

217/782-2113

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT - REVISED

PERMITTEE

Hamilton Sundstrand  
Attn: Grant Bush  
4747 Harrison Avenue  
Rockford, Illinois 61125-7002

Application No.: 73100101  
Applicant's Designation: DURROOL  
Subject: Aerospace Equipment Manufacturing  
Date Issued: December 16, 2005  
Location: 2421-11th Street, Rockford

I.D. No.: 201030AEU  
Date Received: November 2, 2005  
Expiration Date: December 31, 2006

This permit is hereby granted to the above-designated Permittee to OPERATE emission source(s) and/or air pollution control equipment consisting of several natural gas fired combustion units (Plant 1 boilers, heaters, emergency natural gas generator, etc.); three natural gas engines with 3-way catalytic converters, a diesel fired emergency generator and a diesel-fired emergency fire pump; Plant 1 surface coating operations and cleaning operations (cold cleaning, four open top vapor degreasers, 6 paint spray booths, etc.); gearbox test cell 50 and miscellaneous operations (test cells, storage tanks, machining, and packaging foam) 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 each for nitrogen oxides, carbon monoxide and volatile organic materials). 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 permits issued for this location.
- 2a. Emissions and operation of the fuel combustion units shall not exceed the following limits:

Item of Equipment	Natural Gas Usage		Pollutant	Emission	Emissions	
	(mmscf/Mo)	(mmscf/Yr)		Factor (Lb/mmscf)	(T/Mo)	(T/Yr)
Combustion Units (Total) (Boilers, Heaters, etc.)	15.0	57.0	NO <sub>x</sub>	100	0.75	2.9
			CO	84	0.63	2.4

Emission factors from AP-42, Section 1.4

ii. <u>Item of Equipment</u>	Horsepower Rating (HP)	Hours of Operation (Hr/Yr)	E M I S S I O N S			
			NO <sub>x</sub> (Gr/HP-Hr)	(T/Yr)	CO (Gr/HP-Hr)	(T/Yr)
Emergency Generator*	355	100	14.0	0.55	3.03	0.12
Emergency Fire Pump*	185	100	14.0	0.30	3.03	0.10
Emergency Generator**	248	75	20.0	0.41	35.0	0.72

\* Emission Factors from AP-42, Sec. 3.3

\*\* Emission Factors from manufacturer

iii. A. Natural gas consumption and emissions of nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO) and volatile organic materials (VOM) from the 14.9 mmBtu/hr engines shall not exceed the following limits:

<u>Item of Equipment</u>	Horsepower Rating (HP)	Single Engine Hours of Operation	
		(Hr/Mo)	(Hr/Yr)
Natural Gas Engine (Each)	1,752	-----	-----
All 3 Engines	-----	1,134	11,340

<u>Pollutant</u>	<u>Emission Factor</u>	Emissions	
		(Tons/Mo)	(Tons/Yr)
NO <sub>x</sub>	0.0287* lb/hp-hr	4.3	42.8
CO	0.0220* lb/hp-hr	4.4	43.7
VOM	0.0011* lb/hp-hr	0.6	5.5

\* from manufacturer

B. Only natural gas shall be burned in the engines.

C. Compliance with annual limits shall be determined from a running total of the current month and the previous 11 months of data.

D. Emissions of nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO) and volatile organic material (VOM) from the engines shall be controlled by 3-way catalytic converters, which shall be operated to provide 85%, 80%, and 50% control efficiency for NO<sub>x</sub>, CO and VOM respectively.

iv. Emissions of NO<sub>x</sub> and CO from miscellaneous activities (test cells, etc.) shall not exceed: 1.0 tons/year of NO<sub>x</sub>, 2.0 tons/year of CO.

b. Compliance with annual limits shall be determined from a running total of the current month and the previous 11 months of data.

