UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2

DATE: MAY 15 2008

SUBJECT: Rosen Brothers Final Sample Report

FROM: Diane Salkie
DESA/HWSB

TO: Mark Granger, Remedial Project Manager
ERRD/NYRB

Attached please find the February 2008 sub-slab and indoor air sampling report for the Rosen Brothers site in Cortland, Cortland County, New York. If you have any questions, please contact me at (732) 321-4423

Attachment

SUPERFUND SUPPORT TEAM

SAMPLING REPORT

for the

VAPOR INTRUSION INVESTIGATION

at the

ROSEN BROTHERS SCRAPYARD/DUMP SITE

in CORTLAND, CORTLAND COUNTY, NEW YORK

Participating Personnel:	United States Environmental Protection Agency Diane Salkie, Environmental Scientist Joseph Hudek, Superfund Support Team Leader Pat Sheridan, Project Quality Assurance Officer
Report Prepared by:	Diane Salkie, Environmental Scientist
Date Prepared:	May 09, 2008
Approved for the Director by :	Robert Runyon, Chief, Hazardous Waste Support Branch

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1.0 BACKGROUND

The Rosen Brothers Scrap Yard/Dump Site (site) is an abandoned scrap metal processing facility which occupies approximately 20 acres on the southern side of the City of Cortland, New York. The east side of the site is bordered by the former Kirby Company, Pendleton Street, a vacant lot, a small residential area consisting of 13 apartment buildings and GT Auto Finishers. On the north side is the Perplexity Creek, railroad tracks, several industries (Acorn Products, Tuscarora Plastics and Marietta Packaging), Huntington Street, 20 residences and the Randall Elementary School. The west is bordered by South Main Street and several industries including GS Heavy Duty Electric, JTS Lumber and Cortland Wholesale Lumber and Plywood and to the south is Perplexity Creek Tributary, a former City of Cortland dump site, Valley View Drive and the Cortland City Junior and Senior High Schools. See Appendix A for a site location map.

In the late 1800's, a forty acre parcel of land was developed by Wickwire Brothers, Inc. as an industrial facility for the manufacture of wire, wire products, insect screens, poultry netting and nails. The eastern half of the property was used as a scrap yard, supplying metal for the steel mill. A three acre, on-site pond was dammed and used as a cooling pond. The entire facility was sold to Keystone Consolidated Industries in 1968. Keystone closed the facility in 1971 and shortly thereafter, the facility was destroyed by fire. In the early 1970's, Phillip and Harvey Rosen transferred their existing scrap-metal processing operation to the eastern portion of the property. The Rosen Brothers began the demolition of the Wickwire buildings on the western portion of the property. The demolition debris was used to fill in most of the cooling pond. In exchange for the work, Rosen Brothers was granted title of the eastern property. The western portion was cleared for development in 1979 and has since been known as the Noss Industrial Park.

Rosen Brothers' operations included scrap metal processing and automobile crushing. The site was used to stage large quantities of abandoned vehicles, appliances, steel tanks, drums, truck bodies and other scrap. Municipal waste, industrial waste and construction waste were allegedly disposed of in or on the former cooling pond. The Cortland County Health Department cited Rosen Brothers for various violations including illegally dumping into the Perplexity Creek Tributary, improperly disposing of waste and operating a refuse disposal area without a permit. Operations at the site ceased in 1985 and the site was abandoned.

In 1986, the New York State Department of Environmental Conservation (NYSDEC) conducted a Phase II Investigation which included a site inspection, geophysical studies, installation of soil borings and monitoring wells and sampling and analysis of groundwater, soil, sediment and waste material. The inspection concluded that hazardous materials were present on site including several hundred full and/or leaking drums, transformers filled with polychlorinated biphenyls (PCBs) and pressurized cylinders of unknown content. The results of sampling indicated levels of 1,1-dichloroethene, 1,1,-dichloroethane, tetrachloroethene, 1,1,1-trichloroethane, PCBs, anthracene, pyrene, lead and chromium in the on-site soil, sediment and groundwater.

The U.S. EPA Region II performed a removal action at the site in 1987 which included fencing the site, sampling, excavating visibly contaminated soil and securing and temporary staging of drums, tanks, cylinders, transformers and excavated soil. In 1989, the site was added to the Superfund National Priorities List. Three companies, Monarch Machine Company, Niagra Mohawk Power Corporation and the Dallas Corporation were held responsible and voluntarily demolished unsound buildings and a smoke stack, removed and recycled 200 tons of scrap, disposed of the contents of an abandoned underground storage tank, and removed a small concrete oil pit.

The U.S. EPA Environmental Remedial and Response Division (ERRD) determined that a vapor intrusion investigation is necessary due to the proximity of buildings near the site and the volatility of the volatile organic compounds on site. Based on results from a previous vapor intrusion investigation, the Division of Environmental Science and Assessment (DESA), Hazardous Waste Support Branch (HWSB), Superfund Support Team (SST) was requested by a remedial project manager (RPM) of ERRD to conduct another round of vapor intrusion investigation in one business, Ames Linen, near the Rosen Brothers site.

2.0 SAMPLING PROCEDURES

The sampling procedures were in accordance with the guidelines set forth in the Quality Assurance Project Plan (QAPP) which is located in Appendix B.

3.0 DESCRIPTION OF EVENTS

The vapor intrusion investigation began on February 11, 2008 with the installation of two additional sub-slab ports in the empty warehouse of Ames Linen located to the North of the Rosen Brothers site. There are two buildings at Ames Linen, one is an empty warehouse and the other houses the main laundering operations and offices. During the last sampling event in March 2007, two sub-slab ports were installed in the main building and three ports were installed in the warehouse. The warehouse samples are denoted 67W, while the main building samples are denoted 67M.

The sampling team consisted of two (2) members from the U.S. EPA, DESA, HWSB, SST. The ports were installed according to REAC *Standard Operating Procedure 2082: Construction and Installation of Permanent Sub-Slab Soil Gas Wells* which can be found as Appendix D in the QAPP which is attached to this document as Appendix B. The port installation process involves inserting stainless steel tubing through a hole made into the lowest floor of the building, approximately one inch below the concrete slab. The ports were sealed with new concrete and left to set for twenty four hours. The first new port, denoted, 67W-SS-SC is located at the south side of the warehouse in between the two previously installed ports, 67W-SS-SE and 67W-SS-SW. The second port was installed in the center of the warehouse, in the approximate location of the previously collected indoor air sample, 67W-IA-C. Both ports were installed seven inches below the surface of the slab. A sketch of each port location can be found in Appendix E.

Over the twenty four hour period of February 12 – 13, 2008, seven sub-slab samples and four indoor air samples were collected from the warehouse and the main building. A sub-slab sample was collected from every port; two in the main building and five in the warehouse, including the two new ports. Two indoor air samples were collected from the warehouse next to ports 67W-SS-SW and 67W-SS-C. Two indoor air samples were collected from the main building next to ports 67M-SS-B and 67M-SS-C. An ambient air sample was collected behind or to the south of the buildings, along the fence line that borders the Rosen Brothers property to eliminate the possibility of exterior air cross-contamination. For duplicate sample collection, two canisters are connected to the same port and opened simultaneously. The duplicate sample was collected at location, 67W-SS-SE and denoted, 67W-SS-SE2. A photograph log of the canister sample locations can be found as Appendix F. A sketch of each sample can be found in Appendix E. The following table indicates the SUMMA™ canisters that were used for each sample as well as the sample types and pressures.

TABLE 1 – SAMPLE COLLECTION

Building	Sample Type	Sample Location	Sample #	Canister #	Start Pressure (Hg)	Final Pressure (Hg)
Main Building (67W)	Sub-slab	Port in the center of the main building	67M-SS-C	2963	-28	-10
	Indoor Air	Center of main building, near port	67M-IA-C	792	-25	-7
	Sub-slab	Port in the boiler room of main building	67M-SS-B	175	-30	-5
	Indoor Air	From the boiler room of main building, near a port	67M-IA-B	952	-25	-10
Empty Warehouse (67M)	Sub-slab	Southwest port in warehouse (corridor)	67M-SS-SW	732	-28	-9
	Sub-slab	New port in the center of south side of warehouse	67M-SS-SC	992	-28	-9.5
	Sub-slab	New port in the center of the warehouse	67M-SS-C	688	-29	-8
	Sub-slab	Southeast port in warehouse	67M-SS-SE	516	-26	-8
	Sub-slab	Duplicate of sample, 67M-SS-SE	67M-SS-SE2	991	-28.5	-8.5
	Sub-slab	Northern port in the warehouse	67M-SS-N	650	-22	-4
	Indoor Air	Near the southwest port in warehouse	67M-IA-SW	535	-23	-5
	Indoor Air	In the center of the warehouse, near a port	67M-IA-C	721	-28	-8
Ambient Air	AA	To the South of the buildings, outside	67-AA	609	-28	-9

The sub-slab air samples were sent to Environmental Analytical Services (EAS) laboratory for low level TO-15 analysis, while the indoor air and ambient air samples were also sent to EAS for selective ion mode (SIM) TO-15 analysis. The shipment information can also be found in the trip report in Appendix D. A photograph log of the canister sample locations can be found as Appendix F.

All air samples were analyzed by the EAS laboratory for volatile organic compounds (VOCs) only, according to U.S. EPA Compendium Method *TO-15: Determination of Volatile Organic Compounds (VOCs) in Air Collected in Specialty-Prepared Canisters and Analyzed by Gas Chromatography/Mass Spectrometry (GC/MS)* from the *Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air* which can be found as Appendix C of the quality assurance project plan which can be found as Appendix B of this document.

4.0 RESULTS

As a part of the laboratory's Quality Assurance/ Quality Control (QA/QC) criteria a blind, field duplicate sub-slab air sample was collected by connecting two canisters next to the same sub-slab port. The duplicate results for trichlorofluoromethane, 1,1-dichloroethene and trans-1,2-dichloroethene were found to be above EPA criteria for duplicate samples of 50%. These results should be considered estimated. Due to a mass spectrometer tuning error in the laboratory, all results are estimated. None of the results were rejected, therefore, all results are acceptable and usable. The Quality Assurance/ Quality Control sample data can be found in Table 2 on page 5 and in the Data Assessments in Appendix C.

The U.S. EPA Region II utilizes a matrix to assess the vapor intrusion pathway at Superfund sites. The matrix compares the indoor air results and the sub-slab results to each other to determine whether the contamination originates from the contaminated ground water or soil. Both results are then compared to an action level. For example, if the indoor air sample is contaminated with benzene above the action level, however, the sub-slab sample did not detect benzene, the matrix determines that the contamination originated from the indoor air. If the sub-slab sample is contaminated, but the indoor air sample is not, there is no health threat. Therefore, the sub-slab sample and the indoor air sample must contain the same contaminant to prove attribution to the site. The volatile organic contaminants of concern at the Rosen Brothers site are 1,1-dichloroethene, 1,1,-dichloroethane, tetrachloroethene, 1,1,1-trichloroethane. The samples were analyzed for these compounds as well as any breakdown products of the compounds. As a guidance, the sample results were compared to the U.S. *EPA Region III Risk Based Concentration (RBC) Table for Ambient Air,* updated April 06, 2007 which can be found as Appendix G. The indoor air results were compared to the ambient air RBCs directly, while the soil gas samples were compared to the ambient air RBC number times an attenuation factor of ten. The action levels for trichloroethene and tetrachloroethene are not derived from the RBCs, but were created by Region II risk assessors. These results can be seen in Table 3

on page 6 and in Appendix C. A comparison between March 2007 sample results and February 2008 sample results can be found in Table 4 on page 9.

Benzene was detected above the RBC ambient air numbers in every air sample. However, benzene is not a contaminant of concern and was also detected in the ambient air sample. The benzene concentrations are consistent in every air sample with an average of 22 $\mu g/m^3$. These results are ten to thirty times higher than the March 2007 sampling event as can be seen on Table 4 on page 9. Each canister was certified clean and the certificates can be found in Appendix C and benzene was not found in the laboratory method blank sample. Due to the consistency in numerical results between the sub-slab and indoor air samples, it does not seem likely to be a vapor intrusion issue.

Trichloroethene (TCE), a breakdown of tetrachloroethene (PCE) was found above the action level in the sub-slab sample collected from the sub-slab below the boiler room in the main building, the sub-slab sample collected from the center of the warehouse and southeast sub-slab port in the warehouse. TCE did not exceed the action level in any of the indoor air samples. Therefore, there is no health concern in the breathing space of the buildings. The other contaminants of concern, ,1-dichloroethene, 1,1,-dichloroethane, tetrachloroethene, 1,1,1-trichloroethane, were found in the indoor air and sub-slab air samples at levels below the RBCs. These results can be seen on Table 3 on page 6 and in Appendix C. The compounds found above the action levels are highlighted in yellow. Table 4 on page 9 compares the results of a number of compounds found in the March 2007 sampling event to the February 2008 sampling event. The TCE concentrations increased in the sub-slab samples from the boiler room and the warehouse southeast port.

5.0 CONCLUSION:

As can be seen from the highlighted portion of Table 3, benzene was detected above the Region III Risk-based Concentrations (RBCs) in the indoor air samples from both buildings at 67 Huntington Street. However, benzenemost likely did not originate from the sub-slab air based on the consistent results of the indoor air and sub-slab air. Trichloroethene was found above the action level in one sub-slab sample, but was found at low levels in the indoor air. Therefore, there is no complete vapor intrusion pathway in this business near the site. A human health risk assessment is recommended to confirm this conclusion.

TABLE 2
QA/QC SAMPLE DATA

TYPE OF SAMPLE	CANISTER NUMBERS	SAMPLE NUMBERS	SAMPLE LOCATION
SUB-SLAB DUPLICATE	991 is a duplicate of 516	67M-SS-SE2 is a duplicate of 67M-SS-SE	Sub-slab sample collected from the port in the southeast side of the warehouse
AMBIENT Air	609	67-AA	A location to the south, between the 2 buildings

TABLE 3
AIR SAMPLE SUMMARY

Address	Sample Location	Sample Number	Canister Number	Organic Compounds & Concentrations (ug/m3)			Region 3 RBCs (ug/m3)[1]	
				Compounds	Conc.	QC	Soil Gas	Indoor Air
Main Building	Sub-Slab	67M-SS-C	2963	1,1,1-Trichloroethane	13.12	J	10,000	
				Benzene	37.09	J	2.3	
				Trichloroethene	3.06	J	50	
				Toluene	66.42	J	51,000	
				Tetrachloroethene	90.63	J	1000	
	Indoor Air	67M-IA-C	792	Trichlorofluoromethane	1.67	J		730
				1,1,1-Trichloroethane	0.22	J		1000
				Benzene	25.99	J		0.23
				Trichloroethene	0.31	J		5.0
				Toluene	41.74	J		5100
				Tetrachloroethene	0.8	J		100
	Sub-slab	67-M-SS-B	175	Trichlorofluoromethane	1.91	J	7300	
				1,1-Dichloroethene	0.99	J	2200	
				1,1-Dichloroethane	5.6	J	5100	
				1,1,1-Trichloroethane	182.94	J	10,000	
				Benzene	31.56	J	2.3	
				Trichloroethene	124.02	J	50	
				Toluene	51.58	J	51,000	
				Tetrachloroethene	7.78	J	1000	
	Indoor Air	67M-IA-B	952	Chloroethane	0.09	J		2.2
				Trichlorofluoromethane	1.62	J		730
				1,1,1-Trichloroethane	0.32	J		1000
				Benzene	21.49	J		0.23
				Trichloroethene	0.29	J		5.0
				Toluene	30.41	J		5100
				Tetrachloroethene	0.58	J		100

J – The result is estimated, see the Data Assessment in Appendix C for further explanation.

1- U.S. EPA Region III. *Risk-Based Concentration Table.* Mid-Atlantic Risk Assessment. Updated April 06, 2007 except for TCE and PCE which were derived from Region II risk assessment.

TABLE 3 - Continued
AIR SAMPLE SUMMARY

Address	Sample Type	Sample Number	Canister Number	Organic Compounds & Concentrations (ug/m3)			Region 3 RBCs (ug/m3) [1]	
				Compounds	Conc.	QC	Soil Gas	Indoor Air
Empty Warehouse	Sub-Slab	67W-SS-SW	732	Trichlorofluoromethane	2.37	J	7300	
				1,1,1-Trichloroethane	0.74	J	10,000	
				Benzene	19.05	J	2.3	
				Trichloroethene	2.36	J	50	
				Toluene	19.78	J	51,000	
	Sub-Slab	67W-SS-SC	992	Trichlorofluoromethane	1.34	J	7300	
				1,1-Dichloroethane	1.42	J	5100	
				1,1,1-Trichloroethane	115.39	J	10,000	
				Benzene	10.01	J	2.3	
				Toluene	9.91	J	51,000	
	Sub-Slab	67W-SS-C	688	Trichlorofluoromethane	2.05	J	7300	
				1,1,1-Trichloroethane	44.7	J	10,000	
				Benzene	21.69	J	2.3	
				Trichloroethene	51.53	J	50	
				Toluene	23.25	J	51,000	
	Sub-Slab	67W-SS-SE	516	Trichlorofluoromethane	8.26	J	7300	
				1,1-Dichloroethene	68.9	J	2200	
				trans-1,2-Dichloroethene	1.69	J	620	
				1,1-Dichloroethane	23.31	J	5100	
				cis-Dichloroethene	25.27	J	370	
				1,1,1-Trichloroethane	369.31	J	10,000	
				Benzene	21.13	J	2.3	
				Trichloroethene	5031.37	J	50	
				Toluene	16.47	J	51,000	
				Tetrachloroethene	4.59	J	1000	
	Sub-Slab Duplicate	67W-SS-SE2	991	Trichlorofluoromethane	4.41	J	7300	
				1,1-Dichloroethene	9.81	J	2200	
				trans-1,2-Dichloroethene	0.66	J	620	
				1,1-Dichloroethane	14.22	J	5100	
				cis-Dichloroethene	17.29	J	370	
				1,1,1-Trichloroethane	307	J	10,000	
				Benzene	20.18	J	2.3	
				Trichloroethene	4787.27	J	50	
				Toluene	19.41	J	51,000	

J – The result is estimated, see the Data Assessment in Appendix C for further explanation.
1- U.S. EPA Region III. *Risk-Based Concentration Table.* Mid-Atlantic Risk Assessment. Updated April 06, 2007 except for TCE and PCE which were derived from Region II risk assessment.

TABLE 3 - Continued
AIR SAMPLE SUMMARY

Address	Sample Type	Sample Number	Canister Number	Organic Compounds & Concentrations (ug/m3)			Region 3 RBCs (ug/m3) [1]	
				Compounds	Conc.	QC	Soil Gas	Indoor Air
Empty Warehouse	Sub-slab	67W-SS-N	650	Trichlorofluoromethane	1.29	J	7300	
				1,1,1-Trichloroethane	1.27	J	10,000	
				Benzene	22.42	J	2.3	
				Trichloroethene	15.1	J	50	
				Toluene	21.8	J	51,000	
	Indoor Air	67W-IA-SW	535	Chloroethane	0.11	J		2.2
				1,1-Dichloroethene	0.25	J		220
				trans-1,2-Dichloroethene	0.26	J		62
				Benzene	19.51	J		0.23
				Trichloroethene	0.27	J		5.0
				Toluene	14.51	J		5100
				Tetrachloroethene	0.45	J		100
	Indoor Air	67W-IA-C	729	Trichlorofluoromethane	1.81	J		730
				Benzene	11.76	J		0.23
				Trichloroethene	0.27	J		5.0
				Toluene	8.63	J		5100
Ambient	Ambient Air	67-AA	609	Trichlorofluoromethane	1.63	J		730
				Benzene	11.41	J		0.23
				Toluene	8.25	J		5100

J – The result is estimated, see the Data Assessment in Appendix C for further explanation.
1- U.S. EPA Region III. *Risk-Based Concentration Table.* Mid-Atlantic Risk Assessment. Updated April 06, 2007 except for TCE and PCE which were derived from Region II risk assessment.

TABLE 4 – COMPARISON BETWEEN 2007 AND 2008 RESULTS										
	TCE		PCE		1,1,1-TCA		1,1-DCE		1,1-DCA	
Sample Location	March 2007	February 2008	March 2007	February 2008	March 2007	February 2008	March 2007	February 2008	March 2007	February 2008
Main Building										
67M-SS-C	9.9	3.06	292.67	90.63	35.33	13.12	ND	ND	246.17	ND
67M-IA-C	2.05	0.31	1.14	0.8	0.32	0.22	0.25	ND	ND	ND
67M-SS-B	11.19	124.02	1.18	7.78	9.76	182.94	ND	0.99	0.9	5.6
67M-IA-B	0.72	0.29	0.55	0.58	0.3	0.32	0.19	ND	ND	ND
67M-IA-P	0.7	NS	0.45	NS	0.47	NS	0.18	NS	ND	NS
67M-IA-O	0.53	NS	0.28	NS	0.27	NS	0.25	NS	ND	NS
Warehouse										
67W-SS-SW	ND	2.36	3.59	19.78	12.95	0.74	ND	ND	ND	ND
67W-IA-SW	0.29	0.27	0.31	0.45	ND	ND	ND	0.25	ND	ND
67W-SS-SC	NS	ND	NS	ND	NS	115.39	NS	ND	NS	1.42
67W-SS-N	10.5	15.1	3.91	ND	3.86	1.27	ND	ND	ND	ND
67W-SS-C	NS	51.53	NS	23.25	NS	44.7	NS	ND	NS	ND
67W-IA-C	0.2	0.27	0.33	ND	ND	ND	ND	ND	ND	ND
67W-SS-SE	3445.64	5031.37	31.5	4.59	251.51	369.31	ND	68.9	ND	23.31
Ambient	0.2	ND	0.29	ND	ND	ND			ND	ND

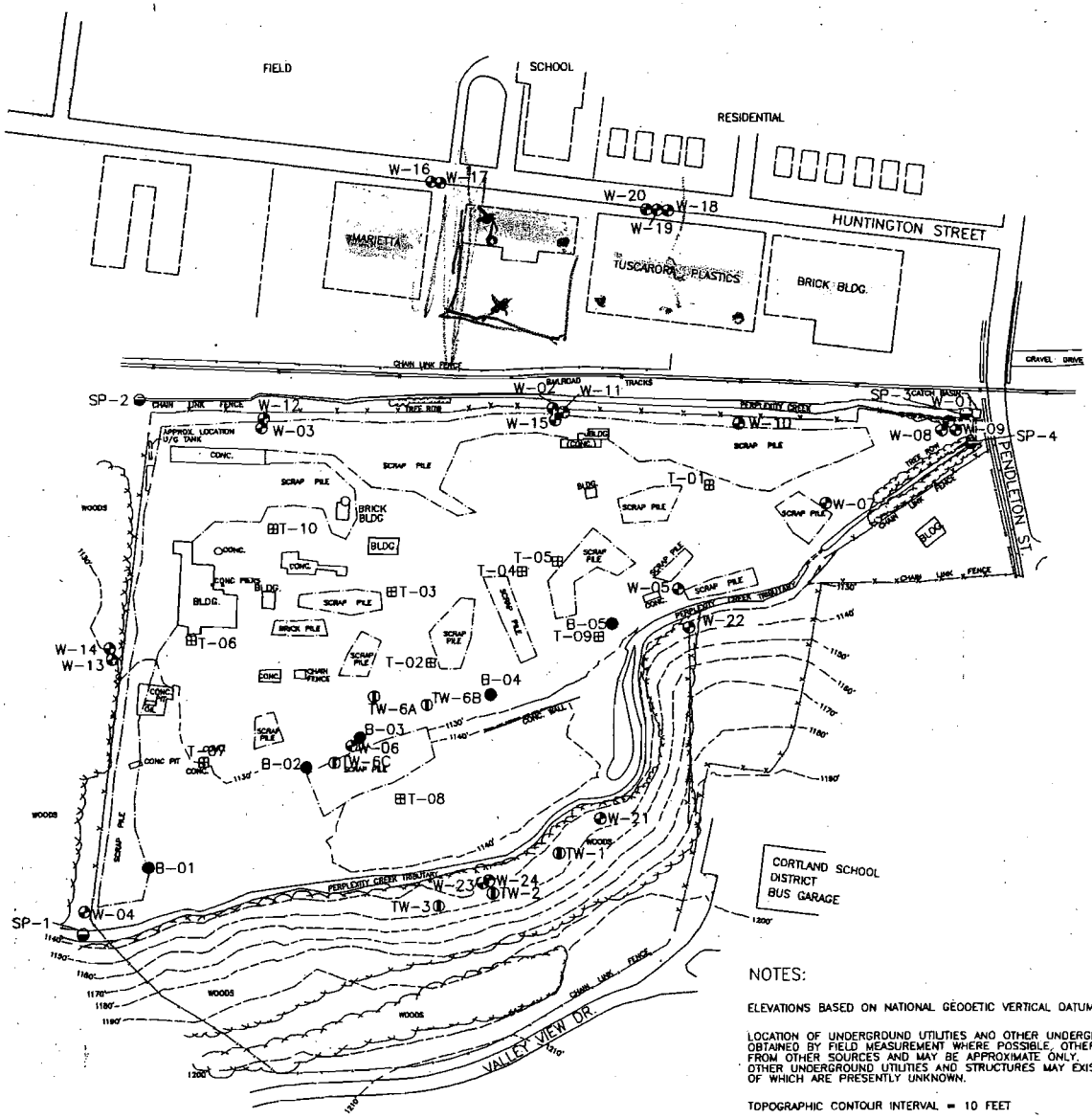
Units are in (ug/m3). Highlighted result indicates the number is above the EPA Region 3 RBCs
ND = Non-detect and NS = Not sampled
TCE = Trichloroethene, PCE = Tetrachloroethene, 1,1,1-TCA = 1,1,1-Trichloroethane, 1,1-DCE = 1,1-Dichloroethene, 1,1-DCA= 1,1-Dichloroethane

TABLE 4 – COMPARISON BETWEEN 2007 AND 2008 RESULTS – Cont.				
	Benzene		Toluene	
Sample Location	March 2007	February 2008	March 2007	February 2008
Main Building				
67M-SS-C	ND	37.09	ND	66.42
67M-IA-C	1.58	25.99	2.71	41.74
67M-SS-B	1.42	31.56	4.94	51.58
67M-IA-B	1.46	21.49	2.74	30.41
67M-IA-P	1.55	NS	3.41	NS
67M-IA-O	0.52	NS	0.28	NS
Warehouse				
67W-SS-SW	5.24	19.05	66.39	19.78
67W-SS-SC	NS	10.01	NS	9.91
67W-IA-SW	0.79	19.51	1.07	14.51
67W-SS-N	ND	22.42	10.8	21.8
67W-SS-C	NS	21.69	NS	23.25
67W-IA-C	0.88	11.76	0.91	8.63
67W-SS-SE	ND	21.13	ND	16.47
Ambient	0.78	11.41	0.54	8.25

Units are in (ug/m3). Highlighted result indicates the number is above the EPA Region 3 RBCs
ND = Non-detect and NS = Not sampled

APPENDIX A

SITE MAP



LEGEND

- MONITORING WELL
- TEST BORING
- TEST PIT
- TEMPORARY WELL
- STREAM MONITORING POINT

SCALE

200' 0 200'

NOTES:

ELEVATIONS BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.

LOCATION OF UNDERGROUND UTILITIES AND OTHER UNDERGROUND STRUCTURES OBTAINED BY FIELD MEASUREMENT WHERE POSSIBLE, OTHERWISE OBTAINED FROM OTHER SOURCES AND MAY BE APPROXIMATE ONLY. OTHER UNDERGROUND UTILITIES AND STRUCTURES MAY EXIST, THE LOCATIONS OF WHICH ARE PRESENTLY UNKNOWN.

TOPOGRAPHIC CONTOUR INTERVAL = 10 FEET

BLASLAND, BOUCK & LEE, INC.
ENGINEERS & SCIENTISTS

ROSEN SITE
CORTLAND, NEW YORK

BASELINE RISK ASSESSMENT

SITE MAP

FIGURE 1

#TEMAP, TESTHOLE, TWNEW ON AREA, SS, SSS, TPNEW, PCB OFF
/21/94 54-POL
\PROJECTS.DNC\MP\49402SM1A\49402SM1.DWG

APPENDIX B

QUALITY ASSURANCE PROJECT PLAN

FOR THE

ROSEN BROTHERS SITE

AMENDMENT

AMENDMENT TO:

QUALITY ASSURANCE PROJECT PLAN (QAPP)

FOR THE

VAPOR INTRUSION INVESTIGATION

AT THE

ROSEN BROTHERS SCRAP YARD/DUMP SITE

CITY OF CORTLAND, CORTLAND COUNTY, NEW YORK

Date: March 05, 2007

Project Officer's Signature: _____ Date: 2/4/08

Project Officer's Name: Diane Salkie, Environmental Scientist

Project Quality Assurance Officer's Signature: _____ Date: 2/5/08

Project Quality Assurance Officer's Name: Pat Sheridan, QA Officer

Date Prepared: February 04, 2008

Based on sampling results from the previous sampling round, ERRD has requested the installation of two additional sub-slab ports in the warehouse. Over a twenty four hour sampling period, sub-slab samples will be collected from the new ports in addition to the five sub-slab ports installed by EPA in March of 2007. In addition, four indoor air samples will be collected from the facility; two from the warehouse and two from the main building. The samples will be collected in 6 liter SUMMA canisters and analyzed for VOCs according to TO-15 as stated in the original QAPP. In addition, one indoor air field duplicate sample and one sub-slab duplicate sample will be collected during this portion of the sampling event. An ambient air sample will be collected from south of the buildings over the same twenty four hour period as the samples. The total samples include: 5 indoor air samples including the duplicate sample, 8 sub-slab samples including the duplicate sample and one ambient air sample. The ports will be installed by EPA/DESA/HWSB/SST personnel Diane Salkie and Steven Wall on February 11, 2008 and the sampling will be conducted from February 12 – 13, 2008. Refer the original QAPP for any additional information.

APPENDIX C

AIR DATA PACKAGE

1.5 Project Case Narrative

The samples were received in good condition with canister pressure in an acceptable range for a valid sample event. All analyses were performed in holding time as specified by the QC criteria listed in Section 1.4. The QC criteria for each of the analytical methods used in this project has been met except as noted in the QC comments for the daily analytical batch.

Daily Analytical Batch#: 022908-MS1

All analysis met the QC requirements for the method.

Daily Analytical Batch #: 030208-MS1

All analysis met the QC requirements for the method.

Daily Analytical Batch #: 030308-MS1

All analysis met the QC requirements for the method.

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organic Analysis

CASE No.: N/A
LABORATORY: Environmental Analytical
SAMPLER: USEPA

SDG No.: 208081
SITE: Rosen
ANALYSIS: MODIFIED TO-15 SIM/ TO-15 LL

DATA ASSESSMENT

The current SOP HW-31 (Revision 4) October 2006, USEPA Region II Data Validation SOP for Statement of Work TO-15 for evaluating organic Ambient Air in Canisters have been applied.

All data are valid and acceptable except those analytes rejected "R"(unusable). Due to the detection of QC problems, some analytes may have the "J" (estimated), "N"(presumptive evidence for the presence of the material), "U" (non-detect) or "JN" (presumptive evidence for the presence of the material at an estimated value) flag. All action is detailed on the attached sheets.

The "R" flag means that the associated value is unusable. In other words, significant data bias is evident and the reported analyte concentration is unreliable.

Reviewer's Signature: Russell Arnone Date: 05/08/2008

Peer Reviewer's Signature: D. Karras Date: 5/8/2008

Verified By: _____ Date: / /2008

CLP DATA ASSESSMENT

SDG# 208081

1. HOLDING TIME:

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J". The non-detects (sample quantitation limits) will be flagged as estimated, "J", or unusable, "R", if the holding times are grossly exceeded.

The following action was taken in the samples and analytes shown due to excessive holding time.

No problems found for this qualification.

2. **Leak Test Evaluation:**

All canisters are leak tested prior to each sampling use. The initial pressure is measured, the canister valve is closed, and the final pressure is checked after 24 hours. If acceptable, the pressure should not vary more than 13.8 kPa (2 psig) over the 24-hour period.

Leak Test evaluation documentation was not provided.

3. **Canister Certification:**

Canister certification involves two procedures: Blank Analysis and blank spike Analysis. The canister is "Certified clean" if target analytes are < 0.2 ppbv. For the spiked canister, the acceptable % difference for any target compound at a nominal 10-ppv concentration in humidified zero air is <30%.

The following canister has analyte concentrations reported greater than 0.2 ppbv. No qualification was required because sample result is greater than 5x certification contamination.
Toluene
Can # 2963/ Lab sample ID: 67-M-SS-C/ EPA Sample No. 208081-2

4. **Laboratory Control/Lab Control Duplicate Recovery:(LCS/LCSD)**

The LCS/LCS Duplicate data is generated to determine the long-term precision and accuracy of the analytical method. The LCS/LCS Duplicate may be used in conjunction with other QC criteria for additional qualification of data. The LCS is analyzed once per 24-hour analytical sequence and concurrently with the samples in the SDG.

No problems found for this qualification.

5. BLANK CONTAMINATION:

Quality assurance (QA) blanks, i.e., method, field, or rinse blanks are prepared to identify any contamination that may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Field and rinse blanks measure cross-contamination of samples throughout field operations. If the concentration of the analyte is less than or equal five times (5X) the method blank concentration, the analytes are qualified as non-detects, "U". The following analytes in the sample shown were qualified with "U" for these reasons:

CLP DATA ASSESSMENT

A) **Method blank contamination:**

The following TO-15 samples have analyte concentrations reported less than the RL. The associated method blank concentration is greater than MDL but less than RL. Detected compounds, less than 5x blank value, are qualified U. Non-detected compounds are not qualified. Reported sample concentrations have been elevated to the RL.

1,1-Dichloroethene
Trichloroethene
EPA Sample No.: 208081-13
Lab Sample ID: 67-W-SS-SC

Toluene
EPA Sample No.: 208081-03
Lab Sample ID: 67-W-IA-SW

Tetrachloroethene
EPA Sample No.: 208081-12
Lab Sample ID: 67-W-SS-SE2

The following TO-15 samples have analyte concentrations reported greater than the RL but less than 5x blank value. The associated method blank concentration is greater than MDL but less than RL. Detected compounds are qualified U. Non-detected compounds are not qualified.

Trichlorofluoromethane
EPA Sample No.: 208081-04
Lab Sample ID: 67-W-SS-SE

B) **Trip/ Field or rinse blank contamination:**
Not applicable.

C) **Tics "R" rejected**
Not applicable.

6. **MASS SPECTROMETER TUNING:**

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The tuning standard for volatile organics is (BFB) Bromofluorobenzene.

If the mass calibration is in error for target mass 175. Using professional judgement all associated data are estimated "J".

The ion abundance criteria are not met for the following TO-15 samples. Detected compounds and Non-detected compounds are estimated "J"..

Vinyl chloride, Chloroethane, Trichlorofluoromethane, 1,1-Dichloroethene, trans-1,2-Dichloroethene, 1,1 Dichlorethane, cis-1,2-Dichloroethene, 1,1,1-Trichloroethane, Benzene, Trichloroethene, Toulene, Tetrachloroethene

CLP DATA ASSESSMENT

EPA Sample No.: 208081(01-13), Blanks, LCS

Lab Sample ID: 67-M-SS-B, 67-M-SS-C, 67-W-IA-SW, 67-W-SS-SE and dilution, 67-AA, 67-W-SS-N, 67-W-SS-C, 67-W-1A-C, 67-W-SS-SW, 67-M-IA-C, 67-M-IA-B, 67-W-SS-SE2 and dilution, 67-W-SS-SC, Method Blanks (dated 2/29/08, 3/2/08, 3/3/08), LCS and LCSDUP (dated 2/29/08, 3/2/08, 3/3/08)

7. CALIBRATION:

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration checks document that the instrument is giving satisfactory daily performance.

A) Percent Relative Standard Deviation (%RSD) and Percent Difference (%D):

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be ± 30% for all Target analytes. %D must be ± 30% for all Target analytes. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J" and non-detects are flagged "UJ". If %RSD and %D grossly exceed QC criteria, non-detects data may be qualified "R".

The following TO-15 samples are associated with a daily CCV percent difference (%D) outside criteria. Detected compounds are qualified J. Non-detected compounds are qualified UJ.

Chloroethane
EPA Sample No.: 208081(04, 05, 08, 10, 11), Blank
Lab Sample ID: 67-W-SS-SE, 67-AA, 67-W-1A-C, 67-M-IA-C, 67-M-IA-B, B03028A

8. INTERNAL STANDARDS PERFORMANCE GC/MS:

Internal standards (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than 40% from the most recent valid calibration standard area. The retention time of the internal standard must not vary more than 20 seconds from the latest daily (24-hour) calibration standard. If the area count is greater the 40% range of the associated standard, all of the positive results for compounds quantitated using that IS are qualified as estimated "J", and all non-detects are not flagged. If the area count is less than the 40% range of the associated standard, all of the positive results for compounds quantitated with that IS are qualified as estimated "J", and all non-detects are qualified as unusable "UJ". If the area count is < 25%, flag all non-detects as unusable "R".

If an internal standard retention time varies by more than 20 seconds, the reviewer will use professional judgment to determine either partial or total rejection of the data for that sample fraction.

The following TO-15 samples have internal standard area counts that are outside the lower limit of primary criteria. Detected compounds are qualified J. Non-detected compounds are qualified UJ.

Pentafluorobenzene

CLP DATA ASSESSMENT

EPA Sample No.: ST60032
Lab Sample ID: LCS Dup
Vinyl chloride, 1,1-Dichloroethene, 1,1-Dichloroethane

1,4-Difluorobenzene
EPA Sample No.: ST60032
Lab Sample ID: LCS Dup
1,1,1-Trichloroethane, Benzene, Trichloroethene, Toluene, Tetrachloroethene

The following TO-15 samples have internal standard area counts that are outside the upper limit of primary criteria. Detected compounds are qualified J. Non-detected compounds are not qualified.

Pentafluorobenzene
EPA Sample No.: CC640
Lab Sample ID: Method Blank
Vinyl chloride, 1,1-Dichloroethene, 1,1-Dichloroethane
1,4-Difluorobenzene
EPA Sample No.: CC640
Lab Sample ID: Method Blank
1,1,1-Trichloroethane, Benzene, Trichloroethene, Toluene, Tetrachloroethene

9. COMPOUND IDENTIFICATION:

A) Air Volatile Samples:

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and by comparison to the ion spectra obtained from known standards. For the results to be a positive hit, the sample peak must be within 0.06 RRT units of the standard compound and have ion spectra which has a ratio of the primary and secondary m/e intensities within 20% of that in the standard compound. For the tentatively identified compounds (TIC) the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications.

No problems found for this qualification.

10. CONTRACT PROBLEMS NON-COMPLIANCE:

11. FIELD DOCUMENTATION:

12. OTHER PROBLEMS:

13. This package contains re-extracted, re-analyzed or dilution runs. Upon reviewing the QA results, the following Form 1(s) are identified not to be used.

None.

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 SIM GC/MS **SDG: 208081**
Analytical Method: TO-15 SIM **Laboratory Number: 04**

File:	0808104A.D	**Date Sampled:**	02/12/08	**Time:**	11:23
Description:	67-W-IA-SW	**Date Received:**	02/15/08		
Can/Tube#:	535	**Date Extracted:**			
Sam_Type:	SA	**Date Analyzed:**	03/02/08	**Time:**	14:31
QC_Batch:	030208-MS1	**Can Dilution Factor:**	1.45		2
Air Volume:	500 ml	**Not Detected Flag:**	U		

CAS#	Compound	MDL ppbv	RL ppbv	Amount ppbv	MDL ug/m3	RL ug/m3	Amount ug/m3	Flag
75-01-4	Vinyl chloride	0.03	0.08	0.03	0.08	0.20	0.08	U
75-00-3	Chloroethane	0.03	0.08	0.04	0.08	0.21	0.11	J
75-69-4	Trichlorofluoromethane	0.03	0.08	0.17	0.17	0.44	0.96	
75-35-4	1,1-Dichloroethene	0.03	0.08	0.06	0.12	0.31	0.25	J
156-60-5	trans-1,2-Dichloroethene	0.02	0.05	0.06	0.09	0.21	0.26	
75-34-3	1,1-Dichloroethane	0.03	0.07	0.03	0.12	0.30	0.12	U
156-59-2	cis-1,2-Dichloroethene	0.03	0.08	0.03	0.12	0.31	0.12	U
71-55-6	1,1,1-Trichloroethane	0.03	0.08	0.03	0.17	0.42	0.17	U
71-43-2	Benzene	0.03	0.08	5.92	0.10	0.25	19.51	
79-01-6	Trichloroethene	0.03	0.08	0.05	0.17	0.42	0.27	J
108-88-3	Toluene	0.03	0.08	3.73	0.12	0.29	14.51	
127-18-4	Tetrachloroethene	0.03	0.08	0.06	0.21	0.53	0.45	J

Surrogate Recovery	Spike Amt. ppbV	Amount ppbV	% Rec.	QC Limits	Flag * = Out
Toluene-d8	0.200	0.242	121	70-130	

Notes: 1) Reported results are to be interpreted to two significant figures.
2) ug/m3 = ppbV*FW/23.68 calculated assuming conditions at 60 F and 1 atm.
3) MDL and RL are adjusted for sample volume and can dilution.
4) U and ND are Flags used for Not Detected
5) J is a flag for a result between the MDL and the RL (or lower quantitation limit, LQL)

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 SIM GC/MS **SDG: 208081**
Analytical Method: TO-15 SIM **Laboratory Number: 05**

File:	0808105A.D	**Date Sampled:**	02/12/08	**Time:**	11:30
Description:	67-AA	**Date Received:**	02/15/08		
Can/Tube#:	609	**Date Extracted:**			
Sam_Type:	SA	**Date Analyzed:**	03/02/08	**Time:**	15:15
QC_Batch:	030208-MS1	**Can Dilution Factor:**	1.45		2
Air Volume:	500 ml	**Not Detected Flag:**	U		

CAS#	Compound	MDL ppbv	RL ppbv	Amount ppbv	MDL ug/m3	RL ug/m3	Amount ug/m3	Flag
75-01-4	Vinyl chloride	0.03	0.08	0.03	0.08	0.20	0.08	U
75-00-3	Chloroethane	0.03	0.08	0.03	0.08	0.21	0.08	U
75-69-4	Trichlorofluoromethane	0.03	0.08	0.28	0.17	0.44	1.63	
75-35-4	1,1-Dichloroethene	0.03	0.08	0.03	0.12	0.31	0.12	U
156-60-5	trans-1,2-Dichloroethene	0.02	0.05	0.02	0.09	0.21	0.09	U
75-34-3	1,1-Dichloroethane	0.03	0.07	0.03	0.12	0.30	0.12	U
156-59-2	cis-1,2-Dichloroethene	0.03	0.08	0.03	0.12	0.31	0.12	U
71-55-6	1,1,1-Trichloroethane	0.03	0.08	0.03	0.17	0.42	0.17	U
71-43-2	Benzene	0.03	0.08	3.46	0.10	0.25	11.41	
79-01-6	Trichloroethene	0.03	0.08	0.03	0.17	0.42	0.17	U
108-88-3	Toluene	0.03	0.08	2.12	0.12	0.29	8.25	
127-18-4	Tetrachloroethene	0.03	0.08	0.03	0.21	0.53	0.21	U

Surrogate Recovery	Spike Amt. ppbV	Amount ppbV	% Rec.	QC Limits	Flag * = Out
Toluene-d8	0.200	0.206	103	70-130	

Notes: 1) Reported results are to be interpreted to two significant figures.
2) ug/m3 = ppbV*FW/23.68 calculated assuming conditions at 60 F and 1 atm.
3) MDL and RL are adjusted for sample volume and can dilution.
4) U and ND are Flags used for Not Detected
5) J is a flag for a result between the MDL and the RL (or lower quantitation limit, LQL)

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 SIM GC/MS **SDG: 208081**
Analytical Method: TO-15 SIM **Laboratory Number: 08**

File:	0808108A.D	**Date Sampled:**	02/12/08	**Time:**	11:24
Description:	67-W-1A-C	**Date Received:**	02/15/08		
Can/Tube#:	729	**Date Extracted:**			
Sam_Type:	SA	**Date Analyzed:**	03/02/08	**Time:**	15:59
QC_Batch:	030208-MS1	**Can Dilution Factor:**	1.40		2
Air Volume:	500 ml	**Not Detected Flag:**	U		

CAS#	Compound	MDL ppbv	RL ppbv	Amount ppbv	MDL ug/m3	RL ug/m3	Amount ug/m3	Flag
75-01-4	Vinyl chloride	0.03	0.07	0.03	0.08	0.19	0.08	U
75-00-3	Chloroethane	0.03	0.07	0.03	0.08	0.20	0.08	U
75-69-4	Trichlorofluoromethane	0.03	0.07	0.31	0.17	0.42	1.81	
75-35-4	1,1-Dichloroethene	0.03	0.07	0.03	0.12	0.30	0.12	U
156-60-5	trans-1,2-Dichloroethene	0.02	0.05	0.02	0.08	0.21	0.08	U
75-34-3	1,1-Dichloroethane	0.03	0.07	0.03	0.12	0.29	0.12	U
156-59-2	cis-1,2-Dichloroethene	0.03	0.07	0.03	0.12	0.30	0.12	U
71-55-6	1,1,1-Trichloroethane	0.03	0.07	0.03	0.16	0.41	0.16	U
71-43-2	Benzene	0.03	0.07	3.57	0.10	0.24	11.76	
79-01-6	Trichloroethene	0.03	0.07	0.05	0.16	0.40	0.27	J
108-88-3	Toluene	0.03	0.07	2.22	0.11	0.28	8.63	
127-18-4	Tetrachloroethene	0.03	0.07	0.03	0.20	0.51	0.20	U

Surrogate Recovery	Spike Amt. ppbV	Amount ppbV	% Rec.	QC Limits	Flag * = Out
Toluene-d8	0.200	0.212	106	70-130	

Notes: 1) Reported results are to be interpreted to two significant figures.
2) ug/m3 = ppbV*FW/23.68 calculated assuming conditions at 60 F and 1 atm.
3) MDL and RL are adjusted for sample volume and can dilution.
4) U and ND are Flags used for Not Detected
5) J is a flag for a result between the MDL and the RL (or lower quantitation limit, LQL)

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 SIM GC/MS **SDG: 208081**
Analytical Method: TO-15 SIM **Laboratory Number: 10**

File:	0808110A.D	**Date Sampled:**	02/12/08	**Time:**	9:29
Description:	67-M-IA-C	**Date Received:**	02/15/08		
Can/Tube#:	792	**Date Extracted:**			
Sam_Type:	SA	**Date Analyzed:**	03/02/08	**Time:**	16:44
QC_Batch:	030208-MS1	**Can Dilution Factor:**	1.57		2
Air Volume:	500 ml	**Not Detected Flag:**	U		

CAS#	Compound	MDL ppbv	RL ppbv	Amount ppbv	MDL ug/m3	RL ug/m3	Amount ug/m3	Flag
75-01-4	Vinyl chloride	0.03	0.08	0.03	0.09	0.22	0.09	U
75-00-3	Chloroethane	0.03	0.08	0.03	0.09	0.22	0.09	U
75-69-4	Trichlorofluoromethane	0.03	0.08	0.29	0.19	0.47	1.67	
75-35-4	1,1-Dichloroethene	0.03	0.08	0.03	0.13	0.33	0.13	U
156-60-5	trans-1,2-Dichloroethene	0.02	0.06	0.02	0.09	0.23	0.09	U
75-34-3	1,1-Dichloroethane	0.03	0.08	0.03	0.13	0.33	0.13	U
156-59-2	cis-1,2-Dichloroethene	0.03	0.08	0.03	0.13	0.33	0.13	U
71-55-6	1,1,1-Trichloroethane	0.03	0.08	0.04	0.18	0.46	0.22	J
71-43-2	Benzene	0.03	0.08	7.88	0.11	0.27	25.99	
79-01-6	Trichloroethene	0.03	0.08	0.06	0.18	0.45	0.31	J
108-88-3	Toluene	0.03	0.08	10.73	0.13	0.32	41.74	
127-18-4	Tetrachloroethene	0.03	0.08	0.11	0.22	0.57	0.80	

Surrogate Recovery	Spike Amt. ppbV	Amount ppbV	% Rec.	QC Limits	Flag * = Out
Toluene-d8	0.200	0.202	101	70-130	

Notes: 1) Reported results are to be interpreted to two significant figures.
2) ug/m3 = ppbV*FW/23.68 calculated assuming conditions at 60 F and 1 atm.
3) MDL and RL are adjusted for sample volume and can dilution.
4) U and ND are Flags used for Not Detected
5) J is a flag for a result between the MDL and the RL (or lower quantitation limit, LQL)

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 SIM GC/MS **SDG: 208081**
Analytical Method: TO-15 SIM **Laboratory Number: 11**

File: 0808111A.D **Date Sampled:** 02/12/08 **Time:** 9:45
Description: 67-M-IA-B **Date Received:** 02/15/08
Can/Tube#: 952 **Date Extracted:**
Sam_Type: SA **Date Analyzed:** 03/02/08 **Time:** 17:29
QC_Batch: 030208-MS1 **Can Dilution Factor:** 1.56 2
Air Volume: 500 ml **Not Detected Flag:** U

CAS#	Compound	MDL ppbv	RL ppbv	Amount ppbv	MDL ug/m3	RL ug/m3	Amount ug/m3	Flag
75-01-4	Vinyl chloride	0.03	0.08	0.03	0.09	0.21	0.09	U
75-00-3	Chloroethane	0.03	0.08	0.03	0.09	0.22	0.09	J
75-69-4	Trichlorofluoromethane	0.03	0.08	0.28	0.19	0.47	1.62	
75-35-4	1,1-Dichloroethene	0.03	0.08	0.03	0.13	0.33	0.13	U
156-60-5	trans-1,2-Dichloroethene	0.02	0.06	0.02	0.09	0.23	0.09	U
75-34-3	1,1-Dichloroethane	0.03	0.08	0.03	0.13	0.33	0.13	U
156-59-2	cis-1,2-Dichloroethene	0.03	0.08	0.03	0.13	0.33	0.13	U
71-55-6	1,1,1-Trichloroethane	0.03	0.08	0.06	0.18	0.46	0.32	J
71-43-2	Benzene	0.03	0.08	6.52	0.11	0.27	21.49	
79-01-6	Trichloroethene	0.03	0.08	0.05	0.18	0.45	0.29	J
108-88-3	Toluene	0.03	0.08	7.82	0.12	0.32	30.41	
127-18-4	Tetrachloroethene	0.03	0.08	0.08	0.22	0.57	0.58	

Surrogate Recovery	Spike Amt. ppbV	Amount ppbV	% Rec.	QC Limits	Flag * = Out
Toluene-d8	0.200	0.203	101	70-130	

Notes: 1) Reported results are to be interpreted to two significant figures.
2) ug/m3 = ppbV*FW/23.68 calculated assuming conditions at 60 F and 1 atm.
3) MDL and RL are adjusted for sample volume and can dilution.
4) U and ND are Flags used for Not Detected
5) J is a flag for a result between the MDL and the RL (or lower quantitation limit, LQL)

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Full Scan GC/MS **SDG: 208081**
Analytical Method: TO-15 **Laboratory Number: 03**

File:	0808103A.D	**Date Sampled:**	02/12/08	**Time:**	11:06
Description:	67-W-SS-SE	**Date Received:**	02/15/08		
Can/Tube#:	516	**Date Extracted:**			
Sam_Type:	SA	**Date Analyzed:**	02/29/08	**Time:**	17:54
QC_Batch:	022908-MS1	**Can Dilution Factor:**	1.42		2
Air Volume:	700 ml	**Not Detected Flag:**	U		

