



## DEPARTMENT OF NATURAL RESOURCES

## MISSOURI AIR CONSERVATION COMMISSION

## PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: 122008-001 Project Number: 2008-07-020

Parent Company: Silgan Containers Manufacturing Corporation

Parent Company Address: 21800 Oxnard Street, Suite 600, Woodland Hills, CA 91367

Installation Name: Silgan Containers Manufacturing Corporation

Installation Address: 2115 Southwest Lower Lake Road, St. Joseph, MO 64504-0488

Location Information: Buchanan County, S25, R36W, T57N

Application for Authority to Construct was made for:  
Construction of a new Sheet Coating and Lithography line with new regenerative thermal oxidizer. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

Standard Conditions (on reverse) are applicable to this permit.

Standard Conditions (on reverse) and Special Conditions are applicable to this permit.

DEC - 1 2008

EFFECTIVE DATE

*Steven Jula*  
DIRECTOR OR DESIGNEE  
DEPARTMENT OF NATURAL RESOURCES

## STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

**You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review.** In the event that there is a discrepancy between the permit application and this permit, the conditions of this permit shall take precedence. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the departments' Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available not more than 60 days but at least 30 days in advance of this date. Also, you must notify the Department of Natural Resources Regional office responsible for the area within which you are located within 15 days after the actual start up of this (these) air contaminant source(s).

A copy of this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' personnel upon request.

You may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review and your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant source(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit at (573) 751-4817. If you prefer to write, please address your correspondence to the Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention: Construction Permit Unit.

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**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

*The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority."*

Silgan Containers Manufacturing Corporation  
Buchanan County, Section, Township, Range

1. Hazardous Air Pollutants (HAPs) Emission Limitation
  - A. Silgan Containers Manufacturing Corporation shall emit less than ten (10) tons individually or twenty-five (25) tons combined of HAPs from the installation in any consecutive 12-month period. The installation consists of the emission sources listed in Attachment A.
  - B. Attachment B and Attachment C or equivalent forms approved by the Air Pollution Control Program shall be used to demonstrate compliance with Special Condition 1.A. Silgan Containers Manufacturing Corporation shall maintain all records required by this permit for not less than five (5) years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request. These records shall include Material Safety Data Sheets (MSDS) for all materials used in the installation.
  - C. Silgan Containers Manufacturing Corporation shall report to the Air Pollution Control Program's Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten (10) days after the end of the month during which the records from Special Condition Number 1.B indicate that the source exceeds the limitation of Special Conditions Number 1.A.
2. Use of Alternative Coatings in the New Sheet Coating and Lithography Line
  - A. When considering using an alternative material in the new Sheet Coating and Lithography Line that is different than a material listed in the Application for Authority to Construct, Silgan Containers Manufacturing Corporation must calculate the potential emissions of volatile organic compounds (VOCs) and each individual HAP in the alternative material.
  - B. Silgan Containers Manufacturing Corporation must seek approval from the Air Pollution Control Program before use of the alternative material in the following cases:
    - (1) If the potential VOC emissions for the alternative material is equal to or greater than 26.8 ton per year, or

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**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

- (2) If the potential individual HAP emissions for the alternative material is equal to or greater than the Screen Modeling Action Levels (SMAL) for any compound listed in Attachment E.
  - C. Attachment D or an equivalent form shall be used to show compliance with Special Condition 2.A through 2.B. Silgan Containers Manufacturing Corporation shall maintain all records required by this permit for not less than five (5) years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request.
3. Control Requirements – Regenerative Thermal Oxidizer (RTO)
  - A. The natural gas-fired RTO (EP-330B) must be in use at all times when any of the three (3) Sheet Coating and Lithography lines are in operation. The thermal oxidizer shall be operated and maintained in accordance with the manufacturer's specifications to ensure a minimum volatile organic compound (VOC) destruction efficiency of 98 weight percent (wt. %). This destruction/removal efficiency shall be verified through compliance testing, as detailed in Special Condition Number 4 of this permit.
  - B. The operating temperature of the RTO shall be continuously monitored and shall equal or exceed the temperature that is determined during the compliance test specified in Special Condition Number 4. The most recent sixty (60) months of records shall be maintained on-site and shall be made immediately available to Missouri Department of Natural Resources' personnel upon request.
  - C. Silgan Containers Manufacturing Corporation shall maintain an operating, maintenance and inspection log for the RTO which shall include the following:
    - (1) Incidents of malfunction(s) including the date(s) and duration of the event, the probable cause, any corrective actions taken and the impact on missions due to the malfunction;
    - (2) Any maintenance activities conducted on the unit, such as replacement of equipment, etc.; and
    - (3) A written record of regular inspection schedule, the date and results of all inspections including any actions or maintenance activities that result from that inspection.
4. Compliance Testing – Regenerative Thermal Oxidizer (EP-330B)
  - A. Within sixty (60) days of achieving normal production, but in no case later than 180 days after initial startup, an emission test shall be conducted to determine the destruction/removal efficiency of VOC emissions by the

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**SPECIAL CONDITIONS:**

The permittee is authorized to construct and operate subject to the following special conditions:

RTO (EP-330B). These tests shall be conducted in accordance with the Stack Test Procedures outlined in Special Conditions Numbers 3.B through 3.D.

