarily for bankruptcy nor permit any assignee or affiliate controlled by or connected with it to file for bankruptcy without first securing all rights granted to the other party under this Lease or any other agreement between the parties relating to the subject matter hereof.

H. Landfill Gas. To the best of Lessor's knowledge, the Landfill (including, without limitation, the Premises) consists primarily of organic waste, municipal waste, industrial waste and sludge. The Landfill Gas produced at or from the Premises has been and, to Lessor's knowledge, shall be combustible. Lessor shall fully cooperate with Lessee in the operation and maintenance of the Landfill so as to maximize the production of

Landfill Gas by Lessee, provided, however, that, in Lessor's reasonable discretion, no such operation and maintenance unreasonably and materially conflicts with the protection of the environmental safeguards installed at the Landfill, compliance with applicable permits or the public health.

I. Disclosure. To the best of Lessor's knowledge, none of the documents or other written or other information furnished by or on behalf of Lessor to Lessee pursuant to this Lease contains any untrue statement of a material fact or omits to state any material fact required to be stated therein or necessary to make the statements contained herein or therein, in the light of circumstances in which they were made, not misleading. Lessor is not aware of any fact peculiar to Lessor or the Landfill, which materially adversely affects the Landfill, and which has not been set forth in this Lease or in other written material furnished to Lessee by or on behalf of Lessor prior to the date hereof in connection with the transactions contemplated hereby.

## ARTICLE VI - MIGRATION CONTROL

A. Gas Migration Control Responsibilities. Lessee shall have no responsibility or liability whatsoever for (i) Landfill Gas that is not collected by the Project Facility or any component thereof, (ii) the control or containment of, or any damage occasioned by, Landfill Gas migration within or beyond the grounds of the Premises, or (iii) monitoring or otherwise detecting or controlling emissions. All such responsibility and liability shall remain with Lessor, together with the related compliance with applicable laws, regulations and regulatory or judicial orders.

B. Lessee's Right to Additional Landfill Gas. In the event a migration control system, independent of the Project Facility, is installed on the Landfill, Lessor shall use its best efforts to allow Lessee to take the available Landfill Gas without any obligation to make additional payments hereunder. Notwithstanding the foregoing, to the extent that Lessee produces additional Landfill Gas or Product as a result of such independent migration control system, Lessee shall be obligated to make payments to the purchaser(s) of such Landfill Gas or Product as required under any agreement for the purchase and sale of such Landfill Gas or Product.

C. Project Facility Expansions. If, due to Lessor's obligation to control gas migration, the Gas Collection System or any other part of the Project Facility or its operation or maintenance is required for technical or regulatory reasons to be upgraded, modified or expanded in any manner, the parties shall cooperate in carrying out such work but in all cases at Lessor's sole expense. Notwithstanding the foregoing, Lessee agrees, at its expense, to use reasonable efforts to operate and expand the Project Facility and to take the available Landfill Gas from any migration control system.

D. Emission Offsets. The Lessee shall have the sole right to own and/or control the application or use of any credits for emission offsets which may become available through the processing, treatment or sale of the Landfill Gas by Lessee, without further cost or charge of any kind.

## ARTICLE VII - TERMINATION

A. Lessor's Right to Terminate. Lessor shall have the right to terminate this Lease only in the event Lessee commits an act or omission which is a material default under this Lease, provided that where Lessor asserts a material default it notifies Lessee in writing and allows Lessee (and any permitted sublessee or assignee hereof) a reasonable period of time but not less than 30 days to cure the default and further provided that if such material default is due to an event of *Force Majeure*, such material default shall not be grounds for termination, unless such event of *Force Majeure* extends for a period in excess of 180 days and/or Lessee is not diligently seeking to cure such event of *Force Majeure*.

B. Lessee's Right to Terminate. Lessee shall have the right to terminate this Lease in the event Lessor commits an act or an omission which is a material default under this Lease, provided that where Lessee asserts a material default it notifies Lessor in writing and allows Lessor a reasonable period of time but not less than 30 days to cure the default and further provided that if such material default is due to an event of *Force Majeure*, such material default shall not be grounds for termination, unless such event of *Force Majeure* extends for a period in excess of 180 days and/or Lessor is not diligently seeking to cure such event of *Force Majeure*. If the prior written consent of any third party, including without limitation, any permitted sublessee hereof, is required to be obtained by Lessee prior to its termination of this Lease and Lessor has received written notice of such requirement, then any termination of this Lease by Lessee without such prior consent or without notice of any such consent to Lessor shall not be deemed effective.

C. Stay of Termination. A timely request for dispute resolution under Article XII of this Lease will stay the termination for cause under this Article VII until dispute resolution is concluded and for a reasonable time for cure after the conclusion of such dispute resolution as set forth in Article XII.

D. Lessor's Special Right to Terminate. Notwithstanding any provision of this Lease to the contrary, Metro shall have the right to immediately terminate this Agreement if Portland LFG fails to commence delivery of Landfill Gas or Product to an Additional Customer, other than Metro, under agreement for the sale of such Landfill Gas or Product within eighteen months from the execution of the franchise or similar

agreement between Portland LFG and the City of Portland allowing Portland LFG to construct and operate a pipeline in city streets to deliver Landfill Gas or Product to Ash Grove pursuant to the Ash Grove Gas Sales Agreement. Notwithstanding this provision, Metro shall have the right to terminate this agreement if Portland LFG fails to commence delivery of Landfill Gas or Product to any Additional Customer within 24 months from the execution of this Agreement.

### ARTICLE VIII - RIGHTS ON TERMINATION OR EXPIRATION

In the event of termination or expiration of this Lease, Lessee shall not have the right at any time (and shall not have the obligation) to remove any of the underground elements of the Gas Collection System or other elements of the Project Facility or the underground pipeline installed in the Landfill (regardless of who paid for such items). However, Lessee shall have the right (but not the obligation) upon the termination of this Lease to withdraw or remove any or all surface elements of the Project Facility owned by Lessee (or any party claiming through Lessee, such as a permitted sublessee hereof) and installed subsequent to the date of this Lease.

In the event of termination pursuant to Article VII(A), Lessor shall have the right to purchase from Lessee any or all elements of the Project Facility by paying Lessee the Equipment Book Value of such equipment as hereinafter defined. For the purposes of this Lease, the "Equipment Book Value" of equipment shall mean the Lessee's original cost of purchasing and, where appropriate, installing such equipment minus the accumulated depreciation of the equipment calculated by multiplying the installed cost of the equipment times the ratio of (a) the number of months from the installation or purchase of the equipment to the actual termination of the Lease divided by (b) the number of months from such installation or purchase to the end of the original term of the Lease or the useful remaining life of the item, whichever is less. Notwithstanding the foregoing, Lessor and Lessee agree to negotiate in good faith, prior to the purchase and installation of such equipment, the terms of and conditions for Lessor's purchase of any equipment installed by Lessee to deliver Landfill Gas or Product to any Additional Customer.

### ARTICLE IX - SUBLETTING AND ASSIGNMENT

A. Lessee's Rights to Sublet and Assign. Except as provided in this Article IX(A) or IX(B), the Premises may not be sublet, nor this Lease assigned to any person or entity, without the prior consent of Lessor, which consent shall not be unreasonably withheld or delayed. Notwithstanding any provision contained herein to the contrary, Lessor specifically agrees, without any further request for prior consent, to permit Lessee to assign or sublease its interest in the Lease (a) to an entity owned or controlled by either or both of the joint venture partners of Portland LFG, or affiliates thereof, and (b) in the event that Lessee shall be entitled under Article VII(B) to terminate this Lease, or (c) Lessee shall assign (or sublease) to the proposed assignee

*Except then necessary to*

(or sublessee) all or substantially all of its interest in the Landfill Gas at the Landfill and the Project Facility, provided Lessee shall give Lessor notice of the existence of such assignment or sublease, together with the name and address of the assignee or sublessee, and a copy of the assignment or sublease document within 30 days of the execution of such assignment or sublease.

B. Lessor's Right to Assign. Lessor reserves the right to convey or assign any or all of its interest in the Landfill, without the prior consent of Lessee, provided, however, that any such conveyance or assignment shall not interfere with or adversely affect the operation, maintenance, possession or ownership of the Project Facility or Lessee's rights under this Lease. Lessor shall give Lessee 30 days' prior notice of its intent to convey or assign that interest, which notice shall contain the name and address of the proposed grantee or assignee and once executed, a copy of the conveyance or assignment document. Any conveyance or assignment of such interest by Lessor, which is not made in accordance with the provisions of this Article IX (B), shall not be permitted and shall be null and void.

## ARTICLE X - INDEMNIFICATION

A. Lessee's Indemnity. Lessee shall indemnify, defend and hold harmless Lessor, its shareholders, directors, officers, employees, agents, representatives, and independent contractors, from and against any and all costs, claims, liabilities, damages, expenses (including reasonable attorneys' fees based on a standard of those fees and expenses which are reasonable and customary for private counsel in the Portland region with similar experience to those engaged by the prevailing party), causes of action, suits or judgments incurred by or involving any of the foregoing parties and arising, directly or indirectly, from or in connection with any breach by Lessee of its obligations, covenants, representations or warranties contained in this Lease.

B. Lessor's Indemnity. To the greatest extent permitted by the Oregon Constitution, the Oregon Tort Claims Act, and the 1992 Metro Charter, Lessor shall indemnify, defend and hold harmless Lessee and its partners and Lessee's and each such partner's shareholders, directors, officers, employees, agents, representatives and independent contractors (including without limitation, any sublessee hereunder), from and against any and all costs, claims, liabilities, damages, expenses (including reasonable attorneys' fees), causes of action, suits or judgments, (collectively hereinafter "damages") incurred by or involving any of the foregoing parties and arising, directly or indirectly, from or in connection with:

- (i) The condition of the Premises, the Gas Collection System or the Landfill at the commencement of the term hereof; notwithstanding the foregoing, however, Lessor shall have no obligation to indemnify Lessee or any other third party under this subparagraph if the alleged damages are due to or proximately caused by any inherent characteristic of a

landfill, including without limitation, subsidence, landfill fires and erosion, unless such condition arose out of the tortious acts or tortious omissions of Lessor or any of its employees, agents or independent contractors;

(ii) Any previous agreement involving the sale of Landfill Gas or Product at the Landfill or the lease of gas rights therein;

(iii) Any breach by Lessor of its obligations, covenants, representations or warranties contained in this Lease (including without limitation, the failure of Lessor to grant any of the rights provided in Article II, the representations and covenants set forth in Article V, or Lessor's failure to control gas migration within or beyond the Premises as provided in Article VI(A)), provided, however, that for the purposes of this Article X only any and all qualifications or limitations to such obligations, covenants, representations or warranties based on or related to Lessor's knowledge shall not be applicable;

(iv) Any act or failure to act, at any time prior to or during the term hereof, of Lessor or any other person or entity (a) who is either controlled or affiliated with Lessor or invited onto any part of the Landfill by Lessor, and (b) who is neither controlled by nor affiliated with Lessee nor invited onto any part of the Landfill by Lessee, provided such act or failure to act constitutes negligence or willful misconduct; or

(v) Any liability arising from prior, existing or future environmental conditions within, on or under any portion of the Landfill, including without limitation, the presence, treatment, transportation, disposal, release, or threat of release, of any Hazardous Material in or from the Landfill, and from such costs as any governmental authority may require Lessee to incur in response to such conditions, except to the extent that such conditions are the result of or proximately caused by the action or omission of Lessee.

C. Lessee's Right to Cure Lessor's Breaches. Lessor shall give prompt notice to Lessee and any permitted assignee, sublessee, mortgagee or other transferee hereof of any and all breaches or violations by Lessor of this Lease, any other material agreement to which Lessor is a party and which pertains to the Premises or the Project Facility, applicable law or regulation, or governmental or judicial order with respect to the Premises. Lessee and any permitted transferee hereof shall have the right to remedy any such breach or violation (including without limitation, the right to redeem any mortgage, taxes or other liens on the Premises, the Landfill, or any interest or rights relating thereto, and thereafter be subrogated to the rights of the holder thereof), where such breach or violation would have a materially adverse effect, directly or indirectly, on the ownership, possession or operation of the Project Facility or any part thereof; provided that Lessee or such permitted transferee hereof has given Lessor 5 days' prior

notice of its intent to perform such remedy and Lessor does not within such 5 days commence and continue to proceed diligently with such remedy. In such case, the cost of remedying such breach or violation shall be paid by Lessor to Lessee promptly after receipt of an invoice therefor.

D. Sublessee's Right to Enforce Lease. Lessor agrees that if it breaches or violates this Lease, any permitted transferee hereof shall have the right to cause Lessor to comply with any and all of its obligations under this Lease to the same extent as Lessee is empowered hereunder to do so, including without limitation, the right to sue Lessor, in its name or Lessee's name, for damages which Lessee or such permitted sublessee hereof incurred or suffered as a result of such breach or violation.

E. Survival. Notwithstanding any provision contained herein, the provisions of this Article X shall survive the termination of this Lease for a period of 3 years, notwithstanding the application of any statute of limitations.

#### **ARTICLE XI - FORCE MAJEURE**

If by reason of *Force Majeure* either party is unable to carry out, either in whole or in part, its obligations herein contained, such party shall not be deemed to be in default during the continuation of such inability, provided that: (i) the non-performing party, within two (2) weeks after the occurrence of the *Force Majeure*, gives the other party written notice describing the particulars of the occurrence; (ii) the suspension of performance be of no greater scope and of no longer duration than is required by the *Force Majeure*; (iii) no obligations of either party which arose prior to the occurrence causing the suspension of performance be excused as a result of the occurrence; and (iv) that the non-performing party shall use its best efforts to remedy with all reasonable dispatch the cause or causes preventing it from carrying out its obligations.

#### **ARTICLE XII - MISCELLANEOUS**

A. Notices. All notices, demands, requests, consents or other communications required or permitted to be given or made under this Lease shall be in writing and

if to Lessor to:

[name]  
Metro Regional Environmental Management  
600 Northeast Grand Avenue  
Portland, OR 97232  
Tel: (503) 797-1700  
Fax: (503) 797-1707

if to Lessee to:

Portland LFG Joint Venture  
c/o Palmer Management Corporation  
13 Elm Street, Suite 200  
Cohasset, Massachusetts 02025  
Tel: (617) 383-3200  
Fax: (617) 383-3205

with a copy to:

Rivergate LFG  
c/o Ash Grove Cement Company  
8900 Indian Creek Parkway  
Overland Park, Kansas 66210  
Tel: (913) 451-8900  
Fax: (913) 451-8324

and a copy to:

Jeffrey M. Bernstein, Esq.  
Bernstein, Cushner & Kimmell, P.C.  
One Court Street, Suite 700  
Boston, MA 02108  
Tel: (617) 742-4340  
Fax: (617) 742-0170  
E-Mail: jmbern@bck.com.

Notices hereunder shall be deemed properly served (i) by hand delivery, on the day and at the time on which delivered to the intended recipient at the address set forth in this Lease; (ii) if sent by mail, on the third business day after the day on which deposited in the United States certified or registered mail, postage prepaid, return receipt requested, addressed to the intended recipient at its address set forth in this Lease Agreement; or (iii) if by Federal Express or other reputable express mail service, on the next business day after delivery to such express mail service, addressed to the intended recipient at its address set forth in this Lease Agreement. Either party may change its address for the purpose of this Article XII(A) by giving the other party prior notice thereof in accordance with this provision.

B. Successors and Assigns. Subject to the restrictions on assignment herein contained, the terms and provisions of this Lease shall be binding upon, and shall inure to the benefit of, the successors, assigns and legal representatives of the respective parties hereto. This Lease shall not (directly, indirectly, contingently or otherwise) confer or be construed as conferring any rights or benefits on any person or entity not named as a party hereto, except as otherwise expressly provided with respect to permitted sublessees hereof.



C. Severability. If any term or provision of this Lease or the application thereof to any person or circumstance be invalid or unenforceable to any extent, the remainder of this Lease and the application of such term and provision to persons or circumstances other than those to which it has been held invalid or unenforceable shall not be affected thereby and each term and provision of this Lease shall be valid and be enforceable to the fullest extent permitted by law.

D. Headings. The headings appearing in this Lease are intended for convenience and reference only, and are not to be considered in construing this Lease.

E. No Joint Venture. The relationship between the parties hereto shall be that of lessor and lessee alone and nothing herein contained shall be deemed to constitute either party hereto a partner, agent or legal representative of the other party or to create a joint venture, agency or any relationship between the parties hereto other than that of lessor and lessee.

