

217/782-2113

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT -- REVISED

PERMITTEE

Hartford Working Group
c/o URS Corporation
Attn: Steve Shroff
1001 Highlands Plaza Drive West, Suite 300
St. Louis, Missouri 63110

Application No.: 06050038

I.D. No.: 119050AAS

Applicant's Designation:

Date Received: November 24, 2008

Subject: Vacuum Extraction Systems

Date Issued: February 3, 2009

Expiration Date: February 27, 2013

Location: 201 East Hawthorne, Hartford, Madison County, 62048

This permit is hereby granted to the above-designated Permittee to OPERATE emission source(s) and/or air pollution control equipment consisting of four (4) vacuum extraction systems including vacuum blowers, thermal oxidizers and ancillary equipment, one (1) 15,000 gallon condensate collection tank, one (1) 1,000 gallon condensate separator tank, one (1) 100 gallon/oil water separator, two (2) 1,000 gallon LNAPL storage tanks with carbon canisters, and four (4) 21,000 gallon frac tanks pursuant to the above referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

- 1a. This federally enforceable state operating permit is issued to limit the emissions of air pollutants from the source to less than major source thresholds (i.e., 100 tons/year of Volatile Organic Material (VOM), and 10 tons/year for a single HAP and 25 tons/year of any combination of such HAPs). As a result, the source is excluded from the requirements to obtain a Clean Air Act Permit Program (CAAPP) permit. The maximum emissions of this source, as limited by the conditions of this permit are described in Attachment A.
- b. Prior to initial issuance, a draft of this permit has undergone a public notice and comment period.
- c. This permit supersedes all operating permit(s) for this location.
- 2a. Pursuant to 35 Ill. Adm. Code 212.123(a), no person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to 35 Ill. Adm. Code 212.122.
- b. Pursuant to 35 Ill. Adm. Code 212.123(b), the emission of smoke or other particulate matter from any such emission unit may have an opacity greater than 30 percent but not greater than 60 percent for a period or periods aggregating 8 minutes in any 60 minute period provided that such opaque emissions permitted during any 60 minute

period shall occur from only one such emission unit located within a 305 m (1000 ft) radius from the center point of any other such emission unit owned or operated by such person, and provided further that such opaque emissions permitted from each such emission unit shall be limited to 3 times in any 24 hour period.

- c. Pursuant to 35 Ill. Adm. Code 212.321(a), no person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit which, either alone or in combination with the emission of particulate matter from all other similar process emission units for which construction or modification commenced on or after April 14, 1972, at a source or premises, exceeds the allowable emission rates specified in 35 Ill. Adm. Code 212.321(c).
- 3. Pursuant to 35 Ill. Adm. Code 214.301, no person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission source to exceed 2000 ppm.
- 4a. Pursuant to 35 Ill. Adm. Code 219.122(a), no person shall cause or allow the discharge of more than 3.6 kg/hour (8 lbs/hour) of organic material into the atmosphere during the loading of any organic material from the aggregate loading pipes of any loading area having through-put of greater than 151 cubic meters per day (40,000 gallons/day) into any railroad tank car, tank truck or trailer unless such loading area is equipped with submerged loading pipes or a device that is equally effective in controlling emissions and is approved by the Illinois EPA according to the provisions of 35 Ill. Adm. Code 201, and further processed consistent with 35 Ill. Adm. Code 219.108.
- b. Pursuant to 35 Ill. Adm. Code 219.122(b), no person shall cause or allow the loading of any organic material into any stationary tank having a storage capacity of greater than 946 liters (250 gallons), unless such tank is equipped with a permanent submerged loading pipe or an equivalent device approved by the Illinois EPA according to the provisions of 35 Ill. Adm. Code 201, and further processed consistent with 35 Ill. Adm. Code 219.108, or unless such tank is a pressure tank as described in 35 Ill. Adm. Code 219.121(a) or is fitted with a recovery system as described in 35 Ill. Adm. Code 219.121(b)(2).
- c. Pursuant to 35 Ill. Adm. Code 219.141(a), no person shall use any single or multiple compartment effluent water separator which receives effluent water containing 757 liters/day (200 gallons/day) or more of organic material from any equipment processing, refining, treating, storing or handling organic material unless such effluent water separator is equipped with air pollution control equipment capable of reducing by 85 percent or more the uncontrolled organic material emitted to the atmosphere. Exception: If no odor nuisance exists the limitations of this subsection shall not apply if the vapor pressure of the organic material is below 17.24 kPa (2.5 psia) at 294.3°K (70°F).
- d. Pursuant to 35 Ill. Adm. Code 219.301, no person shall cause or allow the discharge of more than 3.6 kg/hour (8 lbs/hour) of organic material