- B. A completed Proposed Test Plan Form (enclosed) must be submitted to the Air Pollution Control Program thirty (30) days prior to the proposed test date so that this program may arrange a pretest meeting, if necessary, and assure that the test date is acceptable for an observer to be present. The Proposed Test Plan must be approved by the Director of the Missouri Air Pollution Control Program prior to conducting the required emission testing.
  - C. Two (2) copies of a written report of the performance test results shall be submitted to the Director of the Air Pollution Control Program within sixty (60) days of completion of any required testing. The report must include legible copies of the raw data sheets, analytical instrument laboratory data, and complete sample calculations from the required EPA Method for at least one (1) sample run.
  - D. Performance testing shall be conducted under the condition of maximum process/production rate for the new Sheet Coating and Lithography line, or within ten percent (10%) of this rated capacity. The process/production rate at which performance testing is conducted shall become the maximum process/production rate at which the line is permitted to operate, under the authority granted by this permit.
5. Solvent/Ink Cloths  
Silgan Containers Manufacturing Corporation shall keep all solvents, ink, and cleaning solutions in sealed containers whenever the materials are not in use. Silgan Containers Manufacturing Corporation shall provide and maintain suitable, easily read, permanent markings on all inks, solvent and cleaning solution containers used with this equipment.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE  
SECTION (5) REVIEW

Project Number: 2008-07-020  
Installation ID Number: 021-0064  
Permit Number:

Silgan Containers Manufacturing Corporation  
2115 Southwest Lower Lake Road  
St. Joseph, MO 64504-0488

Complete: July 24, 2008

Parent Company:  
Silgan Containers Manufacturing Corporation  
21800 Oxnard Street, Suite 600  
Woodland Hills, CA 91367

Buchanan County, S25, R36W, T57N

REVIEW SUMMARY

- Silgan Containers Manufacturing Corporation has applied for authority to construct a new Sheet Coating and Lithography line with new regenerative thermal oxidizer.
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed equipment. HAPs of concern from this process are 2-(2-butoxyethoxy) ethanol (CAS# 112-34-5), cumene (CAS# 98-82-8), ethylbenzene (CAS# 100-41-4), formaldehyde (50-00-0), isophorone (CAS# 78-59-1), methyl isobutyl ketone (CAS# 108-10-1), naphthalene (CAS# 91-20-3), toluene (CAS# 108-88-3) and xylene (CAS# 1330-20-7).
- None of the New Source Performance Standards (NSPS) apply to the proposed equipment.
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) or currently promulgated Maximum Achievable Control Technology (MACT) regulations apply to the proposed equipment. The MACT standard, Subpart KKKK, *National Emission Standards for Metal Can Surface Coating Operations* does not apply to the equipment of this permit since the facility is not considered a major source for HAPs.
- A new regenerative thermal oxidizer is being used to control the volatile organic compounds (VOCs) emissions from the new sheet coating and lithography line as well as two existing sheet coating and lithography lines.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of all pollutants are below de minimis levels.

- This installation is located in Buchanan County, an attainment area for all criteria air pollutants.
- This installation is not on the List of Named Installations [10 CSR 10-6.020(3)(B), Table 2].
- Ambient air quality modeling was not performed since potential emissions of the application are below de minimis levels.
- Emissions testing is required for the new thermal oxidizer (EP-330B).
- An amendment to your Part 70 Operating Permit is required for this installation within 1 year of equipment startup.
- Approval of this permit is recommended with special conditions.

#### INSTALLATION DESCRIPTION

Silgan Containers Manufacturing Corporation (Silgan) owns and operates a food product can manufacturing plant in St. Joseph, Missouri. There are five (5) major departments within the St. Joseph Plant: the Draw and Iron (D&I) Can Manufacturing Line, the Steel and Aluminum Draw/Redraw Can Lines, the Steel End Manufacturing Lines, the Sheet Coating and Lithography Lines, and the Coil Shearing Line.

A Part 70 Operating Permit (OP2006-078) was issued to Silgan in November of 2006.

The following Construction Permits have been issued to Silgan from the Air Pollution Control Program. This installation is a major source of VOCs.

Table 1: Previously Issued Construction Permits

Permit Number	Description
0885-007A	Construction of an aluminum can manufacturing line.
1189-002	Modification of the 2-piece D&I line.
0890-007	Removal of six end press lines and installation of one new press line.
0192-010	Installation of a conversion press for modification of existing lid end line.
0890-007A	Company did not remove the six end press lines. Re-permitted for a lower production level on the press line.
082000-012	Revision to permit 1189-002.
062000-015	New can manufacturing line.
092002-023	Installation of a Permanent Total Enclosure (PTE) for the two existing Sheet Coating and Lithography lines, a recuperative thermal oxidizer, a side feeder for Sheet Coating Line number 2, and conventional inks on line number 2.
122003-009	Modification of Permit Number 062000-015
062004-015	Installation of various de minimis projects.

## PROJECT DESCRIPTION

Silgan proposes to construct and operate a new Sheet Coating and Lithography line to include a coating applicator, a curing oven, an electrostatic paraffin wax applicator and all conveyances as well as other non-emission related processing equipment. Silgan also proposes to enlarge the existing Permanent Total Enclosure for the two existing Sheet Coating and Lithography lines to include the new line and redirect the exhaust of the Permanent Total Enclosure from the existing Smith Thermal Oxidizer (EP-202A) to the proposed RTO (EP-330B).

The new Sheet Coating and Lithography line is identical in size and function to the two existing lines at the plant. The maximum hourly design rate of the new line is 1,000 sheets per hour. The process begins with uncoated coil steel as raw material. The coil is cut into sheet pieces and then stacked onto a conveyor system. The sheets are individually fed into one of the coating lines where they are lithographed and/or surface coated.

Lithography presses are used to print decorative color designs onto sheets that have been pre-coated with a prime coat or a color basecoat. Solvents are also used to clean up the presses. The lithographic inks used in the above process contain minimal concentrations of VOCs. Any emissions associated with the presses are captured in the permanent total enclosure or oven and routed to a thermal oxidizer for destruction. It is estimated that less than 0.2 pounds of VOCs from the inks would be emitted every month (less than 0.001 tpy). Since the lithography presses produce minimal VOC emissions, the emissions are considered insignificant and are not further discussed.

