

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: **062016-006** Project Number: 2015-05-055
Installation Number: 175-0079

Parent Company: Testing Services - Worldwide Recycling Equipment Sales, LLC

Parent Company Address: 1414 Riley Industrial Blvd, Moberly, MO 65270

Installation Name: Testing Services - Worldwide Recycling Equipment Sales, LLC

Installation Address: 1414 Riley Industrial Blvd, Moberly, MO 65270

Location Information: Randolph County, S35, T54N, R14W

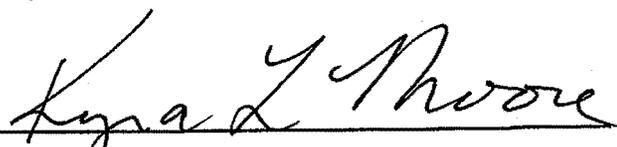
Application for Authority to Construct was made for:

The installation of a rotary dryer system and an indirect fired rotary kiln system. 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.


Prepared by
Chia-Wei Young
New Source Review Unit


Director or Designee
Department of Natural Resources

JUN 08 2016

Effective Date

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

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

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

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

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

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."

Testing Services - Worldwide Recycling Equipment Sales, LLC
Randolph County, S35, T54N, R14W

1. HAPs Emissions Limitations
 - A. Worldwide Recycling Equipment Sales, LLC shall emit individual HAP emissions less than the Screening Model Action Levels (SMAL) and combined HAP emissions less than 25.0 tons in any consecutive 12-month period from the direct fired rotary dryer (EP1) and the indirect fired rotary kiln (EP3).
 - B. While processing biosolids, Worldwide Recycling Equipment Sales, LLC shall track the individual and combined HAPs using Attachment A, or equivalent forms. While processing chicken/turkey manure, Worldwide Recycling Equipment Sales, LLC shall track the individual and combined HAPs using Attachment B, or equivalent forms. The equivalent forms shall use the same data and calculation method from the Attachments.
 - C. Before processing materials other than biosolids or chicken/turkey manure, Worldwide Recycling Equipment Sales shall submit data on the material to the New Source Review/Construction Permit Unit of the Air Pollution Control Program for approval. The data shall include, at a minimum,
 - 1) The maximum processing rate of each material (in pounds).
 - 2) The content of all HAPs in the material or documentation that there are no HAPs in the material (in wt. %).
 - D. The HAPs in materials approved by the New Source Review/Construction Permit Unit of the Air Pollution Control Program in accordance with Special Condition 1.C. shall be included in the HAP limits in Special Condition 1. A.
2. Operational Limits
 - A. Worldwide Recycling Equipment Sales, LLC shall not process more than 455.0 tons of material in the rotary dryer and 27.3 tons of material in the rotary kiln in any consecutive 12-month period.
 - B. Worldwide Recycling Equipment Sales, LLC shall track the monthly and the annual amount processed for the rotary dryer and the rotary kiln to

SPECIAL CONDITIONS:

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

maintain compliance with Special Conditions 2.A. The tracking form shall show, at a minimum, the following.

- 1) The company name and permit number
- 2) The amount processed each month (in tons)
- 3) The amount processed during the current 12-month rolling period (in tons)
- 4) The permit limits of 455.0 tons of material for the rotary dryer and 27.3 tons of material for the rotary kiln in any consecutive 12-month period.

3. Control Device Requirement-Cyclone and Baghouse

- A. Testing Services - Worldwide Recycling Equipment Sales, LLC shall control emissions from the direct-fired rotary dryer using a cyclone (CD1) followed by a baghouse (CD2) as specified in the permit application.
- B. The cyclone and 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 Department of Natural Resources' employees may easily observe them.
- C. Replacement filters for the baghouses 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).
- D. Testing Services - Worldwide Recycling Equipment Sales, LLC shall monitor and record the operating pressure drop across the baghouses at least once every 24 hours while the direct-fired rotary dryer is in operation. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.
- E. Testing Services - Worldwide Recycling Equipment Sales, LLC shall maintain a copy of the cyclone and baghouse manufacturer's performance warranties on site.
- F. Testing Services - Worldwide Recycling Equipment Sales, LLC shall maintain an operating and maintenance log for the cyclone and 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.

