INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We Protect Hoosiers and Our Environment.
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(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov

Michael R. Pence
Governor

Thomas W. Easterly
Commissioner

To: Interested Parties

Date: August 22, 2014

From: Matthew Stuckey, Chief
Permits Branch
Office of Air Quality

Source Name: Cole Technologies

Permit Level: Exempt Construction and Operation Status

Permit Number: 005-34671-00109

Source Location: 4050 Long Road, Columbus, Indiana

Type of Action Taken: Initial Permit

Notice of Decision: Approval

Please be advised that on behalf of the Commissioner of the Department of Environmental Management, I have issued a decision regarding the matter referenced above. Pursuant to 326 IAC 2, this approval was effective immediately upon submittal of the application.

The final decision is available on the IDEM website at: http://www.in.gov/apps/idem/caats/
To view the document, select Search option 3, then enter permit 34671.

If you would like to request a paper copy of the permit document, please contact IDEM's central file room:

Indiana Government Center North, Room 1201
100 North Senate Avenue, MC 50-07
Indianapolis, IN 46204
Phone: 1-800-451-6027 (ext. 4-0965)
Fax (317) 232-8659

(continues on next page)

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, Suite N 501E, Indianapolis, IN 46204, **within eighteen (18) calendar days from 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.

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John Heichelbech
Cole Technologies
4050 Long Road
Columbus, IN 47203

August 22, 2014

Re: Exempt Construction and Operation Status,
E005-34671-00109

Dear Mr. Heichelbech:

The application from Cole Technologies, received on June 25, 2014, has been reviewed. Based on the data submitted and the provisions in 326 IAC 2-1.1-3, it has been determined that the following stationary -road diesel engine emission control systems test facility located at 4050 Long Road, Columbus, IN 47203, is classified as exempt from air pollution permit requirements:

(a) Two (2) Selective Catalytic Reduction (SCR) unit test cells, identified as EU-01 and EU-02, constructed in July, 2014, and exhausting to stacks S-01 and S-02, respectively.

(b) One (1) MIG Welding Station, identified as EU-03, constructed in July, 2014, with a maximum consumption of 1.0 lb/hr of steel electrode, with no emission control, and exhausting indoors.

(c) One (1) natural gas-fired heater, identified as EU-04, constructed in July, 2014, with a maximum capacity of 2.00 MMBtu/hr, with no control, and exhausting outdoors.

(d) One (1) NOx generation system serving both unit test cells, identified as EU-05, constructed in July, 2014, each with a maximum capacity of 20.00 liters/minute of ammonia gas and 3.71 pound per hour of NOx gas per test cell, exhausting to EU-01 and EU-02.

(e) Two (2) diesel heaters, constructed in July, 2014, each with a maximum consumption of 0.2 liters/minute of diesel fuel, exhausting to EU-01 and EU-02.

The following conditions shall be applicable:

1. 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 exemption:

   (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.

2. Pursuant to 326 IAC 6-2-4 (Particulate Emission Limitations for Sources of Indirect Heating), the PM emissions from the following units shall be limited to Pt pounds per MMBtu heat input, as follows:

Emission Unit	Particulate Limitation, (Pt) (lb/MMBtu)
Natural gas-fired heater	0.910

3. 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.

This exemption is the first air approval issued to this source.

A copy of the Exemption is available on the Internet at: http://www.in.gov/ai/appfiles/idem-caats/. For additional information about air permits and how the public and interested parties can participate, refer to the IDEM's Guide for Citizen Participation and Permit Guide on the Internet at: www.idem.in.gov

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 Randy Wingerter, OAQ, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana, 46204-2251, at 317-234-4794 or at 1-800-451-6027 (ext 4-4794).

Sincerely,

Jenny Acker, Section Chief
Permits Branch
Office of Air Quality

JA/rtw

cc: File - Bartholomew County
Bartholomew County Health Department
Compliance and Enforcement Branch

Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD) for an Exemption

Source Description and Location

Source Name:	**Cole Technologies**
Source Location:	**4050 Long Road, Columbus, IN 47203**
County:	**Bartholomew**
SIC Code:	**8711**
Exemption No.:	**E005-34671-00109**
Permit Reviewer:	**Randy Wingerter**

On June 25, 2014 the Office of Air Quality (OAQ) received an application from Cole Technologies related to the construction and operation of a new emission control system test facility.

Existing Approvals

There have been no previous approvals issued to this source.

County Attainment Status

The source is located in Bartholomew County.

Pollutant	Designation
SO_2	Better than national standards.
CO	Unclassifiable or attainment effective November 15, 1990.
O_3	Unclassifiable or attainment effective July 20, 2012, for the 2008 8-hour ozone standard.[1]
PM_{10}	Unclassifiable effective November 15, 1990.
$PM_{2.5}$	Unclassifiable or attainment effective April 5, 2005, for the annual $PM_{2.5}$ standard.
$PM_{2.5}$	Unclassifiable or attainment effective December 13, 2009, for the 24-hour $PM_{2.5}$ standard.
NO_2	Cannot be classified or better than national standards.
Pb	Unclassifiable or attainment effective December 31, 2011.

[1]Unclassifiable or attainment effective October 18, 2000, for the 1-hour ozone standard which was revoked effective June 15, 2005.

(a) Ozone Standards

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 ozone. Bartholomew County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NO_x emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

(b) $PM_{2.5}$

Bartholomew County has been classified as attainment for $PM_{2.5}$. Therefore, direct $PM_{2.5}$, SO_2, and NOx emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

(c) Other Criteria Pollutants
Bartholomew County has been classified as attainment or unclassifiable in Indiana for SO_2, CO, PM_{10}, NO_2, and Pb. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

Fugitive Emissions

The fugitive emissions of criteria pollutants, hazardous air pollutants, and greenhouse gases are counted toward the determination of 326 IAC 2-1.1-3 (Exemptions) applicability.

Background and Description of Emission Units and Pollution Control Equipment

The Office of Air Quality (OAQ) has reviewed an application, submitted by Cole Technologies on June 25, 2014, relating to the installation and operation of an on-road diesel engine emission control systems test facility.

The source consists of the following existing emission units:

(a) Two (2) Selective Catalytic Reduction (SCR) unit test cells, identified as EU-01 and EU-02, constructed in July, 2014, and exhausting to stacks S-01 and S-02, respectively.

(b) One (1) MIG Welding Station, identified as EU-03, constructed in July, 2014, with a maximum consumption of 1.0 lb/hr of steel electrode, with no emission control, and exhausting indoors.

(c) One (1) natural gas-fired heater, identified as EU-04, constructed in July, 2014, with a maximum capacity of 2.00 MMBtu/hr, with no control, and exhausting outdoors.

(d) One (1) NOx generation system serving both unit test cells, identified as EU-05, constructed in July, 2014, each with a maximum capacity of 20.00 liters/minute of ammonia gas and 3.71 pound per hour of NOx gas per test cell, exhausting to EU-01 and EU-02.

(e) Two (2) diesel heaters, constructed in July, 2014, each with a maximum consumption of 0.2 liters/minute of diesel fuel, exhausting to EU-01 and EU-02.

Enforcement Issues

There are no pending enforcement actions related to this source.

Emission Calculations

See Appendix A of this TSD for detailed emission calculations.

Permit Level Determination – Exemption

The following table reflects the unlimited potential to emit (PTE) of the entire source before controls. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit.

Process/ Emission Unit	PM	PM10*	PM2.5*	SO_2	NOx	VOC	CO	GHGs as CO_2e**	Total HAPs
MIG Welder	0.11	0.11	0.11	-	-	-	-	-	1.93E-04
NG Heater	0.02	0.07	0.07	0.01	0.86	0.05	0.72	1,037	1.62E-02
NOx Generators	-	-	-	-	8.14	-	11.48	-	
Diesel Heaters	0.06	0.07	0.06	1.97	0.14	0.01	0.14	599	8.58E-05
Total PTE of Entire Source	**0.18**	**0.24**	**0.23**	**1.98**	**9.13**	**0.06**	**12.34**	**1,636**	**0.02**
Exemptions Levels**	< 5	< 5	< 5	< 10	< 10	< 10	< 25	< 100,000	< 25

(a) The potential to emit (PTE) (as defined in 326 IAC 2-1.1-1) of all regulated criteria pollutants are less than the levels listed in 326 IAC 2-1.1-3(e)(1). Therefore, the source is subject to the provisions of 326 IAC 2-1.1-3 (Exemptions).

(b) The potential to emit (PTE) (as defined in 326 IAC 2-1.1-1) 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, this source is an area source under Section 112 of the Clean Air Act (CAA) and not subject to the provisions of 326 IAC 2-7.

(c) The potential to emit (PTE) (as defined in 326 IAC 2-1.1-1) greenhouse gases (GHGs) is less than the Title V subject to regulation threshold of one hundred thousand (100,000) tons of CO_2 equivalent emissions (CO_2e) per year. Therefore, the source is not subject to the provisions of 326 IAC 2-7.

Federal Rule Applicability Determination

New Source Performance Standards (NSPS)

(a) There are no New Source Performance Standards (NSPS) (326 IAC 12 and 40 CFR Part 60) included in the exemption.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

(b) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs) (326 IAC 14, 326 IAC 20 and 40 CFR Part 63) included in the exemption.

Compliance Assurance Monitoring (CAM)

(c) Pursuant to 40 CFR 64.2, Compliance Assurance Monitoring (CAM) is not included in the exemption, because the unlimited potential to emit of the source is less than the Title V major source thresholds and the source is not required to obtain a Part 70 or Part 71 permit.

State Rule Applicability Determination

The following state rules are applicable to the source:

(a) 326 IAC 2-1.1-3 (Exemptions)
Exemption applicability is discussed under the Permit Level Determination – Exemption section above.

(b) 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))
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. Therefore, this source is an area source under Section 112 of the Clean Air Act (CAA) and not subject to the provisions of 326 IAC 2-4.1.

(c) 326 IAC 2-6 (Emission Reporting)
Pursuant to 326 IAC 2-6-1, this source is not subject to this rule, because it is not required to have an operating permit under 326 IAC 2-7 (Part 70), it is not located in Lake, Porter, or LaPorte County, and it does not emit lead into the ambient air at levels equal to or greater than 5 tons per year. Therefore, 326 IAC 2-6 does not apply.

(d) 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 exemption:

(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.

(e) 326 IAC 6-2-4 (Particulate Matter Emission Limitations for Sources of Indirect Heating)
Pursuant to 326 IAC 6-2-1(d), indirect heating facilities which received permit to construct after September 21, 1983 are subject to the requirements of 326 IAC 6-2-4.

The particulate matter emissions (Pt) shall be limited by the following equation:

$$\frac{\quad}{\quad}$$

Where:

Pt = Pounds of particulate matter emitted per million British thermal units (lb/MMBtu).

Q = Total source maximum operating capacity rating in MMBtu/hr heat input. The maximum operating capacity rating is defined as the maximum capacity at which the facility is operated or the nameplate capacity, whichever is specified in the facility's permit application, except when some lower capacity is contained in the facility's operation permit; in which case, the capacity specified in the operation.

Indirect Heating Units Which Began Operation After September 21, 1983						
Facility	Construction Date	Operating Capacity (MMBtu/hr)	Q (MMBt/hr)	Calculated Pt (lb/MMBtu)	Particulate Limitation, (Pt) (lb/MMBtu)	PM PTE based on AP-42 (lb/MMBtu)
Natural gas-fired heater	2014	2.0	2.0	0.910	0.910	0.0019

Where: Q = Includes the capacity (MMBtu/hr) of the new unit(s) and the capacities for those unit(s) which were in operation at the source at the time the new unit(s) was constructed.

(f) 326 IAC 6-3-2
The MIG Welding station consumes less than 625 lb/day of electrode and therefore is exempt from 326 IAC 6-3-2 per 326 IAC 6-3-1(10).

The NOx generators do not generate PM emissions. Therefore, they are not subject to the requirements of 326 IAC 6-3-2.

The diesel heaters, used to generate a diesel exhaust stream exhausting to the two (2) test cells, have a PTE of PM less than 0.551. Therefore, pursuant to 326 IAC 6-3-2(b)(14) they are exempt from the requirements of 326 IAC 6-3-2.

The two (2) test cells are not manufacturing processes. Therefore, they are not subject to the requirements of 326 IAC 6-3-2.

(g) 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.

(h) 326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations)
The source is not subject to the requirements of 326 IAC 6-5, because the source does not have potential fugitive particulate emissions greater than 25 tons per year. Therefore, 326 IAC 6-5 does not apply.

(i) 326 IAC 8-1-6 (VOC Rules: General Reduction Requirements for New Facilities)
Each of the emission units at this source is not subject to the requirements of 326 IAC 8-1-6, since the unlimited VOC potential emissions from each emission unit is less than twenty-five (25) tons per year.

Conclusion and Recommendation

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 June 25, 2014.

The construction and operation of this source shall be subject to the conditions of the attached proposed Exemption No. 005-34671-00109. The staff recommends to the Commissioner that this Exemption be approved.

IDEM Contact

(a) Questions regarding this proposed exemption can be directed to Randy Wingerter at the Indiana Department Environmental Management, Office of Air Quality, Permits Branch, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana 46204-2251 or by telephone at (317) 234-4794 or toll free at 1-800-451-6027 extension 4-4794

(b) A copy of the findings is available on the Internet at: http://www.in.gov/ai/appfiles/idem-caats/

(c) For additional information about air permits and how the public and interested parties can participate, refer to the IDEM's Guide for Citizen Participation and Permit Guide on the Internet at: www.in.gov/idem

Appendix A: Emission Calculations
PTE Summary

Company Name: Cole Technologies
Address City IN Zip: 4050 Long Road, Columbus, IN 47203
Permit No./Plt ID: E005-34671-00109
Reviewer: Randy Wingerter
Date: August, 2014

Uncontrolled Potential to Emit (tons/yr)									
Emission Unit	**PM**	**PM10**	**PM2.5 ***	**SO_2**	**NOx**	**VOC**	**CO**	**CO2e**	**Total HAPs**
MIG Welder	0.11	0.11	0.11	-	-	-	-	-	1.93E-04
NG Heater	0.02	0.07	0.07	0.01	0.86	0.05	0.72	1,037	1.62E-02
NOx Generators	-	-	-	-	8.14	-	11.48	-	
Diesel Heaters	0.06	0.07	0.06	1.97	0.14	0.01	0.14	599	8.58E-05
Total	**0.18**	**0.24**	**0.23**	**1.98**	**9.13**	**0.06**	**12.34**	**1,636.07**	**0.02**

** PM2.5 listed is direct PM2.5*

Appendix A: Emission Calculations
Welding Operations

Company Name: **Cole Technologies**
Address City IN Zip: **4050 Long Road, Columbus, IN 47203**
Permit Number: **E005-34671-00109**
Reviewer: **Randy Wingerter**
Date: **August, 2014**

PROCESS	Number of Stations	Max. electrode consumption per station (lbs/hr)	EMISSION FACTORS (lb pollutant/lb electrode)				Potential to Emit (tons/year)			
WELDING			PM=PM10=PM2.5	Mn	Ni	Cr	PM/PM10/PM2.5	Mn	Ni	Cr
Metal Inert Gas (MIG)(carbon steel)	1	1	0.0241	0.000034	NA	0.00001	0.106	1.49E-04	-	4.38E-05
								Total HAPs:	**1.93E-04**	

Methodology

[Pollutant] Emission Factor = default values for carbon steel unless a specific electrode type is known;

[Pollutant] Emissions (lbs/hr) = Station # x Max. Electrode Consumption (lbs/hr) x [Pollutant] Emission Factor

[Pollutant] Potential (tpy) = [Pollutant] Emissions (lbs/hr) x 8,760 hours per year / 2,000 lbs per ton

Welding emissions, lb/hr: (# of stations)(max. lbs of electrode used/hr/station)(emission factor, lb. pollutant/lb. of electrode used)

Emissions, lbs/day = emissions, lbs/hr x 24 hrs/day

Emissions, tons/yr = emissions, lb/hr x 8,760 hrs/year x 1 ton/2,000 lbs.

Notes:

MIG welding emission factors are from AP 42, Chapter 12-19, Tables 12-19.1 and 12-19.2 (SCC 3-09-052-26) January 1995.

The facility utilizes carbon steel and aluminum welding wire.

Appendix A: Emissions Calculations
Natural Gas Heater

Company Name: **Cole Technologies**
Address City IN Zip: **4050 Long Road, Columbus, IN 47203**
Permit No./Plt ID: **E005-34671-00109**
Reviewer: **Randy Wingerter**
Date: **August, 2014**

Heat Input Capacity MMBtu/hr	HHV mmBtu / mmscf	Potential Throughput MMCF/yr
2.00	1020	17.2

	Pollutant						
	PM*	PM10*	direct PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	1.9	7.6	7.6	0.6	100 **see below	5.5	84
Potential Emission in tons/yr	0.02	0.07	0.07	0.01	0.86	0.05	0.72

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
PM2.5 emission factor is filterable and condensable PM2.5 combined
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03
Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,020 MMBtu
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

HAPS Calculations

	HAPs - Organics					
	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene	**Total - Organics**
Emission Factor in lb/MMcf	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03	
Potential Emission in tons/yr	1.804E-05	1.031E-05	6.441E-04	1.546E-02	2.920E-05	**1.616E-02**

	HAPs - Metals					
	Lead	Cadmium	Chromium	Manganese	Nickel	**Total - Metals**
Emission Factor in lb/MMcf	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03	
Potential Emission in tons/yr	4.294E-06	9.447E-06	1.202E-05	3.264E-06	1.804E-05	**4.706E-05**
					Total HAPs	**1.621E-02**
					Worst HAP	**1.546E-02**

Methodology is the same as above.

The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Greenhouse Gas Calculations

	Greenhouse Gas		
	CO2	CH4	N2O
Emission Factor in lb/MMcf	120,000	2.3	2.2
Potential Emission in tons/yr	1,031	0.0	0.0
Summed Potential Emissions in tons/yr	1,031		
CO2e Total in tons/yr	1,037		

Methodology
The N2O Emission Factor for uncontrolled is 2.2. The N2O Emission Factor for low Nox burner is 0.64
Emission Factors are from AP 42, Table 1.4-2 SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03
Global Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton
CO2e (tons/yr) = CO2 Potential Emission ton/yr x CO2 GWP (1) + CH4 Potential Emission ton/yr x CH4 GWP (25) + N2O Potential Emission ton/yr x N2O GWP (298).

Appendix A: Emission Calculations
SCR Unit Under Test Exhaust

Company Name: **Cole Technologies**
Address City IN Zip: **4050 Long Road, Columbus, IN 47203**
Permit No./Plt ID: **E005-34671-00109**
Reviewer: **Randy Wingerter**
Date: **August, 2014**

NOx Emissions:

All emissions are calculated as mass balance. Emission calculations for each follow:

NOx generation system produces ammonia at 20 liters per minute. The ammonia system will produce NO and NO2 at a ratio of 10:1
NOx average molecular weight = (10* (MW NO) + MW NO2)/11 = (10*30+46)/11
NOx(ton/yr) = (20 L NH3/min)*(22.4 g-mole NH3/L NH3)*(31.45g Nox/g-mole NOx)*(60 min/hr)*(lb/453.59237 g NOx)*(8760 hr/yr)*(ton/2000 lb)

	NH3 generation rate	NH3 concentration	NO Mol Weight	NO2 Mol Weight	NOx Mol Weight	NOx	
	L/min		g/mol	g/mol	g/mol	lb/hr	ton/yr
	20	22.4	30	46	31.5	3.71	16.3
					After SCR*:	0.93	4.07
					Total for both units:	1.86	**8.14**

*SCR Reduction at Test Cells provides 75% reduction of NOx emission (conservative estimate)

CO Emissions:

All emissions are calculated as mass balance.
Assuming air to be representative of the exhaust.
CO emission = (Total Rig Flow Rate kg/min)*(CO weight concentration)
57 ppm of CO is the average concentration of CO generated from the test unit. Add 100% safety factor.

Molar percentage	Molecular weight of CO	Molecular weight of Air	Weight percentage of CO	Performance Flow rate	Endurance Flow Rate	Total Rig Flow rate	CO emission per test cell	
	g/mol	g/mol		kg/min	kg/min	kg/min	lb/hr	ton/yr
0.0114%	28	29	0.0110%	60	30	90	1.311	5.74
						Total for both units:	2.62	**11.48**

Appendix A: Emissions Calculations
Diesel Process Heaters

Company Name: **Cole Technologies**
Address City IN Zip: **4050 Long Road, Columbus, IN 47203**
Permit No./Plt ID: **E005-34671-00109**
Reviewer: **Randy Wingerter**
Date: **August, 2014**

Diesel fuel input liter/min	Potential Throughput kgals/year	S = Weight % Sulfur
0.40 for both heaters	55.54	0.5

	Pollutant						
	PM*	PM10	direct PM2.5	SO2	NOx**	VOC	CO
Emission Factor in lb/kgal	2.0	2.4	2.1	71 *(142.0S)*	20.0	0.34	5.0
Potential Emission in tons/yr	5.6E-02	6.6E-02	5.9E-02	2.0	0.14	9.4E-03	0.1

Potential Emission in lb/hr for 326 IAC 6-3-2: 0.013 lb/hr

Methodology

(liters/minute)*(1gal/3.7854 liters)*(60 minutes/hour)*(8760 hours/year)*(1 kgal/1000 gal)= kgals/year

Potential Throughput (kgals/year) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1kgal per 1000 gallon x 1 gal per 0.140 MM Btu

Emission Factors are from AP 42, Tables 1.3-1, 1.3-2, and 1.3-3 (SCC 1-03-005-01/02/03) Supplement E 9/98 (see erata file)

*PM emission factor is filterable PM only. Condensable PM emission factor is 1.3 lb/kgal.
Emission (tons/yr) = Throughput (kgals/ yr) x Emission Factor (lb/kgal)/2,000 lb/ton
** NOx is reduced by 75% by the unit under test

	HAPs - Metals				
	Arsenic	Beryllium	Cadmium	Chromium	Lead
Emission Factor in lb/mmBtu	4.0E-06	3.0E-06	3.0E-06	3.0E-06	9.0E-06
Potential Emission in tons/yr	7.01E-06	5.26E-06	5.26E-06	5.26E-06	1.58E-05

	HAPs - Metals (continued)			
	Mercury	Manganese	Nickel	Selenium
Emission Factor in lb/mmBtu	3.0E-06	6.0E-06	3.0E-06	1.5E-05
Potential Emission in tons/yr	5.26E-06	1.05E-05	5.26E-06	2.63E-05

Total HAPs
8.58E-05

Methodology

No data was available in AP-42 for organic HAPs.
Potential Emissions (tons/year) = Throughput (mmBtu/hr)*Emission Factor (lb/mmBtu)*8,760 hrs/yr / 2,000 lb/ton

	Greenhouse Gas		
	CO2	CH4	N2O
Emission Factor in lb/kgal	21,500	0.216	0.26
Potential Emission in tons/yr	597	6.0E-03	7.2E-03
Summed Potential Emissions in tons/yr	597		
CO2e Total in tons/yr	599		

Methodology
The CO2 Emission Factor for #1 Fuel Oil is 21500. The CO2 Emission Factor for #2 Fuel Oil is 22300.
Emission Factors are from AP 42, Tables 1.3-3, 1.3-8, and 1.3-12 (SCC 1-03-005-01/02/03) Supplement E 9/99 (see erata file)
Global Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.
Emission (tons/yr) = Throughput (kgals/ yr) x Emission Factor (lb/kgal)/2,000 lb/ton
CO2e (tons/yr) = CO2 Potential Emission ton/yr x CO2 GWP (1) + CH4 Potential Emission ton/yr x CH4 GWP (25) + N2O Potential Emission ton/yr x N2O GWP (298).

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We Protect Hoosiers and Our Environment.
100 N. Senate Avenue • Indianapolis, IN 46204
(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov

Michael R. Pence
Governor

Thomas W. Easterly
Commissioner

SENT VIA U.S. MAIL: CONFIRMED DELIVERY AND SIGNATURE REQUESTED

TO: John Hiechelbech
Cole Technologies
4050 Long Road
Columbus, IN 47203

DATE: August 22, 2014

FROM: Matt Stuckey, Branch Chief
Permits Branch
Office of Air Quality

SUBJECT: Final Decision
Exempt Construction & Operation Status
005-34671-00109

Enclosed is the final decision and supporting materials for the air permit application referenced above. Please note that this packet contains the original, signed, permit documents.

The final decision is being sent to you because our records indicate that you are the contact person for this application. However, if you are not the appropriate person within your company to receive this document, please forward it to the correct person.

A copy of the final decision and supporting materials has also been sent via standard mail to:
Mack Overton Keramida Environmental, Inc.
OAQ Permits Branch Interested Parties List

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178, or toll-free at 1-800-451-6027 (ext. 3-0178), and ask to speak to the permit reviewer who prepared the permit. If you think you have received this document in error, please contact Joanne Smiddie-Brush of my staff at 1-800-451-6027 (ext 3-0185), or via e-mail at jbrush@idem.IN.gov.

Mail Code 61-53

IDEM Staff	GHOTOPP 8/22/2014 Cole Technologies 005-34671-00109 Final		AFFIX STAMP HERE IF USED AS CERTIFICATE OF MAILING
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2		Columbus City Council and Mayors Office 123 Washington St Columbus IN 47201 *(Local Official)*									
3		Mr. Elbert Held 734 Hutchins Columbus IN 47201 *(Affected Party)*									
4		Mr. Lcnfc 1039 Sycamore St Columbus IN 47201 *(Affected Party)*									
5		Bartholomew County Commissioners 440 Third Street Columbus IN 47202 *(Local Official)*									
6		Mr. Jean Terpstra 3210 Grove Pkwy Columbus IN 47203 *(Affected Party)*									
7		Terry Lowe 1079 Spring Meadow Court Franklin IN 46131 *(Affected Party)*									
8		Mr. Charles Mitch 3210 Grove Parkway Columbus IN 47203 *(Affected Party)*									
9		Mr. Mack Overton Keramida Environmental, Inc. 401 North College Avenue Indianapolis IN 46202 *(Consultant)*									
10		Bartholomew County Health Department 440 3rd Street, Suite 303 Columbus IN 47201 *(Health Department)*									
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