



Mitchell E. Daniels, Jr.
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
(800) 451-6027
www.IN.gov/idem

TO: Interested Parties / Applicant

DATE: December 12, 2005

RE: Midwest Soil Remediation, Inc. / 035-21976-00077

FROM: Paul Dubenetzky
Chief, Permits Branch
Office of Air Quality

Notice of Decision: Approval - Registration

Please be advised that on behalf of the Commissioner of the Department of Environmental Management, I have issued a decision regarding the enclosed matter. Pursuant to IC 4-21.5-3-4(d) this order is effective when it is served. When served by U.S. mail, the order is effective three (3) calendar days from the mailing of this notice pursuant to IC 4-21.5-3-2(e).

If you wish to challenge this decision, IC 4-21.5-3-7 requires that you file a petition for administrative review. This petition may include a request for stay of effectiveness and must be submitted to the Office of Environmental Adjudication, 100 North Senate Avenue, Government Center North, Room 1049, Indianapolis, IN 46204, **within eighteen (18) calendar days of the mailing of this notice**. The filing of a petition for administrative review is complete on the earliest of the following dates that apply to the filing:

- (1) the date the document is delivered to the Office of Environmental Adjudication (OEA);
- (2) the date of the postmark on the envelope containing the document, if the document is mailed to OEA by U.S. mail; or
- (3) The date on which the document is deposited with a private carrier, as shown by receipt issued by the carrier, if the document is sent to the OEA by private carrier.

The petition must include facts demonstrating that you are either the applicant, a person aggrieved or adversely affected by the decision or otherwise entitled to review by law. Please identify the permit, decision, or other order for which you seek review by permit number, name of the applicant, location, date of this notice and all of the following:

- (1) the name and address of the person making the request;
- (2) the interest of the person making the request;
- (3) identification of any persons represented by the person making the request;
- (4) the reasons, with particularity, for the request;
- (5) the issues, with particularity, proposed for considerations at any hearing; and
- (6) identification of the terms and conditions which, in the judgment of the person making the request, would be appropriate in the case in question to satisfy the requirements of the law governing documents of the type issued by the Commissioner.

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178. Callers from within Indiana may call toll-free at 1-800-451-6027, ext. 3-0178.

Enclosures
FN-REGIS.dot 1/10/05



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We make Indiana a cleaner, healthier place to live.

Mitchell E. Daniels, Jr.
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
(800) 451-6027
www.IN.gov/idem

December 12, 2005

Mike Fetherling
Midwest Soil Remediation, Inc.
23872 N Kelsey Road
Lake Barrington, IL 60010

Re: Registered Construction and Operation Status,
035-21976-00077

Dear Mr. Fetherling:

The application from Midwest Soil Remediation, Inc., received on November 15, 2005, has been reviewed. Based on the data submitted and the provisions in 326 IAC 2-5.5, it has been determined that the following stationary soil remediation unit, located at 9511 West Depot Street, Yorktown, Indiana 47396, is classified as registered:

- (a) One (1) truck-mounted soil remediation unit, constructed in 2005, designated as MSR Unit #3, equipped with a counter-current rotary kiln for low temperature thermal desorption and treatment of soils contaminated with petroleum hydrocarbons, with a maximum process weight capacity of 18 tons of contaminated soil per hour. The unit is equipped with the following:
 - (1) one (1) feed hopper for conveying soils into the rotary kiln
 - (2) one (1) No. 2 diesel fuel or No. 2 heating oil-fired rotary kiln, rated at 17.0 MMBtu/hr, exhausting to the baghouse;
 - (3) one (1) baghouse for controlling particulate emissions from the rotary kiln with a control efficiency of 99.9% and a maximum design grain loading of less than or equal to 0.008 grain per actual cubic foot of outlet air, when operated at a gas flow rate of nine thousand (9,000) actual cubic feet per minute (acfm);
 - (4) one (1) No. 2 diesel fuel or No. 2 heating oil-fired thermal oxidizer, rated at 17.0 MMBtu/hr, for controlling volatile organic emissions from the rotary kiln with a operating temperature between of 1,400°F and 1,700°F, a maximum control efficiency greater than 99%, and exhausting to the atmosphere;
 - (5) one (1) No. 2 diesel fuel or No. 2 heating oil-fired generator, rated at 0.7 MMBtu/hr; exhausting to the atmosphere.
 - (6) one (1) discharge auger for conveying soils exiting the rotary kiln and collected particulates exiting the baghouse, equipped with water spray nozzles to cool and control particulates from the treated soil prior to exiting the unit.
- (b) This stationary source also includes the following insignificant activities:
 - (1) Paved and unpaved roads and parking lots with public access;

- (2) Soil handling and transferring activities utilizing earth moving equipment including, but not limited to, excavators, front-end loaders, dump trucks, and conveyors;
- (3) No. 2 diesel fuel or No. 2 heating oil storage tanks;

The following conditions shall be applicable:

- (a) Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following:
 - (1) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
 - (2) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.
- (b) Pursuant to 326 IAC 6-4 (Fugitive Dust Emissions Limitations), the source shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4.
- (c) Pursuant to 326 IAC 6-3-2(e)(2) (Particulate Emission Limitations for Manufacturing Processes), the particulate emissions from to the soil remediation unit shall not exceed 28.43 pounds per hour based on a process weight rate equal to 18 tons of contamination soil per hour (36,000 pounds of contaminated soil per hour). The allowable rate of emission was calculated as follows:

Interpolation of the data in the table in 326 IAC 6-3-2(e)(2) for the process weight rates up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67} \quad \text{where } E = \text{rate of emission in pounds per hour, and} \\ P = \text{process weight rate in tons per hour}$$

IDEM, OAQ has agreed that the baghouse will be considered as an integral part of the soil remediation unit and the potential to emit particulates (PM/PM10) will be determined after the baghouse. The hourly potential particulate matter emissions after the baghouse are estimated to be 0.617 pounds per hour, which is less than the 326 IAC 6-3-2 allowable hourly rate of 28.43 pounds per hour. Therefore, compliance with 326 IAC 6-3 is expected.

Since the baghouse is considered an integral part of the soil remediation unit and is necessary to comply with the requirements of 326 IAC 6-3-2, particulate from rotary kiln shall be controlled by the baghouse at all times that the rotary kiln is in operation, and the Permittee shall operate the control device in accordance with manufacturer's specifications.

The soil remediation unit has the following compliance monitoring requirements:

- (a) Visible emission notations of the soil remediation unit stack exhaust shall be performed once per day during normal daylight operations when exhausting to the atmosphere. A trained employee shall record whether emissions are normal or abnormal. For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time. In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions. A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.
- (b) The Permittee shall record the pressure drop across the baghouse used in conjunction with the rotary kiln, at least once per day when the process is in operation when venting to the atmosphere. When for any one reading, the pressure drop across the baghouse is outside the normal range of 3.0 and 6.0 inches of water or a range established during the latest stack test, the Permittee shall take reasonable response steps to return operation of the unit to within "normal" parameters. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps shall be considered a deviation from this permit.
- (c) In the event that bag failure is observed in a multi-compartment baghouse, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.
- (d) For a single compartment baghouse controlling emissions from a process operated continuously, a failed unit and the associated process shall be shut down immediately until the failed unit has been repaired or replaced.
- (e) For a single compartment baghouse controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the soil remediation unit.
- (f) Bag failure can be indicated by a significant drop in the baghouse's pressure reading with abnormal visible emissions, by an opacity violation, or by other means such as gas temperature, flow rate, air infiltration, leaks, dust traces or triboflows.