SPECIAL CONDITIONS:

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

4. Control Device Requirement-Cyclone/Venturi Scrubber/Thermal Oxidizer
 - A. Testing Services - Worldwide Recycling Equipment Sales, LLC shall control emissions from the indirect-fired rotary kiln using a cyclone (CD3) followed by a venturi scrubber (CD4) and a direct-fired thermal oxidizer (CD5) as specified in the permit application.
 - B. The cyclone, venturi scrubber, and thermal oxidizer shall be operated and maintained in accordance with the manufacturer's specifications. A copy of the manufacturer's specification for each device shall be kept on-site.
 - C. Testing Services – Worldwide Recycling Equipment Sales, LLC shall install gauges or meters to monitor the pressure drop and the scrubbing liquid flow across the venturi scrubber. The pressure drop and the scrubbing liquid flow shall be recorded at least once every 24 hours while the indirect-fired rotary kiln is in operation. The flow rate and the pressure drop shall be maintained within the manufacturer's specifications.
 - D. The operating temperature of the thermal oxidizer shall be continuously monitored and recorded during operations. The operating temperature of the thermal oxidizer shall be maintained at no less than 1,500 °F.
 - E. Testing Services – Worldwide Recycling Equipment Sales, LLC shall maintain an operating and maintenance log for the cyclone, venturi scrubber, and the thermal oxidizer that include, at a minimum, 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.
5. Record Keeping and Reporting Requirements
 - A. Testing Services - Worldwide Recycling Equipment Sales, LLC shall maintain all records required by this permit for not less than five years and shall make them available to any Missouri Department of Natural Resources' personnel upon request. These records shall include SDS for all materials used.
 - B. Testing Services - Worldwide Recycling Equipment Sales, LLC shall report to the Air Pollution Control Program's Compliance/Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than 10 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 (6) REVIEW

Project Number: 2015-05-055
Installation ID Number: 029-0175
Permit Number:

Installation Address:

Testing Services - Worldwide Recycling
Equipment Sales, LLC
1414 Riley Industrial Blvd
Moberly, MO 65270

Parent Company:

Testing Services - Worldwide Recycling
Equipment Sales, LLC
1414 Riley Industrial Blvd
Moberly, MO 65270

Randolph County, S35, T54N, R14W

REVIEW SUMMARY

- Testing Services - Worldwide Recycling Equipment Sales, LLC has applied for authority to install a rotary dryer system and an indirect-fired rotary kiln system.
- The application was deemed complete on May 20, 2015.
- HAP emissions are expected from the proposed equipment. HAPs of concern are lead, manganese, dioxins, and furans.
- None of the New Source Performance Standards (NSPS) apply to the installation. The dryer and kiln systems are not expected to combust the material, only dry them. If the facility ever combusts the material, it may be subject to NSPS Subpart CCCC, *Standards of Performance for Commercial and Industrial Solid Waste Incineration Units for Which Construction is Commenced After November 30, 1999 or for Which Modification or Reconstruction is Commenced After June 1, 2001.*
- None of the NESHAPs apply to this installation. None of the currently promulgated MACT regulations apply to the proposed equipment.
- A cyclone followed by a baghouse are being used to control emissions from the direct-fired rotary dryer. A cyclone, a venturi scrubber, and a direct-fired thermal oxidizer are being used to control emissions from the indirect-fired rotary kiln.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of all pollutants are below de minimis levels.
- This installation is located in Randolph County, an attainment area for all 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 HAPs are limited to less than their respective SMAL.
- An operating permit is not required for this installation because the conditioned potential emissions of this installation are below *de minimis* and no federal regulations (i.e. NSPS, MACT, NESHAP) apply to the facility.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Testing Services - Worldwide Recycling Equipment Sales, LLC owns and operates an installation that builds thermal processing equipment including, but not limited to, rotary dryers, thermal desorption equipment, and other heat treating equipment under its registered trademark name "Vulcan Systems." The thermal processing equipment is normally offered as total systems with solids material handling equipment, air pollution control devices, and automated electrical controls.

No permanent construction permits have been issued to Testing Services - Worldwide Recycling Equipment Sales, LLC from the Air Pollution Control Program. A temporary permit was issued to the facility in 2013 for the construction of a fluidized bed dryer. Two separate extensions have been issued for the temporary permit. The latest extension allowed the dryer to be used until June 7, 2015.

