



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

Mitchell E. Daniels Jr.
Governor

Thomas W. Easterly
Commissioner

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

TO: Interested Parties / Applicant

DATE: September 20, 2010

RE: Coal Science Laboratories, Inc. / 089-29379-00554

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

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 enclosed matter. Pursuant to 326 IAC 2, this approval was effective immediately upon submittal of the application.

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.

Enclosures
FNPER-AM.dot12/3/07



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Mr. Allen Ellis
Coal Science Laboratories, Inc.
7300 W. 15th Avenue
Gary, Indiana 46406

September 20, 2010

Re: Exempt Construction and Operation Status,
089-29379-00554

Dear Mr. Ellis:

The application from Coal Science Laboratories, Inc., received on June 22, 2010, 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 Pilot Coke Oven for coke making located at 7300 W. 15th Avenue, Gary, Indiana is classified as exempt from air pollution permit requirements:

- (a) One (1) natural gas-fired Pilot Coke Oven, identified as U001, approved for construction in 2010, with a maximum capacity of 219 tons of coal charge per year and total heat input capacity of 0.006 MMBtu per hour, coal crushing/pulverizing, coke handling, coke screening, charging and pushing consisting of twelve (12) identical natural gas units with emissions exhausting to stack S001.
- (b) One (1) TenKay Mark III Dust Collector, identified as S002, approved for constructed in 2010, Aspirated Cartridge Self Cleaning with maximum capacity of 4000 acfm, equipped with cartridges, to control crushing/pulverizing, coke handling, coke screening, charging and pushing exhausting to stack S002.

The following conditions shall be applicable:

1. Opacity [326 IAC 5-1]

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

- (a) Opacity shall not exceed an average of twenty percent (20%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

2. Fugitive Dust Emissions [326 IAC 6-4]

The Permittee 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 (Fugitive Dust Emissions).

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 Charles Sullivan, OAQ, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana, 46204-2251, at 317-232-8422 or at 1-800-451-6027 (ext 28422).

Sincerely,



Alfred C. Dumaul, Ph. D., Section Chief
Permits Branch
Office of Air Quality

Attachments: Technical Support Document (TSD), Calculations

ACD/cbs

cc: File – Lake County
Lake County Health Department
Compliance and Enforcement Branch
Billing, Licensing and Training Section

Indiana Department of Environmental Management Office of Air Quality

Technical Support Document (TSD) for an Exemption

Source Description and Location

Source Name: Coal Science Laboratories, Inc.
Source Location: 7300 15th Avenue, Gary, Indiana 46406
County: Lake
SIC Code: 5052
Exemption No.: 089-29379-00554
Permit Reviewer: Charles Sullivan

On June 22, 2010, the Office of Air Quality (OAQ) received an application from Coal Science Laboratories, Inc. related to the construction and operation of a new pilot coke oven. The pilot coke oven will be used for research and development to determine optimal coal blends for producing coke.

Existing Approvals

There have been no previous approvals issued to this source.

County Attainment Status

The source is located in Lake County.

Pollutant	Designation
SO ₂	Better than national standards.
CO	Attainment effective February 18, 2000, for the part of the city of East Chicago bounded by Columbus Drive on the north; the Indiana Harbor Canal on the west; 148 th Street, if extended, on the south; and Euclid Avenue on the east. Unclassifiable or attainment effective November 15, 1990, for the remainder of East Chicago and Lake County.
O ₃	Attainment effective June 4, 2010. ¹
PM ₁₀	Attainment effective March 11, 2003, for the cities of East Chicago, Hammond, Whiting, and Gary. Unclassifiable effective November 15, 1990, for the remainder of Lake County.
NO ₂	Cannot be classified or better than national standards.
Pb	Not designated.

¹The U. S. EPA has acknowledged in both the proposed and final rulemaking for this redesignation that the anti-backsliding provisions for the 1-hour ozone standard no longer apply as a result of the redesignation under the 8-hour ozone standard. Therefore, permits in Lake County are no longer subject to review pursuant to Emission Offset, 326 IAC 2-3.

Basic nonattainment designation effective federally April 5, 2005, for PM2.5.

(a) Ozone Standards

Volatile organic compounds (VOC) and Nitrogen Oxides (NOx) 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 NOx emissions are considered when evaluating the rule applicability relating to ozone. Lake County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NOx emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

- (b) **PM_{2.5}**
U.S. EPA, in the Federal Register Notice 70 FR 943 dated January 5, 2005, has designated Lake County as nonattainment for PM_{2.5}. On March 7, 2005 the Indiana Attorney General's Office, on behalf of IDEM, filed a lawsuit with the Court of Appeals for the District of Columbia Circuit challenging U.S. EPA's designation of nonattainment areas without sufficient data. However, in order to ensure that sources are not potentially liable for a violation of the Clean Air Act, the OAQ is following the U.S. EPA's New Source Review Rule for PM_{2.5} promulgated on May 8, 2008. These rules became effective on July 15, 2008. Therefore, direct PM_{2.5} and SO₂ emissions were reviewed pursuant to the requirements of Nonattainment New Source Review, 326 IAC 2-1.1-5. See the State Rule Applicability – Entire Source section.
- (c) **Other Criteria Pollutants**
Lake County has been classified as attainment or unclassifiable in Indiana for all regulated pollutants. 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 and hazardous air pollutants are counted toward the determination of 326 IAC 2-1.1-3 (Exemptions) applicability.

Background and Description of Emission Units and Pollution Control Equipment

On June 22, 2010, the Office of Air Quality (OAQ) received an application from Coal Science Laboratories, Inc. related to the construction and operation of a new pilot coke oven for research and development activities.

The source consists of the following existing emission units:

- (a) One (1) natural gas-fired Pilot Coke Oven, identified as U001, approved for construction in 2010, with a maximum capacity of 219 tons of coal charge per year and total heat input capacity of 0.006 MMBtu per hour, coal crushing/pulverizing, coke handling, coke screening, charging and pushing consisting of twelve (12) identical natural gas units with emissions exhausting to stack S001.
- (b) One (1) TenKay Mark III Dust Collector, identified as S002, approved for constructed in 2010, Aspirated Cartridge Self Cleaning with maximum capacity of 4000 acfm, equipped with cartridges, to control crushing/pulverizing, coke handling, coke screening, charging and pushing exhausting to stack S002.

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	Potential To Emit of the Entire Source (tons/year)								
	PM	PM10*	PM2.5	SO ₂	NO _x	VOC	CO	Total HAPs	Worst Single HAP
U001 - Pilot Coke Oven	0.00	0.00	0.00	0.00	0.00	6.00	5.26	3.42	3.42
S-002 Dust Collector Baghouse	0.17	0.17	0.17	0.04	0.01	0.03	0.03	0.02	0.01
Fugitive Dust	0.58	0.58	0.58	--	--	--	--	--	--
Total PTE of Entire Source	0.75	0.75	0.75	0.04	0.01	6.03	5.29	3.44	3.42
Exemptions Levels	5	5	5	10	10	10	25	25	10
Registration Levels	25	25	25	25	25	25	100	25	10
negl. = negligible * Under the Part 70 Permit program (40 CFR 70), particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM10), not particulate matter (PM), is considered as a "regulated air pollutant".									

- (a) The potential to emit (PTE) (as defined in 326 IAC 2-1.1-1(16)) 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(16)) of any single HAP is less than ten (10) tons per year and the PTE of a combination of HAPs is less than twenty-five (25) tons per year. Therefore, 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.

Federal Rule Applicability Determination

New Source Performance Standards (NSPS)

- (a) The requirements of the New Source Performance Standards (NSPS) for Industrial-Commercial-Institutional Steam Generating Units, 40 CFR 60, Subpart Db, are not included in the permit since this facility, approved for construction in 2010, does not have a heat input capacity from fuels combusted in the steam generating unit greater than 100 MMBtu/hr.
- (b) The requirements of the New Source Performance Standards (NSPS) for Small Industrial-Commercial-Institutional Steam Generating Units, 40 CFR 60, Subpart Dc, are not included in the permit since this facility, approved for construction in 2010, does not have a heat input capacity from fuels combusted in the steam generating unit greater than 10 MMBtu/hr.
- (c) There are no New Source Performance Standards (NSPS) (326 IAC 12 and 40 CFR Part 60) included in the permit.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

- (a) This source is not subject to the requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Benzene Emissions from Coke By-Product Recovery Plants – 40 CFR 61, Subpart L since the emissions from the combusted volatilized coke byproducts are fully combusted as a non-recovery coke oven plant.
- (b) This source is not subject to the requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Coke Ovens: Pushing, Quenching, and Battery Stacks- 40 CFR 63, Subpart CCCCC, because this source is not a major source of HAP.
- (c) There are no other National Emission Standards for Hazardous Air Pollutants (NESHAPs) (326 IAC 14, 326 IAC 20 and 40 CFR Part 63) included in the permit.

Compliance Assurance Monitoring (CAM)

- (d) Pursuant to 40 CFR 64.2, Compliance Assurance Monitoring (CAM) is not included in the permit, 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 located in Lake County, it has actual emissions of NOx and VOC of less than twenty-five (25) tons per year, 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 permit:
 - (1) Opacity shall not exceed an average of twenty percent (20%) 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 the allowable particulate from the twelve natural gas burners on the pilot coke oven, identified as U001, the pounds of particulate matter per million Btu (lb/mmBtu) emitted is less than the allowable emission limitation rate 0.6 pounds per million British thermal units. The pilot coke oven particulate emission rate for combusting natural gas is 2.83×10^{-7} pounds of particulate matter per million British thermal units (see Appendix A page 6). Therefore, the pilot coke oven, U001 is capable of complying with this allowable emission limitation rate.
- (f) 326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes)
Pursuant to 326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes), this source is not subject to this rule, since the unlimited potential to emit is less than five hundred fifty-one thousandths (0.551) pounds per hour. Therefore, 326 IAC 6-3 does not apply to these units..
- (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 6.8-10 (Lake County: Fugitive Particulate Matter)
The source is not subject to the requirements of 326 IAC 6.8-10, because the source does not have potential fugitive particulate emissions greater than 5 tons per year. Therefore, 326 IAC 6.8-10 does not apply.
- (i) 326 IAC 7-1.1 (Sulfur Dioxide Emission Limitations) Each of the emissions units at this source is not subject to the requirements of 326 IAC 7-1.1 since the unlimited potential to emit of sulfur dioxide is less than twenty-five (25) tons per year or ten (10) pounds per hour.
- (j) 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.
- (k) 326 IAC 9 (Carbon Monoxide Emission Limits)
Each of the emission units at the source is not subject to the requirements of 326 IAC 9 since the capacity of the pilot coke oven is less than ten (10) tons per hour process weight and the waste gas stream is burned in a direct flame afterburner.
- (l) 326 IAC 10 Nitrogen Oxide Rules
This rule is subject only to sources in Clark and Floyd Counties. This facility is not subject to the requirements of 326 IAC 10 because this facility is located in Lake County.
- (m) 326 IAC 12 (New Source Performance Standards)
See Federal Rule Applicability Section of this TSD.
- (n) 326 IAC 20 (Hazardous Air Pollutants)
See Federal Rule Applicability Section of this TSD.

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 22, 2010.

The construction and operation of this source shall be subject to the conditions of the attached proposed Exemption No. 089-29379-00554. The staff recommends to the Commissioner that this Exemption be approved.

IDEM Contact

- (a) Questions regarding this proposed permit can be directed to Charles Sullivan 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) 232-8422 or toll free at 1-800-451-6027 extension 28422.
- (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.idem.in.gov

**Appendix A: Emissions Calculations
Coal-Coke Crushing, Screening Emissions**

Company Name: Coal Science Laboratories
Source Address: 7300 15th Avenue, Gary, IN 46406
Operation Permit No.: 089-29379-00554
Permit Reviewer: C. Sullivan

1200	lbs of coal/charge
0.6	tons of coal/charge
7	Charges/week
52	Weeks/yr

	AP-42 Emission Factor (lbs/ton) Filterable PM	Uncontrolled Emissions (lbs/yr) ¹	Uncontrolled Emissions (tons/yr)
Coal Crushing	0.11	24.024	0.012012
Coal Pulverization	1.80E-04	0.039312	0.000019656
Coke Handling	0.006	1.3104	0.0006552
Coke Screening	0.022	4.8048	0.0024024
Total Emissions		30.178512	0.015089256

1- Emissions = EF X (tons of coal/charge) X (Charges/week) X (Weeks/yr)

**Appendix A: Emissions Calculations
Charging Emissions**

Company Name: Coal Science Laboratories, Inc.
Source Address: 7300 15th Avenue, Gary, IN 46406
Operation Permit No.: 089-29379-00554
Permit Reviewer: C. Sullivan

1200 lbs of coal/charge	Totals (tpy)	
0.6 tons of coal/charge	Uncontrolled	Controlled
7 Charges/week	VOC HAP	1.23E-05 1.16E-05
52 Weeks/yr	Not on HAP List	2.18E-07 2.18E-07
	HAP not VOC	4.09E-07 1.23E-07

AP-42 Factors Table 12.2-21

Pollutant	AP-42 Emission Factor (lbs/ton) ¹	UNCONTROLLED		CONTROLLED		
		Uncontrolled Emissions (lbs/yr)	Uncontrolled Emissions (tons/yr)	AP-42 Emission Factor (lbs/ton)	Controlled Emissions (lbs/yr)	Controlled Emissions (tons/yr) ²
Filterable PM	0.027	5.8968	0.0029484	0.0081	1.76904	0.00088452
TSP	0.0026	0.56784	0.00028392	0.0022	0.48048	0.00024024
Benzene	3.60E-05	0.0078624	3.93E-06	3.60E-05	0.0078624	3.93E-06
Toluene	1.70E-05	0.0037128	1.86E-06	1.70E-05	0.0037128	1.86E-06
Xylene	6.70E-06	0.00146328	7.32E-07	6.70E-06	0.00146328	7.32E-07
Carbon Disulfide	2.10E-06	4.59E-04	2.29E-07	2.10E-06	4.59E-04	2.29E-07
Chloromethane	2.00E-06	4.37E-04	2.18E-07	2.00E-06	4.37E-04	2.18E-07
Ethyl Benzene	7.30E-07	1.59E-04	7.97E-08	7.30E-07	1.59E-04	7.97E-08
Napthalene	2.30E-05	5.02E-03	2.51E-06	2.30E-05	5.02E-03	2.51E-06
Total PAH's	2.70E-05	5.90E-03	2.95E-06	2.10E-05	4.59E-03	2.29E-06
Arsenic	7.90E-07	1.73E-04	8.63E-08	2.40E-07	5.24E-05	2.62E-08
Beryllium	2.90E-08	6.33E-06	3.17E-09	8.70E-09	1.90E-06	9.50E-10
Chromium	3.40E-07	7.43E-05	3.71E-08	1.00E-07	2.18E-05	1.09E-08
Cobalt	2.40E-07	5.24E-05	2.62E-08	7.10E-08	1.55E-05	7.75E-09
Lead	3.40E-07	7.43E-05	3.71E-08	1.00E-07	2.18E-05	1.09E-08
Manganese	1.50E-06	3.28E-04	1.64E-07	4.60E-07	1.00E-04	5.02E-08
Mercury	2.60E-09	5.68E-07	2.84E-10	7.90E-10	1.73E-07	8.63E-11
Nickel	5.00E-07	1.09E-04	5.46E-08	1.50E-07	3.28E-05	1.64E-08
Charging HAP Emissions		2.54E-02	1.27E-05		2.35E-02	1.18E-05

Appendix A: Emissions Calculations
Natural Gas Combustion

Company Name: Coal Science Laboratories, Inc.
Source Address: 7300 15th Avenue, Gary, IN 46406
Operation Permit No.: 089-29379-00554
Permit Reviewer: C. Sullivan

Burner Rating	0.0005	MM BTU/hr
# Burners	12	Burners
Total Burner Rating	0.006	MM BTU/hr
Natural Gas Heating Value	1,020	BTU/ft³
Maximum hours/yr	8,760	hrs/yr
Potential NG Consumption	0.0515	mmcf/yr

Pollutant	AP-42 Emission Factor (lbs/mmcf)	Natural Gas Combustion Emissions (lbs/yr)^d	Natural Gas Combustion Emissions (tons/yr)
PM (Total)	7.6	0.392	1.96E-04
PM (Condensable)	5.7	0.294	1.47E-04
PM (Filterable)	1.9	0.098	4.90E-05
SO ₂	0.6	0.031	1.55E-05
NO _x	100	5.15	2.58E-03
CO	84	4.33	2.16E-03
VOC	5.5	0.28	1.42E-04
Lead	0.0005	2.58E-05	1.29E-08
CO ₂	120,000	6,184	3.09
Mercury	2.60E-04	1.34E-05	6.70E-09
Naphthalene	6.10E-04	3.14E-05	1.57E-08
Benzene	2.10E-03	1.08E-04	5.41E-08
NG Gas Combustion HAP Emissions		1.79E-04	8.94E-08

**Appendix A: Emissions Calculations
Coking Emissions**

Company Name: Coal Science Laboratories, Inc.
Source Address: 7300 15th Avenue, Gary, IN 46406
Operation Permit No.: 089-29379-00554
Permit Reviewer: C. Sullivan

1200 lbs of coal/charge			Total tons/yr
0.6 tons of coal/charge		VOC HAP	3.42
7 Charges/week		VOC Not HAP	2.58
52 Weeks/yr			

Pollutant	Uncontrolled				Controlled		
	AP-42 Emission Factor (lbs/ton) ^{1,2,3}	Raw Coke Oven Gas Emissions (lbs/yr)	Raw Coke Oven Gas Emissions (tons/yr)	Total VOC HAP (tons/yr)	AP-42 Emission Factor (lbs/ton)	Non-recovery Combustion Emissions (lbs/yr)	Non-recovery Combustion Emissions (tons/yr)
Filterable PM		0	0		1.8	393.12	0.19656
Condensable PM		0	0		0.15	32.76	0.01638
SO2		0	0		9.3	2031.12	1.01556
NOx		0	0		0.71	155.064	0.077532
CO	48.2	10526.88	5.26344		0.05	10.92	0.00546
Ammonia	6.50	1419.60	0.71				
Benzene	22.0	4804.8	2.4	2.4	4.80E-04	0.104832	5.24E-05
Trimethyl Benzene	0.050	10.92	0.0	0.0			
Methylethyl Benzene	0.1	26.208	0.0	0.0			
Toluene	1.9	414.96	0.2	0.2	5.10E-04	0.111384	5.57E-05
Xylene	0.2	43.68	0.022	0.022			
Naphthalene	7.0	1528.8	0.76	0.76	2.70E-04	0.058968	2.95E-05
Phenol	2.80E-02	6.12	0.00	0.00	7.10E-05	1.55E-02	7.75E-06
Carbon Disulfide	0.05	10.92	0.01	0.01	1.60E-05	3.49E-03	1.75E-06
Propane	1.10	240.24	0.12				
Butane	0.70	152.88	0.08				
Ethylene	17.30	3778.32	1.89				
Propylene	3.50	764.40	0.38				
Pentene	0.60	131.04	0.07				
Acetylene	0.40	87.36	0.04				
Combustion HAP Emissions		6846.40	3.42	3.42		2.94E-01	1.47E-04

Appendix A: Emissions Calculations
Pushing Emissions

Company Name: Coal Science Laboratories, Inc.
Source Address: 7300 15th Avenue, Gary, IN 46406
Operation Permit No.: 089-29379-00554
Permit Reviewer: C. Sullivan

1200	lbs of coal/charge	PAH ¹	Total Tons/year	
0.6	tons of coal/charge		Uncontrolled	Controlled
7	Charges/week	VOC HAP	3.57E-04	2.08E-04
52	Weeks/yr	Not on HAP List	2.05E-02	5.40E-03
		HAP not VOC	1.53E-02	3.97E-03
			2.34E-05	9.37E-03

	lbs/yr	Tons/yr
Pushing HAP Emissions (Controlled)	1.12E+01	5.61E-03
Pushing HAP Emissions (Uncontrolled)	4.17E+01	2.09E-02

Pollutant	Uncontrolled			Controlled		
	AP-42 Emission Factor (lbs/ton) ^{1,2,3,4,5}	Pushing Emissions (lbs/yr)	Pushing Emissions (tons/yr)	AP-42 Emission Factor (lbs/ton) ^{6,7,8}	Pushing Emissions (lbs/yr)	Pushing Emissions (tons/yr)
Filterable PM	1.39	303.58	0.15	0.37	80.808	0.040404
Condensable PM	0.0811	17.71	0.01	0.021	4.5864	0.0022932
EOM	8.59E-03	1.88	0.00	8.41E-03	1.836744	0.000918372
CO	0.2432	53.12	0.03	0.063	13.7592	0.0068796
CO2	61.8	13,491.89	6.75	16.0	3494.4	1.7472
NOx	0.0734	16.02	0.01	0.019	4.1496	0.0020748
SO2	0.3784	82.64	0.04	0.098	21.4032	0.0107016
TOC	0.39	84.32	0.04	0.10	21.84	0.01092
VOC	0.2973	64.93	3.25E-02	0.077	16.8168	0.0084084
Acetone	0.0888	19.39	9.70E-03	0.023	5.02	2.51E-03
Ammonia	0.0463	10.12	5.06E-03	0.012	2.62	1.31E-03
Cyanide	2.47E-03	0.54	2.70E-04	6.41E-04	0.14	7.00E-05
Phenol	2.60E-02	5.68E+00	2.84E-03	6.73E-03	1.47E+00	7.35E-04
Benzene	1.24E-01	26.98378378	1.35E-02	3.20E-02	6.9888	3.49E-03
Toluene	1.94E-04	0.042330811	2.12E-05	5.02E-05	0.01096368	5.48E-06
Styrene	1.87E-04	4.09E-02	2.04E-05	4.85E-05	1.06E-02	5.30E-06
1,1,2,2-Tetrachloroethane	3.02E-04	6.59E-02	3.29E-05	7.81E-05	1.71E-02	8.53E-06
Methanol	3.18E-02	6.939891892	3.47E-03	8.23E-03	1.797432	8.99E-04
Ethanol	3.24E-04	7.07E-02	3.53E-05	8.38E-05	1.83E-02	9.15E-06
Isopropanol	4.21E-04	9.19E-02	4.60E-05	1.09E-04	2.38E-02	1.19E-05
Acrolein	3.94E-04	8.60E-02	4.30E-05	1.02E-04	2.23E-02	1.11E-05
Acetonitrile	3.58E-04	7.82E-02	3.91E-05	9.27E-05	2.02E-02	1.01E-05
Acrylonitrile	1.76E-03	3.85E-01	1.93E-04	4.57E-04	9.98E-02	4.99E-05
Vinyl Acetate	6.06E-04	1.32E-01	6.62E-05	1.57E-04	3.43E-02	1.71E-05
Tetrahydrofuran	5.06E-04	1.10E-01	5.52E-05	1.31E-04	2.86E-02	1.43E-05
1,4 Dioxane	6.18E-04	1.35E-01	6.75E-05	1.60E-04	3.49E-02	1.75E-05
2-Butanone	5.06E-04	1.10E-01	5.52E-05	1.31E-04	2.86E-02	1.43E-05
Methyl Methacrylate	7.03E-04	1.53E-01	7.67E-05	1.82E-04	3.97E-02	1.99E-05
4-Methyl-2-Pentanone	7.03E-04	1.53E-01	7.67E-05	1.82E-04	3.97E-02	1.99E-05
Methylene Chloride	3.13E-05	6.83E-03	3.42E-06	8.10E-06	1.77E-03	8.85E-07
Antimony	1.41E-06	3.08E-04	1.54E-07		0.00E+00	0.00E+00
Arsenic	3.50E-05	7.64E-03	3.82E-06	9.37E-06	2.05E-03	1.02E-06
Barium	3.92E-05	8.56E-03	4.28E-06	1.43E-05	3.12E-03	1.56E-06
Beryllium	6.63E-07	1.45E-04	7.24E-08	2.05E-07	4.48E-05	2.24E-08
Cadmium	3.84E-07	8.39E-05	4.19E-08	1.57E-07	3.43E-05	1.71E-08
Chromium	1.14E-05	2.49E-03	1.24E-06	4.98E-06	1.09E-03	5.44E-07
Cobalt	2.04E-06	4.46E-04	2.23E-07	1.16E-06	2.53E-04	1.27E-07
Copper	1.97E-05	4.30E-03	2.15E-06	7.65E-06	1.67E-03	8.35E-07
Lead	5.48E-05	1.20E-02	5.98E-06	1.53E-05	3.34E-03	1.67E-06
Manganese	2.97E-05	6.49E-03	3.24E-06	1.03E-05	2.25E-03	1.12E-06
Mercury	3.38E-07	7.38E-05	3.69E-08		0.00E+00	0.00E+00
Nickel	3.99E-05	8.71E-03	4.36E-06	1.12E-05	2.45E-03	1.22E-06
Phosphorus	6.19E-05	0.01351896	6.75948E-06	2.78E-05	0.00607152	3.03576E-06
Selenium	9.00E-06	1.97E-03	9.83E-07	2.59E-06	5.66E-04	2.83E-07
Silver	2.54E-07	5.55E-05	2.77E-08	2.53E-07	5.53E-05	2.76E-08
Thallium	2.29E-06	5.00E-04	2.50E-07	6.57E-07	1.43E-04	7.17E-08
Zinc	1.03E-04	2.25E-02	1.12E-05	3.47E-05	7.58E-03	3.79E-06
Naphthalene	1.10E-03	2.40E-01	1.20E-04	1.10E-03	2.40E-01	1.20E-04
2-methylnaphthalene	4.15E-05	0.0090636	4.5318E-06	3.55E-05	0.0077532	3.8766E-06
Acenaphthylene	7.75E-04	0.16926	0.00008463	4.65E-04	0.101556	0.000050778
Acenaphthene	7.44E-06	0.001624896	8.12448E-07	3.64E-06	0.000794976	3.97488E-07
Fluorene	2.11E-04	0.0460824	2.30412E-05	2.32E-04	0.0506688	2.53344E-05
Phenanthrene	7.74E-04	0.1690416	8.45208E-05	4.18E-04	0.0912912	4.56456E-05
Anthracene	9.71E-05	0.02120664	1.06033E-05	1.01E-04	0.0220584	1.10292E-05
Fluoranthene	3.44E-04	0.0751296	3.75648E-05	2.27E-04	0.0495768	2.47884E-05
Pyrene	7.66E-04	0.1672944	8.36472E-05	3.83E-04	0.0836472	4.18236E-05
Benzo(a)anthracene	1.95E-04	0.042588	0.000021294	1.56E-05	0.00340704	1.70352E-06
Crysene	1.75E-05	0.003822	0.000001911	7.35E-06	0.00160524	8.0262E-07
Benzo(b)fluoranthene	1.05E-05	0.0022932	1.1466E-06	3.10E-06	0.00067704	3.3852E-07
Benzo(k)fluoranthene	5.64E-06	0.001231776	6.15888E-07	3.26E-06	0.000711984	3.55992E-07
Benzo(e)pyrene	4.07E-06	0.000888888	4.44444E-07	1.12E-06	0.000244608	1.22304E-07
Benzo(a)pyrene	3.00E-06	0.0006552	3.276E-07	1.11E-06	0.000242424	1.21212E-07
Perylene	5.23E-07	0.000114223	5.71116E-08	1.39E-07	3.03576E-05	1.51788E-08
Indeno(1,2,3-cd)pyrene	6.24E-06	0.001362816	6.81408E-07	1.99E-06	0.000434616	2.17308E-07
Dibenzo(a,h)anthracene	1.63E-06	0.000355992	1.77996E-07	1.15E-06	0.00025116	1.2558E-07
Benzo(ghi)perylene	5.95E-06	0.00129948	6.4974E-07	1.91E-06	0.000417144	2.08572E-07

1- AP-42 Table 12.2-9 EF for CO, CO2, NOx, SOx, TOC, and Organic Compound emissions from coke oven pushing. Shows controlled emission factors based on 74.1% Capture efficiency. This factor removes the capture efficiency to calculate the uncontrolled factor.
 2- AP-42 Table 12.2-6 EF for uncontrolled emissions from coke oven pushing - uncontrolled
 3- AP-42 Table 12.2-7 EF for condensable PM emissions from coke oven pushing - Controlled with Collection Hood and Fabric Filter Control. Shows 0.021 controlled emission factor based on 74.1% Capture efficiency. This factor represents no capture efficiency.
 4- PAH is Polycyclic Aromatic Hydrocarbons.
 5- AP-42 Table 12.2-10 EF for Polycyclic Aromatic Hydrocarbons (PAH) from coke oven pushing. Uncontrolled Emissions Factor.
 6- AP-42 Table 12.2-10 EF for Metals from coke oven pushing. Controlled Emissions Factor using a collection hood and fabric filter.
 7- AP-42 Table 12.2-11 EF for Polycyclic Aromatic Hydrocarbons (PAH) from coke oven pushing. Uncontrolled Emissions Factor.

Appendix A: Emissions Calculations
Pilot Coke Oven

Company Name: Coal Science Laboratories, Inc.
Source Address: 7300 15th Avenue, Gary, IN 46406
Operation Permit No.: 089-29379-00554
Permit Reviewer: C. Sullivan

Pollutant	Source 001		Source 002			Uncontrolled Emissions (tons/yr)			Total Controlled Emissions lbs/yr	Total Controlled Emissions (tons/yr)
	Natural Gas Combustion Emissions (tons/yr)	Coking Emissions (tons/yr)	Coal-Coke Crushing, Screening Emissions (tons/yr)	Charging Emissions (tons/yr)	Pushing Emissions (tons/yr)	Emissions Attributable to Pilot Coke Oven (Source 001)	Emissions Attributable to Particulate Dust Collector Baghouse (Source 002)	Vehicle Fugitive Emissions (tons/yr)		
Filterable PM	4.90E-05	0	1.51E-02	2.95E-03	0.15	4.90E-05	1.70E-01		339.75	0.1699
Condensable PM	1.47E-04	0			0.01	1.47E-04	8.85E-03		18.00	0.0090
Total Particulate Emissions	1.96E-04	0	1.51E-02	2.95E-03	0.160642054	1.96E-04	1.79E-01	0.5756	1,509.02	0.7545
CO	2.16E-03	5.26			0.03	5.27	2.66E-02		10,584.33	5.2922
SO2	1.55E-05	0			0.04	0.00	4.13E-02		82.67	0.0413
NOx	2.58E-03	0			0.01	2.58E-03	8.01E-03		21.17	0.0106
VOC	1.42E-04	6.00		1.23E-05	0.03	6.00	3.25E-02		12,065.88	6.0329
Pb	1.29E-08			3.71E-08	5.98E-06	1.29E-08	6.02E-06		0.01	0.0000
Hg	6.70E-09			2.84E-10	3.69E-08	6.70E-09	3.72E-08		0.00	0.00000
Naphthalene	1.57E-08			2.51E-06	1.20E-04	1.57E-08	1.23E-04		0.25	0.00012
Benzene	5.41E-08			3.93E-06	1.35E-02	5.41E-08	1.35E-02		26.99	0.01350
HAP Emissions	8.94E-08	3.42		1.27E-05	2.09E-02	3.42	2.09E-02		6,888.16	3.44

**Appendix A: Emissions Calculations
Fugitive Emissions - Unpaved Roads**

**Company Name: Coal Science Laboratories, Inc.
Source Address: 7300 15th Avenue, Gary, IN 46406
Operation Permit No.: 089-29379-00554
Permit Reviewer: C. Sullivan**

AP-42 13.2.2 Unpaved Roads

Variables:

s (% silt)	8.3
W (Vehicle Weight tons)	2
VMT/year	365

Equation 1a	$E=k(s/12)^a(W/3)^b$
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Table 13.2.2-2 Constants for Equation 1a			
	PM-2.5	PM-10	PM-30 (TSP)
k (lb/VMT)	0.15	1.5	4.9
a	0.9	0.9	0.7
b	0.45	0.45	0.45

Emission Factor lb/VMT	0.0897	0.8969	3.1542
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	PM-2.5	PM-10	PM-30 (TSP)
Emissions lbs/yr	32.74	327.38	1151.27
Emissions tons/yr	0.016	0.164	0.576



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

Mitchell E. Daniels Jr.
Governor

Thomas W. Easterly
Commissioner

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

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

TO: Allen Ellis
Coal Science Laboratories, Inc.
7300 W 15th Avenue
Gary, Indiana 46406

DATE: September 20, 2010

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

SUBJECT: Final Decision
Exemption
089-29379-00554

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:
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.

Final Applicant Cover letter.dot 11/30/07

Mail Code 61-53

IDEM Staff	CDENNY 9/20/2010 Coal Science Laboratories, Inc. 089-29379-00554 (final)		Type of Mail: CERTIFICATE OF MAILING ONLY	AFFIX STAMP HERE IF USED AS CERTIFICATE OF MAILING
Name and address of Sender		Indiana Department of Environmental Management Office of Air Quality – Permits Branch 100 N. Senate Indianapolis, IN 46204		

Line	Article Number	Name, Address, Street and Post Office Address	Postage	Handing Charges	Act. Value (If Registered)	Insured Value	Due Send if COD	R.R. Fee	S.D. Fee	S.H. Fee	Rest. Del. Fee	Remarks
1		Allen Ellis Coal Science Laboratories, Inc. 7300 W 15th Ave Gary IN 46406 (Source CAATS) VIA CONFIRMED DELIVERY										
2		East Chicago City Council 4525 Indianapolis Blvd East Chicago IN 46312 (Local Official)										
3		Gary - Hobart Water Corp 650 Madison St, P.O. Box M486 Gary IN 46401-0486 (Affected Party)										
4		Gary Mayors Office 401 Broadway # 203 Gary IN 46402 (Local Official)										
5		Lake County Health Department-Gary 1145 W. 5th Ave Gary IN 46402-1795 (Health Department)										
6		WJOB / WZVN Radio 6405 Olcott Ave Hammond IN 46320 (Affected Party)										
7		Laurence A. McHugh Barnes & Thornburg 100 North Michigan South Bend IN 46601-1632 (Affected Party)										
8		Shawn Sobocinski 3229 E. Atlanta Court Portage IN 46368 (Affected Party)										
9		Ms. Carolyn Marsh Lake Michigan Calumet Advisory Council 1804 Oliver St Whiting IN 46394-1725 (Affected Party)										
10		Mark Coleman 9 Locust Place Ogden Dunes IN 46368 (Affected Party)										
11		Mr. Chris Hernandez Pipefitters Association, Local Union 597 8762 Louisiana St., Suite G Merrillville IN 46410 (Affected Party)										
12		Craig Hogarth 7901 West Morris Street Indianapolis IN 46231 (Affected Party)										
13		Lake County Commissioners 2293 N. Main St, Building A 3rd Floor Crown Point IN 46307 (Local Official)										
14		Anthony Copeland 2006 E. 140th Street East Chicago IN 46312 (Affected Party)										
15		Barbara G. Perez 506 Lilac Street East Chicago IN 46312 (Affected Party)										

Total number of pieces Listed by Sender	Total number of Pieces Received at Post Office	Postmaster, Per (Name of Receiving employee)	The full declaration of value is required on all domestic and international registered mail. The maximum indemnity payable for the reconstruction of nonnegotiable documents under Express Mail document reconstructing insurance is \$50,000 per piece subject to a limit of \$50, 000 per occurrence. The maximum indemnity payable on Express mil merchandise insurance is \$500. The maximum indemnity payable is \$25,000 for registered mail, sent with optional postal insurance. See Domestic Mail Manual R900, S913, and S921 for limitations of coverage on inured and COD mail. See International Mail Manual for limitations o coverage on international mail. Special handling charges apply only to Standard Mail (A) and Standard Mail (B) parcels.
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Mail Code 61-53

IDEM Staff	CDENNY 9/20/2010 Coal Science Laboratories, Inc. 089-29379-00554 (final)		Type of Mail: CERTIFICATE OF MAILING ONLY	AFFIX STAMP HERE IF USED AS CERTIFICATE OF MAILING
Name and address of Sender		Indiana Department of Environmental Management Office of Air Quality – Permits Branch 100 N. Senate Indianapolis, IN 46204		

Line	Article Number	Name, Address, Street and Post Office Address	Postage	Handling Charges	Act. Value (If Registered)	Insured Value	Due Send if COD	R.R. Fee	S.D. Fee	S.H. Fee	Rest. Del. Fee	Remarks
1		Robert 3733 Parrish Avenue East Chicago IN 46312 (Affected Party)										
2		Ms. Karen Kroczek 8212 Madison Ave Munster IN 46321-1627 (Affected Party)										
3		Calumet Township Trustee 31 E 5th Avenue Gary IN 46402 (Affected Party)										
4		Joseph Hero 11723 S Oakridge Drive St. John IN 46373 (Affected Party)										
5		Gary City Council 401 Broadway # 209 Gary IN 46402 (Local Official)										
6		Mr. Larry Davis 268 South, 600 West Hebron IN 46341 (Affected Party)										
7		Gitte Laasby Post Tribune 1433 E. 83rd Ave Merrillville IN 46410 (Affected Party)										
8		Susan Severtson City of Gary Law Dept. 401 Broadway 4th Floor Gary IN 46402 (Local Official)										
9												
10												
11												
12												
13												
14												
15												

Total number of pieces Listed by Sender	Total number of Pieces Received at Post Office	Postmaster, Per (Name of Receiving employee)	The full declaration of value is required on all domestic and international registered mail. The maximum indemnity payable for the reconstruction of nonnegotiable documents under Express Mail document reconstructing insurance is \$50,000 per piece subject to a limit of \$50, 000 per occurrence. The maximum indemnity payable on Express mil merchandise insurance is \$500. The maximum indemnity payable is \$25,000 for registered mail, sent with optional postal insurance. See Domestic Mail Manual R900, S913, and S921 for limitations of coverage on inured and COD mail. See International Mail Manual for limitations o coverage on international mail. Special handling charges apply only to Standard Mail (A) and Standard Mail (B) parcels.
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