



The State of New Hampshire  
**DEPARTMENT OF ENVIRONMENTAL SERVICES**



**Thomas S. Burack, Commissioner**

North Country Environmental Services, Inc.  
91 North State Street, Suite 202  
Concord, NH 03301

Re: 581 Trudeau Rd., Bethlehem, NH  
AFS #3300990255

**ADMINISTRATIVE ORDER  
BY CONSENT  
NO. ARD 07-005**

**A. INTRODUCTION**

This Administrative Order by Consent is issued by the Department of Environmental Services, Air Resources Division to, and with the consent of, North Country Environmental Services, Inc. pursuant to RSA 125-C:15. This Administrative Order by Consent ("Order") is effective upon signature by all parties.

**B. PARTIES**

1. The Department of Environmental Services, Air Resources Division ("DES"), is a duly-constituted administrative agency of the State of New Hampshire, having its principal office at 29 Hazen Drive, Concord, New Hampshire.
2. North Country Environmental Services, Inc. ("NCES") is a Virginia corporation with a principal office address of P.O. Box 866, Rutland, Vermont 05702.

**C. STATEMENTS OF FACTS AND LAW**

1. RSA 125-C authorizes DES to regulate sources of air pollution in New Hampshire.
2. NCES owns and operates a landfill ("NCES Landfill") in Bethlehem, New Hampshire.
3. Commonwealth Bethlehem Energy, LLC, a Delaware limited liability company ("CBE") with a principal office address of 199 Corey Street, Boston, Massachusetts, owns and operates an enclosed flare with liquid waste injection system ("Enclosed Flare") located at the NCES Landfill.
4. Pursuant to the Liquid Waste Services Agreement, dated March 1, 2000, between NCES and CBE ("the Liquid Waste Agreement"), NCES delivers liquid wastes produced from the NCES Landfill to CBE and CBE evaporates and destroys the liquid waste in the Enclosed Flare.
5. DES issued CBE a Temporary Permit, FP-T-0058 (the "Permit"), on November 3, 2000 for the Enclosed Flare.
6. CBE submitted an application to obtain a State Permit to Operate on February 15, 2002, more than 90 days prior to the expiration date of the Permit on May 31, 2002, thus allowing the continued operation of the Enclosed Flare pursuant to Env-A 608.12(a).

7. RSA 125-C:6, XI authorizes DES to require the owner or operator of a stationary source to “install, maintain, and use emission monitoring devices and to make periodic reports to the commissioner on the nature and amount of emissions from” that source.
8. Condition VI.A. of the Permit provides that CBE shall conduct stack emissions testing for carbon monoxide and non-methane organic compounds at the request of DES.
9. By letter dated June 27, 2006, DES requested that CBE perform stack emissions testing on the Enclosed Flare with liquid waste injection for volumetric flow, CO<sub>2</sub>/O<sub>2</sub> percentage, moisture percentage, total suspended particulates, and seventeen specific pollutants or classes of pollutants.
10. In a series of discussions and letters between CBE and DES from June 29, 2006, through January 2007, CBE and DES reached agreement on the methods by which CBE would determine the level of those pollutants identified in DES’s June 27, 2006, letter in the emissions from the Enclosed Flare with liquid waste injection.
11. On February 28, 2007, CBE, through its counsel, provided to DES a copy of a letter dated February 12, 2007, whereby NCES notified CBE that it was terminating the Liquid Waste Agreement effective April 5, 2007.
12. On May 2, 2007, DES personnel met with NCES personnel at the NCES Landfill and confirmed that the liquid waste pump has been removed and that the liquid waste feed lines have been disconnected.
13. On June 14, 2004, NCES applied for a Title V Operating Permit for the NCES Landfill which, if issued, will include the Enclosed Flare and all other applicable activities.

#### **D. ALLEGATIONS**

1. DES alleges that NCES, among others, is required to conduct stack emissions testing of the Enclosed Flare pursuant to RSA 125-C:6, XI and Condition VI.A. of the Permit, upon the request of DES.

#### **E. ORDER**

DES hereby orders, and NCES agrees, as follows:

1. By **June 11, 2007**, NCES shall notify DES in writing that the delivery mechanism from the liquid waste collection and storage system to the Enclosed Flare has been rendered incapable of conveying liquid waste.
2. Should NCES decide to reestablish the delivery of liquid waste from the liquid waste collection and storage system to the Enclosed Flare, NCES shall notify DES 30 days prior to reestablishing the delivery mechanism.