F. Applicable Law and Related Matters. All questions with respect to the construction of this Lease and the rights and liabilities of the parties hereunder shall be determined in accordance with the laws of the State of Oregon. In any litigation arising from this Lease, the prevailing party shall be entitled to receive from the non-prevailing party all reasonable costs and expenses (including reasonable attorneys' fees and expenses based on a standard of those fees and expenses which are reasonable and customary for private counsel in the Portland region with similar experience to those engaged by the prevailing party) incurred by the prevailing party by reason of the event giving rise to such litigation.

Prior to the initiation of litigation, either party may initiate dispute resolution under this section. Dispute resolution will be initiated by either party delivering notice to the other, setting forth the nature of the dispute. The parties agree to meet or otherwise confer expeditiously to resolve the dispute, and to submit the dispute to nonbinding third party mediation if the dispute cannot be resolved within 15 days following the delivery of the notice. If a notice of default has been issued, the period of time allowed to cure the default shall be stayed pending dispute resolution, for a period not to exceed 45 days (including third party mediation) unless otherwise agreed to by the parties hereto. Notwithstanding the foregoing, a party may initiate litigation and shall not be bound by the dispute resolution procedures set forth in this paragraph in case of a situation where such party is seeking temporary or preliminary injunctive relief or where such party certifies, in good faith, that failure to promptly initiate litigation will subject it to the risk of grave harm.

G. Joint Workproduct. This Agreement shall be considered the workproduct of all parties hereto, and, therefore, no rule of strict construction shall be applied against any party hereto.

H. Expenses. Each party hereto shall pay all expenses incurred by it in connection with its entering into this Lease, including without limitation, all attorneys' fees and expenses.

I. Waiver. No waiver by either party of any one or more defaults by the other in the performance of any provision of this Lease shall operate or be construed as a waiver of any future default, whether of a like or different character. No failure on the part of either party to complain of any action or non-action on the part of the other party, no matter how long the same may continue, shall be deemed to be a waiver of any right hereunder by the party so failing. A waiver of any of the provisions of this Lease shall only be effective if made in writing and signed by the party who is making such waiver.

J. Entire Agreement; Amendments. This Lease constitutes the entire agreement between the parties hereto with respect to the subject matter hereof and supersedes all prior oral or written agreements and understandings between the parties relating to the subject matter hereof. This Lease may be amended or modified only by a written instrument signed by both parties hereto.

K. Counterparts. This Lease may be executed in counterparts, each of which shall be deemed an original and all of which shall constitute a single agreement.

IN WITNESS WHEREOF, the parties have executed this Lease as of the date first written above.

SELLER: METRO

By: \_\_\_\_\_  
Name/Title

Address: 600 Northeast Grand Avenue  
Portland, OR 97232  
Tel: (503) 797-1700  
Fax: (617) 797-1707

BUYER: PORTLAND LFG JOINT VENTURE  
an Oregon general partnership

By: Portland Landfill Gas Corporation,  
a Massachusetts corporation,  
its managing general partner

By: \_\_\_\_\_  
Name/Title

Address: 13 Elm Street  
Cohasset, MA 02025  
Tel: (617) 383-3200  
Fax: (617) 383-3205

## **LEASE EXHIBIT LIST**

**Exhibit A: Detailed Description of Gas Collection System**

**Exhibit B: Legal Description of Premises**

**Exhibit C: Memorandum of Lease**

## **EXHIBIT A**

### **PRICE FOR SALE OF LANDFILL GAS**

For each MMBtu produced by Portland LFG , Metro shall pay: 1) \$0.3375 as a capacity charge without regard to whether such gas is purchased by Metro, or sold to a third party or otherwise; and 2) an additional \$0.1500 if such gas is sold to Metro.

Notwithstanding the foregoing, or anything to the contrary set forth in the preceding Gas Purchase Agreement, the total amount charged Metro, in any calendar quarter, for gas shall not exceed the sum of payments received by Metro under the Operation and Maintenance Agreement and the Project Acquisition Note, for such quarter.

Exhibit A  
Landfill Gas Lease

**LANDFILL GAS COLLECTION SYSTEM**

**Introduction**

The St. Johns Landfill gas collection system consists of 64 single completion extraction wells, 21 double completion extraction wells, 21 horizontal gas collection trenches, a perimeter gas extraction trench system, and a manifold system consisting of pipes varying in size from 3-inches to 16-inches in diameter. The gas collection system also includes the blowers and their controls located at the Motor Blower Flare Facility (MBF). The condensate collection system consisting of 4-inch piping and a number of vacuum stations, valve stations, pumping stations and the condensate knock-outs at the MBF is an integral part of the gas collection system. The building, flares and ancillary equipment at the MBF are not part of the gas collection system. A map showing the general layout of the gas collection system and its major components is included at the end of this narrative description.

The following are descriptions of the major components of the landfill gas collection system at the St. Johns Landfill.

**Trenches**

Each gas extraction trench consists of a 5-foot deep, 3-foot-wide trench cut into the top of the subgrade before the installation of the final cover. The lower 3 feet of the trench is backfilled with gravel to allow the gas to migrate into the trench. A 6-inch-diameter perforated, corrugated, high-density polyethylene (HDPE) line is installed 12 inches from the bottom of the trench. The total length of perimeter gas trenches is about 17,800 feet.

**Extraction Wells**

The single completion LFG extraction wells are typically drilled to the depth of the landfill at each well location. These wells are between 40 and 60 feet deep. Single completion wells are completed with a single 6-inch diameter polyvinyl chloride (PVC) casing. The upper 25 feet (approximately) of casing is a solid 4-inch PVC riser. All casing below 25 feet is perforated pipe, which extends to the bottom of the well.

The double completion LFG extraction wells were also drilled to 100% of the depth of the landfill at each location, generally 60-100 feet deep. These wells were completed using 6 and 8-inch diameter PVC casings. Double completion wells are constructed with one casing installed to approximately one half the total depth of the well. This casing is perforated between 25 feet from ground surface

Exhibit A  
Landfill Gas Lease

to the bottom of the completion. The second completion is installed to the full depth of the well and perforated from the bottom of the shallow completion to the bottom of the casing.

**Landfill Gas Manifold**

The LFG manifold, is constructed of high-density polyethylene pipe that connects all gas extraction wells and trenches to the Motor Blower/Flare Facility. The LFG manifold is sloped to allow condensate to drain to low-point drains. Expansion loops are designed into the manifold routing normally at high points, to allow the pipe to expand and contract. The following table shows the approximate length of each size of manifold piping. Valves are placed at various points along the manifold piping to isolate sections of the system.

**Landfill Gas Manifold Pipe Sizes**

<i>Pipe Diameter (inches)</i>	<i>Length (feet)</i>
3	21,520
4	4,680
6	6,430
8	5,450
10	5,560
12	2,970
16	3,410
<b>Total</b>	<b>50,020</b>

**Condensate Drainage System**

Condensate forms as warm, moist landfill gas from the wells and trenches cools in the gas manifold. The condensate drainage system is designed to extract condensate from the gas manifold and dispose of it by pumping it to the manhole (MH-1) at the Blower / Flare Facility. The major components are as follows:

- Vacuum Valve Stations
- Remote Condensate Pump Stations T-1, T-2, T-3, T-4, and T-5
- Vacuum Pump Stations VS#1 and VS#2
- Manhole MH-1
- Condensate drainage, condensate pump discharge, and vacuum piping.

## Exhibit A Landfill Gas Lease

The following sections describe in more detail the basic design and function of each major component.

### **Vacuum Valve Stations**

There are 31 vacuum valve stations, each located at a low point in the gas manifold. The vacuum valve stations are designed to extract condensate from the gas manifold and admit it into the condensate system.

The major components of a valve station are as follows:

- Fabricated condensate drip leg
- Air release valve
- Balancing valve
- Meter box.

### **Remote Condensate Pump Stations**

There are three remote pump stations, T-1, T-2, T-3, T-4, and T-5. The pump stations are designed to collect condensate from a portion of the landfill and pump it to MH-1 or to the leachate wet well.

The major pump station components are as follows:

- Condensate collection tank
- Condensate pumps
- Isolation valves
- Electrical controls

There is one 2 hp Meyers WGX20-43 condensate pumps at each station. Each is capable of approximately 18 GPM against 40-feet of head.

### **Vacuum Pump Station**

The two vacuum pump stations are located with two of the remote condensate pump stations, and consist of duplex vacuum pumps and a reserve tank. The vacuum pump stations are designed to provide vacuum for the condensate system as well as collect condensate draining from the landfill.

The major components are as follows:

- Vacuum pumps and reserve tank
- Condensate collection tank
- Condensate pumps
- Isolation valves



Exhibit A  
Landfill Gas Lease

- Electrical controls

#### **10.1.4.4 Manhole MH-1**

Manhole MH-1 is designed to collect the condensate that is discharged from the remote pump stations and pump it to the leachate wet well. The manhole is equipped with a submersible effluent pump capable of about 55 GPM against a 30-foot head.

#### **Condensate Drainage, Pump Discharge, and Vacuum Piping**

The condensate drainage piping consists of about 13,760 feet of four inch diameter high-density polyethylene (HDPE). The system is designed for vacuum assisted gravity drainage. The 4"-HDPE pipe is sloped from the vacuum valve stations to the condensate collection tanks. Vacuum is supplied from the vacuum pump stations through the collection tanks. Condensate cleanouts are located approximately every 300 feet along the pipe. This system also includes about 8,450 feet of one-inch diameter PVC vacuum line and 10,250 feet of two-inch PVC discharge line.

#### **Condensate Extraction and Discharge**

Landfill gas enters the MBF from the north through two 16 inch HDPE pipes. The gas goes through the condensate knock-out tanks (SCR-1 and SCR-2). These tanks extract condensate and filter the gas. Gas from these two knock-out tanks drains by gravity to Manhole-1(MH-1)

Condensate from MH-1 is discharged by a 2 hp Meyers pump to the leachate collection manhole at the northeast end of the landfill. The condensate mixes with leachate and is pumped to the sewer by the 1&1/2 hp Little Giant pump in the well.

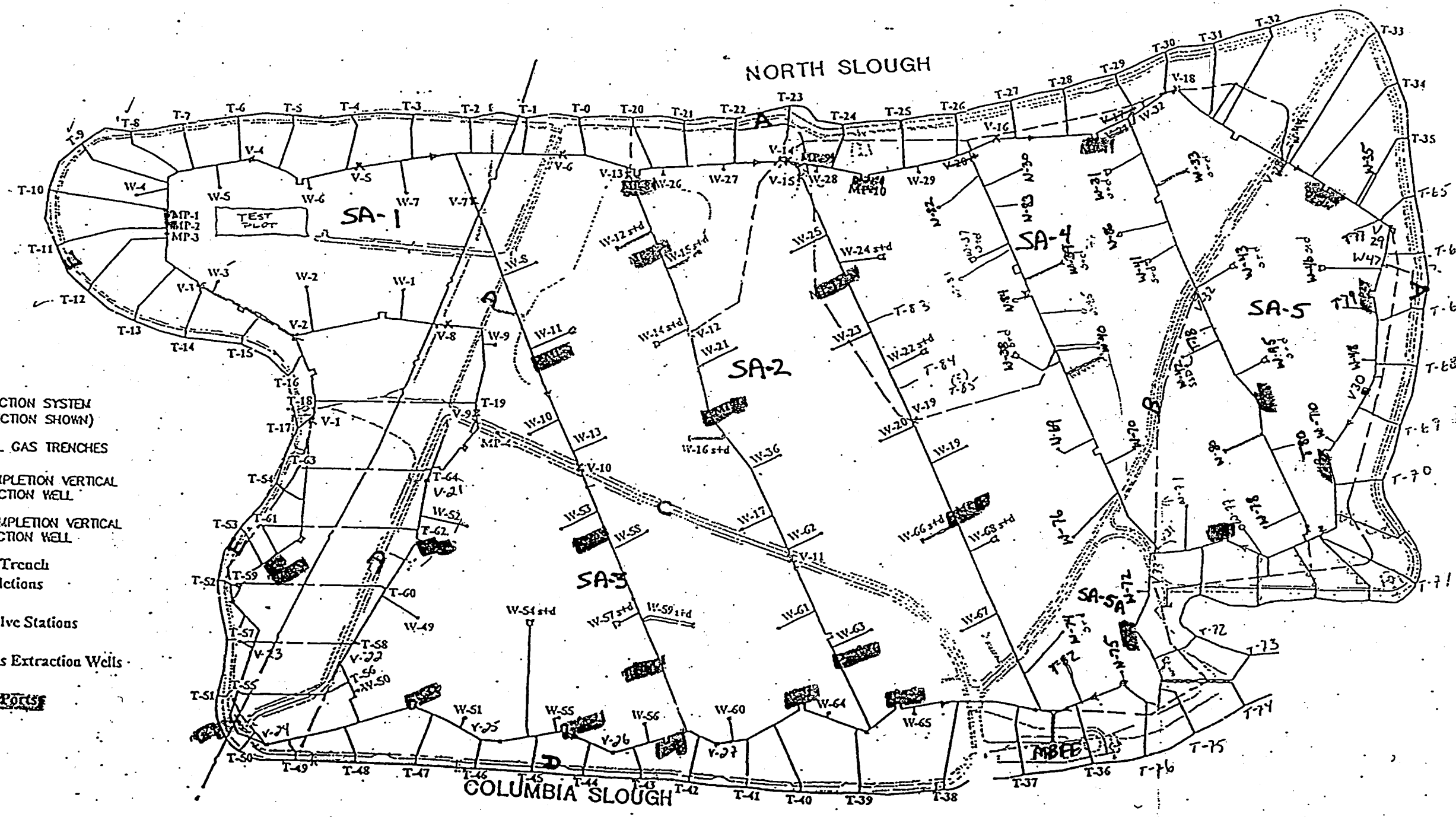
#### **Blowers**

The three blowers are Hauck model TBGB9-081-291-E, with a 50 horse motor. The blowers run at 4300 RPM and are rated at 2250 standard cubic feet per minute (SCFM) (air) at 68"WC of vacuum. As flow increases past approximately 2250 SCFM the total system vacuum decreases. Multiple blower operation is required when the landfill gas flow rate exceeds a single blower's capacity to maintain sufficient vacuum.

The blowers are equipped with surge controls that regulate the positioning of the volume damper on the suction side of each blower.

# BYBEE LAKE

PROJECT NORTH



SMITH LAKE

### LEGEND

- +— GAS COLLECTION SYSTEM (FLOW DIRECTION SHOWN)
- HORIZONTAL GAS TRENCHES
- SINGLE COMPLETION VERTICAL GAS EXTRACTION WELL
- DOUBLE COMPLETION VERTICAL GAS EXTRACTION WELL
- T: Horizontal Trench Well Completions
- V: Vacuum Valve Stations
- W: Vertical Gas Extraction Wells

~~MP: Monitoring Ports~~

FIGURE 10-4  
LANDFILL GAS MANIFOLD  
ROUTING - PLAN VIEW

Exhibit B  
Landfill Gas Lease

Legal Description

The following is the legal description of the St. Johns Landfill and portions of Smith and Bybee Lakes as recorded in Book 2517, pages 646 and 648 of the records of Multnomah County, Oregon. The St. Johns Landfill is approximately 230 acres of the 657 acres described.

