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: 08 2 0 1 4 - 0 1 4 Project Number: 2014-04-056 Installation Number: 211-0025

Parent Company: Roeslein and Associates, Inc.

Parent Company Address: 9200 Watson Road, Suite 200, St. Louis, MO 63126

Installation Name: Roeslein Alternative Energy Missouri, LLC - Valley View

Installation Address: Hyatt Drive and Homestead Road, Green Castle, MO 63544

Location Information: Sullivan County, S3, T62N, R18W

Application for Authority to Construct was made for:

Installation of impermeable covers on 14 existing lagoons and the corresponding gas collection, cleaning, compression and flare systems. This review was conducted in accordance with Section (6), 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.

JUL 2 2 2014

EFFECTIVE DATE

DIRECTOR OR DESIGNEE

DEPARTMENT OF NATURAL RESOURCES
STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. In the event that there is a discrepancy between the permit application and this permit, the conditions of this permit shall take precedence. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the 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.”

Roeslein Alternative Energy Missouri, LLC - Valley View
Sullivan County, S3, T62N, R18W

1. Operational Limits
   A. Roeslein Alternative Energy Missouri, LLC – Valley View shall divert the biogas to either the flares or the gas cleaning system at all times. The installation shall not emit the biogas directly into the atmosphere.

   B. Before the biogas cleaning system becomes operational, Roeslein Alternative Energy Missouri, LLC – Valley View shall divert all of the biogas to the flares. The time period for venting all biogas to flares shall begin from the date of permit issuance and not be more than twelve (12) consecutive months.

   C. Once the biogas cleaning system becomes operational, Roeslein Alternative Energy Missouri, LLC shall divert the biogas to the flare only in case of cleaning system shut downs, which shall not exceed 350 hours per twelve (12) consecutive months for each flare.

   D. Roeslein Alternative Energy Missouri, LLC shall keep a record of the operating hours of the flares to ensure that the limits in Special Condition 1.B. and 1.C. are not exceeded. Roeslein Alternative Energy Missouri, LLC – Valley View shall also notify the Enforcement Unit of the Air Pollution Control Program of the start of operations for the biogas cleaning system within 30 days of startup of the system.

2. Control Device Requirement - Flares
   A. The flares shall be operated and maintained in accordance with the manufacturer's specifications. Roeslein Alternative Energy Missouri, LLC - Valley View shall maintain a copy of the flare manufacturer’s specifications on site.
SPECIAL CONDITIONS:
The permittee is authorized to construct and operate subject to the following special conditions:

B. Roeslein Alternative Energy Missouri, LLC - Valley View shall maintain an operating and maintenance log for the flares 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.

3. Sampling Requirements for Hydrogen Sulfide (H$_2$S) and Ammonia (NH$_3$)
   A. Roeslein Alternative Energy Missouri, LLC - Valley View shall sample the biogas to determine the H$_2$S and NH$_3$ concentrations.
   B. The H$_2$S concentration shall not exceed 0.35 percent by volume and the NH$_3$ concentration shall not exceed 0.34 percent by volume.
   C. Roeslein Alternative Energy Missouri, LLC – Valley View shall collect samples once every other week. During each collection event, three samples shall be taken and the results averaged to compare with the limits in Special Condition 3.B. The averaging period used for each sample shall be one hour.
   D. The first sample collection shall be performed within 30 days after startup of operations. Sampling shall be performed using an approved EPA method or a method approved by the Missouri Air Pollution Control Program. Roeslein Alternative Energy Missouri, LLC – South Meadows shall submit a testing protocol to the Missouri Air Pollution Control Program at least fourteen (14) days before the first test for approval.
   E. Each collection event shall be performed at a different lagoon. After a collection event has been performed at a lagoon, the same lagoon cannot be sampled until a collection event has been performed on all the other lagoons.
   F. If any of the sampling result shows an exceedances of the values in Special Condition 3.B., Roeslein Alternative Energy Missouri, LLC shall do the following:
      1) If the exceedance occurs before the gas cleaning system becomes operational, Roeslein Alternative Energy Missouri, LLC – Valley View shall submit ambient impact modeling results to show that the SO$_X$ and NO$_X$ potential emissions do not exceed their respective NAAQS.
SPECIAL CONDITIONS:
The permittee is authorized to construct and operate subject to the following special conditions:

