



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: December 9, 2011

RE: Herdrich Petroleum Corporation/ 139-31040-00023

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. Robert Herdrich
Herdrich Petroleum Corporation
210 East US 52
Rushville, IN 46173

December 9, 2011

Re: Exempt Construction and Operation Status,
139-31040-00023

Dear Mr. Herdrich:

The application from Herdrich Petroleum Corporation, received on October 17, 2011, 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 soil and groundwater remediation system located at 1600 North Main Street, Rushville, IN is classified as exempt from air pollution permit requirements:

- (a) One (1) Dual Phase Extraction System (DPE-1), approved for construction in 2011, with a maximum soil vapor extraction airflow rate of 150 actual cubic feet per minute and a maximum groundwater pump-and-treat flow rate of 10 gallons per minute, for remediation of soil and groundwater contaminated with petroleum hydrocarbons.
- (b) Fugitive emissions from paved roads and parking lots with public access.

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 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.

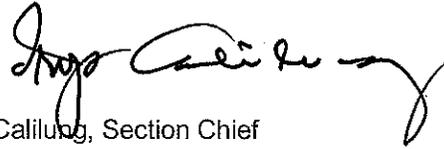
2. Fugitive Dust Emissions [326 IAC 6-4]

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,



Iryn Calilung, Section Chief
Permits Branch
Office of Air Quality

Attachments: Technical Support Document (TSD), Appendix A

IC/cbs

cc: File - Rush County
Rush 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: Herdrich Petroleum Corporation
Source Location: 1600 N Main Street, Rushville, Indiana 46173
County: Rush
SIC Code: 5541 (Gasoline and Service Stations)
Exemption No.: 139-31040-00023
Permit Reviewer: Charles Sullivan

On October 17, 2011, the Office of Air Quality (OAQ) received an application from Herdrich Petroleum Corporation related to the construction and operation of a new high vacuum dual phase extraction (DPE) with air sparging - hydrocarbons/VOCs system for remediation of soil and groundwater contaminated with petroleum hydrocarbons.

Existing Approvals

There have been no previous approvals issued to this source.

County Attainment Status

The source is located in Rush County.

Pollutant	Designation
SO ₂	Better than national standards.
CO	Unclassifiable or attainment effective November 15, 1990.
O ₃	Unclassifiable or attainment effective June 15, 2004, for the 8-hour ozone standard. ¹
PM ₁₀	Unclassifiable effective November 15, 1990.
NO ₂	Cannot be classified or better than national standards.
Pb	Not designated.

¹Unclassifiable 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 PM_{2.5}.

- (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. Rush 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}**
Rush County has been classified as attainment for PM_{2.5}. On May 8, 2008 U.S. EPA promulgated the requirements for Prevention of Significant Deterioration (PSD) for PM_{2.5} emissions. These rules became effective on July 15, 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 PM_{2.5} emissions until 326 IAC 2-2 is revised.

- (c) Other Criteria Pollutants
 Rush 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 3, 2011, the Office of Air Quality (OAQ) received an application from Herdrich Petroleum Corporation related to the construction and operation of a new dual phase extraction (DPE) system for remediation of soil and groundwater contaminated with petroleum hydrocarbons.

The source consists of the following existing emission unit:

- (a) One (1) Dual Phase Extraction System (DPE-1), approved for construction in 2011, with a maximum soil vapor extraction airflow rate of 150 actual cubic feet per minute and a maximum groundwater pump-and-treat flow rate of 10 gallons per minute, for remediation of soil and groundwater contaminated with petroleum hydrocarbons.
- (b) Fugitive emissions from paved roads and parking lots with public access.