This registration is the first registration issued to this source. The source may operate according to 326 IAC 2-5.5.

An authorized individual shall provide an annual notice to the Office of Air Quality that the source is in operation and in compliance with this registration pursuant to 326 IAC 2-5.5-4(a)(3). The annual notice shall be submitted to:

**Compliance Data Section
Office of Air Quality
100 North Senate Avenue
Indianapolis, IN 46204**

no later than March 1 of each year, with the annual notice being submitted in the format attached.

An application or notification shall be submitted in accordance with 326 IAC 2 to the Office of Air Quality (OAQ) if the source proposes to construct new emission units, modify existing emission units, or otherwise modify the source. If you have any questions on this matter, please contact Nathan C. Bell, OAQ, 100 North Senate Avenue, Indianapolis, Indiana, 46206, at 317-234-3350 or at 1-800-451-6027 (ext 43350).

Sincerely,
Origin signed by

Nysa L. James, Section Chief
Permits Branch
Office of Air Quality

ncb

cc: File - Delaware County
Delaware County Health Department
Air Compliance - Marc Goldman
Permit Tracking
Compliance Data Section
Administrative and Development

| |
|---|
| Registration Annual Notification |
|---|

This form should be used to comply with the notification requirements under 326 IAC 2-5.5-4(a)(3)

| | |
|-------------------------------|--------------------------------|
| Company Name: | Midwest Soil Remediation, Inc. |
| Address: | 9511 West Depot Street |
| City: | Yorktown, Indiana 47396 |
| Authorized individual: | Mike Fetherling |
| Phone #: | (847) 742-4331 Ext 312 |
| Registration #: | 035-21976-00077 |

I hereby certify that Midwest Soil Remediation, Inc. is still in operation and is in compliance with the requirements of Registration 035-21976-00077.

| |
|----------------------|
| Name (typed): |
| Title: |
| Signature: |
| Date: |

Indiana Department of Environmental Management Office of Air Quality

Technical Support Document (TSD) for a Registration

Source Background and Description

Source Name: Midwest Soil Remediation, Inc.
Source Location: 9511 West Depot Street, Yorktown, IN 47396
County: Delaware
SIC Code: 4959 (Sanitary Services Not Elsewhere Classified)
Application No.: 035-21976-00077
Reviewer: Nathan C. Bell

On November 15, 2005, the Office of Air Quality (OAQ) received an application from Midwest Soil Remediation, Inc. relating to the operation of a stationary soil remediation unit at a contaminated site located at 9511 West Depot Street, Yorktown, Indiana, 47396.

New Emission Units and Pollution Control Equipment

The application includes information relating to the construction and operation of the following:

- (a) One (1) truck-mounted soil remediation unit, constructed in 2005, designated as MSR Unit #3, equipped with a counter-current rotary kiln for low temperature thermal desorption and treatment of soils contaminated with petroleum hydrocarbons, with a maximum process weight capacity of 18 tons of contaminated soil per hour. The unit is equipped with the following:
 - (1) one (1) feed hopper for conveying soils into the rotary kiln
 - (2) one (1) No. 2 diesel fuel or No. 2 heating oil-fired rotary kiln, rated at 17.0 MMBtu/hr, exhausting to the baghouse;
 - (3) one (1) baghouse for controlling particulate emissions from the rotary kiln with a control efficiency of 99.9% and a maximum design grain loading of less than or equal to 0.008 grain per actual cubic foot of outlet air, when operated at a gas flow rate of nine thousand (9,000) actual cubic feet per minute (acfm);
 - (4) one (1) No. 2 diesel fuel or No. 2 heating oil-fired thermal oxidizer, rated at 17.0 MMBtu/hr, for controlling volatile organic emissions from the rotary kiln with a operating temperature between of 1,400°F and 1,700°F, a maximum control efficiency greater than 99%, and exhausting to the atmosphere;
 - (5) one (1) No. 2 diesel fuel or No. 2 heating oil-fired generator, rated at 0.7 MMBtu/hr; exhausting to the atmosphere.
 - (6) one (1) discharge auger for conveying soils exiting the rotary kiln and collected particulates exiting the baghouse, equipped with water spray nozzles to cool and control particulates from the treated soil prior to exiting the unit.
- (b) This stationary source also includes the following insignificant activities:
 - (1) Paved and unpaved roads and parking lots with public access;

- (2) Soil handling and transferring activities utilizing earth moving equipment including, but not limited to, excavators, front-end loaders, dump trucks, and conveyors;
- (3) No. 2 diesel fuel or No. 2 heating oil storage tanks;

Unpermitted Emission Units and Pollution Control Equipment

There are no unpermitted facilities operating at this source during this review process.

Existing Approvals

No previous air approvals have been issued to this source.

Air Pollution Control Justification as an Integral Part of the Process

The company had submitted the following justification such that the baghouse be considered as an integral part of the soil remediation unit:

The unit as designed and manufactured draws air into the counter current rotary kiln, and through the baghouse, via an induced-draft (ID) fan. The ID fan then pushes the VOC laden, particulate free air through the thermal oxidizer for VOC destruction. The unit cannot operate without the baghouse in operation, since significant abrasive wear to the ID fan impeller and housing would occur at a high particulate loading, resulting in failure of the ID fan. Since, the baghouse protects the ID fan from damage that would occur at high particulate loading, it is considered integral to the process.

IDEM, OAQ has evaluated the justifications and agreed that the air pollution control equipment described above will be considered as an integral part of the soil remediation unit. Therefore, the permitting level will be determined using the potential to emit after the air pollution control equipment. Particulate from rotary kiln shall be controlled by the baghouse at all times that the rotary kiln is in operation, and the Permittee shall operate the control device in accordance with manufacturer's specifications.

Enforcement Issue

There are no enforcement actions pending.

Stack Summary

| Stack ID | Operation | Height (ft) | Diameter (ft) | Flow Rate (acfm) | Temperature (°F) |
|-----------|------------------------|-------------|---------------|------------------|----------------------------|
| MSR3 | MSR Unit #3 Exhaust | 21.8 | 3.0 | 35,000 | 1,400 (min) 1,700 (max) |
| Generator | Diesel Generator | 10.0 | 0.33 | 1,120 | 925 |

Recommendation

The staff recommends to the Commissioner that the application be approved as a registration. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on November 15, 2005. Additional information was submitted by the source by email on December 5, 2005.

Emission Calculations

(a) Potential to Emit VOCs

The soil remediation unit will be permitted to remediate soils contaminated with petroleum hydrocarbons (see Appendix A for common types of petroleum hydrocarbon materials). Based on information provided in the permit application, the total maximum mass of petroleum hydrocarbon contamination (TPH) to be treated by this unit is 23.44 tons of TPH. For this TSD, it is assumed that 100% of the petroleum hydrocarbon contamination is comprised of volatile organic compounds (VOCs).