CAS#	Compound	MDL ppbv	RL ppbv	Amount ppbv	MDL ug/m3	RL ug/m3	Amount ug/m3	Flag
75-01-4	Vinyl chloride	0.10	0.53	0.10	0.27	1.39	0.27	U
75-00-3	Chloroethane	0.10	0.52	0.10	0.28	1.43	0.28	U
75-69-4	Trichlorofluoromethane	0.10	0.53	1.43	0.60	3.05	8.26	
75-35-4	1,1-Dichloroethene	0.10	0.53	16.84	0.43	2.16	68.90	
156-60-5	trans-1,2-Dichloroethene	0.08	0.42	0.41	0.34	1.73	1.69	J
75-34-3	1,1-Dichloroethane	0.10	0.51	5.58	0.44	2.15	23.31	
156-59-2	cis-1,2-Dichloroethene	0.10	0.52	6.17	0.43	2.14	25.27	
71-55-6	1,1,1-Trichloroethane	0.10	0.52	~~64.98~~	0.59	2.91	~~364.97~~	E
71-43-2	Benzene	0.10	0.52	6.41	0.34	1.73	21.13	
79-01-6	Trichloroethene	0.10	0.52	~~417.18~~	0.58	2.90	2,307.87	E
108-88-3	Toluene	0.10	0.52	4.23	0.41	2.04	16.47	
127-18-4	Tetrachloroethene	0.10	0.52	0.65	0.73	3.63	4.59	

Surrogate Recovery	Spike Amt. ppbV	Amount ppbV	% Rec.	QC Limits	Flag * = Out
Toluene-d8	10.000	10.343	103	70-130	

Notes: 1) Reported results are to be interpreted to two significant figures.
2) ug/m3 = ppbV*FW/23.68 calculated assuming conditions at 60 F and 1 atm.
3) MDL and RL are adjusted for sample volume and can dilution.
4) U and ND are Flags used for Not Detected
5) J is a flag for a result between the MDL and the RL (or lower quantitation limit, LQL)

* Reported from DL [illegible]

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Full Scan GC/MS **SDG: 208081**
Analytical Method: TO-15 **Laboratory Number: 12**

File:	0808112A.D	**Date Sampled:**	02/12/08	**Time:**	11:06
Description:	67-W-SS-SE2	**Date Received:**	02/15/08		
Can/Tube#:	991	**Date Extracted:**			
Sam_Type:	SA	**Date Analyzed:**	03/03/08	**Time:**	13:44
QC_Batch:	030308-MS1	**Can Dilution Factor:**	1.39		2
Air Volume:	500 ml	**Not Detected Flag:**	U		

CAS#	Compound	MDL ppbv	RL ppbv	Amount ppbv	MDL ug/m3	RL ug/m3	Amount ug/m3	Flag
75-01-4	Vinyl chloride	0.14	0.72	0.14	0.37	1.91	0.37	U
75-00-3	Chloroethane	0.14	0.72	0.14	0.39	1.95	0.39	U
75-69-4	Trichlorofluoromethane	0.14	0.72	0.76	0.82	4.18	4.41	
75-35-4	1,1-Dichloroethene	0.14	0.72	2.40	0.59	2.96	9.81	
156-60-5	trans-1,2-Dichloroethene	0.12	0.58	0.16	0.47	2.37	0.66	J
75-34-3	1,1-Dichloroethane	0.14	0.70	3.40	0.60	2.94	14.22	
156-59-2	cis-1,2-Dichloroethene	0.14	0.72	4.23	0.59	2.93	17.29	
71-55-6	1,1,1-Trichloroethane	0.14	0.71	68.36	0.80	3.98	383.93	E
71-43-2	Benzene	0.14	0.72	6.12	0.47	2.37	20.18	
79-01-6	Trichloroethene	0.14	0.72	463.09	0.79	3.97	2,561.86	E
108-88-3	Toluene	0.14	0.72	4.99	0.56	2.79	19.41	
127-18-4	Tetrachloroethene	0.14	0.71	0.63	1.00	4.97	4.42	J

Surrogate Recovery	Spike Amt. ppbV	Amount ppbV	% Rec.	QC Limits	Flag * = Out
Toluene-d8	10.000	10.430	104	70-130	

Notes: 1) Reported results are to be interpreted to two significant figures.
2) ug/m3 = ppbV*FW/23.68 calculated assuming conditions at 60 F and 1 atm.
3) MDL and RL are adjusted for sample volume and can dilution.
4) U and ND are Flags used for Not Detected
5) J is a flag for a result between the MDL and the RL (or lower quantitation limit, LQL)

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Full Scan GC/MS **SDG: 208081**
Analytical Method: TO-15 **Laboratory Number: 02**

File:	0808102A.D	**Date Sampled:**	02/12/08	**Time:**	9:29
Description:	67-M-SS-C	**Date Received:**	02/15/08		
Can/Tube#:	2963	**Date Extracted:**			
Sam_Type:	SA	**Date Analyzed:**	02/29/08	**Time:**	17:03
QC_Batch:	022908-MS1	**Can Dilution Factor:**	1.55		2
Air Volume:	700 ml	**Not Detected Flag:**	U		

CAS#	Compound	MDL ppbv	RL ppbv	Amount ppbv	MDL ug/m3	RL ug/m3	Amount ug/m3	Flag
75-01-4	Vinyl chloride	0.11	0.58	0.11	0.30	1.52	0.30	U
75-00-3	Chloroethane	0.11	0.57	0.11	0.31	1.56	0.31	U
75-69-4	Trichlorofluoromethane	0.11	0.58	0.11	0.65	3.33	0.65	U
75-35-4	1,1-Dichloroethene	0.11	0.58	0.11	0.47	2.36	0.47	U
156-60-5	trans-1,2-Dichloroethene	0.09	0.46	0.09	0.38	1.89	0.38	U
75-34-3	1,1-Dichloroethane	0.11	0.56	0.11	0.48	2.34	0.48	U
156-59-2	cis-1,2-Dichloroethene	0.11	0.57	0.11	0.47	2.34	0.47	U
71-55-6	1,1,1-Trichloroethane	0.11	0.56	2.34	0.64	3.17	13.12	
71-43-2	Benzene	0.11	0.57	11.25	0.38	1.88	37.09	
79-01-6	Trichloroethene	0.11	0.57	0.55	0.63	3.16	3.06	J
108-88-3	Toluene	0.11	0.57	17.08	0.44	2.22	66.42	
127-18-4	Tetrachloroethene	0.11	0.56	12.93	0.80	3.96	90.63	

Surrogate Recovery	Spike Amt. ppbV	Amount ppbV	% Rec.	QC Limits	Flag * = Out
Toluene-d8	10.000	10.692	107	70-130	

Notes: 1) Reported results are to be interpreted to two significant figures.
2) ug/m3 = ppbV*FW/23.68 calculated assuming conditions at 60 F and 1 atm.
3) MDL and RL are adjusted for sample volume and can dilution.
4) U and ND are Flags used for Not Detected
5) J is a flag for a result between the MDL and the RL (or lower quantitation limit, LQL)

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Full Scan GC/MS **SDG: 208081**
Analytical Method: TO-15 **Laboratory Number: 01**

File: 0808101A.D
Description: 67-M-SS-B
Can/Tube#: 175
Sam_Type: SA
QC_Batch: 022908-MS1
Air Volume: 700 ml

Date Sampled: 02/12/08 **Time:** 9:45
Date Received: 02/15/08
Date Extracted:
Date Analyzed: 02/29/08 **Time:** 16:17
Can Dilution Factor: 1.62 2
Not Detected Flag: U

CAS#	Compound	MDL ppbv	RL ppbv	Amount ppbv	MDL ug/m3	RL ug/m3	Amount ug/m3	Flag
75-01-4	Vinyl chloride	0.12	0.60	0.12	0.31	1.59	0.31	U
75-00-3	Chloroethane	0.12	0.60	0.12	0.32	1.63	0.32	U
75-69-4	Trichlorofluoromethane	0.12	0.60	0.33	0.68	3.48	1.91	J
75-35-4	1,1-Dichloroethene	0.12	0.60	0.24	0.49	2.46	0.99	J
156-60-5	trans-1,2-Dichloroethene	0.10	0.48	0.10	0.39	1.97	0.39	U
75-34-3	1,1-Dichloroethane	0.12	0.59	1.34	0.50	2.45	5.60	
156-59-2	cis-1,2-Dichloroethene	0.12	0.60	0.12	0.49	2.44	0.49	U
71-55-6	1,1,1-Trichloroethane	0.12	0.59	32.57	0.67	3.31	182.94	
71-43-2	Benzene	0.12	0.60	9.57	0.39	1.97	31.56	
79-01-6	Trichloroethene	0.12	0.60	22.42	0.66	3.30	124.02	
108-88-3	Toluene	0.12	0.60	13.26	0.46	2.32	51.58	
127-18-4	Tetrachloroethene	0.12	0.59	1.11	0.84	4.14	7.78	

Surrogate Recovery	Spike Amt. ppbV	Amount ppbV	% Rec.	QC Limits	Flag * = Out
Toluene-d8	10.000	9.156	92	70-130	

Notes: 1) Reported results are to be interpreted to two significant figures.
2) ug/m3 = ppbV*FW/23.68 calculated assuming conditions at 60 F and 1 atm.
3) MDL and RL are adjusted for sample volume and can dilution.
4) U and ND are Flags used for Not Detected
5) J is a flag for a result between the MDL and the RL (or lower quantitation limit, LQL)

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Full Scan GC/MS **SDG: 208081**
Analytical Method: TO-15 **Laboratory Number: 06**

File:	0808106A.D	**Date Sampled:**	02/12/08	**Time:**	11:18
Description:	67-W-SS-N	**Date Received:**	02/15/08		
Can/Tube#:	650	**Date Extracted:**			
Sam_Type:	SA	**Date Analyzed:**	03/03/08	**Time:**	15:17
QC_Batch:	030308-MS1	**Can Dilution Factor:**	1.52		2
Air Volume:	500 ml	**Not Detected Flag:**	U		

CAS#	Compound	MDL ppbv	RL ppbv	Amount ppbv	MDL ug/m3	RL ug/m3	Amount ug/m3	Flag
75-01-4	Vinyl chloride	0.16	0.79	0.16	0.41	2.09	0.41	U
75-00-3	Chloroethane	0.16	0.78	0.16	0.42	2.14	0.42	U
75-69-4	Trichlorofluoromethane	0.16	0.79	0.22	0.90	4.57	1.29	J
75-35-4	1,1-Dichloroethene	0.16	0.79	0.16	0.64	3.23	0.64	U
156-60-5	trans-1,2-Dichloroethene	0.13	0.63	0.13	0.52	2.59	0.52	U
75-34-3	1,1-Dichloroethane	0.16	0.77	0.16	0.65	3.22	0.65	U
156-59-2	cis-1,2-Dichloroethene	0.16	0.78	0.16	0.64	3.21	0.64	U
71-55-6	1,1,1-Trichloroethane	0.16	0.78	0.23	0.88	4.35	1.27	J
71-43-2	Benzene	0.16	0.78	6.80	0.52	2.59	22.42	
79-01-6	Trichloroethene	0.16	0.78	2.73	0.87	4.34	15.10	
108-88-3	Toluene	0.16	0.78	5.61	0.61	3.05	21.80	
127-18-4	Tetrachloroethene	0.16	0.78	0.16	1.10	5.43	1.10	U

Surrogate Recovery	Spike Amt. ppbV	Amount ppbV	% Rec.	QC Limits	Flag * = Out
Toluene-d8	10.000	9.298	93	70-130	

Notes: 1) Reported results are to be interpreted to two significant figures.
2) ug/m3 = ppbV*FW/23.68 calculated assuming conditions at 60 F and 1 atm.
3) MDL and RL are adjusted for sample volume and can dilution.
4) U and ND are Flags used for Not Detected
5) J is a flag for a result between the MDL and the RL (or lower quantitation limit, LQL)

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Full Scan GC/MS **SDG: 208081**
Analytical Method: TO-15 **Laboratory Number: 07**

File:	0808107A.D	**Date Sampled:**	02/12/08	**Time:**	10:57
Description:	67-W-SS-C	**Date Received:**	02/15/08		
Can/Tube#:	688	**Date Extracted:**			
Sam_Type:	SA	**Date Analyzed:**	02/29/08	**Time:**	19:25
QC_Batch:	022908-MS1	**Can Dilution Factor:**	1.40		2
Air Volume:	700 ml	**Not Detected Flag:**	U		

CAS#	Compound	MDL ppbv	RL ppbv	Amount ppbv	MDL ug/m3	RL ug/m3	Amount ug/m3	Flag
75-01-4	Vinyl chloride	0.10	0.52	0.10	0.27	1.37	0.27	U
75-00-3	Chloroethane	0.10	0.52	0.10	0.28	1.41	0.28	U
75-69-4	Trichlorofluoromethane	0.10	0.52	0.35	0.59	3.01	2.05	J
75-35-4	1,1-Dichloroethene	0.10	0.52	0.10	0.42	2.13	0.42	U
156-60-5	trans-1,2-Dichloroethene	0.08	0.42	0.08	0.34	1.70	0.34	U
75-34-3	1,1-Dichloroethane	0.10	0.51	0.10	0.43	2.12	0.43	U
156-59-2	cis-1,2-Dichloroethene	0.10	0.52	0.10	0.42	2.11	0.42	U
71-55-6	1,1,1-Trichloroethane	0.10	0.51	7.96	0.58	2.86	44.70	
71-43-2	Benzene	0.10	0.52	6.58	0.34	1.70	21.69	
79-01-6	Trichloroethene	0.10	0.52	9.31	0.57	2.85	51.53	
108-88-3	Toluene	0.10	0.52	5.98	0.40	2.01	23.25	
127-18-4	Tetrachloroethene	0.10	0.51	0.10	0.72	3.58	0.72	U

Surrogate Recovery	Spike Amt. ppbV	Amount ppbV	% Rec.	QC Limits	Flag * = Out
Toluene-d8	10.000	10.363	104	70-130	

Notes: 1) Reported results are to be interpreted to two significant figures.
2) ug/m3 = ppbV*FW/23.68 calculated assuming conditions at 60 F and 1 atm.
3) MDL and RL are adjusted for sample volume and can dilution.
4) U and ND are Flags used for Not Detected
5) J is a flag for a result between the MDL and the RL (or lower quantitation limit, LQL)

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Full Scan GC/MS **SDG: 208081**
Analytical Method: TO-15 **Laboratory Number: 09**

File:	0808109A.D	**Date Sampled:**	02/12/08	**Time:**	10:51
Description:	67-W-SS-SW	**Date Received:**	02/15/08		
Can/Tube#:	732	**Date Extracted:**			
Sam_Type:	SA	**Date Analyzed:**	02/29/08	**Time:**	20:12
QC_Batch:	022908-MS1	**Can Dilution Factor:**	1.32		2
Air Volume:	700 ml	**Not Detected Flag:**	U		

CAS#	Compound	MDL ppbv	RL ppbv	Amount ppbv	MDL ug/m3	RL ug/m3	Amount ug/m3	Flag
75-01-4	Vinyl chloride	0.10	0.49	0.10	0.25	1.29	0.25	U
75-00-3	Chloroethane	0.10	0.49	0.10	0.26	1.33	0.26	U
75-69-4	Trichlorofluoromethane	0.10	0.49	0.41	0.56	2.84	2.37	J
75-35-4	1,1-Dichloroethene	0.10	0.49	0.10	0.40	2.01	0.40	U
156-60-5	trans-1,2-Dichloroethene	0.08	0.39	0.08	0.32	1.61	0.32	U
75-34-3	1,1-Dichloroethane	0.10	0.48	0.10	0.41	1.99	0.41	U
156-59-2	cis-1,2-Dichloroethene	0.10	0.49	0.10	0.40	1.99	0.40	U
71-55-6	1,1,1-Trichloroethane	0.10	0.48	0.13	0.55	2.70	0.74	J
71-43-2	Benzene	0.10	0.49	5.78	0.32	1.60	19.05	
79-01-6	Trichloroethene	0.10	0.49	0.43	0.54	2.69	2.36	J
108-88-3	Toluene	0.10	0.49	5.09	0.38	1.89	19.78	
127-18-4	Tetrachloroethene	0.10	0.48	0.10	0.68	3.37	0.68	U

Surrogate Recovery	Spike Amt. ppbV	Amount ppbV	% Rec.	QC Limits	Flag * = Out
Toluene-d8	10.000	10.418	104	70-130	

Notes: 1) Reported results are to be interpreted to two significant figures.
2) ug/m3 = ppbV*FW/23.68 calculated assuming conditions at 60 F and 1 atm.
3) MDL and RL are adjusted for sample volume and can dilution.
4) U and ND are Flags used for Not Detected
5) J is a flag for a result between the MDL and the RL (or lower quantitation limit, LQL)

ANALYTICAL REPORT

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Full Scan GC/MS **SDG: 208081**
Analytical Method: TO-15 **Laboratory Number: 13**

File:	0808113B.D	**Date Sampled:**	02/12/08	**Time:**	10:53
Description:	67-W-SS-SC	**Date Received:**	02/15/08		
Can/Tube#:	992	**Date Extracted:**			
Sam_Type:	SA	**Date Analyzed:**	03/03/08	**Time:**	16:02
QC_Batch:	030308-MS1	**Can Dilution Factor:**	1.42		2
Air Volume:	500 ml	**Not Detected Flag:**	U		

CAS#	Compound	MDL ppbv	RL ppbv	Amount ppbv	MDL ug/m3	RL ug/m3	Amount ug/m3	Flag
75-01-4	Vinyl chloride	0.14	0.74	0.14	0.38	1.95	0.38	U
75-00-3	Chloroethane	0.14	0.73	0.14	0.39	2.00	0.39	U
75-69-4	Trichlorofluoromethane	0.14	0.74	0.23	0.84	4.27	1.34	J
75-35-4	1,1-Dichloroethene	0.15	0.74	~~0.24~~	0.60	3.02	~~0.99~~	J
156-60-5	trans-1,2-Dichloroethene	0.12	0.59	0.12	0.48	2.42	0.48	U
75-34-3	1,1-Dichloroethane	0.15	0.72	0.34	0.61	3.00	1.42	J
156-59-2	cis-1,2-Dichloroethene	0.15	0.73	0.15	0.60	3.00	0.60	U
71-55-6	1,1,1-Trichloroethane	0.15	0.72	20.54	0.82	4.07	115.39	
71-43-2	Benzene	0.15	0.73	3.04	0.48	2.42	10.01	
79-01-6	Trichloroethene	0.15	0.73	~~0.52~~	0.81	4.05	~~2.86~~	J
108-88-3	Toluene	0.15	0.73	2.55	0.57	2.85	9.91	
127-18-4	Tetrachloroethene	0.15	0.72	0.15	1.03	5.08	1.03	U

Surrogate Recovery	Spike Amt. ppbV	Amount ppbV	% Rec.	QC Limits	Flag * = Out
Toluene-d8	10.000	9.153	92	70-130	

Notes: 1) Reported results are to be interpreted to two significant figures.
2) ug/m3 = ppbV*FW/23.68 calculated assuming conditions at 60 F and 1 atm.
3) MDL and RL are adjusted for sample volume and can dilution.
4) U and ND are Flags used for Not Detected
5) J is a flag for a result between the MDL and the RL (or lower quantitation limit, LQL)

CANISTER CERTIFICATION

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Full Scan GC/MS **SDG: LABQC**
Analytical Method: TO-15 **Laboratory Number: CC**

File: CC175A.D **Date Sampled:** **Time:**
Description: 175 CT82 G104 **Date Received:**
Can/Tube#: 175 **Date Extracted:**
Sam_Type: CC **Date Analyzed:** 01/25/08 **Time:**
QC_Batch: 012508-MS3 **Can Dilution Factor:** 1.00 2
Air Volume: 1000 ml **Not Detected Flag:** U

CAS#	Compound	MDL ppbv	RL ppbv	Amount ppbv	MDL ug/m3	RL ug/m3	Amount ug/m3	Flag
75-01-4	Vinyl chloride	0.05	0.26	0.05	0.13	0.69	0.13	U
75-00-3	Chloroethane	0.05	0.26	0.05	0.14	0.71	0.14	U
75-69-4	Trichlorofluoromethane	0.05	0.26	0.05	0.30	1.50	0.30	U
75-35-4	1,1-Dichloroethene	0.05	0.26	0.05	0.21	1.06	0.21	U
156-60-5	trans-1,2-Dichloroethene	0.04	0.21	0.04	0.17	0.85	0.17	U
75-34-3	1,1-Dichloroethane	0.05	0.26	0.05	0.22	1.09	0.22	U
156-59-2	cis-1,2-Dichloroethene	0.05	0.26	0.05	0.21	1.06	0.21	U
71-55-6	1,1,1-Trichloroethane	0.05	0.26	0.05	0.29	1.46	0.29	U
71-43-2	Benzene	0.05	0.26	0.05	0.17	0.86	0.17	U
79-01-6	Trichloroethene	0.05	0.26	0.05	0.28	1.44	0.28	U
108-88-3	Toluene	0.05	0.26	0.05	0.20	1.01	0.20	U
127-18-4	Tetrachloroethene	0.05	0.26	0.05	0.36	1.82	0.36	U

Surrogate Recovery	Spike Amt. ppbV	Amount ppbV	% Rec.	QC Limits	Flag * = Out
Toluene-d8	10.000	9.753	98	70-130	

Notes: 1) Reported results are to be interpreted to two significant figures.
2) ug/m3 = ppbV*FW/23.68 calculated assuming conditions at 60 F and 1 atm.
3) MDL and RL are adjusted for sample volume and can dilution.
4) U and ND are Flags used for Not Detected
5) J is a flag for a result between the MDL and the RL (or lower quantitation limit, LQL)

CANISTER CERTIFICATION

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Full Scan GC/MS **SDG:** **LABQC**
Analytical Method: TO-15 **Laboratory Number:** CC

File: CC2963A.D **Date Sampled:** **Time:**
Description: 2963 CT67 G065 **Date Received:**
Can/Tube#: 2963 **Date Extracted:**
Sam_Type: CC **Date Analyzed:** 01/30/08 **Time:**
QC_Batch: 013008-MS1 **Can Dilution Factor:** 1.00 2
Air Volume: 1000 ml **Not Detected Flag:** U

CAS#	Compound	MDL ppbv	RL ppbv	Amount ppbv	MDL ug/m3	RL ug/m3	Amount ug/m3	Flag
75-01-4	Vinyl chloride	0.05	0.51	0.05	0.13	1.35	0.13	U
75-00-3	Chloroethane	0.05	0.51	0.05	0.14	1.39	0.14	U
75-69-4	Trichlorofluoromethane	0.05	0.51	0.06	0.30	2.95	0.32	J
75-35-4	1,1-Dichloroethene	0.05	0.52	0.05	0.21	2.13	0.21	U
156-60-5	trans-1,2-Dichloroethene	0.04	0.42	0.04	0.17	1.70	0.17	U
75-34-3	1,1-Dichloroethane	0.05	0.52	0.05	0.22	2.15	0.22	U
156-59-2	cis-1,2-Dichloroethene	0.05	0.52	0.05	0.21	2.11	0.21	U
71-55-6	1,1,1-Trichloroethane	0.05	0.52	0.05	0.29	2.89	0.29	U
71-43-2	Benzene	0.05	0.52	0.18	0.17	1.70	0.59	J
79-01-6	Trichloroethene	0.05	0.52	0.05	0.28	2.85	0.28	U
108-88-3	Toluene	0.05	0.52	0.46	0.20	2.00	1.77	J
127-18-4	Tetrachloroethene	0.05	0.52	0.05	0.36	3.61	0.36	U

Surrogate Recovery	Spike Amt. ppbV	Amount ppbV	% Rec.	QC Limits	Flag * = Out
Toluene-d8	10.000	10.121	101	70-130	

Notes: 1) Reported results are to be interpreted to two significant figures.
2) ug/m3 = ppbV*FW/23.68 calculated assuming conditions at 60 F and 1 atm.
3) MDL and RL are adjusted for sample volume and can dilution.
4) U and ND are Flags used for Not Detected
5) J is a flag for a result between the MDL and the RL (or lower quantitation limit, LQL)

CANISTER CERTIFICATION

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Full Scan GC/MS **SDG: LABQC**
Analytical Method: TO-15 **Laboratory Number: CC**

File: CC516A.D
Description: 516 CT139 G073
Can/Tube#: 516
Sam_Type: CC
QC_Batch: 012708-MS3
Air Volume: 1000 ml

Date Sampled: **Time:**
Date Received:
Date Extracted:
Date Analyzed: 01/27/08 **Time:**
Can Dilution Factor: 1.00 2
Not Detected Flag: U

CAS#	Compound	MDL ppbv	RL ppbv	Amount ppbv	MDL ug/m3	RL ug/m3	Amount ug/m3	Flag
75-01-4	Vinyl chloride	0.05	0.26	0.05	0.13	0.69	0.13	U
75-00-3	Chloroethane	0.05	0.26	0.05	0.14	0.71	0.14	U
75-69-4	Trichlorofluoromethane	0.05	0.26	0.05	0.30	1.50	0.30	U
75-35-4	1,1-Dichloroethene	0.05	0.26	0.05	0.21	1.06	0.21	U
156-60-5	trans-1,2-Dichloroethene	0.04	0.21	0.04	0.17	0.85	0.17	U
75-34-3	1,1-Dichloroethane	0.05	0.26	0.05	0.22	1.09	0.22	U
156-59-2	cis-1,2-Dichloroethene	0.05	0.26	0.05	0.21	1.06	0.21	U
71-55-6	1,1,1-Trichloroethane	0.05	0.26	0.05	0.29	1.46	0.29	U
71-43-2	Benzene	0.05	0.26	0.05	0.17	0.86	0.17	U
79-01-6	Trichloroethene	0.05	0.26	0.05	0.28	1.44	0.28	U
108-88-3	Toluene	0.05	0.26	0.05	0.20	1.01	0.20	U
127-18-4	Tetrachloroethene	0.05	0.26	0.05	0.36	1.82	0.36	U

Surrogate Recovery	Spike Amt. ppbV	Amount ppbV	% Rec.	QC Limits	Flag * = Out
Toluene-d8	10.000	9.573	96	70-130	

Notes: 1) Reported results are to be interpreted to two significant figures.
2) ug/m3 = ppbV*FW/23.68 calculated assuming conditions at 60 F and 1 atm.
3) MDL and RL are adjusted for sample volume and can dilution.
4) U and ND are Flags used for Not Detected
5) J is a flag for a result between the MDL and the RL (or lower quantitation limit, LQL)

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Analytical Service, Inc.

