

STATE OF MISSOURI



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: **032011-009** Project Number: 2010-12-008

Parent Company: Missouri State Highway Patrol

Parent Company Address: 301 West High Street, Room 870, Jefferson City, MO 65102

Installation Name: Missouri State Highway Patrol

Installation Number: 051-0079

Installation Address: 2920 North Shamrock Road, Jefferson City, MO 65102

Location Information: Cole County, S23, T44, R11

Application for Authority to Construct was made for:
Installation of an institutional waste incineration unit. 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.

MAR 17 2011

EFFECTIVE DATE

A handwritten signature in black ink, appearing to read "James L. Korman".

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 this (these) air contaminant source(s). 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 this (these) air contaminant source(s).

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 source(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."

Missouri State Highway Patrol
Cole County, S23, T44, R11

1. Emission Limitation
 - A. Missouri State Highway Patrol shall emit less than ten (10.0) tons of Hydrogen Chloride a Hazardous Air Pollutants (HAPs) in any consecutive 12-month period from the incinerator (EU-01).
 - 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 Condition 1.A..
2. Process Requirements for the incinerator (EU-01)
 - A. Missouri State Highway Patrol will burn exclusively contraband or prohibited goods. It can only destroy illegal or prohibited goods such as illegal drugs.
 - B. Charging of waste between burn cycles is prohibited.
 - C. Missouri State Highway Patrol shall maintain the temperature in the final combustion chamber at or above 1400 degrees Fahrenheit. Compliance can be determined by recording the temperature in Attachment B or by the installation of a continuous chart or electronic recorder.
 - D. Missouri State Highway Patrol shall maintain an accurate record of the items incinerated at this installation per month.
 - E. The incinerator (EU-01) shall have opacity of less than ten percent (10%) at all times.
 - F. The incinerator shall not be operated if not in sound mechanical condition. The entire unit should be free from holes and the door seal as designed.
 - G. Attachment B or equivalent forms, such as electronic forms, approved by the Air Pollution Control Program shall be used to demonstrate compliance with Special Conditions 2.A., 2.C., 2.D., and 2. E.

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SPECIAL CONDITIONS:

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

3. Restriction of Odors

If a continued situation of verified nuisance odors exists in violation of 10 CSR 10-6.165, the Director may require through written notice that Missouri State Highway Patrol submit within ten days a corrective action plan adequate to timely and significantly mitigate the odors. Missouri State Highway Patrol shall implement any such plan immediately upon its approval by the Director. Failure to either submit or implement such a plan shall be in violation of this permit.

4. Record Keeping and Reporting Requirements

A. Name 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

B. Name shall report to the Air Pollution Control Program's 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: 2010-12-008
Installation ID Number: 051-0079
Permit Number:

Missouri State Highway Patrol
2920 North Shamrock Road
Jefferson City, MO 65102

Complete: December 09, 2010

Parent Company:
Missouri State Highway Patrol
301 West High Street, Room 870
Jefferson City, MO 65102

Cole County, S23, T44, R11

REVIEW SUMMARY

- Missouri State Highway Patrol has applied for authority to install an institutional waste incineration unit.
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed equipment. Antimony Compounds, Arsenic Compounds, Beryllium Compounds, Cadmium Compounds, Chromium Compounds, Manganese Compounds, Mercury Compounds, Nickel Compounds, Hydrogen Fluoride (Cas # 7664-39-3), Chlorine (Cas # 7782-50-5), dioxins/furans, PCB (polychlorinated biphenyls (Cas # 1336-36-6)), and HCl (hydrogen chloride (Cas # 7647-01-0)) are all expected from this incinerator.
- None of the New Source Performance Standards (NSPS) apply to the installation. NSPS Subpart EEEE-Standards of Performance for Other Solid Waste Incineration (OSWI) units for which Construction is Commenced After December 9, 2004 would apply except this unit meets the exemption as it is owned by a government agency and is restricted to burning only contraband or prohibited goods.
- 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.
- A second burner chamber is being used to control the 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 criteria pollutants are conditioned to below de minimis levels. HCl is limited to less than the de minimus levels.