PTE of VOCs (before controls) = 23.44 ton VOCs/yr

VOC emissions from the unit are controlled by one (1) thermal oxidizer with a maximum control efficiency greater than 99% at high hydrocarbon loading. The potential to emit of VOCs after controls is as follows:

PTE of VOCs (after controls) = (23.44 ton/yr)*(1 - 0.99) = 0.23 ton VOCs/yr

(d) Potential to Emit HAPs

For detailed calculations for HAP emissions from remediation of soils contaminated with petroleum hydrocarbons, see Appendix A. The worst case petroleum hydrocarbon has a total combined HAP content of 73.61%. The single worst HAP is naphthalene with a HAP content of 12.9%. The potential to emit of HAPs before controls is as follows:

PTE of Total HAPs (before controls) = (23.44 ton/yr)*(73.61% HAPs)

PTE of Single Worst HAP (before controls) = (23.44 ton/yr)*(12.9% HAP)

PTE of Total HAPs (before controls) = 17.25 ton HAPs/yr

PTE of Single Worst HAP (before controls) = 3.02 ton HAP/yr (Naphthalene)

HAP emissions from the unit are controlled by one (1) thermal oxidizer with a maximum control efficiency greater than 99% at high hydrocarbon loading. The potential to emit of total combined HAPs after controls is as follows:

PTE of Total HAPs (after controls) = (23.44 ton/yr)*(73.61% HAPs)*(1 - 0.99)

PTE of Single Worst HAP (after controls) = (23.44 ton/yr)*(12.9% HAP)*(1 - 0.99)

PTE of Total HAPs (after controls) = 0.17 ton HAPs/yr

PTE of Single Worst HAP (after controls) = 0.03 ton HAP/yr (Naphthalene)

(e) For detailed calculations for particulate matter (PM/PM10) emissions from the unit, see Appendix A.

(f) For detailed calculations from combustion of No. 2 diesel fuel or No. 2 heating oil in the rotary kiln, thermal oxidizer, and generator, see Appendix A.

(g) For detailed calculations from sources of fugitive PM/PM10 (earth moving activities, paved roads, and unpaved roads) see Appendix A.

Based on the fugitive PM/PM10 emission calculations for earth moving activities, paved roads, and unpaved roads (see Appendix A), the potential to emit of fugitive PM/PM10 is less than 5 tons per year.

The source performs on-site fugitive dust control, including the application of water to the contaminated and treated soil stockpiles and active equipment work areas (i.e., unpaved roads) at the site.

- (h) Using the Environmental Protection Agency's (EPA) TANKS Version 4.09b program, it was determined that storage of No. 2 diesel fuel or No. 2 heating oil at this source would have negligible potential emissions of VOCs and HAPs.

Potential To Emit

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit (PTE) is defined as “the maximum capacity of a stationary source or emissions unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U.S. EPA, the department, or the appropriate local air pollution control agency.”

| Pollutant | Potential To Emit (tons/year) |
|------------------|-------------------------------|
| PM | 4.92 |
| PM-10 | 5.34 |
| SO ₂ | 7.88 |
| NO _x | 22.19 |
| VOC | 23.82 |
| CO | 5.55 |
| Total HAPs | 17.33 |
| Worst Single HAP | 3.02 (Naphthalene) |

- (a) The PTE (as defined in 326 IAC 2-1.1-1(16)) of regulated criteria pollutants are less than twenty-five (25) tons per year, but the PTE of PM-10 is greater than five (5) tons per year and the PTE of NO_x and VOC are greater than ten (10) tons per year. Therefore, the source is subject to the provisions of 326 IAC 2-5.5. A registration will be issued.
- (b) The PTE (as defined in 326 IAC 2-1.1-1(16)) of any single HAP is less than ten (10) tons per year and the PTE of a combination of HAPs is less than twenty-five (25) tons per year. Therefore, the source is not subject to the provisions of 326 IAC 2-7.

County Attainment Status

The source is located in Delaware County.

| Pollutant | Status |
|-----------------|------------------------------|
| PM10 | Attainment or Unclassifiable |
| PM2.5 | Attainment or Unclassifiable |
| SO ₂ | Attainment or Unclassifiable |
| NO ₂ | Attainment or Unclassifiable |
| 1-Hour Ozone | Attainment or Unclassifiable |
| 8-Hour Ozone | Attainment or Unclassifiable |
| CO | Attainment or Unclassifiable |
| Lead | Attainment |

- (a) Volatile organic compounds (VOC) and Nitrogen Oxides (NO_x) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone. Therefore, VOC and NO_x emissions are considered when evaluating the rule applicability relating to the ozone standard. Delaware County has been designated as attainment or unclassifiable for ozone. Therefore, VOC emissions and NO_x were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2. See the State Rule Applicability for the source section.
- (b) Delaware County has been classified as unclassifiable or attainment for PM_{2.5}. U.S. EPA has not yet established the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 for PM 2.5 emissions. Therefore, until the U.S. EPA adopts specific provisions for PSD review for PM_{2.5} emissions, it has directed states to regulate PM₁₀ emissions as a surrogate for PM_{2.5} emissions. See the State Rule Applicability for the source section.
- (c) Delaware County has been classified as attainment or unclassifiable for all the other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2. See the State Rule Applicability for the source section.
- (d) Fugitive Emissions
Since this type of operation is not one of the 28 listed source categories under 326 IAC 2-2 or 2-3 and since there are no applicable New Source Performance Standards that were in effect on August 7, 1980, the fugitive particulate matter (PM) and volatile organic compound (VOC) emissions are not counted toward determination of PSD and Emission Offset applicability.

Source Status

New Source PSD and Emission Offset Definition (emissions after controls, based on 8760 hours of operation per year at rated capacity and/or as otherwise limited):

| Pollutant | Emissions (tons/yr) |
|------------------|------------------------|
| PM | 2.71 |
| PM-10 | 2.71 |
| SO ₂ | 7.88 |
| NO _x | 22.19 |
| VOC | 0.61 |
| CO | 5.55 |
| Worst Single HAP | 0.07 (Formaldehyde) |
| Combination HAPs | 0.25 |

- (a) This new source is not a major PSD stationary source because no attainment regulated pollutant is emitted at a rate of 250 tons per year or greater and it is not in one of the 28 listed source categories. Therefore, pursuant to 326 IAC 2-2, the PSD requirements do not apply.
- (b) This new source is not a Emission Offset major stationary source because no regulated nonattainment pollutant is emitted at a rate of 100 tons per year or greater. Therefore, pursuant to 326 IAC 2-3, the Emission Offset requirements do not apply.

Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)

This new source is not subject to the Part 70 Permit requirements because the PTE of:

- (a) each criteria pollutant is less than 100 tons per year,
- (b) a single hazardous air pollutant (HAP) is less than 10 tons per year, and
- (c) any combination of HAPs is less than 25 tons/year.

This status is based on the potential to emit calculations of the source (see Appendix A).