After the lithography presses, the sheets proceed to the sheet coat applicators. An interior and/or exterior organic protective coating is applied. The coating batch used is mixed up according to the individual customers' product specifications and will consist of a resin, pigment, various additives, a carrier solvent and thinning solvents. The maximum application rate can vary from 18.4 to 57.0 gallons per hour depending on required film thicknesses of a specific coating. The coating solids are suspended in the carrier solvent and then applied to the metal sheet by roller. Thinning solvent is added to attain the required application viscosity. The carrier solvent evaporates allowing the coating to harden on the substrate. Scrapers and cleaning solvents (or rollwash) are used in the system to prevent buildup of coating on the equipment. The maximum usage of the roll wash is 2.5 gallons per hour. The rate of flush solvent used is based on maximum historical usage and is estimated to be 1,000 gallons per year. Of the 1,000 gallons used, approximately 5 out of 6 gallons are recovered as hazardous waste.

The coatings as well as the lithographic inks are then cured in a curing oven heated from a heat recovery system that utilizes waste heat from the recuperative thermal oxidizer. Finished sheets pass through a piler where they are stacked and then to a bundle turner where the finished bundles are removed.

The modified Permanent Total Enclosure will encompass the lithography presses, the coater application rolls, as well as their respective infeed and discharge conveyors to the infeed of the curing ovens for the existing lines as well as the new Sheet Coating

and Lithography line. The Permanent Total Enclosure will provide 100% capture efficiency and meet the criteria needed to be classified as a permanent enclosure as outlined in the United States Environmental Protection Agency (USEPA) Method 204. Emissions from the modified Permanent Total Enclosure will be redirected from the existing Smith Thermal Oxidizer (EP-202A), which also controls emissions from the D&I line, to the new regenerative thermal oxidizer (RTO), EP-330B. This redirection will allow the existing D&I line to operate independently from the Sheet Coating and Lithography lines. However, Silgan plans to leave the exhaust system connection in place for a backup control system.

The new RTO will also control VOC emissions from Curing Oven #3 of the new line. The existing curing ovens will continue to be controlled by EP-330A. Approximately 15% of total emissions from all three lines are emitted from the Permanent Total Enclosure to the oxidizer and the other 85% of emissions are emitted through the curing ovens to either EP-330A (for ovens #1 and #2) or EP-330B (for oven #3).

The new RTO (EP-330B) will operate at a burner rating of 5.0 million British thermal units per hour (MMBtu/hr) and will include a heat recovery system that will transfer heated air back to the new coater oven eliminating the need for natural gas burners in the curing oven.

#### EMISSIONS/CONTROLS EVALUATION

The emission factors used to calculate the emissions associated with the combustion of natural gas in the new RTO (EP-330B) were obtained from the Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 1.4 *Natural Gas Combustion* (July 1998).

Potential emissions for the coating and lithography line were estimated using a mass balance approach and information obtained from the Material Safety Data Sheets (MSDSs). 100% of the VOC and HAP content of the coating mixtures are assumed to be emitted, captured, and routed to the new thermal oxidizer. The thermal oxidizer will have a minimum VOC destruction efficiency of 98%. The potential emissions for total VOCs, combined HAPs and individual HAPs for each coating were then used to determine the worst case potential emissions for each pollutant. PM<sub>10</sub> emissions for the application of the materials by roller were considered negligible. According to AP-42, Section 4.2.2.10, *Metal Coil Surface Coating*, transfer efficiency is considered to approach 100%.

The following table provides an emissions summary for this project. The existing potential emissions were taken from Permit No. 062004-015. The existing actual emissions were taken from the 2007 Emission Inventory Questionnaire (EIQ). Potential emissions of the application represent the potential emissions from the new sheet coating and lithography line and the combustion of natural gas in the new thermal oxidizer, assuming continuous operation (8760 hours per year).

Table 2: Emissions Summary (tons per year)

Pollutant	Regulatory De Minimis Levels*	Existing Potential Emissions	Existing Actual Emissions (2007 EIQ)	Potential Emissions of the Application	New Installation Conditioned Potential
PM <sub>10</sub>	15.0	2.60	0.49	0.17	N/A
SO <sub>x</sub>	40.0	0.14	0.04	0.01	N/A
NO <sub>x</sub>	40.0	10.70	6.53	2.19	N/A
VOC	40.0	4,005.34	19.23	26.82	N/A
CO	100.0	17.40	5.49	1.84	N/A
HAPs	10.0/25.0	1,537.82	N/D	8.11	<10/25
Ethylbenzene	10	N/D	N/D	1.20	N/A
Formaldehyde	2	N/D	N/D	0.05	N/A
Napthalene	10	N/D	N/D	0.79	N/A
Cumene	10	N/D	N/D	0.14	N/A
Isophorone	10	N/D	N/D	0.40	N/A
Xylene	10	N/D	N/D	5.79	N/A
Toluene	10	N/D	N/D	0.10	N/A
MIBK	10	N/D	N/D	4.57	N/A
2-(2-butoxyethoxy) ethanol	5	N/D	N/D	4.07	N/A

N/A = Not Applicable; N/D = Not Determined

\*The regulatory levels listed for the individual HAPs are the Screen Modeling Action Levels (SMALs). All individual HAPs do not have the potential to exceed their SMAL and therefore do not require additional limits.

### PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of all pollutants are below de minimis levels.

### APPLICABLE REQUIREMENTS

Silgan Containers Manufacturing Corporation shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved. For a complete list of applicable requirements for your installation, please consult your operating permit.

### GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information,*

10 CSR 10-6.110

The emission fee is the amount established by the Missouri Air Conservation Commission annually under Missouri Air Law 643.079(1). Submission of an Emissions Inventory Questionnaire (EIQ) is required June 1 for the previous year's emissions.