2) If the exceedance occurs after the gas cleaning system becomes operational, Roeslein Alternative Energy Missouri, LLC shall submit an emissions analysis to show that the NO\textsubscript{X} and SO\textsubscript{X} potential emissions do not exceed the de minimis level of 40 tons per year.

3) If the installation cannot show compliance with Special Conditions 3.F.1) and 3.F.2), it shall contact the Air Pollution Control Program for further instructions.

4. Phase I Emission Limits
   A. Roeslein Alternative Energy Missouri, LLC – Valley View shall limit its sulfur oxide (SO\textsubscript{X}) emissions to less than 250.0 tons during the first twelve (12) months of operations.
   
   B. Attachment A, or equivalent forms, such as electronic forms, shall be used to demonstrate compliance with Special Condition 4.A. The equivalent forms shall use the same values and calculation methods as given in Attachment A.

5. Control Device Requirement – Bio-Scrubber
   A. Roeslein Alternative Energy Missouri, LLC – South Meadows shall control H\textsubscript{2}S emissions from the biogas cleaning system using a bio-scrubber as specified in the permit application.
   
   B. The scrubber shall be operated and maintained in accordance with the manufacturer’s specifications. The scrubber shall be equipped with a gauge or meter, which indicates the pressure drop across the scrubber. The gauges or meters shall be located such that Department of Natural Resources’ employees may easily observe them.
   
   C. Roeslein Alternative Energy Missouri, LLC – South Meadows shall monitor and record the operating pressure drop of the scrubber at least once every 24 hours while the biogas cleaning system is in operation. The pressure drop shall be maintained within the design conditions specified by the manufacturer’s performance warranty.
   
   D. Roeslein Alternative Energy Missouri, LLC – South Meadows shall maintain a copy of the bio-scrubber’s manufacturer’s performance warranty on site.
SPECIAL CONDITIONS:
The permittee is authorized to construct and operate subject to the following special conditions:

E. Roeslein Alternative Energy Missouri, LLC – South Meadows shall maintain an operating and maintenance log for the scrubber that 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.

6. Record Keeping and Reporting Requirements
A. Roeslein Alternative Energy Missouri, LLC - Valley View shall maintain all records required by this permit for not less than five years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request. These records shall include MSDS for all materials used.

B. Roeslein Alternative Energy Missouri, LLC - Valley View 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.
Roeslein Alternative Energy Missouri, LLC - Valley View Complete: June 5, 2014
Hyatt Drive and Homestead Road
Green Castle, MO 63544

Parent Company:
Roeslein & Associates, Inc.
9200 Watson Road, Suite 200
St. Louis, MO 63126-1528

Sullivan County, S3, T62N, R18W

REVIEW SUMMARY

- Roeslein Alternative Energy Missouri, LLC - Valley View has applied for authority to install impermeable covers on fourteen (14) existing lagoons and the corresponding gas collection, cleaning, compression and flare systems.

- HAP emissions are expected from the proposed equipment. HAPs of concern are products of combustion.

- None of the New Source Performance Standards (NSPS) apply to the installation.

- None of the NESHAPs apply to this installation. None of the currently promulgated MACT regulations apply to the proposed equipment.

- Fourteen (14) flares are being used to control the emissions from the lagoons. A bio-scrubber will be used to control H₂S emissions from the biogas cleaning system once the biogas cleaning system is operational.

- This review was conducted in accordance with Section (6) of Missouri State Rule 10 CSR 10-6.060, Construction Permits Required. Potential emissions of all pollutants are above de minimis levels, but below major source levels, before the biogas cleaning system is operational (maximum 12 months of operations). The potential emissions of all pollutants will be less than their respective de minimis levels after the biogas cleaning system becomes operational.

- This installation is located in Sullivan 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 performed to determine the ambient impacts of NO\textsubscript{X}, SO\textsubscript{X}, and CO.

• Emissions testing is not required for the equipment. However, sampling is required to determine the H\textsubscript{2}S and NH\textsubscript{3} concentrations in the biogas.

• No operating permit is required for this installation. After the biogas cleaning system becomes operational, emissions of all pollutants would be under their respective de minimis levels and no federal regulations (i.e. MACT, NSPS, etc.) applies to the installation.

• Approval of this permit is recommended with special conditions.

INSTALLATION/PROJECT DESCRIPTION

Roeslein Alternative Energy Missouri, LLC (RAEM) proposes to install impermeable covers on fourteen (14) existing lagoons at the Murphy Brown of Missouri Valley View Farm in Sullivan County. The biogas generated at the lagoons will either be purified into methane or be diverted to a flare. RAEM will construct the project in two (2) phases. The first phase involves the installation of the lagoon covers and flare skids while the second phase includes the installation of the gas cleaning and compression equipment. During the first phase, RAEM will divert all of the biogas to the flare to collect gas flow rate and composition data. The results will be used to determine the sizing of the gas cleaning and compression systems. Once the gas cleaning and compression systems are operational, the flares will only be operated intermittently during gas cleaning system shutdowns. RAEM expects to operate the flare for a maximum of 350 hours after the gas cleaning system is operational.

The installation is considered a minor source for construction permits and is not required to apply for an operating permit. The facility has asked to keep the design of the cleaning system and some of the emission factors confidential per Missouri State Rules 10 CSR 10-6.210, Confidential Information. Therefore, no information is given in this permit regarding the types of equipment involved in the cleaning process and no emission factors are specifically listed. This permit is a public version and there is no confidential version of the permit.

EMISSIONS/CONTROLS EVALUATION

Emissions from phase one and phase two of the project were calculated. Emissions from the flares were calculated from emission factors from EPA document AP-42, Compilation of Air Pollutant Emission Factors, Fifth Edition, or from mass balances. PM\textsubscript{2.5}, PM\textsubscript{10}, PM and CO emissions from the flare were calculated from emission factors in AP-42, Chapter 2.4, Municipal Solid Waste Landfill, 11/98. SO\textsubscript{X} emissions were calculated from mass balances assuming that all H\textsubscript{2}S contained in the biogas are oxidized to SO\textsubscript{X}. H\textsubscript{2}S emissions were calculated assuming that 95% of the H2S are
oxidized, which should be a conservative value since AP-42, Chapter 2.4 suggests a value greater than 98%. The concentration used in the calculation for H₂S is 0.35 percent by volume. NOₓ can be formed from the oxidation of ammonia (NH₃) contained in the biogas, the fixation of atmospheric nitrogen with oxygen (thermal NOₓ), and the reaction with partially oxidized compounds within the flare (prompt NOₓ). NOₓ emissions from the oxidation of NH₃ were calculated using mass balances assuming a concentration of 0.34 percent by volume. Thermal and Prompt NOₓ emissions were calculated using emission factor in AP-42, Chapter 2.4. The concentration of H₂S and NH₃ were provided by the company and the company is required to sample the biogas periodically to ensure that the values are not exceeded. VOC emissions from the biogas passing through the flare were calculated assuming that a 0.01 fraction of the methane production potential are emitted as VOC and that 99.2% will be destroyed by the flare. The 0.01 fraction was taken from the EPA document, Emissions From Animal Feeding Operations, Draft, 8/2001 and the 99.2% device control efficiency is from AP-42, Chapter 2.4, Table 2.4-3. VOC emissions from combustion were determined using the emission factor in AP-42, Chapter 1.4, Natural Gas Combustion, 7/98.

CO₂ emissions from combustion of the flares were calculated using emission factor from AP-42, Chapter 2.4. CO₂ emissions from the biogas were calculated from mass balances assuming that 34% of the biogas is CO₂, which is a typical number for biogas. CH₄ emissions from combustion were calculated from mass balances assuming that 65% of the biogas is CH₄ and applying a 98% default control efficiency for the use of the flare.

All of the emissions were calculated using a biogas flow rate of 200 scfm, which is the rate of the fan and not the actual biogas generation rate. This should yield a conservative estimate of emissions. The CH₄ and CO₂ emissions can also be calculated using the emission factors from 40 CFR 98, Subpart C, Table C-1 and C-2. However, the emission factors from 40 CFR 98 were not used for this project because it yielded a lower estimate of emissions than the other methods. Once the cleaning system becomes operational, there will be CH₄ and CO₂ emissions from the exit streams. CO₂ emissions were calculated from mass balance assuming that all of the CO₂ generated by the biogas is emitted. CH₄ emissions were calculated using performance data provided by the manufacturer. N₂O Emissions were calculated using the emission factor in 40 CFR 98. No N₂O emission factors were available from AP-42.

The impermeable membrane is not expected to capture 100% of the biogas. To calculate fugitive emissions, it was assumed that only 97.5% of the biogas would be captured. This is the capture efficiency given in 40 CFR 98, Subpart JJ, Manure Management, Table JJ-6, Collection Efficiencies of Anaerobic Digesters.

Particulate emissions from the haul road were estimated using the equations in AP-42, Chapter 13.2.2, Unpaved Roads, 11/2006. The haul road is used to haul compressed methane and are only included in the emissions from Phase II of the project. HAP emissions from combustion were calculated using emission factors in AP-42, Chapter 2.4.
There will be H$_2$S emissions from the flares and the gas cleaning system due to the H$_2$S content in the biogas. However, the emissions are not considered part of this project because they existed in the gas before the addition of the equipment. The H$_2$S emissions are not generated by the equipment. Instead, with the addition of the flares and the bio-scrubber at the outlet stream of the gas cleaning system, the H$_2$S emissions from the lagoons will be less than the emissions before this project. The bio-scrubber is required by a special condition in this permit to ensure its proper operation in control of odor.

For CO$_2$ emissions from the gas cleaning system, it was assumed that 20% of the exit stream will be CO$_2$. For CH$_4$ emissions, it was assumed that 0.4% of the exit stream consists of CH$_4$. Both of these values are from the manufacturer’s specifications.

The GHG-Mass emissions were calculated by summing the CO$_2$, CH$_4$, and N$_2$O emissions. The GHG-CO$_2$e emissions were calculated by multiplying the CO$_2$, CH$_4$, and N$_2$O emissions by their respective global warming potential (1 for CO$_2$, 25 for CH$_4$, and 298 for N$_2$O) and adding the results.

The following table provides an emissions summary for this project. Phase I emissions were calculated assuming that the flare is being used to combus the biogas during the entire year (8,760 hours). Phase II emissions were calculated assuming that the flare is only being used for 350 hours and that for the remaining hours, the biogas is being diverted to the gas cleaning system. Assuming that the flare operates 350 hours and that the cleaning system operates 8,410 hours leads to higher emissions than assuming that the cleaning system operates at 8,760 hours. During the first 12 months of operations, the facility is limited to 250.0 tons of SO$_X$ emissions to avoid PSD permitting.

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>PM</td>
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<td>0.52</td>
<td>0.04</td>
<td>N/A</td>
</tr>
</tbody>
</table>

N/A = Not Applicable
Note 1: On June 23, 2014, the U.S. Supreme Court determined, in *Utility Air Regulatory Group v. Environmental Protection Agency* (No. 12-1146), that GHG can no longer be treated as an air pollutant for the purpose of determining whether a source is a major source required to obtain a PSD permit.
PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (6) of Missouri State Rule 10 CSR 10-6.060, \textit{Construction Permits Required}. Potential emissions of all pollutants are above de minimis but below major source levels before the biogas cleaning system is operational. Potential emissions of all pollutants will be below the de minimis level once the biogas cleaning system is operational.