## EXHIBIT A - PAGE 1 OF 2

A tract of land in Section 6, Township 1 North, Range 1 East, Sections 30 and 31, Township 2 North, Range 1 East, Sections 25 and 36, Township 2 North, Range 1 West of the Willamette Meridian, in the City of Portland, County of Multnomah and State of Oregon, more particularly described as follows:

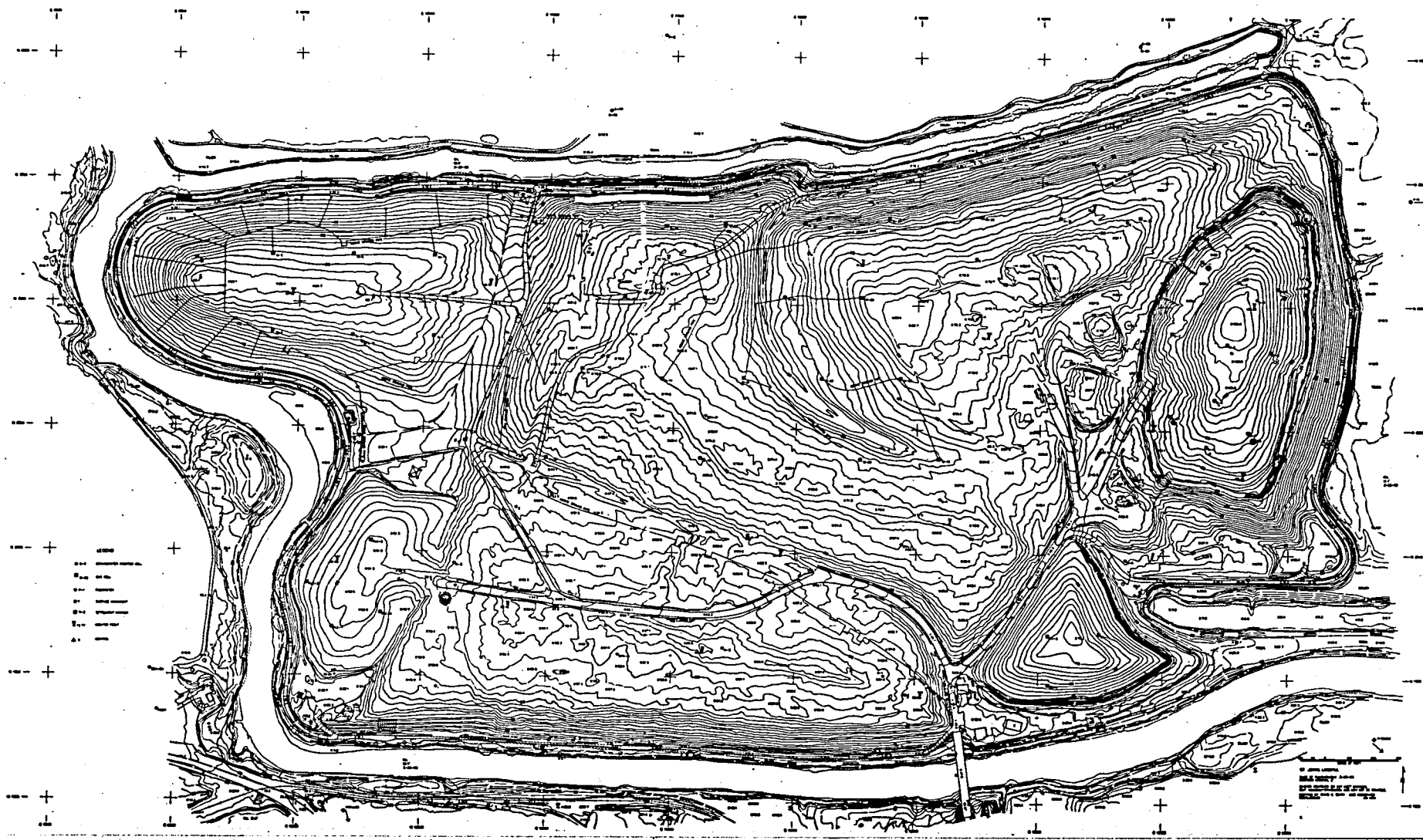
Commencing at the point of intersection of the North bank of the Columbia Slough and the West line of the land conveyed to the Merchants Investment and Trust Company by Deed recorded July 18, 1901 in Book 279, Page 407, Deed Records; thence North 01° 23' 56" East 570 feet, more or less, to the true point of beginning of the tract of land herein described, which point of beginning bears North 01° 23' 56" East 328.86 feet from the Northwest corner of the duly recorded plat of JUNCTION; thence North 01° 23' 56" East 1785.90 feet; thence North 64° 57' 47" West 1775.73 feet to the East line of the West one-half of the West one-half of Section 31, Township 2 North, Range 1 East; thence North 01° 57' 21" East along said East line 300.30 feet to the Southeast corner of Lot 2, of said Section 31; thence continuing North 01° 57' 21" East 2378.72 feet to the Northwest corner of Lot 7 in Section 31; thence along Lot 7 and Lot 6 of Section 31, as follows: South 68° 34' 10" East 324.64 feet, South 10° 34' 10" East 825.58 feet, South 66° 34' 10" East 330.23 feet, North 79° 25' 50" East 1386.97 feet, North 40° 25' 50" East 198.14 feet, North 26° 34' 10" West 924.64 feet, North 72° 34' 10" West 231.15 feet to the section line between Sections 30 and 31, Township 2 North, Range 1 East; thence along Lots 5, 6 and 7 of Section 30, as follows: North 40° 32' 20" West 966.80 feet, North 77° 32' 20" West 888.90 feet, South 50° 27' 40" West 592.67 feet, South 69° 27' 40" West 397.51 feet, South 38° 27' 40" West 164.69 feet, South 70° 27' 40" West 197.56 feet, North 68° 31' 58" West 230.45 feet to the section line between Section 30, Township 2 North, Range 1 East, and Section 25, Township 2 North, Range 1 West; thence along Lots 5 and 4 of Section 25, as follows: North 88° 31' 01" West 570.88 feet, South 86° 28' 59" West 591.03 feet, South 72° 28' 59" West 591.03 feet to the section line between Sections 25 and 36, Township 2 North, Range 1 West; thence North 88° 17' 17" West along said section line, 1652.66 feet; thence North 51° 48' 00" West, a distance of 701.25 feet to the Southerly bank of the Columbia Slough as shown on the Plat of RIVERGATE INDUSTRIAL DISTRICT, BLOCKS 13 TO 25; thence along the Southerly and Easterly line of the Columbia Slough as follows: North 88° 27' 28" West 146.59 feet, South 66° 32' 32" West 279.31 feet, South 21° 32' 32" West 315.00 feet, South 01° 32' 32" West 122.44 feet, South 23° 27' 28" East 299.44 feet, South 38° 27' 28" East 200.00 feet, South 24° 57' 28" East 250.00 feet, South 39° 32' 32" West 280.00 feet, South 70° 32' 32" West 300.00 feet, South 31° 32' 32" West 270.00 feet, South 44° 10' 32" West 381.05 feet, South 06° 58' 00" East 162.30 feet, ~~South 39° 32' 32" West 280.00 feet, South 70° 32' 32" West 300.00 feet, South 31° 32' 32" West 270.00 feet, South 44° 10' 32" West 381.05 feet, South 06° 58' 00" East 162.30 feet;~~ thence South 54° 25' 06" East 451.04 feet; thence South 01° 23' 05" West 89.41 feet to the center of the Columbia Slough;

JMP  
BC (Continued)

495.16  
*J. M. E.*  
thence South 48° 52' 00" East 492.16 feet to the North line of the James Loomis Donation Land Claim; thence South 49° 16' 05" East 309.74 feet to the East line of said Loomis Donation Land Claim; thence South 51° 56' 10" East along the center line of the Columbia Slough, 1632.60 feet; thence South 54° 39' 43" East along said centerline, 204.71 feet; thence South 72° 21' 26" East along said centerline, 608.08 feet to the East line of a 100 acre tract; thence North 04° 11' 48" East along the East line of said 100 acre tract, 50 feet, more or less, to the North bank of the Columbia Slough; thence South 66° 59' 00" East along said North bank, 2237.96 feet; thence South 83° 30' 13" East 383.95 feet; thence South 68° 46' 04" East 328.40 feet; South 35° 00' 04" East 574.56 feet to a point which bears North 81° 36' 13" West from the true point of beginning; thence South 81° 36' 13" East 100.00 feet to an iron pipe; thence South 81° 36' 13" East 1468.26 feet to the true point of beginning.

EXCEPT that portion thereof contained in the Bonneville Power right-of-way described in Condemnation Proceedings filed March 16, 1939 in the District Court of the United States for the District of Oregon, under No. Civic 92.

AND EXCEPT for the limitations set forth in Exhibit B, attached hereto and incorporated by this reference.



Scale 1:50,000  
Vertical Datum  
Horizontal Datum

**EXHIBIT C**

**MEMORANDUM OF LEASE**

Recorded at the Request of and  
When Recorded  
Mail to:

Portland LFG Joint Venture  
c/o Palmer Management Corporation  
13 Elm Street, Suite 200  
Cohasset, MA 02025  
Attn: Gordon L. Deane

with a copy to:

Bernstein, Cushner & Kimmell, P.C.  
One Court Street, Suite 700  
Boston, MA 02108  
Attn: Jeffrey M. Bernstein

**MEMORANDUM OF LANDFILL GAS LEASE between  
METRO, LESSOR and PORTLAND LFG JOINT VENTURE, LESSEE**

Subject to the terms, conditions and provisions of the Landfill Gas Lease, dated April \_\_, 1997 (the "Lease"), Lessor hereby grants exclusively to Portland LFG Joint Venture or its successors and assigns all rights to the Landfill Gas (as defined in the Lease) and the exclusive right to test for, collect, produce, remove, treat, process and sell said Landfill Gas, together with all of the rights and privileges (including, without limitation, rights of ingress and egress) specified in said Lease, from, in or upon the Landfill Property, said Landfill Property being located in the City of Portland, Oregon, described as set forth in Exhibit B, attached hereto and made a part hereof.

Lessee shall pay for the rights created under the Lease, the amounts set forth in a certain Aquisition and Security Agreement between Lessor and Lessee of date even with the Landfill Gas Lease.

Except as otherwise provided in the Lease, said Lease shall continue for a primary term of fifteen years, and shall be extended upon the mutual agreement of the parties.

Dated: \_\_\_\_\_, 1997

PORTLAND LFG JOINT VENTURE

METRO

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

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

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

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

State of Massachusetts  
County of Suffolk

Signed or attested before me on April \_\_\_\_, 1997,  
by Gordon Deane for Portland LFG Joint Venture.

\_\_\_\_\_

Notary Public  
My commission expires: \_\_\_\_\_

State of Oregon  
County of \_\_\_\_\_

Signed or attested before me on April \_\_\_\_, 1997,  
by \_\_\_\_\_ for Metro.

\_\_\_\_\_

Notary Public  
My commission expires: \_\_\_\_\_



## **OPERATIONS AND MAINTENANCE AGREEMENT**

This Operation and Maintenance Agreement ("O&M Agreement") is made as of May \_\_\_\_, 1997 between Portland LFG Joint Venture, an Oregon general partnership duly authorized to conduct business in Oregon ("GASCO" or "Portland LFG"), and Metro, a metropolitan service district organized under the laws of the State of Oregon and the 1992 Metro Charter, located in Portland, Oregon, ("Operator" or "Metro").

WHEREAS, Portland LFG is the lessee of the Premises identified and defined by the Lease (as hereinafter defined);

WHEREAS, Portland LFG desires to have Metro operate, maintain and repair its Project Facility located on the Premises pursuant to the terms and conditions of this O&M Agreement; and

WHEREAS, Metro has the special skills necessary to provide such services.

NOW THEREFORE, in consideration of the promises and mutual covenants set forth herein, Portland LFG and Metro do hereby agree as follows:

### **ARTICLE I - DEFINITIONS**

Unless the context indicates otherwise, the capitalized terms set forth below shall have the meanings defined as follows:

A. "Actual Production Amount" means, with respect to the Project Facility for any quarter, the amount of energy (expressed in MMBtus) which actually results from the Landfill Gas produced by the Project Facility and sold by Portland LFG or its designee or assignee pursuant to the Gas Purchase Agreement or an Additional Sales Contract during such quarter. The actual amount of such energy shall be based on the information generated by the meters, measuring equipment, charts and records provided for in the Gas Purchase Agreement and the Additional Sales Contract, as the case may be.

B. "Gas Collection System" shall mean the network of gas collection wells, interconnecting pipes, valves, condensate knockout tanks, blowers, monitoring equipment, and any additional gas extraction equipment installed on the Landfill and used for the purpose of the extraction of Landfill Gas by Portland LFG, including, without limitation, the gas collection system, if any, installed by Metro, if then used by Portland LFG, all as more particularly described in Exhibit A hereto.

C. "Good Engineering Practice" means any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known, or which in the exercise of due diligence, should have been known, at the time the decision was made, would have been expected to accomplish the desired result in a manner consistent with reliability, safety, environmental protection, expedition, project economics and applicable laws, ordinances, rules and regulations for similar facilities. Good Engineering Practice is not intended to be limited to consideration of any one practice, method or act, to the exclusion of all others, but rather, is intended to require the consideration of a spectrum of possible practices, methods or acts.

D. "Improvements" mean (i) any replacements, modifications, additions and expansions to or of the Project Facility, and (ii) if repairs to or of the Project Facility in any year exceed \$50,000 in the aggregate, then the repairs which give rise to any such excess amounts.

E. "Lease" means the Landfill Gas and Facilities Lease dated as of even date herewith between Portland LFG and Metro pursuant to which Metro has leased to Portland LFG certain rights regarding, among other things, the recovery and use of Landfill Gas from the Landfill.

F. "Operations and Maintenance Manual" means the Operations and Maintenance Manual for the St. Johns Landfill" dated January 10, 1991 and any revisions thereto.

G. "Permits" means all material authorizations from, permits and licenses issued by, consents and approvals of, filings with, notices from, and registrations with, any and all governmental entities, departments or agencies (including all conditions thereof), which may be required to be obtained, from time to time, for or in connection with (i) the production or sale of Landfill Gas (and/or Products) from the Project Facility, or (ii) the operation, maintenance, possession or ownership of the Project Facility.

H. "Point of Delivery" means downstream flange of the wye to each of the four (4) flares (as defined in the Landfill Gas Lease).

I. "Project Facility" means the Gas Collection System (including without limitation, all gas pipelines used to transport gas from the Landfill to any point of delivery), and all modifications, replacements, additions and expansions thereof.

J. "Related Agreements" means the Acquisition and Security Agreement, the Lease, the Project Acquisition Note, the Gas Purchase Agreement and any Additional Sales Contracts, if any.

K. "Work Scope" means the Work Scope for Operation, Monitoring and Maintenance of the Landfill Gas Project Facility at the St. Johns Landfill, in the City of Portland, Oregon which is attached as Exhibit B hereto and made a part hereof.

For all capitalized terms not specifically defined in this O&M Agreement, the definitions of such terms contained in the Lease or the Acquisition and Security Agreement shall apply and shall be incorporated by reference herein, except that the definition of the term "*Force Majeure*" shall refer solely to the obligations under this O&M Agreement.

## ARTICLE II - TERM

Subject to the other provisions hereof, this O&M Agreement shall be effective immediately and shall remain in force for an initial term of ten years and may be extended for one five year period upon the request of Portland LFG or as may be otherwise mutually agreed upon in writing by the parties thereto, unless the Lease is sooner terminated in accordance with Article VII of the Lease (in which case this O&M Agreement shall terminate) or this O&M Agreement is sooner terminated as provided in Article IX below.

## ARTICLE III - PROJECT FACILITY OPERATION AND MAINTENANCE

A. Duties. Metro shall operate and maintain the Project Facility (including all Improvements), on behalf of Portland LFG, in accordance with (i) Good Engineering Practice, (ii) the Work Scope, (iii) the other provisions of this O&M Agreement and (iv) the applicable standards set forth in the Related Agreements. Metro recognizes that the most important overall goal of Portland LFG for the operation and maintenance of the Project Facility is to produce and deliver the maximum commercial quantities of Landfill Gas consistent with Good Engineering Practice, and Metro hereby agrees to use its best efforts to operate and maintain the Project Facility, so as to provide Portland LFG with such maximum quantities of Landfill Gas, to the extent that such operation does not unreasonably interfere with protection of the environmental safeguards installed by Lessor at the Landfill and compliance with appropriate permits. Without limiting any of the foregoing but subject to Article VIII (B) below, Metro shall:

- (i) Keep the Project Facility in good repair, condition and working order;
- (ii) Replace any part of the Project Facility which needs to be replaced because of damage, loss or normal wear and tear as long as such part is required for the continued operation of the Project Facility;

- (iii) Furnish any and all supplies (including consumables), labor, tools, materials, parts, mechanisms and devices to keep the Project Facility in good repair, condition and working order; and
- (iv) Carry out the duties and obligations set forth in the Work Scope.

Metro shall carry out the foregoing services for the fees set forth in Article VI hereof and, except as otherwise set forth in Article VIII, without any additional cost or expense to Portland LFG.

B. Permits. Metro shall, itself or cause others to, at its own expense, prepare and file applications for Permits and diligently prosecute such applications with a view to obtaining all Permits (including without limitation, those pertaining to Improvements) which may be required, from time to time. Metro shall, itself or cause others to, at its own expense, maintain (or cause the maintenance of) all such Permits, whether new or existing, in full force and effect without interruption and shall not take or omit to take (or permit the taking or omission of) any action which would result in any restriction or encumbrance on, or any violation of, any Permit. To the extent legally required, all Permits shall be obtained and maintained (solely or jointly) in the name of Portland LFG and current copies thereof shall be provided to Portland LFG. A breach of this Article III (B) by Metro shall be deemed to be a material default for the purposes of Article IX (A).

#### ARTICLE IV - OPERATION AND STANDARDS

A. Landfill Operations. Metro agrees that the operation of the Project Facility shall not unreasonably interfere with any and all operational requirements of the Landfill, and any such interference shall be to the minimum extent required and shall not unreasonably interfere with protection of the environmental safeguards installed by Lessor at the Landfill and compliance with appropriate permits.