into the atmosphere from any emission unit, except as provided in 35 Ill. Adm. Code 219.302, 219.303, 219.304 and the following exception: If no odor nuisance exists the limitation of 35 Ill. Adm. Code 219 Subpart G shall apply only to photochemically reactive material.

- e. Pursuant to 35 Ill. Adm. Code 219.986, every owner or operator of an emission unit subject to 35 Ill. Adm. Code 219 Subpart TT shall comply with the requirements of 35 Ill. Adm. Code 219.989(a), (b), (c), (d), or (e) below:
 - i. Emission capture and control equipment which achieve an overall reduction in uncontrolled VOM emissions of at least 81 percent from each emission unit, or
 - ii. Any leaks from components subject to the control requirements of 35 Ill. Adm. Code 219 Subpart TT shall be subject to the following control measures by March 15, 1995:

Repair any component from which a leak of VOL can be observed. The repair shall be completed as soon as practicable but no later than 15 days after the leak is found, unless the leaking component cannot be repaired until the next process unit shutdown, in which case the leaking component must be repaired before the unit is restarted.
- 5. This permit is issued based upon this source not being subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Site Remediation, 40 CFR Part 63 Subpart GGGGG. Pursuant to 40 CFR 63.7881(b)(3), you are not subject to 40 CFR 63 Subpart GGGGG if your site remediation will be performed under a Resource Conservation and Recovery Act (RCRA) corrective action conducted at a treatment, storage and disposal facility (TSDF) that is either required by your permit issued by either the U.S. Environmental Protection Agency (EPA) or a State program authorized by the EPA under RCRA section 3006; required by orders authorized under RCRA; or required by orders authorized under RCRA Section 7003.
- 6. Pursuant to 35 Ill. Adm. Code 219.122(c), if no odor nuisance exists the limitations of 35 Ill. Adm. Code 219.122 shall only apply to the loading of VOL with a vapor pressure of 17.24 kPa (2.5 psia) or greater at 294.3°K (70°F).
- 7a. In the event that the operation of this source results in an odor nuisance, the Permittee shall take appropriate and necessary actions to minimize odors, including but not limited to, changes in raw material or installation of controls, in order to eliminate the odor nuisance.
- b. The Permittee shall, in accordance with the manufacturer(s) and/or vendor(s) recommendations, perform periodic maintenance on the thermal oxidizers and the carbon canisters such that the thermal oxidizers and the carbon canisters are kept in proper working condition and not cause

a violation of the Illinois Environmental Protection Act or regulations promulgated therein.

- c. The thermal oxidizers shall be in operation at all times when the affected units are in operation and emitting air contaminants.
 - d. Each thermal oxidizer combustion chamber shall be preheated to at least the manufacturer's recommended temperature but no less than the temperature at which compliance was demonstrated in the most recent compliance test, or 1400°F in the absence of a compliance test. This temperature shall be maintained during operation.
 - e. Natural gas shall be the only fuel fired in the thermal oxidizers.
 - f. The maximum process gas flow rate from the well field to all four thermal oxidizers shall not exceed a total 4,000 scfm.
- 8a. Emissions and operation of all thermal oxidizers sources shall not exceed the following limits:

<u>Material</u>	<u>(mmscf/Mo)</u>	<u>(mmscf/Yr)</u>	<u>Pollutant</u>	<u>Emission</u>	<u>Emissions</u>	
				<u>Factor</u>	<u>(T/Mo)</u>	<u>(T/Yr)</u>
				<u>(Lbs/mmscf)</u>		
Natural Gas	31	310	NO _x	100	1.56	15.6
			CO	84	1.30	13.0
			PM	7.6	0.12	1.2
			SO ₂	0.6	0.01	0.1
			VOM	5.5	0.09	0.9

These limits are based on the maximum fuel usage, and Standard emission factors (Tables 1.4-1 and 1.4-2, AP-42, Fifth Edition, Volume I, Supplement D, July 1998).

- b. Emissions of volatile organic material and operation of the vacuum extraction systems shall not exceed the following limits:

<u>VOM Emissions</u>	
<u>(Tons/Month)</u>	<u>(Tons/Year)</u>
1.77	17.7

Compliance with the VOM emission limit in this Condition shall be based on the following equations:

$$ER = Q \times C \times MW \times 1.581 \times 10^{-7} \times (1 - OE/100)$$

Where:

ER = Emission rate (lbs/hour);

Q = Pumping rate (cfm);

C = VOM concentration (ppm-v);

MW = Molecular weight of VOM (lbs/lb-mole);

OE = Overall control efficiency; and

$$\text{ppm-v} = C \times (RT/P) \times (1/MW) \times 1000 \text{ liters/m}^3$$

Where:

C = Concentration ($\mu\text{g/liter}$);

R = Gas constant ($0.06236 \text{ (mm Hg m}^3\text{)/(mole K)}$);

T = Temperature (K);

P = Atmospheric pressure (mm Hg);

MW = Molecular weight of contaminant; and

OE = Overall control efficiency.

- c. Emissions of volatile organic material, and HAP (hexane) from the truck loading system shall not exceed the following limits:

Throughput		VOM Emissions			Total HAP Emissions		
(Gal/Mo)	(Gal/Yr)	(lb/10 ³ gal)	(Ton/Mo)	(Ton/Yr)	(lb/10 ³ gal)	(Ton/Mo)	(Ton/Yr)
262,800	2,628,000	6.78	0.89	8.91	1.35	0.18	1.78

These limits are based on the maximum loading system throughput and the standard emission factors and estimation procedures (Section 5.2-4, AP-42, Fifth Edition, Volume I, July 2008) below:

$$E = M \times L / 2,000 \times 1.3$$

Where:

E = Emissions in tons;

M = throughput in 1,000 gallons;

L = Loading loss rate (lbs/1,000 gallons throughput);

$$L = 12.46 \times \text{SPM/T}$$

Where:

S = Saturation Factor;

P = Vapor Pressure of Liquid Loaded (psia);

M = Molecular Weight of Liquid Loaded (lbs/lb-mole); and

T = Temperature of Liquid Loaded (R).

- d. Emissions and operation of the two (2) 1,000 gallon LNAPL storage tanks with carbon canisters shall not exceed the following:

Throughput (each tank)		Emissions (Total For Both Tanks)			
<u>(Gal/Mo)</u>	<u>(Gal/Yr)</u>	VOM		Total HAPs	
		<u>(Tons/Mo)</u>	<u>(Tons/Yr)</u>	<u>(Tons/Mo)</u>	<u>(Tons/Yr)</u>
131,400	1,314,000	0.05	0.46	0.01	0.09

These limits are based on maximum material through and standard emission estimation formulas and factors (Section 7.1, AP 42, Fifth Edition, Volume I November 2006) or the TANKS Emissions Estimation Software (Version 4.09D, October 3, 2005).