PROJECT DESCRIPTION

To improve efficiency, reliability and the design of the units, Worldwide Recycling has elected to perform on site factory testing and to offer pilot testing services.

FACTORY ACCEPTANCE TESTING

New and used equipment are tested to ensure that all motors turn, burners fire, and that pumps circulate liquid. Factory testing of the used equipment is critical to find out if there are any problems. The tests typically last less than four (4) hours. On average, only a few burners are tested per month, just long enough to make sure flames are sustained. For burners testing, the installation has natural gas for up to 30 MMBtu/hr of heat.

PILOT TESTING FOR RESEARCH AND DEVELOPMENT

Testing is conducted to determine the best choice for solids handling equipment, drum sizing, and proper air pollution control equipment selection and sizing. The sizing data would then be scaled up for full industrial production. The testing equipment consists of two pilot systems: a rotary dryer system and an indirect-fired rotary kiln system.

The rotary dryer system consists of the feed and discharge equipment, the rotary dryer, cyclone, baghouse, and an induced draft fan. The dryer is equipped with a natural gas burner totally to no more than 9 MMBtu/hr. The dryer is limited to drying approximately 1 to 3 tons/hr of material due to high thermal losses associated with thermal dryers. The cyclone and baghouse are used to control emissions from the dryer. There are no control devices that will be used for the feed and discharge equipment. The material to be dried includes, but is not limited to biosolids, chicken/turkey manure, hydraulic fracturing sand, bone meal, gelatin, auto-shredder residue, wet distiller grains, incinerator bottom ash, broiler litter, waste food for animal feeds, lime from scrubber ponds, and iron ore.

The indirect-fired rotary kiln consists of feed and discharge equipment, indirect-fired rotary kiln, a multi-clone, venturi scrubber, and a thermal oxidizer. The thermal oxidizer is rated at 1 MMBtu/hr. The kiln is heated by three nozzle mix burners estimated at less than 2.00 MMBtu/hr of total heat input. Typical material introduced into the kiln include, but is not limited to biosolids, drill cuttings, drilling muds, activated carbon, cement kiln dust, sludges, and contaminated soils. The installation is limited in this permit to drying 455 tons of material in the rotary dryer and 27.3 tons of material in the rotary kiln in any consecutive 12-month period. The multi-clone, scrubber, and thermal oxidizer are used to control emissions from the kiln. No control devices are used for the feed and discharge equipment.

EMISSIONS/CONTROLS EVALUATION

The emission factors and control efficiencies used in this analysis were obtained from the EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.

The facility could not give the exact number of equipment to be used in the handling and discharge of the dryer and kiln. Therefore, it was assumed that a total of 10 emission points will be used for handling and discharge for both the dryer and the kiln. The total number is not expected to be higher than this. Furthermore, the particulate matter emissions are calculated to be much less than their respective *de minimis* levels that any practical exceedance of the emission points would not cause the particulate emissions to be greater than the *de minimis* levels.

Particulate emissions from handling and discharge equipment were calculated using emission factors from AP-42, Chapter 11.12, *Concrete Batching*, June 2006. Particulate emissions from the rotary dryer were calculated using emission factors from AP-42, Chapter 11.1, *Hot Mix Asphalt Plants*, April 2004. Particulate emissions from the rotary kiln were calculated using emission factors from AP-42, Chapter 2.2, *Sewage*

Sludge Incineration, January 1995. Multiple types of material are being processed by the equipment and there are no emission factors available. Emission factors were chosen based on equipment and material that will yield the most reasonable levels of emissions.

Natural gas combustion emissions (including NO_x, SO_x, CO, VOC, GHG, and HAPs) were calculated from AP-42, Chapter 1.4, *Natural Gas Combustion*, July 1998. There will be HAPs emissions from the HAPs content in the material being processed in the dryer and the kiln. The facility is unable to provide any information on the HAPs content of these materials. The HAPs content of two (2) primary material expected to be utilized by the facility, biosolids and chicken/turkey manure, have been well characterized in literature. HAPs emissions from the material, with the exceptions of dioxins and furans, were calculated using the HAPs content from EPA document "Targeted National Sewage Sludge Survey, Sampling and Analysis Technical Report," January, 2009 and the website "Air Pollution and Toxic Hazards Associated with Poultry Litter Incineration," from the Energy Justice Network. For dioxins and furans, concentration from the paper "AMSA 2000/2001 Survey of Dioxin-like Compounds in Biosolids: Statistical Analysis," was used. The toxic equivalency (TEQ) for the dioxins and furans were taken into account in this paper.

For all other materials, the facility must seek approval from the New Source Review/Construction Permit Unit of the Air Pollution Control Program before using the material. Furthermore, for some HAPs such lead and manganese, the emissions from biosolids and animal manure are greater than their respective Screening Model Action Levels (SMAL). Therefore, the facility is required to track the HAPs emissions to ensure that they are less than the SMAL. For any material approved by the New Source Review/Construction Permit, their HAPs emissions should be included in the record keeping to ensure that the HAPs emissions are less than the SMAL.

For the rotary dryer, a 99.4% combined control efficiency for particulates was used for the cyclone followed by a baghouse. The combined control efficiency of 99.4% was calculated using a 60% control efficiency for the cyclone and a 99% control efficiency for the baghouse. For the rotary kiln, a combined particulate control efficiency of 85% and a VOC control efficiency of 98% was used for a multi-clone followed by a venturi scrubber followed by a direct-fired thermal oxidizer. The combined control efficiencies were calculated using a 70% particulate control efficiency for the venturi scrubber, a 50% particulate control efficiency for the thermal oxidizer, and a VOC control efficiency of 98% for the thermal oxidizer. The individual efficiencies for each control device were either taken from EPA Air Pollution Control Technology Factsheets or from typical values used by the Air Pollution Control Program.

The following table provides an emissions summary for this project. Existing potential emissions were taken from a no permit required determination issued by the Air Pollution Control Program in 2013 (Project 2013-11-019) and does not include a temporary dryer that was permitted (Project 2013-02-002). Existing actual emissions were taken from the installation's 2014 EIQ and does include the temporary dryer. Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year). The potential emissions of the

application takes into account processing limits in Special Condition 2.A.

Table 1: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> /SMA L Levels	Existing Potential Emissions	Existing Actual Emissions (2014 EIQ)	Potential Emissions of the Application	Project Conditione d Potential
PM	25.0	0.77	N/D	8.42	N/A
PM ₁₀	15.0	0.26	0.04	3.04	N/A
PM _{2.5}	10.0	0.07	0.0078	2.99	N/A
SO _x	40.0	N/A	0.0001	0.11	N/A
NO _x	40.0	N/A	0.24	18.51	N/A
VOC	40.0	1.70	0.0013	1.49	N/A
CO	100.0	N/A	0.0202	14.79	N/A
GHG (CO ₂ e)	100,000	N/A	N/D	21,252.61	N/A
GHG (mass)	250.0	N/A	N/D	21,127.85	N/A
HAPs	10.0/25.0	2.11	N/D	N/D	<SMAL/25.0
Lead	0.6/0.01	N/A	N/A	0.03	<0.01
Manganese	0.8	N/A	N/A	1.06	<0.8

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

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of all pollutants are less than their respective *de minimis* levels. The potential emissions are based on limiting the processing rates of the equipment. Without the limits, the potential emissions of PM_{2.5}, PM₁₀, and PM would be greater than their respective *de minimis* levels.

APPLICABLE REQUIREMENTS

Testing Services - Worldwide Recycling Equipment Sales, LLC shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved.

GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110
 - Per 10 CSR 10-6.110(4)(B)2.B(II) and (4)(B)2.C(II) a full EIQ is required for the first full calendar year that the equipment (or modifications) approved by this permit are in operation.
- *Operating Permits*, 10 CSR 10-6.065
- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170
- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220
- *Restriction of Emission of Odors*, 10 CSR 10-6.165

SPECIFIC REQUIREMENTS

- *Restriction of Emission of Particulate Matter From Industrial Processes*, 10 CSR 10-6.400
- *Commercial and Industrial Solid Waste Incinerators*, 10 CSR 10-6.161, and *Sewage Sludge Incinerators*, 10 CSR 10-6.191, do not apply to the proposed equipment because the dryer and kiln are not considered incinerators. If the facility operates the system where the material are burned, as in the definition of an incinerator, it may be subject to these rules.