- *Operating Permits*, 10 CSR 10-6.065
- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170
- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220
- *Restriction of Emission of Odors*, 10 CSR 10-2.070

SPECIFIC REQUIREMENTS

- *Restriction of Emission of Particulate Matter From Industrial Processes*, 10 CSR 10-6.400
- *Maximum Allowable Emissions of Particulate Matter From Fuel Burning Equipment Used for Indirect Heating*, 10 CSR 10-2.040

STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5), Missouri State

Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with special conditions.

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Susan Heckenkamp  
Environmental Engineer

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Date

#### PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated July 11, 2008, received July 25, 2008, designating Silgan Containers Manufacturing Corporation as the owner and operator of the installation.
- Material Safety Data Sheets
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Kansas City Regional Office Site Survey, dated July 30, 2008.

**Attachment A: Installation Emission Sources**  
 Silgan Containers Manufacturing Corporation  
 Buchanan County, S25, R36W, T57N  
 Project Number: 2008-07-020  
 Installation ID Number: 021-0064  
 Permit Number:

Source ID	Emission Point	Process Description	Source Description	Control Device
ES-2000	EP-201B	D&I Can Manufacturing	Cleanup for D&I Line	
ES-2010	EP-201A EP-201B EP-202B	D&I Can Manufacturing	Washcoat Applicator	CD-2
ES-2020	EP-202A	D&I Can Manufacturing	Smith Thermal Oxidizer No. 2	CD-2
ES-2021	EP202A	D&I Can Manufacturing	Inside Bake Oven	CD-2
ES-2022	EP-202A	D&I Can Manufacturing	Inside Spray Machines (3 ea.)	CD-2
ES-2023	EP-202A	D&I Can Manufacturing	Washcoat Oven	CD-2
ES-2100	EP-201B	D&I Can Manufacturing	D&I Videojet Ink Printer	
ES-2200	EP-201B	D&I Can Manufacturing	D&I Ink Dot Printer	
ES-3040	EP-304A EP-310A	End Press Department	Steel End Line No. 2	
ES-3100	EP-310A	End Press Department	Cleanup for End Lines	
ES-3110	EP-304A EP-310A	End Press Department	End Line Mister Spray Applicators	
ES-3200	EP-310A	DRD Can Manufacturing	DRD Videojet Printer	
ES-3300	EP-330A	Sheet Coating / Lithography	Anguil Thermal Oxidizer No. 1	CD-1
ES-3310	EP-330A EP-330B	Sheet Coating / Lithography	Sheet Coating Line No. 1	CD-1 CD-3
ES-3320	EP-330A EP-330B	Sheet Coating / Lithography	Sheet Coating Line No. 2	CD-1 CD-3
ES-3330	EP-330B	Sheet Coating / Lithography	Cleanup for Coating Lines	
ES-3340	EP-330A EP-330B	Sheet Coating / Lithography	Sheet Coating Line No. 3	CD-1 CD-3
ES-3350	EP-330B	Sheet Coating / Lithography	Anguil Thermal Oxidizer No. 3	CD-3





**Attachment D – Hazardous Air Pollutants (HAP)  
and Volatile Organic Compound (VOC) Calculation Sheet**

Silgan Containers Manufacturing Corporation

Buchanan County, S25, R36W, T57N

Project Number: 2008-07-020

Installation ID Number: 021-0064

Permit Number:

Date: \_\_\_\_\_

Copy this sheet as needed.

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6 (a)	Column 7 (b) (c)	Column 8	Column 9 (d)
Material Used (Name, Type)	HAP Name and CAS #:	Application Rate (Gallons per hour)	Density (Pounds per gallon)	Individual HAP Content (Weight %)	Individual /Total HAP Emissions (Tons per Year)	Screen Modeling Action Level (Tons per Year)	VOC Content (Weight %)	VOC Emissions (Ton per Year) for the Material
<i>Example, paint ABC</i>	<i>Glycol Ether</i>	<i>0.98</i>	<i>12.34</i>	<i>4</i>	<i>2.12</i>	<i>5</i>	<i>32</i>	<i>16.74</i>

**Instructions: Calculate the potential emissions of each individual HAP contained in the material**

- a)  $[\text{Column 3}] \times [\text{Column 4}] \times [\text{Column 5}] \times [4.38] / 100 = [\text{Column 6}]$ .
- b) Screen Modeling Action Levels for individual HAPs with SMALs less than 10 tpy can be found in Attachment E.
- c) If [Column 6] is greater than [Column 7] or 10 tons per year, obtain permission from Air Pollution Control program before using this material.
- d)  $[\text{Column 3}] \times [\text{Column 4}] \times [\text{Column 8}] \times [4.38] / 100 = [\text{Column 9}]$   
If [Column 9] is greater than 26.7 tons per year, obtain permission from Air Pollution Control program before using this material.