APPLICABLE REQUIREMENTS

Roeslein Alternative Energy Missouri, LLC - Valley View 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

- \textit{Submission of Emission Data, Emission Fees and Process Information,} 10 CSR 10-6.110

- \textit{Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin,} 10 CSR 10-6.170

- \textit{Restriction of Emission of Visible Air Contaminants,} 10 CSR 10-6.220

- \textit{Restriction of Emission of Odors,} 10 CSR 10-6.165

AMBIENT AIR QUALITY IMPACT ANALYSIS

Ambient air quality modeling was performed to determine the ambient impact of NO\textsubscript{X}, SO\textsubscript{X}, and CO. For CO, the ambient impact is less than the significance levels. Therefore, a full ambient air quality impact analysis was not performed. For NO\textsubscript{X} and SO\textsubscript{X}, results show that, at maximum capacity, their ambient impacts are expected to be less than their respective NAAQS. More information regarding the AAQIA can be found in the memorandum “Ambient Air Quality Impact Analysis (AAQIA) for Roeslein Alternative Energy Missouri, LLC – 2014-04-052 & 2014-04-056” dated July 16, 2014.

\begin{table}[h]
\centering
\begin{tabular}{|l|c|c|c|}
\hline
Pollutant & Modeled Impact & NAAQS/AAL & Time Period \\
\hline
NO\textsubscript{X} & 143.8 & 188.0 & 1-Hour \\
NO\textsubscript{X} & 4.1 & 100.0 & Annual \\
SO\textsubscript{X} & 26.72 & 188 & 1-Hour \\
SO\textsubscript{X} & 29.78 & 1,300 & 3-Hour \\
SO\textsubscript{X} & 10.86 & 365 & 24-Hour \\
SO\textsubscript{X} & 1.85 & 80 & Annual \\
CO & 35.11 & 2,000 & 1-Hour \\
CO & 11.72 & 500 & 8-Hour \\
\hline
\end{tabular}
\caption{Ambient Impact Analysis for NO\textsubscript{X}, SO\textsubscript{X}, and CO (in µg/m\textsuperscript{3})}
\end{table}
Note 1: Significance level for CO.

STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (6), Missouri State Rule 10 CSR 10-6.060, Construction Permits Required, I recommend this permit be granted with special conditions.

_______________________________   ________________________________
Chia-Wei Young                        Date
New Source Review Unit

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated April 24, 2014, received April 25, 2014, designating Roeslein Alternative Energy Missouri, LLC - Valley View as the owner and operator of the installation.

Attachment A - SO\textsubscript{X} Emissions Compliance Worksheet

Roeslein Alternative Energy Missouri, LLC - Valley View
Sullivan County, S3, T62N, R18W
Project Number: 2014-04-056
Installation ID Number: 211-0025
Permit Number: ________

This sheet covers the period from _________ to _________.

\begin{tabular}{|l|l|l|l|l|}
\hline
Month & Monthly Raw Biogas Flowrate (scf) & \textsuperscript{1}H\textsubscript{2}S Concentration (Vol \%) & \textsuperscript{2}Monthly H\textsubscript{2}S Generation (tons) & \textsuperscript{3}Monthly SO\textsubscript{X} Emissions (tons) & \textsuperscript{4}12-Month SO\textsubscript{X} Emissions (tons) \\
\hline
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\end{tabular}

Note 1: A value of 0.35\% shall be used before sampling results are available. After sample results become available, Roeslein Alternative Energy Missouri, LLC shall use the concentration from the latest test.

