



Jeremiah W. (Jay) Nixon, Governor • Mark N. Templeton, Director

## DEPARTMENT OF NATURAL RESOURCES

MAY 28 2009

www.dnr.mo.gov

Mr. Scott Hayes  
 U.S. Army Point of Contact – LCAAP  
 Route 7 and Route 78 Highway  
 Independence, MO 64051

RE: New Source Review Temporary Permit Request – Project Number: 2008-11-031  
 Installation ID Number: 095-004052009-017  
 Temporary Permit Number:  
 Expiration Date: 6 months from initial operation

Dear Mr. Hayes:

The Missouri Department of Natural Resources' Air Pollution Control Program has completed a review of your request to operate the Thermal Convection System (TCS) for the purpose of thermally neutralizing explosive residue in building materials, equipment and debris associated with Building 83 at United States Army - Lake City Army Ammunition Plant (Lake City). The Air Pollution Control Program is hereby granting your request to conduct this temporary operation at this location in accordance with Missouri State Rule 10 CSR 10-6.060(3) and the Special Conditions attached to this permit.

Per your Application for Authority to Construct received November 14, 2008 and dated November 13, 2008, Lake City is seeking authority to operate the TCS for a period of less than six months. The TCS is a portable unit that thermally neutralizes explosives residues in building materials, equipment and debris. Lake City wishes to decommission Building 83 which was used as a production facility for the primary explosive Lead Styphnate. The explosives residues created during production of Lead Styphnate caused residual attachments to panels, equipment and building structure that has, over time, resulted in the creation of an extreme Immediate Danger to Life and Health risk to anyone in the vicinity of Building 83.

The TCS will have a controlled combined output for this operation which will not exceed 9 million British thermal units per hour. Liquid propane (LP) will be used as the fuel. The TCS will be configured with a car-bottom chamber to serve as the thermal convection furnace chamber that is used for flashing the facility debris, process equipment, piping and metal scrap, as needed, in batches. The TCS process begins with the material being placed inside Chamber 1 where the material is initially heated at 650 degrees Fahrenheit (°F) in order to complete thermal convection of the explosives residues. The maximum hourly design rate is equal to 0.25 tons per hour. The resulting off gas from Chamber 1 is then routed into Chamber 2 where the off gas is heated at 1850 °F with a residence time in Chamber 2 of 0.5 second. The purpose of Chamber 2



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is to complete the total destruction of fugitive asbestos fibers as well as any volatile organic compounds (VOC) released from the contaminated materials. The TCS process is completed with the exhaust leaving Chamber 2 to a baghouse as requested by the Air Pollution Control Program. Temperature for each chamber is controlled and recorded using thermocouples or sensors.

The emissions from the TCS unit consist of emissions associated with the combustion of LP gas and emissions associated with the combustion of building materials. The carbon monoxide (CO) and nitrogen oxide emission factors used for burning LP gas were obtained from the manufacturer of the burner. The VOC, Sulfur Oxide and particulate matter less than 10 microns emission factors were obtained from Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 1.5, *Liquified Petroleum Gas Combustion* (July 2008). Emission factors from Section 10.7 *Charcoal* (September 1995) were used to determine the remaining emissions associated with the combustion of building material. These emission factors were used due to the oxygen-deprived environment created in Chamber 1. Because of the high temperature of the secondary chamber, a 99% control efficiency was given for VOCs and CO generated in Chamber 1. A 95% control efficiency was also credited for destruction of particulate matter in the secondary chamber due to combustion and for the use of a baghouse.

The TCS is subject to 40 CFR Part 61 - National Emission Standards for Hazardous Air Pollutants, Subpart M-National Emission Standards for Asbestos. However, Lake City has cited the "danger of imminent collapse" provision of the rule and thus will not be subject to all parts of the rule. Lake City is expected to coordinate with the EPA and the Air Pollution Control Program's Enforcement Section on all required notifications and asbestos workplans as required by Subpart M.

The program has required the addition of a baghouse to the TCS and testing for asbestos before and after the baghouse in the attached Special Conditions. The de minimis level for asbestos is 0.007 ton per year. Based on our analysis, the temperature in the secondary chamber should be adequate to ensure destruction of the asbestos. However, no known testing has been performed on the TCS or similar system demonstrating complete destruction. In order to ascertain complete destruction of asbestos in the TCS, testing for asbestos will be required.

PIKA, Inc. on behalf of Lake City Army Ammunition Plant conducted paint sample on Building 83. The result of the Polychlorinated Biphenyls (PCB) composite paint samples was 21 parts per million (ppm). Since the PCB analytical results in the composite paint sample were below 50 ppm threshold as stated in Part 761-- PCBs Manufacturing, Processing, Distribution In Commerce, And Use Prohibitions, it is non-regulated for landfill disposition and therefore will not require further testing.

Potential emissions are calculated at the maximum design rate operating at 8,760 hours annually, although Lake City is expecting to operate the TCS for less than six months. Since all criteria air pollutant emissions from this project are below 100 tons per year, the program is hereby granting

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your request for the temporary usage of the TCS with the following Special Conditions.

**Table 1: Emissions based on 8,760 hours per year.**

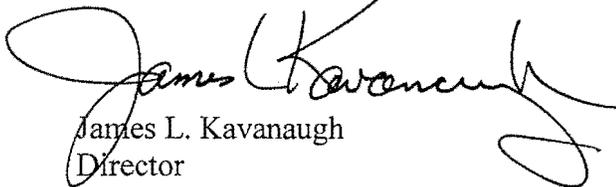
| Pollutant        | Regulatory<br><i>De Minimis</i> Levels | Potential Emissions of the Application |
|------------------|--|--|
| PM <sub>10</sub> | 15.0                                   | 17.3                                   |
| SOx              | 40.0                                   | 1.69                                   |
| NOx              | 40.0                                   | 26.7                                   |
| VOC              | 40.0                                   | 15.2                                   |
| CO               | 100.0                                  | 16.1                                   |
| HAPs             | 10.0/25.0                              | 8.2                                    |
| Asbestos         | 0.007                                  | Not determined                         |

You are still obligated to meet all applicable air pollution control rules, Department of Natural Resources' rules, or any other applicable federal, state, or local agency regulations. Specifically, you should avoid violating 10 CSR 10-6.045, *Open Burning Restrictions*; 10 CSR 10-6.220, *Restriction of Emission of Visible Air Contaminants*; 10 CSR 10-6.170, *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*; 10 CSR 10-2.070, *Restriction of Emission of Odors*; and 10 CSR 10-2.040, *Maximum Allowable Emissions of Particulate Matter From Fuel Burning Equipment Used for Indirect Heating*.

A copy of this letter should be kept with the unit and be made available to Department of Natural Resources' personnel upon verbal request. If you have any questions regarding this determination, please do not hesitate to contact Susan Heckenkamp at the Departments' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or by telephone at (573) 751-4817. Thank you for your time and attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM



James L. Kavanaugh  
Director

JLK:shl

Enclosure

c: Mr. Steve Feeler, Compliance/Enforcement Section  
Kansas City Regional Office  
PAMS File: 2008-08-032

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| Project No. | 2008-11-031 |

TEMPORARY PERMIT 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."*

Lake City Army Ammunition Plant  
Jackson County

1. Emission Limitation

- A. Lake City Army Ammunition Plant shall emit less than 0.007 tons per year of asbestos from the Thermal Convection System (TCS).
- B. Testing as required in Special Condition 4 shall be used to demonstrate compliance with Special Conditions 1.A.
- C. Lake City Army Ammunition Plant shall report to the Air Pollution Control Program's Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than 24 hours after the testing required in Special Condition Number 3 indicates that the source exceeded the limitation of Special Conditions Number 1.A.

2. Control Requirements – Thermal Convection System (TCS)

- A. The liquefied propane-fired TCS shall be operated and maintained in accordance with the manufacturer's specifications to ensure proper destruction of the asbestos. The performance of the TCS shall be verified through compliance testing, as detailed in Special Condition Number 4 of this permit.
- B. The operating temperature of the TCS of Chamber 1 and Chamber 2 shall be continuously monitored and shall equal or exceed the temperature that is determined during the compliance test specified in Special Condition Number 3. All records shall be maintained on-site and shall be made immediately available to Missouri Department of Natural Resources' personnel upon request.
- C. Lake City Army Ammunition Plant shall maintain an operating, maintenance and inspection log for the TCS which shall include the following:
  - (1) Incidents of malfunction(s) including the date(s) and duration of the event, the probable cause, any corrective actions taken and the impact on missions due to the malfunction;
  - (2) Any maintenance activities conducted on the unit, such as replacement of equipment, etc.; and
  - (3) A written record of regular inspection schedule, the date and results of all inspections including any actions or maintenance activities that result from that inspection.

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TEMPORARY PERMIT SPECIAL CONDITIONS:

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

3. Baghouse conditions

- A. Lake City Army Ammunition Plant shall control emissions from Thermal Convection System using a baghouse. The baghouse shall be operated and maintained in accordance with the manufacturer's specifications. The baghouse shall be equipped with a gauge or meter, which indicates the pressure drop across the control device. These gauges or meters shall be located such that the DNR employees may easily observe them. Replacement filters for the baghouse shall be kept on hand at all times. The bags shall be made of fibers appropriate for operating conditions expected to occur (i.e. temperature limits, acidic and alkali resistance, and abrasion resistance).
- B. After completion of the TCS operation, Lake City Army Ammunition Plant shall decontaminate and dispose of the bags in an asbestos-approved landfill.
- C. Lake City Army Ammunition Plant shall monitor and record the operating pressure drop across the baghouse at least once every 24 hours. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.
- D. Lake City Army Ammunition Plant shall maintain an operating and maintenance log for the baghouse which shall include the following:
  - (1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and
  - (2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.

4. Compliance Testing – Thermal Convection System (TCS)

- A. Within 24 hours of initiating operation, but in no case later than 48 hours after initial startup, an emission test shall be conducted before and after the baghouse to determine the destruction/removal efficiency of asbestos emissions by the TCS and the baghouse. These tests shall be conducted in accordance with the Stack Test Procedures outlined in Special Conditions Numbers 4.B through 4.D.
- B. A completed Proposed Test Plan Form (enclosed) must be submitted to the Air Pollution Control Program thirty (30) days prior to the proposed test date so that this program may arrange a pretest meeting, if necessary, and assure that the test date is acceptable for an observer to be present. The Proposed Test Plan must be approved by the Director of the Missouri Air Pollution Control Program prior to conducting the required emission testing.
- C. Two (2) copies of a written report of the performance test results shall be submitted to the Director of the Air Pollution Control Program within sixty (60) days of completion of any required testing. The report must include legible

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TEMPORARY PERMIT SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:  
copies of the raw data sheets, analytical instrument laboratory data, and complete sample calculations from the required EPA Method for at least one (1) sample run.

- D. Performance testing shall be conducted while burning material with the highest potential for containing asbestos. The process/production rate at which performance testing is conducted shall become the maximum process/production rate at which the line is permitted to operate, under the authority granted by this permit.
5. In order to continue operating the TCS past the expiration date, Lake City will need to seek permission from the Air Pollution Control Program and conduct testing in accordance to the Maximum Achievable Control Technology (MACT) standard, 40 CFR Part 63, Subpart EEE, *National Emission Standard for Hazardous Air Pollutants from Hazardous Waste Combustors*.
6. The TCS is subject to 40 CFR Part 61 - National Emission Standards for Hazardous Air Pollutants (NESHAPS), Subpart M-National Emission Standards for Asbestos. Lake City Army Ammunition Plant shall submit all appropriate notifications and an asbestos workplan for controlling emissions from the building during the venting and demolition process to the Air Pollution Control Program's Enforcement Section, P.O. Box 176, Jefferson City, MO 65102 at least one week prior to startup of the Thermal Convection System.
7. This permit does not become effective until Lake City Army Ammunition Plant is granted a "danger of imminent collapse" certification as required by OSHA.