Attachment E: Screen Modeling Action Levels

Chemical	CAS#	Emission Threshold Levels (tpy)	Synonyms
Acetaldehyde	75-07-0	9	Acetic Aldehyde, Aldehyde, Ethanal, Ethyl Aldehyde
Acetamide	60-35-5	1	Acetic Acid Amide, Ethanamide
Acetonitrile	75-05-8	4	Methyl Cyanide, Ethanenitrile, Cyanomethane
Acetophenone	98-86-2	1	Acetylbenzene, Methyl Phenyl Ketone, Hyponone
Acetylaminofluorene, [2-]	53-96-3	0.005	N-2-Fluorenyl Acetamide, N-Fluorenyl Acetamide, 2-Acetamideofluorene
Acrolein	107-02-8	0.04	Acrylaldehyde, Acrylic Aldehyde, Allyl Aldehyde, Propenal
Acrylamide	79-06-1	0.02	Propenamide, Acrylic Amide, Acrylamide Monomer, Ethylenecarboxamide
Acrylic Acid	79-10-7	0.6	Propenoic Acid, Ethylene Carboxylic Acid, Vinylformic Acid
Acrylonitrile	107-13-1	0.3	Vinyl Cyanide, Cyanoethylene, Propenenitrile
Allyl Chloride	107-05-1	1	1-Chloro-2-Propene, 3-Chloropropylene, Chloroallylene, Alpha-Propylene
Aminobiphenyl, [4-]	92-67-1	1	Biphenylene, P -Phenylaniline, Xenylamine, 4-Aminodiphenyl, 4-Biphenylamine
Aniline	62-53-3	1	Aminobenzene, Phenylamine, Aniline Oil, Aminophen, Arylamine
Anisidine, [Ortho-]	90-04-0	1	O-Methoxyaniline
Antimony Compounds (except those specifically listed)		5	Antimony (Pentachloride, Tribromide, Trichloride, Trifluoride)
Antimony Pentafluoride	7783-70-2	0.1	
Antimony Potassium Tartrate	28300-74-5	1	
Antimony Trioxide	1309-64-4	1	
Antimony Trisulfide	1345-04-6	0.1	
Arsenic and Inorganic Arsenic Compounds		0.005	Arsenic (Diethyl, Disulfide, Pentoxide, Trichloride, Trioxide, Trisulfide), Arsinine, Arsenous Oxide
Benz(a)Anthracene	56-55-3	0.01	
Benz(c)acridine	225-51-4	0.01	
Benzene	71-43-2	2	Benzol, Phenyl Hydride, Coal Naphtha, Phene, Benxole, Cyclohexatriene
Benzidine	92-87-5	0.0003	4,4'-Biphenyldiamine, P-Diaminodiphenyl, 4,4'-Diaminobiphenyl, Benzidine Base

Attachment E: Screen Modeling Action Levels

Chemical	CAS#	Emission Threshold Levels (tpy)	Synonyms
Benzo(a)pyrene	50-32-8	0.01	
Benzo(b)fluoranthene	205-992	0.01	
Benzotrichloride	98-07-7	0.006	Benzoic Trichloride, PhenylChloroform, Trichloromethylbenzene
Benzyl Chloride	100-44-7	0.1	Alpha-Chlorotoluene, Toly Chloride
Beryllium Compounds (except Beryllium Salts)		0.008	Beryllium (Acetate, Carbonate, Chloride, Fluoride, Hydroxide, Nitrate, Oxide)
Beryllium Salts		0.00002	
Bis(Chloroethyl)Ether	111-44-4	0.06	Dichloroethyl ether, Dichloroether, Dichloroethyl Oxide, BCEE
Bis(Chloromethyl)Ether	542-88-1	0.0003	BCME, Sym-Dichloromethyl ether, Dichloromethyl Ether, Oxybis-(Chloromethane)
Butadiene, [1,3-]	106-99-0	0.07	Biethylene, Biviny, Butadiene Monomer, Divinyl Erythrene, Vinylethylene
Butylene Oxide, [1,2-]	106-88-7	1	1,2-Epoxybutane, 1-Butene Oxide, 1,2-Butene Oxide, Butylene Oxide, Ethylethylene
Cadmium Compounds		0.01	Cadmium (Dust, Fume, Acetate, Chlorate, Chloride, Fluoride, Oxide, Sulfate, Sulfide)
Carbon Disulfide	75-15-0	1	Carbon Bisulfide, Dithiocarbonic Anhydride
Carbon Tetrachloride	56-23-5	1	Tetrachloromethane, Perchloromethane
Carbonyl Sulfide	463-58-1	5	Carbon Oxide Sulfide, Carbonoxysulfide
Catechol	120-80-9	5	Pyrocatechol, O-Dihydroxybenzene
Chloramben	133-90-4	1	3-Amino-2,5-Dichlorobenzoic Acid, Amben, Amiben*, Vegiben* (*Trademark)
Chlordane	57-74-9	0.01	ENT9932, Octachlor
Chlorine	7782-50-5	0.1	Bertholite
Chloroacetic Acid	79-11-8	0.1	Monochloroacetic Acid, Chloroethanoic Acid
Chloroacetophenone, [2-]	532-27-4	0.06	Phenacyl Chloride, Chloromethyl Phenyl Ketone, Tear Gas, Mace
Chlorobenzilate	510-15-6	0.4	Ethyl-4,4'-Dichlorobenzilate, Ethyl-4,4'-Dichlorophenyl Glycollate
Chloroform	67-66-3	0.9	Trichloromethane
Chloromethyl Methyl Ether	107-30-2	0.1	CMME, Methyl Chloromethyl Ether, Chloromethoxymethane, Monochloromethyl Ether
Chloroprene	126-99-8	1	2-Chloro-1,3-Butadiene, Chlorobutadiene, Neoprene Rubber Compound

