



# 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](http://www.idem.IN.gov)

TO: Interested Parties / Applicant

DATE: July 25, 2008

RE: Former Retail Shell Gasoline Station / 003-26737-00364

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

## Notice of Decision: Approval - Registration

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

If you wish to challenge this decision, IC 4-21.5-3-7 requires that you file a petition for administrative review. This petition may include a request for stay of effectiveness and must be submitted to the Office of Environmental Adjudication, 100 North Senate Avenue, Government Center North, Suite N 501E, Indianapolis, IN 46204, **within eighteen (18) calendar days of the mailing of this notice**. The filing of a petition for administrative review is complete on the earliest of the following dates that apply to the filing:

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

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

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

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

Enclosures  
FN-REGIS.dot 1/2/08



# INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

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## REGISTRATION OFFICE OF AIR QUALITY

**Former Retail Shell Gasoline Station  
5715 East Jefferson  
Fort Wayne, Indiana 46804**

Pursuant to 326 IAC 2-5.1 (Construction of New Sources: Registrations) and 326 IAC 2-5.5 (Registrations), (herein known as the Registrant) is hereby authorized to construct and operate subject to the conditions contained herein, the source described in Section A (Source Summary) of this registration.

Registration No. 003-26737-00364	
Issued by: Original signed by  Alfred C. Dumauval, Ph. D., Section Chief Permits Branch Office of Air Quality	Issuance Date: July 25, 2008

## SECTION A

## SOURCE SUMMARY

This registration is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ). The information describing the source contained in conditions A.1 and A.2 is descriptive information and does not constitute enforceable conditions. However, the Registrant should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Registrant to obtain additional permits pursuant to 326 IAC 2.

### A.1 General Information

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The Registrant owns and operates a stationary type of source.

Source Address:	5715 East Jefferson, Fort Wayne, Indiana 46804
Mailing Address:	1 Indiana Square, Suite 2100, Indianapolis, Indiana 46204
General Source Phone Number:	(317) 532-5447
SIC Code:	5541
County Location:	Allen County
Source Location Status:	Attainment for all criteria pollutants
Source Status:	Registration

### A.2 Emission Units and Pollution Control Equipment Summary

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This stationary source consists of the following emission units and pollution control devices:

- (a) Internal Combustion Engine (ICE) based High Vacuum Remediation (HVR) System, incorporating fluid extraction/knockout/oil-water separation and transfer into separation and storage tanks, vapor abatement, and water treatment and discharge, with maximum water removal rate of 0.548 gallons per minute; operation started in March, 2007
- (b) Natural Gas fired Internal Combustion Engine, model LSG-875, with maximum capacity of 148 HP.

## SECTION B

## GENERAL CONDITIONS

### B.1 Definitions [326 IAC 2-1.1-1]

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Terms in this registration shall have the definition assigned to such terms in the referenced regulation. In the absence of definitions in the referenced regulation, the applicable definitions found in the statutes or regulations (IC 13-11, 326 IAC 1-2 and 326 IAC 2-1.1-1) shall prevail.

### B.2 Effective Date of Registration [IC 13-15-5-3]

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Pursuant to IC 13-15-5-3, this registration is effective immediately, unless a petition for stay of effectiveness is filed and granted according to IC 13-15-6-3, and may be revoked or modified in accordance with the provisions of IC 13-15-7-1.

### B.3 Registration Revocation [326 IAC 2-1.1-9]

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Pursuant to 326 IAC 2-1.1-9 (Revocation), this registration to operate may be revoked for any of the following causes:

- (a) Violation of any conditions of this registration.
- (b) Failure to disclose all the relevant facts, or misrepresentation in obtaining this registration.
- (c) Changes in regulatory requirements that mandate either a temporary or permanent reduction of discharge of contaminants. However, the amendment of appropriate sections of this registration shall not require revocation of this registration.
- (d) For any cause which establishes in the judgment of IDEM, the fact that continuance of this registration is not consistent with purposes of this article.

### B.4 Prior Permits Superseded [326 IAC 2-1.1-9.5]

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- (a) All terms and conditions of permits established prior to Registration No. 003-26737-00364 and issued pursuant to permitting programs approved into the state implementation plan have been either:
  - (1) incorporated as originally stated,
  - (2) revised, or
  - (3) deleted.
- (b) All previous registrations and permits are superseded by this registration.

### B.5 Annual Notification [326 IAC 2-5.1-2(f)(3)] [326 IAC 2-5.5-4(a)(3)]

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Pursuant to 326 IAC 2-5.1-2(f)(3) and 326 IAC 2-5.5-4(a)(3):

- (a) An annual notification shall be submitted by an authorized individual to the Office of Air Quality stating whether or not the source is in operation and in compliance with the terms and conditions contained in this registration.
- (b) The annual notice shall be submitted in the format attached no later than March 1 of each year to:

Indiana Department of Environmental Management  
Compliance Branch, Office of Air Quality  
100 North Senate Avenue  
MC 61-53 IGCN 1003  
Indianapolis, IN 46204-2251

- (c) The notification shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.

**B.6 Source Modification Requirement [326 IAC 2-5.5-6(a)]**

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Pursuant to 326 IAC 2-5.5-6(a), 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.

**B.7 Registrations [326 IAC 2-5.1-2(i)]**

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Pursuant to 326 IAC 2-5.1-2(i), this registration does not limit the source's potential to emit.

**SECTION C**

**SOURCE OPERATION CONDITIONS**

Entire Source

**Emission Limitations and Standards [326 IAC 2-5.1-2(g)] [326 IAC 2-5.5-4(b)]**

**C.1 Opacity [326 IAC 5-1]**

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 registration:

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

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

The Registrant 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).

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR QUALITY  
COMPLIANCE BRANCH**

**REGISTRATION  
ANNUAL NOTIFICATION**

This form should be used to comply with the notification requirements under 326 IAC 2-5.1-2(f)(3) and 326 IAC 2-5.5-4(a)(3).

<b>Company Name:</b>	Former Retail Shell Gasoline Station
<b>Address:</b>	5715 East Jefferson
<b>City:</b>	Fort Wayne, Indiana 46804
<b>Phone Number:</b>	(317) 532-5447
<b>Registration No.:</b>	003-26737-00364

I hereby certify that Former Retail Shell Gasoline Station  still in operation.  
is :

I hereby certify that Former Retail Shell Gasoline Station  no longer in operation.  
is :  in compliance with the requirements  
of Registration No. 003-26737-00364.  
 not in compliance with the requirements  
of Registration No. 003-26737-00364.

<b>Authorized Individual (typed):</b>
<b>Title:</b>
<b>Signature:</b>
<b>Phone Number:</b>
<b>Date:</b>

If there are any conditions or requirements for which the source is not in compliance, provide a narrative description of how the source did or will achieve compliance and the date compliance was, or will be achieved.

<b>Noncompliance:</b>

## Indiana Department of Environmental Management Office of Air Quality

### Technical Support Document (TSD) for a Registration

<b>Source Description and Location</b>
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<b>Source Name:</b>	<b>Former Retail Shell Gasoline Station</b>
<b>Source Location:</b>	<b>5715 East Jefferson, Fort Wayne, Indiana 46804</b>
<b>County:</b>	<b>Allen</b>
<b>SIC Code:</b>	<b>5541</b>
<b>Registration No.:</b>	<b>003-26737-00364</b>
<b>Permit Reviewer:</b>	<b>Anne-Marie C. Hart</b>

On July 8, 2008, the Office of Air Quality (OAQ) has received an application from Former Retail Shell Gasoline State related to the operation of a dual phase vacuum remediation unit.

<b>Existing Approvals</b>
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There have been no previous approvals issued to this source.

<b>County Attainment Status</b>
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The source is located in Allen County.

Pollutant	Designation
SO <sub>2</sub>	Better than national standards.
CO	Unclassifiable or attainment effective November 15, 1990.
O <sub>3</sub>	Attainment effective February 12, 2007, for the Fort Wayne area, including Allen County, for the 8-hour ozone standard. <sup>1</sup>
PM <sub>10</sub>	Unclassifiable effective November 15, 1990.
NO <sub>2</sub>	Cannot be classified or better than national standards.
Pb	Not designated.
<sup>1</sup> Unclassifiable or attainment effective October 18, 2000, for the 1-hour ozone standard which was revoked effective June 15, 2005. Unclassifiable or attainment effective 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. Allen 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) PM2.5

Allen County has been classified as attainment for PM2.5. On May 8, 2008 U.S. EPA promulgated the requirements for Prevention of Significant Deterioration (PSD) for PM2.5 emissions, and the effective date of these rules was July 15<sup>th</sup>, 2008. Indiana has three years from the publication of these rules to revise its PSD rules, 326 IAC 2-2, to include those requirements. The May 8, 2008 rule revisions require IDEM to regulate PM10 emissions as a surrogate for PM2.5 emissions until 326 IAC 2-2 is revised.

- (c) Other Criteria Pollutants  
 Allen County has been classified as attainment or unclassifiable in Indiana for SO<sub>2</sub>, CO, PM<sub>10</sub>, NO<sub>2</sub>, and Lead. 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 2-5.1 (Registrations) applicability.

**Background and Description of Emission Units and Pollution Control Equipment**

The Office of Air Quality (OAQ) has reviewed an application, submitted by Former Retail Shell Gasoline Station on July 8, 2008, relating to the operation of a dual phase vacuum extraction remediation unit.

The source consists of the following existing emission unit(s):

- (a) Internal Combustion Engine (ICE) based High Vacuum Remediation (HVR) System, incorporating fluid extraction/knockout/oil-water separation and transfer into separation and storage tanks, vapor abatement, and water treatment and discharge, with maximum water removal rate of 0.548 gallons per minute; operation started in March, 2007
- (b) Natural Gas fired Internal Combustion Engine, model LSG-875, with maximum capacity of 148 HP.

**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 – Registration**

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 <sub>2</sub>	NOx	VOC	CO	Total HAPs	Worst Single HAP
Dual Phase Vacuum Extraction Operation	0.00	0.00	0.00	0.00	0.00	Negl.	0.00	Negl.	Negl. (Toluene)
Natural Gas Combustion	0.06	0.11	0.11	Negl.	13.34	0.17	21.70	0.00	0.00
<b>Total PTE of Entire Source</b>	<b>0.06</b>	<b>0.11</b>	<b>0.11</b>	<b>Negl.</b>	<b>13.34</b>	<b>0.18</b>	<b>21.70</b>	<b>Negl.</b>	<b>Negl. (Toluene)</b>
Exemptions Levels	5	5	5	10	10	5 or 10	25	25	10

Process/Emission Unit	Potential To Emit of the Entire Source (tons/year)								
	PM	PM10 *	PM2.5	SO <sub>2</sub>	NO <sub>x</sub>	VOC	CO	Total HAPs	Worst Single HAP
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". PM2.5 emissions assumed equal to PM10 emissions.									

- (a) The potential to emit (PTE) (as defined in 326 IAC 2-1.1-1(16)) of NO<sub>x</sub> is within the range listed in 326 IAC 2-5.5-1(b)(1). The PTE of all other regulated criteria pollutants are less than the ranges listed in 326 IAC 2-5.5-1(b)(1). Therefore, the source is subject to the provisions of 326 IAC 2-5.5 (Registrations). A Registration will be issued.
- (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) There are no New Source Performance Standards (NSPS)(40 CFR Part 60) included in the permit.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

- (b) The requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Site Remediation, 40 CFR 63, Subpart GGGGG, are not included in the permit, since the site remediation project is not a major source of HAPs.
- (c) 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 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 2-5.1-2 (Registrations)  
 Registration applicability is discussed under the Permit Level Determination – Registration 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 permit:
  - (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 6-4 (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.
- (f) 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.
- (g) 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.

