



Missouri Department of dnr.mo.gov

NATURAL RESOURCES

Eric R. Greitens, Governor

Carol S. Comer, Director

April 5, 2017

CERTIFIED MAIL – 7014 1200 0000 4389 3628
RETURN RECEIPT REQUESTED

Mr. James M. Lanzafame
Environmental and Health Manager
The Doe Run Company
Buick Resource Recycling Facility, LLC
18594 Highway KK
Boss, MO 65440

RE: Rotary Melter Bunker Closure Acceptance and Class 1 Permit Modification with Prior Director Approval for Risk-Based Closure of the Rotary Melter Bunker
Buick Resource Recycling Facility, LLC, Boss, Missouri
EPA ID# MOD059200089

Dear Mr. Lanzafame:

The Missouri Department of Natural Resources (Department) has reviewed Buick Resource Recycling Facility, LLC's (BRRF) Rotary Melter Bunker closure report and request for risk-based closure, dated February 23, 2012. BRRF submitted the closure certification report, and supporting documents, as required by Code of State Regulations 10 CSR 25-7.264(1) incorporating Code of Federal Regulations 40 CFR 264.115, and Special Permit Condition III.D. of BRRF's Missouri Hazardous Waste Management Facility (MHWMF) Part I Permit, as modified February 26, 2008. The purpose of the report was to document the procedures followed to decontaminate the containment building and request risk-based closure according to BRRF's approved closure plan.

The Department hereby approves the Class 1 Permit Modification and accepts the risk-based closure of the Rotary Melter Bunker, a regulated containment building, with the enclosed comments and conditions. Based on the information available, the Department considers this unit to have achieved risk-based "clean closure." As such, post-closure care for this unit is not required; however, this unit will need to be added to the list of Solid Waste Management Units (SWMUs) in BRRF's MHWMF Part I Permit. Any further corrective action for this SWMU under the Part I Permit shall be conducted, as appropriate, upon cessation of continued use of the Rotary Melter Bunker building for other purposes, demolition of this building and/or upon cessation of overall operations at the Buick permitted facility. Please also note that the facility's



Mr. James M. Lanzafame
Page 2

overarching closure plan and closure cost estimate must be updated and resubmitted to the Department for review, and approval, within 60 calendar days of receipt of this letter to address the comments and conditions contained in the letter enclosure. The Department will review the updated closure cost estimate to determine what, if any, release of financial assurance for closure is appropriate.

If you need assistance, would like to schedule a meeting, or have questions regarding this letter or the enclosed comments or conditions, please contact Nathan Kraus, P.E. of my staff at the Missouri Department of Natural Resources, Hazardous Waste Program, P.O. Box 176, Jefferson City, MO 65102-0176, by telephone at (573) 751-3553 or 1-800-361-4827, or by e-mail at nathan.kraus@dnr.mo.gov. Thank you.

Sincerely,

HAZARDOUS WASTE PROGRAM

[Original signed by Richard A. Nussbaum]

Richard A. Nussbaum, P.E., R.G.
Chief, Permits Section

nk:rnc

Enclosure

c: Mike Dandurand, P.E., MO State Coordinator, U.S. EPA Region 7
Julie Marks, P.E., Barr Engineering
Southeast Regional Office, Missouri Department of Natural Resources

Comments and Conditions

As you know, acceptance of closure of this unit has been on hold for several years due to broader unresolved enforcement issues potentially bearing on the closure acceptance. The Department is accepting, with reservations as discussed below, risk-based clean closure of the Rotary Melter Bunker and deferring any further corrective action as noted in the accompanying letter. This acceptance is based on BRRF's planned near-term reuse of the Rotary Melter Bunker building to manage materials containing like metal constituents combined with BRRF's requirement that workers wear adequate personal protective equipment within the building when it is reused, and the prohibition on future hazardous waste and free liquids management within the building.

Closure Report Comments

BRRF shall update the facility's approved closure plan, dated October 28, 2009 (Closure Plan), that applies to the other permitted units at the facility to address the following comments. The updated closure plan shall be submitted to the Department within 60 calendar days of receipt of this letter.

1. Section 5.1.5, Confirmation Sampling, from BRRF's Closure Plan explains that confirmation sampling will be done with coring through either concrete or asphalt. Section 2.2, Confirmation Sampling, from the Rotary Melter Closure Report (Closure Report), explains that BRRF performed concrete coring during the Rotary Melter Bunker's confirmation sampling. The closure sampling activities that took place for the Rotary Melter Bunker were explained as follows:

Each concrete core was placed on a sheet of clean paper where a hammer was used to break the core into pieces so that pieces from the top, middle, and bottom of the core could be placed into a wide-mouth sampling jar.

Use of composite samples is not mentioned in the approved closure plan and the Department would not typically approve this approach for closure confirmation sampling unless adequate technical justification is provided. 40 CFR 264.112(b)(4) requires that the closure plan include the methods for sampling and testing to determine the extent of decontamination required to satisfy the closure performance standards. Composite sampling, as utilized by BRRF, did not establish the extent of contamination related to operation of the unit; it only revealed the average level of contamination throughout the media (in this case the concrete) and as such was insufficient to determine the extent of decontamination required.

BRRF shall update the Closure Plan to clarify that confirmation sampling for future closure activities at other permitted units shall utilize only representative discrete samples to determine what area(s) require decontamination to meet the closure performance standards.

2. Section 5.1.5, Confirmation Sampling, from the Closure Plan states that sample collection and analyses will follow appropriate and applicable quality assurance/quality control (QA/QC) procedures. The Closure Report does not discuss the QA/QC

procedures used to guarantee accurate and unbiased sampling and analysis. For example, during the concrete coring process, was the coring bit properly decontaminated between samplings? Was the hammer, used for sample preparation, properly decontaminated between each (top, middle and bottom) collection? A duplicate sample was not collected and analyzed as specified in the facility's approved QAPP, which requires that a duplicate sample be collected and analyzed during each sampling event.

The Closure Plan shall be updated to include a more in depth discussion of the QA/QC procedures. Including, but not limited to, trip blanks, method blanks, duplicate samples, matrix spike, matrix spike duplicates, etc.

3. Section 2.3, Sample Analysis. The Closure Report identified use of Synthetic Precipitation Leaching Procedure (SPLP) analysis. There is no discussion of the use of this method in the Closure Plan. If BRRF wishes to use SPLP testing in the future, the rationale for its use and to what media it will be applied shall be discussed in the updated closure plan. In general, use of the SPLP analytical method may only be useful if BRRF decides to leave concrete in place that is exposed to the environment to ensure that potential leaching of residual contaminants to groundwater due to precipitation does not occur above health or environmentally protective levels. BRRF should retain use of TCLP testing for containment buildings to determine if the management of closure related materials has to be done as hazardous waste pursuant to 40 CFR 264.1102, or if the materials are only a solid waste pursuant to 40 CFR 261.3(d) and need to be managed as such.
4. Section 2.4, Concrete Screening Levels, of the Closure Report identifies the screening values used to establish "clean closure." The total metals screening levels proposed by BRRF, Table 1 from the closure report are not acceptable for this purpose in a "true" clean closure context. BRRF used the higher of the detected metals values from "An Analysis of Selected Trace Metals in Cement and Kiln Dust," Portland Cement Association, 1992, or the higher of three EPA screening values, whichever was highest, as the basis for closure. The "average" metals' values found in the subject publication would be acceptable to the Department for future "true" clean closure purposes, along with the lowest EPA screening concentration for any metals (zinc in this case) not covered in the subject publication. Those values are identified on the revised screening levels table below along with updated, potentially applicable EPA risk-based screening values that could be useful in a "risk-based" clean closure context. In the alternative, BRRF could choose to take samples of "un-impacted" concrete (i.e., samples from the same structure or foundation in areas where waste was not managed) for comparison purposes during future closure activities. If this is intended, the approach should be discussed in the updated closure plan.

Revised Total Metals Concrete Screening Levels (mg/kg)									
	Arsenic	Barium	Cadmium	Chromium III/Total	Lead	Mercury	Selenium	Silver	Zinc
Concrete Background ¹	19	280	0.34	76	12	0.014	1.42	9.2	NA
Residential Soil ²	0.68	15,000	71	120,000	400	11	390	390	23,000
Industrial Soil ²	3.0	220,000	980	1,800,000	800	46	5,800	5,800	350,000
Risk-Based Goundwater ²	0.0015	160	0.69	NA	NA	0.0033	0.52	0.8	370
MCL-Based groundwater ²	0.29	82	0.38	180,000	14	0.1	0.26	NA	NA
Closure Screening Level³	19	280	0.34	76	12	0.014	1.42	9.2	370

¹ Per "An Analysis of Selected Trace Metals in Cement and Kiln Dust", Portland Cement Association, 1992 (Average Values)

² EPA Regional Screening Level (RSL) Tables, (THQ=1.0, TR= 1x10⁻⁶) - May 2016

³ The average background concentration from the noted document is the screening ("true" clean closure) level
NA--Not Available

BRRF shall update the closure plan to clarify that the average RCRA metal levels identified in the aforementioned document shall be used for future "clean" closure screening in lieu of the highest reported numbers from the referenced document.

As a future alternative, BRRF may also want to consider establishing unit specific background concentrations of total metals in the concrete associated with any other permitted unit that will require closure. In order to do this, three samples should be taken from areas that have not been in contact with any hazardous material, typically on the outside of the building, possibly a foundation wall and under the concrete's surface. These samples could be analyzed individually and then averaged for the purposes of establishing background values. If BRRF wishes to pursue establishing a concrete background for each unit, a discussion of the proposed sampling shall be included in the updated closure plan for the Department to review and approve.

5. Section 2.5, Analytical Results, of the Closure Report, explains that the lowest achievable method detection limit for mercury (0.10 mg/kg) was above the concrete screening level for mercury (0.014 mg/kg). In the future, the detection limit for the analytical method used needs to be at or below the applicable screening level for each particular contaminant.
6. Section 3.0, Risk-Based Closure Plan, of the Closure Report, discusses lead, mercury and arsenic concentrations found in the Rotary Melter Bunker's concrete relative to the

screening values. Again, the screening approach contained in the Closure Plan is not acceptable to the Department in a “true” clean closure context (see comment 4 above). If Table 1 above was used, all three of the concrete samples would have exceeded the “true” clean closure screening value for lead.

The Department remains amenable to a “risk-based” clean closure approach (in lieu of using average or unit specific background concentrations in concrete or other media in a “true” clean closure approach) utilizing the types of risk-based screening values shown in Table I, as appropriately applied to the particular circumstances at each regulated unit. In the specific case of the Rotary Melter Bunker, we recognize that the building will continue to be covered and manage like materials without liquids thus limiting/preventing potential constituents leaching to groundwater; yet BRRF’s previous approach involved samples composited from the top, middle, and bottom of each 6-inch concrete core. Due to this containment building previously being used for dry storage only, the top driving/wearing surface would likely contain most, if not all of any residual metals concentrations attributable to operations. Thus the Department considers use of composite samples inappropriate for this unit as this may have diluted the analytical results. Discrete sampling of the upper surface should have been conducted. The point is that the closure procedures in the updated closure plan should consider the unit-specific circumstances and conditions.

7. With acceptance of closure of the Rotary Melter Bunker, BRRF shall also update their closure cost estimate to reflect the fulfillment of closure of this unit. Also, BRRF shall update their closure cost estimate to incorporate any changes that may result from the comments contained in this letter. The Department will review both the updated closure plan and closure cost estimate and upon approval of these documents, will release the financial assurance for the closure of the Rotary Melter Bunker, if supported by the revised, approved closure cost estimate.