Federal Rule Applicability

- (a) There are no New Source Performance Standards (NSPS) (326 IAC 12 and 40 CFR Part 60) included in the permit for this source.
- (b) This source is not subject to the requirements of 40 CFR 60, Subpart DD (60.680 through 60.698), NESHAP for National Emission Standards for Hazardous Air Pollutants from Off-Site Waste and Recovery Operations (326 IAC 20-23-1), because this source is not a major source of HAPs and the contaminated soil remediated by this unit is not considered off-site material (40 CFR 60.680(b)(2)(ii) and 40 CFR 60.680(b)(1)(ii)).
- (c) This source is not subject to the requirements of 40 CFR 63, Subpart ZZZZ (60.6580 through 60.6675), NESHAP for Stationary Reciprocating Internal Combustion Engines, because this source is not located at and is not part of a major source of HAPs and the diesel-fired generator at this source has a site-rating of less than or equal to 500 brake horsepower.
- (d) This source is not subject to the requirements of 40 CFR 63, Subpart DDDDD, (63.7480 through 63.7575), NESHAPs for Industrial, Commercial, and Institutional Boilers and Process Heaters, because the source is not a major source of HAPs as defined in 40 CFR 63.2.
- (e) This soil remediation unit is not subject to the requirements of 40 CFR 63, Subpart GGGGG (63.7880 through 63.7957), National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Site Remediation (326 IAC 20-87-1), because the Marsh Distribution Center, where the remediation site is located, does not meet an affected source definition specified for a source category that is regulated by another subpart under 40 CFR part 63 (40 CFR 63.7881(a)(2)), and because this source (including both the site remediation activity and the Marsh Distribution Center) is not a major source of HAP as defined in 40 CFR 63.2 (40 CFR 63.7881(a)(3)).
- (f) There are no National Emission Standards for Hazardous Air Pollutants (NESHAP) (326 IAC 14, 20 and 40 CFR Part 61, 63) included in the permit for this source.

State Rule Applicability - Entire Source

326 IAC 2-2 (Prevention of Significant Deterioration (PSD))

The requirements of 326 IAC 2-2 (PSD) are not applicable to this source, since this source will be constructed after the applicability date of August 7, 1977, it is not one of the 28 listed source categories defined in 326 IAC 2-2-1(gg)(1), no major modifications were done to this source, and the potential to emit of all attainment regulated pollutants is less than 250 tons per year.

326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))

The requirements of 326 IAC 2-4.1 are not applicable to this source, since the potential to emit of any single HAP is less than ten (10) tons per year and the potential to emit of a combination of HAPs is less than twenty-five (25) tons per year.

326 IAC 2-6 (Emission Reporting)

This source is not subject to 326 IAC 2-6 (Emission Reporting), because it is located in Delaware County, it is not required to have an operating permit under 326 IAC 2-7, Part 70 Permit Program, and it does not emit lead into the ambient air at levels equal to or greater than five (5) tons per year.

326 IAC 5-1 (Opacity Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

- (a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

326 IAC 6-4 (Fugitive Dust Emissions Limitations)

Pursuant to 326 IAC 6-4 (Fugitive Dust Emissions Limitations), the source shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4.

State Rule Applicability - Individual Facilities

326 IAC 8-1-6 (VOC rules: General Reduction Requirements for New Facilities)

The requirements of 326 IAC 8-1-6 are not applicable, since each of the emission units at this source does not have the potential to emit greater than twenty-five (25) tons of VOCs per year.

State Rule Applicability - Soil Remediation Unit

326 IAC 6-2 (Particulate Emissions from Indirect Heating Units)

The soil remediation unit is not subject to 326 IAC 6-2 as it is not a source of indirect heating.

326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes)

The requirements of 326 IAC 6-3 are applicable to the soil remediation unit. Pursuant to 326 IAC 6-3-2(e)(2), the particulate emissions from the soil remediation unit shall not exceed 28.43 pounds per hour based on a process weight rate equal to 18 tons of contamination soil per hour (36,000 pounds of contaminated soil per hour). The allowable rate of emission was calculated as follows:

Interpolation of the data in the table in 326 IAC 6-3-2(e)(2) for the process weight rates up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67} \quad \text{where } E = \text{rate of emission in pounds per hour, and} \\ P = \text{process weight rate in tons per hour}$$

IDEM, OAQ has agreed that the baghouse will be considered as an integral part of the soil remediation unit and the potential to emit particulates (PM/PM10) will be determined after the baghouse. The hourly potential particulate matter emissions after the baghouse are estimated to be 0.617 pounds per hour, which is less than the 326 IAC 6-3-2 allowable hourly rate of 28.43 pounds per hour. Therefore, compliance with 326 IAC 6-3 is expected.

Since the baghouse is considered an integral part of the soil remediation unit and is necessary to comply with the requirements of 326 IAC 6-3-2, particulate from rotary kiln shall be controlled by the baghouse at all times that the rotary kiln is in operation, and the Permittee shall operate the control device in accordance with manufacturer's specifications.

326 IAC 7-1.1 (Sulfur dioxide emission limitations: applicability)

The soil remediation unit is not subject to the requirements of 326 IAC 7-1.1, because the potential and the actual emissions of sulfur dioxide are less than twenty-five (25) tons per year and ten (10) pounds per hour respectively.

State Rule Applicability – Generator

326 IAC 4-2-2 (Incinerators)

The generator is not an incinerator, as defined by 326 IAC 1-2-34, since it does not burn waste substances. Therefore, these ovens are not subject to 326 IAC 4-2-2.

326 IAC 6-2 (Particulate Emissions from Indirect Heating Units)

The generator is not subject to 326 IAC 6-2 as is not a source of indirect heating.

326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes)

Pursuant to 326 IAC 6-3-1(b)(14), the generator is exempt from the requirements of 326 IAC 6-3, because it has potential particulate emissions less than five hundred fifty-one thousandths (0.551) pound per hour.

326 IAC 7-1.1 (Sulfur dioxide emission limitations: applicability)

The generator is not subject to the requirements of 326 IAC 7-1.1, because the potential and the actual emissions of sulfur dioxide are less than twenty-five (25) tons per year and ten (10) pounds per hour respectively.

326 IAC 8-1-6 (Volatile Organic Compounds; General Reduction Requirements for New Facilities)

The requirements of 326 IAC 8-1-6 are not applicable to the generator, since it does not have the potential to emit greater than twenty-five (25) tons of VOCs per year.

Testing Requirements

Compliance testing is not required for the soil remediation unit, since the baghouse shall be in operation and control emissions from the rotary kiln at all times that the rotary kiln is in operation, in order to comply with the requirements of 326 IAC 6-3-2, and the monitoring requirements are sufficient to determine compliance.

Compliance Requirements

Permits issued under 326 IAC 2-5.5 are required to ensure that sources can demonstrate compliance with applicable state and federal rules on a more or less continuous basis. All state and federal rules contain compliance provisions, however, these provisions do not always fulfill the requirement for a more or less continuous demonstration. When this occurs IDEM, OAQ in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-5.5. As a result, compliance requirements are divided into two sections: Compliance Determination Requirements and Compliance Monitoring Requirements.

Compliance Determination Requirements are those conditions that are found more or less directly within state and federal rules and the violation of which serves as grounds for enforcement action. If these conditions are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source's failure to take the appropriate corrective actions within a specific time period.

The soil remediation unit has applicable compliance monitoring requirements as specified below:

- (a) Visible emission notations of the soil remediation unit stack exhaust shall be performed once per day during normal daylight operations when exhausting to the atmosphere. A trained employee shall record whether emissions are normal or abnormal. For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time. In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions. A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.
- (b) The Permittee shall record the pressure drop across the baghouse used in conjunction with the rotary kiln, at least once per day when the process is in operation when venting to the atmosphere. When for any one reading, the pressure drop across the baghouse is outside the normal range of 3.0 and 6.0 inches of water or a range established during the latest stack test, the Permittee shall take reasonable response steps to return operation of the unit to within "normal" parameters. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps shall be considered a deviation from this permit.
- (c) In the event that bag failure is observed in a multi-compartment baghouse, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.
- (d) For a single compartment baghouse controlling emissions from a process operated continuously, a failed unit and the associated process shall be shut down immediately until the failed unit has been repaired or replaced.

- (e) For a single compartment baghouse controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the soil remediation unit.
- (f) Bag failure can be indicated by a significant drop in the baghouse's pressure reading with abnormal visible emissions, by an opacity violation, or by other means such as gas temperature, flow rate, air infiltration, leaks, dust traces or triboflows.

These monitoring conditions are necessary, since the baghouse is considered integral to the process and since the baghouse must operate properly to ensure compliance with 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes).

Conclusion

The operation of this source shall be subject to the conditions of the attached registration, No. 035-21976-00077.

**Appendix A: Emissions Calculations
Emission Summary**

Company Name: Midwest Soil Remediation, Inc.
Address City IN Zip: 9511 West Depot Street, Yorktown, IN 47396
Permit Number: 035-21976
Plt ID: 035-00077
Reviewer: Nathan C. Bell
Date: December 8, 2005

| Category | Uncontrolled Potential Emissions (tons/year) | | | |
|--------------------------|--|------------------------------------|---|--------------|
| | Emissions Generating Activity | | | |
| | Pollutant | MSR Unit #3 Soil Remediation | MSR Unit #3 Fuel Oil No. 2 Combustion | TOTAL |
| Criteria Pollutants | PM | 2.70 | 2.22 | 4.92 |
| | PM10 | 2.70 | 2.64 | 5.34 |
| | SO2 | | 7.88 | 7.88 |
| | NOx | | 22.19 | 22.19 |
| | VOC | 23.44 | 0.38 | 23.82 |
| | CO | | 5.55 | 5.55 |
| Hazardous Air Pollutants | Total HAPs | 17.25 | 0.08 | 17.33 |
| | Worse Case HAP (Naphthalene) | | | 3.02 |

Total emissions based on rated capacity at 8,760 hours/year.

| Category | Controlled Potential Emissions (tons/year) | | | |
|--------------------------|--|------------------------------------|---|-------------|
| | Emissions Generating Activity | | | |
| | Pollutant | MSR Unit #3 Soil Remediation | MSR Unit #3 Fuel Oil No. 2 Combustion | TOTAL |
| Criteria Pollutants | PM | 2.70 | 2.2E-03 | 2.71 |
| | PM10 | 2.70 | 2.6E-03 | 2.71 |
| | SO2 | | 7.88 | 7.88 |
| | NOx | | 22.19 | 22.19 |
| | VOC | 0.23 | 0.38 | 0.61 |
| | CO | | 5.55 | 5.55 |
| Hazardous Air Pollutants | Total HAPs | 0.17 | 0.08 | 0.25 |
| | Worse Case HAP (Formaldehyde) | | | 0.07 |

Total emissions based on rated capacity at 8,760 hours/year.

Appendix A: Emissions Calculations
MSR Unit#3 Soil Remediation Unit
Volatile Organic HAPs in Petroleum Hydrocarbon Contaminated Soil

Company Name: Midwest Soil Remediation, Inc.
Address City IN Zip: 9511 West Depot Street, Yorktown, IN 47396
Permit Number: 035-21976
Plt ID: 035-00077
Reviewer: Nathan C. Bell
Date: December 8, 2005