EPA Method TO-15 Full Scan GC/MS **SDG:** **LABQC**
Analytical Method: **TO-15** **Laboratory Number:** **CC**

File: CC535A.D **Date Sampled:** **Time:**
Description: 535 CT20 G106 **Date Received:**
Can/Tube#: 535 **Date Extracted:**
Sam_Type: CC **Date Analyzed:** 01/30/08 **Time:**
QC_Batch: 013008-MS1 **Can Dilution Factor:** 1.00 2
Air Volume: 1000 ml **Not Detected Flag:** U

CAS#	Compound	MDL ppbv	RL ppbv	Amount ppbv	MDL ug/m3	RL ug/m3	Amount ug/m3	Flag
75-01-4	Vinyl chloride	0.05	0.51	0.05	0.13	1.35	0.13	U
75-00-3	Chloroethane	0.05	0.51	0.05	0.14	1.39	0.14	U
75-69-4	Trichlorofluoromethane	0.05	0.51	0.05	0.30	2.95	0.30	U
75-35-4	1,1-Dichloroethene	0.05	0.52	0.05	0.21	2.13	0.21	U
156-60-5	trans-1,2-Dichloroethene	0.04	0.42	0.04	0.17	1.70	0.17	U
75-34-3	1,1-Dichloroethane	0.05	0.52	0.05	0.22	2.15	0.22	U
156-59-2	cis-1,2-Dichloroethene	0.05	0.52	0.05	0.21	2.11	0.21	U
71-55-6	1,1,1-Trichloroethane	0.05	0.52	0.05	0.29	2.89	0.29	U
71-43-2	Benzene	0.05	0.52	0.07	0.17	1.70	0.23	J
79-01-6	Trichloroethene	0.05	0.52	0.05	0.28	2.85	0.28	U
108-88-3	Toluene	0.05	0.52	0.05	0.20	2.00	0.20	U
127-18-4	Tetrachloroethene	0.05	0.52	0.05	0.36	3.61	0.36	U

Surrogate Recovery	Spike Amt. ppbV	Amount ppbV	% Rec.	QC Limits	Flag * = Out
Toluene-d8	10.000	10.050	101	70-130	

Notes: 1) Reported results are to be interpreted to two significant figures.
2) ug/m3 = ppbV*FW/23.68 calculated assuming conditions at 60 F and 1 atm.
3) MDL and RL are adjusted for sample volume and can dilution.
4) U and ND are Flags used for Not Detected
5) J is a flag for a result between the MDL and the RL (or lower quantitation limit, LQL)

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Analytical Service, Inc.

EPA Method TO-15 Full Scan GC/MS **SDG: LABQC**
Analytical Method: TO-15 **Laboratory Number: CC**

File: CC609A.D **Date Sampled:** **Time:**
Description: 609 CT113 G088 **Date Received:**
Can/Tube#: 609 **Date Extracted:**
Sam_Type: CC **Date Analyzed:** 01/25/08 **Time:**
QC_Batch: 012508-MS3 **Can Dilution Factor:** 1.00 2
Air Volume: 1000 ml **Not Detected Flag:** U

CAS#	Compound	MDL ppbv	RL ppbv	Amount ppbv	MDL ug/m3	RL ug/m3	Amount ug/m3	Flag
75-01-4	Vinyl chloride	0.05	0.26	0.05	0.13	0.69	0.13	U
75-00-3	Chloroethane	0.05	0.26	0.05	0.14	0.71	0.14	U
75-69-4	Trichlorofluoromethane	0.05	0.26	0.05	0.30	1.50	0.30	U
75-35-4	1,1-Dichloroethene	0.05	0.26	0.05	0.21	1.06	0.21	U
156-60-5	trans-1,2-Dichloroethene	0.04	0.21	0.04	0.17	0.85	0.17	U
75-34-3	1,1-Dichloroethane	0.05	0.26	0.05	0.22	1.09	0.22	U
156-59-2	cis-1,2-Dichloroethene	0.05	0.26	0.05	0.21	1.06	0.21	U
71-55-6	1,1,1-Trichloroethane	0.05	0.26	0.05	0.29	1.46	0.29	U
71-43-2	Benzene	0.05	0.26	0.05	0.17	0.86	0.17	U
79-01-6	Trichloroethene	0.05	0.26	0.05	0.28	1.44	0.28	U
108-88-3	Toluene	0.05	0.26	0.05	0.20	1.01	0.20	U
127-18-4	Tetrachloroethene	0.05	0.26	0.05	0.36	1.82	0.36	U

Surrogate Recovery	Spike Amt. ppbV	Amount ppbV	% Rec.	QC Limits	Flag * = Out
Toluene-d8	10.000	9.341	93	70-130	

Notes: 1) Reported results are to be interpreted to two significant figures.
2) ug/m3 = ppbV*FW/23.68 calculated assuming conditions at 60 F and 1 atm.
3) MDL and RL are adjusted for sample volume and can dilution.
4) U and ND are Flags used for Not Detected
5) J is a flag for a result between the MDL and the RL (or lower quantitation limit, LQL)

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EPA Method TO-15 Full Scan GC/MS **SDG:** **LABQC**
Analytical Method: TO-15 **Laboratory Number:** **CC**

File: CC650A.D **Date Sampled:** **Time:**
Description: 650 CT70 G101 **Date Received:**
Can/Tube#: 650 **Date Extracted:**
Sam_Type: CC **Date Analyzed:** 01/25/08 **Time:**
QC_Batch: 012508-MS3 **Can Dilution Factor:** 1.00 2
Air Volume: 1000 ml **Not Detected Flag:** U

CAS#	Compound	MDL ppbv	RL ppbv	Amount ppbv	MDL ug/m3	RL ug/m3	Amount ug/m3	Flag
75-01-4	Vinyl chloride	0.05	0.26	0.05	0.13	0.69	0.13	U
75-00-3	Chloroethane	0.05	0.26	0.05	0.14	0.71	0.14	U
75-69-4	Trichlorofluoromethane	0.05	0.26	0.05	0.30	1.50	0.30	U
75-35-4	1,1-Dichloroethene	0.05	0.26	0.05	0.21	1.06	0.21	U
156-60-5	trans-1,2-Dichloroethene	0.04	0.21	0.04	0.17	0.85	0.17	U
75-34-3	1,1-Dichloroethane	0.05	0.26	0.05	0.22	1.09	0.22	U
156-59-2	cis-1,2-Dichloroethene	0.05	0.26	0.05	0.21	1.06	0.21	U
71-55-6	1,1,1-Trichloroethane	0.05	0.26	0.05	0.29	1.46	0.29	U
71-43-2	Benzene	0.05	0.26	0.05	0.17	0.86	0.17	U
79-01-6	Trichloroethene	0.05	0.26	0.05	0.28	1.44	0.28	U
108-88-3	Toluene	0.05	0.26	0.05	0.20	1.01	0.20	U
127-18-4	Tetrachloroethene	0.05	0.26	0.05	0.36	1.82	0.36	U

Surrogate Recovery	Spike Amt. ppbV	Amount ppbV	% Rec.	QC Limits	Flag * = Out
Toluene-d8	10.000	10.496	105	70-130	

Notes: 1) Reported results are to be interpreted to two significant figures.
2) ug/m3 = ppbV*FW/23.68 calculated assuming conditions at 60 F and 1 atm.
3) MDL and RL are adjusted for sample volume and can dilution.
4) U and ND are Flags used for Not Detected
5) J is a flag for a result between the MDL and the RL (or lower quantitation limit, LQL)

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Analytical Service, Inc.

EPA Method TO-15 Full Scan GC/MS **SDG: LABQC**
Analytical Method: TO-15 **Laboratory Number: CC**

File: CC688A.D **Date Sampled:** **Time:**
Description: 688 CT33 G016 **Date Received:**
Can/Tube#: 688 **Date Extracted:**
Sam_Type: CC **Date Analyzed:** 01/27/08 **Time:**
QC_Batch: 012708-MS3 **Can Dilution Factor:** 1.00 2
Air Volume: 1000 ml **Not Detected Flag:** U

CAS#	Compound	MDL ppbv	RL ppbv	Amount ppbv	MDL ug/m3	RL ug/m3	Amount ug/m3	Flag
75-01-4	Vinyl chloride	0.05	0.26	0.05	0.13	0.69	0.13	U
75-00-3	Chloroethane	0.05	0.26	0.05	0.14	0.71	0.14	U
75-69-4	Trichlorofluoromethane	0.05	0.26	0.05	0.30	1.50	0.30	U
75-35-4	1,1-Dichloroethene	0.05	0.26	0.05	0.21	1.06	0.21	U
156-60-5	trans-1,2-Dichloroethene	0.04	0.21	0.04	0.17	0.85	0.17	U
75-34-3	1,1-Dichloroethane	0.05	0.26	0.05	0.22	1.09	0.22	U
156-59-2	cis-1,2-Dichloroethene	0.05	0.26	0.05	0.21	1.06	0.21	U
71-55-6	1,1,1-Trichloroethane	0.05	0.26	0.05	0.29	1.46	0.29	U
71-43-2	Benzene	0.05	0.26	0.05	0.17	0.86	0.17	U
79-01-6	Trichloroethene	0.05	0.26	0.05	0.28	1.44	0.28	U
108-88-3	Toluene	0.05	0.26	0.10	0.20	1.01	0.39	J
127-18-4	Tetrachloroethene	0.05	0.26	0.05	0.36	1.82	0.36	U

Surrogate Recovery	Spike Amt. ppbV	Amount ppbV	% Rec.	QC Limits	Flag * = Out
Toluene-d8	10.000	9.178	92	70-130	

Notes: 1) Reported results are to be interpreted to two significant figures.
2) ug/m3 = ppbV*FW/23.68 calculated assuming conditions at 60 F and 1 atm.
3) MDL and RL are adjusted for sample volume and can dilution.
4) U and ND are Flags used for Not Detected
5) J is a flag for a result between the MDL and the RL (or lower quantitation limit, LQL)

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Analytical Service, Inc.

EPA Method TO-15 Full Scan GC/MS **SDG: LABQC**
Analytical Method: TO-15 **Laboratory Number: CC**

File: CC729A.D **Date Sampled:** **Time:**
Description: 729 CT81 G072 **Date Received:**
Can/Tube#: 729 **Date Extracted:**
Sam_Type: CC **Date Analyzed:** 01/25/08 **Time:**
QC_Batch: 012508-MS3 **Can Dilution Factor:** 1.00 2
Air Volume: 1000 ml **Not Detected Flag:** U

CAS#	Compound	MDL ppbv	RL ppbv	Amount ppbv	MDL ug/m3	RL ug/m3	Amount ug/m3	Flag
75-01-4	Vinyl chloride	0.05	0.26	0.05	0.13	0.69	0.13	U
75-00-3	Chloroethane	0.05	0.26	0.05	0.14	0.71	0.14	U
75-69-4	Trichlorofluoromethane	0.05	0.26	0.05	0.30	1.50	0.30	U
75-35-4	1,1-Dichloroethene	0.05	0.26	0.05	0.21	1.06	0.21	U
156-60-5	trans-1,2-Dichloroethene	0.04	0.21	0.04	0.17	0.85	0.17	U
75-34-3	1,1-Dichloroethane	0.05	0.26	0.05	0.22	1.09	0.22	U
156-59-2	cis-1,2-Dichloroethene	0.05	0.26	0.05	0.21	1.06	0.21	U
71-55-6	1,1,1-Trichloroethane	0.05	0.26	0.05	0.29	1.46	0.29	U
71-43-2	Benzene	0.05	0.26	0.05	0.17	0.86	0.17	U
79-01-6	Trichloroethene	0.05	0.26	0.05	0.28	1.44	0.28	U
108-88-3	Toluene	0.05	0.26	0.05	0.20	1.01	0.20	U
127-18-4	Tetrachloroethene	0.05	0.26	0.05	0.36	1.82	0.36	U

Surrogate Recovery	Spike Amt. ppbV	Amount ppbV	% Rec.	QC Limits	Flag * = Out
Toluene-d8	10.000	10.221	102	70-130	

Notes: 1) Reported results are to be interpreted to two significant figures.
2) ug/m3 = ppbV*FW/23.68 calculated assuming conditions at 60 F and 1 atm.
3) MDL and RL are adjusted for sample volume and can dilution.
4) U and ND are Flags used for Not Detected
5) J is a flag for a result between the MDL and the RL (or lower quantitation limit, LQL)

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EPA Method TO-15 Full Scan GC/MS **SDG: LABQC**
Analytical Method: TO-15 **Laboratory Number: CC**

File: CC732A.D **Date Sampled:** **Time:**
Description: 732 CT107 G080 **Date Received:**
Can/Tube#: 732 **Date Extracted:**
Sam_Type: CC **Date Analyzed:** 01/27/08 **Time:**
QC_Batch: 012708-MS3 **Can Dilution Factor:** 1.00 2
Air Volume: 1000 ml **Not Detected Flag:** U

CAS#	Compound	MDL ppbv	RL ppbv	Amount ppbv	MDL ug/m3	RL ug/m3	Amount ug/m3	Flag
75-01-4	Vinyl chloride	0.05	0.26	0.05	0.13	0.69	0.13	U
75-00-3	Chloroethane	0.05	0.26	0.05	0.14	0.71	0.14	U
75-69-4	Trichlorofluoromethane	0.05	0.26	0.05	0.30	1.50	0.30	U
75-35-4	1,1-Dichloroethene	0.05	0.26	0.05	0.21	1.06	0.21	U
156-60-5	trans-1,2-Dichloroethene	0.04	0.21	0.04	0.17	0.85	0.17	U
75-34-3	1,1-Dichloroethane	0.05	0.26	0.05	0.22	1.09	0.22	U
156-59-2	cis-1,2-Dichloroethene	0.05	0.26	0.05	0.21	1.06	0.21	U
71-55-6	1,1,1-Trichloroethane	0.05	0.26	0.05	0.29	1.46	0.29	U
71-43-2	Benzene	0.05	0.26	0.05	0.17	0.86	0.17	U
79-01-6	Trichloroethene	0.05	0.26	0.05	0.28	1.44	0.28	U
108-88-3	Toluene	0.05	0.26	0.05	0.20	1.01	0.20	U
127-18-4	Tetrachloroethene	0.05	0.26	0.05	0.36	1.82	0.36	U

Surrogate Recovery	Spike Amt. ppbV	Amount ppbV	% Rec.	QC Limits	Flag * = Out
Toluene-d8	10.000	10.525	105	70-130	

Notes: 1) Reported results are to be interpreted to two significant figures.
2) ug/m3 = ppbV*FW/23.68 calculated assuming conditions at 60 F and 1 atm.
3) MDL and RL are adjusted for sample volume and can dilution.
4) U and ND are Flags used for Not Detected
5) J is a flag for a result between the MDL and the RL (or lower quantitation limit, LQL)

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EPA Method TO-15 Full Scan GC/MS **SDG: LABQC**
Analytical Method: TO-15 **Laboratory Number: CC**

File: CC792A.D **Date Sampled:** **Time:**
Description: 792 CT38 G099 **Date Received:**
Can/Tube#: 792 **Date Extracted:**
Sam_Type: CC **Date Analyzed:** 01/27/08 **Time:**
QC_Batch: 012708-MS3 **Can Dilution Factor:** 1.00 2
Air Volume: 1000 ml **Not Detected Flag:** U

CAS#	Compound	MDL ppbv	RL ppbv	Amount ppbv	MDL ug/m3	RL ug/m3	Amount ug/m3	Flag
75-01-4	Vinyl chloride	0.05	0.26	0.05	0.13	0.69	0.13	U
75-00-3	Chloroethane	0.05	0.26	0.05	0.14	0.71	0.14	U
75-69-4	Trichlorofluoromethane	0.05	0.26	0.05	0.30	1.50	0.30	U
75-35-4	1,1-Dichloroethene	0.05	0.26	0.05	0.21	1.06	0.21	U
156-60-5	trans-1,2-Dichloroethene	0.04	0.21	0.04	0.17	0.85	0.17	U
75-34-3	1,1-Dichloroethane	0.05	0.26	0.05	0.22	1.09	0.22	U
156-59-2	cis-1,2-Dichloroethene	0.05	0.26	0.05	0.21	1.06	0.21	U
71-55-6	1,1,1-Trichloroethane	0.05	0.26	0.05	0.29	1.46	0.29	U
71-43-2	Benzene	0.05	0.26	0.05	0.17	0.86	0.17	U
79-01-6	Trichloroethene	0.05	0.26	0.05	0.28	1.44	0.28	U
108-88-3	Toluene	0.05	0.26	0.05	0.20	1.01	0.20	U
127-18-4	Tetrachloroethene	0.05	0.26	0.05	0.36	1.82	0.36	U

Surrogate Recovery	Spike Amt. ppbV	Amount ppbV	% Rec.	QC Limits	Flag * = Out
Toluene-d8	10.000	9.703	97	70-130	

Notes: 1) Reported results are to be interpreted to two significant figures.
2) ug/m3 = ppbV*FW/23.68 calculated assuming conditions at 60 F and 1 atm.
3) MDL and RL are adjusted for sample volume and can dilution.
4) U and ND are Flags used for Not Detected
5) J is a flag for a result between the MDL and the RL (or lower quantitation limit, LQL)

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ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Full Scan GC/MS **SDG: LABQC**
Analytical Method: TO-15 **Laboratory Number: CC**

File: CC952A.D **Date Sampled:** **Time:**
Description: 952 CT30 G090 **Date Received:**
Can/Tube#: 952 **Date Extracted:**
Sam_Type: CC **Date Analyzed:** 01/25/08 **Time:**
QC_Batch: 012508-MS3 **Can Dilution Factor:** 1.00 2
Air Volume: 1000 ml **Not Detected Flag:** U

CAS#	Compound	MDL ppbv	RL ppbv	Amount ppbv	MDL ug/m3	RL ug/m3	Amount ug/m3	Flag
75-01-4	Vinyl chloride	0.05	0.26	0.05	0.13	0.69	0.13	U
75-00-3	Chloroethane	0.05	0.26	0.05	0.14	0.71	0.14	U
75-69-4	Trichlorofluoromethane	0.05	0.26	0.05	0.30	1.50	0.30	U
75-35-4	1,1-Dichloroethene	0.05	0.26	0.05	0.21	1.06	0.21	U
156-60-5	trans-1,2-Dichloroethene	0.04	0.21	0.04	0.17	0.85	0.17	U
75-34-3	1,1-Dichloroethane	0.05	0.26	0.05	0.22	1.09	0.22	U
156-59-2	cis-1,2-Dichloroethene	0.05	0.26	0.05	0.21	1.06	0.21	U
71-55-6	1,1,1-Trichloroethane	0.05	0.26	0.05	0.29	1.46	0.29	U
71-43-2	Benzene	0.05	0.26	0.05	0.17	0.86	0.17	U
79-01-6	Trichloroethene	0.05	0.26	0.05	0.28	1.44	0.28	U
108-88-3	Toluene	0.05	0.26	0.05	0.20	1.01	0.20	U
127-18-4	Tetrachloroethene	0.05	0.26	0.05	0.36	1.82	0.36	U

	Surrogate Recovery	Spike Amt. ppbV	Amount ppbV	% Rec.	QC Limits	Flag * = Out
	Toluene-d8	10.000	9.459	95	70-130	

Notes: 1) Reported results are to be interpreted to two significant figures.
2) ug/m3 = ppbV*FW/23.68 calculated assuming conditions at 60 F and 1 atm.
3) MDL and RL are adjusted for sample volume and can dilution.
4) U and ND are Flags used for Not Detected
5) J is a flag for a result between the MDL and the RL (or lower quantitation limit, LQL)

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ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Full Scan GC/MS **SDG:** **LABQC**
Analytical Method: **TO-15** **Laboratory Number:** **CC**

File: CC991A.D **Date Sampled:** **Time:**
Description: 991 CT63 G069 **Date Received:**
Can/Tube#: 991 **Date Extracted:**
Sam_Type: CC **Date Analyzed:** 01/25/08 **Time:**
QC_Batch: 012508-MS3 **Can Dilution Factor:** 1.00 2
Air Volume: 1000 ml **Not Detected Flag:** U

CAS#	Compound	MDL ppbv	RL ppbv	Amount ppbv	MDL ug/m3	RL ug/m3	Amount ug/m3	Flag
75-01-4	Vinyl chloride	0.05	0.26	0.05	0.13	0.69	0.13	U
75-00-3	Chloroethane	0.05	0.26	0.05	0.14	0.71	0.14	U
75-69-4	Trichlorofluoromethane	0.05	0.26	0.05	0.30	1.50	0.30	U
75-35-4	1,1-Dichloroethene	0.05	0.26	0.05	0.21	1.06	0.21	U
156-60-5	trans-1,2-Dichloroethene	0.04	0.21	0.04	0.17	0.85	0.17	U
75-34-3	1,1-Dichloroethane	0.05	0.26	0.05	0.22	1.09	0.22	U
156-59-2	cis-1,2-Dichloroethene	0.05	0.26	0.05	0.21	1.06	0.21	U
71-55-6	1,1,1-Trichloroethane	0.05	0.26	0.05	0.29	1.46	0.29	U
71-43-2	Benzene	0.05	0.26	0.05	0.17	0.86	0.17	U
79-01-6	Trichloroethene	0.05	0.26	0.05	0.28	1.44	0.28	U
108-88-3	Toluene	0.05	0.26	0.05	0.20	1.01	0.20	U
127-18-4	Tetrachloroethene	0.05	0.26	0.05	0.36	1.82	0.36	U

Surrogate Recovery	Spike Amt. ppbV	Amount ppbV	% Rec.	QC Limits	Flag * = Out
Toluene-d8	10.000	8.957	90	70-130	

Notes: 1) Reported results are to be interpreted to two significant figures.
2) ug/m3 = ppbV*FW/23.68 calculated assuming conditions at 60 F and 1 atm.
3) MDL and RL are adjusted for sample volume and can dilution.
4) U and ND are Flags used for Not Detected
5) J is a flag for a result between the MDL and the RL (or lower quantitation limit, LQL)

CANISTER CERTIFICATION

ENVIRONMENTAL
Analytical Service, Inc.

EPA Method TO-15 Full Scan GC/MS **SDG: LABQC**
Analytical Method: TO-15 **Laboratory Number: CC**

File: CC992A.D **Date Sampled:** **Time:**
Description: 992 CT17 G078 **Date Received:**
Can/Tube#: 992 **Date Extracted:**
Sam_Type: CC **Date Analyzed:** 01/25/08 **Time:**
QC_Batch: 012508-MS3 **Can Dilution Factor:** 1.00 2
Air Volume: 1000 ml **Not Detected Flag:** U

CAS#	Compound	MDL ppbv	RL ppbv	Amount ppbv	MDL ug/m3	RL ug/m3	Amount ug/m3	Flag
75-01-4	Vinyl chloride	0.05	0.26	0.05	0.13	0.69	0.13	U
75-00-3	Chloroethane	0.05	0.26	0.05	0.14	0.71	0.14	U
75-69-4	Trichlorofluoromethane	0.05	0.26	0.05	0.30	1.50	0.30	U
75-35-4	1,1-Dichloroethene	0.05	0.26	0.05	0.21	1.06	0.21	U
156-60-5	trans-1,2-Dichloroethene	0.04	0.21	0.04	0.17	0.85	0.17	U
75-34-3	1,1-Dichloroethane	0.05	0.26	0.05	0.22	1.09	0.22	U
156-59-2	cis-1,2-Dichloroethene	0.05	0.26	0.05	0.21	1.06	0.21	U
71-55-6	1,1,1-Trichloroethane	0.05	0.26	0.05	0.29	1.46	0.29	U
71-43-2	Benzene	0.05	0.26	0.05	0.17	0.86	0.17	U
79-01-6	Trichloroethene	0.05	0.26	0.05	0.28	1.44	0.28	U
108-88-3	Toluene	0.05	0.26	0.05	0.20	1.01	0.20	U
127-18-4	Tetrachloroethene	0.05	0.26	0.05	0.36	1.82	0.36	U

Surrogate Recovery	Spike Amt. ppbV	Amount ppbV	% Rec.	QC Limits	Flag * = Out
Toluene-d8	10.000	10.256	103	70-130	

Notes: 1) Reported results are to be interpreted to two significant figures.
2) ug/m3 = ppbV*FW/23.68 calculated assuming conditions at 60 F and 1 atm.
3) MDL and RL are adjusted for sample volume and can dilution.
4) U and ND are Flags used for Not Detected
5) J is a flag for a result between the MDL and the RL (or lower quantitation limit, LQL)

APPENDIX D

ROSEN BROTHERS SITE

TRIP REPORT

FEBRUARY 2008

SAMPLING TRIP REPORT

Site Name: Rosen Brothers Scrap Yard/Dump Site
Sampling Dates: February 11 – 13, 2008
CERCLIS ID: NYD982272734

1. Site Location:

   Cortland, Cortland County, New York

2. Sample Descriptions:

   Refer to Table 1 for all sample information.

3. Laboratories Receiving Samples:

Matrix	Sample Type	Laboratory Code	Name and Address of Laboratory
Air Samples in 6 lt. SUMMA™ canisters	VOCs	EAS	Environmental Analytical Services 173 Cross Street San Luis Obispo, CA 93401

4. **Sample Dispatch Data:**

   This sampling event consisted of collecting sub-slab air samples and indoor air samples into SUMMA™ canisters for twenty four (24) hours. A blind duplicate sample was collected by connecting 2 canisters to the same sub-slab port and opening them simultaneously. In addition, an ambient air sample was taken from the outside environment.

   On February 11, 2008, two additional sub-slab ports were installed in an empty warehouse, designated "W", of a business in the vicinity of the Rosen Brothers Scrap Yard/Dump site. On February 12, 2008, a sub-slab air sample was collected from each of the new ports in addition to the five previously installed ports located in the warehouse and the main building, denoted "M". Two indoor air samples were collected near two of the ports in the warehouse and two indoor air samples were collected near the two ports in the main building. A duplicate sample was collected from the southeast sub-slab port in the warehouse. Each canister contained a vacuum that once opened, drew the air into the body of the canister. One ambient air sample was also collected during the course of this sampling event.