#### Dual Phase Vacuum Extraction Operation

- (h) 326 IAC 8-1-6 (VOC Rules: General Reduction Requirements for New Facilities)  
The dual phase vacuum extraction remediation unit is not subject to the requirements of 326 IAC 8-1-6. The unlimited VOC potential emissions are less than twenty-five (25) tons per year.

<b>Conclusion and Recommendation</b>
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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 July 8, 2008.

The operation of this source shall be subject to the conditions of the attached proposed Registration No. 003-26737-00364. The staff recommends to the Commissioner that this Registration be approved.

<b>IDEM Contact</b>
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- (a) Questions regarding this proposed permit can be directed to Anne-Marie C. Hart 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) 234-5401 or toll free at 1-800-451-6027 extension 4-5401.

- (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](http://www.idem.in.gov)

**Appendix A: Emissions Calculations  
Dual Phase Extraction (DPE) System  
Hazardous Air Pollutants (HAPs)**

**Company Name: Former Retail Shell Gasoline Station  
Address : 5715 East Jefferson, Fort Wayne, Indiana 46804  
Permit No.: 003-26737-00364  
Reviewer: Anne-Marie C. Hart**

Process/Emissions Unit	Tons/Year							Total HAPs
	PM	PM10	PM2.5	SO2	NOx	VOC	CO	
Site Remediation	0.00	0.00	0.00	0.00	0.00	9.90E-03	0.00	2.60E-03
Natural Gas-Combustion	0.06	0.11	0.11	3.00E-03	13.24	0.17	21.70	0.00
<b>Total</b>	<b>0.06</b>	<b>0.11</b>	<b>0.11</b>	<b>3.00E-03</b>	<b>13.24</b>	<b>0.18</b>	<b>21.70</b>	<b>2.60E-03</b>

**Worst-Case Single HAP: Toluene 8.00E-04 tons/year**

**Appendix A: Emissions Calculations  
Dual Phase Extraction (DPE) System  
Volatile Organic Compounds (HAPs)**

**Company Name: Former Retail Shell Gasoline Station**  
**Address : 5715 East Jefferson, Fort Wayne, Indiana 46804**  
**Registration No.: 003-26737-00364**  
**Reviewer: Anne-Marie C. Hart**

Based on the information provided by the source, subsurface contamination at this site consists of unleaded gasoline. The potential to emit (PTE) of Volatile Organic Compounds (VOCs) is calculated for the remediation system exhaust as follows:

$$PTE = \frac{(C) * (MW) * (Q) * (P) * (28.317 \text{ L/cf}) * (60 \text{ min/hr}) * (8760 \text{ hr/yr})}{(R) * (T) * (1E+06 \text{ L/million L}) * (453.59 \text{ g/lb}) * (2000 \text{ lb/ton})}$$

where:

PTE = Potential to Emit VOCs from the remediation system exhaust (tons/yr)  
 C = Remediation exhaust gas concentration in parts per million by volume (ppmv)\*  
 MW = Molecular Weight in g/mol of VOC  
 Q = Remediation exhaust air flow rate in cubic feet per minute (cfm)  
 R = Universal Gas Constant (0.082058 L-atm/mol-K)  
 T = Temperature (in degrees Kelvin) (assumed 68 degrees Fahrenheit = 20 degrees Celsius = 293.15 K)  
 P = Atmospheric pressure (assumed 1 atm)

\* Pollutant concentrations are based on the pilot test on the remediation system exhaust conducted by the source.

C =	5.623	ppmv
MW =	86.0	g/mol (gasoline)
Q =	30.0	Q (cfm)
R =	0.082058	L-atm/mol-K
T =	68.0	oF
T =	20.0	oC
T =	293.15	oK
P =	1	atm

**PTE of VOC = 9.9E-03 ton/yr**

**Appendix A: Emissions Calculations  
Dual Phase Extraction (DPE) System  
Hazardous Air Pollutants (HAPs)**

**Company Name: Former Retail Shell Gasoline Station  
Address : 5715 East Jefferson, Fort Wayne, Indiana 46804  
Registration No.: 003-26737-00364  
Reviewer: Anne-Marie C. Hart**

<b>PTE Of VOC (tons/yr)</b>	<b>9.9E-03</b>
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**Potential To Emit (PTE) of TPH Constituents (Assuming Gasoline)**

Compound Class	Compound	CAS#	Molecular Weight (g/mol)	Average Composition (% by weight)*	Potential to Emit (tons/yr)	Hazardous Air Pollutant
	1,3-Butadiene	106-99-0	54.1	0.0037%	3.7E-07	HAP
	cis-2-Butene	590-18-1	56.1	0.3100%	3.1E-05	
	trans-2-Butene	624-64-6	56.1	0.3600%	3.6E-05	
	2-Methyl-1-butene	563-46-2	70.1	0.5400%	5.3E-05	
	2-Methyl-2-butene	513-35-9	70.1	1.1000%	1.1E-04	
	cis-2-Pentene	627-20-3	70.1	0.3900%	3.9E-05	
	trans-2-Pentene	646-04-8	70.1	0.7200%	7.1E-05	
Alkyl-Monoaromatics	Benzene	71-43-2	78.1	1.9000%	1.9E-04	HAP
	Toluene	108-88-3	92.1	8.1000%	8.0E-04	HAP
	Ethylbenzene	100-41-4	106.2	1.7000%	1.7E-04	HAP
	m-Xylene	108-38-3	106.2	4.6000%	4.6E-04	HAP
	o-Xylene	95-47-6	106.2	2.5000%	2.5E-04	HAP
	p-Xylene	106-42-3	106.2	1.9000%	1.9E-04	HAP
	1,2,4-Trimethylbenzene	95-63-6	120.2	3.0000%	3.0E-04	
	1,3,5-Trimethylbenzene	108-67-8	120.2	0.9800%	9.7E-05	
	1-Methyl-2-ethylbenzene	611-14-3	120.2	0.7100%	7.0E-05	
	1-Methyl-3-ethylbenzene	620-14-4	120.2	1.8000%	1.8E-04	
	1-Methyl-4-ethylbenzene	622-96-8	120.2	0.8000%	7.9E-05	
Branched Alkanes	Isobutane	75-28-5	58.1	1.7000%	1.7E-04	
	Isopentane	78-78-4	72.1	7.9000%	7.8E-04	
	2,2-Dimethylbutane	75-83-2	86.2	0.4900%	4.8E-05	
	2,3-Dimethylbutane	79-29-8	86.2	1.0000%	9.9E-05	
	2-Methylpentane	107-83-5	86.2	3.9000%	3.9E-04	
	3-Methylpentane	96-14-0	86.2	2.5000%	2.5E-04	
	2,4-Dimethylpentane	108-08-7	100.2	0.8300%	8.2E-05	
	2-Methylhexane	591-76-4	100.2	3.0000%	3.0E-04	
	3-Methylhexane	589-34-4	100.2	1.7000%	1.7E-04	
	2,2,4-Trimethylpentane	540-84-1	114.2	2.4000%	2.4E-04	HAP
	2,3,3-Trimethylpentane	560-21-4	114.2	0.6600%	6.5E-05	
	2,3,4-Trimethylpentane	565-75-3	114.2	0.9700%	9.6E-05	
	2,3-Dimethylhexane	584-94-1	114.2	0.3900%	3.9E-05	
	2,4-Dimethylhexane	589-43-5	114.2	0.4400%	4.4E-05	
	3-Methylheptane	589-81-1	114.2	0.7500%	7.4E-05	
Cycloalkanes	Cyclopentane	287-92-3	70.1	0.4700%	4.7E-05	
	Cyclohexane	110-82-7	84.2	0.3900%	3.9E-05	
	Methylcyclopentane	96-37-7	84.2	1.8000%	1.8E-04	
	Methylcyclohexane	108-87-2	98.2	0.5800%	5.7E-05	
n-Alkanes	n-Butane	106-97-8	58.1	4.7000%	4.7E-04	
	n-Pentane	109-66-0	72.1	3.9000%	3.9E-04	
	n-Hexane	110-54-3	86.2	2.4000%	2.4E-04	HAP
	n-Heptane	142-82-5	100.2	1.1000%	1.1E-04	
	Naphthalene	91-20-3	128.2	0.2500%	2.5E-05	HAP
	1-Methylnaphthalene	90-12-0	142.2	0.0700%	6.9E-06	
	2-Methylnaphthalene	91-57-6	142.2	0.1800%	1.8E-05	
Oxygenates	Methyl-tert-butyl ether	1634-04-4	88.1	0.3300%	3.3E-05	HAP
	<b>Total</b>			<b>76.21%</b>		

\*Composition of TPH assuming that site is contaminated with gasoline. Composition Data Obtained from: Potter, T.L. and K.E. Simmons. 1998. Total Petroleum Hydrocarbon Criteria Working Group Series, Volume 2. Composition of Petroleum Mixtures. The Association for Environmental Health and Science. Available on the Internet at: <http://www.aehs.com/publications/catalog/contents/tp.htm>

**Hazardous Air Pollutants (HAPs) Summary**

Compound	Potential to Emit (tons/yr)
1,3-Butadiene	3.7E-07
Benzene	1.9E-04
Toluene	8.0E-04
Ethylbenzene	1.7E-04
m-Xylene	4.6E-04
o-Xylene	2.5E-04
p-Xylene	1.9E-04
2,2,4-Trimethylpentane	2.4E-04
n-Hexane	2.4E-04
Naphthalene	2.5E-05
Methyl-tert-butyl ether	3.3E-05

<b>Total PTE of HAPs (tons/yr)</b>	<b>2.6E-03</b>
<b>PTE of Worst Case HAP (tons/yr)</b>	<b>8.0E-04</b>

**METHODOLOGY:**

PTE of HAPS (tons/yr) = [PTE of VOC (tons/yr)] \* [Average HAP Composition (% by weight)]

**Appendix A: Emissions Calculations  
Internal Combustion Engine  
Natural-Gas Combustion**

**Company Name:** Former Retail Shell Gasoline Station  
**Address :** 5715 East Jefferson, Fort Wayne, Indiana 46804  
**Registration No.:** 003-26737-00364  
**Reviewer:** Anne-Marie C. Hart

Heat Capacity	
148	hp-hr
1.332	MMBtu/hr

Emission Factor in lb/MMBtu	PM	PM10	PM2.5	SO2	NOx	VOC	CO
	9.50E-03	1.94E-02	1.94E-02	5.88E-04	2.27	0.0296	3.72
Potential Emissions in tons/year	0.06	0.11	0.11	0.003	13.24	0.17	21.70

Emission factors from AP-42 Ch. 3.2, Supplement F (8/2000), Table 3.2-3 (4-Stroke Rich Burn Engine)  
 148 hp-hr x 9000 Btu/hp-hr (Brake-specific fuel consumption conversion factor)  
 Particulate Matter (PM) emissions assume equal to filterable PM10 emissions  
 PM10 emissions include both filterable PM10 and condensable PM emissions.  
 PM2.5 emissions assumed equal to PM10 emissions.

**Methodology**

Potential Emissions (tons/year) = Emission Factor (lb/MMBtu) x Heat Capacity (MMBtu/hr) x 8760 (hours/year) x (1 ton/2000 lbs)