



DEPARTMENT OF NATURAL RESOURCES

MISSOURI AIR CONSERVATION COMMISSION

PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: 102011-005 Project Number: 2011-06-026
Installation Number: 093-0009

Parent Company: The Doe Run Resources Company

Parent Company Address: 1801 Park 270 Drive, St. Louis, MO 63146

Installation Name: Buick Resource Recycling Facility, LLC

Installation Address: 18954 Highway KK, Boss, MO 65440

Location Information: Iron County, S14, T34N, R2W

Application for Authority to Construct was made for:

The installation of a 22.5 tons per hour wood processing pallet grinder. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

Standard Conditions (on reverse) are applicable to this permit.

Standard Conditions (on reverse) and Special Conditions are applicable to this permit.

OCT - 6 2011

EFFECTIVE DATE



DIRECTOR OR DESIGNEE
DEPARTMENT OF NATURAL RESOURCES

STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. In the event that there is a discrepancy between the permit application and this permit, the conditions of this permit shall take precedence. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the Departments' Air Pollution Control Program of the anticipated date of start up of these air contaminant sources. The information must be made available within 30 days of actual startup. Also, you must notify the Department of Natural Resources Regional office responsible for the area within which you are located within 15 days after the actual start up of these air contaminant sources.

A copy of this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' personnel upon request.

You may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review and your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant sources(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit at (573) 751-4817. If you prefer to write, please address your correspondence to the Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention: Construction Permit Unit.

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SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority."

**Buick Resource Recycling Facility, LLC
Iron County, S14, T34N, R2W**

1. Emission Limitation
 - A. Buick Resource Recycling Facility, LLC shall emit less than 40 tons of Nitrogen Oxides (NO_x) from EP-97, the emission points that is a Diesel Engine (Caterpillar 34060) in any consecutive 12-month period.
 - B. Attachment A or equivalent forms, such as electronic forms, approved by the Air Pollution Control Program shall be used to demonstrate compliance with Special Conditions 1.A.
2. Haul Road Watering
 - A. Buick Resource Recycling Facility, LLC shall control dust from all haul roads at this site using water or surfactant spray consistently and correctly at all times to prevent visible fugitive emissions from entering the ambient air beyond the property boundary. The following conditions apply to haul road watering:
 - A. Water application shall be consistent with the requirements as contained in the approved 2000 Lead SIP (State Implementation Plan).
 - B. Water application may be suspended when the temperature is below 35 degrees Fahrenheit or application of water results in the formation of safety concerns due to ice formation. Suspension of water application due to icing conditions will be documented in the equipment operating log.
 - B. Buick Resource Recycling Facility, LLC shall keep the following records on file and available for inspection:
 - A. Recordkeeping shall be in accordance with the approved recordkeeping requirements as outlined in the 2000 Lead SIP
3. Buick Resource Recycling Facility, LLC can only grind "clean " pallets. The unacceptable materials for wood grinding include, but are not limited to:

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SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

- A. Demolition waste, unless the wood is untreated/unstained/unpainted clean wood
- B. Treated wood [chromated copper arsenate(CCA), pentachlorophenol (PCP), painted and stained]
- C. Contaminated feedstock*
- D. Contaminated agricultural grains*
- E. Wood waste from farms from an open dump
- F. Tire derived material, tires
- G. Non-agricultural industrial process wastes.

* Contaminated implies no longer fit for its intended use due to contact with chemicals.

4. Record Keeping and Reporting Requirements

- A. Buick Resource Recycling Facility, LLC shall maintain all records required by this permit for not less than five years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request. These records shall include Material Safety Data Sheets (MSDS) for all surfactant materials if used.
- B. Buick Resource Recycling Facility, LLC shall report to the Air Pollution Control Program's Compliance/Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten days after the end of the month during which any record required by this permit show an exceedance of a limitation imposed by this permit.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (5) REVIEW

Project Number: 2011-06-026
Installation ID Number: 093-0009
Permit Number:

Buick Resource Recycling Facility, LLC
18954 Highway KK
Boss, MO 65440

Complete: July 13, 2011

Parent Company:
The Doe Run Resources Company
1801 Park 270 Drive
St. Louis, MO 63146

Iron County, S14, T34N, R2W

REVIEW SUMMARY

- Buick Resource Recycling Facility, LLC has applied for authority to install a 22.5 tons per hour pallet grinding plant.
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed equipment. HAPs of concern from this process are those from the combustion of diesel fuel.
- 40 CFR 60 Subpart IIII, "Standards of Performance for Stationary Compression Ignition Internal Combustion Engines" applies to the equipment.
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) apply to this installation. None of the currently promulgated Maximum Achievable Control Technology (MACT) regulations apply to the proposed equipment.
- Paved haul roads and washing of haul roads are being used to control the Lead compounds, particulate matter (PM), particulate matter less than 10 microns in diameter (PM₁₀), and particulate matter less than 2.5 microns in diameter (PM_{2.5}) emissions from the equipment in this permit.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, Construction Permits Required. Potential emissions of all pollutants are conditioned below de minimis levels.
- This installation is located in Iron County, a nonattainment area for the 2008 Lead National Ambient Air Quality Standard (NAAQS).
- This installation is on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation is classified as item number 19. Secondary

metal production plants. The installation's major source level is 100 tons per year and fugitive emissions are counted toward major source applicability.

- Ambient air quality modeling was not performed since potential emissions of the application are conditioned to below de minimis levels.
- Emissions testing are not required for the equipment.
- A revision to the existing Part 70 Operating Permit application is required for this installation within one year of equipment startup.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

The Doe Run Company operates the Buick Resources Recycling Facility, LLC (BRRF) and is a major source with a draft Part 70 operating permit. They are an industry leader in lead recycling. Approximately, 75 percent or more of the lead recycled at BRRF comes in the form of automotive and industrial batteries. Battery recycling yields a useful byproduct, sodium sulfate, which is used in laundry detergent, paper and glass manufacturing industries.

Batteries arrive at BRRF in Boss, Missouri by truck. They are unloaded and placed into a battery bunker. Approximately one-third of all batteries that are received still have an electrical charge on them, so the batteries are picked up by a loader and placed into a stainless steel shredder.

The whole battery is broken in the shredder, and the battery acid (weak sulfuric acid) is drained and collected into storage tanks. This acid is used later in the process. The shredded batteries are placed in a vibrating feeder that feeds a conveyor belt into the hammer mill. The hammer mill pounds the battery into smaller pieces.

Each lead acid battery contains a set of metal grids, lead posts, plastic components, separators, and a lead sulfate paste. The paste is removed by washing through sets of screens for further processing. After going through the hammer mill, the battery pieces enter into a hydro separator where water separates the heavier elements. All of the lead and metal components sink to the bottom and the floating items are skimmed off and sent to the recycling facilities.

The metallic portions of the batteries including grids, posts, other metallics and constituents are primarily fed to the reverberatory furnace and maybe fed to the blast furnace as well. Lead from the furnaces is mixed with other metals to produce alloys that are cast into products of various weights, shapes and sizes in the refinery

The site is changing the way it removes sulfur. The new sulfur removal process is under construction. It will consist of driving the sulfur from the paste in the reverberatory furnace as sulfur dioxide (SO₂). The process is a proven method of operating at other secondary lead production facilities. The sulfur compounds will exit

the reverberatory furnace through the existing ductwork and enter into a new afterburner. Excess air will be blown into the after burner to oxidize the sulfur compounds to SO₂ and the carbon monoxide (CO) will also be oxidized. From the afterburner, the hot gases will enter the existing sonic cooler to reduce the temperature of the gas (air and water sprays will be used to cool the gas). The cooled gas will then go through a new baghouse for particulate control. Finally, the particulate cleaned gas will enter a new dry lime scrubber where the SO₂ and sulfur trioxide (SO₃) will be removed from the gas. The cleaned gas will be then be directed to another baghouse prior to discharging to the main stack. Hydrated lime will be used in the scrubber to absorb the SO₂. The scrubber waste is planned to be blended with wet blast furnace slag prior to disposal or to be marketed if a suitable use can be determined. If the blast furnace slag processing system is down, the scrubber waste will be processed in a pugmill at a moisture content of 20 to 25 percent, by weight prior to disposal.

Removal of the front–end loaded desulfurization increases the total amount of sulfur in the reverberatory furnace feed and increases the potential for reduced sulfur compound formation. The afterburner will oxidize any reduced sulfur compounds to SO₂. Additionally, CO will also be oxidized to CO₂.

The reverberatory slag is fed to the blast furnace to recover the antimonial lead. What remains is a small quantity of secondary blast furnace slag, glassy sand-like material that consists of silica, calcium, iron and approximately less than two percent lead. This slag may be treated prior to being transported to the on-site landfill or offsite for disposal.

The following permits have been issued to Buick Resource Recycling Facility, LLC from the Air Pollution Control Program.

Table One: Permits Issued to 093-0009.

Permit Number	Description
0179-018	Minor Source Permit
0989-003	Major Source Review
0792-016	Minor Source Permit
0493-006	Minor Source Permit
1093-010	Minor Source Permit
0693-013	Minor Source Permit
1093-003	Minor Source Permit
0989-003	Minor Source Permit
0989-003	Minor Source Permit – amendment increase in lead bullion
1095-009	Minor Source Permit- install pot furnace
N/D	Temporary permit slag treatment process
1296-012	Minor Source Permit - oxide transfer system
0297-015	Minor Source Permit - slag treatment system
0997-006	Minor Source Permit - Metal reclamation sweat furnace
OP	Part 70 Operating Permit
102000-007	Minor Source Permit - Blast furnace production
012005-008	Secondary smelter Major Source Review
092006-007	Multi-Hearth Rotary Furnace
012005-008A	Amendments
012010-006	Boilers
062011-004	Afterburner on reverberatory furnace and baghouses

N/A = Not Applicable
 OP = Operating Permit

PROJECT DESCRIPTION

This project is for a pallet grinder capable of grinding up to 22.5 tons of wood per hour with a conveyor to pile and a diesel engine (Caterpillar 3406), haul road and 0.36 acres storage pile. The haul road uses documented watering to control emissions. The source of the pallets is the BRRF and other Doe Run Company properties. The ground wood material is to be used for ground cover on tailing piles and such similar needs. This project consists of the following emission points.

Table Two: Emission Points at Pallet Grinder.

Emission Point	Description	Maximum Hourly Design Rate
EP-95	Pallet Grinder (rotochopper MC-156)	22.5 tons
EP-96	Material Handling (conveyor to pile)	22.5 tons
EP-97	Diesel Engine (Caterpillar 34060)	0.0207 1000 gallons
EP-98	Haul Road (pallets)	3.250 vehicle miles traveled
EP-98	Haul Road (ground wood)	2.031 vehicle miles traveled
Fugitive	Storage Pile (activity)	22.5 tons
Fugitive	Storage Pile (wind erosion)	0.36 acres

EMISSIONS/CONTROLS EVALUATION

The paved haul road emission factors and control efficiencies used in this analysis were obtained from the Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, 13.2.1 (1/11). Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year.) The haul road watering efficiency prescribed for the PM₁₀ and lead (Pb) is 50 percent and PM_{2.5} is 25 percent. All Pb emissions are calculated as coming from the haul road. The installation waters the haul road and mechanically sweeps according to the 2008 Lead State Implementation Plan. The following table provides an emissions summary for this project.

Table Three: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions*	Existing Actual Emissions (2010 EIQ)	Potential Emissions of the Application	New Installation Conditioned Potential
PM _{2.5}	10.0	N/D	20.29	3.87	N/A
PM ₁₀	15.0	Major	28.02	14.27	N/A
SOx	40.0	Major	1,786.99	3.60	N/A
NOx	40.0	Major	53.23	54.76	<40.0
VOC	40.0	<100.0	10.79	4.47	N/A

CO	100.0	Major	19,006.25	11.79	N/A
HAPs	10.0/25.0	Major	4.60	N/A	N/A
Pb	0.6	Major	14.81	0.02	N/A

N/A = Not Applicable; N/D = Not Determined

* From Permit Number 062001-004.

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of all pollutants are conditioned below de minimis levels.

APPLICABLE REQUIREMENTS

Buick Resource Recycling Facility, LLC shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved. For a complete list of applicable requirements for your installation, please consult your operating permit.

GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110
- *Operating Permits*, 10 CSR 10-6.065
- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170
- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220
- *Restriction of Emission of Odors*, 10 CSR 10-6.165

SPECIFIC REQUIREMENTS

- *New Source Performance Regulations*, 10 CSR 10-6.070 – *New Source Performance Standards for 40 CFR 60 Subpart IIII, "Standards of Performance for Stationary Compression Ignition Internal Combustion Engines"*

STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with special conditions.

Timothy Paul Hines
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated June 06, 2011, received June 10, 2011, designating The Doe Run Resources Company as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Southeast Regional Office Site Survey, dated June 29, 2011.

Mr. James Lanzafame
Environmental and Health Manager
Buick Resource Recycling Facility, LLC
18954 Highway KK
Boss, MO 65440

RE: New Source Review Permit - Project Number: 2011-06-026

Dear Mr. Lanzafame:

Enclosed with this letter is your permit to construct. Please study it carefully. Also, note the special conditions, if any, on the accompanying pages. The document entitled, "Review of Application for Authority to Construct," is part of the permit and should be kept with this permit in your files. Operation in accordance with these conditions, your new source review permit application and with your amended operating permit is necessary for continued compliance. The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

If you have any questions regarding this permit, please do not hesitate to contact Timothy Paul Hines, at the Department's Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Kendall B. Hale
Permits Section Chief

KBH:thl

Enclosures

c: Southeast Regional Office
PAMS File: 2011-06-026

Permit Number: