



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

Western Regional Office • 436 Dwight Street, Springfield MA 01103 • 413-784-1100

DEVAL L. PATRICK
Governor

RICHARD K. SULLIVAN JR.
Secretary

TIMOTHY P. MURRAY
Lieutenant Governor

KENNETH L. KIMMELL
Commissioner

NLR, Inc.
250 Main St.
East Windsor, CT 06088
Attention: Raymond Graczyk

May 31, 2012

RE: Chicopee-DSWM-BUD
Beneficial Use Determination
Crushed Fluorescent Bulb Glass
Landfill Utilization
Final Permit Approval
12-061-002
BWPSW40
Transmittal #X240020

THIS DOCUMENT REPRESENTS THE MASSDEP'S FINAL BENEFICIAL USE DETERMINATION PERMIT ISSUED PURSUANT TO 310 CMR 19.037

Dear Mr. Graczyk:

On May 3, 2012, the Massachusetts Department of Environmental Protection (the MassDEP) issued a Provisional Beneficial Use Determination (BUD) permit approval to you to utilize crushed fluorescent bulb glass (the crushed glass) from the NLR, Inc. (NLR) facility at the Chicopee, Granby and South Hadley landfills (the landfills) in the Western Region of MassDEP. As outlined at 310 CMR 19.037(4)(a), the Provisional permit was issued in order to accept comments regarding it for a period of 21 days, prior to issuing a Final BUD permit. No comments were submitted to MassDEP during the 21 day comment period, and MassDEP is issuing the permit as a Final BUD permit.

On September 27, 2011, MassDEP received a Category 2-Regulated Systems BUD permit application from you to utilize the crushed glass from the NLR facility at the landfills. The BUD permit application (the application) was signed by you, as president of NLR. The application included transmittal form #X240020, a completed BWPSW40 application form, and narrative sections describing the proposed BUD uses. On February 8, 2012, MassDEP received a waiver request for the use of the crushed glass according to the Massachusetts Mercury Act, as outlined at 310 CMR 76.04(2)(b); the waiver request was prepared and submitted by Anchor Engineering (Anchor) on behalf of NLR. Anchor subsequently submitted additional sampling and analytical data, and additional documentation, as requested by MassDEP.

Proposal

NLR has processed used fluorescent, mercury-containing lamp bulbs at its facility at 250 Main St., East Windsor, CT for 16 years. The facility uses a Balcan MP 8000 Lamp Processor, which crushes the bulbs, separates metal end caps, insulators and wires, and crushed glass, and which removes the mercury-containing calcium phosphate powder by an air circulation system. The cleaned, crushed glass is approximately ¼-inch to 3/8-inch in size, or it can be reduced further to a sand-sized texture using a pulverizer. NLR produces approximately

3,000 cubic yards of crushed glass per year.

The crushed glass is currently sampled for mercury by the USEPA TCLP method every 180 cubic yards (NLR is applying to CTDEP to reduce this frequency, based on the consistently low TCLP mercury results). Anchor provided the results of TCLP mercury analyses for 2010 and 2011, which were well below the TCLP standard for mercury of 0.20 milligrams/liter (mg/l), ranging from 0.003 mg/l to 0.044 mg/l. TCLP analyses for lead and cadmium performed in December, 2011 were 0.525 mg/l and non-detectable (ND), respectively, versus the TCLP lead standard of 5 mg/l and the TCLP cadmium standard of 1 mg/l.

One sample of crushed glass was analyzed on September 15, 2011 for total RCRA 8 metals, and the results were compared to the applicable S-3, GW-3 reuse standards contained in the MassDEP's "Draft Interim Guidance Document for Beneficial Use Determination Regulations", dated March 18, 2004 (the BUD Guidance Document). The crushed glass sample results were: arsenic, barium, cadmium, chromium, and selenium were ND; lead was 3.7 milligrams/kilogram (mg/kg), vs. the BUD S-3, GW-3 standard of 110 mg/kg; mercury was 1.01 mg/kg vs. the BUD S-3, GW-3 standard of 16 mg/kg; and silver was 1.1 mg/kg vs. the BUD S-3, GW-3 standard of 66 mg/kg.

The application proposes to use the crushed glass at the landfills as alternate daily cover (ADC), gas venting material (GVM), and pipe backfill material. The crushed glass would be delivered to the landfills in covered, 30-cubic yard rolloffs. If dust issues are identified with the crushed glass usage, water would be used to control the dust.

MASSDEP DETERMINATIONS

This application complies with the application requirements at 310 CMR 19.060 Beneficial Use Determinations and 310 CMR 19.037 Review Procedures for Permit Modifications. This **Final** approval to utilize the subject crushed glass as gas-venting material, pipe backfill, and alternate daily cover at the landfills outlined below is issued pursuant to Massachusetts General Laws Chapter 111, Section 150A and 310 CMR 19.000, the provisions of 310 CMR 19.061, the MassDEP's "Draft Interim Guidance Document for Beneficial Use Determination Regulations", dated March 18, 2004, MassDEP's Policy #Comm-97-001, "Reuse and Disposal of Contaminated Soil at Massachusetts Landfills", revised August 15, 1997, MassDEP's "Landfill Technical Guidance Manual" (the LAC), revised May, 1997, and the provisions of 310 CMR 19.037. This **Final** Category 2 - Regulated Systems BUD permit approval is subject to the conditions set forth below.

1. The crushed glass material may be used at the Chicopee, Granby and South Hadley lined landfills within the Western Region of the Department, provided that the individual landfills will accept the material.
2. The combined total of crushed glass material used at landfills in the Western Region of the Department shall not exceed 5,000 tons in any one calendar year.
3. The only material which may be utilized under this permit is crushed/pulverized glass which has been fully processed through NLR's processing equipment at its facility at 250 Main St, East Windsor, CT, with the mercury-containing calcium phosphate powder removed from the crushed/pulverized glass to the maximum extent feasible by the air circulation system of NLR's processing equipment. NLR shall notify MassDEP of any changes in its processing equipment which may affect the quality of the crushed/pulverized glass material, particularly any changes which may negatively affect the removal of mercury.
4. No crushed fluorescent bulb glass material generated by drum crushers shall be utilized by NLR or the landfills for any reuse purpose

according to this permit, unless the material is fully processed at the NLR facility as required at Condition 3 of this permit. All crushed/pulverized glass material shall be free of other lamp components, including metal end caps, insulators, wires, and ballasts.

5. The crushed fluorescent bulb glass material shall only be used in accordance with this BUD permit and the Department's May 23, 2012 approval of the waiver request for the use of the crushed glass according to the Massachusetts Mercury Act, as outlined at 310 CMR 76.04(2)(b) - copy attached.
6. The use of the crushed glass material as gas venting material (GVM) at the landfills shall comply with the applicable requirements of the MassDEP's LAC Manual (P.1-17) for GVM, including the requirement that the GVM have a minimum hydraulic conductivity of 1×10^{-3} cm/sec. For use as GVM, the crushed glass material shall be inspected for the presence of any foreign objects and any such objects removed before the HDPE liner is deployed above it. Physical (geotechnical) testing of the crushed glass GVM material shall be performed by the landfill operator as outlined on table 2-6 (p. 2-9) of the LAC manual. The use of this material as GVM must also be provided for in the closure design relative to the particular project.
7. Physical (geotechnical) testing of the crushed glass material used as pipe backfill material in Final Closure (i.e., capping) work shall be performed by the landfill operator as outlined on table 2-6 (p. 2-9) of the LAC manual. The use of the crushed glass as pipe backfill in Final Closure work must also be provided for in the closure design relative to the particular project.
8. Physical (geotechnical) testing is not required for crushed glass material used as pipe backfill material within the waste mass of the landfill (i.e. work that is not part of Closure Design work).
9. For use as alternate daily cover (ADC) material, the crushed glass material shall be mixed or applied with soil at a minimum ratio of 1:1.
10. The use of the crushed glass material as ADC, GVM, and pipe backfill at the landfills shall comply with the applicable requirements of the MassDEP's "Draft Interim Guidance Document for Beneficial Use Determination Regulations", dated March 18, 2004 (the Draft BUD Guidance).
11. The acceptance and use of the crushed glass material shall not create any nuisance dusts at the landfills. NLR is responsible to apply water to the loads of crushed glass material delivered to the landfills as needed to mitigate nuisance dust conditions, and the landfill operator is responsible to also take all necessary actions to mitigate or eliminate such nuisance dust conditions if they do occur, including the suspension of acceptance and/or usage of the crushed glass material, if needed.
12. The landfill operator is responsible to ensure that the use of the crushed glass material is being performed in accordance with appropriate health and safety (H&S) requirements for workers and the public.
13. The crushed glass material shall only be stored and used (for any of the approved uses) within the lined landfill perimeter, not outside the limits of the landfill liner.
14. For continued reuse at the landfills according to this BUD permit, the crushed glass material shall be sampled by NLR on a quarterly basis for Total RCRA 8 metals plus Antimony, Nickel, and Zinc, and on a yearly basis

for TCLP RCRA 8 metals.

The results of quarterly sampling shall be submitted to the MassDEP by the fifteenth day of the month following each calendar quarter, and the results of annual sampling shall be submitted by December 31 of each calendar year. **The crushed glass material shall meet the limits outlined in Table 1 of this permit for reuse as ADC, GVM, and pipe backfill under this BUD permit.** If results of analyses indicate that the crushed glass material does not meet the limits outlined in Table 1 of this permit, reuse at the landfills shall cease immediately upon receipt of such results, and reuse may only continue upon receipt of acceptable laboratory analyses and/or written approval from MassDEP.

15. MassDEP reserves the right to require additional sampling and analysis of the crushed glass at any time, should MassDEP deem such additional testing to be necessary.
16. MassDEP reserves the right to suspend, modify or forbid the acceptance or usage of the crushed glass at the landfills should there be nuisance odor or dust conditions, inadequacy of material performance, threats to public health, safety or the environment, or should the results of sampling and analysis outlined at Condition 14 exceed the acceptance criteria outlined in Table 1 of this permit.
17. This permit expires on June 1, 2022.

RIGHT OF APPEAL

Right to Appeal- Pursuant to 310 CMR 19.037(5), except as provided for under 310 CMR 19.037 (4)(b), any person aggrieved by the Final issuance of this permit may file an appeal for judicial review of said decision in accordance with the provisions of M.G.L., c. 111, s. 150A and C. 30A not later than thirty [30] days following notice of this decision.

Notice of Appeal- Any aggrieved person intending to appeal the Final decision to the superior court shall provide notice to the MassDEP of intention to commence such action. Said notice of intention shall include the MassDEP File Number (12-061-002) and shall identify with particularity the issues and reason(s) why it is believed the approval decision was not proper. Such notice shall be provided to the Office of General Counsel of the MassDEP and the Regional Director for the regional office, which made the decision. The appropriate addresses to which to send such notices are:

General Counsel
MassDEP of Environmental Protection
One Winter Street-Third floor
Boston, Massachusetts 02108

&

Regional Director
MassDEP of Environmental Protection
Western Regional Office
436 Dwight Street
Springfield, Massachusetts 01103

No allegation shall be made in any judicial appeal of this decision unless the matter complained of was raised at the appropriate point in the administrative review procedures established in those regulations, provided that matter may be raised upon a showing that it is material and that it was not reasonably possible with due diligence to have been raised during such procedures or that matter sought to be raised is of critical importance to the public health or environmental impact of the permitted activity.

If you have any questions concerning this matter, please contact Larry Hanson of this office at (413) 755-2287.

Sincerely,

**This final document copy is being provided to you electronically by the
Department of Environmental Protection. A signed copy of this document
is on file at the DEP office listed on the letterhead.**

Daniel Hall
Section Chief
Solid Waste Management

DH/lgh

cc: Chicopee Health Department - Lisa Sanders, Acting Director
Chicopee Dept. of Public Works - Stanley Kulig, Supt.
Granby Board of Health
South Hadley Board of Health
WMI - Thomas Heaton, Environmental Compliance Manager
DEP/Boston/BWP - Paul Emond
DEP/WERO/C&E - Saadi Motamedi

Table 1
BUD Permit Standards
NLR Crushed or Pulverized Glass

Compound	Total Metals Standard (mg/kg)	TCLP Metals Standard (mg/l)
Antimony	16	NA
Arsenic	11	5
Barium	2,100	100
Cadmium	16	1
Chromium	570	5
Lead	110	5
Mercury	8*	0.2
Nickel	350	NA
Selenium	390	1
Silver	110	5
Zinc	5,000	NA

Notes

- 1: The **Total Metals** standards are the respective S-3, GW-3 BUD standards, except for mercury, which is the S-1, GW-1 BUD standard.
2. mg/kg denotes milligrams/kilogram. mg/l denotes milligrams/liter. NA denotes not applicable.