3a. Emissions and operation of the coating and cleaning operations shall not exceed the following limits:

<u>Process</u>	<u>Material</u>	Usage Rate		Maximum VOM	VOM Emissions	
		<u>(Gal/Mo)</u>	<u>(Gal/Yr)</u>	<u>Content*</u> <u>(Lb/Gal)</u>	<u>(Lb/Mo)</u>	<u>(T/Yr)</u>
Surface Coating	Coating & Thinner	40	250	7.00	280	0.9
Coating Additive	Xylene	10	165	7.30	73	0.6
Cleanup	MEK & Methanol	80	800	7.00	560	2.8
Cold Cleaning**	Stoddard Solvents	5,000	50,000	6.67	3,335	16.7
Cold Cleaning						
Degreasing	Isopropanol	198	1,980	6.60	1,307	6.5
Vapor Degreasers	1-bromopropane	400	4,800	11.25	4,500	27.0
				Total:	10,055	54.5

\* Minus water and exempt compounds.

\*\* Emissions assumed to be 10% of solvent used (90% reclaimed and shipped off-site based on in-house data).

- b. This permit is issued based on no increase to the above cold cleaning emission limits with the addition of the Durr Cleaner from Construction Permit 05110003.
- 4. All liquid fuel combustion emission units covered by this permit are subject to 35 Ill. Adm. Code 212.206, which provides that no person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period to exceed 0.15 kg of particulate matter per MW-hr of actual heat input from any fuel combustion emission unit using liquid fuel exclusively (0.1 lbs/mmBtu).
- 5a. Pursuant to 35 Ill. Adm. Code 214.122(b) (2), No person shall cause or allow the emission of sulfur dioxide into the atmosphere in any one hour period from any new fuel combustion source with actual heat input small than, or equal to, 73.2 MW (250 mmBtu/hour), burning liquid fuel exclusively to exceed 0.46 kg of sulfur dioxide per MW-hr of actual heat input when distillate fuel oil is burned (0.3 lbs/mmBtu).
- b. At the above location, the Permittee shall not keep, store, or utilize fuel oil with a sulfur content greater than 0.3% in order to comply with 35 Ill. Adm. Code 214.122(b) (2).
- c. Only natural gas shall be fired in Plant 1 combustion units (boilers, heaters, etc.), 248 hp generator and 3 engines and diesel fuel oil in the other 2 generators.
- 6a. Organic liquid by-products or waste materials shall not be used in the diesel-powered emergency generators without written approval from the Illinois EPA.
- b. The Illinois EPA shall be allowed to sample all fuels stored at the above location.

- c. The Permittee shall notify the Illinois EPA prior to any change in the type of fuel used at the source.
- 7. The Permittee shall keep a maintenance and repair log for the engines and generators, listing significant activities performed with date.
- 8. Use of Organic Material. Pursuant to 35 Ill. Adm. Code 215.301, no person shall cause or allow the discharge of more than 8.0 lbs/hour of organic material into the atmosphere from any emission unit. If no odor nuisance exists then this limitation shall only apply to photochemically reactive material as defined in 35 Ill. Adm. Code 211.4690.
- 9a. This permit is issued based on negligible emissions of particulate matter from the coating operations. For this purpose emissions shall not exceed nominal emission rates of 0.1 lb/hour and 0.44 tons/year.
- b. Emissions of VOM from miscellaneous activities (i.e., the gasoline, waste oil, fuel oil and JP-4 storage tanks), welding, wave soldering, and packaging foam shall not exceed: 2.44 tons/year.
- c. This permit is also issued based on negligible emissions of VOM from gearbox test cell 50. For this reason, emissions shall not exceed 8 lb/hr pursuant to 35 Ill. Adm. Code 215.301 and 0.44 ton/yr.
- 10. This permit is issued based on the plant meeting the exemption requirements of 35 Ill. Adm. Code Section 215.206(a)(2). The total usage of the coating plant as addressed in this permit does not exceed 9,463 l/yr (2,500 gal/yr).
  - a. If the total coating usage exceeds 9,463 l/yr (2,500 gal/yr), the coating operations are subject to the emission limitations of Part 215, Subpart F, e.g., the VOM content of extreme performance coatings applied to miscellaneous metal parts and products shall not exceed 3.5 lbs/gallon.
  - b. By March 1, following a calendar year in which the total coating usage exceeds 9,463 lbs/year (2,500 gallons/year), the Permittee shall submit a report addressing compliance with Part 215, Subpart F, including a listing of coatings at the plant subject to Subpart F, the typical usage of each coating and the VOM content as applied.
- 11. 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.
- 12. At all times the Permittee shall to the extent practicable maintain and operate the equipment, including associated air pollution control equipment, in a manner consistent with good pollution control practices for minimizing emissions.
- 13. The emissions of Hazardous Air Pollutants (HAPs) as listed in Section 112(b) of the Clean Air Act shall not equal or exceed 10 tons per year of any single

HAP or 25 tons per year of any combination of such HAPs, or such lesser quantity as USEPA may establish in rule which would require the Permittee to obtain a CAAPP permit from the Illinois EPA. 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.

14. The Permittee shall comply with the following operating requirements for open top vapor degreasers, pursuant to 35 Ill. Adm. Code 215.183:
  - a. The cover of the degreaser must be closed when workloads are not being processed through the degreaser.
  - b. Solvent carryout emissions must be minimized by:
    - i. Racking parts to allow complete drainage;
    - ii. Moving parts in and out of the degreaser at less than 3.3 m/min (11 ft/min);
    - iii. Holding the parts in the vapor zone until condensation ceases;
    - iv. Tipping out any pools of solvent on the cleaned parts before removal from the vapor zone; and
    - v. Allowing parts to dry within the degreaser until visually dry.
  - c. Porous or absorbent materials, such as cloth, leather, wood or rope must not be degreased.
  - d. Less than half of the degreaser's open top area is to be occupied with a workload.
  - e. The degreaser must not be loaded to the point where the vapor level would drop more than 10 cm (4 in) when the workload is removed from the vapor zone.
  - f. Spraying must be done below the vapor level only.
  - g. Solvent leaks must be repaired immediately.
  - h. Waste solvent must be stored in covered containers only and not disposed of in such a manner that more than 20% of the waste solvent (by weight) is allowed to evaporate into the atmosphere.
  - i. Water must not be visually detectable in solvent exiting from the water separator.
  - j. Exhaust ventilation exceeding 20 cubic meters per minute per square meter (65 cubic feet per minute per square foot) of degreaser open area must not be used, unless necessary to meet the requirements of the Occupational Safety and Health Act (29 U.S.C. Section 651 et seq.)

15. The Permittee shall comply with the following equipment requirements for open top vapor degreasers, pursuant to 35 Ill. Adm. Code 215.183:
  - a. The degreaser must be equipped with a cover designed to open and close easily without disturbing the vapor zone.
  - b. The degreaser must be equipped with the following switches:
    - i. A device which shuts off the sump heat source if the amount of condenser coolant is not sufficient to maintain the designed vapor level;
    - ii. A device which shuts off the spray pump if the vapor level drops more than 10 cm (4 in) below the bottom condenser coil; and
    - iii. A device which shuts off the sump heat source when the vapor level exceeds the design level.
  - c. A permanent conspicuous label summarizing the operating procedure must be affixed to the degreaser.
  - d. The degreaser must be equipped with one of the following devices:
    - i. A freeboard height of 3/4 of the inside width of the degreaser tank or 91 cm (36 in), whichever is less; and if the degreaser opening is greater than 1 square meter (10.8 square feet), a powered or mechanically assisted cover; or
    - ii. Any other equipment or system of equivalent emission control as approved by the Illinois EPA. Such equipment or system may include a refrigerated chiller, an enclosed design or a carbon adsorption system.
16. The Permittee shall comply with the following operating requirements for cold cleaning degreasers, pursuant to 35 Ill. Adm. Code 215.182:
  - a. Waste solvent shall be stored in covered containers only and not disposed of in such a manner that more than 20% of the waste solvent (by weight) is allowed to evaporate into the atmosphere.
  - b. The cover of the degreaser shall be closed when parts are not being handled and parts are drained until dripping ceases.
  - c. The degreaser must be equipped with a cover which is closed whenever parts are not being handled in the cleaner.
17. The Permittee shall comply with the following equipment requirements for cold cleaning degreasers, pursuant to 35 Ill. Adm. Code 215.182:
  - a. The degreaser must be equipped with a cover which is closed whenever parts are not being handled in the cleaner. The cover shall be

designed to be easily operated with one hand or with the mechanical assistance of springs, counterweights, or a powered system if:

- i. The solvent vapor pressure is greater than 2 kPa (15 mmHg or 0.3 psi) measured at 38°C (100°F);
  - ii. The solvent is agitated; or
  - iii. The solvent is heated above ambient room temperature.
- b. The degreaser must be equipped with a facility for draining cleaned parts. The drainage facility shall be constructed so that parts are enclosed under the cover while draining unless:
- i. The solvent vapor pressure is less than 4.3 kPa (32 mmHg or 0.6 psi) measured at 38°C (100°F); or
  - ii. An internal drainage facility cannot be fitted into the cleaning system, in which case the drainage facility may be external.
- c. The degreaser must be equipped with one of the following control devices if the vapor pressure of the solvent is greater than 4.3 kPa (32 mmHg or 0.6 psi) measured at 38°C (100 1/4°F) or if the solvent is heated above 50°C (120°F) or its boiling point:
- i. A freeboard height of 7/10 of the inside width of the tank or 91 cm (36 in), whichever is less; or
  - ii. Any other equipment or system of equivalent emission control as approved by the Illinois EPA. Such a system may include a water cover, refrigerated chiller or carbon adsorber.
- d. A permanent conspicuous label summarizing the operating procedure must be affixed to the degreaser.
- e. If a solvent spray is used, the degreaser must be equipped with a solid fluid stream spray, rather than a fine, atomized or shower spray.
18. The Permittee shall maintain monthly records of the following items:
- a. Usage rates of natural gas for Plant 1 Combustion Units (mmscf/month and mmscf/year);
  - b. Records of the sulfur content of the fuel oil for each shipment of fuel oil received, percent by weight;
  - c. Operation of each 3-way catalytic converter;
  - d. Hours of operation for the emergency pump, generators, gearbox test cell 50 and three engines (hours/month and hours/year);

- e. Usage rates, VOM and HAP content of all paints, thinners, coating additives, cleaning solvents and degreasing solvents (gallons/month and gallons/year and lb VOM and HAPs/gallon);
  - f. Oil loss for gearbox test cell 50 (gallons/month and gallons/year); and
  - g. Detailed calculations of plantwide VOM, HAPs, NO<sub>x</sub>, and CO emissions.
19. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least five 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.
20. If there is an exceedance of 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. The report shall include the emissions released in accordance with the recordkeeping requirements, a copy of the relevant records, and a description of the exceedance or violation and efforts to reduce emissions and future occurrences.
21. Two (2) copies of required reports and notifications concerning equipment operation or repairs, performance testing or a continuous monitoring system 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  
5415 North University  
Peoria, Illinois 61614

22. This permit is being issued based on the "patch test" process meeting the exemption requirements specified in 35 Ill. Adm. Code 215.181(b). As a result, the emissions from the "patch test" process shall not exceed 800 pounds in any calendar month.

Please note one additional cold cleaner (Durr Cleaner) using Stoddard solvent has been added to this permit, pursuant to Construction Permit 05110003.

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If you have any questions on this, please call Randy Solomon at 217/782-2113.

Donald E. Sutton, P.E.  
Manager, Permit Section  
Division of Air Pollution Control

DES:RBS:psj

cc: Region 2

Attachment A

This attachment provides a summary of the maximum emissions from this facility 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, e.g., 100 tons/year of NO<sub>x</sub>, CO, and VOM at which this source 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 control measures are more effective than required in this permit.

<u>Equipment/Process</u>	E M I S S I O N S (Tons/Year)				
	<u>VOM</u>	HAPs		<u>NO<sub>x</sub></u>	<u>CO</u>
<u>Single</u>		<u>Combined</u>			
Plant 1 Boilers, Heaters, Etc.				2.90	2.40
2 Emergency Generators & Fire Pump				1.26	0.94
3 Engines	5.50			42.80	43.70
Miscellaneous Activities	2.88			1.00	2.00
All Coating and Cleaning	<u>54.50</u>				
Totals	<u>62.88</u>	<u>&lt; 10</u>	<u>&lt; 25</u>	<u>47.96</u>	<u>49.04</u>

DES:RBS:psj