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
DPE-1	0.00	0.00	0.00	0.00	0.00	2.66	0.00	1.81	0.65 (Toluene)
Fugitives (paved roads)	1.22	0.23	0.23	0	0	0	0	0	0
Total PTE of Entire Source	1.22	0.23	0.23	0.00	0.00	2.66	0.00	1.81	0.65 (Toluene)
Exemptions Levels	5	5	5	10	10	10	25	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) 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)

- (b) The requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Site Remediation, 40 CFR 63.7880-40 through CFR 63.7957, Subpart GGGGG (326 IAC 20-87), are not included in the permit, since the source does not have the potential to emit 10 tons per year or more of any hazardous air pollutant or 25 tons per year of any combination of hazardous air pollutants and since the remediation is conducted at a gasoline service station in order to clean up remediation material from a leaking underground storage tank (40 CFR 63.7881(b)(4)).
- (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 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)
The Dual Phase Extraction System (DPE-1) emission unit 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.
- (h) 326 IAC 12 (New Source Performance Standards)
See Federal Rule Applicability Section of this TSD.
- (i) 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 October 17, 2011.

The construction and operation of this source shall be subject to the conditions of the attached proposed Exemption No. 139-31040-00023. 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: Emission Calculations
Potential to Emit**

Company Name: Herdrich Petroleum Corporation
Address City State Zip: 1600 N Main, Rushville, IN 46173
Permit Number: E139-31040-00023
Reviewer: Charles Sullivan
Date: 11/29/2011

Petroleum Product	PTE of VOC (tons/yr)
Gasoline & Diesel	2.66

Potential to Emit (PTE) VOCs

	Gasoline and Diesel
Free Product Mass (lbs)	0.00
Potential Gasoline Range Mass (lbs):	15,552
Potential Diesel Range Mass (lbs):	399
Total VOC (lbs)	15,951
Total VOC (tons)	7.98
Remediation Time in Years	3
PTE of VOCs (tons/year)	2.66
PTE of VOCs (lbs/hr)	0.61
PTE of VOC tons/yr (Gasoline & Diesel)	2.66

Potential to Emit (PTE) HAPs

HAPs	Percent by Weight*	PTE of HAPs
Benzene	4.9%	0.13
Toluene	25.0%	0.66
Ethylbenzene	3.0%	0.08
Xylenes	15.0%	0.40
MTBE	15.0%	0.40
Naphthalene	5.0%	0.13
isopropyl-benzene	2.0%	0.05
Total HAPs		1.86
Worst Case HAP		0.66

Methodology:

The potential emissions rate for VOCs emitted from the DPE system was assumed to be constant during the remediation time period.
Remediation time is assumed to be approximately 3 years
Each petroleum hydrocarbon is considered a VOC.
Soil is assumed to have a soil bulk density of 90 lbs/ft³

Total of VOCs (lbs) = [Total weight of contamination (lbs) (including separate phase hydrocarbons, groundwater, and soil)]
PTE of VOCs (tons/yr) = [Total VOCs (lbs) / 2,000 lbs/ton / 3 years]

* Gasoline and Diesel

Company Name: Hendrich Petroleum Corporation
 Address City State Zip: 1600 N Main, Rushville, IN 46173
 Permit Number: E139-31040-00023
 Reviewer: Charles Sullivan
 Date: 11/29/2011

Contaminant Mass Calculations

1) Free Product

Free Product has not been measured at this site.

Free Product		
<i>Constants</i>		
Volume Conversion	7.48	gal per ft ³
Product Density	6.8	lbs per gal
<i>Input</i>		
Plume Area	Thickness	Soil Porosity
(ft ²)	(ft)	
0	0	0.30
	FPPV:	0 ft ³
	FPV:	0 ft ³
	FPV:	0 gal
	FPM:	0 lbs

Assumptions:

-A typical soil porosity of 30% (0.30) is utilized.

Calculation Explanation:

FPPV (Free Product Plume Volume) (ft³) = Plume Area (ft²) * Thickness (ft)

FPV (Free Product Volume) (ft³) = FPPV (ft³) * Soil Porosity

FPV (gal) = FPV (ft³) * 7.48 (gal/ft³)

FPM (Free Product Mass) (lbs) = FPV (gal) * Product Density (6.8 lbs/gal)

Company Name: Hendrich Petroleum Corporation
 Address City State Zip: 1600 N Main, Rushville, IN 46173
 Permit Number: E139-31040-00023
 Reviewer: Charles Sullivan
 Date: 11/29/2011

2) Dissolved Phase Contaminant Mass

Dissolved Phase Gasoline				Dissolved Phase Diesel and/or Kerosene			
<i>Constants</i>				<i>Constants</i>			
Volume Conversion	7.48	gal per ft ³		Volume Conversion	7.48	gallons per ft ³	
Water Density	8.35	lbs per gal		Water Density	8.35	lbs per gal	
<i>Input</i>				<i>Input</i>			
Influence Area	Thickness	Soil Porosity	Contam. Conc.	Influence Area	Thickness	Soil Porosity	Contam. Conc.
(ft ²)	(ft)		(ppb)	(ft ²)	(ft)		(ppb)
7,500	6	0.30	53,344	7,500	6	0.30	8,741
	TPV:	45,000	ft ³		TPV:	45,000	ft ³
	IGWV:	13,500	ft ³		IGWV:	13,500	ft ³
	IGWV:	100,980	gal		IGWV:	100,980	gal
	IGWM:	843,183	lbs		IGWM:	843,183	lbs
	DPHM-G:	45	lbs		DPHM-D:	7	lbs

Assumptions:

-The influence area value is based on the remediation system vacuum radius of influence of 40 feet at each extraction well as determined in the IDEM approved Remediation Work Plan (July 23, 2010) and depicted on Figures 1 of submitted application package.

-Thickness of groundwater contamination is estimated conservatively at six (6) feet based on the fact that petroleum hydrocarbons have a specific gravity of less than one (1) and will therefore tend to float on the groundwater surface instead of distributing evenly within the water column.

-A typical soil porosity of 30% (0.30) is utilized.

-The contaminant concentration is the average of the historical maximum GRO or DRO concentration as measured in the four(4) monitoring wells located within remediation system vacuum radius of influence (FW-2, FW-3, FW-9, and FW-10) depicted on Figure 2 of submitted application package.

Calculation Explanation:

TPV (Total Plume Volume) (ft³)= Plume Area (ft²) * Thickness (ft)

IGWV (Impacted Groundwater Volume) (ft³)= TPV (ft³) * Soil Porosity

IGWV (gallons) = IGWV (ft³) * 7.48 (gal/ft³)

IGWM (Impacted Groundwater Mass) (lbs) = IGWV (gal) * Water Density (lbs/gal)

DPHM-G/D (Dissolved Phase Hydrocarbon Mass for Gasoline/Diesel) (lbs) = (Contaminant Concentrations (ppb) / 10⁹) * IGWM (lbs)

Company Name: Hendrich Petroleum Corporation
 Address City State Zip: 1600 N Main, Rushville, IN 46173
 Permit Number: E139-31040-00023
 Reviewer: Charles Sullivan
 Date: 11/29/2011

Contaminant Mass Calculations - Continued

3) Adsorbed Hydrocarbon Mass (Hydrocarbons adsorbed to soil above and below water table)

Soil Adsorbed Gasoline				Soil Adsorbed Diesel and/or Kerosene			
<i>Constants</i>				<i>Constants</i>			
Solid Mineral Density (Quartz)	165.4	lbs/ft ³		Solid Mineral Density (Quartz)	165.4	lbs/ft ³	
<i>Input</i>				<i>Input</i>			
Influence Area	Thickness	Soil Porosity	Contam. Conc.	Influence Area	Thickness	Soil Porosity	Contam. Conc.
(ft ²)	(ft)		(ppm)	(ft ²)	(ft)		(ppm)
7,500	9.2	0.30	1,941.1	7,500	9.2	0.30	49
	TISV:	69,000	ft ³		TISV:	69,000	ft ³
	SMV:	48,300	ft ³		SMV:	48,300	ft ³
	SMM:	7,988,820	lbs		SMM:	7,988,820	lbs
	AHM-G:	15,507	lbs		AHM-D:	391	lbs

Assumptions:

- The influence area value is based on the remediation system vacuum radius of influence of the high vacuum remediation system as depicted in Figure 2 of the application package.
- The contaminated thickness was estimated by summing the total thickness of all soil sample intervals exhibiting soil vapor concentrations greater than 100 parts per million (ppm) as measured by a MiniRae 2000 photoionization detector (PID) (Table 1). For calculations, the impacted soil thickness value used is the maximum contaminated thickness observed in borings within the influence area of the remediation system.
- A typical soil porosity of 30% (0.30) is utilized.
- The contaminant concentration is the average of the maximum GRO or DRO concentration (Table 3) measured in each boring located within the remediation system radius of influence depicted on Figures 3 of the application package.

Calculation Explanation:

TISV (Total Impacted Soil Volume) (ft³) = Plume Area (ft²) * Thickness (ft)

SMV (Soil Mineral Volume) (ft³) = TISV (ft³) * (1 - Soil Porosity)

SMM (Soil Mineral Mass) (lbs) = SMV (ft³) * Solid Mineral Density (lbs/ft³)

AHM-G/D (Adsorbed Hydrocarbon Mass for Gasoline/Diesel) (lbs) = (Contaminant Concentration (ppm) / 10⁶) * SMM (lbs)

Company Name: Hendrich Petroleum Corporation
Address City State Zip: 1600 N Main, Rushville, IN 46173
Permit Number: E139-31040-00023
Reviewer: Charles Sullivan
Date: 11/29/2011

Contaminant Mass Calculations - Continued

4) Total Volatile Organic Compounds (VOCs) Potential to Emit

Free Product Mass (lbs):	0	
Potential Gasoline Range Mass (lbs):	15,552	(Sum of DPHM-G and AHM-G)
Potential Extended Range Mass (lbs):	399	(Sum of DPHM-D and AHM-D)
Total Hydrocarbon Mass (lbs):	15,951	(Sum of Free Product, Dissolved Phase, and Adsorbed Hydrocarbons)
Total VOC PTE :	25	tons
System Operational Period :	3	years
VOC PTE:	2.66	tons/year

Assumptions:

- System Operational Period is the estimated time that will be required to reduce petroleum impacts at this site to below IDEM closure levels.
- It is assumed that all potential hydrocarbons that can be captured and emitted by the remediation system are composed of 100% VOCs.

Calculation Explanation:

VOC PTE (Total VOCs Potential to Emit) (tons/year) = Total Hydrocarbon Mass (lbs) / 2000 (lbs/ton) / System Operational Period (years)

Company Name: Hendrich Petroleum Corporation
 Address City State Zip: 1600 N Main, Rushville, IN 46173
 Permit Number: E139-31040-00023
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Contaminant Mass Calculations - Continued

5) Individual Hazardous Air Pollutants (HAPs) Potential to Emit

HAP	Gasoline		Diesel		Total Hydrocarbon Mass	
	Concentration	Total Mass PTE (lbs)	Concentration	Total Mass PTE (lbs)	Totals lbs	tons/year (3 years)
Benzene	4.9%	762.05	1%	3.99	766.04	0.13
Toluene	25.0%	3888.02	1%	3.99	3892.01	0.65
Ethylbenzene	3.0%	466.56	1%	3.99	470.55	0.08
Xylenes	15.0%	2332.81	1%	3.99	2336.80	0.39
MTBE	15.0%	2332.81	0%	0.00	2332.81	0.39
Naphthalene	5.0%	777.60	0.01%	0.04	777.64	0.13
Isopropyl- benzene	2.0%	311.04	0%	0.00	311.04	0.05
					Sum:	1.81

Assumptions:

-Maximum HAPs percentages in gasoline based on attached MSDS (benzene 4.9%, toluene 25%, ethylbenzene 3.0%, xylene 15%, MTBE 5%)
 ASSUMED maximum concentrations in gasoline of other HAPs constituents detected at the site: naphthalene 5%, isopropylbenzene 2%

-Maximum HAPs percentages in diesel based on attached MSDS (naphthalene 0.01%). ASSUMED maximum concentrations in diesel of other HAPs constituents detected at the site: benzene 1.0%, toluene 1.0%, ethylbenzene 1.0%, xylenes 1.0%

Calculation Explanation:

-The individual HAP PTE is estimated by multiplying the total Potential Gasoline Range Mass or Potential Extended Range mass by the corresponding percentage composition in gasoline or diesel fuels.

Table 1
Summary of Organic Vapor Readings

Company Name: Herdrich Petroleum Corporation
Address City State Zip: 1600 N Main, Rushville, IN 46173
Permit Number: E139-31040-00023
Reviewer: Charles Sullivan
Date: 11/29/2011

Boring	B-2	B-2	B-3	B-4	B-5	B-6	B-7	B-8	B-9	B-10	B-11	B-12	B-13	B-14
Depth	6/26/08	6/26/08	7/17/08	7/17/08	7/17/08	7/17/08	7/17/08	7/17/08	1/20/10	1/20/10	1/20/10	3/31/09	3/31/09	3/31/09
0-2'	185	636	0.2	1.4	2.0	0.8	0.2	ND	0.8	0.3	0.5	0.5	0.2	0.3
2-4'	81.1	588	ND	ND	28	1.8	0.2	ND	1.6	0.2	0.9	0.4	0.2	0.3
4-6'	192	9.1	2.0	0.6	10	162	0.8	ND	1.0	0.2	0.8	0.3	0.2	0.4
6-8'	750	11.2	2.8	0.8	160	62	ND	ND	ND	0.3	0.7	0.4	0.2	0.2
8-10'	369	6.3	1.2	60	72	122	ND	16	ND	0.5	0.6	0.3	0.4	0.2
10-12'	410	11.8	1.2	150	190	200	ND	4.4	NA	0.4	0.6	0.3	0.9	0.2
12-14'	422	196	0.2	38	130	120	NA	ND	NA	0.3	0.5	0.5	0.4	0.2
14-16'	65.1	67.5	0.2	3.0	106	110	NA	NA	NA	0.3	0.8	0.2	0.6	0.2
16-18'	16.9	NA	NA	NA	170	180	NA	NA	NA	NA	NA	NA	NA	NA
18-20'	25.4	NA	NA	NA	18	22	NA	NA	NA	NA	NA	NA	NA	NA
20-22'	2.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
22-24'	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Boring	B-15	B-16	B-17	B-18	B-19	B-20	B-21	B-22	B-23
Depth	3/31/09	3/31/09	3/31/09	3/31/09	3/31/09	10/29/09	9/20/10	9/20/10	9/20/10
0-2'	1.5	1.1	0.2	0.9	0.7	0.2	5.1	NR	ND
2-4'	0.4	0.1	0.3	0.6	1.0	0.2	152	NR	1,555
4-6'	0.3	0.2	0.3	0.8	0.8	0.1	447	54.5	3,206
6-8'	5.2	0.2	0.2	4.5	0.6	0.2	3,215	168	3,113
8-10'	11.2	0.4	0.3	0.7	0.6	0.5	3,346	2,135	2,355
10-12'	1.2	998	0.2	0.5	0.5	0.6	324	61.1	1,738
12-14'	0.4	106	0.3	1.3	0.5	0.2	17.2	13	223
14-16'	0.3	36.8	0.3	1.1	0.3	0.1	41.5	88	40.3
16-18'	NA	189	0.3	NA	NA	NA	20.7	NA	30.6
18-20'	NA	189	0.2	NA	NA	NA	3.4	NA	ND
20-22'	NA	7.2	NA	NA	NA	NA	NA	NA	NA
22-24'	NA	1.4	NA	NA	NA	NA	NA	NA	NA

Field screening results reported in parts per million (ppm)
Depth measured in feet below grade
ND = Not detected above PID detection limits
NA = Not advanced to this depth
NR = No recovery
intervals in **BOLD** selected for laboratory analysis

TABLE 2
Historical Groundwater Analytical Results - GRO and DRO/ERO

Company Name: Hendrich Petroleum Corporation

Address City State Zip: 1600 N Main, Rushville, IN 46173

Permit Number: E139-31040-00023

Reviewer: Charles Sullivan

Date: 11/29/2011

Sample ID	Date	GRO	DRO/ERO
B-1	6/26/2008	<200	NA
B-3	7/17/2008	<200	NA
B-4	7/17/2008	<200	NA
B-5	7/17/2008	76,300	NA
B-6	7/17/2008	229,000	NA
B-7	7/17/2008	<200	NA
B-8	7/17/2008	<200	NA
B-9	7/17/2008	<200	1,300
B-10	3/31/2009	<200	256
B-11	3/31/2009	<200	180
B-12	3/31/2009	<200	136
B-13	3/31/2009	360	575
B-14	3/31/2009	<200	140
B-15	3/31/2009	350	248
B-16	3/31/2009	62,300	64,200
B-17	3/31/2009	<200	<100
B-18	3/31/2009	300	254
B-19	3/31/2009	<220	<100
MW-1	8/4/2008	<200	277
	5/6/2009	1,140	314
MW-2	8/4/2008	949	6,600 ⁴
	5/6/2009	700	410
MW-3	8/4/2008	136,000	26,600 ⁴
	5/6/2009	67,500	26,800
MW-4	8/4/2008	79,700	26,800 ⁴
	5/6/2009	70,000	35,100
MW-5	5/6/2009	390	<100
MW-6	5/6/2009	<200	<100
MW-7	5/6/2009	<220	<100
MW-8	5/6/2009	<220	273
	9/30/2009	NA	<100
MW-9	5/6/2009	<220	1,210
	9/30/2009	NA	<100
MW-10	5/6/2009	<220	123
MW-11	11/2/2009	<220	<100
RISC RDCL		1,100	260
RISC I/CDCL		14,000	2,500

Results reported in parts per billion (ppb)

GRO = Gasoline range organics

DRO = Diesel range organics

ERO = Extended range organics

NS = Not sampled

NS-1 = Not sampled due to the presence of free product

NA = Not analyzed for this parameter

J = Estimated concentration

Company Name: Herdrich Petroleum Corporation
 Address City State Zip: 1600 N Main, Rushville, IN 46173
 Permit Number: E139-31040-00023
 Reviewer: Charles Sullivan
 Date: 11/29/2011

Historical Maximum Groundwater Concentrations

Well	GRO (ppb)	DRO (ppb)
B-1	<220	NA
B-3	<220	NA
B-4	<220	NA
B-5	76,300	NA
B-6	229,000	NA
B-7	<220	NA
B-8	<220	NA
B-9	<220	1,300
B-10	<220	256
B-11	<220	180
B-12	<220	136
B-13	360	575
B-14	<220	140
B-15	350	248
B-16	62,300	64,200
B-17	<220	<100
B-18	300	254
B-19	<220	<100
MW-1	1,140	314
MW-2	949	6,600 ⁴
MW-3	136,000	26,800
MW-4	79,700	35,100
MW-5	390	<100
MW-6	<220	<100
MW-7	<220	<100
MW-8	<220	273
MW-9	<220	1,210
MW-10	<220	123
MW-11	<220	<100
Average	53,344	8,741

Results reported in parts per billion (ppb)

GRO = Gasoline range organics

DRO = Diesel range organics

ERO = Extended range organics

NS = Not sampled

NS-1 = Not sampled due to the presence of free product

NA = Not analyzed for this parameter

J = Estimated concentration

TABLE 3
Soil Boring Analytical Results - GRO and DRO

Company Name: Herdrich Petroleum Corporation
 Address City State Zip: 1600 N Main, Rushville, IN 46173
 Permit Number: E139-31040-00023
 Reviewer: Charles Sullivan
 Date: 11/29/2011

Sample ID	Depth (feet)	Date	GRO	DRO/ERO
B-1	6-8	6/26/2008	138	NA
	18-20	6/26/2008	84.8	NA
	22-24	7/31/2008	<20	NA
B-2	0-4	6/26/2008	<20	NA
	12-14	7/17/2008	<20	NA
B-3	6-8	7/17/2008	<20	NA
	13-14	7/17/2008	<20	NA
B-4	10-12	7/17/2008	<20	NA
	14-16	7/17/2008	<20	NA
B-5	10-12	7/17/2008	790	NA
	18-20	7/17/2008	<20	NA
B-6	10-12	7/17/2008	307	NA
	18-19.5	7/17/2008	<20	NA
B-7	4-6	7/17/2008	<20	NA
B-8	8-10	7/17/2008	<20	NA
	11-13	7/17/2008	<20	NA
B-9	2-4	7/17/2008	NA	25
B-10	2-4	3/31/2009	<17.0	<23
B-11	10-12	3/31/2009	<18.1	<24
B-12	4-6	3/31/2009	<18.1	<24
B-13	8-10	3/31/2009	<17.2	48
B-14	14-16	3/31/2009	<19.2	<26
B-15	6-8	3/31/2009	84.8	79
	14-16	3/31/2009	<17.9	<24
B-16	2-4	3/31/2009	3,140	63
	10-12	3/31/2009	<16.3	<22
B-17	8-10	3/31/2009	<16.9	<22
B-18	18-20	3/31/2009	<17.6	<24
	8-10	3/31/2009	<16.9	<22
B-19	4-6	3/31/2009	<18.5	<25
B-20	18-20	10/29/2009	<17.6	30
B-21	8-10	9/20/2010	4140	NA
	4-6	9/20/2010	<16.7	NA
B-22	4-6	9/20/2010	6570	NA
B-23	4-6	9/20/2010	2290	NA
	4-6	9/20/2010	38.9	NA
RISC RDCL			120	230
RISC I/CDCL			1,500	2,300