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*, it is recommended that this permit be granted with special conditions.

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated May 5, 2015, received May 20, 2015 designating Testing Services - Worldwide Recycling Equipment Sales, LLC as the owner and operator of the installation.

Attachment A – HAP Emissions Calculations for Biosolids

Testing Services - Worldwide Recycling Equipment Sales, LLC
 Randolph County, S35, T54N, R14W
 Project Number: 2015-05-055
 Installation ID Number: 175-0079
 Permit Number:

For the Month of _____ in the Year _____

Pollutant Type	¹ Concentration (ppm)	Biosolid Usage this Month (tons)	² Equipment	³ Control Efficiency (%)	⁴ HAP Emissions This Month (tons)	⁵ HAPs Emissions of 12-Month Period	⁶ SMAL
Benzene (VOC)	2.57						2
Benidene (VOC)	0.25						0.0003
Benzo(a)pyrene (VOC)	0.36						0.01
Chlordane (VOC)	0.01						0.01
Cyanide (VOC)	1,097.5						5
Heptachlor (VOC)	0.01						0.02
Hexachlorobenzene (VOC)	0.14						0.01
Hexachlorobutadiene (VOC)	0.10						0.9
Lindane (VOC)	0.01						0.01
Nickel (PM)	142.84						1
Nitrosodimethylamine (VOC)	0.25						0.001
Toxaphene (VOC)	0.01						0.01
Trichloroethylene (VOC)	7.74						10
Fluoride (PM)	234						0.1
Antimony (PM)	26.6						5
Arsenic (PM)	49.2						0.005
Beryllium (PM)	2.3						0.008
Cadmium (PM)	11.8						0.01
Chromium (PM)	1160						5
Cobalt (PM)	290						0.1
Lead (PM)	450						0.01
Manganese (PM)	14900						0.8
Mercury (PM)	8.3						0.01
Selenium (PM)	24.7						0.1
2-Methylnaphthalene (VOC)	4.6						0.01
Fluoranthene (VOC)	12						0.01
Dioxin/Furans (VOC)	4.24 x 10 ⁻⁵						6 x 10 ⁻⁷
PCBs (VOC)	1.17 x 10 ⁻⁵						0.009

Note 1: Maximum value taken from EPA document "Targeted National Sewage Sludge Survey, Sampling and Analysis Technical Report," January, 2009. The facility can use other concentrations if it conducts testing on the biosolids received.

Note 2: Insert rotary dryer or rotary kiln

Note 3: The following control efficiency shall be used: For the rotary dryer, use 99.40% for PM and 0% for VOC. For the rotary kiln, use 98% for VOC and 85% for PM.

Note 4: HAPs emissions this month calculated by using [Biosolid Usage this Monty (tons)] x [Concentration (ppm) x 10⁻⁶] x [1-Control Efficiency (%)/100]

Note 5: HAPs emissions of the 12-Month Period shall be calculated by adding HAP Emissions This Month to the HAP Emissions of the Previous 12 Months.

Note 6: SMAL. The facility is in compliance if the HAPs Emissions of the 12-Month Period is less than the SMAL. For Manganese and Arsenic, the HAP emissions from Biosolids shall be combined with the HAP emissions from chicken/turkey manure to compare with the SMAL.

Attachment B – HAP Emissions Calculations for Chicken/Turkey Manure

Testing Services - Worldwide Recycling Equipment Sales, LLC
 Randolph County, S35, T54N, R14W
 Project Number: 2015-05-055
 Installation ID Number: 175-0079
 Permit Number:

This sheet covers the month of _____ in the year _____

Pollutant Type	¹ Concentration (ppm)	Chicken/Turkey Manure (tons)	² Equipment	³ Control Efficiency (%)	⁴ HAP Emissions This Month (tons)	⁵ HAPs Emissions of 12-Month Period	⁶ SMAL
Manganese	362						
Arsenic	35						

Note 1: Maximum value taken from EPA document "Targeted National Sewage Sludge Survey, Sampling and Analysis Technical Report," January, 2009. The facility can use other concentrations if it conducts testing on the biosolids received.

Note 2: Insert rotary dryer or rotary kiln

Note 3: The following control efficiency shall be used: For the rotary dryer, use 99.40% for PM and 0% for VOC. For the rotary kiln, use 98% for VOC and 85% for PM.

Note 4: HAPs emissions this month calculated by using [Biosolid Usage this Monty (tons)] x [Concentration (ppm) x 10-6] x [1-Control Efficiency (%)/100]

Note 5: HAPs emissions of the 12-Month Period shall be calculated by adding HAP Emissions This Month to the HAP Emissions of the Previous 12 Months.

Note 6: SMAL. The facility is in compliance if the HAPs Emissions of the 12-Month Period is less than the SMAL. For Manganese and Arsenic, the HAP emissions from Biosolids shall be combined with the HAP emissions from chicken/turkey manure to compare with the SMAL.

APPENDIX A

Abbreviations and Acronyms

%	percent	m/s	meters per second
°F	degrees Fahrenheit	Mgal	1,000 gallons
acfm	actual cubic feet per minute	MW	megawatt
BACT	Best Available Control Technology	MHDR	maximum hourly design rate
BMPs	Best Management Practices	MMBtu	Million British thermal units
Btu	British thermal unit	MMCF	million cubic feet
CAM	Compliance Assurance Monitoring	MSDS	Material Safety Data Sheet
CAS	Chemical Abstracts Service	NAAQS ...	National Ambient Air Quality Standards
CEMS	Continuous Emission Monitor System	NESHAPs	National Emissions Standards for Hazardous Air Pollutants
CFR	Code of Federal Regulations	NO_x	nitrogen oxides
CO	carbon monoxide	NSPS	New Source Performance Standards
CO₂	carbon dioxide	NSR	New Source Review
CO_{2e}	carbon dioxide equivalent	PM	particulate matter
COMS	Continuous Opacity Monitoring System	PM_{2.5}	particulate matter less than 2.5 microns in aerodynamic diameter
CSR	Code of State Regulations	PM₁₀	particulate matter less than 10 microns in aerodynamic diameter
dscf	dry standard cubic feet	ppm	parts per million
EQ	Emission Inventory Questionnaire	PSD	Prevention of Significant Deterioration
EP	Emission Point	PTE	potential to emit
EPA	Environmental Protection Agency	RACT	Reasonable Available Control Technology
EU	Emission Unit	RAL	Risk Assessment Level
fps	feet per second	SCC	Source Classification Code
ft	feet	scfm	standard cubic feet per minute
GACT	Generally Available Control Technology	SDS	Safety Data Sheet
GHG	Greenhouse Gas	SIC	Standard Industrial Classification
gpm	gallons per minute	SIP	State Implementation Plan
gr	grains	SMAL	Screening Model Action Levels
GWP	Global Warming Potential	SO_x	sulfur oxides
HAP	Hazardous Air Pollutant	SO₂	sulfur dioxide
hr	hour	tph	tons per hour
hp	horsepower	tpy	tons per year
lb	pound	VMT	vehicle miles traveled
lbs/hr	pounds per hour	VOC	Volatile Organic Compound
MACT	Maximum Achievable Control Technology		
µg/m³	micrograms per cubic meter		

Mr. Andy Meyers
Environmental Solutions Engineer
Testing Services - Worldwide Recycling Equipment Sales, LLC
1414 Riley Industrial Blvd
Moberly, MO 65270

RE: New Source Review Permit - Project Number: 2015-05-055

Dear Mr. Meyers:

Enclosed with this letter is your permit to construct. Please study it carefully and refer to Appendix A for a list of common abbreviations and acronyms used in the permit. 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 and your new source review permit application 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 were adversely affected by this permit decision, you may be entitled to pursue an appeal before the administrative hearing commission pursuant to Sections 621.250 and 643.075.6 RSMo. To appeal, you must file a petition with the administrative hearing commission within thirty 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 administrative hearing commission, whose contact information is: Administrative Hearing Commission, Truman State Office Building, Room 640, 301 W. High Street, P.O. Box 1557, Jefferson City, Missouri 65102, phone: 573-751-2422, fax: 573-751-5018, website: www.ao.mo.gov/ahc.

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

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Susan Heckenkamp
New Source Review Unit Chief

SH:cj

Enclosures

c: Southwest Regional Office
PAMS File: 2015-05-055

Permit Number: