



Jeremiah W. (Jay) Nixon, Governor • Sara Parker Pauley, Director

DEPARTMENT OF NATURAL RESOURCES

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APR 30 2014

Mr. Paul Conrad
Environmental Engineering Supervisor
Sinclair Bulk Terminal
211 Water Street
New Madrid, MO 63869

RE: New Source Review Temporary Permit Request - Project Number: 2014-01-036
Installation ID Number: 143-0006
Temporary Permit Number: **042014-007**
Expiration Date: April 1, 2016

Dear Mr. Conrad:

The Missouri Department of Natural Resources' Air Pollution Control Program has completed a review of your request for petroleum recovery and site remediation at the former Sinclair Bulk Terminal, located in New Madrid, Missouri. 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).

Sinclair Transportation Company (Sinclair) provided data on a proposed soil and groundwater remediation system at the former New Madrid Bulk Terminal at 211 Water Street, New Madrid, Missouri. The site is registered in the Brownfields/Voluntary Cleanup Program. To remediate impacted media, Sinclair has retained Smith & Company Engineers, a Missouri corporation, to perform pilot testing of air emissions from soil vapor extraction (SVE) wells and to design and operate an SVE system. The system draws petroleum vapors from well points at the facility by means of SVE and Air Sparge Systems. The air and vapors drawn from the wells by the SVE Pump pass through a condensation collector then are processed through a 500 cubic feet per minute (CFM) Thermal\Catalytic Oxidizer to reduce the remaining petroleum components before being exhausted to the atmosphere. The exhaust piping terminates 15 feet above ground. The Thermal\Catalytic Oxidizer is sized to handle air flows between 150 CFM to 500 CFM at temperatures between 1,400°F to 1,600°F. This remediation system is anticipated to be in operation for two years or less. The calculated removal rates decrease over time as the remediation process continues and the residual petroleum is recovered.

The initial test was conducted and sent to Teklab, Inc. on September 21, 2013. When the wells were first tapped and an influx of pollutants was released, the results for this test were high

compared to the subsequent test. The initial test for the remediation system was conducted at the site ran at a rate of 420 standard cubic feet per minute (SCFM). A volatile organic compound (VOC) and volatile hazardous air pollutant (HAP) reduction rate of 98% was applied in accordance to the manufacturer's specification. It is expected that these levels will not be exceeded over the next two years and therefore, these results are considered to be the worst case scenario.

The start-up of the system to collect additional air sample data did not occur until February 19, 2014. The test data results were analyzed by Teklab, Inc. and submitted to Smith & Company on March 7, 2014. Sinclair proposed that the remediation system would meet air pollution control standards for VOC and HAPs. The test conducted at the site for the remediation system ran at a rate of 520 SCFM by use of an air extraction system that directed the influent into a thermal oxidizer achieving an 80% destruction of the vapors. Determination of VOCs was air collected in specially prepared canisters and analyzed by gas chromatography/mass spectrometry (GC/MS). It was determined that the low destruction rate of the vapors was due to the higher SCFM. According to the second test results conducted February 19, 2014, the uncontrolled VOCs potential to emit is below 40 tons per year. The effluent test results are significantly lower because of the thermal oxidizer being used as a controlled device.

The table below is the result of the initial pilot test conducted September 21, 2013 and calculated combustion emissions for the thermal oxidizer fueled by propane:

SVE Test 9/21/2013 and Propane Combustion of Thermal Oxidizer

Pollutant	Propane Combustion of Thermal Oxidizer (tpy)	Uncontrolled Soil Vapor Extraction PTE 9/24/2013 (tpy)	Controlled Soil Vapor Extraction (98% destruction eff.) PTE (tpy)	Total Controlled PTE (tpy)
PM	0.01	N/A	N/A	0.01
PM ₁₀	0.04	N/A	N/A	0.04
PM _{2.5}	0.04	N/A	N/A	0.04
SO _x	0.09	N/A	N/A	0.09
NO _x	0.81	N/A	N/A	0.81
VOC	0.03	917.74	18.35	18.39
CO	0.47	N/A	N/A	0.47
HAPs	0.01	20.947	0.42	0.43
CO ₂	777.87	N/A	N/A	777.87
CH ₄ (Methane)	0.01	N/A	N/A	0.0124
N ₂ O	0.06	N/A	N/A	0.06
GHG (Mass)	777.94	N/A	N/A	777.94
GHG (CO ₂ e)	794.87	N/A	N/A	794.84

The remediation system is anticipated to be in nearly continuous operation for a period of one to two years, depending on the concentration trend in the influent vapors and potential influences of high ground-water levels that have an effect on when the SVE system is running.

Subsequent notification should be made to the Air Pollution Control Program's Southeast Regional Office after each sampling event is completed. The following conditions apply to this temporary activity.

1. A thermal oxidizer shall operate at all times during this SVE so that emissions not exceed 100 tons per year (minor source) of VOCs or 25 tons per year of total HAPs. Sinclair Transportation Company (Sinclair) shall ensure that the temperature of the thermal oxidizer is maintained within the normal operating range established in the emissions test reports that were provided with the application. Emission test reports indicate that a minimum temperature of 1200°F must be maintained to ensure continued compliance. The temperature readout from the thermal oxidizer's chart recorder shall be made available for the duration of the project.
2. No later than 90 days following the expiration of the permit, Sinclair shall submit a project report to the Air Pollution Control Program's Enforcement/Compliance Section. This report shall include:
 - a. The start date, start time and duration of the monthly tests conducted in accordance to the Brownfields/Volunteer Cleanup Program/Missouri DNR Hazardous Waste Program.
 - b. Emissions calculated for the VOCs and HAPs as a result of the influent/effluent testing conducted.
 - c. The SCFM and efficiency of the Thermal Oxidizer for each test conducted.
 - d. A summary and discussion of the methods used to develop the total emission extracted.

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 Requirements*, 10 CSR 10-6.220, *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.165 *Restriction of Emission of Odors*, 10 CSR 10-6.170 *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, and 10 CSR 10-6.400 *Restriction of Emission of Particulate Matter From Industrial Processes*.

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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 Kathy Kolb 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


Kyra L. Moore
Director

KLM:kk1

c: Mr. Russell Sullivan, Compliance/Enforcement Section
PAMS File: 2014-01-036
Southeast Regional Office