- This installation is located in Cole County an attainment area for all other criteria pollutants
- This installation is not on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation's major source level is 250 tons per year and fugitive emissions are not counted toward major source applicability.
- Ambient air quality modeling was not performed since potential emissions of the application are below de minimis levels.
- Emissions testing is not required for the equipment.
- A Basic Operating Permit application is required for this installation within 30 days of equipment startup.
- Approval of this permit is recommended with special conditions.

INSTALLATION/PROJECT DESCRIPTION

The incinerator is the Eliminator SB3000, manufactured by Super Nova manufacturing, formerly Southern Breeze Fabricators. The incinerator utilizes Carlin Manufacturing Company's primary and secondary oil burners. The main burner is a Carlin model 601CRD which can combust fuels from 6 to 13.2 gallons per hour (GPH). The afterburner is a Carlin model 102CRD which can combust fuels from 2 to 4.5 GPH. The incinerator utilizes an external 300 gallon fuel oil tank. The unit is designed to incinerate at a rate of 250 pounds per hour. The incinerator does not have any external control devices. It will burn diesel fuel.

All incinerators are required to obtain a permit in the State of Missouri. This unit is considered an institutional waste incinerator. It is used for the destruction of illegal drugs, contraband, or prohibited goods. It is located in Cole County. It is the only emission source located on the site and it is a de minimis source. The incinerator is located near the east side of the highway patrol building at 2920 North Shamrock Road. The Highway Patrol obtained this unit without obtaining a permit. No permits have been issued to Missouri State Highway Patrol from the Air Pollution Control Program.

This unit can burn or incinerate those items that are in the possession of the Missouri State Highway Patrol or other government agency such as the police or similar agency that are considered to be illegal drugs as defined in Chapter 195 Drug Regulations Section 195.017. Revised or updated or corrected sections of this list are authorized for incineration. Items by being in the possession of the Missouri State Highway Patrol or other government agency such as the police or similar agency for incineration that are found to be in their possession by legal court action or due process of the legal system are considered to be illegal or contraband or prohibited goods. The unit is not

authorized to cremate non-infectious human bodies and body parts. It is not authorized to incinerate medical/infectious waste as defined in the Code of Federal Regulations, 40 CFR 60.51, *Standards of Performance for New Stationary Sources*, Subpart Ec— “Standards of Performance for Hospital/Medical/Infectious Waste Incinerators for Which Construction is Commenced After June 20, 1996” unless it is an illegal drug, contraband or prohibited goods. It is authorized to incinerate those items that are contraband, illegal drugs or prohibited goods from NSPS Subpart EEEE, *Standards of Performance for Other Solid Waste Incineration (OSWI) units for which Construction is Commenced After December 9, 2004*. This unit must be owned by a government agency such as the police or similar agency. It can only destroy illegal or prohibited goods such as illegal drugs, or agricultural food products that can not be transported into the country or across State lines. This unit is excluded from the subpart and is not considered an OSWI unit subject to Subpart EEEE. Some items that are medical/infectious waste may be contraband, illegal drugs or prohibited goods and are authorized to be incinerated. However, those medical/infectious waste items that are not contraband, illegal drugs or prohibited goods are not authorized to be incinerated. The rule defines medical/infectious waste as:

Medical/infectious waste means any waste generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining thereto, or in the production or testing of biologicals that are listed in paragraphs (1) through (7) of this definition. The definition of medical/infectious waste does not include hazardous waste identified or listed under the regulations in part 261 of this chapter; household waste, as defined in §261.4(b)(1) of this chapter; ash from incineration of medical/infectious waste, once the incineration process has been completed; human corpses, remains, and anatomical parts that are intended for interment mation; and domestic sewage materials identified in §261.4(a)(1) of this chapter.