3. Except as necessary for testing, NCES shall not recommence delivery of liquid waste to the Enclosed Flare for evaporation unless a stack emission testing protocol has been agreed to by DES and the test called for under that protocol has occurred. Any such testing shall be conducted in accordance with Attachment A of the DES letter dated December 28, 2006, attached hereto and made a part hereof, and the corresponding testing standards and procedures set out in Env-A 800.
4. DES shall issue a Letter of Compliance with the requirements in E. 1 to NCES upon DES's receipt of NCES's notification pursuant to E.1. of this Order.
5. All correspondence and other submissions made in connection with this Order shall be sent to DES as follows:

Barbara Hoffman  
Enforcement Section Supervisor  
DES Air Resources Division  
P.O. Box 95  
Concord, NH 03302-0095  
Fax (603) 271-7053  
Tele. (603) 271-7874  
E-mail: bhoffman@des.state.nh.us

#### **F. CONSENT AND WAIVER OF APPEAL**

1. By execution of this Order, NCES agrees that this Order shall apply to and be binding upon NCES, its officers, directors, successors and assigns, and agrees that this Order may be entered and enforced by a court of competent jurisdiction.
2. By execution of this Order, NCES waives any right to appeal this Order provided by statute, rule, or common law, including without limitation the right to appeal to the Air Resources Council, and NCES waives any right to object to the entry and enforcement of this Order by a court of competent jurisdiction.
3. In any action by the State of New Hampshire to enforce the deadlines established in this Order, NCES may raise as a defense to such action that the delay was caused by circumstances beyond its control, which circumstances shall not include its financial inability to perform the obligations set forth in this Order. The parties may agree in writing to extend the deadlines set forth herein to the extent that delays are caused by circumstances beyond NCES's control.
4. Nothing in this Order shall be construed to affect or modify any of the rights or obligations CBE and NCES may have under any agreements between them.

**North Country Environmental Services, Inc.**

  
By duly authorized \_\_\_\_\_ Date 6/4/07

**NH Department of Environmental Services**

  
Robert R. Scott, Director  
Air Resources Division \_\_\_\_\_ Date 8 JUN 07

  
Thomas S. Burack, Commissioner \_\_\_\_\_ Date June 11, 2007

Attachment

- cc: R. Head, NH AGO - EPB
- G. Hamel, DES Legal Unit Administrator
- Public Information Officer, DES PIP Office
- Chair, Bethlehem Board of Selectmen
- File AFS #3300990255
- Commonwealth Bethlehem Energy, LLC

ATTACHMENT



The State of New Hampshire  
*Department of Environmental Services*



Thomas S. Burack  
Commissioner

December 28, 2006

Thomas Yeransian  
Commonwealth Resource Management Corporation  
7 Winslow Way  
Mansfield, Massachusetts 02048

**RE: Commonwealth Bethlehem Energy, LLC,  
Enclosed Flare Emissions Test  
Response to November 9, 2006 letter**

Dear Mr. Yeransian:

By way of a letter dated June 27, 2006, the New Hampshire Department of Environmental Services, Air Resources Division ("DES") requested, pursuant to the authority set forth in RSA 125-C:6,XI, that Commonwealth Bethlehem Energy, LLC ("CBE"), perform certain compliance stack testing methods on the Callidus Technologies, Inc. enclosed flare with the leachate injection system ("the Enclosed Flare"). The Enclosed Flare is operated by North Country Environmental Services, Inc. ("NCES") at the NCES Landfill located in Bethlehem, NH, which has a statutory obligation, along with CBE, to monitor and report on emissions from the Enclosed Flare.

On July 28, 2006, CBE submitted a letter with attachments presenting an analysis which concluded that the Enclosed Flare is in compliance with applicable requirements, based upon assumed levels of metals emissions that are conservatively high and therefore, there is no need to perform compliance testing of the Enclosed Flare.

DES performed a technical review of this response and in a letter, dated September 25, 2006, agreed to allow CBE to perform representative sampling of the leachate during the stack test runs in lieu of compliance stack testing for metals. DES concluded that the enhanced sampling of the leachate, combined with stack flow measurements for each of the stack test runs is sufficient to allow for determining the emissions of metals using a conservative assumption that all of the metals in the leachate vaporize and are emitted out of the stack. In the letter, DES stated that it was still requesting that CBE conduct stack testing for stack flow, moisture, carbon dioxide ("CO<sub>2</sub>")/oxygen ("O<sub>2</sub>"), total suspended particulate compounds ("TSP"), sulfur dioxide ("SO<sub>2</sub>"), oxides of nitrogen ("NO<sub>x</sub>"), carbon monoxide ("CO"), non-methane hydrocarbons ("NMOC"), and hydrochloric acid ("HCl").

On October 13, 2006, DES and CBE personnel met at the DES offices to discuss your continued concerns relating to the technical and practical feasibility of conducting some of the EPA stack test methods. In the meeting, DES agreed to review additional information that you would provide regarding emissions of TSP and HCl from the Enclosed Flare.

On November 9, 2006 CBE submitted information to DES and concluded that compliance stack testing for TSP and HCl is not necessary. After reviewing this document, DES concludes the following:

1. For TSP, DES accepts the estimated emissions CBE presented in the November 9, 2006 document. Air impact modeling results, recently submitted for the facility and approved by DES using emission rates higher than the estimated emissions, show that the TSP emissions result in an air impact significantly less than the national ambient air quality standards ("NAAQS"). Comparison of the estimated TSP emissions with the applicable TSP standard found in the NH Code of Administrative Rules, Env-A 2002.08, shows that the estimated TSP emissions are approximately 16% of the applicable TSP standard found in Env-A 2002.08. Since the estimated emissions result in compliance with the relevant standards by such a wide margin, DES has concluded that there is no need to stack test the Enclosed Flare for TSP.
2. For HCl, DES does not agree with CBE's analysis contained in the November 9, 2006 correspondence, in which CBE concluded that there is no HCl formed from the chloride salts found in the leachate, despite that fact that this is a significant source of chlorine. DES has concluded that once the leachate is evaporated in the Enclosed Flare and heated to 1800 degrees F in the combustion chamber, there would be several paths for the anions ( $\text{Cl}^-$ ) and cations to take which would include but not be limited to the following:
  - a. The anions and cations can form ionic bonds and crystallize to form salts such as NaCl;
  - b. The anions can remove hydrogen from hydrocarbons in the gas to form covalent HCl; and
  - c. The cations can form stable compounds, leaving an excess of chloride ions which would be available to form HCl with the water.

Since it is not possible to predict which, if any, of the above reaction mechanisms are followed for formation of HCl and since there are significant chlorides in the leachate that result in the high potential for emissions of HCl, DES concludes that a compliance test is the only way to determine the actual HCl emissions.

As explained in the September 25, 2006 correspondence to you, the worst-case emissions of HCl from the Enclosed Flare (assuming all chlorides in the leachate form HCl) were calculated to be 67,780 lbs/year or approximately 34 tons. Since HCl is a Hazardous Air Pollutant ("HAP") under §112 of the Clean Air Act, the Enclosed Flare is a potential major source of HAPs. Stack testing is therefore required to determine whether or not the Enclosed Flare is a major source.

3. For  $\text{SO}_2$ , DES has determined that these emissions can be calculated from the concentration of sulfur-containing compounds in the landfill gas and from the sulfides in the leachate assuming that all of the sulfides are converted to  $\text{SO}_2$ . Therefore,  $\text{SO}_2$  emissions do not have to be measured by a stack test. DES requests that potential  $\text{SO}_2$  emissions be calculated from the landfill gas sulfur analysis and leachate sulfide analysis conducted on samples procured during the required stack test.

In addition to the HCl testing discussed in item 2 above, DES is requesting that CBE perform compliance stack testing for stack flow; moisture, CO<sub>2</sub>, O<sub>2</sub>, NO<sub>x</sub>, CO, and NMOC. Please find Attachment A (revised 12/21/06) which specifies in detail the stack testing methods required, other required testing and procedural requirements. DES requires the actual stack testing and leachate sampling to be conducted no later than April 30, 2007.

I appreciate your attention to this matter. Please be aware that if you fail to comply with the requirements set forth in Attachment A (revised 12/21/06), DES may initiate formal administrative action and/or refer this matter to the N.H. Department of Justice. If you have any questions, please call me at 271-0882.

Sincerely,



Pamela G. Monroe  
Compliance Bureau Administrator  
Air Resources Division

Enc. Attachment A

cc: Bryan Gould, Brown, Olson & Gould  
Maureen Smith, NH DoJ  
Bethlehem Chair Board of Selectmen  
Gene Martin, Casella Waste Systems Inc.  
Kevin Roy, North Country Environmental Services

Attachment A (revised 12/21/06)

A. Stack Test Methods

The required stack testing shall consist of performing three runs following each of the below methods or DES approved alternatives:

1. EPA Methods 1, 2, and 4 for volumetric flow and moisture percentage in the stack gas;
2. EPA Method 3A for carbon dioxide and oxygen;
3. EPA Method 7E, instrumental method for NO<sub>x</sub>;
4. EPA Method 10, instrumental method for CO;
5. EPA Method 25A, instrumental method for NMOCs; and
6. EPA Method 26A for hydrochloric acid (HCl).

As an alternative to item 1 above (the physical measurement of stack flow and stack moisture), DES will consider the calculation of stack flow and moisture from landfill gas flow rates, secondary air flow rates, leachate flow rate, etc. taken during the time periods of the emissions testing program. The method for this alternative must be presented in full detail in the test protocol complete with example calculations and appropriate QA/QC on all constituent flow rate measurements to be taken before DES will approve such an approach.

B. Other Required Testing

1. DES is requesting that CBE collect representative composite samples of the leachate feeding the landfill gas Enclosed Flare during each run of the above specified stack testing. CBE shall perform an analysis on the leachate in accordance with Env-A Wm.2506.08(d)(5) for arsenic, cadmium, chromium, copper, iron, lead, manganese, mercury, molybdenum, nickel, selenium and zinc as well as for sulfates, chlorides, and volatile organic compounds. DES requires that CBE specify in the pretest protocol:
  - a. The location of where the samples will be taken;
  - b. The sampling procedure used to obtain the samples. If more than one sample is required to be taken due to different constituents being measured, please specify;
  - c. The number of samples and timing of the sampling effort to ensure representative leachate samples are being taken and that these samples correspond to the timing of the stack testing; and
  - d. The sampling methods to be followed for the analyses of the constituents.
2. DES is also requesting that CBE collect and analyze representative samples of the landfill gas. A sample should be taken and analyzed for the following specified constituents during each of the stack testing runs:
  - a. Total reduced sulfur compounds in accordance with ASTM D-5504;
  - b. Landfill gas constituents, carbon dioxide, methane, nitrogen; oxygen in accordance with EPA Method 3C or DES approved alternatives;
  - c. Total non-methane organic compounds for use in calculating the total destruction efficiency of the Enclosed Flare; and
  - d. Ultimate analysis constituents.

C. Procedural Requirements

DES requires that the actual stack testing be completed no later than April 30, 2007. Within 60 days of issuance of this letter and as soon as possible, CBE shall submit to DES a pre-test protocol with the following information:

*Feb 28 protocol*

1. The facility name, address, telephone number, and contact;
2. The name of the contractor testing company, company contact, and telephone number;
3. The reasons for performing the compliance stack test;
4. A complete test program description;
5. A description of the process or device to be tested;
6. A description of the operational mode of the process during the testing period;
7. A list of operational and process data to be collected;
8. The sampling approach to be used for extracting gas from the high temperature stack (at ~1800 degrees F). Items to address include but are not limited to the following:
  - a. Type of probes to use and how to cool them;
  - b. Scaffolding requirements; and
  - c. Safety considerations when sampling near the discharge point of an extremely hot flue gas.
9. A list of test methods to be used for each constituent being measured.
10. A description of any requested alternatives or deviations from standard EPA testing methods;
11. A list of calibration methods and sample data sheets;
12. A description of pre-test preparation procedures;
13. A list of sample collection and analysis methods;
14. Sample calculations for all calculations performed; and
15. Facility safety/emergency response procedures applicable to the area of the facility in which the test will occur. Please note the high temperature of the stack gas and the close proximity of the testing ports to the exhaust of the stack.

At least 14 calendar days prior to the test date, CBE and any contractor retained by CBE for the performance of the test, shall participate in a pre-test meeting with a DES representative at the facility in which details of the test, the testing schedule, and the operating conditions will be finalized.

No later than 60 days after completion of testing, CBE shall submit a complete test report to DES containing the following information:

- a. All the information required for the pre-test protocol;
- b. All test data;
- c. All calibration data;
- d. Process data agreed to be collected;
- e. All test results;
- f. A comparison of the test results with the applicable emission limitations;
- g. A description of any discrepancies or problems that occurred during testing or sample analysis;
- h. An explanation of how discrepancies or problems were treated and their effect on the final results; and
- i. A list and description of all equations used in the test report as well as an example calculation for each equation.