Attachment E: Screen Modeling Action Levels

Chemical	CAS#	Emission Threshold Levels (tpy)	Synonyms
Chromic Chloride	10025-73-7	0.1	
Chromium Compounds (except Hexavalent)		5	Chromium, Chromium(II) Compounds, Chromium (III) Compounds
Chromium Compounds, Hexavalent		0.002	Chromium (VI)
Chrysene	218-01-9	0.01	
Cobalt Carbonyl	12010-68-1	0.1	
Cobalt Metal (and compounds, except those specifically listed)		0.1	Cobalt (Bromide, Chloride, Diacetate, Formate, Nitrate, Oxide, Sulfamate)
Coke Oven Emissions	8007-45-2	0.03	Coal Tar, Coal Tar Pitch, Coal Tar Distillate
Cresol, [Meta-]	108-39-4	1	3-Cresol, M-Cresylic Acid, 1-Hydroxy-3-Methylbenzene, M-Hydroxytoluene
Cresol, [Ortho-]	95-48-7	1	2-Cresol, O-Cresylic Acid, 1-Hydroxy-2-Methylbenzene, 2-Methylphenol
Cresol, [Para-]	106-44-5	1	4-Cresol, P-Cresylic Acid, 1-Hydroxy-4-Methylbenzene, 4-Hydroxytoluene
Cresols/ Cresylic Acid (isomers and mixture)	1319-77-3	1	
Cyanide Compounds (except those specifically listed)	20-09-7	5	Cyanide (Barium, Chlorine, Free, Hydrogen, Potassium, Silver, Sodium, Zinc)
DDE (p,p'-Dichlorodiphenyl Dichloroethylene)	72-55-9	0.01	
Di(2-Ethylhexyl)Phthalate, (DEHP)	117-81-7	5	Bis(2-ethylhexyl)Phthalate, Di(2-Ethylhexyl)Phthalate, DOP, Di-Sec-Octyl Phthalate
Diaminotoluene, [2,4-]	95-80-7	0.02	2,4-Toluene Diamine, 3-Amino-Para-Toluidine, 5-Amino-Ortho-Toluidine
Diazomethane	334-88-3	1	Azimethylene, Diazirine
Dibenz(a,h)anthracene	53-70-3		This compound is considered to be polycyclic organic matter (POM).
Dibenzofuran	132-64-9	5	Diphenylene Oxide

Attachment E: Screen Modeling Action Levels

Chemical	CAS#	Emission Threshold Levels (tpy)	Synonyms
Dibenzopyrene, [1,2:7,8]	189-55-9		This compound is considered to be polycyclic organic matter (POM).
Dibromo-3-Chloropropane, [1,2-]	96-12-8	0.01	DBCP
Dibromomethane, [1,2-]	106-93-4	0.1	Ethylene Dibromide, Ethylene Bromide, Sym-Dibromoethane
Dichlorobenzene, [1,4-]	106-46-7	3	1,4-Dichloro-P-DCB, 1-4-DCB, PDB, PDCB
Dichlorobenzidine, [3,3-]	91-94-1	0.2	4,4'-Diamino-3,3'-Dichlorobiphenyl, 3,3'-Dichlorobiphenyl-4,4'-Diamine, DCB
Dichloroethane, [1,1-]	75-34-3	1	Ethylidene Dichloride, 1,1-Ethylidene Dichloride, Asymmetrical Dichlorethane
Dichloroethane, [1,2-]	107-06-2	0.8	Ethylene Dichloride, Glycol Dichloride, Ethylene Chloride
Dichloroethylene, [1,1-]	75-35-4	0.4	Vinylidene Chloride, DCE, VDC
Dichloropropane, [1,2-]	78-87-5	1	Propylene Dichloride
Dichloropropene [1,3-]	542-75-6	1	1,3-Dichloropropylene, Alpha-Chlorallyl Chloride
Dichlorvos	62-73-7	0.2	DDVP, 2,2-Dichlorovinyl dimethylphosphate
Diethanolamine	11-42-2	5	Bis(2-Hydroxyethyl)Amine, 2,2'-Dihydroxydiethylamine, Di(2-Hydroxyethyl)Amine
Diethyl Sulfate	64-67-5	1	Diethyl Ester Sulfuric Acid, Ethyl Sulfate
Dimethoxybenzidine, [3,3-]	119-90-4	0.1	Fast Blue B Base, Dianisidine, O-Dianisidine
Dimethylbenz(a)anthracene, [7,12]	57-97-6	0.01	
Dimethyl Benzidine, [3,3-]	119-93-7	0.008	O-Tolidine, Bianisidine, 4,4'-Diamino-3,3'-Dimethylbiphenyl, Diaminoditoyl
Dimethyl Carbamoyl Chloride	79-44-7	0.02	DMCC, Chloroformic Acid Dimethyl Amide, Dimethyl Carbamyl Chloride
Dimethyl Formamide	68-12-2	1	DMF, Formyldimethylamine
Dimethyl Hydrazine, [1,1-]	57-14-7	0.008	Unsymmetrical Dimethylhydrazine, UDMH, Dimazine
Dimethyl Sulfate	77-78-1	0.1	Sulfuric Acid Dimethyl Ester, Methyl Sulfate
Dimethylaminoazobenzene, [4-]	60-11-7	1	N,N-Dimethyl-P-Phenylazo-Aniline, Benzeneazo Dimethylaniline
Dimethylaniline, [N,N-]	121-69-7	1	N,N-Diethyl Aniline, N,N-Dimethylphenylamine, DMA
Dinitro-O-Cresol, [4,6-] and salts	534-52-1	0.1	DNOC, 3,5-Dinitro-O-Cresol, 2-Methyl-4,6-Dinitrophenol
Chemical	CAS#	Emission	Synonyms

