



Joseph E. Kernan  
Governor

Lori F. Kaplan  
Commissioner

August 24, 2004

100 North Senate Avenue  
P.O. Box 6015  
Indianapolis, Indiana 46206-6015  
(317) 232-8603  
(800) 451-6027  
www.in.gov/idem

TO: Interested Parties / Applicant

RE: Speedway SuperAmerica LLC / 089-19381-00491

FROM: Paul Dubenetzky  
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 9/16/03



# INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

*We make Indiana a cleaner, healthier place to live.*

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August 24, 2004

Mr. Kevin Lepak  
Speedway SuperAmerica LLC  
28001 Citrin Drive  
Romulus, Michigan 48174-2630

Dear Mr. Lepak:

Re: Exempt Construction and Operation Status,  
**089-19381-00491**

The application from Speedway Station #8333, received on July 22, 2004, 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 750 South Lake Street, Gary, Indiana is classified as exempt from air pollution permit requirements:

One (1) Dual Phase Extraction (DPE) system (soil vapor extraction, groundwater pump-and-treat, and groundwater air sparging) with a maximum combined exhaust flow rate estimated at 37 cubic feet per minute (cfm). It is anticipated that the groundwater pump-and-treat process will not be used for remediation at this site. The DPE system is also equipped with one (1) catalytic oxidation system for the oxidative destruction of volatile organic compounds in the extracted vapors.

The following condition 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:
  - (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 15 minutes (60 readings) in a 6-hour period 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) Any change or modification that may increase the potential to emit of Volatile Organic Compounds (VOCs) or a combination of hazardous air pollutants (HAPs) to 25 tons per year or greater, or that of individual HAP to 10 tons per year or greater, shall require prior approval of the Office of Air Quality

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.

Sincerely,

Original signed by Paul Dubenetzky

Paul Dubenetzky, Chief  
Permits Branch  
Office of Air Quality

NCB

cc: File - Lake County  
Lake County Health Department  
Air Compliance - Rick Massoels / Ramesh Tejuja  
Northwest Regional Office

Monaco Coach Corporation  
Elkhart, Indiana  
Permit Reviewer: NCB

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OP No. T 039-7511-00182

Permit Tracking  
Technical Support and Modeling - Michele Boner  
Compliance Data Section - Karen Nowak

# Indiana Department of Environmental Management Office of Air Quality

## Technical Support Document (TSD) for an Exemption

### Source Background and Description

**Source Name:** Speedway Station #8333  
**Source Location:** 750 South Lake Street, Gary, Indiana 46403  
**County:** Lake County  
**SIC Code:** 5541  
**Exemption No.:** 089-19381-00491  
**Permit Reviewer:** Nathan C. Bell

The Office of Air Quality (OAQ) has reviewed an application from Speedway Station #8333 relating to the construction and operation of a stationary Dual Phase Extraction system facility.

### Emission Units and Pollution Control Equipment

The source consists of one (1) Dual Phase Extraction (DPE) system (soil vapor extraction, groundwater pump-and-treat, and groundwater air sparging) with a combined exhaust flow rate estimated at 34.5 cubic feet per minute (cfm). It is not anticipated that the groundwater pump-and-treat process of the DPE system will be used for remediation at this site.

### 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 on July 22, 2004.

Additional information was provided by NESAs & Associates, Inc. via phone conversations on August 12, 2004 and August 16, 2004. During the phone conversation, NESAs & Associates, Inc. clarified the following: (a) data sets included with application represented total organic vapor measurements of contaminated soil gases generated from only air sparging and soil vapor extraction processes; (b) the two data sets represented data from two separate Pilot Tests; (c) NESAs & Associates, Inc did not anticipate that the groundwater pump-and-treat process of the DPE system had been used or was to be used for future remediation at this site; (d) catalytic oxidation had been used and was to be used to treat exhaust gases from the DPE system during remediation; and (e) NESAs & Associates, Inc did not anticipate that the exhaust flow rate from air sparging and soil vapor extraction would exceed 37 cubic feet per minute (cfm).

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

### Emission Calculations

#### Dual Phase Extraction System:

The DPE system includes soil vapor extraction (SVE), groundwater pump-and-treat (air-stripper),

and groundwater air sparging. SVE removes residual and vapor phase 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. It is not anticipated that the groundwater pump-and-treat process of the DPE system will be used for remediation at this site. Air sparging (AS) is an in situ remedial technology that reduces concentrations of VOCs that are adsorbed to soils and/or dissolved in groundwater. involves the injection of contaminant-free air into the subsurface saturated zone, enabling a phase transfer of hydrocarbons from a dissolved state to a vapor phase. The air is then vented through the unsaturated zone and is usually coupled with SVE.

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

Based on the information provided by the source, subsurface contamination at this site consists of unleaded gasoline. The emission rates (ER) for total VOCs was calculated for this system as follows:

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

where

$$c = \frac{(R) * (T)}{(P)}$$

- ER = Emission Rate in pounds per year (tons/yr)
- C = Exhaust gas concentration in parts per million by volume (ppmv)
- MW = Molecular Weight in g/mol of VOC
- Q = 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 20 degrees Celsius = 293.15 K)
- P = Atmospheric pressure (assumed 1 atm)

Using the above equation, the PTE value for VOCs removed from the soil and groundwater by the system is calculated to be:

- Maximum air concentration = 750 ppmv (provided by source)
- Maximum air flow rate = 37 cfm (provided by source)
- Average Molecular Weight of gasoline = 86 g/mol

**PTE of VOCs = 1.63 tons per year**

To determine constituent specific emissions from the system exhaust, it was assumed that the unleaded gasoline at this site had an average composition as that presented in "Total Petroleum Hydrocarbon Criteria Working Group Series, Volume 2. Composition of Petroleum Mixtures." Based on a total organic vapor concentration of 750 ppmv and exhaust flow rate of 34.5 cfm (provided by source), the emission rates (ER) for each of the constituents were calculated using the above equation (see table). Those constituents that are categorized as Hazardous Air Pollutants (HAPs) are denoted with "HAP" in the table below.

Compound Class	Compound	CAS#	Molecular Weight (g/mol)	Average Composition (% wt) <sup>1</sup>	Emission Rate (tons/yr)	Hazardous Air Pollutant
Alkenes	Total Alkenes			10.00		
	1,3-Butadiene	106-99-0	54.09	0.004	3.8E-05	HAP
	cis-2-Butene	590-18-1	56.11	0.31	3.3E-03	
	trans-2-Butene	624-64-6	56.11	0.36	3.8E-03	
	2-Methyl-1-butene	563-46-2	70.13	0.54	7.2E-03	
	2-Methyl-2-butene	513-35-9	70.13	1.10	1.5E-02	
	cis-2-Pentene	627-20-3	70.13	0.39	5.2E-03	
	trans-2-Pentene	646-04-8	70.13	0.72	9.6E-03	
Alkyl-Monoaromatics	Benzene	71-43-2	78.11	1.90	2.8E-02	HAP
	Toluene	108-88-3	92.14	8.10	1.4E-01	HAP
	Ethylbenzene	100-41-4	106.2	1.70	3.4E-02	HAP
	m-Xylene	108-38-3	106.2	4.60	9.2E-02	HAP
	o-Xylene	95-47-6	106.2	2.50	5.0E-02	HAP
	p-Xylene	106-42-3	106.2	1.90	3.8E-02	HAP
	1,2,4-Trimethylbenzene	95-63-6	120.2	3.00	6.8E-02	
	1,3,5-Trimethylbenzene	108-67-8	120.2	0.98	2.2E-02	
	1-Methyl-2-ethylbenzene	611-14-3	120.2	0.71	1.6E-02	
	1-Methyl-3-ethylbenzene	620-14-4	120.2	1.80	4.1E-02	
	1-Methyl-4-ethylbenzene	622-96-8	120.2	0.80	1.8E-02	
Branched Alkanes	Isobutane	75-28-5	58.12	1.70	1.9E-02	
	Isopentane	78-78-4	72.15	7.90	1.1E-01	
	2,2-Dimethylbutane	75-83-2	86.18	0.49	8.0E-03	
	2,3-Dimethylbutane	79-29-8	86.18	1.00	1.6E-02	
	2-Methylpentane	107-83-5	86.18	3.90	6.4E-02	
	3-Methylpentane	96-14-0	86.18	2.50	4.1E-02	
	2,4-Dimethylpentane	108-08-7	100.2	0.83	1.6E-02	
	2-Methylhexane	591-76-4	100.2	3.00	5.7E-02	
	3-Methylhexane	589-34-4	100.2	1.70	3.2E-02	
	2,2,4-Trimethylpentane	540-84-1	114.2	2.40	5.2E-02	HAP
	2,3,3-Trimethylpentane	560-21-4	114.2	0.66	1.4E-02	
	2,3,4-Trimethylpentane	565-75-3	114.2	0.97	2.1E-02	
	2,3-Dimethylhexane	584-94-1	114.2	0.39	8.4E-03	
	2,4-Dimethylhexane	589-43-5	114.2	0.44	9.5E-03	
	3-Methylheptane	589-81-1	114.2	0.75	1.6E-02	
Cycloalkanes	Cyclopentane	287-92-3	70.13	0.47	6.2E-03	
	Cyclohexane	110-82-7	84.16	0.39	6.2E-03	
	Methylcyclopentane	96-37-7	84.16	1.80	2.9E-02	
	Methylcyclohexane	108-87-2	98.19	0.58	1.1E-02	
n-Alkanes	n-Butane	106-97-8	58.12	4.70	5.2E-02	
	n-Pentane	109-66-0	72.15	3.90	5.3E-02	
	n-Hexane	110-54-3	86.18	2.40	3.9E-02	HAP
	n-Heptane	142-82-5	100.2	1.10	2.1E-02	
Naphthalenes	Total Naphthalenes			5.80		
	Naphthalene	91-20-3	128.2	0.25	6.1E-03	HAP
	1-Methylnaphthalene	90-12-0	142.2	0.07	1.9E-03	
	2-Methylnaphthalene	91-57-6	142.2	0.18	4.8E-03	
Oxygenates	Methyl-tert-butylether	1634-04-4	88.15	0.33	5.5E-03	HAP

Compound Class	Compound	CAS#	Molecular Weight (g/mol)	Average Composition (% wt) <sup>1</sup>	Emission Rate (tons/yr)	Hazardous Air Pollutant
Total Aromatics	Total Aromatics			35.00		
Total Monoaromatics	Total Benzene, Toluene, & Xylenes			19.00		
Total Straight-Chain & Branched Alkanes	Total Straight-Chain & Branched Alkanes			47.00		

<sup>1</sup>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/tph.htm>

### 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
PM-10	Negligible
SO <sub>2</sub>	Negligible
VOC	1.63
CO	Negligible
NO <sub>x</sub>	Negligible

HAP's	Potential To Emit (tons/year)
1,3-Butadiene	Negligible
Benzene	0.028
Toluene	0.140
Ethylbenzene	0.034
m-Xylene	0.092
o-Xylene	0.050
p-Xylene	0.038
2,2,4-Trimethylpentane	0.052
n-Hexane	0.039
Naphthalene	0.006
Methyl-tert-butyl ether	0.006
<b>TOTAL</b>	<b>0.49</b>

- (a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of 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 2-7-1(29)) of any single HAP is less than ten (10) tons per year and/or the potential to emit (as defined in 326 IAC 2-7-1(29)) 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 Lake County.

Pollutant	Status
PM-10	attainment
SO <sub>2</sub>	primary nonattainment
NO <sub>2</sub>	unclassifiable
1-hour Ozone	severe nonattainment
8-hour Ozone	moderate nonattainment
CO	maintenance attainment
Lead	attainment

- (a) Volatile organic compounds (VOC) and Nitrogen Oxides (NO<sub>x</sub>) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone.
- (1) On January 28, 1996 in 40 CFR 52.777(i), the U.S. EPA granted a waiver of the requirements of Section 182(f) of the CAA for Lake and Porter Counties, including the lower NO<sub>x</sub> threshold for nonattainment new source review. Therefore, VOC emissions alone are considered when evaluating the rule applicability relating to the 1-hour ozone standard. Lake County has been designated as nonattainment in Indiana for the 1-hour ozone standard. Therefore, VOC emissions were reviewed pursuant to the requirements for Emission Offset, 326 IAC 2-3. See the State Rule Applicability for the source section.
- (2) VOC and NO<sub>x</sub> emissions are considered when evaluating the rule applicability relating to the 8-hour ozone standard. Lake County has been designated as nonattainment for the 8-hour ozone standard. Therefore, VOC and NO<sub>x</sub> emissions were reviewed pursuant to the requirements for nonattainment new source review.
- (c) Lake County has been classified as attainment in Indiana for PM-10, CO, and Lead. 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) Lake County has been classified as nonattainment in Indiana for SO<sub>2</sub>. Therefore, SO<sub>2</sub> emissions were reviewed pursuant to the requirements for Emission Offset, 326 IAC 2-3. See the State Rule Applicability for the source section.

### Source Status

New Source PSD 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 <sub>2</sub>	Negligible
VOC	1.63
CO	Negligible
NO <sub>x</sub>	Negligible
Single HAP	0.14
Combination HAPs	0.49

- (a) This new source is not a major stationary source because no attainment 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, pursuant to 326 IAC 2-2, the PSD requirements do not apply.
- (b) This new source is not a major stationary source because VOC is not emitted at a rate of 25 tons per year or greater. Therefore, pursuant to 326 IAC 2-3, the Emission Offset requirements 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 permit for this source.
- (b) There are no National Emission Standards for Hazardous Air Pollutants (NESHAP)(326 IAC 14, 20 and 40 CFR Part 61, 63) included in the permit for this source.
- (c) This source is not subject to the requirements of 40 CFR 63, Subpart GGGGG-National Emission Standards for Site Remediation because this source is not a major source of hazardous air pollutants as defined in 40 CFR 63.2.

### **State Rule Applicability - Entire Source**

#### **326 IAC 2-3 (Emission Offset)**

This source, located in Lake County, which is classified as severe nonattainment for 1-hour ozone and moderate nonattainment for 8-hour ozone, is not a major source of VOCs. Therefore, 326 IAC 2-3 does not apply.

#### **326 IAC 2-6 (Emission Reporting)**

This source is located in Lake County and the potential to emit of VOC and NOx are less than twenty five (25) tons per year and that of all other criteria pollutants are less than one hundred (100) tons per year. Therefore, 326 IAC 2-6 does not apply.

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

The operation of this remediation unit at the source will emit less than 10 tons per year of a single HAP or 25 tons per year of a combination of HAPs. Therefore, 326 IAC 2-4.1 does not apply.

#### **326 IAC 5-1 (Opacity Limitations)**

This source is located in the portion of Lake County noted in 326 IAC 5-1-1(c)(4).

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 twenty percent (20%) any one (1) six (6) minute averaging period unless otherwise specified in 326 IAC 6-1-10.1.
- (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 8-7-2 (Specific VOC Reduction Requirements for Lake, Porter, Clark, and Floyd Counties)

The potential to emit of VOCs at this source, located in Lake County, is less than the applicability threshold of 25 tons per year. Therefore, 326 IAC 8-7-2 does not apply.

326 IAC 6-1 (Nonattainment Area Limitations)

Since the source does not have the potential to emit greater than 100 tons per year of particulate matter, or actual emissions of greater than 10 tons per year of particulate matter, and it is not one of the sources listed in 326 IAC 6-1-12, 326 IAC 6-1 does not apply.

326 IAC 7-1.1-1 (Sulfur Dioxide Emission Limitations)

This rule does not apply to this source because the potential to emit is less than twenty-five (25) tons per year or ten (10) pounds per hour of Sulfur Dioxide.

**State Rule Applicability - Individual Facilities**

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

The VOC potential to emit of the remediation system are each less than the applicability threshold of 25 tons per year. Therefore, 326 IAC 8-1-6 does not apply.

**Conclusion**

The construction and operation of this Dual Phase Extraction System facility shall be subject to the conditions of the attached proposed Exemption No. 089-19381-00491.