All thirteen (13) air samples and valves, and two un-used canisters were shipped in five boxes via Federal Express to Environmental Analytical Services under air bill numbers 863460296288, 863460296299, 863460296314, 863460296303 and 863460296277 at 1300 on February 13, 2008. Table 1 displays the sampling information such as the location of canister placement, initial and final canister pressure, sampling times, dates and the canister number. The chain of custody form can be found as Appendix A.

5. Sampling Personnel:

Name	Organization	Site Duties
Diane Salkie	USEPA Region II DESA/HWSB Superfund Support Team	Project Manager/Sample Management
Steven Wall	USEPA Region II DESA/HWSB Superfund Support Team	Field Personnel
Pat Sheridan	USEPA Region II DESA/HWSB Superfund Support Team	Quality Assurance Officer

6. Additional Comments:

The number of samples includes:

- 7 sub-slab air samples;
- 4 indoor air samples
- 1 field duplicate sub-slab air sample
- 1 ambient (outdoor) sample

7. Report Prepared By: Diane Salkie Date February 15, 2008

TABLE 1
SAMPLE DESCRIPTIONS
ROSEN BROTHERS SCRAP YARD/DUMP SITE

Sample #	Sample Type	Location	Canister	Valve	Pressure		Begin Date	Begin Time	End Date	End Time
					Initial	Final				
67M-SS-C	Sub-slab	Port in the center of the main building	2963	CT-67	-28	-10	2/12/08	0929	2/13/08	0929
67M-IA-C	Indoor Air	In center of main building, near port	792	CT-38	-25	-7	2/12/08	0929	2/13/08	0929
67M-SS-B	Sub-slab	Port in the boiler room of main building	175	CT-82	-30	-5	2/12/08	0945	2/13/08	0935
67M-IA-B	Indoor Air	In the boiler room of the main building	952	CT-30	-25	-10	2/12/08	0945	2/13/08	0935
67W-SS-SW	Sub-slab	Southwest port in the warehouse (corridor)	732	CT-107	-28	-9	2/12/08	1051	2/13/08	1042
67W-SS-SC	Sub-slab	New port in the center of the south side of the warehouse	992	CT-17	-28	-9.5	2/12/08	1053	2/13/08	1043
67W-SS-C	Sub-slab	New port in the center of the warehouse	688	CT-33	-29	-8	2/12/08	1057	2/13/08	1054
67W-SS-SE	Sub-slab	Southeast Port in the warehouse	516	CT-139	-26	-8	2/12/08	1106	2/13/08	1100
67W-SS-SE2	Sub-slab	Duplicate of 67W-SS-SE	991	CT-63	-28.5	-8.5	2/12/08	1106	2/13/08	1100
67W-SS-N	Sub-slab	Warehouse port on the north side	650	CT-70	-22	-4	2/12/08	1108	2/13/08	1105
67W-IA-SW	Indoor Air	Collected near the southwest port in the warehouse	535	CT-20	-23	-5	2/12/08	1123	2/13/08	1110
67W-IA-C	Indoor Air	Collected in the center of the warehouse	721	CT-89	-28	-8	2/12/08	1124	2/13/08	1111
67-AA	Ambient Air	Back of business, between 2 buildings	609	CT-113	-28	-9	2/12/08	1130	2/13/08	1130

APPENDIX A

CHAIN OF CUSTODY RECORD

EPA USEPA Contract Laboratory Program
Generic Chain of Custody

Reference Case: R
Client No:

Region:	2	**Date Shipped:**	2/13/2008
Project Code:		**Carrier Name:**	FedEx
Account Code:		**Airbill:**	863460296288
CERCLIS ID:		**Shipped to:**	Environmental Analytical Service Inc. 173 Cross St. San Luis Obispo CA 93401 (805) 781-3585
Spill ID:			
Site Name/State:	Rosen Brothers/NY		
Project Leader:	Diane Salkie		
Action:			
Sampling Co:	US EPA		

Chain of Custody Record

Relinquished By	(Date / Time)	Received By	(Date / Time)
1	2/13/08 1300	FedEx 863460296288	2/13/08 1300
2			
3			
4			

Sampler Signature:

SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME		QC Type
175	Sub-slab Air/ Diane Salkie	L/G	TO-15 LL (7)	CT-82 (Not preserved) (1)	67-M-SS-B	S: 2/12/2008	9:45	
2963	Sub-slab Air/ Diane Salkie	L/G	TO-15 LL (7)	CT-67 (Not preserved) (1)	67-M-SS-C	S: 2/12/2008	9:29	
516	Sub-slab Air/ Diane Salkie	L/G	TO-15 LL (7)	CT-139 (Not preserved) (1)	67-W-SS-SE	S: 2/12/2008	11:06	
535	Indoor Air/ Diane Salkie	L/G	TO-15 SIM (7)	CT-20 (Not preserved) (1)	67-W-IA-SW	S: 2/12/2008	11:23	
609	Ambient Air/ Diane Salkie	L/G	TO-15 SIM (7)	CT-113 (Not preserved) (1)	67-AA	S: 2/12/2008	11:30	
650	Sub-slab Air/ Diane Salkie	L/G	TO-15 LL (7)	CT-70 (Not preserved) (1)	67-W-SS-N	S: 2/12/2008	11:18	
688	Sub-slab Air/ Diane Salkie	L/G	TO-15 LL (7)	CT-33 (Not preserved) (1)	67-W-SS-C	S: 2/12/2008	10:57	
721	Indoor Air/ Diane Salkie	L/G	TO-15 SIM (7)	CT-87 (Not preserved) (1)	67-W-IA-C	S: 2/12/2008	11:24	
732	Sub-slab Air/ Diane Salkie	L/G	TO-15 LL (7)	CT-107 (Not preserved) (1)	67-W-SS-SW	S: 2/12/2008	10:51	
792	Indoor Air/ Diane Salkie	L/G	TO-15 SIM (7)	CT-38 (Not preserved) (1)	67-M-IA-C	S: 2/12/2008	9:29	
952	Indoor Air/ Diane Salkie	L/G	TO-15 SIM (7)	CT-30 (Not preserved) (1)	67-M-IA-B	S: 2/12/2008	9:45	

2/13/08 935
929 -
1160 -
1118 -
1120 -
1105 -
1054 -
1111 -
1042 -
929 -
2/13/08 935 -

Shipment for Case Complete? Y	**Sample(s) to be used for laboratory QC:**	**Additional Sampler Signature(s):**	**Chain of Custody Seal Number:**
Analysis Key:	**Concentration:** L = Low, M = Low/Medium, H = High	**Type/Designate:** Composite = C, Grab = G	**Shipment Iced?**

TO-15 LL = TO-15 Low Level, TO-15 SIM= TO-15 SIM

TR Number: 2-043013577-021208-0001

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

Send Copy to: Sample Management Office, Attn: Heather Bauer, CSC, 5000 Conference Center Dr., Chantilly, VA 20151-3819; Phone 703/818-4200; Fax

REGION COPY

USEPA Contract Laboratory Program
Generic Chain of Custody

Reference Case: R
Client No:

Region: 2	**Date Shipped:** 2/13/2008	**Chain of Custody Record**	**Sampler Signature:**
Project Code:	**Carrier Name:** FedEx	**Relinquished By (Date / Time)**	**Received By (Date / Time)**
Account Code:	**Airbill:** 863460296288	1 2/13/08 1300	fedex 863460296288 2/13/08 1300
CERCLIS ID:	**Shipped to:** Environmental Analytical Service Inc. 173 Cross St San Luis Obispo CA 93401 (805) 781-3585	2	
Spill ID:		3	
Site Name/State: Rosen Brothers/NY		4	
Project Leader: Diane Salkie			
Action:			
Sampling Co: US EPA			

SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME			QC Type
991	Sub-slab Air/ Diane Salkie	L/G	TO-15 LL (7)	CT-63 (Not preserved) (1)	67-W-SS-SE2	S: 2/12/2008	11:06	2/13/08 1100	Field Duplicate
992	Sub-slab Air/ Diane Salkie	L/G	TO-15 LL (7)	CT-17 (Not preserved) (1)	67-W-SS-SC	S: 2/12/2008	10:53	2/13/08 1043	-

Shipment for Case Complete? Y	**Sample(s) to be used for laboratory QC:**	**Additional Sampler Signature(s):**	**Chain of Custody Seal Number:**
Analysis Key:	**Concentration:** L = Low, M = Low/Medium, H = High	**Type/Designate:** Composite = C, Grab = G	**Shipment Iced?**

TO-15 LL = TO-15 Low Level, TO-15 SIM = TO-15 SIM

TR Number: 2-043013577-021208-0001

REGION COPY

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

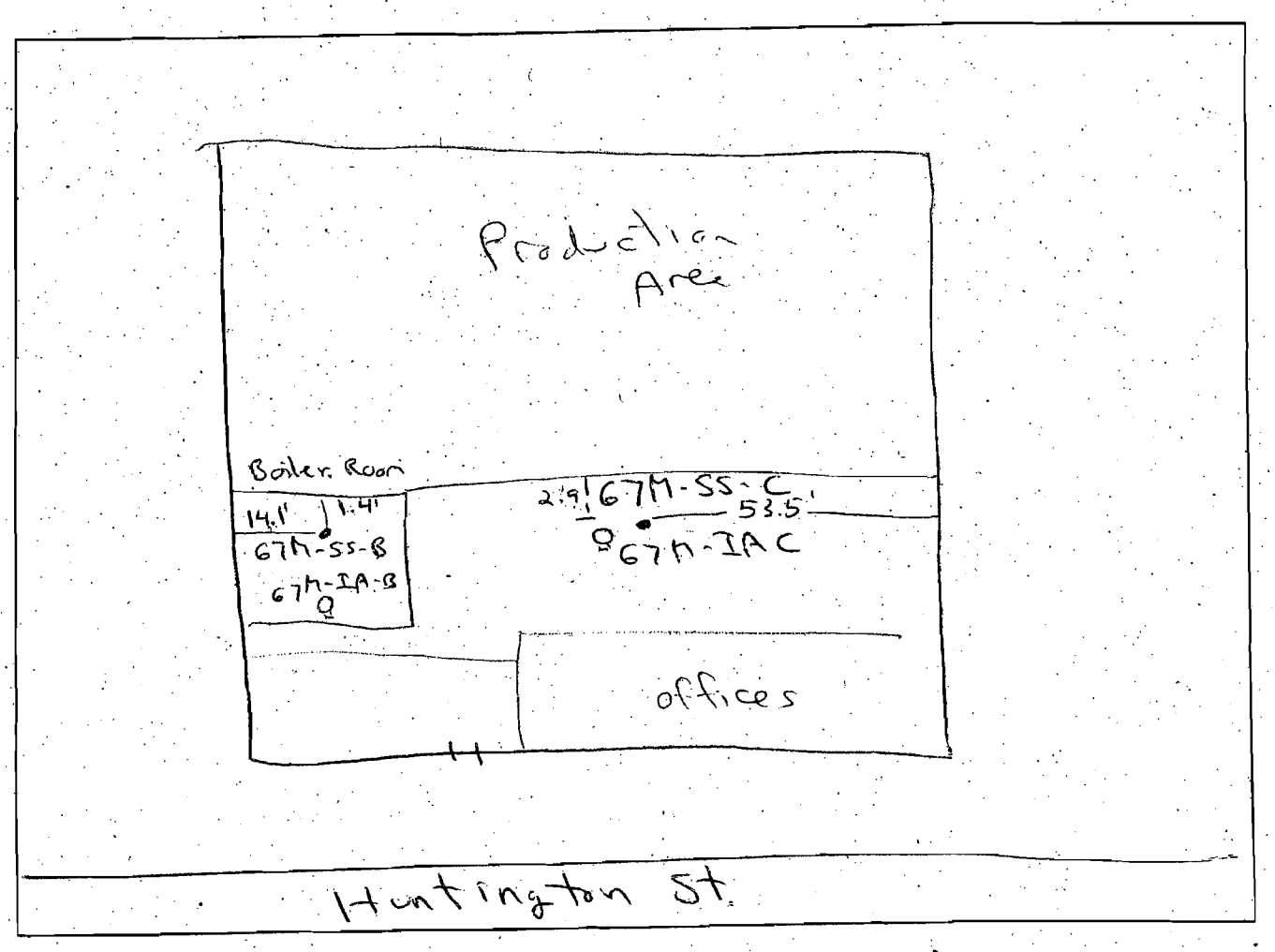
Send Copy to: Sample Management Office, Attn: Heather Bauer, CSC, 15000 Conference Center Dr., Chantilly, VA 20151-3819; Phone 703/818-4200; Fax 703/818-4602

APPENDIX E

SAMPLE LOCATION DRAWING

N ↓

Provide Drawing of Sample Location(s) in Building



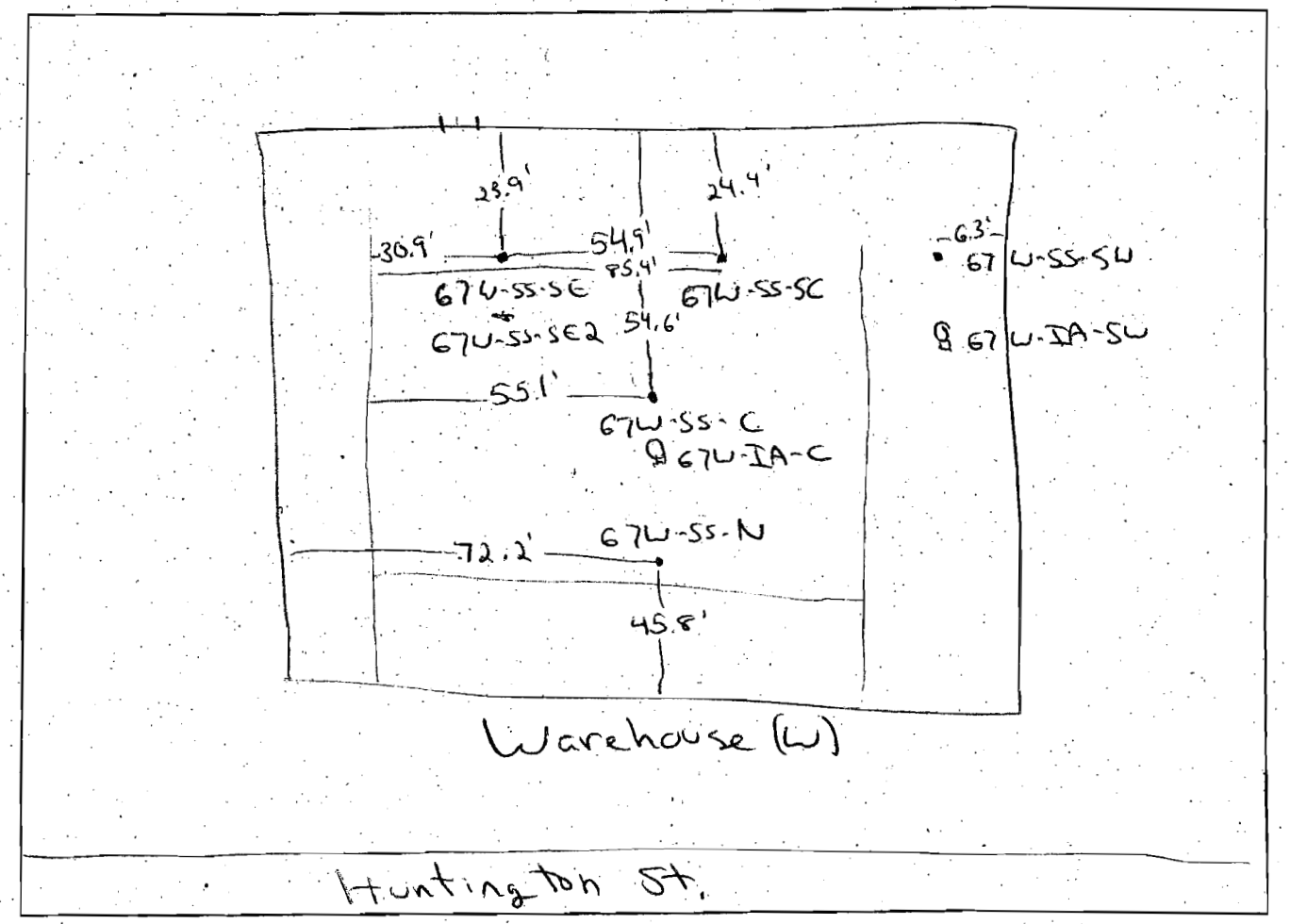
Main Building (M)

• - Sub-slab port
Q - Indoor Air Canister

Not to scale
Samples Collected 2/2008

Provide Drawing of Sample Location(s) in Building

N



•- Sub-slab port

Ø- Indoor Air Canister

Not to Scale

Samples Collected 2/2008

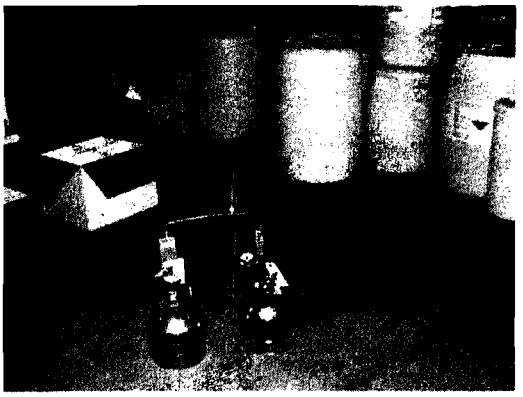
APPENDIX G

PHOTOGRAPH LOG

MAIN BUILDING

Sub-slab and Indoor Air from the center of the Main Building
67-M-SS-C and 67-M-IA-C

Sub-slab and Indoor Air from the boiler room of the Main Building
67-M-SS-B and 67-M-IA-B



Sub-slab and duplicate Sub-slab in the southeast area of the Warehouse
67-W-SS-SE and 67-W-SS-SE2

Sub-slab sample collected from port in north side of the Warehouse
67-W-SS-N

Ambient Air sample collected behind both buildings
67-AA

APPENDIX H

U.S. EPA Region III
***Risk-Based Concentration Table* Mid-Atlantic Risk Assessment**

Updated April 06, 2007

http://www.epa.gov/reg3hwmd/risk/human/info/cover.htm
Last updated on Wednesday, April 11th, 2007.

Mid-Atlantic Risk Assessment

Human Health Risk Assessment

Updated Risk Based Concentration Table Cover Memo

April 2007 Update

U.S. Environmental Protection Agency
REGION 3
1650 Arch Street
Philadelphia, Pennsylvania 19103

SUBJECT: Risk-Based Concentration Table
FROM: Jennifer Hubbard, Toxicologist, Technical Support Section (3HS41)
TO: RBC Table Users
DATE: April 2007

Attached is the EPA Region III Risk-Based Concentration (RBC) Table, which we prepare and post periodically for all interested parties. The Table's current web address is http://www.epa.gov/reg3hwmd/risk/human/index.htm.

For questions about the Table, please consult this memo. You can also consult the RBC Table companion documents, such as the Technical Background Document and Frequently Asked Questions, that are posted on the website. If you don't find the answer there, and your question is about risk assessment or the science behind the RBCs, you can reach me at hubbard.jennifer@epa.gov or 215-814-3328. For technical difficulties in reading, displaying, or downloading the table from the web, please contact uebele.charles@epa.gov.

Basic Information

The RBC Table contains Reference Doses (RfDs) and Cancer Slope Factors (CSFs) for about 400 chemicals. These toxicity factors have been combined with "standard" exposure scenarios to calculate RBCs--chemical concentrations corresponding to fixed levels of risk (i.e., a Hazard Quotient (HQ) of 1, or lifetime cancer risk of 1E-6, whichever occurs at a lower concentration) in water, air, fish tissue, and soil. The equations and the exposure factors are shown in the RBC Table companion memo, the Technical Background Document.

The Region III toxicologists use RBCs to screen sites not yet on the NPL, respond rapidly to citizen inquiries, and spot-check formal baseline risk assessments. The primary use of RBCs is for chemical screening during baseline risk assessment (see EPA Regional Guidance EPA/903/R-93-001, "Selecting Exposure Routes and Contaminants of Concern by Risk-Based Screening"). The exposure equations come from EPA's Risk Assessment Guidance for Superfund (RAGS), while the exposure factors are those recommended in RAGS or supplemental guidance from the Superfund program. The attached Technical Background Document provides specific equations and assumptions. Simply put, RBCs are like risk assessments run in reverse. For a single contaminant in a single medium, under standard default exposure assumptions, the RBC corresponds to the target risk or hazard quotient.

RBCs also have several important limitations. Specifically excluded from consideration are (1) transfers from soil to air, (2) cumulative risk from multiple contaminants or media, and (3) dermal risk. Additionally, the risks for inhalation of vapors from water are based on a very simple model, whereas detailed risk assessments may use more detailed showering models. Many RBCs are also based on adult

risks. For more information about children's risks, see the Technical Background Document and Frequently Asked Question #12. Furthermore, the toxicity information in the Table has been assembled by hand and (despite extensive checking and years of use) may contain errors. It's advisable to cross-check before relying on any RfDs or CSFs in the Table. If you note any errors, please let us know.

It is important to note that, at this time, the Table uses inhalation RfDs and CSFs rather than RfCs (Reference Concentrations) and inhalation unit cancer risks. This was initially done because the latter factors incorporate exposure assumptions and were ostensibly based on residential adults. Because risk assessors needed to evaluate risks for many types of scenarios, the factors were converted to the more traditional RfDs and CSFs. Unless otherwise indicated in the toxicity-factor source, the assumption was that RfCs and unit risks should be adjusted by a 70-kilogram body weight and a 20 m3/day inhalation rate to generate the RfDs and CSFs. In fact, for adults, the use of an inhalation RfD vs. an RfC does not typically change the risk estimate significantly.

Many users want to know if the RBCs can be used as valid no-action levels or cleanup levels, especially for soils. The answer is a bit complex. First, it is important to realize that the RBC Table does not constitute regulation or guidance, and should not be viewed as a substitute for a site-specific risk assessment. For sites where:

A single medium is contaminated;
A single contaminant contributes nearly all the health risk;
Volatilization, dermal contact, and other pathways not included in the RBCs are not expected to be significant;
The exposure scenarios and assumptions used in the RBC table are appropriate for the site;
The fixed risk levels used in the RBC table are appropriate for the site; and
Risk to ecological receptors is not expected to be significant;

The RBCs would probably be protective as no-action levels or cleanup goals. However, to the extent that a site deviates from this description, as most do, the RBCs would not necessarily be appropriate.

To summarize, the Table should generally not be used to set cleanup or no-action levels at CERCLA sites or RCRA Corrective Action sites, to substitute for EPA guidance for preparing baseline risk assessments, or to determine if a waste is hazardous under RCRA.

Features of the Table

The RBC Table was originally developed by Roy L. Smith, Ph.D., for use by risk assessors in the Region III Superfund program. Dr. Smith is no longer with Region III, and the Table continues to evolve. The following features of the table should be noted; some of the current features differ from those of past versions of the RBC Table.

What's New

EPA's National Center for Environmental Assessment (NCEA) is the main source of provisional toxicity values for chemicals without IRIS values. Recently, NCEA has recommended ATSDR chronic MRLs for some chemicals, consistent with their description in OSWER Directive 9285.7-53 as Tier 3 toxicity values. In keeping with this, the Region III RBC Table now includes some MRLs as provisional values, coded "M" on the Table. MRLs were only used in the following cases: 1) if there was no IRIS (Tier 1) or current PPRTV (Tier 2) value; 2) if the MRL was more recent than the provisional or HEAST value; and 3) if the MRL was chronic.

We have eliminated chemicals whose PPRTVs have been retired by NCEA. For toxicity values for chemicals that do not appear on the RBC Table or in IRIS, or to obtain supporting documentation for PPRTVs, consult NCEA.

The most significant recent change to the table is the incorporation of age-dependent adjustment factors (ADAFs) in the RBCs of chemicals that are carcinogenic via a mutagenic mode of action. This approach is consistent with the 2005 Guidelines for Carcinogen Risk Assessment and the Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens. As announced in the Federal Register on April 7, 2005 (70 FR 17765-17817), EPA is now incorporating the principles of the Guidelines and the

Supplemental Guidance in its risk assessments.

Vinyl chloride is one of the chemicals named in the Supplemental Guidance as needing adjustment for early-life cancer risk estimates. However, chemical-specific adjustments for vinyl chloride have been available on IRIS, and the RBC Table has already incorporated these adjustments, for a few years now (see the May 6, 2001 memo, "Derivation of Vinyl Chloride RBCs," at http://www.epa.gov/reg3hwmd/risk/human/info/vcrbc.pdf).

EPA has now identified several other carcinogens that act via a mutagenic mode of action, and to account for their early-life exposures, the default ADAFs of 10 for ages 0-2 and 3 for ages 2-16 have now been incorporated into the RBC Table. The chemicals affected by these default ADAF adjustments are marked on the Table with an "m" next to the chemical name. Example calculations for these RBCs are provided in the supplemental memo, "Derivation of RBCs for Carcinogens that Act Via a Mutagenic Mode of Action and Incorporate Default ADAFs" (October 19, 2006) found on the Region III RBC website at http://www.epa.gov/reg3hwmd/risk/human/index.htm.

N-Nitrosodiethylamine and N-nitrosodimethylamine were accidentally omitted from the October 2006 table's list of carcinogens via a mutagenic mode of action. They are now listed and their RBCs calculated accordingly.

Features and Historical Changes

Updated toxicity factors have been used wherever available. However, because IRIS and provisional values are updated more frequently than the RBC Table, RBC Table users are ultimately responsible for obtaining the most up-to-date values. The RBC Table is provided as a convenience, but toxicity factors are compiled from the original sources and it is those original sources that should serve as the definitive reference.

Changes to the table since the last semi-annual version have been marked with asterisks (**). Changes may involve a corrected CAS number or a correction in the VOC status, a change in the SSL, change in mutagenic status, or changes in RfDs and CSFs or their sources.

For access to "P" and "E" coded values, please see Frequently Asked Question #10 for more information.

Please note that the "industrial soil" numbers were changed on the April 2003 RBC Table to reflect the higher soil ingestion rate of the outdoor worker. This is consistent with the new draft SSL Guidance and with the practice in other regions, as well as providing for additional protection of workers.