Attachment E: Screen Modeling Action Levels

		Threshold Levels (tpy)	
Dinitrophenol, [2,4-]	51-28-5	1	DNP
Dinitrotoluene, [2,4-]	121-14-2	0.02	Dinitrotoluol, DNT, 1-Methyl-2,4-Dinitrobenzene
Dioxane, [1,4-]	123-91-1	6	1,4-Diethyleneoxide, Diethylene Ether, P-Dioxane
Diphenylhydrazine, [1,2-]	122-66-7	0.09	Hydrazobenzene, N,N'-Diphenylhydrazine, N,N'-Bianiline, 1,1'-Hydrodibenzene
Diphenylmethane Diisocyanate, [4,4-]	101-68-8	0.1	Methylene Bis(Phenylisocyanate), Methylene Diphenyl Diisocyanate, MDI
Epichlorohydrin	106-89-8	2	1-Chloro-2,3-Epoxypropane, EPI, Chloropropylene Oxide, Chloromethyloxirane
Ethyl Acrylate	140-88-5	1	Ethyl Propenoate, Acrylic Acid Ethyl Ester
Ethylene Imine (Aziridine)	151-56-4	0.003	Azacyclopropane, Dimethyleneimine, Ethylenimine, Vinylamine, Azirane
Ethylene Oxide	75-21-8	0.1	1,2-Epoxyethane, Oxirane, Dimethylene Oxide, Anprolene
Ethylene Thiourea	96-45-7	0.6	2-Imidazolidinethione, ETU
Fluomine	62207-76-5	0.1	
Formaldehyde	50-00-0	2	Oxymethylene, Formic Aldehyde, Methanal, Methylene Oxide, Oxomethane
Glycol Ethers (except those specifically listed)		5	
Heptachlor	76-44-8	0.02	1,4,5,6,7,8,8A-Heptachloro-3A,4,7,7A-Tetrahydro-4,7-Methanoindiene
Hexachlorobenzene	118-74-1	0.01	Perchlorobenzene, HCB, Pentachlorophenyl Benzene, Phenyl Perchloryl
Hexachlorobutadiene	87-68-3	0.9	Perchlorobutadiene, 1,3-Hexachlorobutadiene, HCB
Hexachlorocyclopentadiene	77-47-4	0.1	HCCPD, HEX
Hexachloroethane	67-72-1	5	Perchloroethane, Carbon Hexachloride, HCE, 1,1,1,2,2,2-Hexachloroethane
Hexamethylene Diisocyanate, 1,6-	822-06-0	0.02	1,6-Diisocyanatohexane, 1,6-Hexanediol Diisocyanate
Hexamethylphosphoramide	680-31-9	0.01	Hexamethylphosphoric Triamide, HEMPA, Hexametapol, Hexamethylphosphoramide
Hydrazine	302-01-2	0.004	Methylhydrazine, Diamide, Diamine, Hydrazine Base
Hydrogen Fluoride	7664-39-3	0.1	Hydrofluoric Acid Gas, Fluorhydric Acid Gas, Anhydrous Hydrofluoric Acid
Hydrogen Selenide	7783-07-5	0.1	
Chemical	CAS#	Emission	Synonyms

Attachment E: Screen Modeling Action Levels

		Threshold Levels (tpy)	
Hydroquinone	123-31-9	1	Quinol, Hydroquinol, P-Diphenol, 1,4-Benzenediol, Hydrochinone, Arctuin
Indeno(1,2,3-cd)Pyrene	193-39-5	0.01	
Lead and Compounds (except those specifically listed)	20-11-1	0.01	Lead (Acetate, Arsenate, Chloride, Fluoride, Iodide, Nitrate, Sulfate, Sulfide)
Lindane [Gamma-Hexachlorocyclohexane]	58-89-9	0.01	Benzene Hexachloride – Gamma Isomer
Maleic Anhydride	108-31-6	1	2,5-Furandiene, Cis-Butenedioic Anhydride, Toxilic Anhydride
Manganese and Compounds (except those specifically listed)	20-12-2	0.8	Manganese (Acetate, Chloride, Dioxide, (II)-Oxide, (III)-Oxide, (II)-Sulfate)
Mercury Compounds (except those specifically listed)	20-13-3	0.01	Mercury Compounds (Methyl-, Ethyl-, Phenyl-)
Mercury Compounds (Inorganic)	20-13-3	0.01	Mercury (Chloride, Cyanide, (I,II)-[Bromide, Iodide, Nitrate, Sulfate], Oxide)
Methyl Hydrazine	60-34-4	0.06	Monomethylhydrazine, Hydrozomethane, 1-Methylhydrazine
Methyl Iodide	74-88-4	1	Idomethane
Methyl Isocyanate	624-83-9	0.1	Isocyanatomethane, Isocyanic Acid, Methyl Ester
Methylcyclopentadienyl Manganese	12108-13-3	0.1	
Methylene Bis(2-Chloroaniline), [4,4-]	101-14-4	0.2	Curene, MOCA, 4,4'-Diamino-3,3'-Dichlorodiphenylmethane
Methylenedianiline, [4,4-]	101-77-9	1	4,4'-Diaminodipheylmethane, DDM, MDA, Bis(4-Aminophenyl)Methane,
Nickel Carbonyl	13463-39-3	0.1	
Nickel Compounds (except those specifically listed)		1	Nickel (Acetate, Ammonium Sulfate, Chloride, Hydroxide, Nitrate, Oxide, Sulfate)
Nickel Refinery Dust	12035-72-2	0.08	
Chemical	CAS#	Emission	Synonyms

