



Mitchell E. Daniels, Jr.
Governor

Thomas W. Easterly
Commissioner

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

TO: Interested Parties / Applicant
DATE: September 18, 2007
RE: Michael, Inc. / 099-25170-00105
FROM: Nisha Sizemore
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, Room 1049, 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.dot 03/23/06



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We make Indiana a cleaner, healthier place to live.

Mitchell E. Daniels, Jr.
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
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September 18, 2007

Mr. Iqbal Michael
Michael, Inc. – former Clark Station No. 821
16460 Lincoln Highway
Plymouth, Indiana 46563

Dear Mr. Michael:

Re: Exempt Construction and Operation Status,
099-25170-00105

The application for Michael, Inc. – former Clark Station No. 821, received on August 21, 2007, has been reviewed. Based on the data provided and the provisions in 326 IAC 2-1.1-3, it has been determined that the following, to be located at 400 East Jefferson Street, Plymouth, Indiana 46563 is classified as exempt from air pollution permit requirements:

One (1) Dual Phase Extraction (DPE) system (soil vapor extraction and groundwater pump-and-treat), approved for construction in 2007, with a groundwater pump-and-treat flow rate of 16 gallons per minute (gpm), an air stripper exhaust air flow rate of 600 cubic feet per minute (cfm), and a soil vapor extraction exhaust air flow rate of 550 cfm.

The following conditions shall be applicable:

- (1) Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following:
 - (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) Pursuant to 326 IAC 6-4 (Fugitive Dust Emissions Limitations), the source shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4.

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

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.

Michael, Inc. – former Clark Station No. 821
Plymouth, Indiana
Permit Reviewer: Pam K. Way

Page 2 of 2
099-25170-00105

If you have any questions on this matter, please contact Pam K. Way, OAQ, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana, 46204-2251, at 317-234-5373 or at 1-800-451-6027 (ext 45373).

Original signed by,

Nisha Sizemore, Chief
Permits Branch
Office of Air Quality

pkw

cc: File - Marshall County
Marshall County Health Department
Air Compliance – Rick Reynolds
Compliance Data Section
Permit Administration & Development Section
Billing, Licensing and Training Section – Dan Stamatkin
Permit Review Section 5 – Pam K. Way

Indiana Department of Environmental Management Office of Air Quality

Technical Support Document (TSD) for an Exemption

Source Background and Description

Source Name: Michael, Inc. – former Clark Station No. 821
Source Location: 400 East Jefferson Street, Plymouth, Indiana 46563
County: Marshall County
SIC Code: 4959 (Environmental remediation services)
Exemption No.: 099-25170-00105
Permit Reviewer: Pam K. Way

The Office of Air Quality (OAQ) has reviewed an application from Michael, Inc. – former Clark Station No. 821 relating to the construction and operation of a stationary dual phase vacuum extraction for remediation of petroleum contaminated soil and groundwater.

New Emission Units and Pollution Control Equipment

One (1) Dual Phase Extraction (DPE) system (soil vapor extraction and groundwater pump-and-treat), approved for construction in 2007, with a groundwater pump-and-treat flow rate of 16 gallons per minute (gpm), an air stripper exhaust air flow rate of 600 cubic feet per minute (cfm), and a soil vapor extraction exhaust air flow rate of 550 cfm.

Enforcement Issue

There are no enforcement actions pending.

Recommendation

The staff recommends to the Commissioner that the construction and operation be approved. This recommendation is based on the following facts and conditions:

A complete application for the purposes of this review was received August 21, 2007.

Unless otherwise stated, information used in this review was derived from the application and additional information provided by the applicant.

Emission Calculations

See Appendix A of this TSD for detailed emissions calculations (Appendix A, pages 1 through 2).

Dual Phase Extraction System:

The Dual Phase Extraction (DPE) system includes soil vapor extraction (SVE) and groundwater pump-and-treat (air-stripper). SVE removes residual liquid phase and vapor phase volatile organic compounds (VOCs) from the semi-saturated subsurface (i.e., vadose zone) by applying a vacuum to a sealed well screened the zone of interest, inducing volatilization and subsurface air flow.

Groundwater pump-and-treat (air-stripper) involves the extraction of groundwater contaminated with dissolved and non-aqueous phase VOCs from pumping wells and the subsequent ex-situ treatment through an aerated tank or column, which allows VOCs in the contaminated water to diffuse from the liquid phase to the gaseous phase.

For the Potential to Emit (PTE) calculation of this TSD, it will be assumed that the soil and groundwater are contaminated with unleaded gasoline and that the VOCs removed from the subsurface and groundwater will be exhausted to the atmosphere with no pollution controls.