Depth in feet below grade

Results reported in parts per million (ppm)

GRO = Gasoline range organics

DRO = Diesel range organics

ERO = Extended range organics

NA = Not analyzed for this parameter

RISC RDCL = Risk Integrated System of Closure Residential Default Closure Level

RISC I/CDCL = Risk Integrated System of Closure Industrial/Commercial Default Closure Level

Results reported in **BOLD** exceed RISC RDCL

Average Soil Concentrations Within Remediation System Radius of Influence

Company Name: Herdrich Petroleum Corporation
Address City State Zip: 1600 N Main, Rushville, IN 46173
Permit Number: E139-31040-00023
Reviewer: Charles Sullivan
Date: 11/29/2011

Boring	GRO (ppm)	DRO/ERO (ppm)
B-1	138	NA
B-2	<20	NA
B-3	<20	NA
B-4	10	NA
B-5	790	NA
B-6	307	NA
B-7	<20	NA
B-8	<20	NA
B-9	NA	25
B-10	<17.0	<23
B-11	<18.1	<24
B-12	<18.1	<24
B-13	<17.2	48
B-14	<19.2	<26
B-15	84.8	79
B-16	3,140	63
B-17	<16.9	<22
B-18	<17.6	<24
B-19	<18.5	<25
B-20	<17.6	30
B-21	4140	NA
B-22	6570	NA
B-23	2290	NA
Average	1,941.1	49.0

The GRO of DRO/ERO contaminant concentration is estimated the average of the maximum GRO and DRO/ERO concentration measured in each boring located within the remediation system vacuum radius of influence.

**Appendix A: Emission Calculations
Fugitive Dust Emissions - Paved Roads**

**Company Name: Herdrich Petroleum Corporation
Address City State Zip: 1600 N Main, Rushville, IN 46173
Permit Number: E139-31040-00023
Reviewer: Charles Sullivan
Date: 11/29/2011**

Paved Roads at Industrial Site

The following calculations determine the amount of emissions created by paved roads, based on 8,760 hours of use and AP-42, Ch 13.2.1 (12/2003).

Vehicle Information (provided by source)

Type	Maximum number of vehicles	Number of one-way trips per day per vehicle	Maximum trips per day (trip/day)	Maximum Weight Loaded (tons/trip)	Total Weight driven per day (ton/day)	Maximum one-way distance (feet/trip)	Maximum one-way distance (mi/trip)	Maximum one-way miles (miles/day)	Maximum one-way miles (miles/yr)
Vehicle (entering plant) (one-way trip)	800.0	1.0	800.0	5.0	4000.0	275	0.052	41.7	15208.3
Vehicle (leaving plant) (one-way trip)	800.0	1.0	800.0	5.0	4000.0	275	0.052	41.7	15208.3
			0.0		0.0		0.000	0.0	0.0
			0.0		0.0		0.000	0.0	0.0
Total			1600.0		8000.0			83.3	30416.7

Average Vehicle Weight Per Trip = $\frac{5.0}{0.05}$ tons/trip
Average Miles Per Trip = $\frac{0.05}{0.05}$ miles/trip

Unmitigated Emission Factor, $E_f = [k * (sL/2)^{0.65} * (W/3)^{1.5} - C]$ (Equation 1 from AP-42 13.2.1)

	PM	PM10	
where k =	0.082	0.016	lb/mi = particle size multiplier (AP-42 Table 13.2.1-1)
W =	5.0	5.0	tons = average vehicle weight (provided by source)
C =	0.00047	0.00047	lb/mi = emission factor for vehicle exhaust, brake wear, and tire wear (AP-42 Table 13.2.1-2)
sL =	0.6	0.6	g/m ² = Ubiquitous Baseline Silt Loading Values of paved roads (Table 13.2.1-3 for summer months)

Taking natural mitigation due to precipitation into consideration, Mitigated Emission Factor, $E_{ext} = E * [1 - (p/4N)]$

Mitigated Emission Factor, $E_{ext} = E_f * [1 - (p/4N)]$
where p = $\frac{125}{365}$ days of rain greater than or equal to 0.01 inches (see Fig. 13.2.1-2)
N = 365 days per year

	PM	PM10	
Unmitigated Emission Factor, $E_f =$	0.08	0.02	lb/mile
Mitigated Emission Factor, $E_{ext} =$	0.07	0.01	lb/mile
Dust Control Efficiency =	50%	50%	(pursuant to control measures outlined in fugitive dust control plan)

Process	Unmitigated PTE of PM (tons/yr)	Unmitigated PTE of PM10 (tons/yr)	Mitigated PTE of PM (tons/yr)	Mitigated PTE of PM10 (tons/yr)	Controlled PTE of PM (tons/yr)	Controlled PTE of PM10 (tons/yr)
Vehicle (entering plant) (one-way trip)	0.61	0.12	0.56	0.11	0.28	0.05
Vehicle (leaving plant) (one-way trip)	0.61	0.12	0.56	0.11	0.28	0.05
	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00
	1.22	0.23	1.12	0.21	0.56	0.11

Methodology

Total Weight driven per day (ton/day) = [Maximum Weight Loaded (tons/trip)] * [Maximum trips per day (trip/day)]
Maximum one-way distance (mi/trip) = [Maximum one-way distance (feet/trip)] / [5280 ft/mile]
Maximum one-way miles (miles/day) = [Maximum trips per year (trip/day)] * [Maximum one-way distance (mi/trip)]
Average Vehicle Weight Per Trip (ton/trip) = SUM[Total Weight driven per day (ton/day)] / SUM[Maximum trips per day (trip/day)]
Average Miles Per Trip (miles/trip) = SUM[Maximum one-way miles (miles/day)] / SUM[Maximum trips per year (trip/day)]
Unmitigated PTE (tons/yr) = [Maximum one-way miles (miles/yr)] * [Unmitigated Emission Factor (lb/mile)] * (ton/2000 lbs)
Mitigated PTE (tons/yr) = [Maximum one-way miles (miles/yr)] * [Mitigated Emission Factor (lb/mile)] * (ton/2000 lbs)
Controlled PTE (tons/yr) = [Mitigated PTE (tons/yr)] * [1 - Dust Control Efficiency]

Abbreviations

PM = Particulate Matter
PM10 = Particulate Matter (<10 um)
PTE = Potential to Emit



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

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Governor

Thomas W. Easterly
Commissioner

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

TO: Robert Herdrich
Herdrich Petroleum Corporation
210 E US 52
Rushville, IN 46173

DATE: December 9, 2011

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

SUBJECT: Final Decision
Exemption
139-31040-00023

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

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2		Rush County Commissioners 101 East Second Street Rushville IN 46173 (Local Official)										
3		Rush County Health Department Courthouse, Room 5 Rushville IN 46173-1854 (Health Department)										
4		Rushville Town Council 133 W. First St. Rushville IN 46173 (Local Official)										
5		Mrs. Bonnie Miller P.O. Box 15 Falmouth IN 46127 (Affected Party)										
6		Heimsoth Properties 102 W 16th St Rushville IN 46173 (Affected Party)										
7		National Bank of Rush County PO Box 2609 Carlsbad CA 92018 (Affected Party)										
8		Mar Mar Properties LP 100 S Pennsylvania, Ste B Greenfield IN 46140 (Affected Party)										
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