- e. This permit is issued based on negligible emissions of volatile organic material from the 15,000 gallon condensate collection tank, the 1,000 gallon condensate separator tank, the 100 gallon oil/water separator, and the four 21,000 gallon frac tanks. For this purpose emissions from each emission source, shall not exceed nominal emission rates of 0.1 lbs/hour and 0.44 tons/year.
- f. The emissions of Hazardous Air Pollutants (HAPs) as listed in Section 112(b) of the Clean Air Act from this source shall not exceed 0.79 tons/month and 7.9 tons/year of any single HAP and 1.99 tons/month and 19.9 tons/year of any combination of such HAPs. As a result of this condition, this permit is issued based on the emissions of any HAP from this source not triggering the requirement to obtain a CAAPP permit from the Illinois EPA and the requirements of Section 112(g) of the Clean Air Act.
- g. Compliance with the annual limits of this permit shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 months total).
- 9a. Pursuant to 35 Ill. Adm. Code 201.282, every emission source or air pollution control equipment shall be subject to the following testing requirements for the purpose of determining the nature and quantities of specified air contaminant emissions and for the purpose of determining ground level and ambient air concentrations of such air contaminants:
- i. Testing by Owner or Operator. The Illinois EPA may require the owner or operator of the emission source or air pollution control equipment to conduct such tests in accordance with procedures adopted by the Illinois EPA, at such reasonable times as may be specified by the Illinois EPA and at the expense of the owner or operator of the emission source or air pollution control equipment. The Illinois EPA may adopt procedures detailing

methods of testing and formats for reporting results of testing. Such procedures and revisions thereto, shall not become effective until filed with the Secretary of State, as required by the APA Act. All such tests shall be made by or under the direction of a person qualified by training and/or experience in the field of air pollution testing. The Illinois EPA shall have the right to observe all aspects of such tests.

- ii. Testing by the Illinois EPA. The Illinois EPA shall have the right to conduct such tests at any time at its own expense. Upon request of the Illinois EPA, the owner or operator of the emission source or air pollution control equipment shall provide, without charge to the Illinois EPA, necessary holes in stacks or ducts and other safe and proper testing facilities, including scaffolding, but excluding instruments and sensing devices, as may be necessary.
 - b. Testing required by Conditions 10 and 11 shall be performed upon a written request from the Illinois EPA by a qualified independent testing service.
10. Pursuant to 35 Ill. Adm. Code 212.110(c), upon a written notification by the Illinois EPA, the owner or operator of a particulate matter emission unit subject to 35 Ill. Adm. Code Part 212 shall conduct the applicable testing for particulate matter emissions, opacity, or visible emissions at such person's own expense, to demonstrate compliance. Such test results shall be submitted to the Illinois EPA within thirty (30) days after conducting the test unless an alternative time for submittal is agreed to by the Illinois EPA.
 11. Pursuant to 219.988(a), when in the opinion of the Illinois EPA it is necessary to conduct testing to demonstrate compliance with 35 Ill. Adm. Code 219.986, the owner or operator of a VOM emission unit subject to the requirements of 35 Ill. Adm. Code 219 Subpart TT shall, at his own expense, conduct such tests in accordance with the applicable test methods and procedures specified in 35 Ill. Adm. Code 219.105.
 12. Pursuant to 35 Ill. Adm. Code 219.105(d)(2)(A), an owner or operator that uses an afterburner or carbon adsorber to comply with any Section of 35 Ill. Adm. Code Part 219 shall use Illinois EPA and USEPA approved continuous monitoring equipment which shall be installed, calibrated, maintained, and operated according to vendor specifications at all times the afterburner is in use except as provided in 35 Ill. Adm. Code 219.105(d)(3). The continuous monitoring equipment must monitor for each afterburner which does not have a catalyst bed, the combustion chamber temperature of each afterburner.
 13. Pursuant to 40 CFR 63.10(b)(3), if an owner or operator determines that his or her stationary source that emits (or has the potential to emit, without considering controls) one or more hazardous air pollutants regulated by any standard established pursuant to section 112(d) or (f) of the Clean Air Act, and that stationary source is in the source

category regulated by the relevant standard, but that source is not subject to the relevant standard (or other requirement established under 40 CFR Part 63) because of limitations on the source's potential to emit or an exclusion, the owner or operator must keep a record of the applicability determination on site at the source for a period of 5 years after the determination, or until the source changes its operations to become an affected source, whichever comes first. The record of the applicability determination must be signed by the person making the determination and include an analysis (or other information) that demonstrates why the owner or operator believes the source is unaffected (e.g., because the source is an area source). The analysis (or other information) must be sufficiently detailed to allow the USEPA and/or Illinois EPA to make a finding about the source's applicability status with regard to the relevant standard or other requirement. If relevant, the analysis must be performed in accordance with requirements established in relevant subparts of 40 CFR Part 63 for this purpose for particular categories of stationary sources. If relevant, the analysis should be performed in accordance with USEPA guidance materials published to assist sources in making applicability determinations under Section 112 of the Clean Air Act, if any. The requirements to determine applicability of a standard under 40 CFR 63.1(b)(3) and to record the results of that determination under 40 CFR 63.10(b)(3) shall not by themselves create an obligation for the owner or operator to obtain a Title V permit.

14. Pursuant to 35 Ill. Adm. Code 212.110(e), the owner or operator of an emission unit subject to 35 Ill. Adm. Code Part 212 shall retain records of all tests which are performed. These records shall be retained for at least three (3) years after the date a test is performed.
- 15a. Pursuant to 35 Ill. Adm. Code 219.129(f), the owner or operator of each storage vessel specified in 35 Ill. Adm. Code 219.119 shall maintain readily accessible records of the dimension of the storage vessel and an analysis of the capacity of the storage vessel. Each storage vessel with a design capacity less than 40,000 gallons is subject to no provision of 35 Ill. Adm. Code Part 219 other than those required by maintaining readily accessible records of the dimensions of the storage vessel and analysis of the capacity of the storage vessel.
- b. Pursuant to 35 Ill. Adm. Code 219.986(e)(2), for any leak which cannot be readily repaired within one hour after detection, the following records, as set forth below in 35 Ill. Adm. Code 219.986(e), shall be kept. These records shall be maintained by the owner or operator for a minimum of two years after the date on which they are made. Copies of the records shall be made available to the Illinois EPA or USEPA upon verbal or written request.
 - i. The name and identification of the leaking component;
 - ii. The date and time the leak is detected;

- iii. The action taken to repair the leak; and
 - iv. The date and time the leak is repaired.
- c. Pursuant to 35 Ill. Adm. Code 219.991(a)(2), any owner or operator of a VOM emission unit which is subject to the requirements of 35 Ill. Adm. Code 219 Subpart PP, QQ, RR or TT and complying by the use of emission capture and control equipment shall collect and record all of the following information each day and maintain the information at the source for a period of three years:
- i. Control device monitoring data.
 - ii. A log of operating time for the capture system, control device, monitoring equipment and the associated emission source.
 - iii. A maintenance log for the capture system, control device and monitoring equipment detailing all routine and non-routine maintenance performed including dates and duration of any outages.
- 16a. The Permittee shall maintain records of the following items so as to demonstrate compliance with the conditions of this permit:
- i. Records addressing use of good operating practices for the thermal oxidizers and the carbon canisters:
 - A. Records for periodic inspection of the thermal oxidizers and the carbon canisters with date, individual performing the inspection, and nature of inspection; and
 - B. Records for prompt repair of defects, with identification and description of defect, effect on emissions, date identified, date repaired, and nature of repair.
 - ii. Maximum rated exhaust flow rate from each unit, as exhausted to an oxidizer (SCFM);
 - iii. Maximum VOM concentration in uncontrolled exhaust (ppm-v);
 - iv. Maximum rated burner capacity of each thermal oxidizer (mmBtu/hour);
 - v. Natural gas usage (therms or mmscf/month and therms or mmscf/year);
 - vi. Loading throughput (gallons/month and gallons/year); and
 - vii. Monthly and annual CO, NO_x, PM, SO₂, VOM and HAP emissions with supporting calculations (tons/month and tons/year).

- b. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least five (5) years from the date of entry and shall be made available for inspection and copying by the Illinois EPA or USEPA upon request. Any records retained in an electronic format (e.g., computer) shall be capable of being retrieved and printed on paper during normal source office hours so as to be able to respond to an Illinois EPA or USEPA request for records during the course of a source inspection.
- 17. Pursuant to 35 Ill. Adm. Code 212.110(d), a person planning to conduct testing for particulate matter emissions to demonstrate compliance shall give written notice to the Illinois EPA of that intent. Such notification shall be given at least thirty (30) days prior to the initiation of the test unless a shorter period is agreed to by the Illinois EPA. Such notification shall state the specific test methods from 35 Ill. Adm. Code 212.110 that will be used.
- 18. Pursuant to 35 Ill. Adm. Code 219.991(a)(3)(A) , any owner or operator of a VOM emission unit which is subject to the requirements of 35 Ill. Adm. Code 219 Subpart PP, QQ, RR or TT and complying by the use of emission capture and control equipment shall notify the Illinois EPA of any record showing a violation of the requirements of 35 Ill. Adm. Code 219 Subpart PP, QQ, RR or TT shall be reported by sending a copy of such record to the Illinois EPA within 30 days following the occurrence of the violation.
- 19a. If there is an exceedance of or deviation from the requirements of this permit as determined by the records required by this permit, the Permittee shall submit a report to the Illinois EPA's Compliance Section in Springfield, Illinois within 30 days after the exceedance or deviation. The report shall include the emissions released in accordance with the recordkeeping requirements, and a copy of the relevant records, and a description of the exceedance or deviation and efforts to reduce the emissions and future occurrences.
- b. Two (2) copies of required reports and notifications shall be sent to:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Compliance Section (#40)
P.O. Box 19276
Springfield, Illinois 62794-9276

and one (1) copy shall be sent to the Illinois EPA's regional office at the following address unless otherwise indicated:

Illinois Environmental Protection Agency
Division of Air Pollution Control
2009 Mall Street
Collinsville, Illinois 62234

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It should be noted that this permit has been revised to incorporate Construction Permit # 08110040.

If you have any questions on this permit, please call George Kennedy at 217/782-2113.

Edwin C. Bakowski, P.E.
Manager, Permit Section
Division of Air Pollution Control

Date Signed: _____

ECB:GMK:psj

cc: IEPA, FOS Region 3
Lotus Notes

Attachment A

This attachment provides a summary of the maximum emission for the Hartford Working Group operating in compliance with the requirements of this federally enforceable permit. In preparing this summary, the Illinois EPA used the annual operating scenario which results in maximum emissions from such a plant. The resulting maximum emissions are below the levels (i.e., 100 tons/year for volatile organic material (VOM) 10 tons per year for a single HAP, and 25 tons per year for any combination of such HAP) at which this facility would be considered a major source for purposes of the Clean Air Act Permit Program. Actual emissions from this source will be less than predicted in this summary to the extent that less material is handled, and control measures are more effective than required in this permit.

<u>Emission Unit</u>	E M I S S I O N S (Tons/Year)					Single	Total
	<u>NO_x</u>	<u>CO</u>	<u>PM</u>	<u>SO₂</u>	<u>VOM</u>	<u>HAP</u>	<u>HAPs</u>
Thermal Oxidizers	15.6	12.8	1.2	0.1	0.90		
Vacuum Extraction Systems					17.70		
Truck loading					8.91		1.78
2 LNAPL storage tanks					0.46		0.09
Condensate Collection Tank					0.44		
Condensate Separator Tank					0.44		
Oil/Water Separator					0.44		
4 Frac Tanks	----	----	----	----	1.76	----	----
Totals:	15.6	12.8	1.2	0.1	31.05	7.9	19.9

GMK:psj