Potential To Emit

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit (PTE) is defined as, “the maximum capacity of a stationary source or emissions unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U.S. EPA, the department, or the appropriate local air pollution control agency.”

Pollutant	Potential To Emit (tons/year)
PM	negligible
PM10	negligible
SO ₂	negligible
VOC	0.26
CO	negligible
NO _x	negligible

HAPs	Potential To Emit (tons/year)
1,3-Butadiene	negligible
Benzene	negligible
Toluene	0.02
Ethylbenzene	negligible
Xylenes	0.01
2,2,4-Trimethylpentane	negligible
n-Hexane	negligible
Naphthalene	negligible
Methyl-tert-butyl ether	negligible
TOTAL	0.07

- (a) The potential to emit (as defined in 326 IAC 2-1.1-1(16)) of regulated criteria pollutants are less than the levels listed in 326 IAC 2-1.1-3(d)(1). Therefore, the source is subject to the provisions of 326 IAC 2-1.1-3.
- (b) The potential to emit (as defined in 326 IAC 2-1.1-1(16)) 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, the source is subject to the provisions of 326 IAC 2-1.1-3.

County Attainment Status

The source is located in Marshall County.

Pollutant	Status
PM10	attainment or unclassifiable
PM2.5	attainment or unclassifiable
SO ₂	attainment or unclassifiable
NO ₂	attainment or unclassifiable
8-hour Ozone	attainment or unclassifiable
CO	attainment or unclassifiable
Lead	attainment or unclassifiable

- (a) Volatile organic compounds (VOC) and Nitrogen Oxides (NO_x) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone. Therefore, VOC and NO_x emissions are considered when evaluating the rule applicability relating to the ozone standard. Marshall County has been designated as attainment or unclassifiable for the 8-hour ozone standard. Therefore, VOC and NO_x emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.
- (b) Marshall County has been classified as attainment or unclassifiable for PM_{2.5}. U.S. EPA has not yet established the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 for PM 2.5 emissions. Therefore, until the U.S.EPA adopts specific provisions for PSD review for PM_{2.5} emissions, it has directed states to regulate PM₁₀ emissions as surrogate for PM_{2.5} emissions. See the State Rule Applicability – Entire Source section.
- (c) Marshall County has been classified as attainment or unclassifiable for all the other regulated criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2. See the State Rule Applicability for the source section.
- (d) Fugitive Emissions
Since this type of operation is not one of the 28 listed source categories under 326 IAC 2-2 or 2-3 and since there are no applicable New Source Performance Standards that were in effect on August 7, 1980, the fugitive particulate matter (PM) and volatile organic compound (VOC) emissions are not counted toward determination of PSD and Emission Offset applicability.
- (e) On October 25, 2007, the Indiana Air Pollution Control Board finalized a rule revision to 326 IAC 1-4-1 revoking the one-hour ozone standard in Indiana.

Source Status

New Source Definition (emissions after controls, based on 8760 hours of operation per year at rated capacity and/or as otherwise limited):

Pollutant	Emissions (tons/yr)
PM	negligible
PM ₁₀	negligible
SO ₂	negligible
VOC	0.26
CO	negligible
NO _x	negligible
Single HAP	0.02
Combination HAPs	0.07

- (a) This new source is not a major stationary source under 326 IAC 2-2 (PSD), because no attainment regulated pollutant is emitted at a rate of 250 tons per year or greater and it is not in one of the 28 listed source categories. Therefore, the requirements of 326 IAC 2-2 (PSD) do not apply.
- (b) This new source is not a major stationary source under Emission Offset (326 IAC 2-3), because no regulated nonattainment pollutant is emitted at a rate of 100 tons per year or more. Therefore, the requirements of 326 IAC 2-3 (Emission Offset) do not apply.

Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)

This new source is not subject to the Part 70 Permit requirements because the PTE of:

- (a) each criteria pollutant is less than 100 tons per year,
- (b) a single hazardous air pollutant (HAP) is less than 10 tons per year, and
- (c) any combination of HAPs is less than 25 tons/year.

This is the first air approval issued to this source.

Federal Rule Applicability

- (a) There are no New Source Performance Standards (NSPS) (326 IAC 12 and 40 CFR Part 60) included in the exemption for this source.
- (b) The requirements of 40 CFR 63, Subpart GGGGG, (63.7880 through 63.7957), National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Site Remediation are not included for this stationary soil and/or groundwater remediation system, because 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 National Emission Standards for Hazardous Air Pollutants (NESHAP)(326 IAC 14, 20 and 40 CFR Part 61, 63) included in the exemption for this source.