- (1) Cultures and stocks of infectious agents and associated biologicals, including: cultures from medical and pathological laboratories; cultures and stocks of infectious agents from research and industrial laboratories; wastes from the production of biologicals; discarded live and attenuated vaccines; and culture dishes and devices used to transfer, inoculate, and mix cultures.
- (2) Human pathological waste, including tissues, organs, and body parts and body fluids that are removed during surgery or autopsy, or other medical procedures, and specimens of body fluids and their containers.
- (3) Human blood and blood products including:
 - (i) Liquid waste human blood;
 - (ii) Products of blood;
 - (iii) Items saturated and/or dripping with human blood; or
 - (iv) Items that were saturated and/or dripping with human blood that are now caked with dried human blood; including serum, plasma, and other blood components, and their containers, which were used or intended for use in either patient care, testing and laboratory analysis or the development of pharmaceuticals. Intravenous bags are also included in this category.

- (4) Sharps that have been used in animal or human patient care or treatment or in medical, research, or industrial laboratories, including hypodermic needles, syringes (with or without the attached needle), pasteur pipettes, scalpel blades, blood vials, needles with attached tubing, and culture dishes (regardless of presence of infectious agents). Also included are other types of broken or unbroken glassware that were in contact with infectious agents, such as used slides and cover slips.
- (5) Animal waste including contaminated animal carcasses, body parts, and bedding of animals that were known to have been exposed to infectious agents during research (including research in veterinary hospitals), production of biologicals or testing of pharmaceuticals.
- (6) Isolation wastes including biological waste and discarded materials contaminated with blood, excretions, exudates, or secretions from humans who are isolated to protect others from certain highly communicable diseases, or isolated animals known to be infected with highly communicable diseases.
- (7) Unused sharps including the following unused, discarded sharps: hypodermic needles, suture needles, syringes, and scalpel blades.

EMISSIONS/CONTROLS EVALUATION

The 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. Knowing that the incinerator will periodically incinerate pharmaceuticals that would be characterized as medical waste, the Potential To Emit was calculated from emission factors from an uncontrolled medical waste incinerator. The emission rates are from Table 2.3-1 *Emission Factors for NO_x, CO and SO_x for Controlled Air Medical Waste Incinerators* found in *Medical Waste Incineration*, 1993 under Section 2, *Solid Waste Disposal* of AP-42. For particulate matter less than ten (10) microns (PM₁₀) and less than two and one half (2.5) microns in aerodynamic diameter the emission factor for total Particulate Matter (PM) was used. Volatile organic compound (VOC) emissions were calculated using an emission factor for total organic compounds from Table 2.3-2. The emission factors used in the analysis of HAP emissions were obtained from those HAPs listed in Table 3-2 and Table 3-3. The HAP HCl exceeded the Screen Modeling Action Level (SMAL) and the single HAP emission rate for de minimis sources, but the installation limited the HCl to less than the emission threshold level for modeling of 10 tons. Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8,760 hours per year.) The following table provides an emissions summary for this project.

Table 2: Emissions Summary (tons per year)

Pollutant	Regulatory De Minimis Levels or SMAL (Tons/Year)	Existing Potential Emissions	Existing Actual Emissions	Potential Emissions of the Application (Tons/Year)	New Installation Conditioned Potential
PM _{2.5}	10.0	N/A	N/A	2.55	N/A
PM ₁₀	15.0	N/A	N/A	2.55	N/A
SO _x	40.0	N/A	N/A	1.18	N/A
NO _x	40.0	N/A	N/A	1.94	N/A
VOC	40.0	N/A	N/A	0.16	N/A
CO	100.0	N/A	N/A	1.61	N/A
HAPs	10.0/25.0	N/A	N/A	18.59	N/A
HCL	10.0	N/A	N/A	18.34	>10.0
Dioxins/Furans	0.0000006	N/A	N/A	0.00000581	N/A
PCB	0.009	N/A	N/A	.0000181	N/A

N/A = Not Applicable

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 criteria pollutants are below de minimis levels. HCL is limited to less than de minimis levels.