RBCs are not rounded to 1E6 ppm, as they were in some earlier versions of the Table. For certain low-toxicity chemicals, the RBCs exceed possible concentrations at the target risks. In such cases, Dr. Smith rounded these numbers to the highest possible concentration, or 1E6 ppm. This type of truncation has been discontinued so that Table users can adjust the RBCs to a different target risk whenever necessary. For example, when screening chemicals at a target HQ of 0.1, noncarcinogenic RBCs may simply be divided by 10. Such scaling is not possible when RBCs are rounded. Users who are interested in truncation can also consult the Soil Screening Guidance for a discussion of "Csat," the saturation concentration.

At Region III Superfund sites, noncancer RBCs are typically adjusted downward to correspond to a target HQ of 0.1 rather than 1. (This is done to ensure that chemicals with additive effects are not prematurely eliminated during screening. Note that the RBCs displayed on the table are shown at an HQ of 1; to arrive at the RBC at 0.1, data users must do the conversion themselves.) However, some chemicals have RBCs at HQs of 0.1 that are lower than their RBCs at 1E-6 cancer risk. In other words, the screening RBC would change from carcinogenic to noncarcinogenic. These chemicals are flagged with a "!" symbol. Therefore, assessors screening with adjusted RBCs will be alerted to this situation. See the companion attachment to the RBC Table, "Alternate RBCs," for alternate values for "!" RBCs.

Earlier versions of this Table included a substitution of inhalation toxicity factors for oral factors whenever oral factors were unavailable (this applied only to groundwater and air, but not soil or fish). This practice was discontinued in order to minimize the uncertainty associated with such a conversion. The discontinuation of this practice did not significantly decrease the number of available RBCs.

The criterion for "VOC status" is in accordance with RAGS Part B: chemicals with Henry's Law constants greater than 1E-5 and molecular weight less than 200 are marked as VOCs.

Earlier versions of this Table included soil screening levels (SSLs), when those values were available in draft form. Since the finalization of the SSL Guidance, risk assessors are urged to consult the final SSL Guidance directly. However, for generic use in Region III, the table now contains soil-to-groundwater SSLs in accordance with the new guidance. For more information, see the Region III memo on SSLs, or consult the national SSL guidance directly (Soil Screening Guidance: User's Guide, April 1996, Publication 9355.4-23; and Soil Screening Guidance: Technical Background Document, May 1996; EPA/540/R-95/128; as well as Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites, December 2002; OSWER 9355.4-24).

You may notice there are two rows for uranium, one reflecting the IRIS (EPA consensus) value and the other reflecting a more recent, but provisional, value. Region III has shown both on this table, rather than choosing one over the other, to give Table users as much information as possible.

Vinyl chloride is handled differently from most other chemicals because of the unique aspects of its slope factor derivation. Readers are referred to the memo, Derivation of Vinyl Chloride RBCs, which is a companion document to this RBC Table (http://www.epa.gov/reg3hwmd/risk/human/info/vcrbc.pdf).

Sources: I = IRIS H = HEAST A = HEAST Alternate M = ATSDR MRL (chronic)
E = EPA-NCEA provisional value O = other P = EPA provisional peer-rev m = Default ADAFs applied, carcinogenic via mutagenic mode of action

Basis: C = Carcinogenic effects N = Noncarcinogenic effects 1 = RBC at HI of 0.1 < RBC-C, see Alternate RBCs II = See Alternate RBCs

Risk-based concentrations

Chemical	CAS	RfDo mg/kg/d	CSFo 1/mg/kg/d	RfDi mg/kg/d	CSFi 1/mg/kg/d	VOC	Tap water ug/l	Ambient air ug/m3	Fish mg/kg	Soil Industrial mg/kg	Soil Residential mg/kg	Region III SSLs Soil, for groundwater migration DAF 1 mg/kg	DAF 20 mg/kg
ACETALDEHYDE	75070			2.57E-03 I	7.7E-03 I	y	1.6E+00 C	8.1E-01 C				3.8E-04	7.7E-03 C
ACETOCHLOR	34256821	2E-02 I					7.3E+02 N	7.3E+01 N	2.7E+01 N	2.0E+04 N	1.6E+03 N		
ACETONE	67641	9.00E-01 I				y	5.5E+03 N	3.3E+03 N	1.2E+03 N	9.2E+05 N	7.0E+04 N	1.1E+00	2.2E+01 N
ACETONITRILE	75058			1.7E-02 I		y	1.2E+02 N	8.2E+01 N				2.9E-02	5.8E-01 N
ACETOPHENONE	98862	1.00E-01 I				y	6.1E+02 N	3.7E+02 N	1.4E+02 N	1.0E+05 N	7.8E+03 N	1.6E-01	3.2E+00 N
ACROLEIN	107028	5.00E-04 I		5.70E-06 I		y	4.2E-02 N	2.1E-02 N	6.8E-01 N	5.1E+02 N	3.9E+01 N	1.0E-05	2.0E-04 N
ACRYLAMIDE	79061	2.00E-04 I	4.50E+00 I		4.50E+00 I		1.5E-02 C	1.4E-03 C	7.0E-04 C	6.4E-01 C	1.4E-01 C	3.7E-06	7.4E-05 C
ACRYLONITRILE	107131	1.00E-03 H	5.40E-01 I	5.70E-04 I	2.40E-01 I	y	3.7E-02 C	2.8E-02 C	5.8E-03 C	5.3E+00 C	1.2E+00 C	7.4E-06	1.5E-04 C
ALACHLOR	15972608	1.00E-02 I	8.00E-02 H				8.4E-01 C	7.8E-02 C	3.9E-02 C	3.6E+01 C	8.0E+00 C	3.5E-04	7.0E-03 C
ALAR	1596845	1.50E-01 I					5.5E+03 N	5.5E+02 N	2.0E+02 N	1.5E+05 N	1.2E+04 N		
ALDICARB	116063	1.00E-03 I					3.7E+01 N	3.7E+00 N	1.4E+00 N	1.0E+03 N	7.8E+01 N	1.0E-02	2.1E-01 N
ALDICARB SULFONE	1646884	1.00E-03 I					3.7E+01 N	3.7E+00 N	1.4E+00 N	1.0E+03 N	7.8E+01 N	7.5E-03	1.5E-01 N
ALDRIN	309002	3.00E-05 I	1.70E+01 I		1.70E+01 I		3.9E-03 C	3.7E-04 C	1.9E-04 C	1.7E-01 C	3.8E-02 C	3.8E-04	7.7E-03 C
**ALUMINUM	7429905	1.00E+00 P		1.00E-03 P			3.7E+04 N	3.7E+00 N	1.4E+03 N	1.0E+06 N	7.8E+04 N		
AMINODINITROTOLUENES		2.00E-03 E					7.3E+01 N	7.3E+00 N	2.7E+00 N	2.0E+03 N	1.6E+02 N		
AMMONIA	7664417			2.86E-02 I		y	2.1E+02 N	1.0E+02 N					
ANILINE	62533	7.00E-03 P	5.70E-03 I	2.90E-04 I			1.2E+01 C	1.1E+00 N	5.5E-01 C	5.0E+02 C	1.1E+02 C !	6.8E-03	1.4E-01 C
ANTIMONY	7440360	4.00E-04 I					1.5E+01 N	1.5E+00 N	5.4E-01 N	4.1E+02 N	3.1E+01 N	6.6E-01	1.3E+01 N
ANTIMONY TRIOXIDE	1309644	4.00E-04 H		5.70E-05 I			1.5E+01 N	2.1E-01 N	5.4E-01 N	4.1E+02 N	3.1E+01 N		
ARSENIC	7440382	3.00E-04 I	1.50E+00 I		1.51E+01 I		4.5E-02 C	4.1E-04 C	2.1E-03 C	1.9E+00 C	4.3E-01 C	1.3E-03	2.6E-02 C
ARSINE	7784421			1.40E-05 I		y	1.0E-01 N	5.1E-02 N					
ASSURE	76578148	9.00E-03 I					3.3E+02 N	3.3E+01 N	1.2E+01 N	9.2E+03 N	7.0E+02 N		
ATRAZINE	1912249	3.50E-02 I	2.20E-01 H				3.0E-01 C	2.8E-02 C	1.4E-02 C	1.3E+01 C	2.9E+00 C	4.4E-04	8.8E-03 C
BARIUM	7440393	2.00E-01 I		1.40E-04 A			7.3E+03 N	5.1E-01 N	2.7E+02 N	2.0E+05 N	1.6E+04 N	3.0E+02	6.0E+03 N
BAYGON	114261	4.00E-03 I					1.5E+02 N	1.5E+01 N	5.4E+00 N	4.1E+03 N	3.1E+02 N		
BAYTHROID	68359375	2.50E-02 I					9.1E+02 N	9.1E+01 N	3.4E+01 N	2.6E+04 N	2.0E+03 N		
BENTAZON	25057890	3.00E-02 I					1.1E+03 N	1.1E+02 N	4.1E+01 N	3.1E+04 N	2.3E+03 N		
BENZALDEHYDE	100527	1.00E-01 I					3.7E+03 N	3.7E+02 N	1.4E+02 N	1.0E+05 N	7.8E+03 N		
BENZENE	71432	4.00E-03 I	5.5E-02 I	8.6E-03 I	2.7E-02 I	y	3.4E-01 C	2.3E-01 C	5.7E-02 C	5.2E+01 C	1.2E+01 C	9.5E-05	1.9E-03 C
BENZENETHIOL	108985	1.00E-05 H				y	6.1E-02 N	3.7E-02 N	1.4E-02 N	1.0E+01 N	7.8E-01 N		
BENZIDINE m	92875	3.00E-03 I	2.30E+02 I		2.30E+02 I		1.0E-04 C	1.0E-05 C	1.4E-05 C	1.2E-02 C	7.0E-04 C		
BENZOIC ACID	65850	4.00E+00 I					1.5E+05 N	1.5E+04 N	5.4E+03 N	4.1E+06 N	3.1E+05 N		
BENZYL ALCOHOL	100516	5.00E-01 P					1.8E+04 N	1.8E+03 N	6.8E+02 N	5.1E+05 N	3.9E+04 N	7.3E+00	1.5E+02 N
BENZYL CHLORIDE	100447		0.17 I			y	6.2E-02 C	3.7E-02 C	1.9E-02 C	1.7E+01 C	3.8E+00 C	1.9E-05	3.7E-04 C
BERYLLIUM	7440417	2.00E-03 I		5.7E-06 I	8.40E+00 I		7.3E+01 N	7.5E-04 C	2.7E+00 N	2.0E+03 N	1.6E+02 N	5.8E+01	1.2E+03 N
BIPHENYL	92524	5.00E-02 I				y	3.0E+02 N	1.8E+02 N	6.8E+01 N	5.1E+04 N	3.9E+03 N	4.8E+00	9.6E+01 N
BIS(2-CHLOROETHYL)ETHER	111444		1.10E+00 I		1.10E+00 I	y	9.6E-03 C	5.7E-03 C	2.9E-03 C	2.6E+00 C	5.8E-01 C	2.2E-06	4.4E-05 C
BIS(2-CHLOROISOPROPYL)ETHER	108601	4.00E-02 I	7.00E-02 H		3.50E-02 H	y	2.6E-01 C	1.8E-01 C	4.5E-02 C	4.1E+01 C	9.1E+00 C	8.4E-05	1.7E-03 C
BIS(CHLOROMETHYL)ETHER	542881		2.20E+02 I		2.20E+02 I	y	4.8E-05 C	2.8E-05 C	1.4E-05 C	1.3E-02 C	2.9E-03 C	9.7E-09	1.9E-07 C
BIS(2-ETHYLHEXYL)PHTHALATE	117817	2.00E-02 I	1.40E-02 I				4.8E+00 C	4.5E-01 C	2.3E-01 C	2.0E+02 C	4.6E+01 C	1.4E+02	2.9E+03 C
BORON	7440428	2.00E-01 I		5.70E-03 H			7.3E+03 N	2.1E+01 N	2.7E+02 N	2.0E+05 N	1.6E+04 N		
BROMODICHLOROMETHANE	75274	2.00E-02 I	6.20E-02 I			y	1.7E-01 C	1.0E-01 C	5.1E-02 C	4.6E+01 C	1.0E+01 C	5.4E-05	1.1E-03 C
BROMOETHENE	593602			8.6E-04 I	1.10E-01 H	y	1.1E-01 C	5.7E-02 C				5.4E-05	1.1E-03 C
BROMOFORM	75252	2.00E-02 I	7.90E-03 I		3.90E-03 I		8.5E+00 C	1.6E+00 C	4.0E-01 C	3.6E+02 C	8.1E+01 C	3.3E-03	6.7E-02 C
BROMOMETHANE	74839	1.40E-03 I		1.40E-03 I		y	8.5E+00 N	5.1E+00 N	1.9E+00 N	1.4E+03 N	1.1E+02 N	2.1E-03	4.1E-02 N
BROMOPHOS	2104963	5.00E-03 H					1.8E+02 N	1.8E+01 N	6.8E+00 N	5.1E+03 N	3.9E+02 N		
1,3-BUTADIENE	106990			5.7E-04 I	1.00E-01 I	y	1.3E-01 C	6.3E-02 C				7.0E-05	1.4E-03 C
1-BUTANOL	71363	1.00E-01 I					3.7E+03 N	3.7E+02 N	1.4E+02 N	1.0E+05 N	7.8E+03 N	7.8E-01	1.6E+01 N
BUTYLBENZYLPHTHALATE	85687	2.00E-01 I					7.3E+03 N	7.3E+02 N	2.7E+02 N	2.0E+05 N	1.6E+04 N	8.4E+02	1.7E+04 N
CADMIUM-WATER	7440439	5.00E-04 I		5.7E-05 E	6.30E+00 I		1.8E+01 N	9.9E-04 C	6.8E-01 N	5.1E+02 N	3.9E+01 N	1.4E+00	2.7E+01 N
CADMIUM-FOOD	7440439	1.00E-03 I		5.7E-05 E	6.30E+00 I		3.7E+01 N	9.9E-04 C	1.4E+00 N	1.0E+03 N	7.8E+01 N	2.7E+00	5.5E+01 N
CAPROLACTAM	105602	5.00E-01 I					1.8E+04 N	1.8E+03 N	6.8E+02 N	5.1E+05 N	3.9E+04 N		
CARBARYL	63252	1.00E-01 I					3.7E+03 N	3.7E+02 N	1.4E+02 N	1.0E+05 N	7.8E+03 N	1.5E+00	3.0E+01 N
CARBON DISULFIDE	75150	1.00E-01 I		2.00E-01 I		y	1.0E+03 N	7.3E+02 N	1.4E+02 N	1.0E+05 N	7.8E+03 N	9.5E-01	1.9E+01 N
CARBON TETRACHLORIDE	56235	7.00E-04 I	1.30E-01 I	5.00E-02 M	5.30E-02 I	y	1.6E-01 C	1.2E-01 C	2.4E-02 C	2.2E+01 C	4.9E+00 C	1.1E-04	2.1E-03 C
CARBOSULFAN	55285148	1.00E-02 I					3.7E+02 N	3.7E+01 N	1.4E+01 N	1.0E+04 N	7.8E+02 N		
CHLORAL HYDRATE	302170	1.00E-01 I					3.7E+03 N	3.7E+02 N	1.4E+02 N	1.0E+05 N	7.8E+03 N		
CHLORANIL	118752		4.00E-01 H				1.7E-01 C	1.6E-02 C	7.9E-03 C	7.2E+00 C	1.6E+00 C		
CHLORDANE	57749	5.00E-04 I	3.5E-01 I	2.00E-04 I	3.5E-01 I		1.9E-01 C	1.8E-02 C	9.0E-03 C	6.2E+00 C	1.8E+00 C	4.8E-02	9.2E-01 C
CHLORINE DIOXIDE	10049044	3.00E-02 I		5.70E-05 I		y	4.2E-01 N	2.1E-01 N	4.1E+01 N	3.1E+04 N	2.3E+03 N		
CHLOROACETIC ACID	79118	2.00E-03 H					7.3E+01 N	7.3E+00 N	2.7E+00 N	2.0E+03 N	1.6E+02 N		
4-CHLOROANILINE	106478	4.00E-03 I					1.5E+02 N	1.5E+01 N	5.4E+00 N	4.1E+03 N	3.1E+02 N	4.8E-02	9.7E-01 N
CHLOROBENZENE	108907	2.00E-02 I		1.4E-02 P		y	9.0E+01 N	5.1E+01 N	2.7E+01 N	2.0E+04 N	1.6E+03 N	3.4E-02	6.8E-01 N
2-CHLORO-1,3-BUTADIENE	126998	2.00E-02 A		2.00E-03 H		y	1.4E+01 N	7.3E+00 N	2.7E+01 N	2.0E+04 N	1.6E+03 N	6.0E-03	1.2E-01 N
1-CHLORO-1,1-DIFLUOROETHANE	75683			1.40E+01 I		y	1.0E+05 N	5.1E+04 N				7.0E+01	1.4E+03 N
CHLORODIFLUOROMETHANE	75456			1.40E+01 I		y	1.0E+05 N	5.1E+04 N				7.0E+01	1.4E+03 N
CHLOROETHANE	75003	4.00E-01 E	2.90E-03 E	2.90E+00 I		y	3.6E+00 C	2.2E+00 C	1.1E+00 C	9.9E+02 C	2.2E+02 C	9.6E-04	1.9E-02 C
CHLOROFORM	67663	1.00E-02 I		1.4E-02 E	8.10E-02 I	y	1.5E-01 C	7.7E-02 C	1.4E+01 N	1.0E+04 N	7.8E+02 N	4.5E-05	9.1E-04 C
CHLOROMETHANE	74873			2.6E-02 I		y	1.9E+02 N	9.5E+01 N				4.6E-02	9.3E-01 N
4-CHLORO-2-METHYLANILINE	95692		5.80E-01 H				1.2E-01 C	1.1E-02 C	5.4E-03 C	4.9E+00 C	1.1E+00 C		
BETA-CHLORONAPHTHALENE	91587	8.00E-02 I				y	4.9E+02 N	2.9E+02 N	1.1E+02 N	8.2E+04 N	6.3E+03 N	1.8E+00	3.2E+01 N
2-CHLOROPHENOL	95578	5.00E-03 I				y	3.0E+01 N	1.8E+01 N	6.8E+00 N	5.1E+03 N	3.9E+02 N		
2-CHLOROPROPANE	75296			2.90E-02 H		y	2.1E+02 N	1.1E+02 N				6.6E-02	1.3E+00 N
O-CHLOROTOLUENE	95498	2.00E-02 I				y	1.2E+02 N	7.3E+01 N	2.7E+01 N	2.0E+04 N	1.6E+03 N	6.5E-02	1.3E+00 N
P-CHLOROTOLUENE	106434	7.00E-02 P				y	4.3E+02 N	2.6E+02 N	9.5E+01 N	7.2E+04 N	5.5E+03 N		
CHLORPYRIFOS	2921882	3.00E-03 I					1.1E+02 N	1.1E+01 N	4.1E+00 N	3.1E+03 N	2.3E+02 N	3.2E+00	6.3E+01 N
CHLORPYRIFOS-METHYL	5598130	1.00E-02 H					3.7E+02 N	3.7E+01 N	1.4E+01 N	1.0E+04 N	7.8E+02 N		
CHROMIUM III	16065831	1.50E+00 I					5.5E+04 N	5.5E+03 N	2.0E+03 N	1.5E+06 N	1.2E+05 N	9.9E+07	2.0E+09 N

CHROMIUM VI		18540299	3.00E-03 I		3.00E-05 I	4.10E+01 I		1.1E+02 N	1.5E-04 C	4.1E+00 N	3.1E+03 N	2.3E+02 N	2.1E+00	4.2E+01 N
COKE OVEN EMISSIONS (COAL TAR)	m	8007452				2.2 I			1.0E-03 C					
COPPER		7440508	4.00E-02 H					1.5E+03 N	1.5E+02 N	5.4E+01 N	4.1E+04 N	3.1E+03 N	5.3E+02	1.1E+04 N
CUMENE		98828	1.00E-01 I		1.10E-01 I		y	6.6E+02 N	4.0E+02 N	1.4E+02 N	1.0E+05 N	7.8E+03 N	3.2E+00	6.4E+01 N
CYANIDE (FREE)		57125	2.00E-02 I					7.3E+02 N	7.3E+01 N	2.7E+01 N	2.0E+04 N	1.6E+03 N	7.4E+00	1.5E+02 N
CALCIUM CYANIDE		592018	4E-02 I					1.5E+03 N	1.5E+02 N	5.4E+01 N	4.1E+04 N	3.1E+03 N		
COPPER CYANIDE		544923	5.00E-03 I					1.8E+02 N	1.8E+01 N	6.8E+00 N	5.1E+03 N	3.9E+02 N		
CYANOGEN		460195	4.00E-02 I				y	2.4E+02 N	1.5E+02 N	5.4E+01 N	4.1E+04 N	3.1E+03 N		
HYDROGEN CYANIDE		74908	2.00E-02 I		8.60E-04 I		y	6.2E+00 N	3.1E+00 N	2.7E+01 N	2.0E+04 N	1.6E+03 N	1.1E-01	2.2E+00 N
POTASSIUM CYANIDE		151508	5.00E-02 I					1.8E+03 N	1.8E+02 N	6.8E+01 N	5.1E+04 N	3.9E+03 N		
POTASSIUM SILVER CYANIDE		506616	2.00E-01 I					7.3E+03 N	7.3E+02 N	2.7E+02 N	2.0E+05 N	1.6E+04 N		
SILVER CYANIDE		506649	1.00E-01 I					3.7E+03 N	3.7E+02 N	1.4E+02 N	1.0E+05 N	7.8E+03 N	3.1E+01	6.2E+02 N
SODIUM CYANIDE		143339	4.00E-02 I					1.5E+03 N	1.5E+02 N	5.4E+01 N	4.1E+04 N	3.1E+03 N		
THIOCYANATES			2.00E-04 P					7.3E+00 N	7.3E-01 N	2.7E-01 N	2.0E+02 N	1.6E+01 N		
ZINC CYANIDE		557211	5.00E-02 I					1.8E+03 N	1.8E+02 N	6.8E+01 N	5.1E+04 N	3.9E+03 N	1.1E+02	2.3E+03 N
CYCLOHEXANE		110827			1.70E+00 I		y	1.2E+04 N	6.2E+03 N					
CYCLOHEXANONE		108941	5.00E+00 I					1.8E+05 N	1.8E+04 N	6.8E+03 N	5.1E+06 N	3.9E+05 N	6.1E+01	1.2E+03 N
CYHALOTHRIN/KARATE		68085858	5.00E-03 I					1.8E+02 N	1.8E+01 N	6.8E+00 N	5.1E+03 N	3.9E+02 N		
CYPERMETHRIN		52315078	1.00E-02 I					3.7E+02 N	3.7E+01 N	1.4E+01 N	1.0E+04 N	7.8E+02 N		
DACTHAL		1861321	1.00E-02 I					3.7E+02 N	3.7E+01 N	1.4E+01 N	1.0E+04 N	7.8E+02 N		
DALAPON		75990	3.00E-02 I					1.1E+03 N	1.1E+02 N	4.1E+01 N	3.1E+04 N	2.3E+03 N	3.5E-01	7.1E+00 N
DDD		72548		2.40E-01 I				2.8E-01 C	2.6E-02 C	1.3E-02 C	1.2E+01 C	2.7E+00 C	5.6E-01	1.1E+01 C
DDE		72559		3.40E-01 I				2.0E-01 C	1.8E-02 C	9.3E-03 C	8.4E+00 C	1.9E+00 C	1.8E+00	3.5E+01 C
DDT		50293	5.00E-04 I	3.40E-01 I		3.40E-01 I		2.0E-01 C	1.8E-02 C	9.3E-03 C	8.4E+00 C	1.9E+00 C	5.8E-02	1.2E+00 C
DIAZINON		333415	9.00E-04 H					3.3E+01 N	3.3E+00 N	1.2E+00 N	9.2E+02 N	7.0E+01 N	2.1E-02	4.3E-01 N
**DIBENZOFURAN		132649	1.00E-03 P					3.7E+01 N	3.7E+00 N	1.4E+00 N	1.0E+03 N	7.8E+01 N		
1,4-DIBROMOBENZENE		106376	1.00E-02 I					3.7E+02 N	3.7E+01 N	1.4E+01 N	1.0E+04 N	7.8E+02 N		
DIBROMOCHLOROMETHANE		124481	2.00E-02 I	8.40E-02 I			y	1.3E-01 C	7.5E-02 C	3.8E-02 C	3.4E+01 C	7.6E+00 C	4.1E-05	8.3E-04 C
1,2-DIBROMO-3-CHLOROPROPANE	m	96128	2.00E-04 P	8.00E-01 P	5.70E-05 I	2.10E+01 P	y	2.0E-04 C	1.0E-04 C	3.9E-03 C	3.6E+00 C	2.0E-01 C	1.8E-07	3.7E-06 C
1,2-DIBROMOETHANE		106934	9.00E-03 I	2.00E+00 I	2.6E-03 I	2.00E+00 I	y	5.3E-03 C	3.1E-03 C	1.6E-03 C	1.4E+00 C	3.2E-01 C	3.0E-06	6.0E-05 C
DIBUTYLPHTHALATE		84742	1.00E-01 I					3.7E+03 N	3.7E+02 N	1.4E+02 N	1.0E+05 N	7.8E+03 N	2.5E+02	5.0E+03 N
DICAMBA		1918009	3.00E-02 I					1.1E+03 N	1.1E+02 N	4.1E+01 N	3.1E+04 N	2.3E+03 N	2.2E-01	4.5E+00 N
1,2-DICHLOROBENZENE		95501	9.00E-02 I		4.00E-02 H		y	2.7E+02 N	1.5E+02 N	1.2E+02 N	9.2E+04 N	7.0E+03 N	2.3E-01	4.6E+00 N
1,3-DICHLOROBENZENE		541731	3.00E-03 E				y	1.8E+01 N	1.1E+01 N	4.1E+00 N	3.1E+03 N	2.3E+02 N	1.5E-02	2.9E-01 N
1,4-DICHLOROBENZENE		106467	3.00E-02 E	2.40E-02 H	2.29E-01 I	2.2E-02 E	y	4.7E-01 C	2.8E-01 C	1.3E-01 C	1.2E+02 C	2.7E+01 C	3.8E-04	7.1E-03 C
3,3'-DICHLOROBENZIDINE		91941		4.50E-01 I				1.5E-01 C	1.4E-02 C	7.0E-03 C	6.4E+00 C	1.4E+00 C	2.5E-04	4.9E-03 C
DICHLORODIFLUOROMETHANE		75718	2.00E-01 I		5.00E-02 A		y	3.5E+02 N	1.8E+02 N	2.7E+02 N	2.0E+05 N	1.6E+04 N	5.5E-01	1.1E+01 N
1,1-DICHLOROETHANE		75343	2.00E-01 P		1.40E-01 A		y	9.0E+02 N	5.1E+02 N	2.7E+02 N	2.0E+05 N	1.6E+04 N	2.6E-01	5.1E+00 N
1,2-DICHLOROETHANE		107062		9.10E-02 I	7.00E-01 M	9.10E-02 I	y	1.2E-01 C	6.9E-02 C	3.5E-02 C	3.1E+01 C	7.0E+00 C	5.2E-05	1.0E-03 C
1,1-DICHLOROETHENE		75354	5.00E-02 I		6.00E-02 I		y	3.5E+02 N	2.2E+02 N	6.8E+01 N	5.1E+04 N	3.9E+03 N	1.5E-01	2.9E+00 N
CIS-1,2-DICHLOROETHENE		156592	1.00E-02 P				y	6.1E+01 N	3.7E+01 N	1.4E+01 N	1.0E+04 N	7.8E+02 N		
**TRANS-1,2-DICHLOROETHENE		156605	2.00E-02 I		1.7E-02 P		y	1.1E+02 N	6.2E+01 N	2.7E+01 N	2.0E+04 N	1.6E+03 N	3.6E-02	7.2E-01 N
TOTAL 1,2-DICHLOROETHENE		540590	9.00E-03 H				y	5.5E+01 N	3.3E+01 N	1.2E+01 N	9.2E+03 N	7.0E+02 N	1.9E-02	3.7E-01 N
2,4-DICHLOROPHENOL		120832	3.00E-03 I					1.1E+02 N	1.1E+01 N	4.1E+00 N	3.1E+03 N	2.3E+02 N	8.0E-02	1.2E+00 N
2,4-D		94757	1.00E-02 I					3.7E+02 N	3.7E+01 N	1.4E+01 N	1.0E+04 N	7.8E+02 N	4.5E-01	9.0E+00 N
4-(2,4-DICHLOROPHENOXY)BUTYRIC ACID		94826	8E-03 I					2.9E+02 N	2.9E+01 N	1.1E+01 N	8.2E+03 N	6.3E+02 N		
1,2-DICHLOROPROPANE		78875		6.80E-02 H	1.14E-03 I		y	1.6E-01 C	9.2E-02 C	4.6E-02 C	4.2E+01 C	9.4E+00 C	1.0E-04	2.1E-03 C
1,3-DICHLOROPROPANE		142289	2.00E-02 P				y	1.2E+02 N	7.3E+01 N	2.7E+01 N	2.0E+04 N	1.6E+03 N		
2,3-DICHLOROPROPANOL		616239	3.00E-03 I					1.1E+02 N	1.1E+01 N	4.1E+00 N	3.1E+03 N	2.3E+02 N		
1,3-DICHLOROPROPENE		542756	3.00E-02 I	1.00E-01 I	5.71E-03 I	1.00E-02 I	y	4.4E-01 C	6.3E-01 C	3.2E-02 C	2.9E+01 C	6.4E+00 C	1.6E-04	3.1E-03 C
DICHLORVOS		62737	5E-04 I	0.29 I	1.43E-04 I			2.3E-01 C	2.2E-02 C	1.1E-02 C	9.9E+00 C	2.2E+00 C	5.5E-05	1.1E-03 C
DIELDRIN		60571	5.00E-05 I	1.60E+01 I		1.60E+01 I		4.2E-03 C	3.9E-04 C	2.0E-04 C	1.8E-01 C	4.0E-02 C	1.1E-04	2.2E-03 C
DIESEL EMISSIONS					1.40E-03 I				5.1E+00 N					
DIETHYLPHTHALATE		84662	8.00E-01 I					2.9E+04 N	2.9E+03 N	1.1E+03 N	8.2E+05 N	6.3E+04 N	2.3E+01	4.5E+02 N
DI(2-ETHYLHEXYL)ADIPATE		103231	6.00E-01 I	1.20E-03 I				5.8E+01 C	5.2E+00 C	2.6E+00 C	2.4E+03 C	5.3E+02 C		
DIETHYLSTILBESTROL		56531		4.70E+03 H				1.4E-05 C	1.3E-06 C	6.7E-07 C	6.1E-04 C	1.4E-04 C		
DIFENZOQUAT (AVENGE)		43222486	8.00E-02 I					2.9E+03 N	2.9E+02 N	1.1E+02 N	8.2E+04 N	6.3E+03 N		
1,1-DIFLUOROETHANE		75376			1.10E+01 I		y	8.0E+04 N	4.0E+04 N					
DIISOPROPYL METHYLPHOSPHONATE (DIMP)		1445756	8.00E-02 I					2.9E+03 N	2.9E+02 N	1.1E+02 N	8.2E+04 N	6.3E+03 N		
3,3'-DIMETHOXYBENZIDINE		119904		1.40E-02 H				4.8E+00 C	4.5E-01 C	2.3E-01 C	2.0E+02 C	4.6E+01 C		
N,N-DIMETHYLANILINE		121697	2.00E-03 I					7.3E+01 N	7.3E+00 N	2.7E+00 N	2.0E+03 N	1.6E+02 N		
2,4-DIMETHYLPHENOL		105679	2.00E-02 I					7.3E+02 N	7.3E+01 N	2.7E+01 N	2.0E+04 N	1.6E+03 N	3.4E-01	6.7E+00 N
2,6-DIMETHYLPHENOL		576261	6.00E-04 I					2.2E+01 N	2.2E+00 N	8.1E-01 N	6.1E+02 N	4.7E+01 N		
3,4-DIMETHYLPHENOL		95658	1.00E-03 I					3.7E+01 N	3.7E+00 N	1.4E+00 N	1.0E+03 N	7.8E+01 N		
1,2-DINITROBENZENE		528290	1.00E-04 P					3.7E+00 N	3.7E-01 N	1.4E-01 N	1.0E+02 N	7.8E+00 N		
1,3-DINITROBENZENE		99650	1.00E-04 I					3.7E+00 N	3.7E-01 N	1.4E-01 N	1.0E+02 N	7.8E+00 N	1.8E-03	3.7E-02 N
1,4-DINITROBENZENE		100254	1.00E-04 P					3.7E+00 N	3.7E-01 N	1.4E-01 N	1.0E+02 N	7.8E+00 N		
4,6-DINITRO-O-CYCLOHEXYL PHENOL		131895	2.00E-03 I					7.3E+01 N	7.3E+00 N	2.7E+00 N	2.0E+03 N	1.6E+02 N		
2,4-DINITROPHENOL		51285	2.00E-03 I					7.3E+01 N	7.3E+00 N	2.7E+00 N	2.0E+03 N	1.6E+02 N		
DINITROTOLUENE MIX				6.80E-01 I				9.8E-02 C	9.2E-03 C	4.6E-03 C	4.2E+00 C	9.4E-01 C		
2,4-DINITROTOLUENE		121142	2.00E-03 I					7.3E+01 N	7.3E+00 N	2.7E+00 N	2.0E+03 N	1.6E+02 N	2.9E-02	5.7E-01 N
2,6-DINITROTOLUENE		606202	1.00E-03 P					3.7E+01 N	3.7E+00 N	1.4E+00 N	1.0E+03 N	7.8E+01 N	1.2E-02	2.5E-01 N
DINOSEB		88857	1.00E-03 I					3.7E+01 N	3.7E+00 N	1.4E+00 N	1.0E+03 N	7.8E+01 N	8.7E-03	1.7E-01 N
1,4-DIOXANE		123911		1.10E-02 I				6.1E+00 C	5.7E-01 C	2.9E-01 C	2.6E+02 C	5.8E+01 C	1.3E-03	2.6E-02 C
DIPHENYLAMINE		122394	2.50E-02 I					9.1E+02 N	9.1E+01 N	3.4E+01 N	2.6E+04 N	2.0E+03 N	1.3E+00	2.5E+01 N
1,2-DIPHENYLHYDRAZINE		122667		8.00E-01 I		8.00E-01 I		8.4E-02 C	7.8E-03 C	3.9E-03 C	3.6E+00 C	8.0E-01 C	1.3E-04	2.5E-03 C
DIQUAT		85007	2.20E-03 I					6.0E+01 N	6.0E+00 N	3.0E+00 N	2.2E+03 N	1.7E+02 N	1.7E-02	3.3E-01 N
DISULFOTON		298044	4.00E-05 I					1.5E+00 N	1.5E-01 N	5.4E-02 N	4.1E+01 N	3.1E+00 N	3.2E-03	6.4E-02 N
1,4-DITHIANE		505293	1.00E-02 I					3.7E+02 N	3.7E+01 N	1.4E+01 N	1.0E+04 N	7.8E+02 N		
DIURON		330541	2.00E-03 I					7.3E+01 N	7.3E+00 N	2.7E+00 N	2.0E+03 N	1.6E+02 N	5.8E-02	1.2E+00 N
ENDOSULFAN		115297	6.00E-03 I					2.2E+02 N	2.2E+01 N	8.1E+00 N	6.1E+03 N	4.7E+02 N	9.8E-01	2.0E+01 N
ENDRIN		72208	3.00E-04 I					1.1E+01 N	1.1E+00 N	4.1E-01 N	3.1E+02 N	2.3E+01 N	2.7E-01	5.4E+00 N
EPICHLOROHYDRIN		106898	6.00E-03 P	9.90E-03 I	2.86E-04 I	4.20E-03 I	y	2.1E+00 N	1.0E+00 N	3.2E-01 C	2.9E+02 C	6.5E+01 C I	4.3E-04	8.6E-03 N

ETHION	563122	5.00E-04 I					1.8E+01 N	1.8E+00 N	6.8E-01 N	5.1E+02 N	3.9E+01 N	3.2E-01	6.4E+00 N
ETHYL ACETATE	141786	9.00E-01 I				y	5.5E+03 N	3.3E+03 N	1.2E+03 N	9.2E+05 N	7.0E+04 N	1.7E+00	3.5E+01 N
ETHYLBENZENE	100414	1.00E-01 I		2.90E-01 I		y	1.3E+03 N	1.1E+03 N	1.4E+02 N	1.0E+05 N	7.8E+03 N	7.5E-01	1.5E+01 N
ETHYLENE GLYCOL	107211	2.00E+00 I					7.3E+04 N	7.3E+03 N	2.7E+03 N	2.0E+06 N	1.6E+05 N	1.5E+01	3.0E+02 N
ETHYLENE GLYCOL, MONOBUTYL ETHER	111762	5.00E-01 I		3.70E+00 I			1.8E+04 N	1.4E+04 N	6.8E+02 N	5.1E+05 N	3.9E+04 N		
ETHYLENE OXIDE	75218		1.00E+00 H		3.50E-01 H	y	2.3E-02 C	1.8E-02 C	3.2E-03 C	2.9E+00 C	6.4E-01 C	4.8E-06	9.5E-05 C
ETHYL ETHER	60297	2.00E-01 I				y	1.2E+03 N	7.3E+02 N	2.7E+02 N	2.0E+05 N	1.6E+04 N	4.2E-01	8.5E+00 N
FENAMPHOS	22224926	2.50E-04 I					9.1E+00 N	9.1E-01 N	3.4E-01 N	2.6E+02 N	2.0E+01 N	7.8E-03	1.6E-01 N
FLUOMETURON	2164172	1.30E-02 I					4.7E+02 N	4.7E+01 N	1.8E+01 N	1.3E+04 N	1.0E+03 N		
FLUORINE	7782414	6.00E-02 I					2.2E+03 N	2.2E+02 N	8.1E+01 N	6.1E+04 N	4.7E+03 N		
FOMESAFEN	72178020		1.90E-01 I				3.5E-01 C	3.3E-02 C	1.7E-02 C	1.5E+01 C	3.4E+00 C		
FONOFOS	944229	2.00E-03 I					7.3E+01 N	7.3E+00 N	2.7E+00 N	2.0E+03 N	1.6E+02 N	1.8E-01	3.5E+00 N
FORMALDEHYDE	50000	2.00E-01 I			4.50E-02 I		7.3E+03 N	1.4E-01 C	2.7E+02 N	2.0E+05 N	1.6E+04 N	1.5E+00	3.0E+01 N
FURAN	110009	1.00E-03 I				y	6.1E+00 N	3.7E+00 N	1.4E+00 N	1.0E+03 N	7.8E+01 N	1.5E-03	3.0E-02 N
FURFURAL	98011	3.00E-03 I		1.00E-02 A			1.1E+02 N	3.7E+01 N	4.1E+00 N	3.1E+03 N	2.3E+02 N	2.3E-02	4.6E-01 N
GLYPHOSATE	1071836	1.00E-01 I					3.7E+03 N	3.7E+02 N	1.4E+02 N	1.0E+05 N	7.8E+03 N	2.6E+01	5.3E+02 N
HEPTACHLOR	76448	5.00E-04 I	4.50E+00 I		4.50E+00 I		1.5E-02 C	1.4E-03 C	7.0E-04 C	6.4E-01 C	1.4E-01 C	4.2E-02	8.4E-01 C
HEPTACHLOR EPOXIDE	1024573	1.30E-05 I	9.10E+00 I		9.10E+00 I		7.4E-03 C	6.9E-04 C	3.5E-04 C	3.1E-01 C	7.0E-02 C	1.2E-03	2.5E-02 C
HEXABROMOBENZENE	87821	2.00E-03 I					7.3E+01 N	7.3E+00 N	2.7E+00 N	2.0E+03 N	1.6E+02 N		
HEXACHLOROBENZENE	118741	8.00E-04 I	1.60E+00 I		1.60E+00 I		4.2E-02 C	3.9E-03 C	2.0E-03 C	1.8E+00 C	4.0E-01 C	2.6E-03	5.2E-02 C
HEXACHLOROBUTADIENE	87683	2.00E-04 H	7.80E-02 I		7.80E-02 I		8.6E-01 C !	8.0E-02 C !	4.0E-02 C !	3.7E+01 C !	8.2E+00 C !	9.2E-02	1.8E+00 C
ALPHA-HCH	319846		6.30E+00 I		6.30E+00 I		1.1E-02 C	9.9E-04 C	5.0E-04 C	4.5E-01 C	1.0E-01 C	4.5E-05	8.9E-04 C
BETA-HCH	319857		1.80E+00 I		1.80E+00 I		3.7E-02 C	3.5E-03 C	1.8E-03 C	1.6E+00 C	3.5E-01 C	1.6E-04	3.1E-03 C
GAMMA-HCH (LINDANE)	58899	3.00E-04 I	1.30E+00 H				5.2E-02 C	4.8E-03 C	2.4E-03 C	2.2E+00 C	4.9E-01 C	2.2E-04	4.3E-03 C
TECHNICAL HCH	608731		1.80E+00 I		1.80E+00 I		3.7E-02 C	3.5E-03 C	1.8E-03 C	1.6E+00 C	3.5E-01 C		
HEXACHLOROCYCLOPENTADIENE	77474	6.00E-03 I		5.7E-05 I			2.2E+02 N	2.1E-01 N	8.1E+00 N	6.1E+03 N	4.7E+02 N	8.8E+01	1.8E+03 N
HEXACHLORODIBENZODIOXIN MIX	19408743		6.20E+03 I		4.55E+03 I		1.1E-05 C	1.4E-06 C	5.1E-07 C	4.6E-04 C	1.0E-04 C		
HEXACHLOROETHANE	67721	1.00E-03 I	1.40E-02 I		1.40E-02 I		4.8E+00 C !	4.5E-01 C !	2.3E-01 C !	2.0E+02 C !	4.6E+01 C !	1.8E-02	3.6E-01 C
HEXACHLOROPHENE	70304	3.00E-04 I					1.1E+01 N	1.1E+00 N	4.1E-01 N	3.1E+02 N	2.3E+01 N	1.0E+02	2.0E+03 N
1,6-HEXAMETHYLENE DIISOCYANATE	822060			2.90E-06 I				1.1E-02 N					
HEXANE	110543			2.00E-01 I		y	1.5E+03 N	7.3E+02 N				2.9E+00	5.8E+01 N
HMX	2691410	5.00E-02 I					1.8E+03 N	1.8E+02 N	6.8E+01 N	5.1E+04 N	3.9E+03 N		
HYDRAZINE	302012		3.00E+00 I		1.70E+01 I		2.2E-02 C	3.7E-04 C	1.1E-03 C	9.5E-01 C	2.1E-01 C		
HYDROGEN CHLORIDE	7647010			5.70E-03 I				2.1E+01 N					
HYDROGEN SULFIDE	7783064	3.00E-03 I		5.7E-04 I			1.1E+02 N	2.1E+00 N	4.1E+00 N	3.1E+03 N	2.3E+02 N		
**IRON	7439896	7.00E-01 P					2.6E+04 N	2.6E+03 N	9.5E+02 N	7.2E+05 N	5.5E+04 N		
ISOBUTANOL	78831	3.00E-01 I				y	1.8E+03 N	1.1E+03 N	4.1E+02 N	3.1E+05 N	2.3E+04 N	5.9E-01	1.2E+01 N
ISOPHORONE	78591	2.00E-01 I	9.50E-04 I				7.0E+01 C	6.6E+00 C	3.3E+00 C	3.0E+03 C	6.7E+02 C	2.1E-02	4.1E-01 C
TETRAETHYLLEAD	78002	1.00E-07 I					3.7E-03 N	3.7E-04 N	1.4E-04 N	1.0E-01 N	7.6E-03 N	4.6E-05	9.2E-04 N
KEPONE	143500	5.00E-04 M					1.8E+01 N	1.8E+00 N	6.8E-01 N	5.1E+02 N	3.9E+01 N		
LITHIUM	7439932	2.00E-02 E					7.3E+02 N	7.3E+01 N	2.7E+01 N	2.0E+04 N	1.6E+03 N		
MALATHION	121755	2.00E-02 I					7.3E+02 N	7.3E+01 N	2.7E+01 N	2.0E+04 N	1.6E+03 N	4.0E-01	8.1E+00 N
MALEIC ANHYDRIDE	108316	1.00E-01 I					3.7E+03 N	3.7E+02 N	1.4E+02 N	1.0E+05 N	7.8E+03 N		
MANGANESE-NONFOOD	7439965	2.00E-02 I		1.43E-05 I			7.3E+02 N	5.2E-02 N	2.7E+01 N	2.0E+04 N	1.6E+03 N	4.8E+01	9.5E+02 N
MANGANESE-FOOD	7439965	1.40E-01 I		1.43E-05 I			5.1E+03 N	5.2E-02 N	1.9E+02 N	1.4E+05 N	1.1E+04 N	3.3E+02	6.7E+03 N
MEPHOSFOLAN	950107	9.00E-05 H					3.3E+00 N	3.3E-01 N	1.2E-01 N	9.2E+01 N	7.0E+00 N		
MEPIQUAT CHLORIDE	24307264	3.00E-02 I					1.1E+03 N	1.1E+02 N	4.1E+01 N	3.1E+04 N	2.3E+03 N		
MERCURIC CHLORIDE	7487947	3.00E-04 I					1.1E+01 N	1.1E+00 N	4.1E-01 N	3.1E+02 N	2.3E+01 N		
MERCURY (elemental)	7439976			8.60E-05 I				3.1E-01 N					
METHYLMERCURY	22967926	1.00E-04 I					3.7E+00 N	3.7E-01 N	1.4E-01 N	1.0E+02 N	7.8E+00 N		
METHANOL	67561	5.00E-01 I					1.8E+04 N	1.8E+03 N	6.8E+02 N	5.1E+05 N	3.9E+04 N	3.8E+00	7.5E+01 N
METHIDATHION	950378	1.00E-03 I					3.7E+01 N	3.7E+00 N	1.4E+00 N	1.0E+03 N	7.8E+01 N		
METHOXYCHLOR	72435	5.00E-03 I					1.8E+02 N	1.8E+01 N	6.8E+00 N	5.1E+03 N	3.9E+02 N	1.5E+01	3.1E+02 N
METHYL ACETATE	79209	1.00E+00 H				y	6.1E+03 N	3.7E+03 N	1.4E+03 N	1.0E+06 N	7.8E+04 N	1.2E+00	2.5E+01 N
METHYL ACRYLATE	96333	3.00E-02 A				y	1.8E+02 N	1.1E+02 N	4.1E+01 N	3.1E+04 N	2.3E+03 N	5.0E-01	1.0E+01 N
2-METHYLANILINE	95534		2.40E-01 H				2.8E-01 C	2.6E-02 C	1.3E-02 C	1.2E+01 C	2.7E+00 C	2.8E-04	5.7E-03 C
4-(2-METHYL-4-CHLOROPHENOXY) BUTYRIC ACID	94815	1.00E-02 I					3.7E+02 N	3.7E+01 N	1.4E+01 N	1.0E+04 N	7.8E+02 N		
2-METHYL-4-CHLOROPHENOXYACETIC ACID (MCPA)	94746	5.00E-04 I					1.8E+01 N	1.8E+00 N	6.8E-01 N	5.1E+02 N	3.9E+01 N		
2-(2-METHYL-4-CHLOROPHENOXY)PROPIONIC ACID (MCPP)	93652	1.00E-03 I					3.7E+01 N	3.7E+00 N	1.4E+00 N	1.0E+03 N	7.8E+01 N		
METHYLCYCLOHEXANE	108872			8.60E-01 H		y	6.3E+03 N	3.1E+03 N					
METHYLENE BROMIDE	74953	1.00E-02 A				y	6.1E+01 N	3.7E+01 N	1.4E+01 N	1.0E+04 N	7.8E+02 N	1.5E-02	3.0E-01 N
METHYLENE CHLORIDE	75092	6.00E-02 I	7.50E-03 I	3.00E-01 M	1.65E-03 I	y	4.1E+00 C	3.8E+00 C	4.2E-01 C	3.8E+02 C	8.5E+01 C	9.5E-04	1.9E-02 C
4,4'-METHYLENE BIS(2-CHLOROANILINE) m	101144	2.00E-03 P	1.00E-01 P		1.30E-01 H		2.0E-01 C	1.5E-02 C	3.2E-02 C	2.9E+01 C	1.6E+00 C		
4,4'-METHYLENE BIS(N,N-DIMETHYL)ANILINE	101611		4.60E-02 I				1.5E+00 C	1.4E-01 C	6.9E-02 C	6.2E+01 C	1.4E+01 C		
4,4'-METHYLENEDIPHENYL ISOCYANATE	101688			1.7E-04 I				6.2E-01 N					
METHYL ETHYL KETONE (2-BUTANONE)	78933	6.00E-01 I		1.40E+00 I		y	7.0E+03 N	5.1E+03 N	8.1E+02 N	6.1E+05 N	4.7E+04 N	1.5E+00	2.9E+01 N
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	108101			8.60E-01 I		y	6.3E+03 N	3.1E+03 N				2.9E+00	5.9E+01 N
METHYL METHACRYLATE	80626	1.40E+00 I		2.00E-01 I		y	1.4E+03 N	7.3E+02 N	1.9E+03 N	1.4E+06 N	1.1E+05 N	3.2E-01	6.5E+00 N
METHYL PARATHION	298000	2.50E-04 I					9.1E+00 N	9.1E-01 N	3.4E-01 N	2.6E+02 N	2.0E+01 N	4.3E-03	8.5E-02 N
2-METHYLPHENOL	95487	5.00E-02 I					1.8E+03 N	1.8E+02 N	6.8E+01 N	5.1E+04 N	3.9E+03 N		
3-METHYLPHENOL	108394	5.00E-02 I					1.8E+03 N	1.8E+02 N	6.8E+01 N	5.1E+04 N	3.9E+03 N		
4-METHYLPHENOL	106445	5.00E-03 H					1.8E+02 N	1.8E+01 N	6.8E+00 N	5.1E+03 N	3.9E+02 N		
METHYLSTYRENE MIX	25013154	6.00E-03 A		1.00E-02 A		y	5.5E+01 N	3.7E+01 N	8.1E+00 N	6.1E+03 N	4.7E+02 N	5.1E-02	1.0E+00 N
ALPHA-METHYLSTYRENE	98839	7.00E-02 A				y	4.3E+02 N	2.6E+02 N	9.5E+01 N	7.2E+04 N	5.5E+03 N	4.0E-01	7.9E+00 N
METHYL TERT-BUTYL ETHER	1634044		4.00E-03 O	8.57E-01 I		y	2.6E+00 C	1.6E+00 C	7.9E-01 C	7.2E+02 C	1.6E+02 C	5.9E-04	1.2E-02 C
METOLACHLOR (DUAL)	51218452	1.50E-01 I					5.5E+03 N	5.5E+02 N	2.0E+02 N	1.5E+05 N	1.2E+04 N		
MIREX	2385855	2.00E-04 I					7.3E+00 N	7.3E-01 N	2.7E-01 N	2.0E+02 N	1.6E+01 N		
MOLYBDENUM	7439987	5E-03 I					1.8E+02 N	1.8E+01 N	6.8E+00 N	5.1E+03 N	3.9E+02 N		
MONOCHLORAMINE	10599903	1E-01 I		1.00E-01 H			3.7E+03 N	3.7E+02 N	1.4E+02 N	1.0E+05 N	7.8E+03 N		
NALED	300765	2E-03 I					7.3E+01 N	7.3E+00 N	2.7E+00 N	2.0E+03 N	1.6E+02 N		
NICKEL REFINERY DUST					8.4E-01 I			7.5E-03 C					
NICKEL	7440020	2.00E-02 I					7.3E+02 N	7.3E+01 N	2.7E+01 N	2.0E+04 N	1.6E+03 N		
NITRATE	14797558	1.60E+00 I					5.8E+04 N !!	5.8E+03 N	2.2E+03 N	1.6E+06 N	1.3E+05 N		

NITRITE		14797650	1.00E-01 I					3.7E+03 N	II	3.7E+02 N	1.4E+02 N	1.0E+05 N	7.8E+03 N		
NITROBENZENE		98953	5.00E-04 I		6.00E-04 A		y	3.5E+00 N		2.2E+00 N	6.8E-01 N	5.1E+02 N	3.9E+01 N	1.2E-03	2.3E-02 N
**NITROGLYCERIN		55630	1.00E-04 P	1.7E-02 P				3.7E+00 N		3.7E-01 N	1.4E-01 N	1.0E+02 N	7.8E+00 N		
2-NITROPROPANE		79469			5.70E-03 I	9.40E+00 H	y	1.3E-03 C		6.7E-04 C				3.2E-07	6.4E-06 C
N-NITROSO-DI-N-BUTYLAMINE		924163		5.40E+00 I		5.60E+00 I	y	1.9E-03 C		1.1E-03 C	5.8E-04 C	5.3E-01 C	1.2E-01 C	1.4E-06	2.7E-05 C
N-NITROSODIETHANOLAMINE		1116547		2.80E+00 I				2.4E-02 C		2.2E-03 C	1.1E-03 C	1.0E+00 C	2.3E-01 C		
**N-NITROSODIETHYLAMINE	m	55185		1.50E+02 I		1.50E+02 I		1.4E-04 C		1.3E-05 C	2.1E-05 C	1.9E-02 C	1.0E-03 C	3.5E-08	7.1E-07 C
**N-NITROSODIMETHYLAMINE	m	62759		5.10E+01 I		5.10E+01 I		4.2E-04 C		3.7E-05 C	6.2E-05 C	5.6E-02 C	3.0E-03 C	9.1E-08	1.8E-06 C
N-NITROSODIPHENYLAMINE		86306		4.90E-03 I				1.4E+01 C		1.3E+00 C	6.4E-01 C	5.8E+02 C	1.3E+02 C	3.8E-02	7.6E-01 C
N-NITROSODIPROPYLAMINE		621647		7.00E+00 I				9.6E-03 C		8.9E-04 C	4.5E-04 C	4.1E-01 C	9.1E-02 C	2.4E-06	4.7E-05 C
N-NITROSO-N-METHYLETHYLAMINE		10595956		2.20E+01 I				3.0E-03 C		2.8E-04 C	1.4E-04 C	1.3E-01 C	2.9E-02 C		
N-NITROSOPYRROLIDINE		930552		2.10E+00 I		2.10E+00 I		3.2E-02 C		3.0E-03 C	1.5E-03 C	1.4E+00 C	3.0E-01 C		
O-NITROTOLUENE		88722	1.00E-02 H				y	6.1E+01 N		3.7E+01 N	1.4E+01 N	1.0E+04 N	7.8E+02 N		
NUSTAR		85509199	7.00E-04 I					2.6E+01 N		2.6E+00 N	9.5E-01 N	7.2E+02 N	5.5E+01 N		
ORYZALIN		19044883	5.00E-02 I					1.8E+03 N		1.8E+02 N	6.8E+01 N	5.1E+04 N	3.9E+03 N		
OXADIAZON		19666309	5.00E-03 I					1.8E+02 N		1.8E+01 N	6.8E+00 N	5.1E+03 N	3.9E+02 N		
OXAMYL		23135220	2.50E-02 I					9.1E+02 N		9.1E+01 N	3.4E+01 N	2.6E+04 N	2.0E+03 N	1.9E-01	3.8E+00 N
OXYFLUORFEN		42874033	3.00E-03 I					1.1E+02 N		1.1E+01 N	4.1E+00 N	3.1E+03 N	2.3E+02 N		
PARAQUAT DICHLORIDE		1910425	4.50E-03 I					1.8E+02 N		1.6E+01 N	6.1E+00 N	4.6E+03 N	3.5E+02 N		
PARATHION		56382	6.00E-03 H					2.2E+02 N		2.2E+01 N	8.1E+00 N	6.1E+03 N	4.7E+02 N	5.0E-01	1.0E+01 N
PENTACHLOROBENZENE		608935	8.00E-04 I					2.9E+01 N		2.9E+00 N	1.1E+00 N	8.2E+02 N	6.3E+01 N	1.0E+00	2.0E+01 N
PENTACHLORONITROBENZENE		82688	3.00E-03 I	2.60E-01 H				2.6E-01 C		2.4E-02 C	1.2E-02 C	1.1E+01 C	2.5E+00 C	4.1E-03	8.2E-02 C
PENTACHLOROPHENOL		87865	3.00E-02 I	1.20E-01 I				5.6E-01 C		5.2E-02 C	2.6E-02 C	2.4E+01 C	5.3E+00 C		
PERCHLORATE			7.00E-04 I					2.6E+01 N		2.6E+00 N	9.5E-01 N	7.2E+02 N	5.5E+01 N		
PERMETHRIN		52645531	5.00E-02 I					1.8E+03 N		1.8E+02 N	6.8E+01 N	5.1E+04 N	3.9E+03 N	1.2E+02	2.4E+03 N
PHENOL		108952	3.00E-01 I					1.1E+04 N		1.1E+03 N	4.1E+02 N	3.1E+05 N	2.3E+04 N	3.3E+00	6.7E+01 N
M-PHENYLENEDIAMINE		108452	6.00E-03 I					2.2E+02 N		2.2E+01 N	8.1E+00 N	6.1E+03 N	4.7E+02 N	4.9E-02	9.8E-01 N
O-PHENYLENEDIAMINE		95545		4.70E-02 H				1.4E+00 C		1.3E-01 C	6.7E-02 C	6.1E+01 C	1.4E+01 C		
P-PHENYLENEDIAMINE		106503	1.90E-01 H					6.9E+03 N		6.9E+02 N	2.6E+02 N	1.9E+05 N	1.5E+04 N		
PHOSGENE		75445			8.6E-05 I		y	6.3E-01 N		3.1E-01 N					
PHOSPHINE		7803512	3.00E-04 I		8.60E-05 I			1.1E+01 N		3.1E-01 N	4.1E-01 N	3.1E+02 N	2.3E+01 N		
PHOSPHORIC ACID		7664382			2.90E-03 I					1.1E+01 N					
PHOSPHORUS (WHITE)		7723140	2.00E-05 I					7.3E-01 N		7.3E-02 N	2.7E-02 N	2.0E+01 N	1.6E+00 N		
PHTHALIC ANHYDRIDE		85449	2.00E+00 I		3.43E-02 H			7.3E+04 N		1.3E+02 N	2.7E+03 N	2.0E+06 N	1.6E+05 N	2.6E+01	5.2E+02 N
POLYBROMINATED BIPHENYLS			7.00E-06 H	8.90E+00 H				7.5E-03 C		7.0E-04 C	3.5E-04 C	3.2E-01 C	7.2E-02 C	I	
POLYCHLORINATED BIPHENYLS		1336363		2.00E+00 I		2.00E+00 I		3.3E-02 C		3.1E-03 C	1.6E-03 C	1.4E+00 C	3.2E-01 C	2.1E-02	4.1E-01 C
AROCLOR-1016		12674112	7.00E-05 I	7.00E-02 I		7.00E-02 I		9.6E-01 C	I	8.9E-02 C	I 4.5E-02 C	I 4.1E+01 C	I 5.5E+00 N	2.1E-01	4.2E+00 C
AROCLOR-1221		11104282		2.00E+00 I		2.00E+00 I		3.3E-02 C		3.1E-03 C	1.6E-03 C	1.4E+00 C	3.2E-01 C		
AROCLOR-1232		11141165		2.00E+00 I		2.00E+00 I		3.3E-02 C		3.1E-03 C	1.6E-03 C	1.4E+00 C	3.2E-01 C		
AROCLOR-1242		53469219		2.00E+00 I		2.00E+00 I		3.3E-02 C		3.1E-03 C	1.6E-03 C	1.4E+00 C	3.2E-01 C		
AROCLOR-1248		12672296		2.00E+00 I		2.00E+00 I		3.3E-02 C		3.1E-03 C	1.6E-03 C	1.4E+00 C	3.2E-01 C		
AROCLOR-1254		11097691	2.00E-05 I	2.00E+00 I		2.00E+00 I		3.3E-02 C		3.1E-03 C	1.6E-03 C	1.4E+00 C	3.2E-01 C	I 5.4E-02	1.1E+00 C
AROCLOR-1260		11096825		2.00E+00 I		2.00E+00 I		3.3E-02 C		3.1E-03 C	1.6E-03 C	1.4E+00 C	3.2E-01 C		
POLYNUCLEAR AROMATIC HYDROCARBONS:															
ACENAPHTHENE		83329	6.00E-02 I				y	3.7E+02 N		2.2E+02 N	8.1E+01 N	6.1E+04 N	4.7E+03 N	5.2E+00	1.0E+02 N
ANTHRACENE		120127	3.00E-01 I				y	1.8E+03 N		1.1E+03 N	4.1E+02 N	3.1E+05 N	2.3E+04 N	2.3E+01	4.7E+02 N
BENZ[A]ANTHRACENE	m	56553		7.30E-01 E				3.0E-02 C		3.0E-03 C	4.3E-03 C	3.9E+00 C	2.2E-01 C	2.4E-02	4.8E-01 C
BENZO[B]FLUORANTHENE	m	205992		7.30E-01 E				3.0E-02 C		3.0E-03 C	4.3E-03 C	3.9E+00 C	2.2E-01 C	7.4E-02	1.5E+00 C
BENZO[K]FLUORANTHENE	m	207089		7.30E-02 E				3.0E-01 C		3.0E-02 C	4.3E-02 C	3.9E+01 C	2.2E+00 C	7.4E-01	1.5E+01 C
BENZO[A]PYRENE	m	50328		7.30E+00 I		3.10E+00 E		3.0E-03 C		6.0E-04 C	4.3E-04 C	3.9E-01 C	2.2E-02 C	6.1E-03	1.2E-01 C
CARBAZOLE		86748		2.00E-02 H				3.3E+00 C		3.1E-01 C	1.6E-01 C	1.4E+02 C	3.2E+01 C	2.3E-02	4.7E-01 C
CHRYSENE	m	218019		7.30E-03 E				3.0E+00 C		3.0E-01 C	4.3E-01 C	3.9E+02 C	2.2E+01 C	2.4E+00	4.8E+01 C
DIBENZ[A,H]ANTHRACENE	m	53703		7.30E+00 E				3.0E-03 C		3.0E-04 C	4.3E-04 C	3.9E-01 C	2.2E-02 C	2.3E-02	4.6E-01 C
FLUORANTHENE		206440	4.00E-02 I					1.5E+03 N		1.5E+02 N	5.4E+01 N	4.1E+04 N	3.1E+03 N	3.1E+02	6.3E+03 N
FLUORENE		86737	4.00E-02 I				y	2.4E+02 N		1.5E+02 N	5.4E+01 N	4.1E+04 N	3.1E+03 N	6.8E+00	1.4E+02 N
INDENO[1,2,3-C,D]PYRENE	m	193395		7.30E-01 E				3.0E-02 C		3.0E-03 C	4.3E-03 C	3.9E+00 C	2.2E-01 C	2.1E-01	4.2E+00 C
2-METHYLNAPHTHALENE		91576	4.00E-03 I				y	2.4E+01 N		1.5E+01 N	5.4E+00 N	4.1E+03 N	3.1E+02 N	2.2E-01	4.4E+00 N
NAPHTHALENE		91203	2.00E-02 I		9.00E-04 I		y	6.5E+00 N		3.3E+00 N	2.7E+01 N	2.0E+04 N	1.6E+03 N	7.7E-03	1.5E-01 N
PYRENE		129000	3.00E-02 I				y	1.8E+02 N		1.1E+02 N	4.1E+01 N	3.1E+04 N	2.3E+03 N	3.4E+01	6.8E+02 N
PROMETON		1610180	1.50E-02 I					5.5E+02 N		5.5E+01 N	2.0E+01 N	1.5E+04 N	1.2E+03 N		
PROMETRYN		7287196	4.00E-03 I					1.5E+02 N		1.5E+01 N	5.4E+00 N	4.1E+03 N	3.1E+02 N		
PROPACHLOR		1918167	1.30E-02 I					4.7E+02 N		4.7E+01 N	1.8E+01 N	1.3E+04 N	1.0E+03 N		
PROPARGITE		2312358	2.00E-02 I					7.3E+02 N		7.3E+01 N	2.7E+01 N	2.0E+04 N	1.6E+03 N		
PROPYLENE GLYCOL, MONOETHYL ETHER		52125538	7.00E-01 H					2.6E+04 N		2.6E+03 N	9.5E+02 N	7.2E+05 N	5.5E+04 N		
PROPYLENE GLYCOL, MONOMETHYL ETHER		107982	7.00E-01 H		5.70E-01 I			2.6E+04 N		2.1E+03 N	9.5E+02 N	7.2E+05 N	5.5E+04 N		
PURSUIT		81335775	2.50E-01 I					9.1E+03 N		9.1E+02 N	3.4E+02 N	2.6E+05 N	2.0E+04 N		
PYRIDINE		110861	1.00E-03 I					3.7E+01 N		3.7E+00 N	1.4E+00 N	1.0E+03 N	7.8E+01 N		
QUINOLINE		91225		3.00E+00 I				2.2E-02 C		2.1E-03 C	1.1E-03 C	9.5E-01 C	2.1E-01 C		
RDX		121824	3.00E-03 I	1.10E-01 I				6.1E-01 C		5.7E-02 C	2.9E-02 C	2.6E+01 C	5.8E+00 C		
RESMETHRIN		10453868	3.00E-02 I					1.1E+03 N		1.1E+02 N	4.1E+01 N	3.1E+04 N	2.3E+03 N		
ROTENONE		83794	4.00E-03 I					1.5E+02 N		1.5E+01 N	5.4E+00 N	4.1E+03 N	3.1E+02 N		
SELENIUM		7782492	5.00E-03 I					1.8E+02 N		1.8E+01 N	6.8E+00 N	5.1E+03 N	3.9E+02 N	9.5E-01	1.9E+01 N
SILVER		7440224	5.00E-03 I					1.8E+02 N		1.8E+01 N	6.8E+00 N	5.1E+03 N	3.9E+02 N	1.6E+00	3.1E+01 N
SIMAZINE		122349	5.00E-03 I	1.20E-01 H				5.6E-01 C		5.2E-02 C	2.6E-02 C	2.4E+01 C	5.3E+00 C	1.7E-04	3.3E-03 C
SODIUM DIETHYLDITHIOCARBAMATE		148185	3.00E-02 I	2.70E-01 H				2.5E-01 C		2.3E-02 C	1.2E-02 C	1.1E+01 C	2.4E+00 C		
STRONTIUM, STABLE		7440246	6.00E-01 I					2.2E+04 N		2.2E+03 N	8.1E+02 N	6.1E+05 N	4.7E+04 N	7.7E+02	1.5E+04 N
STRYCHNINE		57249	3.00E-04 I					1.1E+01 N		1.1E+00 N	4.1E-01 N	3.1E+02 N	2.3E+01 N	8.3E-03	1.7E-01 N
STYRENE		100425	2.00E-01 I		2.86E-01 I		y	1.6E+03 N		1.0E+03 N	2.7E+02 N	2.0E+05 N	1.6E+04 N	2.9E+00	5.7E+01 N
2,3,7,8-TETRACHLORODIBENZODIOXIN		1746016		1.50E+05 H		1.50E+05 H		4.5E-07 C		4.2E-08 C	2.1E-08 C	1.9E-05 C	4.3E-06 C	4.3E-07	8.6E-06 C
1,2,4,5-TETRACHLOROBENZENE		95943	3.00E-04 I					1.1E+01 N		1.1E+00 N	4.1E-01 N	3.1E+02 N	2.3E+01 N	3.3E-02	6.6E-01 N
1,1,1,2-TETRACHLOROETHANE		630206	3.00E-02 I	2.60E-02 I		2.60E-02 I	y	4.1E-01 C		2.4E-01 C	1.2E-01 C	1.1E+02 C	2.5E+01 C	2.0E-04	4.0E-03 C
**1,1,2,2-TETRACHLOROETHANE		79345		2.00E-01 I		2.00E-01 I	y	5.3E-02 C		3.1E-02 C	1.6E-02 C	1.4E+01 C	3.2E+00 C	3.4E-05	6.8E-04 C
TETRACHLOROETHENE		127184	1.00E-02 I	5.4E-01 O	8.0E-02 M	2.00E-02 O	y	1.0E-01 C		3.1E-01 C	5.8E-03 C	5.3E+00 C	1.2E+00 C	2.3E-04	4.7E-03 C

2,3,4,6-TETRACHLOROPHENOL	58902	3.00E-02 I					1.1E+03 N	1.1E+02 N	4.1E+01 N	3.1E+04 N	2.3E+03 N		
P,A,A,A-TETRACHLOROTOLUENE	5216251		2.00E+01 H				3.3E-03 C	3.1E-04 C	1.6E-04 C	1.4E-01 C	3.2E-02 C		
1,1,1,2-TETRAFLUOROETHANE	811972			2.29E+01 I		y	1.7E+05 N	8.4E+04 N					
TETRAHYDROFURAN	109999	2.00E-01 E	7.6E-03 E	8.6E-02 E	6.8E-03 E		8.8E+00 C	9.2E-01 C	4.2E-01 C	3.8E+02 C	8.4E+01 C		
TETRYL	479458	4.00E-03 P					1.5E+02 N	1.5E+01 N	5.4E+00 N	4.1E+03 N	3.1E+02 N		
THALLIUM	7440280	7.00E-05 Q					2.6E+00 N	2.6E-01 N	9.5E-02 N	7.2E+01 N	5.5E+00 N	1.8E-01	3.6E+00 N
THALLIUM ACETATE	563688	9.00E-05 I					3.3E+00 N	3.3E-01 N	1.2E-01 N	9.2E+01 N	7.0E+00 N		
THALLIUM CARBONATE	6533739	8.00E-05 I					2.9E+00 N	2.9E-01 N	1.1E-01 N	8.2E+01 N	6.3E+00 N		
THALLIUM CHLORIDE	7791120	8.00E-05 I					2.9E+00 N	2.9E-01 N	1.1E-01 N	8.2E+01 N	6.3E+00 N		
THALLIUM NITRATE	10102451	9.00E-05 I					3.3E+00 N	3.3E-01 N	1.2E-01 N	9.2E+01 N	7.0E+00 N		
THALLIUM SULFATE (2:1)	7446186	8.00E-05 I					2.9E+00 N	2.9E-01 N	1.1E-01 N	8.2E+01 N	6.3E+00 N		
THIOBENCARB	28249776	1.00E-02 I					3.7E+02 N	3.7E+01 N	1.4E+01 N	1.0E+04 N	7.8E+02 N		
TIN	7440315	6.00E-01 H					2.2E+04 N	2.2E+03 N	8.1E+02 N	6.1E+05 N	4.7E+04 N		
TOLUENE	108883	8.00E-02 I		1.40E+00 I		y	2.3E+03 N	5.1E+03 N	1.1E+02 N	8.2E+04 N	6.3E+03 N	1.3E+00	2.7E+01 N
TOLUENE-2,4-DIAMINE	95807		3.20E+00 H				2.1E-02 C	2.0E-03 C	9.9E-04 C	8.9E-01 C	2.0E-01 C		
TOLUENE-2,5-DIAMINE	95705	6.00E-01 H					2.2E+04 N	2.2E+03 N	8.1E+02 N	6.1E+05 N	4.7E+04 N		
TOLUENE-2,6-DIAMINE	823405	3.00E-02 P					1.1E+03 N	1.1E+02 N	4.1E+01 N	3.1E+04 N	2.3E+03 N		
P-TOLUIDINE	106490		1.90E-01 H				3.5E-01 C	3.3E-02 C	1.7E-02 C	1.5E+01 C	3.4E+00 C	3.0E-04	5.9E-03 C
TOXAPHENE	8001352		1.10E+00 I		1.10E+00 I		6.1E-02 C	5.7E-03 C	2.9E-03 C	2.6E+00 C	5.8E-01 C	3.1E-02	6.3E-01 C
1,2,4-TRIBROMOBENZENE	615543	5.00E-03 I					1.8E+02 N	1.8E+01 N	6.8E+00 N	5.1E+03 N	3.9E+02 N		
TRIBUTYLTIN OXIDE	56359	3.00E-04 I					1.1E+01 N	1.1E+00 N	4.1E-01 N	3.1E+02 N	2.3E+01 N		
2,4,6-TRICHLOROANILINE	634935		3.40E-02 H				2.0E+00 C	1.8E-01 C	9.3E-02 C	8.4E+01 C	1.9E+01 C		
1,2,4-TRICHLOROBENZENE	120821	1.00E-02 I				y	6.1E+01 N	3.7E+01 N	1.4E+01 N	1.0E+04 N	7.8E+02 N	1.2E-01	2.4E+00 N
1,1,1-TRICHLOROETHANE	71556	2.80E-01 E				y	1.7E+03 N	1.0E+03 N	3.8E+02 N	2.9E+05 N	2.2E+04 N	1.6E+00	3.2E+01 N
1,1,2-TRICHLOROETHANE	79005	4.00E-03 I	5.70E-02 I		5.60E-02 I	y	1.9E-01 C	1.1E-01 C	5.5E-02 C	5.0E+01 C	1.1E+01 C	3.9E-05	7.8E-04 C
TRICHLOROETHENE	79016	3.00E-04 E	4.00E-01 E	1.00E-02 E	4.00E-01 E	y	2.6E-02 C	1.6E-02 C	7.9E-03 C	7.2E+00 C	1.6E+00 C	1.3E-05	2.8E-04 C
TRICHLOROFLUOROMETHANE	75694	3.00E-01 I		2.00E-01 A		y	1.3E+03 N	7.3E+02 N	4.1E+02 N	3.1E+05 N	2.3E+04 N	1.1E+00	2.3E+01 N
2,4,5-TRICHLOROPHENOL	95954	1.00E-01 I					3.7E+03 N	3.7E+02 N	1.4E+02 N	1.0E+05 N	7.8E+03 N		
2,4,6-TRICHLOROPHENOL	88062		1.10E-02 I		1.00E-02 I		6.1E+00 C	6.3E-01 C	2.9E-01 C	2.6E+02 C	5.8E+01 C		
2,4,5-T	93765	1.00E-02 I					3.7E+02 N	3.7E+01 N	1.4E+01 N	1.0E+04 N	7.8E+02 N	9.8E-02	2.0E+00 N
2-(2,4,5-TRICHLOROPHENOXY)PROPIONIC ACID	93721	8.00E-03 I					2.9E+02 N	2.9E+01 N	1.1E+01 N	8.2E+03 N	6.3E+02 N	1.1E+00	2.1E+01 N
1,1,2-TRICHLOROPROPANE	598776	5.00E-03 I				y	3.0E+01 N	1.8E+01 N	6.8E+00 N	5.1E+03 N	3.9E+02 N	1.2E-02	2.5E-01 N
1,2,3-TRICHLOROPROPANE	96184	6.00E-03 I	2.00E+00 E	1.4E-03 E		y	5.3E-03 C	3.1E-03 C	1.6E-03 C	1.4E+00 C	3.2E-01 C	1.8E-06	3.8E-05 C
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76131	3.00E+01 I		8.60E+00 H		y	5.9E+04 N	3.1E+04 N	4.1E+04 N	3.1E+07 N	2.3E+06 N	1.2E+02	2.3E+03 N
1,3,5-TRINITROBENZENE	99354	3.00E-02 I					1.1E+03 N	1.1E+02 N	4.1E+01 N	3.1E+04 N	2.3E+03 N		
2,4,6-TRINITROTOLUENE	118967	5.00E-04 I	3.00E-02 I				2.2E+00 C I	2.1E-01 C I	1.1E-01 C I	9.5E+01 C I	2.1E+01 C I		
URANIUM (SOLUBLE SALTS; from IRIS)	7440611	3.00E-03 I		8.6E-05 M			1.1E+02 N	3.1E-01 N	4.1E+00 N	3.1E+03 N	2.3E+02 N		
URANIUM (SOLUBLE SALTS; provisional)	7440611	2.00E-04 E		8.6E-05 M			7.3E+00 N	3.1E-01 N	2.7E-01 N	2.0E+02 N	1.6E+01 N		
VANADIUM	7440622	1.00E-03 E					3.7E+01 N	3.7E+00 N	1.4E+00 N	1.0E+03 N	7.8E+01 N	3.7E+01	7.3E+02 N
VINCLOZOLIN	50471448	2.50E-02 I					9.1E+02 N	9.1E+01 N	3.4E+01 N	2.6E+04 N	2.0E+03 N		
VINYL ACETATE	108054	1.00E+00 H		5.71E-02 I		y	4.1E+02 N	2.1E+02 N	1.4E+03 N	1.0E+06 N	7.8E+04 N	8.7E-02	1.7E+00 N
VINYL CHLORIDE inc earlylife(see cover memos)	75014	3.00E-03 I	1.40E+00 I	2.8E-02 I	3.00E-02 I	y	1.5E-02 C	7.2E-02 C			9.0E-02 C	6.2E-06	1.2E-04 C
VINYL CHLORIDE: adult (see cover memos)	75014	3.00E-03 I	7.20E-01 I	2.8E-02 I	1.5E-02 I	y			4.4E-03 C	4.0E+00 C			
WARFARIN	81812	3.00E-04 I					1.1E+01 N	1.1E+00 N	4.1E-01 N	3.1E+02 N	2.3E+01 N	2.2E-02	4.4E-01 N
XYLENES	1330207	2.00E-01 I		3.00E-02 I		y	2.1E+02 N	1.1E+02 N	2.7E+02 N	2.0E+05 N	1.6E+04 N	1.5E-01	3.0E+00 N
ZINC	7440666	3.00E-01 I					1.1E+04 N	1.1E+03 N	4.1E+02 N	3.1E+05 N	2.3E+04 N	6.8E+02	1.4E+04 N
ZINEB	12122677	5E-02 I					1.8E+03 N	1.8E+02 N	6.8E+01 N	5.1E+04 N	3.9E+03 N		