| Volatile Organic HAP | CAS# | Hazardous Air Pollutant (HAP) Content (% by weight)* For Various Petroleum Hydrocarbon Sources | | | | | | | | | | | | | | Worst Case Before Controls (tons/yr) | Worst Case PTE After Controls (tons/yr) | |
|---------------------------|-----------|---|----------------------|--------------|-----------------------------|---------------|---------------|----------------------------------|-------------|----------------------------|----------------|----------------|--------------|-------------------|--------------|--------------------------------------|---|----------|
| | | Crude Oil | Diesel (#2) Fuel Oil | Gasonline | JP-4 Fuel Oil (Jet Naphtha) | JP-5 Fuel Oil | JP-7 Fuel Oil | JP-8 Fuel Oil (Jet A-1 Kerosene) | Kerosene | Lubricating and Motor Oils | No. 2 Fuel Oil | No. 6 Fuel Oil | Coal Tar | Coal Tar Creosote | Worst Case | | | |
| 1,1,1-Trichloroethane | 71-55-6 | | | | | | | | 0.28 | | | | | | | 0.28 | 0.07 | 6.56E-04 |
| 1,3-Butadiene | 106-99-0 | | | 3.7E-3 | | | | | | | | | | | | 3.7E-03 | 8.67E-04 | 8.67E-06 |
| 2,2,4-Trimethylpentane | 540-84-1 | | | 2.4 | | | | | | | | | | | | 2.40 | 0.56 | 5.63E-03 |
| Acenaphthene | 83-32-9 | 5.7E-3 | | | | | | 4.7E-3 | | 0.018 | | 1.05 | 5.8 | | | 5.80 | 1.36 | 0.014 |
| Acenaphthylene | 208-96-8 | 1.3E-3 | | | | | | 4.5E-3 | | 6.0E-3 | | 2 | 0.2 | | | 2.00 | 0.47 | 4.69E-03 |
| Anthracene | 120-12-7 | 1.1E-3 | 5.8E-3 | | | | | 1.2E-4 | 2.2E-3 | 2.8E-3 | 0.005 | 1.9 | 1.7 | | | 1.90 | 0.45 | 4.45E-03 |
| Aniline | 62-53-3 | | | | | | | | | | | | 0.21 | | | 0.21 | 0.05 | 4.92E-04 |
| Benzene | 71-43-2 | 0.16 | 0.029 | 1.9 | 0.47 | | | | 0.096 | | | 0.29 | | 0.21 | | 1.90 | 0.45 | 4.45E-03 |
| Benzo(a)anthracene | 56-55-3 | 3.2E-4 | 9.6E-5 | | | | | | 6.3E-3 | 4.5E-5 | 0.055 | 1.2 | 0.5 | | | 1.20 | 0.28 | 2.81E-03 |
| Benzo(a)pyrene | 50-32-8 | 2.4E-4 | 2.2E-4 | | | | | | 1.7E-3 | 2.1E-5 | 4.4E-3 | 1.9 | 0.2 | | | 1.90 | 0.45 | 4.45E-03 |
| Benzo(b)fluoranthene | 205-99-2 | 4.0E-4 | | | | | | | 4.0E-5 | | | 2.6 | 0.1 | | | 2.60 | 0.61 | 6.09E-03 |
| Benzo(g,h,i)perylene | 191-24-2 | 3.3E-4 | 1.2E-5 | | | | | | 2.8E-3 | | | 0.39 | 0.1 | | | 0.39 | 0.09 | 9.14E-04 |
| Benzo(k)fluoranthene | 207-08-9 | 1.6E-3 | | | | | | | 6.1E-5 | | | 0.76 | 0.22 | | | 0.76 | 0.18 | 1.78E-03 |
| Biphenyl | 92-52-4 | 0.04 | 0.063 | | | 0.7 | | 0.63 | 6.4E-3 | 7.2E-3 | | | 1.3 | | | 1.30 | 0.30 | 3.05E-03 |
| Chrysene | 218-01-9 | 1.3E-3 | 4.5E-5 | | | | | | 3.5E-3 | 1.4E-4 | 0.069 | 1.3 | 0.75 | | | 1.30 | 0.30 | 3.05E-03 |
| Cresols | 1319-77-3 | | | | | | | | | | | 1.2 | 0.34 | | | 1.20 | 0.28 | 2.81E-03 |
| Dichlorodifluoromethane | 75-71-8 | | | | | | | | 0.037 | | | | | | | 3.7E-02 | 8.67E-03 | 8.67E-05 |
| Dibenz(a,h)anthracene | 53-70-3 | | | | | | | | | | | 0.14 | 0.04 | | | 0.14 | 0.03 | 3.28E-04 |
| Dibenzofuran | 132-64-9 | | | | | | | | | | | 1.1 | 3.7 | | | 3.70 | 0.87 | 8.67E-03 |
| Ethylbenzene | 100-41-4 | 0.17 | 0.068 | 1.7 | 0.66 | | | | | 0.034 | | 0.02 | | | | 1.70 | 0.40 | 3.98E-03 |
| Fluoranthene | 206-44-0 | 3.9E-4 | 5.9E-3 | | | | | 7.1E-4 | 3.8E-3 | 1.4E-3 | 0.024 | 3.5 | 4.6 | | | 4.60 | 1.08 | 0.011 |
| Fluorene | 86-73-7 | 0.02 | 0.086 | | | | | 4.2E-3 | 4.5E-3 | 0.019 | | 1.7 | 4.6 | | | 4.60 | 1.08 | 0.011 |
| Indeno(1,2,3-cd)pyrene | 193-39-5 | 7.4E-4 | 1.6E-5 | | | | | | 0.004 | | | 0.01 | 0.43 | 0.03 | | 0.43 | 0.10 | 1.01E-03 |
| Isopropylbenzene | 98-82-8 | 0.044 | | | 0.3 | | | | | | | | | | | 0.30 | 0.07 | 7.03E-04 |
| Methyl-tert-butylether | 1634-04-4 | | | 0.33 | | | | | | | | | | | | 0.33 | 0.08 | 7.74E-04 |
| Naphthalene | 91-20-3 | 0.069 | 0.26 | 0.25 | 0.25 | 0.57 | 0.72 | 1.1 | 0.31 | 0.059 | 0.22 | 4.2E-3 | 11 | 12.9 | | 12.90 | 3.02 | 0.03 |
| n-Hexane | 110-54-3 | 1.3 | | 2.4 | 2.4 | | | | | | | | | | | 2.40 | 0.56 | 5.63E-03 |
| Phenanthrene | 85-01-8 | 0.024 | 0.088 | | | | | | 8.6E-4 | 7.9E-3 | 0.079 | 0.021 | 5.1 | 11.2 | | 11.20 | 2.63 | 0.03 |
| Phenol | 108-95-2 | | | | | | | | | | | | 0.76 | 0.24 | | 0.76 | 0.18 | 1.78E-03 |
| Pyrene | 129-00-0 | 7.9E-4 | 4.6E-3 | | | | | | 2.4E-4 | 0.01 | 2.9E-3 | 2.3E-3 | 2.5 | 3.7 | | 3.70 | 0.87 | 8.67E-03 |
| Quinoline | 91-22-5 | | | | | | | | | | | | 0.59 | | | 0.59 | 0.14 | 1.38E-03 |
| Styrene | 100-42-5 | | | | | | | | | | | 0.04 | | | | 4.0E-02 | 9.38E-03 | 9.38E-05 |
| Tetrachloroethylene (PCE) | 127-18-4 | | | | | | | | 0.14 | | | | | | | 0.14 | 0.03 | 3.28E-04 |
| Toluene | 108-88-3 | 0.67 | 0.18 | 8.1 | 1.6 | | | | 0.22 | 0.062 | | 2.08 | | | | 8.10 | 1.90 | 0.02 |
| Total Xylenes | 1330-20-7 | 1.18 | 0.5 | 9 | 2.31 | 0.22 | | 0.12 | 0.34 | 0.23 | | | | | | 9.00 | 2.11 | 0.02 |
| Trichloroethylene (TCE) | 79-01-6 | | | | | | | | 0.14 | | | | | | | 0.14 | 0.03 | 3.28E-04 |
| Trichlorotrifluoroethane | 76-13-1 | | | | | | | | 6.3 | | | | | | | 6.30 | 1.48 | 0.015 |
| Total Organic HAPs | | 3.48 | 1.19 | 21.78 | 7.52 | 0.79 | 0.72 | 1.22 | 0.32 | 7.27 | 0.65 | 0.13 | 30.87 | 42.69 | 73.61 | 17.25 | 0.17 | |

Methodology

PTE of HAPs (ton/yr) (before controls) = (23.44 ton VOCs/yr)*(Worst Case Contamination wt% HAP
PTE of HAPs (ton/yr) (after controls) = (PTE of HAPs (before control))*(1 - 0.99) (Assuming destruction/removal efficiency of 99%)
Composition Data Obtained from:

Petroleum Liquids: Potter, T.L. and K.E. Simmons. 1998. Total Petroleum Hydrocarbon Criteria Working Group Series, Volume 2. Composition of Petroleum Mixtures. The Association for Environmental Health and Science. Available on the Internet at: <http://www.aehs.com/publications/catalog/contents/tph.htm>

Coal Tar: International Steel Group (ISG) Burns Habor, Inc. MSDS for Coal Tar, dated August 26, 2003, Available on the Internet at: <http://www.intlsteel.com/PDFs/coaltar.pdf>

Coal Tar Creosote: Concise International Chemical Assessment Document 62, World Health Organization, Geneva, 2004, Available on the Internet at: <http://www.inchem.org/documents/cicads/cicads/cicad62.htm>

**Appendix A: Emissions Calculations
MSR Unit#3 Soil Remediation Unit**

Company Name: Midwest Soil Remediation, Inc.
Address City IN Zip: 9511 West Depot Street, Yorktown, IN 47396
Permit Number: 035-21976
Pit ID: 035-00077
Reviewer: Nathan C. Bell
Date: December 8, 2005

| Source ID | Particulate Matter Control Equipment Description | PM/PM10 Collection Efficiency (%) | Exhaust Flow Rate (acfm) | Outlet Grain Loading (grains/acf) | PTE of PM/PM10 After Baghouse (lbs/hr)* | PTE of PM/PM10 After Baghouse (tons/yr)* |
|-----------------------------------|--|-----------------------------------|--------------------------|-----------------------------------|---|--|
| MSR Unit #3 Soil Remediation Unit | Baghouse | 99.9% | 9000 | 0.008 | 0.617 | 2.70 |

*IDEM, OAQ has agreed that the baghouse will be considered as an integral part of the soil remediation unit and the potential to emit particulates (PM/PM10) will be determined after the baghouse.

Methodology

Potential Controlled Emissions (lbs/hr) = Outlet Loading (grains/acf) * Exhaust Flow Rate (acfm) * 1 lb/7,000 grains * 60 min/hr
 Potential Uncontrolled Emissions (lbs/hr) = Potential Controlled Emissions (lbs/hr) / (1 - Control Efficiency)
 Emissions (tons/yr) = Emissions (lbs/hr) * 8760 hr/yr * 1 ton/2,000 lbs

Compliance with 326 IAC 6-3-2:

| |
|---|
| Allowable Emissions, $E = 4.10 * P^{0.67}$ (for weight rates up to 60,000 lb/hr) where E = emissions in lbs/hr P = process weight in tons/hr $P = 36000$ lbs/hr $= 18.00$ tons/hr Allowable PM Emissions, $E = 28.43$ lbs/hr $= 682.4$ lbs/day $= 124.5$ tons/yr The use of baghouses ensure compliance with the limit above. |
|---|

Appendix A: Emissions Calculations
Commercial/Institutional/Residential Combustors (< 100 mmBtu/hr)
Combustion of #2 Fuel Oil

Company Name: Midwest Soil Remediation, Inc.
Address City IN Zip: 9511 West Depot Street, Yorktown, IN 47396
Operation Permit No.: 035-21976
Significant Permit Revision No.: 035-00077
Reviewer: Nathan C. Bell
Date: December 8, 2005

Rotary Kiln Heat Input Capacity = 17 MMBtu/hr
 Thermal Oxidizer Heat Input Capacity = 17 MMBtu/hr
 Diesel Generator Heat Input Capacity = 0.7 MMBtu/hr
Total Heat Input Capacity = 34.7 MMBtu/hr
 Heating Value = 137 MMBtu/kgal

| | | |
|---|-------------|--------------------|
| Hours per Year Assumed for Burning No. 2 Fuel Oil = | 8760 | hours/yr |
| Fuel Usage = | 2218.8 | kgals/yr |
| Sulfur Content of Fuel, S = | 0.05 | % by weight |
| Sulfur Content of Fuel = | 0.052 | lb SO2/MMBtu |

| Criteria Pollutants | Pollutant | | | | | |
|-----------------------------|-----------|--------|-----------------|------|------|-----|
| | PM* | PM10** | SO2 | NOx | VOC | CO |
| Emission Factor (lb/kgal) | 2.0 | 2.38 | 7.1 (142.0S) | 20.0 | 0.34 | 5.0 |
| Potential to Emit (tons/yr) | 2.2 | 2.6 | 7.9 | 22.2 | 0.4 | 5.5 |

*PM Emission Factor is for filterable PM only from AP 42, Tables 1.3-1 Supplement E 9/98 (see erata file).

**PM10 Emission Factor is a combination of filterable PM10 (1.08 lb/kgal, Table 1.3-7) and condensable PM10 (1.3 lb/kgal, Tables 1.3-2) AP-42, Supplement E 9/98 (see erata file).

Baghouse Control Efficiency = 99.9%

| | PM | PM10 |
|---------------------------------------|---------|---------|
| Controlled Potential to Emit (ton/yr) | 2.2E-03 | 2.6E-03 |

| Hazardous Air Pollutants | HAPs | | | | | | | | | | |
|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| | As | Be | Cd | Cr | Pb | Hg | Mn | Ni | Se | POM | HCOH |
| Emission Factor (lb/mmBtu)* | 4.0E-06 | 3.0E-06 | 3.0E-06 | 3.0E-06 | 9.0E-06 | 3.0E-06 | 6.0E-06 | 3.0E-06 | 1.5E-05 | | |
| Emission Factor (lb/kgal)* | | | | | | | | | | 3.3E-03 | 6.1E-02 |
| Controlled Potential to Emit (tons/yr) | 6.1E-04 | 4.6E-04 | 4.6E-04 | 4.6E-04 | 1.4E-03 | 4.6E-04 | 9.1E-04 | 4.6E-04 | 2.3E-03 | 3.7E-03 | 0.07 |

*Emission Factors for HAPs from AP 42, Tables 1.3-8 and 1.3-10 Supplement E 9/98 (see erata file).

Total PTE of HAPs = 0.08 tons per year

Methodology

Fuel Usage (kgals/year) = (Heat Input Capacity (MMBtu/hr))*(hrs/yr) / (Heating Value (MMBtu/kgal))

For Criteria Pollutants, POM, and HCOH: PTE (tons/yr) = (Fuel Usage (kgals/yr))*(Emission Factor (lb/kgal)) / (2,000 lb/ton)

For all other HAPs: PTE (tons/year) = (Fuel Usage (MMBtu/hr))*(Emission Factor (lb/MMBtu))*(hrs/yr) / (2,000 lb/ton)

For PM/PM10: Controlled PTE (tons/yr) = (Fuel Usage (kgals/yr))*(Emission Factor (lb/kgal))*(1-control efficiency) / (2,000 lb/ton)

Abbreviations

| | | | | | |
|------------------------------------|----------------------|----------------|----------------|-------------|---------------------------------|
| PM = Particulate Matter | SO2 = Sulfur Dioxide | As = Arsenic | Cr = Chromium | Ni = Nickel | POM = Polycyclic Organic Matter |
| PM10 = Particulate Matter (<10 um) | NOx = Nitrous Oxides | Be = Beryllium | Hg = Mercury | Pb = Lead | HCOH = Formaldehyde |
| VOC = Volatile Organic Compounds | CO = Carbon Monoxide | Cd = Cadmium | Mn = Manganese | Selenium | |

**Appendix A: Emissions Calculations
Earth Moving Operations**

**Company Name: Midwest Soil Remediation, Inc.
Address City IN Zip: 9511 West Depot Street, Yorktown, IN 47396
Permit Number: 035-21976
Plt ID: 035-00077
Reviewer: Nathan C. Bell
Date: December 8, 2005**

Remediation of contaminated soils will involve earth moving operations with the potential to generate fugitive dust. To estimate potential fugitive dust emissions from earth moving operations at this source, AP-42 emission factors for Aggregate Handling, Section 13.2.4 (fifth edition, 1/95) in are utilized.