Note 2: Monthly H\textsubscript{2}S Generation (tons) calculated using \([\text{Monthly Biogas Flow Rate (scf)} \times \text{H\textsubscript{2}S Concentration (Vol \%)}] \times 0.09 \text{ lb/scf} + 2,000 \text{ lb/ton} \) where 0.09 lb/scf is the density of H\textsubscript{2}S.

Note 3: Monthly SO\textsubscript{X} Emissions (tons) calculated by multiplying the Monthly H\textsubscript{2}S Generation (tons) by 1.88, where 1.88 is the ratio of the molecular weights of SO\textsubscript{X} to H\textsubscript{2}S.

Note 4: 12-month SO\textsubscript{X} Emissions (tons) calculated by summing the current month’s SO\textsubscript{X} emissions to the SO\textsubscript{X} emissions of the previous 11 months.
APPENDIX A

Abbreviations and Acronyms

% ............ percent
°F .......... degrees Fahrenheit
acfm ......... actual cubic feet per minute
BACT ......... Best Available Control Technology
BMPs ......... Best Management Practices
Btu .......... British thermal unit
CAM .......... Compliance Assurance Monitoring
CAS .......... Chemical Abstracts Service
CEMS ....... Continuous Emission Monitor System
CFR ......... Code of Federal Regulations
CO .......... carbon monoxide
CO₂ .......... carbon dioxide
CO₂e ....... carbon dioxide equivalent
COMS ...... Continuous Opacity Monitoring System
CSR .......... Code of State Regulations
dscf ........ dry standard cubic feet
EIQ ......... Emission Inventory Questionnaire
EP .......... Emission Point
EPA ......... Environmental Protection Agency
EU .......... Emission Unit
fps .......... feet per second
ft ............. feet
GACT ...... Generally Available Control Technology
GHG ......... Greenhouse Gas
gpm ........ gallons per minute
gr .......... grains
GWP .......... Global Warming Potential
HAP .......... Hazardous Air Pollutant
hr .......... hour
hp .......... horsepower
lb .......... pound
lbs/hr ...... pounds per hour
MACT ...... Maximum Achievable Control Technology
µg/m³ ...... micrograms per cubic meter
m/s .......... meters per second
Mgal ......... 1,000 gallons
MW .......... megawatt
MHDR ...... maximum hourly design rate
MMBtu .... Million British thermal units
MMCF ...... million cubic feet
MSDS ...... Material Safety Data Sheet
NAAQS ...... National Ambient Air Quality Standards
NESHAPs .. National Emissions Standards for Hazardous Air Pollutants
NOₓ .......... nitrogen oxides
NSPS ...... New Source Performance Standards
NSR ......... New Source Review
PM .......... particulate matter
PM₂·₅ ...... particulate matter less than 2.5 microns in aerodynamic diameter
PM₁₀ ...... particulate matter less than 10 microns in aerodynamic diameter
ppm ........ parts per million
PSD ...... Prevention of Significant Deterioration
PTE .......... potential to emit
RACT ...... Reasonable Available Control Technology
RAL ........ Risk Assessment Level
SCC ......... Source Classification Code
scfm ......... standard cubic feet per minute
SIC ......... Standard Industrial Classification
SIP ......... State Implementation Plan
SMAL ...... Screening Model Action Levels
SOₓ .......... sulfur oxides
SO₂ .......... sulfur dioxide
tph .......... tons per hour
tpy .......... tons per year
VMT .......... vehicle miles traveled
VOC .......... Volatile Organic Compound
Mr. Chris Roach  
Director of Project Development  
Roeslein Alternative Energy Missouri, LLC - Valley View  
9200 Watson Road, Suite 200  
St. Louis, MO 63126-1528


Dear Mr. Roach:

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 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:cyl

Enclosures

c: Northeast Regional Office  
PAMS File: 2014-04-056

Permit Number:

Celebrating 40 years of taking care of Missouri’s natural resources.  
To learn more about the Missouri Department of Natural Resources visit dnr.mo.gov.