B. Compliance with Laws, Agreements etc. Metro's performance of its obligations under this O&M Agreement shall be in material compliance with (i) all applicable laws, ordinances, rules and regulations, (ii) any and all applicable orders, decrees, judgments and Permits of any governmental or judicial authority, and (iii) the Work Scope, Good Engineering Practice, and the applicable provisions of the Related Agreements. In addition, Metro shall not cause, by its actions or failures to act under or in connection with this O&M Agreement,

Portland LFG or the Project Facility to be in violation of any of the foregoing.

C. Condensate and Waste Materials. As part of its responsibilities under this O&M Agreement, Metro shall be responsible for, and shall bear all costs and expenses incurred in connection with, the proper return to the Landfill of any and all waste material (including without limitation, condensate, all materials and minerals therein, all contaminants and all excavated refuse) produced or collected by the Project Facility prior to the Point of Delivery to the purchasers under the Gas Purchase Agreement or any Additional Sales Contract, or otherwise released inside or from the Premises. To the extent such return is not permitted by the Lease or applicable laws and regulations, Metro shall be responsible for the proper collection, treatment, removal and disposal of such waste material. Such disposal shall at all times be in accordance with applicable laws and regulations.

D. Environment, Security and Safety. Metro shall be responsible for (i) the security and safety of the Project Facility, Premises and all items of tangible property belonging to Portland LFG or Metro located on the Landfill, (ii) implementing and overseeing a safety program at the Premises, and (iii) ensuring that the operations and maintenance of the Project Facility are in compliance with all applicable environmental, health and safety laws, ordinances, rules and regulations. In addition, to the extent that any damage occurs to the Project Facility or the Premises proximately caused by the activities of Metro, or any contractor, agent or employee of Metro, all of such damages shall be the responsibility of Metro. Without limiting the foregoing, in its operation and maintenance of the Project Facility on behalf of Portland LFG hereunder, Metro shall comply, and shall use its best efforts to ensure that the Project Facility and the Premises comply, with all laws, regulations, ordinances and orders pertaining to environmental matters, including without limitation, (i) those relating to the discharge, control, reporting, use, storage, treatment and disposal of Hazardous Materials and (ii) those necessary to ensure protection of environmental safeguards installed at the Landfill and compliance with appropriate permits.

E. No Liens. In connection with the performance of its duties hereunder, Metro shall not (i) create, or suffer the creation of, any lien or encumbrance on the Project Facility, any Permit, the Premises, the Landfill or any interest in or portion thereof, (ii) take any action which would otherwise cause Portland LFG to cease to have good and marketable title to the Project Facility, or (iii) remove any material part of the Project Facility from the Premises.

F. Gasco's Right to Cure Operator's Defaults. If Metro shall default or neglect to carry out any of its obligations under this O&M Agreement and shall fail within 30 days after receipt of written notice from Portland LFG to Metro to

commence and continue correction of such default or neglect with diligence and promptness, Portland LFG may, without prejudice to any other remedy or right it may have, make good such deficiencies. In such case, the cost of correcting such deficiencies shall be paid by Metro to Portland LFG promptly after receipt of an invoice therefor.

G. Insurance. In support of its obligations hereunder, Metro is, and shall continue to be, self-insured to the limitations of the Oregon Tort Claims Act and shall cooperate with GASCO, to the extent reasonably requested by GASCO, in GASCO's procurement of additional insurance on behalf of Operator. Metro shall provide Portland LFG with evidence, satisfactory to Portland LFG, of the insurance required hereunder, upon Portland LFG's reasonable request from time to time. If the parties mutually agree that Portland LFG shall secure and maintain any or all of such insurance policies on behalf of Metro, Metro shall promptly and fully reimburse Portland LFG for all premiums paid by Portland LFG and related insurance expenses.

H. Disclosure. To the best of Metro's knowledge, none of the documents or other written information furnished by or on behalf of Metro to Portland LFG pursuant to this O&M Agreement or any of the Related Agreements contains any untrue statement of a material fact or omits to state any material fact required to be stated therein or necessary to make the statements contained herein or therein, in the light of the circumstances in which they were made, not misleading. Metro is not aware of any fact peculiar to Metro which materially adversely affects or in the future could (so far as Metro can now reasonably foresee) materially adversely affect the Project Facility and which has not been set forth in this O&M Agreement or in other written material furnished to Portland LFG by or on behalf of Metro prior to the date hereof in connection with the transactions contemplated hereby.

I. No Relocation. Metro shall not take, or permit the taking of, any action which would cause the Project Facility to be moved to a different landfill.

## **ARTICLE V - REPORTING PROGRAM**

Metro shall provide Portland LFG with the reports summarizing operations hereunder at the Landfill and the production and sales reports all as called for in the Work Scope. Metro shall include a section in the report which indicates potential or actual material problems in the supply of Landfill Gas that have or are likely to arise. Such reports will be made in a mutually agreeable format. Metro shall also promptly notify Portland LFG after becoming aware of (i) any material breach of any Related Agreement, Permit or any other material agreement or instrument pertaining to any of the foregoing, or (ii) any material pending or threatened litigation or proceedings regarding the Project Facility or any of the foregoing instruments.

## **ARTICLE VI - PAYMENT**

For the operation and maintenance services described herein, Portland LFG shall pay to Metro 20 cents/MMBtu for all Landfill Gas produced and sold by Portland LFG as a result of Metro's operations. Portland LFG shall pay all such sums to Metro as are due under this O&M Agreement on a quarterly basis. The payments hereunder to the Metro in respect of any quarter shall be made on the 20th business day of the next quarter, commencing in the calendar quarter immediately following the execution of this O&M Agreement. Upon the initial delivery of Landfill Gas at the Ash Grove Point of Delivery pursuant to the Ash Grove Gas Sales Agreement, Portland LFG shall pay the sum of \$100,000 to Metro as an advance which shall be credited against amount due for payments as set forth in the first sentence of this Article VI.

Commencing January 1, 1998, and on an annual basis thereafter, the payment due per MMBtu shall be increased based on the change in the Consumer Price Index ("CPI") for urban wage earners and clerical workers for the Portland, Oregon metropolitan region for the prior year ending June 30, with June 1996 as the base year, unadjusted for seasonal variations, as determined by the Bureau of Labor Statistics of the Department of Labor and as published in such Bureau of Labor Statistics' Detailed Report. If the manner in which the CPI is determined is substantially revised or the CPI shall become unavailable, Portland LFG and Metro agree to cooperate to determine an acceptable alternative, comparable index.

## **ARTICLE VII - INDEMNIFICATION**

To the greatest extent permitted by the Oregon Constitution, the Oregon Tort Claims Act, and the 1992 Metro Charter, Metro agrees to indemnify, hold harmless and defend Portland LFG and its partners and Portland LFG's and each such partner's shareholders, directors, officers, employees, agents, independent contractors and representatives, from and against any and all costs, claims, liabilities, damages, expenses (including reasonable attorneys' fees), causes of action, suits or judgments incurred by or involving any one of the foregoing parties and arising, directly or indirectly, from or in connection with (i) any breach by Metro of any of its representations, obligations, covenants or warranties contained in this O&M Agreement, or (ii) any action or omission of Metro or its officers, employees, agents or subcontractors taken or made in connection with Metro's performance of its obligations hereunder, provided such action or omission constitutes negligence or willful misconduct. Metro further agrees to investigate, handle, respond to and defend any such claim, suit or demand, at its own expense.

Notwithstanding the application of any other statute of limitations, Portland LFG's right to such indemnification shall survive the termination of this O&M Agreement for a period of six years. If Portland LFG becomes entitled to any amounts as indemnification under Article IV (F) or this Article VII or under any of the Related Agreements, Portland LFG may set off such amounts against any sums or payments owed or to be owed by Portland LFG to Metro under this O&M Agreement or any Related Agreement.

## **ARTICLE VIII - EXTRAORDINARY WORK**

A. Improvements. Metro shall undertake, build and install all Improvements which are (i) requested by Portland LFG and approved by Metro, or (ii) recommended by Metro to Portland LFG as being necessary or desirable to produce and deliver the maximum commercial quantities of Landfill Gas from the Landfill, or (iii) necessary to ensure protection of environmental safeguards installed at the Landfill and compliance with appropriate permits, provided that in each case Metro first gives Portland LFG 60 days' notice of the detail and costs (labor and materials) of any such proposed Improvement and has received the prior written consent of Portland LFG thereto. In the event Metro declines to undertake, build and install any Improvement requested by Portland LFG or a third party can carry out such Improvement at a cost substantially lower than proposed by Metro, then Portland LFG may engage such third party to carry out such Improvement and Metro shall co-operate with such third party in such undertaking.

B. Cost of Improvements. Portland LFG shall bear all costs (labor and material) necessary to undertake any and all such approved Improvements, except for the cost of:

- (i) any Improvement to the extent it is covered by insurance required under Article IV (G);
- (ii) any Improvement caused, directly or indirectly, by a breach by Metro of any of its representations, warranties, covenants or obligations under this O&M Agreement;
- (iii) any Improvement for which Metro is required to indemnify Portland LFG under the terms of Article VII;
- (iv) any improvement which is being made primarily to protect environmental safeguards installed at the Landfill and/or compliance with appropriate permits; and
- (v) any addition or expansion to the Project Facility for which Portland LFG is not required to pay pursuant to the



Acquisition and Security Agreement or by mutual agreement of the parties hereto.

C. Standards. Metro shall design, build and install any and all Improvements (i) in a good and workmanlike manner, able to withstand the normal and usual landfill operations at the Landfill, and (ii) in accordance with Good Engineering Practice, and in conformance with all applicable laws, regulations, ordinances and orders. Such Improvements shall be designed, built and installed so as to be suitable for the operation of the Project Facility.

D. Title to Improvements. All approved Improvements shall become the property of Portland LFG once installed at the Landfill. Metro hereby warrants that Portland LFG shall have good title to an Improvement upon its installation free and clear of all liens, encumbrances and security interests, and agrees to do all things and execute all documents, at its own expense, necessary for Portland LFG to perfect such title (including without limitation, defending such title against the claims of third parties).

#### ARTICLE IX - TERMINATION

A. GASCO's Right to Terminate. Portland LFG shall have the right to terminate this O&M Agreement only in the event (i) Metro commits an act or omission which is a material default by Metro under this O&M Agreement, provided that where Portland LFG asserts a material default Portland LFG notifies Metro in writing and allows Metro a reasonable period of time but not less than 30 days to cure the default and further provided that if such material default is due to an event of *Force Majeure*, such material default shall not be grounds for termination, unless the event of *Force Majeure* could prevent Metro from performing any of its obligations hereunder for a period of more than 180 days and/or Metro is not diligently seeking to cure such event of *Force Majeure*, or (ii) the Lease or the Gas Purchase Agreement is terminated for any reason. In the event Portland LFG terminates this O&M Agreement due to Metro's material default, Portland LFG agrees to replace Metro for the balance of the term remaining hereunder with a new operator proposed by Metro, as long as such operator (i) demonstrates to Portland LFG's reasonable satisfaction that it is capable of performing the duties and obligations of Metro hereunder, (ii) secures and maintains, at its own expense, throughout the remaining term of this O&M Agreement the insurance policies (with the coverages and minimum amounts, insureds and special provisions) identified in Exhibit C attached hereto and made a part hereof; and (iii) such operator consents in writing to assume all of the rights and obligations of Metro hereunder. Notwithstanding any termination of Metro as Operator, Portland LFG shall remain obligated to pay Metro the amounts set forth in Article VI hereof based on landfill gas produced and sold, less any amounts actually paid by Portland LFG for a substitute operator to perform the duties and obligations of Metro under this O&M Agreement.

B. Operator's Right to Terminate. Metro shall have the right to terminate this O&M Agreement only in the event Portland LFG commits an act or an omission which is a material default under this O&M Agreement, provided that where Metro asserts a material default Metro notifies Portland LFG in writing and allows Portland LFG a reasonable period of time but not less than 60 days to cure the default and further provided that if such material default is due to an event of *Force Majeure*, such material default shall not be grounds for termination, unless such event of *Force Majeure* prevents Portland LFG from performing any of its obligations for a period of more than 180 days.

#### ARTICLE X - SUBCONTRACTING OR ASSIGNMENT

A. No Assignments. No assignment by either party of any or all of its respective rights and duties hereunder shall be permitted, without the consent of the other party, which consent shall not be unreasonably withheld, and any assignment without such consent shall be null and void, except as specifically permitted in this Article X or as set forth in Article IX(A), above.

B. GASCO's Limited Rights to Assign Without Further Consent. Notwithstanding the foregoing, Metro hereby agrees, without any further request for prior consent, to permit Portland LFG to assign its interest under this O&M Agreement (a) to an entity owned or controlled by either or both of the joint venture partners of Portland LFG, or affiliates thereof, and (b) in the event that Portland LFG shall be entitled under Article IX to terminate this O&M Agreement, provided Portland LFG shall give Metro notice of the existence of such assignment, together with the name and address of the assignee, and a copy of the assignment document within 30 days of the execution of such assignment.

#### ARTICLE XI - MISCELLANEOUS

A. Notices. All notices, demands, requests, consents or other communications required or permitted to be given or made under this O&M Agreement shall be in writing and

if to Portland LFG, to:

Portland LFG Joint Venture  
c/o Palmer Management Corporation  
13 Elm Street, Suite 200  
Cohasset, Massachusetts 02025  
Tel: (617) 383-3200  
Fax: (617) 383-3205

with a copy to:

Rivergate LFG  
c/o Ash Grove Cement Company  
8900 Indian Creek Parkway  
Overland Park, Kansas 66210  
Tel: (913) 451-8900  
Fax: (913) 451-8324]

and a copy to:

Jeffrey M. Bernstein, Esq.  
Bernstein, Cushner & Kimmell, P.C.  
One Court Street, Suite 700  
Boston, MA 02108  
Tel: (617) 742-4340  
Fax: (617) 742-0170  
E-Mail: jmbern@bck.com

if to Metro to:

[name]  
Metro Regional Environmental Management  
600 Northeast Grand Avenue  
Portland, OR 97232  
Tel: (503) 797-1700  
Fax: (503) 797-1707

Notices hereunder shall be deemed properly served (i) by hand delivery, on the day and at the time on which delivered to the intended recipient at the address set forth in this O&M Agreement; (ii) if sent by mail, on the third business day after the day on which deposited in the United States certified or registered mail, postage prepaid, return receipt requested, addressed to the intended recipient at its address set forth in this O&M Agreement; or (iii) if by Federal Express or other reputable express mail service, on the next business day after delivery to such express mail service, addressed to the intended recipient at its address set forth in this O&M Agreement. Either party may change its address for the purpose of this Article XI (A) by giving the other party prior notice thereof in accordance with this provision.

B. Successors and Assigns. Subject to the restrictions on assignment herein contained, the terms and provisions of this O&M Agreement shall be binding upon, and shall inure to the benefit of, the successors, assigns and personal representatives of the respective parties hereto. This O&M Agreement shall not (directly, indirectly, contingently or otherwise) confer or be construed as conferring any rights or benefits on any person or entity not named as a party hereto, except as otherwise provided in Article X.

C. Applicable Law and Related Matters. All questions with respect to the construction of this O&M Agreement and the rights and liabilities of the parties hereunder shall be determined in accordance with the laws of the State of Oregon.

In any litigation arising from this O&M Agreement, the prevailing party shall be entitled to receive from the non-prevailing party all reasonable costs and expenses (including reasonable attorneys' fees and expenses based on a standard of those fees and expenses which are reasonable and customary for private counsel in the Portland region with similar experience to those engaged by the prevailing party) incurred by the prevailing party by reason of the event giving rise to such litigation.

Prior to the initiation of litigation, either party may initiate dispute resolution under this section. Dispute resolution will be initiated by either party delivering notice to the other, setting forth the nature of the dispute. The parties agree to meet or otherwise confer expeditiously to resolve the dispute, and to submit the dispute to nonbinding third party mediation if the dispute cannot be resolved within 15 days following the delivery of the notice. If a notice of default has been issued, the period of time allowed to cure the default shall be stayed pending dispute resolution, for a period not to exceed 45 days (including third party mediation) unless otherwise agreed to by the parties hereto. Notwithstanding the foregoing, a party may initiate litigation and shall not be bound by the dispute resolution procedures set forth in this paragraph in case of a situation where such party is seeking temporary or preliminary injunctive relief or where such party certifies, in good faith, that failure to promptly initiate litigation will subject it to the risk of grave harm.

D. Expenses. Each party hereto shall pay all expenses incurred by it in connection with its entering into this O&M Agreement, including without limitation, all attorneys' fees and expenses.

E. Counterparts. This O&M Agreement may be executed in counterparts, each of which shall be deemed an original and all of which shall constitute a single agreement.