Particulate Matter Emission Factors

$$E_f = k \cdot (0.0032) \cdot [(U/5)^{1.3} / (M/2)^{1.4}]$$

where: E_f = Emission factor (lb/ton)

- k (PM) = 0.74 = particle size multiplier (0.74 assumed for aerodynamic diameter ≤ 100 micro meter)
- k (PM10) = 0.35 = particle size multiplier (0.35 assumed for aerodynamic diameter ≤ 10 micro meter)
- U = 1.5 = mean wind speed (assumed 1.5 mph)
- M = 0.8 = material % moisture content (dry exposed ground)*

E_f (PM) = **1.79E-03** lb PM/ton of material handled

E_f (PM10) = **8.44E-04** lb PM10/ton of material handled

Maximum Material Handling Throughput = **18** tons of material handled per hour

| Type of Activity | Potential PM Emissions (tons/yr) | Potential PM10 Emissions (tons/yr) |
|---|----------------------------------|------------------------------------|
| Excavating Pit/Truck Loading | 0.1408 | 0.0666 |
| Truck Dumping Near Remediatin Unit | 0.1408 | 0.0666 |
| Front-End Loader Dumping to Remediation Unit Hopper | 0.1408 | 0.0666 |
| Discharge of Treated Soil into Storage Piles | 0.1408 | 0.0666 |
| Truck Loading by Front-End Loader | 0.1408 | 0.0666 |
| Truck Dumping Near Pit | 0.1408 | 0.0666 |
| Total (tons/yr) | 0.8446 | 0.3995 |

Methodology

*Soil handled at this source is assumed to have a moisture content of 0.8% for dry exposed ground (AP-42 Table 13.2.4-1)

Fugitive Emissions (tons/yr) = Maximum Throughput (tons/hr)*(Emission Factor (lb/ton))*(ton/2000 lbs)*(8760 hrs/yr)

Appendix A: Emission Calculations
Fugitive Dust Emissions - Unpaved and Paved Roads

Company Name: Midwest Soil Remediation, Inc.
Address City IN Zip: 9511 West Depot Street, Yorktown, IN 47396
Permit Number: 035-21976
Plt ID: 035-00077
Reviewer: Nathan C. Bell
Date: December 8, 2005

Unpaved Roads at Industrial Site

The following calculations determine the amount of emissions created by unpaved roads, based on 8,760 hours of use and AP-42, Ch 13.2.2 (12/2003).

Vehicle Information (provided by source)

| Type | Maximum number of vehicles | Number of one-way trips per day per vehicle | Maximum trips per day (trip/day) | Maximum Weight Loaded (tons/trip) | Total Weight driven per day (ton/day) | Maximum one-way distance (mi/trip) | Maximum one-way miles (miles/day) |
|--------------------|----------------------------|---|----------------------------------|-----------------------------------|---------------------------------------|------------------------------------|-----------------------------------|
| Personal Car/Truck | 20 | 1 | 20 | 3 | 60 | 0.10 | 2.0 |
| Worksite Car/Truck | 2 | 5 | 10 | 3 | 30 | 0.25 | 2.5 |
| Dump Truck | 1 | 15 | 15 | 50 | 750 | 0.25 | 3.8 |
| Front End Loader | 1 | 100 | 100 | 18 | 1800 | 0.02 | 2.0 |
| Total | | | 145 | | 2640 | | 10.3 |

Average Vehicle Weight Per Trip = 18.0 tons/trip
 Average Miles Per Trip = 0.07 miles/trip

Maximum Vehicle Mile Traveled (VMT) Per Year

145 trip/day x 0.07 mile/trip x 2 (round trip) x 365 day/yr = 7482.5 miles per year

$$E_f = k \cdot \left(\frac{s}{12}\right)^a \cdot \left(\frac{W}{3}\right)^b \quad \text{(Equation 1a from AP-42 13.2.2)}$$

where k = 1.5 lb/mi = particle size multiplier for PM-10 (k=4.9 for PM-30 or TSP) (AP-42 Table 13.2.2-2)

s = 5.1% = mean percent silt content of typical unpaved roads from AP-42 Table 13.2.2-3

a = 0.9 = Constant for PM-2.5, PM-10 (a = 0.7 for PM-30 or TSP) (AP-42 Table 13.2.2-2)

W = 18.0 tons = average vehicle weight (provided by source)

b = 0.45 = Constant for PM-2.5, PM-10, or PM-30 (TSP) (AP-42 Table 13.2.2-2)

$$E_f = \frac{1.56 \text{ lb/mi} \times 7483 \text{ mi/yr}}{2000 \text{ lb/ton}} = 5.82 \text{ tons/yr}$$

Taking natural mitigation due to precipitation into consideration, $E_{ext} = E_f \cdot \left[\frac{365-p}{365}\right] = 3.83 \text{ tons/yr}$
 where p = 125 days of rain greater than or equal to 0.01 inches (see Fig. 13.2.2-1)

Paved Roads at Industrial Site

The following calculations determine the amount of emissions created by paved roads, based on 8,760 hours of use and AP-42, Ch 13.2.1 (12/2003).

Vehicle Information (provided by source)

| Type | Maximum number of vehicles | Number of one-way trips per day per vehicle | Maximum trips per day (trip/day) | Maximum Weight Loaded (tons/trip) | Total Weight driven per day (ton/day) | Maximum one-way distance (mi/trip) | Maximum one-way miles (miles/day) |
|--------------------|----------------------------|---|----------------------------------|-----------------------------------|---------------------------------------|------------------------------------|-----------------------------------|
| Personal Car/Truck | 20 | 1 | 20 | 3 | 60 | 0.25 | 5.0 |
| Worksite Car/Truck | 2 | 5 | 10 | 3 | 30 | 0.25 | 2.5 |
| Total | | | 30 | | 90 | | 7.5 |

Average Vehicle Weight Per Trip = 3.0 tons/trip
 Average Miles Per Trip = 0.25 miles/trip

Maximum Vehicle Mile Traveled (VMT) Per Year

30 trip/day x 0.25 mile/trip x 2 (round trip) x 365 day/yr = 5475 miles per year

$$E = \left[k \cdot \left(\frac{sL}{2}\right)^{0.65} \cdot \left(\frac{W}{3}\right)^{1.5} - C \right] \quad \text{(Equation 1 from AP-42 13.2.1)}$$

where k = 0.016 lb/mi = particle size multiplier for PM-10 (k=0.082 for PM-30 or TSP) (AP-42 Table 13.2.1-1)

W = 3.0 tons

C = 0.00047 lb/mi = Emission Factor for PM-10 from vehicle exhaust, brake wear, and tire wear (AP-42 Table 13.2.1-2)

sL (baseline) = 0.6 g/m² for 12 months (see AP-42 Table 13.2.1-3)

sL (winter) = 2.4 g/m² for 4 months (see AP-42 Table 13.2.1-3)

sL = 1.4 g/m² = Ubiquitous Silt Loading Values of typical paved roads (averaged for whole year)

$$E = \frac{0.01 \text{ lb/mi} \times 5475 \text{ mi/yr}}{2000 \text{ lb/ton}} = 0.03 \text{ tons/yr}$$

Taking natural mitigation due to precipitation into consideration, $E_{ext} = E_f \cdot \left[\frac{365-p}{365}\right] = 0.02 \text{ tons/yr}$

Total Mitigated Fugitive Dust Emissions from Unpaved & Paved Roads = 3.8 tons/yr