APPLICABLE REQUIREMENTS

Missouri State Highway Patrol 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
The emission fee is the amount established by the Missouri Air Conservation Commission annually under Missouri Air Law 643.079(1). Submission of an Emissions Inventory Questionnaire (EIQ) is required June 1 for the previous year's emissions.
- *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

AMBIENT AIR QUALITY IMPACT ANALYSIS

Ambient air quality modeling was performed to determine the ambient impact of Dioxins and Furans. The emission rates are from Table 2.3 13 the uncontrolled column under *Chlorinated Dibenzofuran Emission Factors for Controlled Air Medical Waste Incinerators* and Table 2.3 11 the uncontrolled column under *Chlorinated Dibenzo-P-Dioxin Emission Factors for Controlled Air Medical Waste Incinerators* found in *Medical Waste Incineration*, 1993 under Section 2, *Solid Waste Disposal* of AP-42. Dioxins and Furans exceeded the SMAL value of 0.0000006 tons per year when the Toxic Equivalency Factor (TEF) was used. The TEF assigns a fractional value (a lower value) to the less toxic chains. The Polychlorinated Biphenyls (PCBs) was required to be added to the Dioxins and Furans emission totals for the comparison to the SMAL and Risk Assessment Levels (RAL) values. When comparing the maximum concentration from Screen3 to the 10 times the Risk Assessment Levels (RAL) of 0.3 picograms per cubic meter. The 10 times the RAL value of 0.3 did not exceed the maximum concentration value of 0.0249361 picograms per cubic meter.

Table 3: Dioxins/Furans/PCB evaluation.

Pollutant	Modeled Impact (picograms per cubic meter)	10 times RAL (picograms per cubic meter)	Time Period
Dioxins/Furans/PCB	0.024936	0.3	annual

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 December 1, 2010, received December 4, 2010, designating Missouri State Highway Patrol as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Northeast Regional Office Site Survey, dated January 5, 2011.

Attachment A
Monthly HCL Emissions Tracking Record

Missouri State Highway Patrol
 Cole County, S23, T44, R11
 Project Number: 2010-12-008
 Installation ID Number: 051-0079
 Permit Number: _____

This sheet covers the period from _____ to _____.
 (month, year) (month, year)

Day of Month	Hours Operated	Emission Factor (lbs HCl/hr)	Pounds of HCL Emittted	(a) Tons of HCl Emittted
10th	10	4.1875	41.87	0.0209
		4.1875		
		4.1875		
		4.1875		
		4.1875		
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		4.1875		
		4.1875		
		4.1875		
		4.1875		
(b) Individual HAP Emissions Calculated for this Month (tons):				
(c) 12-Month Individual HAP Emissions Total from Previous Month's Attachment A (tons):				
(d) Monthly Individual HAP Emissions Total from previous year's Attachment A (tons):				
(e) Current 12-month Individual HAP Emissions (tons):				

- (a) Emissions from each day operated are calculated by multiplying the hours operated by the emission factor equals the Pounds of HCl emitted. The pounds of HCl emitted are converted to tons of HCl emitted by multiplying pounds of HCl emitted by 0.0005.
- (b) Total HCl Emissions for this Month Calculated by Summing (a). Monthly Emissions from each day operated.
- (c) 12-Month HCl emissions total can be taken from (e) of last month's Attachment A.
- (d) The Monthly HCl Emissions from previous year's Attachment A is the emissions from thirteen (13) month ago.
- (e) Current 12-Month HCl emissions can be calculated by (b) + (c) – (d).

A 12-month individual HCl emissions total (e) of less than 10 tons indicates compliance.

Mr. Timothy Baysinger
Captain
Missouri State Highway Patrol
2920 North Shamrock Road
Jefferson City, MO 65102

RE: New Source Review Permit - Project Number: 2010-12-008

Dear Mr. Baysinger:

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 by telephone at (573) 751-4817. Thank you for your time and attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Kendall B. Hale
New Source Review Unit Chief

KBH:thk

Enclosures

c: Northeast Regional Office
PAMS File: 2010-12-008

Permit Number: