



**WM Renewable Energy, L.L.C.**  
1001 Fannin, Suite 4000  
Houston, TX 77002

February 11, 2009

State of Rhode Island Public Utilities Commission  
Attn: Renewable Energy Resources Eligibility  
89 Jefferson Boulevard  
Warwick, RI 02888

RE: Renewable Energy Resources Eligibility Form – Fitchburg  
(Landfill Gas-to-Energy)

Dear Rhode Island PUC:

Please find the enclosed WM Renewable Energy, L.L.C. (“WMRE”) Renewable Energy Resources Eligibility Form Pursuant to the Renewable Energy Act Section 39-26-1 et. Seq. of the General Laws of Rhode Island for the Fitchburg landfill located at Fitchburg Road Route 31, Westminster, MA 01473, with a GIS Identification Number MSS-14098.

Fitchburg total rated capacity is 4.8 Megawatts (“MW”). Fitchburg began in and/or around September 2, 2007, with a rated capacity of 3.2 MW’s, which included two Caterpillar 3520 engines. In January 2009, WMRE added one (1) additional Caterpillar 3520 reciprocating engine.

If you should have any questions regarding the following, please contact me.

Sincerely,

A handwritten signature in black ink that reads 'Paul Pabor'.

Paul Pabor, Vice President  
WM Renewable Energy, L.L.C.  
(713) 328-7345 (direct)  
(713) 287-2423 (fax)  
ppabor@wm.com

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## SECTION I: Identification Information

- 1.1 Name of Generation Unit (sufficient for full and unique identification):  
Fitchburg Landfill
- 1.2 Type of Certification being requested (check one):  
 Standard Certification     Prospective Certification (Declaratory Judgment)
- 1.3 This Application includes: (Check all that apply)<sup>1</sup>
- APPENDIX A: Authorized Representative Certification for Individual Owner or Operator
  - APPENDIX B: Authorized Representative Certification for Non-Corporate Entities Other Than Individuals
  - APPENDIX C: Existing Renewable Energy Resources
  - APPENDIX D: Special Provisions for Aggregators of Customer-sited or Off-grid Generation Facilities
  - APPENDIX E: Special Provisions for a Generation Unit Located in a Control Area Adjacent to NEPOOL
  - (X) APPENDIX F: Fuel Source Plan for Eligible Biomass Fuels
- 1.4 Primary Contact Person name and title: LaToya Glenn, Contract Manager
- 1.5 Primary Contact Person address and contact information:  
Address: 1001 Fannin, Ste. 4000, Houston, Texas 77002  
Phone: 713-328-7357                      Fax: 713-287-2423  
Email: lglen@wm.com
- 1.6 Backup Contact Person name and title: David Unger, Marketing Director
- 
- 1.7 Backup Contact Person address and contact information:  
Address: 1001 Fannin, Ste. 4000, Houston, Texas 77  
Phone: 713-328-7457                      Fax: 713-287-2423  
Email: Dunger@wm.com
- 1.8 Name and Title of Authorized Representative (*i.e.*, the individual responsible for certifying the accuracy of all information contained in this form and associated appendices, and whose signature will appear on the application):  
Paul Pabor , Vice President
- 

<sup>1</sup> Please note that all Applicants are required to complete the Renewable Energy Resources Eligibility Standard Application Form and all of the Appendices that apply to the Generation Unit or Owner or Operator that is the subject of this Form. Please omit Appendices that do not apply.

Appendix A or B (as appropriate) completed and attached?  Yes  No x N/A

1.9 Authorized Representative address and contact information:

Address: 1001 Fannin, Ste. 4000, Houston, Texas 77002

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Phone: 713-328-7345 Fax: 713-287-2423

Email: ppabor@wm.com

1.10 Owner name and title: WM Renewable Energy, L.L.C.

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1.11 Owner address and contact information:

Address: 1001 Fannin, Ste. 4000, Houston, Texas 77002

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Phone: 713-328-7345 Fax: 713-287-2423

Email: ppabor@wm.com

1.12 Owner business organization type (check one):

- Individual
- Partnership
- Corporation
- (X) Other: Limited Liability Corporation

1.13 Operator name and title: WM Renewable Energy, L.L.C.

1.14 Operator address and contact information:

Address: 1001 Fannin, Ste. 4000, Houston, Texas 77002

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Phone: 713-328-7345 Fax: 713-287-2423

Email: ppabor@wm.com

1.15 Operator business organization type (check one):

- Individual
- Partnership
- Corporation
- (X) Other: Limited Liability Corporation

**SECTION II: Generation Unit Information, Fuels, Energy Resources and Technologies**

2.1 ISO-NE Generation Unit Asset Identification Number or NEPOOL GIS Identification Number (either or both as applicable): GIS - 14098

2.2 Generation Unit Nameplate Capacity: 1.6 MW @ 3 Units

2.3 Maximum Demonstrated Capacity: 4.8 MW

2.4 Please indicate which of the following Eligible Renewable Energy Resources are used by the Generation Unit: (Check ALL that apply) – *per RES Regulations Section 5.0*

Direct solar radiation

The wind

Movement of or the latent heat of the ocean

The heat of the earth

Small hydro facilities

Biomass facilities using Eligible Biomass Fuels and maintaining compliance with all aspects of current air permits; Eligible Biomass Fuels may be co-fired with fossil fuels, provided that only the renewable energy fraction of production from multi-fuel facilities shall be considered eligible.

Biomass facilities using unlisted biomass fuel

Biomass facilities, multi-fueled or using fossil fuel co-firing

Fuel cells using a renewable resource referenced in this section

2.5 If the box checked in Section 2.4 above is “Small hydro facilities”, please certify that the facility’s aggregate capacity does not exceed 30 MW. – *per RES Regulations Section 3.31*

← check this box to certify that the above statement is true

N/A or other (please explain) \_\_\_\_\_

2.6 If the box checked in Section 2.4 above is “Small hydro facilities”, please certify that the facility does not involve any new impoundment or diversion of water with an average salinity of twenty (20) parts per thousand or less. – *per RES Regulations Section 3.31*

← check this box to certify that the above statement is true

N/A or other (please explain) \_\_\_\_\_

2.7 If you checked one of the Biomass facilities boxes in Section 2.1 above, please respond to the following:

A. Please specify the fuel or fuels used or to be used in the Unit: Landfill Methane Gas

B. Please complete and attach Appendix F, Eligible Biomass Fuel Source Plan.

Appendix F completed and attached?

Yes  No  N/A

2.8 Has the Generation Unit been certified as a Renewable Energy Resource for eligibility in another state's renewable portfolio standard?

(X) Yes  No If yes, please attach a copy of that state's certifying order.

Copy of State's certifying order attached?  Yes  No  N/A

### SECTION III: Commercial Operation Date

Please provide documentation to support all claims and responses to the following questions:

3.1 Date Generation Unit first entered Commercial Operation: 09 / \_\_02\_ / \_\_07 \_\_ at the site.

3.2 Is there an Existing Renewable Energy Resource located at the site of Generation Unit?

Yes  
 (X) No

3.3 If the date entered in response to question 3.1 is earlier than December 31, 1997 or if you checked "Yes" in response to question 3.2 above, please complete Appendix C.

Appendix C completed and attached?  Yes  No  N/A

3.4 Was all or any part of the Generation Unit used on or before December 31, 1997 to generate electricity at any other site?

Yes  
 (X) No

3.5 If you checked "Yes" to question 3.4 above, please specify the power production equipment used and the address where such power production equipment produced electricity (attach more detail if the space provided is not sufficient):

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### SECTION IV: Metering

4.1 Please indicate how the Generation Unit's electrical energy output is verified (check all that apply):

- (X) ISO-NE Market Settlement System
- Self-reported to the NEPOOL GIS Administrator
- Other (please specify below and see Appendix D: Eligibility for Aggregations):

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Appendix D completed and attached?  Yes  No  N/A

**SECTION V: Location**

5.1 Please check one of the following that apply to the Generation Unit:

- (X) Grid Connected Generation
- Off-Grid Generation (not connected to a utility transmission or distribution system)
- Customer Sited Generation (interconnected on the end-use customer side of the retail electricity meter in such a manner that it displaces all or part of the metered consumption of the end-use customer)

5.2 Generation Unit address: Fitchburg Road Route 31, Westminster, MA 01473

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5.3 Please provide the Generation Unit’s geographic location information:

A. Universal Transverse Mercator Coordinates: \_\_\_\_\_

B. Longitude/Latitude: 43.05 14.95N, 72.00’07.48W

5.4 The Generation Unit located: (please check the appropriate box)

- (X) In the NEPOOL control area
- In a control area adjacent to the NEPOOL control area
- In a control area other than NEPOOL which is not adjacent to the NEPOOL control area ← *If you checked this box, then the generator does not qualify for the RI RES – therefore, please do not complete/submit this form.*

5.5 If you checked “In a control area adjacent to the NEPOOL control area” in Section 5.4 above, please complete Appendix E.

Appendix E completed and attached?                      Yes     No (X)     N/A

SECTION VI: Certification

6.1 Please attach documentation, using one of the applicable forms below, demonstrating the authority of the Authorized Representative indicated in Section 1.8 to certify and submit this Application.

**Corporations**

If the Owner or Operator is a corporation, the Authorized Representative shall provide **either**:

- (a) Evidence of a board of directors vote granting authority to the Authorized Representative to execute the Renewable Energy Resources Eligibility Form, **or**
- (b) A certification from the Corporate Clerk or Secretary of the Corporation that the Authorized Representative is authorized to execute the Renewable Energy Resources Eligibility Form or is otherwise authorized to legally bind the corporation in like matters.

Evidence of Board Vote provided?  Yes  No  N/A

Corporate Certification provided?  Yes  No  N/A

**Individuals**

If the Owner or Operator is an individual, that individual shall complete and attach APPENDIX A, or a similar form of certification from the Owner or Operator, duly notarized, that certifies that the Authorized Representative has authority to execute the Renewable Energy Resources Eligibility Form.

Appendix A completed and attached?  Yes  No  N/A

**Non-Corporate Entities**

(Proprietorships, Partnerships, Cooperatives, etc.) If the Owner or Operator is not an individual or a corporation, it shall complete and attach APPENDIX B or execute a resolution indicating that the Authorized Representative named in Section 1.8 has authority to execute the Renewable Energy Resources Eligibility Form or to otherwise legally bind the non-corporate entity in like matters.

Appendix B completed and attached?  Yes  No  N/A

6.2 Authorized Representative Certification and Signature:

I hereby certify, under pains and penalties of perjury, that I have personally examined and am familiar with the information submitted herein and based upon my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties, both civil and criminal, for submitting false information, including possible fines and punishment. My signature below certifies all information submitted on this Renewable Energy Resources Eligibility Form. The Renewable Energy Resources Eligibility Form includes the Standard Application Form and all required Appendices and attachments. I acknowledge that the Generation Unit is obligated to and will notify the Commission promptly in the event of a change in a generator's eligibility status (including, without limitation, the status of the air permits) and that when and if, in the Commission's opinion, after due consideration, there is a material change in the characteristics of a Generation Unit or its fuel stream that could alter its eligibility, such Generation Unit must be re-certified in accordance with Section 9.0 of the RES Regulations. I further acknowledge that the Generation Unit is obligated to and will file such quarterly or other reports as required by the Regulations and the Commission in its certification order. I understand that the Generation Unit will be immediately de-certified if it fails to file such reports.

Signature of Authorized Representative:

SIGNATURE:

Paul Poley

DATE:

2/11/09

Vice President

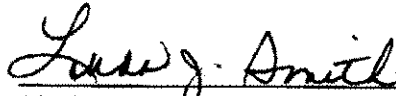
(Title)



**CERTIFICATE**

The undersigned, Linda J. Smith, Secretary of WM Renewable Energy, L.L.C., a Delaware limited liability company (the "Company"), does hereby certify that Paul A. Pabor holds the position of Vice President of Renewable Energy of the Company and that in such capacity he is authorized, in accordance with appropriate corporate policies and procedures, to execute and deliver documents on behalf of the Company.

Executed in Houston, Texas this 4th day of February 2008.

A handwritten signature in cursive script that reads "Linda J. Smith". The signature is written in black ink and is positioned above a horizontal line.

Linda J. Smith  
Secretary

**APPENDIX F**  
**Eligible Biomass Fuel Source Plan**  
**(Required of all Applicants Proposing to Use An Eligible Biomass Fuel)**

**STATE OF RHODE ISLAND PUBLIC UTILITIES COMMISSION**  
**Part of Application for Certificate of Eligibility**  
**RENEWABLE ENERGY RESOURCES ELIGIBILITY FORM**  
**Pursuant to the Renewable Energy Act**  
**Section 39-26-1 et. sq. of the General Laws of Rhode Island**

**Note to Applicants:** Please refer to the RES Certification Filing Methodology Guide posted on the Commission's web site ([www.ripuc.org/utilityinfo/res.html](http://www.ripuc.org/utilityinfo/res.html)) for information, templates and suggestions regarding the types and levels of detail appropriate for responses to specific application items requested below. Also, please see Section 6.9 of the RES Regulations for additional details on specific requirements.

The phrase "Eligible Biomass Fuel" (per RES Regulations Section 3.6) means fuel sources including brush, stumps, lumber ends and trimmings, wood pallets, bark, wood chips, shavings, slash, yard trimmings, site clearing waste, wood packaging, and other clean wood that is not mixed with other unsorted solid wastes<sup>5</sup>; agricultural waste, food and vegetative material; energy crops; landfill methane<sup>6</sup> or biogas<sup>7</sup>, provided that such gas is collected and conveyed directly to the Generation Unit without use of facilities used as common carriers of natural gas; or neat bio-diesel and other neat liquid fuels that are derived from such fuel sources.

In determining if an Eligible Biomass Generation Unit shall be certified, the Commission will consider if the fuel source plan can reasonably be expected to ensure that only Eligible Biomass Fuels will be used, and in the case of co-firing ensure that only that proportion of generation attributable to an Eligible Biomass Fuel be eligible. Certification will not be granted to those Generation Units with fuel source plans the Commission deems inadequate for these purposes.

This Appendix must be attached to the front of Applicant's Fuel Source Plan required for Generating Units proposing to use an Eligible Biomass Fuel (per Section 6.9 of RES Regulations).

<sup>5</sup> Generation Units using wood sources other than those listed above may make application, as part of the required fuel source plan described in Section 6.9 of the RES Regulations, for the Commission to approve a particular wood source as "clean wood." The burden will be on the applicant to demonstrate that the wood source is at least as clean as those listed in the legislation. Wood sources containing resins, glues, laminates, paints, preservatives, or other treatments that would combust or off-gas, or mixed with any other material that would burn, melt, or create other residue aside from wood ash, will not be approved as clean wood.

<sup>6</sup> Landfill gas, which is an Eligible Biomass Fuel, means only that gas recovered from inside a landfill and resulting from the natural decomposition of waste, and that would otherwise be vented or flared as part of the landfill's normal operation if not used as a fuel source.

<sup>7</sup> Gas resulting from the anaerobic digestion of sewage or manure is considered to be a type of biogas, and therefore an Eligible Biomass Fuel that has been fully separated from the waste stream.

F.1 The attached Fuel Source Plan includes a detailed description of the type of Eligible Biomass Fuel to be used at the Generation Unit.

Detailed description attached?  Yes  No  N/A

Comments: \_\_\_\_\_  
\_\_\_\_\_

F.2 If the proposed fuel is "other clean wood," the Fuel Source Plan should include any further substantiation to demonstrate why the fuel source should be considered as clean as those clean wood sources listed in the legislation.

Further substantiation attached?  Yes  No  N/A

Comments: \_\_\_\_\_  
\_\_\_\_\_

F.3 In the case of co-firing with ineligible fuels, the Fuel Source Plan must include a description of (a) how such co-firing will occur; (b) how the relative amounts of Eligible Biomass Fuel and ineligible fuel will be measured; and (c) how the eligible portion of generation output will be calculated. Such calculations shall be based on the energy content of all of the proposed fuels used.

Description attached?  Yes  No  N/A

Comments: \_\_\_\_\_  
\_\_\_\_\_

F.4 The Fuel Source Plan must provide a description of what measures will be taken to ensure that only the Eligible Biomass Fuel are used, examples of which may include: standard operating protocols or procedures that will be implemented at the Generation Unit, contracts with fuel suppliers, testing or sampling regimes.

Description provided?  Yes  No  N/A

Comments: \_\_\_\_\_  
\_\_\_\_\_

F.5 Please include in the Fuel Source Plan an acknowledgement that the fuels stored at or brought to the Generation Unit will only be either Eligible Biomass Fuels or fossil fuels used for co-firing and that Biomass Fuels not deemed eligible will not be allowed at the premises of the certified Generation Unit. And please check the following box to certify that this statement is true.

check this box to certify that the above statement is true

N/A or other (please explain) the following is not applicable because the methane process used is not stored and will not be utilized by co-firing

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F.6 If the proposed fuel includes recycled wood waste, please submit documentation that such fuel meets the definition of Eligible Biomass Fuel and also meets material separation, storage, or handling standards acceptable to the Commission and furthermore consistent with the RES Regulations.

Documentation attached?  Yes  No  N/A

Comments: \_\_\_\_\_  
\_\_\_\_\_

F.7 Please certify that you will file all reports and other information necessary to enable the Commission to verify the on-going eligibility of the renewable energy generators pursuant to Section 6.3 of the RES Regulations.

← check this box to certify that the above statement is true

N/A or other (please explain) \_\_\_\_\_  
\_\_\_\_\_

F.8 Please attach a copy of the Generation Unit's Valid Air Permit or equivalent authorization.

Valid Air Permit or equivalent attached?  Yes  No  N/A

Comments: \_\_\_\_\_  
\_\_\_\_\_

F.9 Effective date of Valid Air Permit or equivalent authorization: 08/02/05

F.10 State or jurisdiction issuing Valid Air Permit or equivalent authorization: Massachusetts



**WM Renewable Energy, L.L.C.**  
1001 Fannin, Suite 4000  
Houston, TX 77002

**APPENDIX F**  
Fitchburg Landfill  
Fuel Source Plan Attachment

(F.1) - The eligible Biomass Fuel that will be used by WM Renewable Energy, L.L.C. (hereinafter "WMRE"), will be landfill methane gas.

Each landfill methane gas facility operated by WMRE is a wholly owned subsidiary of Waste Management, Inc. Each landfill methane gas facility is situated on land owned by Waste Management, Inc., allowing WMRE to own exclusive rights to the landfill gas generated at the landfill. The generation will produce a constant rate flow in excess of 20 years of fuel from the landfill waste. The facility will run exclusively off the landfill gas.

(F.2) – N/A

(F.3) – N/A

(F.4) - The following standard operating protocol measures will be taken to ensure that only the eligible landfill methane gas will be used.

Landfill methane gas will be recovered via a series of wells drilled into the landfill. The wells will then be connected by a common pipe system that will collect the methane gas and transport it to a nearby compression facility. At the compression facility, the landfill methane gas will then be de-watered, filtered and pressurized; and transported to the generation unit where no other ineligible Biomass Fuel(s) will be allowed to turn engines or turbines to generate renewable electricity.

(F.5) – N/A, Methane gas process used is not stored and will not be utilized for a co-firing method

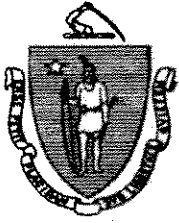
(F.6) – N/A

(F.7) – WMRE certify that we will file all reports and other information necessary to enable the Commission to verify the on-going eligibility of renewable energy generators pursuant to §6.3 of the RES Regulations.

(F.8) – See attached Air Permit

(F.9) – 08/02/05

(F.10) – State of Massachusetts



RECEIVED JAN 24 2006  
COMMONWEALTH OF MASSACHUSETTS  
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
Central Regional Office, 627 Main Street, Worcester, MA 01608

MITT ROMNEY  
Governor

STEPHEN R. PRITCHARD  
Secretary

KERRY HEALEY  
Lieutenant Governor

ROBERT W. GOLLEDGE, Jr.  
Commissioner

January 13, 2006

Resource Control, Inc  
C/o Waste Management of Massachusetts  
Fitchburg/Westminster Sanitary Landfill  
4 Liberty Lane West  
Hampton, NH 03842

Attention: Robert Magnusson,  
Market Area Engineer

Re: **First Amendment to Air Plan Approval BWPAQ 02 - Tr # W061954**  
Installation and operation of a landfill gas to energy project @ Fitchburg/Westminster Sanitary Landfill  
FMF #: 133373 SSEIS # 118 - 0329 CLASS: OP3

Dear Mr. Magnusson:

The Department of Environmental Protection, Bureau of Waste Prevention, Permitting Section, ("the Department") has reviewed the proposed changes to the Non Major Comprehensive Plan Approval ("NMCPA") TR# W061954 for a landfill gas to energy project at Fitchburg Road (State Route 31) located in the Town of Westminster, Massachusetts. The Department hereby Approves the proposed changes as noted herein.

This **AMENDED APPROVAL** updates the project description, the short-term emission limits, reflects changes in engine size and number and changes certain special conditions. This approval replaces in its entirety the Department issued Air Pollution Control Plan Approval dated August 2, 2005, TR# W061954.

The Fitchburg Landfill Gas Utilization Project consists of a landfill gas ("LFG") treatment system designed to extract and treat LFG from an LFG collection system. The LFG will be used to support the operation of an engine-generator set complex and is designed to combust up to 80.5 MMBtu per hour (HHV) of LFG to produce 7.2 MW of electric power. A flare will be in place and used to combust LFG when the engine complex is not in operation.

The Department is of the opinion that the material submitted is in conformance with the current Massachusetts Air Pollution Control Regulations and hereby APPROVES the application subject to the conditions and provisions stated below. This approval is limited to the applicable air pollution control regulations and does not constitute approval as may be required by other Department regulations or statutes in order for the above mentioned facility to be installed and operated. This approval provides

This information is available in alternate format. Call Donald M. Gomes, ADA Coordinator at 617-556-1057.

<http://www.mass.gov/dep> • Phone (508) 792-7850 • Fax (508) 792-7821 • TDD # (508) 787-2788

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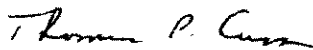
information on the project description, emission limitations, restrictions, specific conditions, record keeping, reporting and testing requirements.

The Department has determined that the filing of an Environmental Notification Form (ENF) with the Secretary of Environmental Affairs, for air quality control purposes, was not required prior to this action by the Department. Notwithstanding this determination, the Massachusetts Environmental Policy Act (MEPA) and Regulation 301 CMR 11.00, Section 11.04, provide certain "Fail-Safe Provisions" which allow the Secretary to require the filing of an ENF and/or an Environmental Impact Report at a later time.

This Decision is an action of the Department. If you are aggrieved by this action, you may request an adjudicatory hearing. A request for a hearing must be made in writing and postmarked within twenty-one (21) days of the date of issuance of this Decision. Under 310 CMR 1.01(6)(b), the request must state clearly and concisely the facts, which are the grounds for the request, and the relief sought. Additionally, the request must state why the Decision is not consistent with applicable laws and regulations.

The hearing request along with a valid check payable to Commonwealth of Massachusetts in the amount of one hundred dollars (\$100.00) must be mailed to: Commonwealth of Massachusetts, Department of Environmental Protection, P. O. Box 4062, Boston, MA 02211. The request will be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver. The filing fee is not required if the appellant is a city or town (or municipal agency) county, or district of the Commonwealth of Massachusetts, or a municipal housing authority. The Department may waive the adjudicatory hearing-filing fee for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file, together with the hearing request as provided above, an affidavit setting forth the facts believed to support the claim of undue financial hardship.

Yours truly,



Thomas P. Cusson  
Section Chief  
Bureau of Waste Prevention

ecc: Yi Tian-DEP BWP Boston  
James Belsky, DEP-BWP-NERO  
John Winkler, DEP-BWP-SERO  
Craig Goff, DEP-BPW-WERO  
John Regan, DEP- BWP/SW- CERO

**AIR POLLUTION CONTROL -Non Major Comprehensive Plan Approval**  
**TR# W061954**  
**Landfill Gas to Energy Project - (including existing Flare plan approval modification)**  
**at the Fitchburg/Westminster Landfill**  
**Westminster, Massachusetts**

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I. HISTORY

Resource Control, Inc ("the Permittee") operates the Fitchburg/Westminster landfill ("the Landfill") located in Westminster, MA. The Landfill consists of active and inactive portions. Landfill gas ("LFG") collected from inactive portions of the Landfill, primarily Section 1 and some of Section 2, is routed to either a local electric power plant (currently Pinetree Power) as primary end user or a currently approved open flare (as back-up), which flare is owned and operated by NEO Fitchburg LLC. Currently the facility is a non-major source of air emissions. The Permittee is operating active portions of the landfill and is expanding its operations into Section 3 of the Landfill. The Permittee installed a new gas collection system in areas of Section 2 and will expand the gas collection system into Section 3 of the Landfill (the RCI LFG Collection System). This new system directs landfill gas to an open flare approved July 15, 2003 TR# W033831 ("the Flare"). The Flare commenced operation in December 2003 to control emissions from portions of the operating landfill and the new expansion.

As a New Source Performance Standards ("NSPS") size landfill the Permittee holds an Operating Permit Tr#W022122. The Permittee conducts an annual review required under the NSPS for landfills to determine if the NSPS requirements are applicable to the Landfill. As of the date of this plan approval the annual review has demonstrated that although the NSPS applies to the Landfill due to its size, NMOC have not yet reached the 50 mega-gram ("MG") per year that would trigger the requirements of the NSPS. TR# W033831 plan approval conditions specified that within 30 months of the Landfill exceeding the 50



MG per year threshold the Permittee would install a landfill gas recovery project or enclosed flare. The existing flare ("Tr # W033831") would then be used as a back up control device. On August 2, 2005 the Department issued Air Pollution Control Plan Approval TR# W061954 for an LFG to energy project at the landfill. That approval (Tr# W061954") satisfied the requirement for energy recovery in advance of the 50 mg threshold condition occurring. As previously noted this amended approval replaces the August 2, 2005 plan approval.

## II. PROJECT DESCRIPTION

The approved project consists of installing and operating a landfill gas treatment system designed to extract and treat LFG from an LFG collection system. The LFG treatment system will include a Hydrogen Sulfide ("H<sub>2</sub>S") removal system and up to five reciprocating engine-generator sets ("the Engines") and ancillaries housed in a building designed to combust up to 80.5 million BTU per hour ("MMBtu") of LFG (based upon the higher heating value) to produce 7.2 megawatts ("MW") of electric power. The Flare shall be maintained for back-up combustion of treated LFG. LFG generation is expected to increase as this active landfill is filled up. As such the five engines will not be installed all at once. Installation is planned to occur in concurrence with the increase in LFG generation. Engine installation is projected to occur over a period of eight years with two engines installed in 2006, one in 2007, one in 2008, and one in 2013. Though not part of this projects plan approval untreated LFG may also be diverted to the Pinetree Power Electric generation plant as noted in previous plan approvals for the landfill.

### A. FACILITY SITE DESCRIPTION

The Facility will be installed on the property owned by the Permittee at the site of the Landfill within the Town of Westminster. The Facility will be located adjacent to the Landfill access road, north of Section 1 of the Landfill and to the west by a State Forest. The Facility site consists of approximately 2.5 to 3.0 acres of usable land. The site is bordered to the North, east and west by woods, and the south by the Landfill. The site is entirely outside the footprint of waste disposal areas. The nearest residential dwellings are approximately 3,200 feet to the southwest and north of the site. The nearest on-site structures include a trailer office and maintenance garage to support operation of the Landfill. The Facility site is immediately adjacent to the existing 24-inch diameter header that collects LFG from the RCI LFG Collection System. The header is connected to the Flare that is located on the site.

### B. LFG TREATMENT SYSTEM

1. The LFG Treatment System will consist of LFG treatment, conditioning, monitoring and gas moving equipment and interconnections with the Engines and the Flare. The LFG Treatment System will apply vacuum to the point of interconnections with the RCI LFG Collection System, process to remove condensate and other contaminants in preparation for combustion of the LFG in the Engines and direct excess LFG to the Flare for combustion. In addition the LFG Treatment System will compress, control the temperature and filter the LFG to meet the input conditions required by the Engines. The LFG directed to the Flare will only be required to go through the portion of the LFG Treatment System that removes hydrogen sulfide.

2. The LFG Treatment System will consist of the following components: interconnections to the existing equipment at the flare, a primary knockout box to remove condensate for the LFG, a vacuum blower/compressor to extract LFG from the LFG Collection System, a gas-to-gas heat exchanger followed

by air-cooled heat exchanger to cool LFG, a coalescing filter to remove Particulate Matter and condensate, a gas-to-gas heat exchanger to reheat the LFG and a sulfur removal system to remove elevated concentrations of hydrogen sulfide contained in LFG.

**C. RECIPROCATING INTERNAL COMBUSTION ENGINES**

The Facility will include five (5) engine generator sets referred herein as Emission Units ("EU") #1 through #5 for combusting the LFG and generating electricity. LFG delivered by the LFG Treatment System will be mixed with air, and then injected into the reciprocating internal combustion engines for combustion. The Engines will be cooled by a water jacket system with heat expelled to the atmosphere through air-cooled radiators. Each engine will produce shaft power to drive an electric generator that will generate electricity for in-house use and for delivery to the local power grid. The Engines will be spark-ignited turbo-charged lean-burn reciprocating internal combustion engines. The emissions from the Engines will be emitted through individual exhaust stacks equipped with exhaust silencers.

**III. EQUIPMENT UNIT IDENTIFICATION**

The specifications on EU #1 through EU #5 are presented in Table 1.

Table 1- Emission Unit Identification				
EU #	Manufacturer and Model Number	Maximum Heat Rate Per Emission Unit	Primary Fuel	Description
#1 #2 #3 #4 #5	Caterpillar Model No. 3520 SITA or equivalent	16.11 MMBtu/hr <sup>1</sup>	Landfill Gas	Maximum Flow Rate Per EU = 531 SCFM <sup>2</sup> of LFG at a methane content of 50% to generate 1,440 KW of power at full load.

<sup>1</sup> MMBtu/hr – Million British Thermal Units per hour

<sup>2</sup> SCFM - standard cubic feet per minute

Combined maximum energy input for the generator sets (EU#1,2,3,4,&5) are equivalent to 80.5 MMBtu/hr based upon a maximum flow of 2,656 SCFM of LFG at 50% Methane content to generate 7.2 MW of power at full load. The maximum LFG flow will increase proportionally to a decrease in methane content below 50%.

**IV. EMISSIONS**

The burning of landfill gas in the generator sets and flare will result in emissions being released to the ambient air of Particulate Matter ("PM"), Sulfur Dioxide ("SO<sub>2</sub>"), Nitrogen Oxides ("NO<sub>x</sub>"), Carbon Monoxide ("CO"), Volatile Organic Compounds ("VOC") and Non-Methane Organic Compounds

("NMOC's"). H<sub>2</sub>S and Hazardous Air Pollutants generated from the landfill and not removed by the LFG treatment system will be burned within the engine or flare. After combustion, emissions of H<sub>2</sub>S and Hazardous Air Pollutants from the engines and flare are expected to be negligible.

V. EMISSION LIMITS

A. Engines -Total

Total emissions from the five (5) engines combined (EU# 1,2,3,4 & 5 and the flare) shall not exceed the total emission limits as presented in Table 2.

Table 2 - Total Emission Limits	
Pollutant	Tons per 12 month rolling total for up to 5 engines and Flare
PM	18.1
SO <sub>2</sub>	19.5
NO <sub>x</sub>	49.4
CO	247.0
NMOC	24.7
VOC	24.7

<sup>1</sup> lb/MMBtu = pounds per million British thermal units

<sup>2</sup> MMBtu = Million British thermal units

B. Engines # 1 through # 4

EU #1, #2, #3, and #4 shall not operated in a manner that causes emissions that exceed the emission limits noted in Table 3.

Table 3 - Engine Emission Limits			
Pollutant	Lb/MMBtu	ton/month	Tons per rolling 12 month total per engine
PM	0.061	0.36	4.3
SO <sub>2</sub>	0.066	0.39	4.6
NO <sub>x</sub>	0.166 (and 0.60 grams per brake horsepower hour.)	0.99	11.7
CO	0.830	4.97	58.6
NMOC	0.083	0.50	5.9
VOC	0.083	0.50	5.9

C. Engine # 5

EU # 5 (or any one of EUs #1 through #4 installed after January 1, 2009) shall meet the then current emission limits recognized by the Department to be BACT as may be identified in Department regulation, Department written policy or most current plan approval for that size and type engine at the time of installation. In no case shall the emission limits be greater than those noted within this plan approval.

D. Stack emissions shall not exceed 0% opacity (no visible emissions) with the exception of up to five (5) minutes during startup. During startup visible emissions shall comply with the provisions of 310 CMR 7.06.

E. The Permittee shall ensure that noise levels from EU# 1 through EU# 5 during routine operations, including start ups and shut downs, shall not exceed the Department Noise Policy 90-001 and in no case shall cause a condition of air pollution as defined in Regulation 310 CMR 7.01 and 7.10.

VI. SPECIAL CONDITIONS

- A. Each emission unit shall be operated in a manner consistent with the manufacturers specified working procedures at all times the collected LFG is routed to the emission unit.
- B. The maximum heat input of LFG for the five engines combined shall not exceed 59,920 MMBtu per month.
- C. The maximum heat input of LFG for the five engines combined shall not exceed 705,477 MMBtu in any consecutive twelve-month period.
- D. The maximum heat input of LFG shall not exceed 11,983 MMBtu per month per engine.
- E. EU #1 through EU #5
  - 1. The primary fuel shall be LFG at a maximum rate of 16.11 MMBtu per hour per engine on a higher heating value (HHV) basis (which is equivalent to 531 SCFM at 50 % methane).
  - 2. Each engine shall reduce NMOC emissions by 98 percent by weight, or reduce the stack NMOC concentration to 20 parts per million as hexane by volume, dry basis at 3 percent oxygen, or less.
  - 3. EU# 1 through EU #5 shall each be equipped with an exhaust silencer that ensures noise from the generators will not cause or contribute to a condition of air pollution.
  - 4. The building shall consist of an appropriate foundation, four walls and a roof. The walls and roof shall be made of solid material such as wood, metal, brick or concrete.
  - 5. All doors on the access and exit passageways shall be kept closed at all times that they are not in use.
  - 6. The walls, roof, doors & windows and any ventilation openings for the building shall be acoustically treated as necessary to ensure compliance with the Air Pollution control regulations 310 CMR 7.10 and the Department's noise policy 90-01.
  - 7. The exhaust stack attached to each engine shall meet the specifications presented in Table 4.

Table 4-Exhaust Stack Specifications					
EU #	Stack Diameter	Stack Height for each unit	Material Type	Stack Velocity	Stack Temperature
#1 #2 #3 #4 #5	16-inches	A minimum of 19 Feet above grade and a minimum 10 feet above the roof of the engine building	Steel	178 Feet per Second	960 ° F

F. Flare

1. The Permittee shall comply with the emission limits and conditions presented in the Non-Major Comprehensive Plan Approval document (Transmittal No. W033831 dated July 15, 2003), except as modified herein, for the open landfill gas flare to control emissions from portions of the operating landfill and the new expansion. This approval modifies the Flare permit to reflect the addition of the LFG treatment system that includes hydrogen sulfide removal upstream of the Flare.
2. The Flare will continue to be used as a back up to the engine system to destroy LFG.
3. After installation of the LFG treatment system the emission limit for SO<sub>2</sub> from the flare shall be 0.066 lbs per MMBtu and 18.9 ton per year.
4. After December 31, 2006 LFG may only be burned in the flare after it has been treated to remove H<sub>2</sub>S concentration levels in the LFG to at or below 200 ppm.

G. SulfaTreat or Equivalent for Hydrogen Sulfide Removal

1. The control device shall be manufactured by Sulfa Treat, model No. ST-410HP-10'-22' -88,000lb or equivalent and shall be designed to handle at least 2,660 SCFM of LFG with a pressure drop across the unit between 0.7 and 1.7 psig. The unit shall be a non-regenerative system consisting of iron oxide coated ceramic, 4 to 16 mesh and will have a removal efficiency necessary to reduce outlet hydrogen sulfide treatment to 200 PPMV in landfill gas at 50% methane. The media in the adsorber will be replaced when the exit levels of hydrogen sulfide reaches 200 PPMV. The contaminated regenerative media will be disposed at the Fitchburg/Westminster landfill.
2. Sulfa Treat shall reduce LFG H<sub>2</sub>S concentration to 200 ppmv in LFG at 50-percent methane prior to combustion in the Engines and Flare.
3. H<sub>2</sub>S concentration (ppmv) at the inlet and outlet of the Sulfa Treat air pollution control shall be tested/monitored every two (2) weeks and a record of the H<sub>2</sub>S shall be maintained on-site. The Department will consider changing the frequency of the testing/monitoring for H<sub>2</sub>S based upon a petition supporting a change in frequency; a written Department approval will be required to change the frequency of testing/monitoring for H<sub>2</sub>S concentrations.
4. The Sulfa Treat H<sub>2</sub>S air pollution control equipment may be removed and/or retired in place provided LFG gas samples for 12 consecutive months are 200 ppmv or less.

VII. MONITORING REQUIREMENTS

- A. Each engine/generator set shall be continuously monitored for run time and kW produced.
- B. An LFG flow recorder shall be maintained so that an on-site record of the total volume of LFG fired by the five (5) engine/generator sets will be available by date and time period.
- C. One operable oxygen analyzer shall be maintained on-site and a record shall be maintained of the stack outlet oxygen levels at least once per week on each engine.
- D. Monitoring equipment or emission monitoring systems installed for the purpose of documenting compliance with this plan approval shall be installed, calibrated, maintained and operated by the Permittee in sufficient manner to ensure continuous and accurate operations at all times.

- E. The Permittee shall monitor the operations of the entire facility such that necessary information is available for the preparation of the Source Registration/Emission Statement Form as required by 310 CMR 7.12. The Permittee shall sample/test the heating value, in BTU/scf, of the landfill gas on a quarterly basis.
- F. The Permittee shall continuously monitor and record landfill gas flow using an LFG flow recorder.

#### VIII. TESTING REQUIREMENTS

- A. The facility shall be constructed to accommodate the emission testing requirements contained in 40 CFR Part 60 Appendix A.
- B. Emission Testing to demonstrate compliance with the Emission Limits specified in Table 3 shall be in accordance with EPA approved reference test methods unless otherwise approved by EPA and the Department or unless otherwise specified.
- C. In accordance with 310 CMR 7.13, the Department may require testing of any pollutants if deemed necessary to ascertain the mass emission rates and relationship to equipment design and operation. The Permittee shall conduct stack testing when the Department has determined that such stack testing is necessary to ascertain compliance with the Department's regulations or design approval provisions. Such stack testing shall be:
  - 1. conducted by a person knowledgeable in stack testing, and
  - 2. conducted in accordance with procedures contained in a test protocol which has been approved by the Department, and
  - 3. in the presence of a representative of the Department when such is deemed necessary in accordance with 310 CMR 7.13(1).
- D. The ability of the facility to maintain emission rates at or below the levels stated in this approval letter shall be demonstrated to the Department in the future if deemed necessary.
- E. Emission testing shall be performed to determine compliance with CO, NMOC and NO<sub>x</sub> emission limits contained in Section D (1), (5) and (6) herein. All emission testing shall be completed within 90 days from the date that each engine commences LFG burning after startup of the facility.

#### IX. RECORD KEEPING REQUIREMENTS

- A. The Permittee shall prepare and maintain sufficient records to demonstrate compliance with all Operation, Production and Emission Limits set forth in this Plan Approval. All records shall be maintained up-to-date such that year-to-date information is readily available for Department examination. Such records shall include, but are not limited to:
  - 1. The initiation and completion dates for the proposed construction/alteration;
  - 2. All malfunctions of EU1 – EU #5 including, at a minimum: the date and time the malfunction occurred; a description of the malfunction and the corrective action taken; the date and time corrective actions were initiated; and the date and time corrective actions were completed and the facility returned to compliance;
  - 3. All maintenance performed;

4. Initial opacity inspection;
  5. Weekly visual inspection;
  6. Heating value of landfill gas, as monitored quarterly;
  7. Volume of LFG (in scf) burned in each EU and the flare, on a monthly and twelve-month rolling basis; This record shall take into account the total volume of LFG fired by the five (5) EU's and flare and the individual EU set run time and amount of electricity produced.
  8. Monthly and twelve-month rolling total emissions of NO<sub>x</sub>, CO, NMOC, VOC, PM and SO<sub>2</sub> emitted.
- B. The heat input of LFG (Btu) fired in Unit Nos. 1 through 5, for each month and for each twelve-month rolling period records shall be maintained on-site. These heat input records may be generated by gas chromatograph and/or field measurements.
- C. All records shall be kept on site for five (5) years and shall be made available to the DEP upon request.
- D. All operating and monitoring records, including emission test reports, shall be maintained for the life of the facility; the five most recent years of data/records shall be maintained on-site.
- E. Pursuant to the authority granted to the Department at 310 CMR 7.02(7), the facility shall maintain a copy of this approval, and any subsequent modifications of this approval, on-site for as long as the approval is valid. The approval is valid until one of the following conditions occur: the equipment is dismantled or removed from the facility, the facility notifies the Department that the approval is no longer valid, the equipment is substantially reconstructed or altered and subject to 310 CMR 7.02, the approval is superceded by another approval, or the Department revokes the approval in accordance with 310 CMR 7.02(3)(k).
- F. The Permittee shall maintain a copy of the Standard Operating Procedure (SOP) and Standard Maintenance Procedure (SMP) for the flare in a readily available location for as long as this approval is valid. Updates or revisions to the SOP and SMP shall be submitted for Department approval prior to initiating the modification(s).
- G. Records of emissions testing conducted to demonstrate compliance with the applicable requirements in Tables 2 and 3 shall be in accordance with 310 CMR 7.13(1)(d).
- H. The Permittee shall maintain sufficient records of its operations and monitoring information for the preparation of a Source Registration/Emission Statement Form as required by 310 CMR 7.12.
- I. The Permittee shall keep copies of the Source Registration/Emission Statement Forms submitted to the Department as required per 310 CMR 7.12(1)(d).
- J. APPROVAL LETTER - Pursuant to the authority granted to the Department at 310 CMR 7.02(7), the facility shall maintain a copy of this approval, and any subsequent modifications of this approval, on-site for as long as the approval is valid. The approval is valid until one of the following conditions occur: the equipment is dismantled or removed from the facility, the facility notifies the Department that the approval is no longer valid, the equipment is substantially reconstructed or altered and subject to 310 CMR 7.02, the approval is superceded by another approval, or the Department revokes the approval in accordance with 310 CMR 7.02(3)(k).

- K. OPERATING AND MAINTENANCE PROCEDURES – The facility shall maintain a copy of the approved Standard Operating Procedure (SOP) and Standard Maintenance Procedure (SMP) on-site for as long as this approval is valid. Updates or revisions to the SOP and SMP shall be submitted for Department approval prior to initiating the modification(s).
- X. REPORTING REQUIREMENTS
- A. The Permittee shall notify the Department as soon as reasonably practical by telephone or fax after the occurrence of any upsets or malfunctions (i.e., any piece of equipment or device breakdown that causes an excess emission) and in writing within two (2) business days of such event.
- B. The Permittee shall summarize and submit to the Department the results of stack testing as prescribed in the Department's approved pretest protocol, stack testing that was determined by the Department to be necessary to ascertain compliance with the Department's regulations or design approval provisions in accordance with 310 CMR 7.13(1) and 310 CMR 7.13(2).
- C. Upon the Department's request, any records required by the applicable requirements identified in this permit, or the emissions of any air contaminant from the facility, shall be submitted to the Department within 30 days of the request by the Department, or within a longer time period if approved in writing by the Department. Said response shall be transmitted on paper, on computer disk, or electronically at the discretion of the Department.
- D. The Permittee shall submit a Source Registration/Emission Statement form to the Department on as required by 310 CMR 7.12.
- E. All required reports must be certified by a responsible official of the Permittee as provided in 310 CMR 7.01(2)(c).
- F. The Permittee shall notify the Department in writing 30 days prior to installation of EACH engine (Engine # 1 thru #5) identifying the date of installation, the manufacturer name, make, model, size and power rating in millions of Btu per hour of the engine and the engine emission rates for the PM, CO, NO<sub>x</sub>, VOC and SO<sub>2</sub> in lbs/MMBtu, lbs per hour and tpy.
- XI. GENERAL CONDITIONS
- A. OPERATION - Should there be any differences between Plan Application Transmittal No. W061954 and this approval letter, this approval letter shall govern. In addition, the Permittee shall operate the facility in accordance with existing permit/approvals and modifications, unless specifically stated otherwise herein.
- B. SUSPENSION - This approval may be suspended, modified, or revoked by the Department if, at any time, the Department determines that the facility is violating any condition or part of the approval.
- C. OTHER REGULATIONS - This approval does not negate the responsibility of the owner/operator to comply with this or any other applicable federal, state, or local regulations now or in the future. Nor does this approval imply compliance with any other applicable federal, state or local regulation now or in the future.



- D. EXISTING APPROVALS - All plan approvals issued under 310 CMR 7.02 prior to the effective date of this Approval shall continue to be in effect. The facility shall meet the emission rates and approved conditions specified in the applicable plan approval(s) unless specifically altered by this Approval.
- E. DUST AND ODOR - The facility shall be operated in a manner to prevent the occurrence of dust or odor conditions that cause or contribute to a condition of air pollution as defined in Regulation 310 CMR 7.01 and 7.09.
- F. ASBESTOS – Should asbestos remediation/removal be required such asbestos remediation/removal shall be done in accordance with Regulation 310 CMR 7.15.
- G. MODIFICATIONS – Notwithstanding 310 CMR 7.02(2)(c), any proposed increase in emissions above the limits contained in this Approval must first be approved in writing by the Department pursuant to 310 CMR 7.02. In addition, any increase may subject the facility to additional regulatory requirements.
- H. REMOVAL OF AIR POLLUTION CONTROL EQUIPMENT – Notwithstanding 310 CMR 7.02(2)(b), no person shall cause, suffer, allow, or permit the removal, alteration or shall otherwise render inoperative any air pollution control equipment or equipment used to monitor emissions which has been installed as a requirement of 310 CMR 7.00, other than for reasonable maintenance periods or unexpected and unavoidable failure of the equipment, provided that the Department has been notified of such failure, or in accordance with specific written approval of the Department.

List of Pertinent Information Transmittal # W061954

Application for A Non-major Comprehensive Plan Approval (BWP AQ 02) for a LFG to Energy Facility at the Fitchburg/Westminster Sanitary Landfill, Westminster, Massachusetts

Transmittal Number W 061954

Dated: May 2, 2005 as submitted by Resource Control, Inc. C/O Waste Management of Massachusetts, 4 Technology Drive, Westboro, Massachusetts 01608

November 23, 2005 letter submitted to Mr. Thomas P. Cusson from Thomas Yeransian of Commonwealth Resource Management Corporation.