F. Severability. If any provision of this O&M Agreement or the application thereof to any party or circumstance be invalid or unenforceable to any extent, the remainder of this O&M Agreement and the application of such provision to persons and circumstances other than those to which it has been held invalid or unenforceable shall not be affected thereby and each provision of this O&M Agreement shall be valid and enforceable to the fullest extent permitted by law.

G. Interpretation Matters. Except to the extent expressly provided herein, the provisions of this O&M Agreement, and the rights and obligations of the parties hereto, shall be construed so as to be consistent with the provisions of the Lease and the other Related Agreements and the applicable rights and obligations of the parties thereunder. Metro acknowledges it has received and reviewed the Lease and each of the Related Agreements and is familiar with the terms thereof. The Exhibits hereto are an integral part of this O&M Agreement; however, if there is any inconsistency between any provision in the foregoing 11 Articles and any provision in the Work Scope, including, without limitation, the Operations and Maintenance Manual, the former shall prevail.

H. Entire Agreement; Amendments. This O&M Agreement (including without limitation, the Exhibits hereto and the Operations and Maintenance Manual [which Operations and Maintenance Manual shall form a part of and be construed along with this O&M Agreement]) constitutes the entire agreement between the parties hereto with respect to the subject matter hereof and supersedes all prior oral or written agreements and understandings between the parties relating to the subject matter hereof. This O&M Agreement may only be amended or modified by a written instrument signed by both parties hereto.

I. Waiver. No waiver by either party hereto of any one or more defaults by the other party in the performance of any provision of this O&M Agreement shall operate or be construed as a waiver of any future default, whether of alike or different character. No failure on the part of either party hereto to complain of any action or non-action on the part of the other party, no matter how long the same may continue, shall be deemed to be a waiver of any right hereunder by the party so failing. A waiver of any of the provisions of this O&M Agreement shall only be effective if made in writing and signed by the party who is making such waiver.

J. No Joint Venture. Nothing in this O&M Agreement shall be deemed to constitute either party a partner, agent or legal representative of the other party or to create any joint venture or fiduciary relationship between the parties. Metro is and shall remain an independent contractor in the performance of this O&M Agreement, maintaining complete control of its personnel, workers, subcontractors and operations required for its performance hereunder.

K. Joint Workproduct. This Agreement shall be considered the workproduct of all parties hereto, and, therefore, no rule of strict construction shall be applied against any party hereto.

IN WITNESS WHEREOF, the parties hereto have executed this O&M Agreement as of the date first above written.

**GASCO: PORTLAND LFG JOINT VENTURE**  
an Oregon general partnership

By: Portland Landfill Gas  
Corporation,  
a Massachusetts corporation, its  
managing general partner

By: \_\_\_\_\_  
Name/Title

Address: 13 Elm Street  
Cohasset, MA 02025

Tel: (617) 383-3200  
Fax: (617) 383-3205

**OPERATOR: METRO**

By: \_\_\_\_\_  
Name/Title

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Portland, OR 97232

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Exhibit A  
Operations and Maintenance Agreement

**LANDFILL GAS COLLECTION SYSTEM**

**Introduction**

The St. Johns Landfill gas collection system consists of 64 single completion extraction wells, 21 double completion extraction wells, 21 horizontal gas collection trenches, a perimeter gas extraction trench system, and a manifold system consisting of pipes varying in size from 3-inches to 16-inches in diameter. The gas collection system also includes the blowers and their controls located at the Motor Blower Flare Facility(MBF). The condensate collection system consisting of 4-inch piping and a number of vacuum stations, valve stations, pumping stations and the condensate knock-outs at the MBF is an integral part of the gas collection system. The building, flares and ancillary equipment at the MBF are not part of the gas collection system. A map showing the general layout of the gas collection system and its major components is included at the end of this narrative description.

The following are descriptions of the major components of the landfill gas collection system at the St. Johns Landfill.

**Trenches**

Each gas extraction trench consists of a 5-foot deep, 3-foot-wide trench cut into the top of the subgrade before the installation of the final cover. The lower 3 feet of the trench is backfilled with gravel to allow the gas to migrate into the trench. A 6-inch-diameter perforated, corrugated, high-density polyethylene (HDPE) line is installed 12 inches from the bottom of the trench. The total length of perimeter gas trenches is about 17,800 feet.

**Extraction Wells**

The single completion LFG extraction wells are typically drilled to the depth of the landfill at each well location. These wells are between 40 and 60 feet deep. Single completion wells are completed with a single 6-inch diameter polyvinyl chloride (PVC) casing. The upper 25 feet (approximately) of casing is a solid 4-inch PVC riser. All casing below 25 feet is perforated pipe, which extends to the bottom of the well.

The double completion LFG extraction wells were also drilled to 100% of the depth of the landfill at each location, generally 60-100 feet deep. These wells were completed using 6 and 8-inch diameter PVC casings. Double completion wells are constructed with one casing installed to approximately one half the total depth of the well. This casing is perforated between 25 feet from ground surface

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to the bottom of the completion. The second completion is installed to the full depth of the well and perforated from the bottom of the shallow completion to the bottom of the casing.

**Landfill Gas Manifold**

The LFG manifold, is constructed of high-density polyethylene pipe that connects all gas extraction wells and trenches to the Motor Blower/Flare Facility. The LFG manifold is sloped to allow condensate to drain to low-point drains. Expansion loops are designed into the manifold routing normally at high points, to allow the pipe to expand and contract. The following table shows the approximate length of each size of manifold piping. Valves are placed at various points along the manifold piping to isolate sections of the system.

**Landfill Gas Manifold Pipe Sizes**

<i>Pipe Diameter (inches)</i>	<i>Length (feet)</i>
3	21,520
4	4,680
6	6,430
8	5,450
10	5,560
12	2,970
16	3,410
<b>Total</b>	<b>50,020</b>

**Condensate Drainage System**

Condensate forms as warm, moist landfill gas from the wells and trenches cools in the gas manifold. The condensate drainage system is designed to extract condensate from the gas manifold and dispose of it by pumping it to the manhole (MH-1) at the Blower / Flare Facility. The major components are as follows:

- Vacuum Valve Stations
- Remote Condensate Pump Stations T-1, T-2, T-3, T-4, and T-5
- Vacuum Pump Stations VS#1 and VS#2
- Manhole MH-1
- Condensate drainage, condensate pump discharge, and vacuum piping.



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The following sections describe in more detail the basic design and function of each major component.

### **Vacuum Valve Stations**

There are 31 vacuum valve stations, each located at a low point in the gas manifold. The vacuum valve stations are designed to extract condensate from the gas manifold and admit it into the condensate system.

The major components of a valve station are as follows:

- Fabricated condensate drip leg
- Air release valve
- Balancing valve
- Meter box.

### **Remote Condensate Pump Stations**

There are three remote pump stations, T-1, T-2, T-3, T-4, and T-5. The pump stations are designed to collect condensate from a portion of the landfill and pump it to MH-1 or to the leachate wet well.

The major pump station components are as follows:

- Condensate collection tank
- Condensate pumps
- Isolation valves
- Electrical controls

There is one 2 hp Meyers WG20-43 condensate pumps at each station. Each is capable of approximately 18 GPM against 40-feet of head.

### **Vacuum Pump Station**

The two vacuum pump stations are located with two of the remote condensate pump stations, and consist of duplex vacuum pumps and a reserve tank. The vacuum pump stations are designed to provide vacuum for the condensate system as well as collect condensate draining from the landfill.

The major components are as follows:

- Vacuum pumps and reserve tank
- Condensate collection tank

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- Condensate pumps
- Isolation valves
- Electrical controls

#### **10.1.4.4 Manhole MH-1**

Manhole MH-1 is designed to collect the condensate that is discharged from the remote pump stations and pump it to the leachate wet well. The manhole is equipped with a submersible effluent pump capable of about 55 GPM against a 30-foot head.

#### **Condensate Drainage, Pump Discharge, and Vacuum Piping**

The condensate drainage piping consists of about 13,760 feet of four inch diameter high-density polyethylene (HDPE). The system is designed for vacuum assisted gravity drainage. The 4"-HDPE pipe is sloped from the vacuum valve stations to the condensate collection tanks. Vacuum is supplied from the vacuum pump stations through the collection tanks. Condensate cleanouts are located approximately every 300 feet along the pipe. This system also includes about 8,450 feet of one-inch diameter PVC vacuum line and 10,250 feet of two-inch PVC discharge line.

#### **Condensate Extraction and Discharge**

Landfill gas enters the MBF from the north through two 16 inch HDPE pipes. The gas goes through the condensate knock-out tanks (SCR-1 and SCR-2). These tanks extract condensate and filter the gas. Gas from these two knock-out tanks drains by gravity to Manhole-1(MH-1)

Condensate from MH-1 is discharged by a 2 hp Meyers pump to the leachate collection manhole at the northeast end of the landfill. The condensate mixes with leachate and is pumped to the sewer by the 1&1/2 hp Little Giant pump in the well.

#### **Blowers**

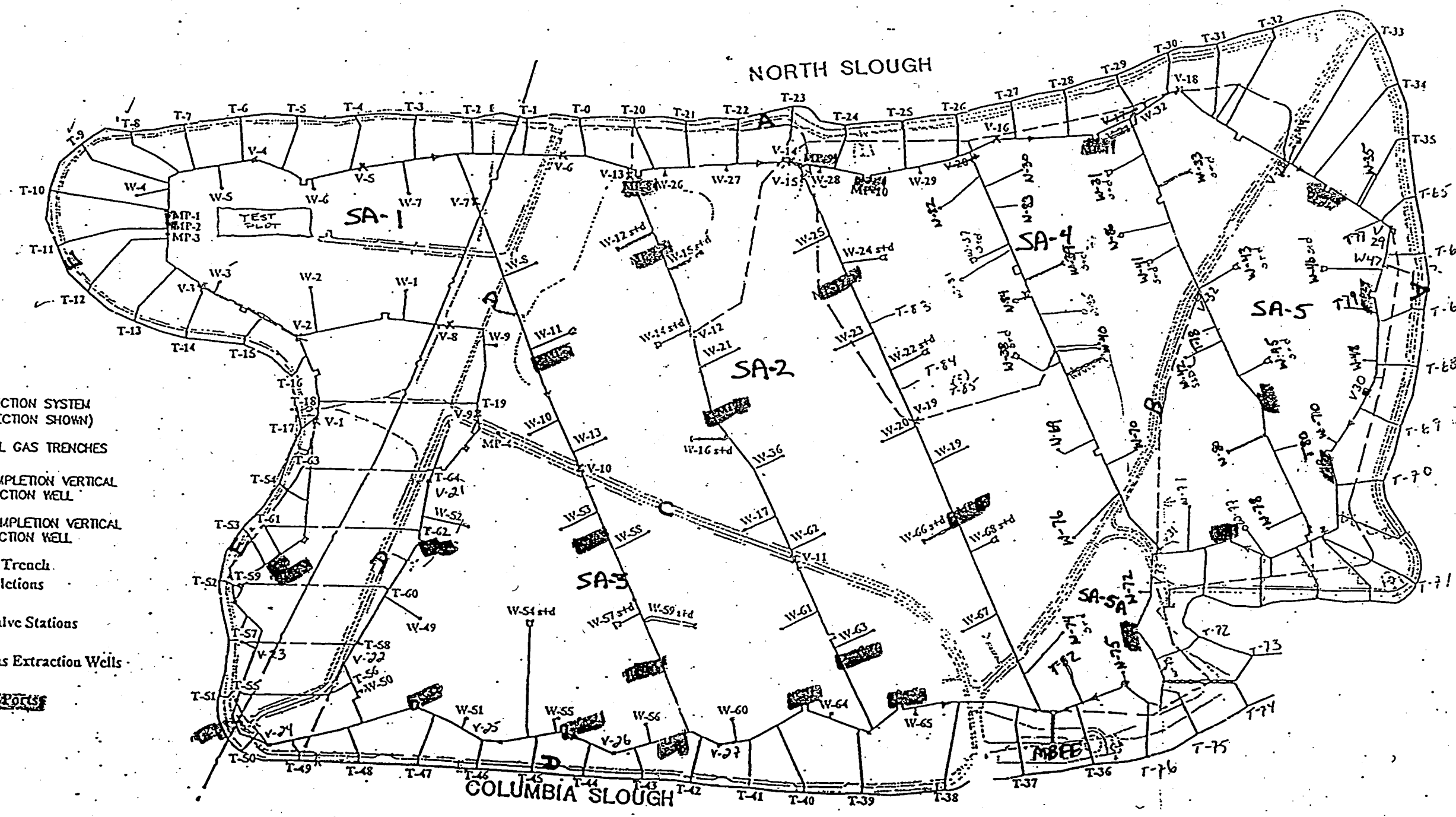
The three blowers are Hauck model TBGB9-081-291-E, with a 50 horse motor. The blowers run at 4300 RPM and are rated at 2250 standard cubic feet per minute (SCFM) (air) at 68"WC of vacuum. As flow increases past approximately 2250 SCFM the total system vacuum decreases. Multiple blower operation is required when the landfill gas flow rate exceeds a single blower's capacity to maintain sufficient vacuum.

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The blowers are equipped with surge controls that regulate the positioning of the volume damper on the suction side of each blower.

# BYBEE LAKE

PROJECT NORTH



- LEGEND**
- +— GAS COLLECTION SYSTEM (FLOW DIRECTION SHOWN)
  - HORIZONTAL GAS TRENCHES
  - SINGLE COMPLETION VERTICAL GAS EXTRACTION WELL
  - DOUBLE COMPLETION VERTICAL GAS EXTRACTION WELL
  - T: Horizontal Trench Well Completions
  - V: Vacuum Valve Stations
  - W: Vertical Gas Extraction Wells
  - MP: Monitoring Ports

FIGURE 10-4  
LANDFILL GAS MANIFOLD  
ROUTING - PLAN VIEW

## EXHIBIT B

### WORK SCOPE FOR OPERATION, MONITORING AND MAINTENANCE OF THE LANDFILL GAS PROJECT FACILITY AT THE ST. JOHNS LANDFILL

#### DRAFT - SUBJECT TO DUE DILIGENCE REVIEW

This scope of work provides for the operation, monitoring, and maintenance services on the Project Facility located at the St. Johns Landfill in Portland, Oregon. The work is more fully described in the applicable portions of the "Operations and Maintenance Manual for the St. Johns Landfill" dated January 10, 1991 and any revised versions thereof, which Operations and Maintenance Manual shall form a part of and be construed along with this O&M Agreement. In the case of any conflict between the O&M Agreement and Operations and Maintenance Manual, this O&M Agreement shall govern.

#### I. OPERATION, MONITORING, AND MAINTENANCE

Operation, monitoring, and maintenance consists of activities required to maximize collection of Landfill Gas from the Landfill while maintaining the operating criteria and preventing intrusion of air into the Landfill and "overpulling" of the wells in a particular area to the detriment of gas production. Specific operating criteria are contained in the Data Gathering statement (see Section V below). Operation, monitoring, and maintenance services are divided into the following categories:

- Routine monitoring and maintenance.
- Non-routine maintenance.
- Unscheduled emergency services.

##### A. Routine Monitoring and Maintenance

Routine monitoring and maintenance services on the Project Facility terminating downstream flange of the wye to each of the four (4) flares (as defined in the Landfill Gas Lease), and includes the following:

As-Needed Coordinate with Portland LFG and its agents for smooth operation of the Project Facility.

Coordinate with the Landfill Owner to minimize damage to the Project Facility as landfill activities proceed.

Prepare and maintain inspection/maintenance logs.

Notify Portland LFG of operating problems/issues as they occur.

Pump condensate traps, as needed.

Sample, analyze and dispose of condensate, as appropriate.

**Daily** Monitor the Sales Meter(s) and analyze the inlet gas for percent methane and oxygen, flow and vacuum and record information on Form No. 2 (see Section V herein).

Monitor wells on a daily basis and check each well at least once per month for methane content, vacuum, oxygen content, temperature, and wellhead valve position with information being logged on the attached Form No. 1. Initially, wells will be monitored more frequently (at least once every two weeks) until wellfield is balanced.

Prepare and maintain test data logs using the attached Forms.

**Weekly** Monitor the annubar stations and monitoring points and record flows.

Prepare flow reports and operating issues.

**Bi-Weekly** Inspect Project Facility components and Landfill site surface for surface cracks/settlement or locations in geomembrane cap for potential points of air infusion that might adversely affect operation of the system and determine integrity of the Project Facility. Perform minor maintenance, as required, including replacing broken sample lab cock valves, securing loose flexible connections, cleaning fill away from enclosures, repair of geomembrane seal around well, drain condensate from laterals and/or headers, etc.

Prepare and maintain inspection/maintenance logs.

Monitor the Project Facility for gas composition, vacuum distribution, and flow (as required); adjustments to be made as necessary (see Section V below).

Prepare and maintain test data/field activity logs.

**Monthly** Prepare and submit a report to Portland LFG containing the data collected, a trend analysis, summary of the system operation and

maintenance, and forecast of anticipated maintenance activities for next month.

Where possible, during the performance of routine services, personnel will perform minor non-routine services, such as tightening bolts, replacement of sample lab cock valves, replacement of flexible connections, etc.

#### B. Non-Routine Maintenance

Non-Routine Maintenance consists of corrective repairs or maintenance work identified during the routine visits. This work may include items such as resetting of vaults, repair of broken lateral and header lines, lowering of well heads and localized settlement and regrading of pipes and/or landfill surface to address condensate blockages and surging vacuum; and possible replacement of inoperable wells. This work is essential to the achievement of the Project Facility operational goals. However, it is considered the type of work that can generally be scheduled to allow for procurement of materials, equipment, scheduling of personnel, etc., and Metro will attempt to provide maximum notice to Portland LFG prior to such activity. This paragraph is subject to the provisions of Article VIII above.

#### C. Unscheduled Emergency Services

Unscheduled emergency services include events that require immediate response. These may include, but are not limited to:

Repair of header or lateral line breaks (resulting in significant air intrusion or limited gas flow to the gas processing facility).

Repair of broken flexible connections.

Repair of severely settled pipelines restricting gas flow.

Repair/maintenance and trouble shooting of Project Facility components.

Responses to the urgent nature of these items are such that they cannot be scheduled. Metro should respond to these conditions, as needed, 24 hours per day, 7 days per week. Unscheduled emergency services will be performed as required. Metro will use its best business judgment and Good Engineering Practice to effectuate repairs as soon as possible, especially where the continued operation of the Project Facility is concerned. The statements under the above caption are subject to the provisions of Article VIII above.

## **II. OPERATING CONDITIONS**

This work scope has been developed with the following understanding:

1. Metro will be responsible, on behalf of Portland LFG, for the operation, monitoring and maintenance of the Project Facility as currently existing and as it may be subsequently expanded or modified. The system currently consists of vertical and horizontal extraction wells, condensate traps, header lines, and lateral lines, the primary condensate system, and flow metering facilities.
2. Metro will have reasonable access to the wellfield during performance of its services consistent with the terms of the Lease.
3. Metro will be the only party designated to adjust the extraction wells during the period of its O&M Agreement. Portland LFG can request adjustments to the well field, and Metro shall comply with such requests except where compliance with such request would conflict with its other obligations hereunder.
4. Metro will employ and provide appropriately skilled persons to adjust, maintain, and trouble-shoot the landfill gas collection and monitoring system. This shall include, but not be limited to, the taking of gas samples, and/or analyses vacuum readings, valve adjustments and well field balancing.
5. Metro will provide general administration and management responsibilities to oversee field personnel.
6. Metro will manage and coordinate the necessary subcontractors and vendors required to support ongoing operations hereunder.
7. Metro will maintain the required insurance coverage on its field personnel and any other employees involved with the Project Facility on its behalf.
8. Metro shall be responsible for providing the necessary portable field instrumentation and small hand tools required to support the performance of services covered under this contract.
9. Metro shall control the vacuum on the wells to optimize recovery while not unduly hindering the anaerobic decomposition of refuse at the Landfill and to maintain a gas content of not less than 45% methane or more than 2% oxygen at the points of delivery.



10. Metro shall be responsible for the engineering and design of any facilities, equipment or system in connection with the operation or expansion of the Project Facility.
11. Metro shall be responsible for the suitability of the Project Facility to meet any environmental requirements or operating criteria in the Lease or the other provisions of this O& M Agreement.
12. Any drawings, field notes and specifications developed pursuant to this O&M Agreement shall be provided to Portland LFG at no additional cost for the first three copies and at actual cost for additional copies requested by Portland LFG.
13. Metro shall be responsible for training, educating and, if necessary, licensing its own and Subcontractor personnel in general to conform to OSHA and SARA requirements as well as any other local, state and federal requirements applicable to the Project Facility and Metro activities.
14. This scope of work includes purchase of spare parts.
15. This scope of work includes the cost for services of any maintenance required to be performed by the manufacturer of the Sales Meter(s) and monitoring and testing equipment.
16. This scope of work includes reporting and/or analyses that may be required by regulatory bodies.
17. At any time during the term of this O&M Agreement, by mutual agreement of both parties, the Work Scope can be revised.
18. Metro will meet periodically with Portland LFG and/or its designated representatives to review operations of the Project Facility, maintenance of performance standards and compliance with this O&M Agreement, and to assist in any inspections of the Project Facility and related data.

### **III. MONITORING**

1. Daily readings shall be taken at the Sales Meter(s) and recorded on Form No. 2. In addition, a gas analysis shall be done on the total Landfill Gas flow to determine the following:
  - methane content;
  - oxygen content;

- temperature; and
  - blower vacuum.
2. At least monthly the Landfill Gas wells will be tested. Data will be collected, recorded, and stored on Metro's computer data base, if available; otherwise it shall be recorded manually on the attached Form No. 1. The wells will be tested every two weeks until the wellfield is fully balanced. Test parameters will include the following:
- methane concentration;
  - oxygen concentration;
  - flow rate, if possible;
  - wellhead vacuum;
  - lateral vacuum; and
  - gas temperature at wellhead.
3. At least once each month the wellfield piping and wells will be observed for the following:
- accessibility;
  - vandalism;
  - malfunctions; and
  - leaks.

Monitoring report forms on well testing and total flow and gas content are attached.

#### **IV. REPORTING**

Once each month, Metro will prepare a letter report to Portland LFG containing the data collected and a summary of all activity performed on the Project Facility during the reporting period. Any data maintained in a computer data base to allow tracking of long term trends will be provided on a monthly basis sufficient for Portland LFG to determine total gas quantity and Btu content. In addition, any past month's major maintenance and/or operational problems and future major scheduled activities will be described in a cover letter with the monthly data. Monthly reports will also include details of any areas where operations may not have been in compliance with applicable laws and regulations or existing Permits or any areas where such non-compliance may occur in the future or where gas flows and/or quality is significantly different than was projected by Metro. Special attention should be paid to environmental issues in these reports.

Once each year at a mutually agreeable time, Metro shall provide Portland LFG with an annual projection of Landfill Gas expected to be recovered. Metro shall provide Portland LFG on a quarterly basis, by the 15th day of each calendar quarter, estimates of anticipated Landfill Gas flow and quality for the following quarter and such other information as Portland LFG may reasonably request.

Metro shall assist Portland LFG in the preparation of all necessary operating and capital expenditure budgets pertaining to the Project Facility at such times as is reasonably requested by Portland LFG, and in the collection of data regarding such budgets. Metro will work with Portland LFG in determining the amount of funds to be set aside for future capital expenditures each year based upon such budget.

Metro shall promptly upon becoming aware notify Portland LFG of (i) the loss of any property, plant or equipment essential to the operation of the Project Facility either due to destruction or damage which is uneconomical to repair, or other rendering of such property, plant or equipment permanently unfit for normal use for any reason whatsoever; (ii) an event which results in a total loss (constructive or otherwise) or an insurance settlement with respect to the Project Facility that is based on a total loss thereof; or (iii) the condemnation, confiscation, seizure or requisition of use of a portion or all of the Project Facility.

## **V. DATA GATHERING**

Following data to be gathered at:

### **a. The Gas Handling System/GASCO's Facility**

1. Landfill vacuum.
2. Inlet temperatures of gas prior to blowers.
3. Methane content.
4. Oxygen content.
5. Carbon dioxide content.
6. Nitrogen content.
7. Primary condensate analysis.
8. Landfill gas flow rates (Sales Meters).

b. Wells/wellfield

1. Gas temperature at wellhead.
2. Wellhead vacuum.
3. Line vacuum.
4. Wellhead valve position.
5. Methane percentage.
6. Oxygen percentage.
7. Annubar flow measurements.

## EXHIBIT C

### LIST OF INSURANCE REQUIREMENTS FOR OPERATORS WHICH ARE NOT SELF-INSURED

I. Any operator hereunder which is not self-insured shall secure and maintain in full force and effect the following minimum insurance coverages provided by insurers of nationally recognized standing legally qualified to issue insurance:

- (A) comprehensive commercial general liability insurance of not less than \$1,000,000 combined single limit;
- (B) in the event there are any employees, workers' compensation insurance in compliance with all statutory provisions and written with statutory limits;
- (C) comprehensive automobile liability insurance covering bodily injury and property damage for owned (if any), non-owned, leased and hired vehicles, with a limit of not less than \$1,000,000; and
- (D) excess liability insurance providing coverage limits in excess of the comprehensive general liability and comprehensive automobile liability of not less than \$5,000,000.

II. Any insurance carried by such operator in accordance with the provisions above shall be endorsed to provide that:

- (A) Such operator shall be the named insured in respect of all policies issued and Portland LFG shall be included as an additional insured as its respective interest may appear; and
- (B) the insurers thereunder waive as against Portland LFG all rights of subrogation, any right of setoff or counter claim, and any other right to deduction, whether by attachment or otherwise.

## **GAS PURCHASE AGREEMENT**

This Gas Purchase Agreement (the "Agreement") is made as of May \_\_ 1997 between Portland LFG Joint Venture, an Oregon general partnership duly authorized to conduct business in Oregon ("Seller" or "Portland LFG") and Metro, a metropolitan service district organized under the laws of the State of Oregon and the 1992 Metro Charter, located in Portland, Oregon ("Buyer" or "Metro").

WHEREAS, Portland LFG is the Lessee of the Premises identified and defined by the Lease (as hereinafter defined); and

WHEREAS, Portland LFG desires to sell to Metro, and Metro desires to purchase from Portland LFG, Landfill Gas to be collected from the Premises.

NOW, THEREFORE, in consideration of the promises and mutual covenants contained herein, Portland LFG and Metro do hereby agree as follows:

### **ARTICLE I - DEFINITIONS**

Unless the context indicates otherwise, the capitalized terms used herein shall have the meanings defined as follows:

A. "Additional Customer" shall mean a purchaser of Landfill Gas or Product, pursuant to an Additional Sales Contract, who is not affiliated with Metro.

B. "Additional Sales Contract" shall mean any contract, but not including this Gas Purchase Agreement, which Portland LFG enters into for the purpose of selling Landfill Gas or Product to any purchaser other than Metro.

C. "Buyer's Facilities" shall mean the four flares currently installed at the Landfill and all modifications, replacements, additions and expansions thereof, and all other facilities or equipment owned or operated by Metro on such real property, now or in the future.

D. "Excess Gas" shall mean that quantity of Landfill Gas produced at the Landfill by Portland LFG from time to time which Metro and Portland LFG agree has not been reserved by Metro pursuant to the terms of this Agreement for use in Metro's Facilities for a beneficial use, e.g., the "Excess Gas" is being flared.

E. "Gas Collection System" shall mean the network of gas collection wells, interconnecting pipes, valves, condensate knockout tanks, blowers, monitoring equipment, and any additional gas extraction equipment installed on the Landfill and

used for the purpose of the extraction of Landfill Gas by Portland LFG, including, without limitation, the gas collection system, if any, installed by Metro, if then used by Portland LFG, all as more particularly described in Exhibit A to the Lease.

F. "Good Engineering Practice" means any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known, or which in the exercise of due diligence, should have been known, at the time the decision was made, would have been expected to accomplish the desired result in a manner consistent with reliability, safety, environmental protection, expedition, project economics and applicable laws, ordinances, rules and regulations for similar facilities. Good Engineering Practice is not intended to be limited to consideration of any one practice, method or act, to the exclusion of all others, but rather, is intended to require the consideration of a spectrum of possible practices, methods or acts.

G. "Lease" shall mean the Landfill Gas Lease dated as of even date herewith between Portland LFG and Metro pursuant to which Metro leases to Portland LFG the Gas and Site Rights as defined therein.

H. "Permits" means all material authorizations from, permits and licenses issued by, consents and approvals of, filings with, notices from, and registrations with, any and all governmental entities, departments or agencies (including all conditions thereof), which may be required to be held or obtained, from time to time for (i) the burning or use of Landfill Gas at Buyer's Facilities, (ii) the operation, maintenance, possession or ownership of such Buyer's Facilities, or (iii) the performance by Metro of any of its obligations under this Agreement.

I. "Point of Delivery" shall mean the downstream flange of the wye to each of the four (4) flares.

J. "Portland LFG Project Facility" means the Gas Collection System and any and all additional equipment, machinery and fixtures currently installed or to be installed at, in or on the Landfill and used for or in connection with the processing, selling, or transporting of Landfill Gas (including without limitation, all gas pipelines used to transport gas from the Landfill to any point of delivery), and all modifications, replacements, additions and expansions thereof, including the Gas Collection System.

K. "Related Agreements" shall mean the Lease, the Acquisition and Security Agreement, the Project Acquisition Note, the O&M Agreement and any Additional Sales Contract, if any.

L. "Sales Meter" shall mean the meter or meters, and measuring equipment installed pursuant to Article III B(1) for the purpose of measuring in accordance with Good Engineering Practice the volume of Landfill Gas and the MMBtus contained in the Landfill Gas sold by Portland LFG to Metro at the Point of Delivery. Volume of Landfill

Gas sold to Metro shall be the difference between the flow measured by the Sales Meter, adjusted for moisture content, and the flow measured by the Ash Grove Sales Meter.

Unless the context indicates otherwise, all capitalized terms used herein and not defined herein shall have the meanings specified in the Lease or the Acquisition and Security Agreement and such definitions shall be incorporated by reference herein, except that the definition of the term "*Force Majeure*" shall refer solely to the obligations under this Agreement.

## ARTICLE II - GAS SALES

A. Basic Agreement. Subject to the provisions of paragraph E below, Portland LFG shall sell and deliver to Metro at the Point of Delivery(s), and Metro shall purchase and accept from Portland LFG at the Point of Delivery, all the Landfill Gas produced by Portland LFG at the Landfill by the Portland LFG Project Facility commencing on the date hereof and in accordance with the terms and conditions herein. Metro shall promptly notify Portland LFG of any condition of which it has or comes to have knowledge that could materially decrease the likelihood that it will be willing or able to purchase the Landfill Gas produced at the Premises at the then current sales levels.

B. Price. Metro shall pay to Portland LFG for all Landfill Gas delivered each quarter pursuant to this Agreement, a price per MMBtu as provided in Exhibit A attached hereto and made a part hereof. Metro may not set off against any amounts owed Portland LFG for Landfill Gas delivered hereunder any amount then due and owing to Metro by Portland LFG under this Agreement or any Related Agreement.

C. Operating Standards. Except as provided in paragraph E below, Portland LFG shall use its best reasonable efforts to operate its Portland LFG Project Facility in accordance with Good Engineering Practice so as to provide the maximum quantity of Landfill Gas to Metro, so long as commercially practicable in Portland LFG's sole judgment and to the extent that no event of *Force Majeure* exists and further, to the extent that such operation does not unreasonably interfere with protection of the environmental safeguards installed by Lessor at the Landfill and compliance with appropriate permits. Portland LFG shall have no obligation to compensate Metro or any other person or entity for a reduction in the amount of Landfill Gas resulting from the aging of the Landfill or other changes, or to purchase any other type of fuel from any third party to supply Metro.

Metro shall use its best reasonable efforts to (i) cause Buyer's Facilities to be operated in accordance with Good Engineering Practice to accommodate the use of Landfill Gas as a fuel source; (ii) cause Buyer's Facilities and all related equipment to be kept in good working order, repair and condition; and (iii) use, flare or otherwise cause the disposal of the Landfill Gas purchased from Portland LFG in accordance with Good Engineering Practice and all applicable laws, regulations and Permits.



D. Quality. Portland LFG is selling raw unprocessed Landfill Gas hereunder and has no obligation to process the Landfill Gas in any manner whatsoever prior to delivering such Landfill Gas to Metro at the Point of Delivery.

E. Excess Gas Sales. If Portland LFG shall be producing any Excess Gas, then Portland LFG shall have the right to sell to any third party such Excess Gas or Product which may be produced by Portland LFG from such Excess Gas; provided that (i) Portland LFG shall continue to sell and deliver to Metro sufficient Landfill Gas at all times to satisfy Metro's requirements for Landfill Gas to the extent such Landfill Gas is being used for previously agreed-to beneficial purposes; and (ii) any agreement for the sale of Excess Gas or Product by Portland LFG to a third party shall provide that Metro's previously agreed to requirements for Landfill Gas to be used for beneficial purposes shall at all times have priority over those of such third party. To the extent Portland LFG does not sell such Excess Gas or Product to a third party, Metro may continue to purchase such Excess Gas in accordance with the other requirements of this Article II. Metro shall furnish to Portland LFG prior to the 15th business day of each quarter a good faith forecast of the requirements of Metro's Facilities for Landfill Gas to be used for beneficial purposes for the next four (4) quarters in order to allow Portland LFG to plan its sales of Excess Gas during such period.

Notwithstanding anything in this agreement to the contrary, Metro acknowledges and consents to Portland LFG entering into an Additional Sales Contract with Ash Grove Cement and agrees that sales to Ash Grove under the contemplated contract will take priority over gas sales to Metro hereunder unless Metro has indicated a beneficial use and volume, with the consent of Portland LFG, prior to the commencement of construction of facilities to deliver landfill gas to Ash Grove.

F. Term. Subject to the other provisions hereof, the term of this Agreement shall coincide with the term of the Lease, unless the Lease is sooner terminated in accordance with Article VII of the Lease or this Agreement is sooner terminated as provided in Article VII below, in which case this Agreement shall terminate.

## ARTICLE III - TERMS AND CONDITIONS OF GAS SALES

A. Billings and Payments. By the 5th business day of each month, Metro shall furnish to Portland LFG a monthly statement setting forth the total amount of Landfill Gas in MMBtus sold by Portland LFG to Metro at the Point of Delivery during the preceding month as measured according to Article III(B)(1) below, the amount of such Landfill Gas used for beneficial purposes in Metro's Facilities and the amount flared, if any, along with the relevant calculations as to the price of such Landfill Gas set forth in Exhibit A hereto. By the 20th business day of each month, Metro shall remit to Portland LFG payment in respect to the preceding month for the Landfill Gas sold by Portland LFG to Metro during the preceding quarter based on the formulas set forth in Exhibit A hereto. Any statement or payment shall be final as to both parties unless questioned within two years after payment has been made thereon. If full payment for any month is not received by Portland LFG on or prior to the 20th business day of the next month, Portland LFG shall be entitled to interest on such deficiency from such 20th business day at the rate of one percent (1%) per month and Metro shall be in material breach of this Agreement.

Commencing January 1, 1998, and on an annual basis thereafter, the payment due per MMBtu shall be increased based on the change in the Consumer Price Index ("CPI") for urban wage earners and clerical workers for the Portland, Oregon metropolitan region for the prior year ending June 30, with June 1996 as the base year, unadjusted for seasonal variations, as determined by the Bureau of Labor Statistics of the Department of Labor and as published in such Bureau of Labor Statistics' Detailed Report. If the manner in which the CPI is determined is substantially revised or the CPI shall become unavailable, Portland LFG and Metro agree to cooperate to determine an acceptable alternative, comparable index.

### B. Measurement of Landfill Gas.

1. Measuring Equipment for Sales of Landfill Gas. Metro agrees to install at its own expense, Sales Meter(s), subject to Portland LFG's approval, which approval shall not be unreasonably withheld. After this installation, Metro shall maintain and operate such Sales Meters, provided, however, that such Sales Meters, as well as the charts and records related thereto, shall be the property of Portland LFG. Metro shall maintain all charts and records for the term of this Agreement and upon termination hereof and upon request, shall furnish copies of such charts and records to Portland LFG. The parties and their representatives shall have access at all reasonable times to inspect, test and repair such Sales Meters, and to inspect or copy such charts and records.

2. Meter Test Notice. Metro shall conduct a test of the Sales Meter(s) which is/are used for the billing of Landfill Gas sold to Metro at least once every 12 months at Metro's expense. Such test shall be carried out by Metro in accordance with

the recommendations and guidelines of the manufacturer of such Sales Meters and Good Engineering Practice. Metro shall give Portland LFG notice of the times of all tests of the Sales Meters sufficiently in advance so that Portland LFG may conveniently have its representative(s) ready to observe such tests, if desired. Portland LFG shall have the right to conduct tests of the Sales Meter(s), at its expense, at all reasonable times.

3. Correction for Errors of Sales Meters. If, upon the completion of any test of the Sales Meter(s), any Sales Meter is determined to be recording outside the normal range of accuracy according to the manufacturer's specifications, records thereof shall be corrected for a period extending back to the time such inaccuracy occurred, if such time is ascertainable by Good Engineering Standards, or if not ascertainable or if the amount of Landfill Gas in MMBtu cannot be ascertained because a meter or device is out of service or being repaired, Metro and Portland LFG shall estimate in good faith the volume and quality delivered based upon Portland LFG's and Metro's other operating records for the period in question. Following any test, any measuring equipment found to be inaccurate to any significant degree shall be adjusted immediately to measure accurately.

C. Condensate. Portland LFG shall be responsible for (i) the collection and removal of materials which condense or are deposited in the Portland LFG Project Facility prior to the delivery of the Landfill Gas at the Point of Delivery and (ii) the disposal, in accordance with applicable laws and regulations, of all condensed materials so produced by and removed from the Portland LFG Project Facility, to the extent the Lessor is not responsible therefor under the Lease. Metro shall be responsible for the collection and removal of all condensed materials removed from the Landfill Gas or any pipes after the Point of Delivery or otherwise produced at or by the Buyer's Facilities, and shall, at its own cost, dispose of all materials so collected or produced in accordance with applicable laws and regulations.

D. Permits, Applicable Laws, Related Agreements. Metro represents that to the best of its knowledge (i) all Permits required to be obtained as of the date hereof by Metro have been duly obtained, (ii) such Permits are valid and in full force and effect, (iii) Metro and its operations are in material compliance therewith, and (iv) there exists no event or condition, which after notice or lapse of time, or both, would constitute a breach thereof by Metro. Metro, at its own expense, shall use its best reasonable efforts to (i) obtain (or cause the obtaining of) all other Permits which may be required, from time to time, (ii) maintain (or cause the maintenance of) all existing and subsequently acquired Permits in full force and effect, without interruption, and (iii) not take or omit to take (or permit the taking or omission of) any action which would result in any restriction on, or material violation of, any such Permit. In addition, in the operation of Buyer's Facilities and in performance of its obligations hereunder, Metro shall (i) comply with all applicable laws, ordinances, rules and regulations and with all applicable orders, decrees, judgments and Permits of any governmental or judicial authority having jurisdiction over Metro or Buyer's Facilities and (ii) not cause or permit,

by its actions or failures to act under or in connection with this Agreement, Portland LFG or the Portland LFG Project Facility to be in violation of any of the foregoing, any of the Related Agreements to which Portland LFG is a party, or the Permits. Without limiting the foregoing, Metro shall comply with all laws, regulations, ordinances, and orders pertaining to environmental matters, including without limitation, those relating to the discharge, control, reporting, use, storage, treatment and disposal of Hazardous Materials in the ownership, possession, maintenance and operation of the Buyer's Facilities.

E. Insurance. In support of its obligations hereunder, Metro is, and shall continue to be, self-insured to the limitations of the Oregon Tort Claims Act and shall cooperate with Seller, to the extent reasonably requested by Seller, in Seller's procurement of additional insurance on behalf of Buyer. Metro shall provide Portland LFG with evidence, satisfactory to Portland LFG, of the insurance required hereunder, upon Portland LFG's reasonable request from time to time.

F. Seller's Right to Cure Buyer's Breaches. Metro shall give prompt notice to Portland LFG of any and all material breaches or violations (of which Metro becomes aware) by Metro of any Permit. Portland LFG shall have the right to remedy any such breach or violation, where such breach or violation could reasonably be expected to have a materially adverse effect on the operation, possession or ownership by Portland LFG of the Portland LFG Project Facility, including its ability to sell Landfill Gas or Product to Metro or any Additional Customer; provided that Portland LFG has given Metro 10 business days' prior notice of its intent to perform such remedy and Metro does not within such 10 business days commence and continue to proceed diligently with such remedy. In such case, the cost of remedying such breach or violation shall be paid by Metro to Portland LFG promptly after receipt of an invoice therefor.

G. Seller's Right to Inspect. Portland LFG and its representatives shall have the right, at all reasonable times upon five (5) business days' notice, to inspect Buyer's Facilities and to inspect the records of Metro regarding Buyer's Facilities and its operations. Metro shall provide quarterly reports to Portland LFG regarding Buyer's Facilities' operations and sales in form and substance reasonably satisfactory to Portland LFG.

H. "Unrelated Parties". Metro represents that it is an "unrelated person" within the meaning of Section 29 of the U.S. Internal Revenue Code of 1986, as amended from time to time (the "Code"), to Portland LFG. Metro agrees that it will not become, nor will it permit itself to become, a "related person" within the meaning of Section 29 of the Code to Portland LFG.

I. Disclosure. To the best of Metro's knowledge, none of the documents or other written information furnished by or on behalf of Metro to Portland LFG pursuant to this Agreement or any of the Related Agreements contains any untrue statement of a material fact or omits to state any material fact required to be stated therein or

necessary to make the statements contained herein or therein, in the light of the circumstances in which they were made, not misleading.

#### **ARTICLE IV - TITLE**

Portland LFG represents that it has the right to convey all Landfill Gas sold hereunder to the extent such rights were actually granted to Portland LFG by Lessor pursuant to the Lease. Portland LFG shall be deemed to be in exclusive control and possession of the Landfill Gas, and fully responsible and liable therefor, until it is delivered to Metro at the Point of Delivery. After the delivery of Landfill Gas to Metro at the Point of Delivery, Metro shall be deemed to be in exclusive control and possession of the Landfill Gas and fully responsible and liable therefor.

#### **ARTICLE V - INDEMNIFICATION**

A. Seller's Indemnity. Portland LFG shall indemnify, defend and hold harmless Metro, its shareholders, directors, officers, employees, agents, representatives and independent contractors from and against any and all costs, claims, liabilities, damages, expenses (including reasonable attorneys' fees based on a standard of those fees and expenses which are reasonable and customary for private counsel in the Portland region with similar experience to those engaged by the prevailing party), causes of action, suits, or judgments, incurred by, on behalf of or involving any of the foregoing parties and arising, directly or indirectly, from or in connection with any breach by Portland LFG of its obligations, covenants, representations or warranties contained in this Agreement.

B. Buyer's Indemnity. To the greatest extent permitted by the Oregon Constitution, the Oregon Tort Claims Act, and the 1992 Metro Charter, Metro shall indemnify, defend and hold harmless Portland LFG, and its partners and Portland LFG's and each such partner's shareholders, directors, officers, employees, agents, representatives and independent contractors, from and against any and all costs, claims, liabilities, damages, expenses (including reasonable attorney's fees), causes of action, suits or judgments, incurred by, on behalf of or involving any one of the foregoing parties and arising, directly or indirectly, from or in connection with (i) any breach by Metro of its obligations, covenants, representations or warranties contained in this Agreement, provided that for the purposes of this Article V only any and all limitations or qualifications to such obligations, covenants, representations, or warranties based on or related to Metro's knowledge shall not be applicable or (ii) Metro's actions or omissions, taken or made in connection with Metro's performance of this Agreement or the operation, maintenance, possession or ownership of Buyer's Facilities or any other equipment at the Landfill, provided such actions or omissions constitute negligence or willful misconduct. Metro further agrees, if requested by Portland LFG, to investigate, handle, respond to, and defend any such claim, demand, or suit at its own expense.

C. General. Notwithstanding any provision contained herein, the provisions of this Article V shall survive the termination of this Agreement for a period of 3 years, notwithstanding the application of any statute of limitations.

#### **ARTICLE VI - FORCE MAJEURE**

For purposes of Article VII and the first paragraph of Article II(C) only, if by reason of *Force Majeure* either party hereto is unable to carry out, either in whole or in part, its obligations herein contained, such party shall not be deemed to be in default during the continuation of such inability, provided that: (i) the non-performing party, within two (2) weeks after the occurrence of the *Force Majeure*, gives the other party written notice describing the particulars of the occurrence; (ii) the suspension of performance be of no greater scope and of no longer duration than is required by the *Force Majeure*; (iii) no obligations of either party which arose prior to the occurrence causing the suspension of performance be excused as a result of the occurrence; and (iv) that the non-performing party shall use its best efforts to remedy with all reasonable dispatch the cause or causes preventing it from carrying out its obligations.

#### **ARTICLE VII - TERMINATION**

A. Seller's Right to Terminate. Portland LFG shall have the right to terminate this Agreement only in the event (i) Metro commits an act or omission which is a material default by Metro under this Agreement, provided that where Portland LFG asserts a material default Portland LFG notifies Metro in writing and allows Metro a reasonable period of time but not less than 30 days to cure the default and further provided that if such material default is due to an event of *Force Majeure*, such material default shall not be grounds for termination, unless it is a material default to make payment due hereunder, it constitutes a breach of Article III(H), or such event of *Force Majeure* prevents Metro from performing any obligation hereunder for a period of more than 180 days or (ii) the Lease is terminated for any reason.

B. Buyer's Right to Terminate. Metro shall have the right to terminate this Agreement only in the event Portland LFG commits an act or an omission which is a material default under this Agreement, provided that where Metro asserts a material default Metro notifies Portland LFG in writing and allows Portland LFG a reasonable period of time but not less than 30 days to cure the default and further provided that if such material default is due to an event of *Force Majeure*, such material default shall not be grounds for termination, unless it is a material default to make payment due hereunder or such event of *Force Majeure* prevents Portland LFG from performing any obligations hereunder for a period of more than 180 days.

C. Stay of Termination. A timely request for dispute resolution under Article IX of this Agreement will stay the termination for cause under this Article VII until dispute resolution is concluded as set forth in Article IX and for a reasonable time for cure, if applicable, after the conclusion of such dispute resolution.

### **ARTICLE VIII - ASSIGNMENT**

Neither party hereto may assign this Agreement or any of its rights and obligations hereunder to any person or entity (other than an entity that, directly or indirectly, through one or more intermediaries, controls or is controlled by or is under common control with the assignor) without the prior consent of the other party, which consent shall not be unreasonably withheld or delayed. Any attempt at assignment without such consent shall be null, void and of no effect, and shall constitute a material default hereunder. Notwithstanding the foregoing, Metro specifically agrees, without further request for prior consent, to permit Portland LFG to assign its interest under this Agreement (a) to an entity owned or controlled by either or both of the joint venture partners of Portland LFG, or affiliates thereof, and (b) in the event that Portland LFG shall be entitled under Article VII(A)(i) to terminate this Agreement, provided Portland LFG shall give Metro notice of the existence of such assignment together with the name and address of the assignee and a copy of the assignment document within 30 days of the execution of such assignment.

### **ARTICLE IX - MISCELLANEOUS PROVISIONS**

A. Notices. All notices, demands, requests, consents or other communications required or permitted to be given or made under this Agreement shall be in writing and

if to Portland LFG, to:

Portland LFG Joint Venture  
c/o Palmer Management Corporation  
13 Elm Street, Suite 200  
Cohasset, Massachusetts 02025  
Tel: (617) 383-3200  
Fax: (617) 383-3205

with a copy to :

Rivergate LFG  
c/o Ash Grove Cement Company  
8900 Indian Creek Parkway  
Overland Park, Kansas 66210  
Tel: (913) 451-8900  
Fax: (913) 451-8324

and a copy to:

Jeffrey M. Bernstein, Esq.  
Bernstein, Cushner & Kimmell, P.C.  
One Court Street, Suite 700  
Boston, MA 02108  
Tel: (617) 742-4340  
Fax: (617) 742-0170  
E-Mail: jmbern@bck.com

if to Metro to:

[name]  
Metro Regional Environmental Management  
600 Northeast Grand Avenue  
Portland, OR 97232  
Tel: (503) 797-1700  
Fax: (503) 797-1707

Notices hereunder shall be deemed properly served (i) by hand delivery, on the day and at the time on which delivered to the intended recipient at the address set forth in this Gas Purchase Agreement; (ii) if sent by mail, on the third business day after the day on which deposited in the United States certified or registered mail, postage prepaid, return receipt requested, addressed to the intended recipient at its address set forth in this Gas Purchase Agreement; or (iii) if by Federal Express or other reputable express mail service, on the next business day after delivery to such express mail service, addressed to the intended recipient at its address set forth in this Agreement. Either party may change its address for the purpose of this Article IX (A) by giving the other party prior notice thereof in accordance with this provision.

**B. Successors and Assigns.** Subject to the restrictions on assignment herein contained, the terms and provisions of this Agreement shall be binding upon, and shall inure to the benefit of, the successors, assigns, and personal representatives of the respective parties hereto. This Agreement shall not (directly, indirectly, contingently or otherwise) confer or be construed as conferring any rights or benefits on any person or entity not named on as a party hereto, except as otherwise provided in Article VIII.

**C. Severability.** If any term or provision of this Agreement or the application thereof to any person or circumstance be invalid or unenforceable to any extent, the remainder of this Agreement and the application of such term and provision to persons or circumstances other than those to which it has been held invalid or unenforceable shall not be affected thereby and each term and provision of this Agreement shall be valid and be enforceable to the fullest extent permitted by law.



D. Applicable Law and Related Matters. All questions with respect to the construction of this Agreement and the rights and liabilities of the parties hereunder shall be determined in accordance with the laws of the State of Oregon. In any litigation arising from this Agreement, the prevailing party shall be entitled to receive from the non-prevailing party all reasonable costs and expenses (including reasonable attorneys' fees and expenses based on a standard of those fees and expenses which are reasonable and customary for private counsel in the Portland region with similar experience to those engaged by the prevailing party) incurred by the prevailing party by reason of the event giving rise to such litigation.

Prior to the initiation of litigation, either party may initiate dispute resolution under this section. Dispute resolution will be initiated by either party delivering notice to the other, setting forth the nature of the dispute. The parties agree to meet or otherwise confer expeditiously to resolve the dispute, and to submit the dispute to nonbinding third party mediation if the dispute cannot be resolved within 15 days following the delivery of the notice. If a notice of default has been issued, the period of time allowed to cure the default shall be stayed pending dispute resolution, for a period not to exceed 45 days (including third party mediation) unless otherwise agreed to by the parties hereto. Notwithstanding the foregoing, a party may initiate litigation and shall not be bound by the dispute resolution procedures set forth in this paragraph in case of a situation where such party is seeking temporary or preliminary injunctive relief or where such party certifies, in good faith, that failure to promptly initiate litigation will subject it to the risk of grave harm.

E. Expenses. Each party shall pay all expenses incurred by it in connection with its entering into this Agreement, including without limitation, all attorneys' fees and expenses.

F. Entire Agreement; Amendments. This Agreement constitutes the entire agreement between the parties hereto with respect to the subject matter hereof and supersedes all prior oral or written agreements and understandings between the parties relating to the subject matter hereof. This Agreement may only be amended or modified by a written instrument signed by both parties hereto.

G. Interpretation Matters. Except to the extent expressly provided herein, the provisions of this Agreement, and the rights and obligations of the parties hereto, shall be construed so as to be consistent with the provisions of the Lease and the other Related Agreements and the applicable rights and obligations of the parties thereunder. Metro acknowledges it has received and reviewed the Lease and each of the Related Agreements and is familiar with the terms thereof.

H. No Joint Venture. The relationship between the parties hereto is that of buyer and seller. Nothing herein contained shall be deemed to constitute either party a partner, agent or legal representative of the other party or to create a joint venture, agency or any relationship between the parties other than that of buyer and seller.

I. Joint Workproduct. This Agreement shall be considered the workproduct of all parties hereto, and, therefore, no rule of strict construction shall be applied against any party hereto.

J. Counterparts. This Agreement may be executed in counterparts, each of which shall be deemed an original and all of which shall constitute a single agreement.

K. Waiver. No waiver by either party hereto of any one or more defaults by the other party in the performance of any provision of this Agreement shall operate or be construed as a waiver of any future default, whether of alike or different character. No failure on the part of either party hereto to complain of any action or non-action on the part of the other party, no matter how long the same may continue, shall be deemed to be a waiver of any right hereunder by the party so failing. A waiver of any of the provisions of this Agreement shall only be effective if made in writing and signed by the party who is making such waiver.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the date first written above.

**SELLER: METRO**

By: \_\_\_\_\_  
Name/Title

Address: 600 Northeast Grand Avenue  
Portland, OR 97232  
Tel: (503) 797-1700  
Fax: (617) 797-1707

**BUYER: PORTLAND LFG JOINT VENTURE  
an Oregon general partnership**

By: Portland Landfill Gas Corporation,  
a Massachusetts corporation,  
its managing general partner

By: \_\_\_\_\_  
Name/Title

Address: 13 Elm Street  
Cohasset, MA 02025  
Tel: (617) 383-3200  
Fax: (617) 383-3205

## **EXHIBIT A**

### **PRICE FOR SALE OF LANDFILL GAS**

For each MMBtu produced by Portland LFG , Metro shall pay: 1) \$0.3375 as a capacity charge without regard to whether such gas is purchased by Metro, or sold to a third party or otherwise; and 2) an additional \$0.1500 if such gas is sold to Metro.

Notwithstanding the foregoing, or anything to the contrary set forth in the preceding Gas Purchase Agreement, the total amount charged Metro, in any calendar quarter, for gas shall not exceed the sum of payments received by Metro under the Operation and Maintenance Agreement and the Project Acquisition Note, for such quarter.

## STAFF REPORT

IN CONSIDERATION OF RESOLUTION NO. 97-2494 FOR THE PURPOSE OF AUTHORIZING AN EXEMPTION PURSUANT TO METRO CODE SECTION 2.04.054(c) AND AUTHORIZING A SOLE SOURCE CONTRACT PURSUANT TO METRO CODE SECTION 2.04.062 FOR THE SALE OF LANDFILL GAS TO PORTLAND LFG JOINT VENTURE.

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Date: April 8, 1997

Presented by: Bruce Warner  
Jim Watkins

### PROPOSED ACTION

Adopt Resolution No. 97-2494 which grants an exemption from the competitive procurement process and authorizes execution of agreements with Portland LFG Joint Venture for the purpose of ultimately selling landfill gas for beneficial use at the Ash Grove Cement Company in the Rivergate industrial area.

### FACTUAL BACKGROUND AND ANALYSIS

Shortly after assuming responsibility for the operation of the St. Johns Landfill in June of 1980, Metro commissioned a study to determine the feasibility of methane gas recovery at the landfill. The study, performed by Gas Recovery Systems, Inc., investigated various gas recovery alternatives and concluded that direct sale of medium BTU gas to industry was the most promising option. The Ash Grove Cement Company located in the Rivergate industrial area was identified as the most promising potential customer due to their large energy requirements.

Additional studies were conducted but Metro was unsuccessful in developing the gas as a resource, primarily due to a decrease in natural gas prices during the 1980's. In 1991, Metro solicited proposals for the development of Landfill Gas Resources at the landfill. A Canadian firm with experience in landfill gas development was selected and awarded a contract. After two years, Metro terminated the contract for non-performance. This firm was unable to develop an economically viable project.

During 1994, Metro participated in a joint study, with the City of Portland, to identify alternatives for use of the gas being generated at the Columbia Boulevard Sewage Treatment Plant, as well as landfill gas. Potential end users, the public and consulting firms participated in the study. The City included an evaluation of the alternatives of using a combination of landfill gas and gas from the sewage treatment plant. The study concluded that direct sale of landfill gas to industry was the most economically beneficial option.

Metro then began direct discussions with the Ash Grove Cement Company. Based on favorable progress in the negotiations, Metro retained Harding Lawson Associates to prepare a detailed feasibility study for the project. The agreement being discussed

made Metro responsible for the capital and operating costs of the pipeline and compressor station. The capital costs were estimated at approximately \$1.35 million. Metro and Ash Grove were unable to reach final agreement because of the level of risk to Metro compared to the potential economic benefits.

In early 1996, Metro was contacted by the Palmer Capital Corporation, a firm with extensive experience in the development of landfill gas projects. Palmer, in turn, contacted a number of firms in the Portland area to find a beneficial user for the landfill gas. They initiated discussions with the Ash Grove Cement Company which resulted in the formation of a joint venture called Portland LFG. It was determined that Ash Grove was the only energy user in the vicinity of the landfill which had the potential for using substantially all of the gas produced at the landfill. Portland LFG then made an unsolicited proposal for the purchase of the rights to develop the landfill gas from the St. Johns Landfill. They were able to develop an economically viable project through the use of federal tax credits which are available for the development of alternative energy resources.

The four agreements necessary to implement this project (attached as Exhibits 1 to 4) are structured so that Portland LFG can take advantage of the federal tax credits. Without these tax credits, a landfill gas project at the St. Johns Landfill is not economically viable, due in large part to the fact that gas production is declining at the landfill. Waste was last placed in the landfill in 1991. It is estimated that gas production peaked in 1991 or 1992 and is now going down as the anaerobic organisms in the landfill consume the waste. Gas production will be below commercially viable levels by the end of the fifteen year term of this proposed agreement.

Metro staff was guided by four fundamental goals throughout the development of this project. These were to:

- Make beneficial use of as much landfill gas as possible in an environmentally sound manner.
- Reduce the environmental impact of the St. Johns Landfill.
- Minimize Metro's financial risk, while ensuring the proper operation and maintenance of the landfill closure system.
- Offset a portion of Metro's operating costs at the landfill.

Staff believes that the four agreements proposed to implement the sale of the landfill gas successfully accomplish these goals.

The four agreements needed to implement this proposal are:

- Acquisition and Security Agreement - Under this agreement Portland LFG will purchase the gas collection system at the St. Johns Landfill and agrees to pay for it under a note whose payments are based on the amount of gas produced and are secured by a security interest in the gas collection system. The payments under the note will be

\$0.3875 per MMBTU. The term of this agreement is fifteen years. If termination of the agreement occurs prior to payment of the note, the gas collection system, which is Metro's security will be returned to Metro at no cost in fulfillment of Portland LFG's obligation under the security interest agreement. The amount of the payment under the note will be adjusted annually for inflation. This agreement also calls for the payment to Metro of \$75,000 for the value of engineering services already completed by Metro.

- Landfill Gas Lease - The rights to develop the gas resource and access to the landfill for purposes of developing the gas resource are conveyed in this agreement. This agreement calls for no payment by Portland LFG for the rights to the gas beyond the payments included in the Acquisition and Security agreement. Metro has the right to terminate this agreement if the beneficial use of the gas has not begun within 18 months of obtaining a franchise from the City of Portland or 24 months from the execution of this agreement.
- Gas Purchase Agreement - Metro agrees to purchase the gas not sold to Ash Grove or another additional user under this agreement. The amounts owed to Portland LFG will be offset by amounts owed to Metro for the purchase of the gas collection system under the Acquisition and Security Agreement. This agreement is for a term of fifteen years. Metro will make two payments under this agreement, a capacity payment of \$0.3375 per MMBTU for all gas produced and an additional \$0.15 per MMBTU for gas that Metro purchases. The payments under this agreement will be adjusted annually by the Portland CPI. Metro will begin to purchase gas at the execution of this agreement. A summary of the payments under these agreements is presented in Table 1 below.
- Operation and Maintenance Agreement - Portland LFG contracts with Metro to operate the gas collection system under this agreement. Metro will be paid an operation fee of \$0.20 per MMBTU for the gas produced at the landfill. These payments will be adjusted annually for inflation based on the Portland CPI. Upon execution of this agreement, Metro also will receive an advance on its O&M payments of \$100,000. The payments will begin upon execution of these agreements and Portland LFG takes possession of the gas collection system. This agreement is for ten years with a five year extension. Portland has the right to terminate Metro for non-performance under this agreement. If Metro is terminated as operator, Portland LFG can hire another operator and Metro would lose all or a portion of the \$0.20 per MMBTU payment. In the event Metro's services under the O&M agreement are terminated, the sum of payments for the gas cannot exceed the payments under the O&M agreement and the Project Note. Metro would have the right to approve the new operator. This agreement is structured so that Metro's operational responsibilities are substantially

the same as they are now.

Under the terms of these agreements, Metro will continue to operate the gas collection system in substantially the same manner as it now does. Portland LFG will construct and operate the pipeline and compressor station to send the landfill gas to Ash Grove. Metro will be reimbursed for expenses incurred for permitting or design of the system. Metro will flare any gas not sold to Ash Grove.

The current gross energy use at Ash Grove is approximately 880,000 MMBTU per year, or about the same as the estimated production gas of the St. Johns Landfill. Due to variations in energy needs and limitations on the operation of the kilns at the Ash Grove plant, it is unlikely that it will be possible to use all of the landfill gas during the early years of operation. Within a few years, only a small amount of gas will be flared due to variations in production at the landfill or energy usage at Ash Grove. The contracts are structured so that the minimum payment to Metro will be \$0.10 per MMBTU for flared gas and \$0.25 per MMBTU for gas sold to Ash Grove. The following table shows the payments under the agreements and the net amounts to Metro for a million BTUs of gas if sold to Ash Grove or if flared by Metro.

**Table 1**  
**Description of Payments Under Landfill Gas Agreements**

	<i>Payments if Gas Purchased by:</i>	
	Metro	Ash Grove
Payment by PLFG to Metro for Gas Collection System	\$0.3875	\$0.3875
Metro Capacity Charge Paid to PLFG	(\$0.3375)	(\$0.3375)
Metro Purchase Price for Gas Flared	(\$0.1500)	
Operation and Maintenance Payment	\$0.2000	\$0.2000
<b><i>Net Payment to Metro Per MMBTU</i></b>	<b><i>\$0.1000</i></b>	<b><i>\$0.2500</i></b>

Note: All payments are adjusted annually for inflation using Portland CPI-W.

Preliminary engineering has been completed for the project. It is anticipated that an aggressive construction schedule could have the facility in operation in November or December of 1997. Until that time all of the gas produced will be flared.

Metro retained the firm of Eco Northwest to review the proposal by Portland LFG. They concluded that the \$0.25 payment to Metro for the gas sold to Ash Grove is "competitive." They also concluded that the offer is structured in a way that gives Portland LFG "a strong incentive to maximize their use of tax credits by selling as much gas as possible to Ash Grove." The report further states that Palmer Capital appears to



be a "reputable and technically skilled developer." The estimated annual payment under this contract to Metro will be about \$150,000 during the first year and decline to about \$50,000 in the final year of the agreement due to the decline in quantity of landfill gas.

This project will have significant environmental benefits. Over the life of the project the gas produced could replace an average of about 1.1 million cubic feet of natural gas used as fuel at the Ash Grove Cement Company. This project could reduce carbon dioxide emissions in the Portland airshed by 23,300 metric tons per year. This is about the same impact on greenhouse gas emissions as removing 3,300 automobiles from the road or planting 7,100 acres of trees. This project furthers the goals of both local and national initiatives for reducing carbon dioxide emissions. The Federal Government provides a number of incentives to develop alternative energy resources such as landfill gas in addition to the tax credits which will be utilized on this project.

### BUDGET IMPACT

The following table shows the anticipated revenue from the sale of the rights to the landfill gas. As discussed earlier the revenues vary from an estimated \$150,000 in the initial year of operation to \$50,000 per year in the final year of the contract. Staff recommends that all revenues from this project be credited to the St. Johns Closure Account to offset future operation and maintenance costs.

**Table 2**  
*Preliminary Estimate of Income*  
*St. Johns Landfill Gas Project*

<i>Year</i>	<i>Energy MMBTU</i>	<i>Metro Net on All Gas Rate</i>	<i>Payment</i>	<i>Net on Additional Sales Rate</i>	<i>Payment</i>	<i>Total</i>
1996	1,015,540					
1997	889,069	\$0.100	\$66,680	\$0.150	\$12,525	\$79,205
1998	778,349	\$0.103	\$77,835	\$0.155	\$77,250	\$155,085
1999	681,418	\$0.106	\$68,142	\$0.159	\$79,568	\$147,709
2000	596,557	\$0.109	\$59,656	\$0.164	\$81,955	\$141,610
2001	522,265	\$0.113	\$52,227	\$0.169	\$84,413	\$136,640
2002	457,225	\$0.116	\$45,722	\$0.174	\$79,507	\$125,230
2003	400,284	\$0.119	\$40,028	\$0.179	\$71,694	\$111,723
2004	350,435	\$0.123	\$35,044	\$0.184	\$64,649	\$99,692
2005	306,794	\$0.127	\$30,679	\$0.190	\$58,296	\$88,975
2006	268,587	\$0.130	\$26,859	\$0.196	\$52,567	\$79,426
2007	235,139	\$0.134	\$23,514	\$0.202	\$47,401	\$70,915
2008	205,856	\$0.138	\$20,586	\$0.208	\$42,743	\$63,329
2009	180,219	\$0.143	\$18,022	\$0.214	\$38,542	\$56,565
2010	157,776	\$0.147	\$15,778	\$0.220	\$34,755	\$50,533
<b>Totals</b>			<b>\$580,771</b>		<b>\$825,864</b>	<b>\$1,406,637</b>

**Assumptions:**

1. Ash Grove Cement uses 500,000 MMBTU per year
2. Inflation Rate is 3% per year.
3. Contracts executed in April 1997 with sales to Ash Grove beginning in November 1997.

The total revenue to Metro is estimated to be approximately \$1.4 million over the life of the contract. This is substantially greater than the estimated income if Metro were to build and operate the facilities. The agreement will also result in repayment of about \$80,000 previously spent by Metro. Payments received under these agreements will significantly offset the cost of operating the landfill gas system.

**EXECUTIVE OFFICER RECOMMENDATION**

The Executive Officer recommends approval of Resolution No. 97-2494.

PE:clk  
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