State Rule Applicability - Entire Source

326 IAC 2-2 (Prevention of Significant Deterioration (PSD))

This source was constructed after the applicability date of August 7, 1977, and it is not in one of the 28 listed source categories defined in 326 IAC 2-2-1(gg)(1) and the uncontrolled potential to emit of all attainment regulated pollutants is less than 250 tons per year. Therefore, the requirements of 326 IAC 2-2 (PSD) are not applicable.

326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))

The requirements of 326 IAC 2-4.1 are not applicable to this source, since 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.

326 IAC 2-6 (Emission Reporting)

This source is not subject to 326 IAC 2-6 (Emission Reporting), because it is located in Marshall County, it is not required to have an operating permit under 326 IAC 2-7 (Part 70 Permit Program) and it does not emit lead into the ambient air at levels equal to or greater than five (5) tons per year.

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:

- (a) Opacity shall not exceed an average of forty percent (40%) 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.

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.

State Rule Applicability - Individual Facilities

326 IAC 8-1-6 (VOC rules: General Reduction Requirements for New Facilities)

The requirements of 326 IAC 8-1-6 are not applicable, since the DPE system does not have the potential to emit greater than twenty-five (25) tons of VOCs per year.

Conclusion

The construction and operation of this Dual Phase Extraction (DPE) system shall be subject to the conditions of the attached proposed Exemption No. 099-25170-00105.

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

**Company Name: Michael, Inc. - former Clark Station No. 821
Address : 400 East Jefferson Street, Plymouth, Indiana 46563
Exemption No.: 099-25170-00105
Reviewer: Pam K. Way**

Weight Of Total Petroleum Hydrocarbons (TPH) To Be Remediated By DPE System (lbs)

Groundwater TPH Contamination (Dissolved Phase)			
	Zone 1	Zone 2	Zone 3
Plume Area (ft ²)	470	1330	1260
Thickness of Soil (ft)	1.5	1.5	1.5
Porosity	0.4	0.4	0.4
Volume of contaminated water (ft ³)	282	798	756
Volume of contaminated water (gal)	2148.84	6080.76	5760.72
Concentration of TPH (µg/L of water)	10000	3000	250
Weight Of Contamination (lbs)	0.18	0.15	0.01

Soil TPH Contamination (Absorbed to Soil)		
	Zone 1	Zone 2
Contaminated Area (ft ²)	430	950
Thickness of Soil (ft)	13	13
Volume of contaminated soil (ft ³)	5590	12350
Concentration of TPH (lb/MMlbs of soil)	2500	550
Soil density (lbs/ft ³)	100.75	100.75
Weight Of Contamination (lbs)	1408.0	684.3

Total Weight of TPH in Groundwater (lbs)	0.34
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Total Weight of TPH in Soil (lbs)	2092.33
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METHODOLOGY:

Weight of TPH in Groundwater (Dissolved Phase) (lbs) =
[[Concentration of TPH (µg/L of water)] * [(g/1,000,000 µg)] * [3.785L/gal] * [Volume of contaminated water (gal)] * [lb/453.6g]

Volume of contaminated water = [Plume Area (ft²)] * [Thickness of Soil (ft)] * [Porosity]

Weight of TPH in Soil (Absorbed to Soil) (lbs) =
[Concentration of TPH (lb/million lbs of soil)] * [Volume of the contaminated soil (ft³)] * [Soil density (lbs/ft³)] * [million lbs/1,000,000 lbs]

Potential To Emit (PTE) VOC

Total VOC (Soil and Groundwater) (lbs)	2092.67
Total VOC (Soil and Groundwater) (tons)	1.05
Remediation Time (years)	4
PTE Of VOC (tons/yr)	0.26

METHODOLOGY:

The potential emissions rate for VOCs emitted from the DPE system was assumed to be constant during the remediation time period. Based on information provided by the source, the remediation time will be 4 years. Each of the total petroleum hydrocarbon (TPH) components is considered a VOC. Soil is assumed to have bulk density of 100.75 lb/ft³

PTE of VOCs (tons/yr) = [Total VOC (Soil and Groundwater) (tons)] / [Remediation Time (years)]

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

TSD Appendix A: Page 2 of 2

Company Name: Michael, Inc. - former Clark Station No. 821
Address : 400 East Jefferson Street, Plymouth, Indiana 46563
Exemption No.: 099-25170-00105
Reviewer: Pam K. Way

PTE Of VOC (tons/yr)	0.26
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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%	9.7E-06	HAP
	cis-2-Butene	590-18-1	56.1	0.3100%	8.1E-04	
	trans-2-Butene	624-64-6	56.1	0.3600%	9.4E-04	
	2-Methyl-1-butene	563-46-2	70.1	0.5400%	1.4E-03	
	2-Methyl-2-butene	513-35-9	70.1	1.1000%	2.9E-03	
	cis-2-Pentene	627-20-3	70.1	0.3900%	1.0E-03	
	trans-2-Pentene	646-04-8	70.1	0.7200%	1.9E-03	
Alkyl-Monoaromatics	Benzene	71-43-2	78.1	1.9000%	5.0E-03	HAP
	Toluene	108-88-3	92.1	8.1000%	2.1E-02	HAP
	Ethylbenzene	100-41-4	106.2	1.7000%	4.4E-03	HAP
	m-Xylene	108-38-3	106.2	4.6000%	1.2E-02	HAP
	o-Xylene	95-47-6	106.2	2.5000%	6.5E-03	HAP
	p-Xylene	106-42-3	106.2	1.9000%	5.0E-03	HAP
	1,2,4-Trimethylbenzene	95-63-6	120.2	3.0000%	7.8E-03	
	1,3,5-Trimethylbenzene	108-67-8	120.2	0.9800%	2.6E-03	
	1-Methyl-2-ethylbenzene	611-14-3	120.2	0.7100%	1.9E-03	
	1-Methyl-3-ethylbenzene	620-14-4	120.2	1.8000%	4.7E-03	
	1-Methyl-4-ethylbenzene	622-96-8	120.2	0.8000%	2.1E-03	
Branched Alkanes	Isobutane	75-28-5	58.1	1.7000%	4.4E-03	
	Isopentane	78-78-4	72.1	7.9000%	2.1E-02	
	2,2-Dimethylbutane	75-83-2	86.2	0.4900%	1.3E-03	
	2,3-Dimethylbutane	79-29-8	86.2	1.0000%	2.6E-03	
	2-Methylpentane	107-83-5	86.2	3.9000%	1.0E-02	
	3-Methylpentane	96-14-0	86.2	2.5000%	6.5E-03	
	2,4-Dimethylpentane	108-08-7	100.2	0.8300%	2.2E-03	
	2-Methylhexane	591-76-4	100.2	3.0000%	7.8E-03	
	3-Methylhexane	589-34-4	100.2	1.7000%	4.4E-03	
	2,2,4-Trimethylpentane	540-84-1	114.2	2.4000%	6.3E-03	HAP
	2,3,3-Trimethylpentane	560-21-4	114.2	0.6600%	1.7E-03	
	2,3,4-Trimethylpentane	565-75-3	114.2	0.9700%	2.5E-03	
	2,3-Dimethylhexane	584-94-1	114.2	0.3900%	1.0E-03	
	2,4-Dimethylhexane	589-43-5	114.2	0.4400%	1.2E-03	
	3-Methylheptane	589-81-1	114.2	0.7500%	2.0E-03	
Cycloalkanes	Cyclopentane	287-92-3	70.1	0.4700%	1.2E-03	
	Cyclohexane	110-82-7	84.2	0.3900%	1.0E-03	
	Methylcyclopentane	96-37-7	84.2	1.8000%	4.7E-03	
	Methylcyclohexane	108-87-2	98.2	0.5800%	1.5E-03	
n-Alkanes	n-Butane	106-97-8	58.1	4.7000%	1.2E-02	
	n-Pentane	109-66-0	72.1	3.9000%	1.0E-02	
	n-Hexane	110-54-3	86.2	2.4000%	6.3E-03	HAP
	n-Heptane	142-82-5	100.2	1.1000%	2.9E-03	
	Naphthalene	91-20-3	128.2	0.2500%	6.5E-04	HAP
	1-Methylnaphthalene	90-12-0	142.2	0.0700%	1.8E-04	
	2-Methylnaphthalene	91-57-6	142.2	0.1800%	4.7E-04	
Oxygenates	Methyl-tert-butyl ether	1634-04-4	88.1	0.3300%	8.6E-04	HAP
	Total			76.21%		

*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	9.7E-06
Benzene	5.0E-03
Toluene	0.02
Ethylbenzene	4.4E-03
m-Xylene	0.01
o-Xylene	6.5E-03
p-Xylene	5.0E-03
2,2,4-Trimethylpentane	6.3E-03
n-Hexane	6.3E-03
Naphthalene	6.5E-04
Methyl-tert-butyl ether	8.6E-04

Total PTE of HAPs (tons/yr)	0.07
PTE of Worst Case HAP (tons/yr)	0.02

METHODOLOGY:

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