Attachment E: Screen Modeling Action Levels

		Threshold Levels (tpy)	
Nickel Subsulfide		0.04	
Nitrobenzene	98-95-3	1	Nitrobenzoin, Oil of Mirbane, Oil of Bitter Almonds
Nitrobiphenyl, [4-]	92-93-3	1	4-Nitrodiphenyl, P-Nitrobiphenyl, P-Nitrophenyl, PNB
Nitrophenol, [4-]	100-02-7	5	4-Hydroxynitrobenzene, Para-Nitrophenol
Nitropropane, [2-]	79-46-9	1	Dimethylnitromethane, Sec-Nitropropane, Isonitropropane, Nitroisopropane
Nitroso-N-Methylurea, [N-]	684-93-5	0.0002	N-Methyl-N-Nitrosourea, N-Nitroso-N-Methylcarbamide
Nitrosodimethylamine, [N-]	62-75-9	0.001	Dimethylnitrosamine, DMN, DMNA
Nitrosomorpholine, [N-]	59-89-2	1	4-Nitrosomorpholine
Parathion	56-38-2	0.1	DNTP, Monothiophosphate, Diethyl-P-Nitrophenyl
PCB (Polychlorinated Biphenyls)	1336-36-3	0.009	Aroclors
Pentachloronitrobenzene	82-68-8	0.3	Quintobenzene, PCNB, Quiniozene
Pentachlorophenol	87-86-5	0.7	PCP, Penchlorol, Pentachlorophenate, 2,3,4,5,6-Pentachlorophenol
Phenol	108-95-2	0.1	Carbolic Acid, Phenic Acid, Phenylic Acid, Phenyl Hydrate, Hydroxybenzene
Phenyl Mercuric Acetate	62-38-4	0.01	
Phosgene	75-44-5	0.1	Carbonyl Chloride, Carbon Oxychloride, Carbonic Acid Dichloride
Phosphine	7803-51-2	5	Hydrogen Phosphide, Phosphoretted Hydrogen, Phosphorus Trihydride
Phosphorous (Yellow or White)	7723-14-0	0.1	
Phthalic Anhydride	85-44-9	5	Phthalic Acid Anhydride, Benzene-O-Dicarboxylic Acid Anhydride, Phthalandione
Polycyclic Organic Matter (except those specifically listed)	TP15	0.01	POM, PAH, Polyaromatic Hydrocarbons,
Potassium Cyanide	151508	0.1	
Propane Sultone, [1,3-]	1120-71-4	0.03	1,2-Oxathiolane-2,2-Dioxide, 3-Hydroxy-1-Propanesulphonic Acid Sultone
Propiolactone, [Beta-]	57-57-8	0.1	2-Oxeatanone, Propiolactone, BPL, 3-Hydroxy-B-Lactone-Propanoic Acid
Propionaldehyde	123-38-6	5	Propanal, Propyl Aldehyde, Propionic Aldehyde
Propylene Oxide	75-56-9	5	1,2-Epoxypropane, Methylethylene Oxide, Methyl Oxirane, Propene Oxide
Chemical	CAS#	Emission	Synonyms

Attachment E: Screen Modeling Action Levels

		Threshold Levels (tpy)	
Propyleneimine, [1,2-]	75-55-8	0.003	2-Methyl Aziridine, 2-Methylazacyclopropane, Methylethyleneimine
Quinoline	91-22-5	0.006	1-Azanaphthalene, 1-Benzazine, Benzo(B)Pyridine, Chinoleine, Leucoline
Quinone	016-51-4	5	Benzoquinone, Chinone, P-Benzoquinone, 1,4-Benzooquinone
Selenium and Compounds (except those specifically listed)	7782-49-2	0.1	Selenium (Metal, Dioxide, Disulfide, Hexafluoride, Monosulfide)
Sodium Cyanide	143339	0.1	
Sodium Selenate	13410010	0.1	
Sodium Selenite	10102018 8	0.1	
Styrene	100-42-5	1	Cinnamene, Cinnamol, Phenethylene, Phenylethylene, Vinylbenzene
Styrene Oxide	96-09-3	1	Epoxyethylbenzene, Phenylethylene Oxide, Phenyl Oxirane, Epoxystyrene
Tetrachlorodibenzo-P-Dioxin	1746-01-6	6.00E-07	
Tetrachloroethane, [1,1,2,2-]	79-34-5	0.3	Sym-Tetachloroethane, Acetylene Tetrachloride, Ethane Tetrachloride
Tetraethyl Lead	78-00-2	0.01	
Tetramethyl Lead	75-74-1	0.01	
Titanium Tetrachloride	7550-45-0	0.1	Titranium Chloride
Toluene Diisocyanate, [2,4-]	584-84-9	0.1	TDI, Tolylene Diisocyante, Diisocyanatoluene
Toluidine, [Ortho-]	95-53-4	4	Ortho-Aminotoluene, Ortho-Methylaniline, 1-Methyl-1,2-Aminobenzene
Toxaphene	8001-35-2	0.01	Chlorinated Camphene, Camphechlor, Polychlorcamphene
Trichloroethane, [1,1,2-]	79-00-5	1	Vinyl Trichloride, Beta-Trichloroethane
Trichlorophenol, [2,4,5-]	95-95-4	1	2,4,5-TCP
Trichlorophenol, [2,4,6-]	88-06-2	6	2,4,6-TCP
Trifluralin	1582-09-8	9	2,6-Dinitro-N-N-Dipropyl-4-(Trifluoromethyl)Benzeneamine
Trimethylpentane, [2,2,4-]	540-84-1	5	Isobutyltrimethylethane, Isoctane
Urethane [Ethyl Carbamate]	51-79-6	0.8	Ethyl Urethane, O-Ethylurethane, Leucothane, NSC 746, Urethan

Mr. Michael Huff  
Environmental Engineer  
Silgan Containers Manufacturing Corporation  
2115 Southwest Lower Lake Road  
St. Joseph, MO 64504-0488

RE: New Source Review Permit - Project Number: 2008-07-020

Dear Mr. Huff:

Enclosed with this letter is your permit to construct. Please study it carefully. Also, note the special conditions, if any, on the accompanying pages. The document entitled, "Review of Application for Authority to Construct," is part of the permit and should be kept with this permit in your files.

Operation in accordance with these conditions, your new source review permit application and with your amended operating permit is necessary for continued compliance. The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

If you have any questions regarding this permit, please do not hesitate to contact Susan Heckenkamp, at the departments' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Kendall B. Hale  
New Source Review Unit Chief

KBH:shl

Enclosures

c: Kansas City Regional Office  
PAMS File: 2008-07-020

Permit Number: