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# 2008 Annual Air Toxics Report

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October 26, 2009

CITY OF JACKSONVILLE  
ENVIRONMENTAL & COMPLIANCE DEPARTMENT  
ENVIRONMENTAL QUALITY DIVISION  
407 NORTH LAURA STREET  
THIRD FLOOR  
JACKSONVILLE, FLORIDA 32202

## **Introduction**

The City of Jacksonville, Environmental Quality Division (EQD) has collected air toxics monitoring data since 1997. The EQD air toxics monitoring network consists of five stationary air toxics monitoring sites and a mobile laboratory. When the air toxics monitoring program was first initiated, a mobile air toxics monitoring laboratory was purchased and used to collect and analyze air samples. In 1999, the stationary air toxics monitoring site network was established with two monitoring sites and in 2002; three additional sites were added to the network. Monitoring is conducted in accordance with U.S. Environmental Protection Agency (EPA) Method TO-15 as published in EPA's Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air. This method identifies forty-two pollutants in parts per billion concentrations. Twenty-six of these pollutants are included on EPA's list of 188 Hazardous Air Pollutants (HAPs) in Title III of the 1990 Clean Air Act Amendments. In addition to air toxics monitoring, the EQD calculates emissions inventories of HAPs from point, area and mobile sources, maintains Toxic Release Inventory (TRI) data for facilities operating in Jacksonville, and conducts risk assessments and other special projects.

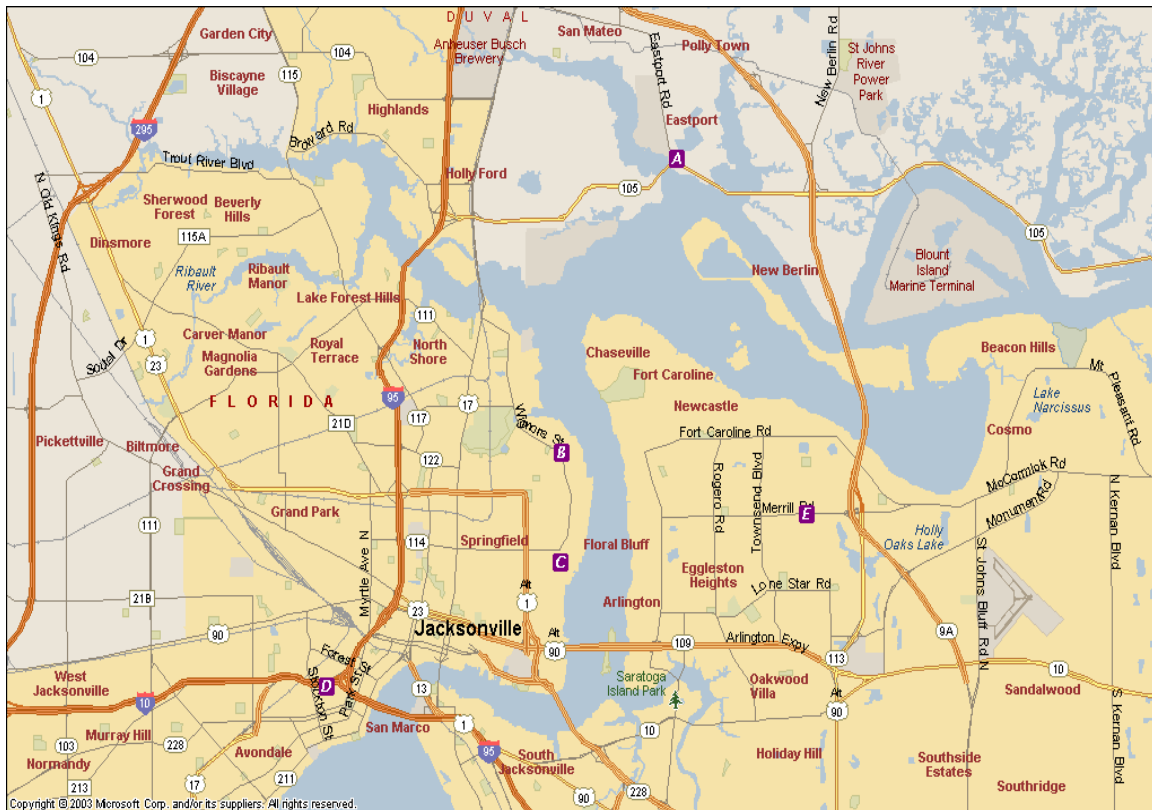
## **Air Toxic Monitoring – Mobile Laboratory**

The mobile air toxics monitoring laboratory began collecting ambient air samples at various locations around Jacksonville in July of 1997. These samples are collected in 6-liter stainless steel Summa canisters and are analyzed with an Agilent Technologies 5973N Gas Chromatograph /Mass Spectrometer, Entech Instruments Cryogenic Concentrator and computer. Samples enter the system through a stainless steel probe line and are collected in stainless steel canisters prior to analysis. In addition to pollutant concentrations the system monitors meteorological conditions including wind speed, wind direction and temperature.

The mobile laboratory collects air samples at approximately five different locations per year and remains at each location for approximately ten weeks. Locations were chosen to characterize pollutant concentrations over as large an area as possible while also maintaining security for the equipment since the mobile laboratory is left unattended over night. Sites were also selected which meet the criteria for distance from obstacles and unrestricted airflow as required by 40 CFR Part 58 for criteria pollutant monitoring.

In 1997 through 2000, an onboard generator supplied electricity for the mobile laboratory allowing monitoring to be conducted in a variety of locations. Within the last several years, due to continual malfunctions and down time with the generator, permanent power supplies were constructed at five locations. The mobile lab now operates within these locations. Figure 1 is a map indicating the locations of the five sites with permanent power supplies. The site labeled as "A" on the map is the Jacksonville Electric Authority (JEA) Substation at Eastport Road. This site is located to the north of town in a heavily industrialized area close to bulk gasoline terminals and other point sources such as a recycled fiber paper plant and co-generating facility. The location indicated as "B" on the map is the Jacksonville Electric Authority (JEA) Kennedy Generating Station site. This site is located in a heavily industrialized area. In addition to the JEA Kennedy Generating Station, other industry in the vicinity of this monitoring site includes bulk gasoline terminals and a box plant. Close by is another mobile laboratory site indicated as "C" on the map, JEA Lift Station #39. This site is also located in a heavily industrialized area within the vicinity of a pesticide manufacturing facility and asphalt roofing shingle manufacturing facility. South and west of these sites is mobile laboratory site "D", which is located in the neighborhood of Riverside. This site is in the vicinity of a major traffic intersection of Interstates 10 and 95. It is also a community exposure site for the Riverside/Avondale neighborhoods. Across the river is the JEA Substation site at Merrill Road ("E"), which is also a community exposure site for the Arlington/Eggleston Heights neighborhood. This site is located in a primarily residential area with high traffic and several area sources including gasoline service stations.

**Figure 1. Jacksonville Mobile Laboratory Air Toxics Monitoring Sites**



- A = Eastport Road Substation, 9323 Eastport Road
- B = JEA Kennedy Generating Station, 4215 Talleyrand Avenue
- C = JEA Lift Station #39, 1640 Talleyrand Avenue
- D = Rosselle & Copeland, 2195 Rosselle Street
- E = Merrill Road Substation, 7730 Merrill Road

In 2008 the mobile laboratory collected samples at three mobile laboratory monitoring sites. These sites include the Merrill Road Substation, JEA Liftstation #39, and Rosselle & Copeland monitoring sites. A statistical summary of the 2008 mobile lab data from all three sites is presented in Table 1. The pollutant with the highest concentration detected is ethanol and the second highest concentration is propene. Other pollutants found with high concentrations include acetone and cis-1,2-Dichloroethene. Forty-five samples were collected in 2008 using the mobile monitoring laboratory. Twenty-nine of the forty-two pollutants were found. Three pollutants were present in more than ninety percent of the samples collected. These pollutants include Freon 12, acetone and ethanol. None of the pollutants were found in all of the samples collected. Freon compounds are very stable and tend to persist in the environment for long periods of time. They are emitted by the many air-conditioning and refrigeration systems in Florida. Concentrations above health benchmarks were not obtained in 2008. Health benchmarks used in these analyses are Florida Ambient Reference Concentrations (FARCs), which were established by the State of Florida in the mid 1980s and were updated many times as new health data became available. They are based on data developed by the American Conference of Government Industrial Hygienists (ACGIH), the Occupational Safety and Health Administration (OSHA) and EPA. Although the FARCs are less frequently used since the establishment of the 1990 Clean Act Amendments and the Maximum Achievable Control Technology (MACT) Standards, EQD still uses the FARCs as a reference in relation to ambient data since no ambient standards currently exist. A statistical summary of the data from each mobile laboratory monitoring site is presented in Appendix A.

**Table 1. 2008 Statistical Summary - Mobile Laboratory Air Toxics Monitoring Data (24 Hour Average)**

Data Starting Date: 01/02/08

Data Ending Date: 12/30/08

Number of Samples: 45

\* FARC is the Florida Ambient Reference Concentration (FARC)

\*MAX is the maximum concentration recorded at this site

\*AVG is the average of all concentrations recorded at this site

\*MIN is the minimum concentration recorded at this site

\* Count is the # of samples in which the compound is found

\*# EXC indicates the number of exceedances of the FARC

\* All concentrations are in parts per billion by volume (ppbv)

<u>LAB#</u>	<u>COMPOUND</u>	<u>FARC</u>	<u>MAX</u>	<u>AVG</u>	<u>MIN</u>	<u>Count</u>	<u>#EXC</u>
1	Dichlorodifluoromethane-F12	9842.68	0.662	0.404	0.133	43	0
2	Chloromethane	490.81	0.547	0.309	0.123	19	0
3	1,1,2-Trichloro-1,2,2-trifluoroethane-F114	9752.01					0
4	Vinyl chloride	50.04					0
6	Bromomethane	48.13					0
8	Trichloromonofluoromethane-F11	9801.53	0.146	0.131	0.106	6	0
9	Acrylonitrile		0.695	0.391	0.230	6	0
10	1,1-Dichloroethene	49.62	0.772	0.347	0.130	21	0
11	Dichloromethane	492.69	0.594	0.394	0.129	11	0
12	3-Chloropropene						0
13	1,2-Dichloro-1,1,2,2-tetrafluoroethane-F113	9832.63	0.267	0.137	0.101	21	0
14	1,1-Dichloroethane	972.30					0
15	cis-1,2-Dichloroethene		22.845	6.352	0.102	18	0
16	Chloroform	98.70					0
17	1,2-Dichloroethane	97.23	8.030	4.926	3.751	6	0
18	1,1,1-Trichloroethane	3425.27	13.291	9.907	6.407	6	0
19	Benzene	9.25	1.415	0.552	0.163	20	0
20	Carbon Tetrachloride	48.46					0
21	1,2-Dichloropropane	738.87	0.791	0.321	0.133	25	1
22	Trichloroethene	492.33	0.242	0.142	0.101	12	0
23	cis-1,3-Dichloropropene						0
24	trans-1,3-Dichloropropene		0.268	0.189	0.126	6	0
25	1,1,2-Trichloroethane	99.15					0
26	Toluene	491.25	7.278	2.068	0.307	20	0
27	1,2-Dibromoethane	38.40					0
28	Tetrachloroethene	246.49	2.551	0.896	0.355	24	0
29	Chlorobenzene	98.34					0
	Hexane		1.674	0.462	0.161	19	0
	Heptane		1.062	0.256	0.126	20	0
	Propene		58.209	8.035	0.107	30	0
	Ethanol		462.555	21.743	0.131	44	0
	Acetone		52.400	9.443	0.107	44	0
30	Ethyl benzene	984.28	1.351	0.506	0.283	20	0
31	m + p-Xylene	984.28	4.564	0.831	0.101	30	0
32	Styrene	492.36	1.200	0.770	0.374	20	0
33	1,1,2,2-Tetrachloroethane	9.89	0.129	0.129	0.129	1	0
34	o-Xylene	984.28	3.504	0.736	0.100	37	0
35	Ethyltoluene		0.772	0.454	0.169	20	0
36	1,3,5-Trimethylbenzene		0.472	0.345	0.158	20	0
37	1,2,4-Trimethylbenzene		0.722	0.473	0.158	20	0
40	1,2-Dichlorobenzene	245.47					0
41	1,2,4-Trichlorobenzene	49.05					0
42	Hexachlorobutadiene	0.19					0

### **Air Toxic Monitoring – Stationary Sites**

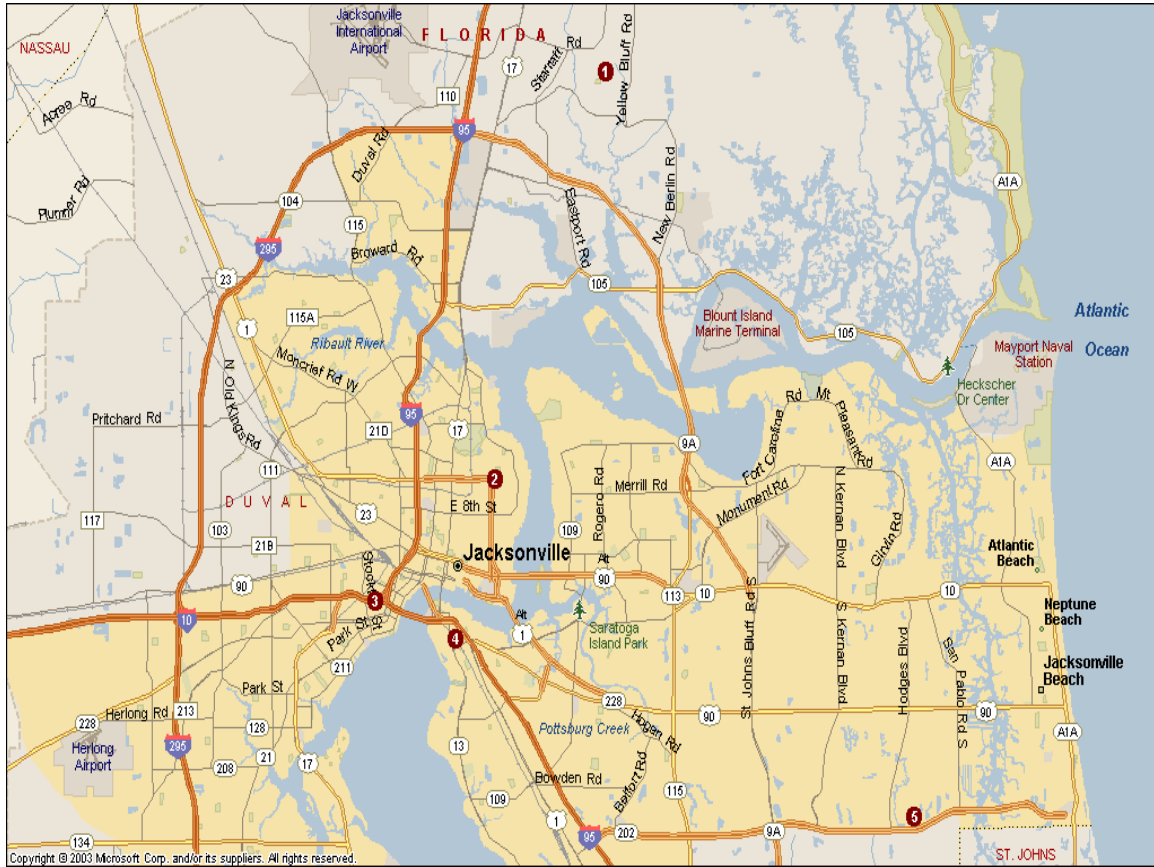
The Jacksonville stationary air toxics monitoring site network includes five sites. Two of the stationary air toxics monitoring sites were established in January of 1999 and three more were added in October of 2002. All five sites are co-located with criteria pollutant monitoring sites in an effort to reduce the expense of purchasing additional shelters. Sites were chosen to provide an adequate representation of the entire county. A map of the five monitoring sites is included in Figure 2. Three of the five sites are downwind or in the vicinity of industrial facilities or high traffic areas. One twenty-four hour canister sample is collected one day per week at each site and is analyzed using EPA Method TO-15 at the EQD laboratory. Each week the day of sample collection is rotated to the next day so that samples are collected on a variety of days.

One of the two original stationary monitoring sites established in 1999, located at the intersection of Rosselle and Copeland Streets in Riverside (indicated as site 3 on the map) is adjacent to a high traffic area. The other site established in 1999, Kooker Park (site 2 on the map) is located in an area with several industrial facilities including the Buckman Sewage Treatment Plant (the city's largest sewage treatment facility), several bulk gasoline terminals and an electric generating station. The three sites established in 2002 (indicated as 1, 4 & 5 on the map) include: Sheffield Elementary School, Southside Playground and Mayo Clinic. Sheffield Elementary School (1) is considered a background site with the objective of assessing out of county transport from the north and baseline concentrations. Southside Playground (4) is a neighborhood site close to the downtown area. This site was established with the objective of characterizing population exposure downwind of an industrial area and potential workday commuter traffic. The third site, Mayo Clinic (5) is also considered a background site with the objective of assessing out of county transport from the southeast and baseline concentrations.

A statistical summary of the 2008 stationary site data for all five sites is presented in Table 2. Data for each of the five individual stationary monitoring sites can be found in Appendix B. Two-hundred-forty-nine samples were collected in 2008 from the stationary monitoring sites. Data was obtained for twenty-one pollutants. The pollutant with the highest concentration found was toluene. The pollutant with the second highest concentration was xylene. Two pollutants were found in more than ninety percent of the samples. These pollutants include: Freon 12 and chloromethane. One pollutant, Freon 12 was found in all of the samples collected.

Certain pollutants continue to be present in the majority of samples collected at the stationary sites and mobile laboratory sites. One pollutant was present in over ninety percent of the samples collected at both the stationary and mobile monitoring sites. This pollutant is Freon 12. In the past benzene, chloromethane, xylene, styrene, toluene and 1,2,4-trimethylbenzene have been present in the majority of samples at both stationary and mobile lab sites. Several of these pollutants (toluene, benzene and xylene) are products of evaporation or combustion from gasoline and other petroleum based fuels. Freon 12 is a chlorofluorocarbon emitted by air-conditioning and refrigeration systems. Despite phase-out of chlorofluorocarbons, concentrations are expected to remain high due to their long tropospheric lifetime.

**Figure 2. Jacksonville Stationary Air Toxics Monitoring Sites**



1 = Sheffield Elementary School, 13333 Lanier Street

2 = Kooker Park, 2900 Bennett Street

3 = Rosselle & Copeland, 2189 Rosselle Street

4 = Southside Playground, 1605 Minerva Avenue

5 = Mayo Clinic, 13600 WM Davis Parkway

**2008 Statistical Summary - Stationary Site Air Toxics Monitoring Data (24 Hour Average)**

Data Starting Date: 01/01/08  
 Data Ending Date: 12/20/08  
 Number of Samples: 249

- \* FARC is the Florida Ambient Reference Concentration (FARC)
- \*MAX is the maximum concentration recorded at this site
- \*AVG is the average of all concentrations recorded at this site
- \*MIN is the minimum concentration recorded at this site
- \* Count is the # of samples in which the compound is found
- \*# EXC indicates the number of exceedances of the FARC
- \* All concentrations are in parts per billion by volume (ppbv)

<u>LAB#</u>	<u>COMPOUND</u>	<u>FARC</u>	<u>MAX</u>	<u>AVG</u>	<u>MIN</u>	<u>Count</u>	<u>#EXC</u>
1	Dichlorodifluoromethane-F12	9842.68	0.940	0.515	0.081	249	0
2	Chloromethane	490.81	3.640	0.839	0.350	247	0
3	1,1,2-Trichloro-1,2,2-trifluoroethane-F114	9752.01					0
4	Vinyl chloride	50.04					0
5	1,3-Butadiene		1.450	0.359	0.140	16	0
6	Bromomethane	48.13					0
7	Chloroethane	9847.26					0
8	Trichloromonofluoromethane-F11	9801.53	0.730	0.234	0.110	194	0
9	Acrylonitrile		0.610	0.423	0.170	4	0
10	1,1-Dichloroethene	49.62					0
11	Dichloromethane	492.69					0
12	3-Chloropropene						0
13	1,2-Dichloro-1,1,2,2-tetrafluoroethane-F113	9832.63	0.070	0.070	0.070	1	0
14	1,1-Dichloroethane	972.30					0
15	cis-1,2-Dichloroethene						0
16	Chloroform	98.70					0
17	1,2-Dichloroethane	97.23					0
18	1,1,1-Trichloroethane	3425.27					0
19	Benzene	9.25	2.290	0.296	0.130	113	0
20	Carbon Tetrachloride	48.46	0.160	0.138	0.110	13	0
21	1,2-Dichloropropane	738.87					0
22	Trichloroethene	492.33	0.180	0.180	0.180	1	0
23	cis-1,3-Dichloropropene						0
24	trans-1,3-Dichloropropene						0
25	1,1,2-Trichloroethane	99.15	2.930	0.749	0.140		0
26	Toluene	491.25	14.500	0.679	0.190	187	0
27	1,2-Dibromoethane	38.40					0
28	Tetrachloroethene	98.34					0
	Chlorobenzene	984.28	0.470	0.238	0.120	18	0
29	Ethyl Benzene	984.28	1.920	0.308	0.110	84	0
31	m + p-Xylene	492.36	8.430	0.724	0.130	41	0
32	Styrene		0.540	0.352	0.140	35	0
33	1,1,2,2-Tetrachloroethane	984.28	0.510	0.307	0.130	10	0
34	o-Xylene		2.310	0.304	0.130	50	0
35	Ethyltoluene		1.520	0.349	0.140	37	0
36	1,3,5-Trimethylbenzene		1.670	0.439	0.140	23	0
37	1,2,4-Trimethylbenzene		4.450	0.390	0.150	75	0
38	1,3-Dichlorobenzene	98.19					0
39	1,4-Dichlorobenzene		0.140	0.140	0.140	1.000	0
40	1,2-Dichlorobenzene	245.47					0
41	1,2,4-Trichlorobenzene	49.05					0
42	Hexachlorobutadiene	0.19					0

### HAP Emissions Inventory

EQD collects emission inventory data for Hazardous Air Pollutants (HAPs). Periodically emissions are calculated for point, area and mobile sources. The most recent comprehensive inventory was conducted by EPA for 2005. This data is available on EPA's website, [www.epa.gov/ttn/chief](http://www.epa.gov/ttn/chief). For 2008, EQD compiled HAP emission inventory data for point sources only. Point sources are large industrial facilities that emit over one hundred tons per year of criteria pollutant emissions or 10 tons/year of a single HAP or 25 tons/year of a combination of HAPs. Point source emissions are calculated using actual industry fuel usage and process rates. Area sources are smaller air pollution emitting facilities such as small print shops and automobile repair shops. Area source emissions are calculated based on aggregated activity level data such as census and county employment data. Mobile sources include sources of air pollution such as automobiles, trucks, trains, marine vessels, airplanes and agricultural equipment. Mobile source emissions are calculated using vehicle miles traveled for automobiles and the Highway Performance Monitoring System (HPMS). Emission inventories are helpful in determining which pollutants may be of concern in a particular geographical area, which pollution sources are contributing to emissions of a particular pollutant and in establishing trends. EQD collected 2008 point source HAP emissions inventory for the 188 pollutants on EPA's HAP list. Previous comprehensive HAP inventories have been completed for the years 1997, 2000, 2002 and 2005. A summary of the top ten pollutants from the 2008 point source inventory is included in Table 3. Three of the pollutants, which were calculated in the largest mass in the inventory, are also pollutants monitored in consistently high concentrations at mobile laboratory and stationary monitoring sites.

**Table 3. 2008 HAP Point Source Emission Inventory - Top Ten HAPs (lbs/year)**

<b>HAP</b>	<b>LBS</b>
hydrogen chloride (HCl)	8,289,171
hydrogen fluoride (HF)	602,330
styrene	45,998
xylene	33,173
toluene	31,880
methanol	29,250
glycol ethers	21,487
hexane	14,212
benzene	9,313
formaldehyde	7,934

Pollutants indicated in red are monitored by the air toxics monitoring network.

### Toxic Release Inventory

The Toxic Release Inventory (TRI) is a national database, which provides information to the public about releases of toxic chemicals from manufacturing facilities into the environment. TRI was established under the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) and expanded under the Pollution Prevention Act of 1990. Facilities report their TRI information annually to EPA. A facility must report to TRI if it:

- Operates within any of the following industry sectors:
  - o Manufacturing (SIC codes 20-39),
  - o Metal mining (SIC code 10, except 1011, 1081, and 1094),
  - o Coal mining (SIC code 12, except 1241),
  - o Electrical utilities that combust coal and/or oil for the purpose of generating power for distribution in commerce (SIC codes 4911, 4931, and 4939),
  - o Resource Conservation and Recovery Act (RCRA) Subtitle C hazardous waste treatment and disposal facilities (in SIC code 4953),
  - o Chemical wholesalers (SIC code 5169),
  - o Petroleum terminals and bulk stations (SIC code 5171),
  - o Solvent recovery services (SIC code 7389),
  - o A federal facility in any SIC code,
- Employs 10 or more full-time equivalent employees, and
- Manufactures or processes more than 25,000 pounds or otherwise uses more than 10,000 pounds of any listed chemical during the calendar year, except for PBT chemicals where the thresholds are 0.1 gram for dioxin and dioxin-like compounds, and 10 or 100 pounds for other PBT chemicals.

The most recent reporting year of TRI data available from EPA is 2007. Table 4 lists the total TRI air releases per pollutant for Jacksonville/Duval County for 2007.

**Table 4. 2007 Jacksonville Toxic Release Inventory (TRI) Data**

<b>Chemical</b>	<b>Total Air Emissions (lbs)</b>
1,2,4-TRIMETHYLBENZENE	1,766
ALUMINUM	255
AMMONIA	85,430
ANTIMONY	250
ARSENIC	250
BARIUM	1,059
BARIUM COMPOUNDS	2,305
BENZENE	2,207
BENZO(G,H,I)PERYLENE	1
CADMIUM	5
GLYCOL ETHERS	38,989
CHLORINE	6
CHROMIUM	272
COBALT	255
COPPER	282
DICYCLOPENTADIENE	429
DIISOCYANATES	280
ETHYLBENZENE	1,074
ETHYLENE	2,803
ETHYLENE GLYCOL	389
HYDROCHLORIC ACID	2,555,865
HYDROGEN FLUORIDE	202,847
LEAD	174
LEAD COMPOUNDS	749
MALEIC ANHYDRIDE	264
MANGANESE	261
MANGANESE COMPOUNDS	903
MERCURY	12
MERCURY COMPOUNDS	203
METHANOL	19,116
MOLYBDENUM TRIOXIDE	255
N-BUTYL ALCOHOL	38,589
N-HEXANE	10,282
NAPHTHALENE	60
NICKEL	5
NICKEL COMPOUNDS	2,408
PHTHALIC ANHYDRIDE	16
POLYCYCLIC AROMATIC COMPOUNDS (PAH)	16
SELENIUM	7,600
STYRENE	55,898
SULFURIC ACID	1,100,000
THALLIUM	255
TOLUENE	8,513
VANADIUM	5,643
XYLENE	14,396
ZINC	5,068
<b>TOTAL</b>	<b>4,167,705</b>

### Special Studies

EPA conducts studies of air toxics for the entire United States. One such study is the National Emissions Inventory (NEI), which EPA compiles for criteria and HAP emissions to estimate and track national emission trends. 2005 NEI data is available on EPA's Air Chief website at [www.epa.gov/ttn/chief](http://www.epa.gov/ttn/chief). EPA will be completing a 2008 inventory next year. EQD provides Jacksonville emission inventory data to EPA for input to the NEI for HAPs and criteria pollutants. EPA uses the NEI for planning purposes and as input for various modeling studies such as the National Air Toxics Assessment (NATA). NATA is EPA's ongoing comprehensive evaluation of air toxics in the U.S. The goals of the assessment include the expansion of air toxics monitoring, improving and periodically updating emission inventories, improving national- and local-scale modeling, continued research on health effects and exposures to both ambient and indoor air, and improvement of assessment tools. It is a state-of-the-science screening tool that estimates cancer and other health risks from exposure to air toxics, designed to guide further local, state and federal steps to cut toxic air pollution and build upon the significant emissions reductions achieved since 1990. To date, EPA has completed three such characterizations of the nationwide health risk estimates from inhalation of air toxics using data from the following years: 1996, 1999 and 2002. Additional information on the NATA studies is available on EPA's website at [www.epa.gov/nata2002](http://www.epa.gov/nata2002). EPA is in the process of completing an additional study using 2005 data.

EQD provides local air toxics monitoring data to the Florida Department of Environmental Protection (FDEP) for upload to the EPA AIRS/AFS system. Jacksonville air toxics monitoring data is uploaded annually to the EPA AIRS/AFS database. Providing this data to EPA allows access to the public through the AFS website which includes air toxics monitoring data from all over the country. This data is used to establish residual risk after implementation of MACT standards for air toxics and for other studies.

### Future Efforts

EQD plans to continue air toxics monitoring at both mobile laboratory and stationary monitoring sites. EQD will continue to compare HAP inventory data and TRI data with air toxics monitoring data for various correlations and trends. The feasibility of conducting air toxics monitoring for additional HAPs is being reviewed. EQD will continue to participate in EPA's Proficiency Testing (PT) sample trading program once per quarter in 2009, in an effort to maintain quality assurance of the air toxics monitoring data.

**APPENDIX A**  
**Mobile Laboratory Monitoring Site Statistical Summaries**

**2008 Statistical Summary - Mobile Laboratory Air Toxics Monitoring Data (4 Hour Average)**

Merrill Road Substation

7730 Merrill Road

Site ID#

0102

Data Starting Date:

01/02/08

Data Ending Date:

01/12/08

Number of Samples:

6

\* FARC is the Florida Ambient Reference Concentration (FARC)

\*MAX is the maximum concentration recorded at this site

\*AVG is the average of all concentrations recorded at this site

\*MIN is the minimum concentration recorded at this site

\* Count is the # of samples in which the compound is found

\*# EXC indicates the number of exceedances of the FARC

\* All concentrations are in parts per billion by volume (ppbv)

<u>LAB#</u>	<u>COMPOUND</u>	<u>FARC</u>	<u>MAX</u>	<u>AVG</u>	<u>MIN</u>	<u>Count</u>	<u>#EXC</u>
1	Dichlorodifluoromethane-F12	9842.68	0.518	0.445	0.389	6	0
2	Chloromethane	490.81					0
3	1,1,2-Trichloro-1,2,2-trifluoroethane-F114	9752.01					0
4	Vinyl chloride	50.04					0
6	Bromomethane	48.13					0
8	Trichloromonofluoromethane-F11	9801.53	0.146	0.131	0.106	6	0
9	Acrylonitrile		0.695	0.391	0.230	6	0
10	1,1-Dichloroethene	49.62					0
11	Dichloromethane	492.69					0
12	3-Chloropropene						0
13	1,2-Dichloro-1,1,2,2-tetrafluoroethane-F113	9832.63					0
14	1,1-Dichloroethane	972.30					0
15	cis-1,2-Dichloroethene		22.845	12.583	1.690	6	0
16	Chloroform	98.70					0
17	1,2-Dichloroethane	97.23	8.030	4.926	3.751	6	0
18	1,1,1-Trichloroethane	3425.27	13.291	9.907	6.407	6	0
19	Benzene	9.25	0.883	0.572	0.350	6	0
20	Carbon Tetrachloride	48.46					0
21	1,2-Dichloropropane	738.87					0
22	Trichloroethene	492.33					0
23	cis-1,3-Dichloropropene						0
24	trans-1,3-Dichloropropene		0.268	0.189	0.126	6	0
25	1,1,2-Trichloroethane	99.15					0
26	Toluene	491.25	1.960	1.381	0.659	6	0
27	1,2-Dibromoethane	38.40					0
28	Tetrachloroethene	246.49					0
29	Chlorobenzene	98.34					0
	Hexane		0.695	0.391	0.230	6	0
	Heptane		0.268	0.189	0.126	6	0
	Propene		22.845	12.583	1.690	6	0
	Ethanol		8.030	4.926	3.751	6	0
	Acetone		13.291	9.907	6.407	6	0
30	Ethyl benzene	984.28	0.499	0.441	0.357	6	0
31	m + p-Xylene	984.28	1.165	0.974	0.720	6	0
32	Styrene	492.36	0.803	0.675	0.556	6	0
33	1,1,2,2-Tetrachloroethane	9.89					0
34	o-Xylene	984.28	1.826	0.663	0.407	6	0
35	Ethyltoluene		0.479	0.434	0.371	6	0
36	1,3,5-Trimethylbenzene		0.361	0.342	0.297	6	0
37	1,2,4-Trimethylbenzene		0.510	0.457	0.387	6	0

**2008 Statistical Summary - Mobile Laboratory Air Toxics Monitoring Data (4 Hour Average)**

Rosselle & Copeland

2195 Rosselle Street

Site ID#

0105

Data Starting Date:

07/09/08

Data Ending Date:

12/30/08

Number of Samples:

25

\* FARC is the Florida Ambient Reference Concentration (FARC)

\*MAX is the maximum concentration recorded at this site

\*AVG is the average of all concentrations recorded at this site

\*MIN is the minimum concentration recorded at this site

\* Count is the # of samples in which the compound is found

\*# EXC indicates the number of exceedances of the FARC

\* All concentrations are in parts per billion by volume (ppbv)

<u>LAB#</u>	<u>COMPOUND</u>	<u>FARC</u>	<u>MAX</u>	<u>AVG</u>	<u>MIN</u>	<u>Count</u>	<u>#EXC</u>
1	Dichlorodifluoromethane-F12	9842.68	0.575	0.261	0.133	23	0
2	Chloromethane	490.81	0.547	0.309	0.123	19	0
3	1,1,2-Trichloro-1,2,2-trifluoroethane-F114	9752.01					0
4	Vinyl chloride	50.04					0
6	Bromomethane	48.13					0
8	Trichloromonofluoromethane-F11	9801.53					0
9	Acrylonitrile						0
10	1,1-Dichloroethene	49.62	0.772	0.347	0.130	21	0
11	Dichloromethane	492.69	0.594	0.394	0.129	11	0
12	3-Chloropropene						0
13	1,2-Dichloro-1,1,2,2-tetrafluoroethane-F113	9832.63	0.267	0.137	0.101	21	0
14	1,1-Dichloroethane	972.30					0
15	cis-1,2-Dichloroethene		0.181	0.120	0.102	12	0
16	Chloroform	98.70					0
17	1,2-Dichloroethane	97.23					0
18	1,1,1-Trichloroethane	3425.27					0
19	Benzene	9.25					0
20	Carbon Tetrachloride	48.46					0
21	1,2-Dichloropropane	738.87	0.791	0.321	0.133	25	0
22	Trichloroethene	492.33	0.242	0.142	0.101	12	0
23	cis-1,3-Dichloropropene						0
24	trans-1,3-Dichloropropene						0
25	1,1,2-Trichloroethane	99.15					0
26	Toluene	491.25					0
27	1,2-Dibromoethane	38.40					0
28	Tetrachloroethene	246.49	2.551	0.896	0.355	24	0
29	Chlorobenzene	98.34					0
	Heptane						0
	Propene		0.212	0.145	0.107	10	0
	Ethanol		0.592	0.283	0.131	24	0
	Acetone		0.474	0.196	0.107	24	0
30	Ethyl benzene	984.28					0
31	m + p-Xylene	984.28	0.185	0.134	0.101	10	0
32	Styrene	492.36					0
33	1,1,2,2-Tetrachloroethane	9.89	0.129	0.129	0.129	1	0
34	o-Xylene	984.28	0.272	0.164	0.100	17	0
35	Ethyltoluene						0
36	1,3,5-Trimethylbenzene						0
37	1,2,4-Trimethylbenzene						0
40	1,2-Dichlorobenzene	245.47					0
41	1,2,4-Trichlorobenzene	49.05					0

**2008 Statistical Summary - Mobile Laboratory Air Toxics Monitoring Data (24 Hour Average)**

JEA Lift Station #39

1640 Talleyrand Avenue

Site ID# 0101

Data Starting Date: 03/24/08

Data Ending Date: 04/19/08

Number of Samples: 14

\* FARC is the Florida Ambient Reference Concentration (FARC)

\*MAX is the maximum concentration recorded at this site

\*AVG is the average of all concentrations recorded at this site

\*MIN is the minimum concentration recorded at this site

\* Count is the # of samples in which the compound is found

\*# EXC indicates the number of exceedances of the FARC

\* All concentrations are in parts per billion by volume (ppbv)

<u>LAB#</u>	<u>COMPOUND</u>	<u>FARC</u>	<u>MAX</u>	<u>AVG</u>	<u>MIN</u>	<u>Count</u>	<u>#EXC</u>
1	Dichlorodifluoromethane-F12	9842.68		0.507	0.287	14	0
2	Chloromethane	490.81					0
3	1,1,2-Trichloro-1,2,2-trifluoroethane-F114	9752.01					0
4	Vinyl chloride	50.04					0
6	Bromomethane	48.13					0
8	Trichloromonofluoromethane-F11	9801.53					0
9	Acrylonitrile						0
10	1,1-Dichloroethene	49.62					0
11	Dichloromethane	492.69					0
12	3-Chloropropene						0
13	1,2-Dichloro-1,1,2,2-tetrafluoroethane-F113	9832.63					0
14	1,1-Dichloroethane	972.30					0
15	cis-1,2-Dichloroethene						0
16	Chloroform	98.70					0
17	1,2-Dichloroethane	97.23					0
18	1,1,1-Trichloroethane	3425.27					0
19	Benzene	9.25		0.533	0.163	14	0
20	Carbon Tetrachloride	48.46					0
21	1,2-Dichloropropane	738.87					1
22	Trichloroethene	492.33					0
23	cis-1,3-Dichloropropene						0
24	trans-1,3-Dichloropropene						0
25	1,1,2-Trichloroethane	99.15					0
26	Toluene	491.25		2.756	0.307	14	0
27	1,2-Dibromoethane	38.40					0
28	Tetrachloroethene	246.49					0
29	Chlorobenzene	98.34					0
	Hexane			0.532	0.161	13	0
	Heptane			0.324	0.127	14	0
	Propene			11.376	0.432	14	0
	Ethanol			60.019	0.487	14	0
	Acetone			18.226	2.606	14	0
30	Ethyl benzene	984.28		0.571	0.283	14	0
31	m + p-Xylene	984.28		1.385	0.584	14	0
32	Styrene	492.36		0.864	0.374	14	0
33	1,1,2,2-Tetrachloroethane	9.89					0
34	o-Xylene	984.28		1.383	0.263	14	0
35	Ethyltoluene			0.475	0.169	14	0
36	1,3,5-Trimethylbenzene			0.348	0.158	14	0
37	1,2,4-Trimethylbenzene			0.489	0.158	14	0
40	1,2-Dichlorobenzene	245.47					0
41	1,2,4-Trichlorobenzene	49.05					0

**APPENDIX B**  
**Stationary Monitoring Site Statistical Summaries**

**2008 Statistical Summary - Stationary Site Air Toxics Monitoring Data (24 Hour Average)**

Rosselle &amp; Copeland

2189 Rosselle Street

Site ID#

0084

Data Starting Date:

01/01/08

Data Ending Date:

12/20/08

Number of Samples:

44

\* FARC is the Florida Ambient Reference Concentration (FARC)

\*MAX is the maximum concentration recorded at this site

\*AVG is the average of all concentrations recorded at this site

\*MIN is the minimum concentration recorded at this site

\* Count is the # of samples in which the compound is found

\*# EXC indicates the number of exceedances of the FARC

\* All concentrations are in parts per billion by volume (ppbv)

<b>LAB#</b>	<b>COMPOUND</b>	<b>FARC</b>	<b>MAX</b>	<b>AVG</b>	<b>MIN</b>	<b>Count</b>	<b>#EXC</b>
1	Dichlorodifluoromethane-F12	9842.68	0.750	0.507	0.270	44	0
2	Chloromethane	490.81	3.640	0.833	0.350	44	0
3	1,1,2-Trichloro-1,2,2-trifluoroethane-F114	9752.01					0
4	Vinyl chloride	50.04					0
5	1,3-Butadiene		0.400	0.253	0.140	6	0
6	Bromomethane	48.13					0
7	Chloroethane	9847.26					0
8	Trichloromonofluoromethane-F11	9801.53	0.730	0.243	0.110	37	0
9	Acrylonitrile		0.290	0.237	0.170	3	0
10	1,1-Dichloroethene	49.62					0
11	Dichloromethane	492.69					0
12	3-Chloropropene						0
13	1,2-Dichloro-1,1,2,2-tetrafluoroethane-F113	9832.63					0
14	1,1-Dichloroethane	972.30					0
15	cis-1,2-Dichloroethene						0
16	Chloroform	98.70					0
17	1,2-Dichloroethane	97.23					0
18	1,1,1-Trichloroethane	3425.27					0
19	Benzene	9.25	1.130	0.322	0.160	33	0
20	Carbon Tetrachloride	48.46	0.140	0.125	0.110	2	0
21	1,2-Dichloropropane	738.87					0
22	Trichloroethene	492.33					0
23	cis-1,3-Dichloropropene						0
24	trans-1,3-Dichloropropene						0
25	1,1,2-Trichloroethane	99.15					0
26	Toluene	491.25	5.110	0.924	0.240	41	0
27	1,2-Dibromoethane	38.40					0
28	Tetrachloroethene	246.49					0
29	Ethyl Benzene		0.550	0.262	0.120	17	0
31	m + p-Xylene	984.28	1.570	0.783	0.500	9	0
32	Styrene	492.36	0.520	0.382	0.260	9	0
33	1,1,2,2-Tetrachloroethane	9.89					0
34	o-Xylene	984.28	0.560	0.304	0.130	12	0
35	Ethyltoluene		0.570	0.327	0.210	9	0
36	1,3,5-Trimethylbenzene						0
37	1,2,4-Trimethylbenzene		0.620	0.338	0.150	13	0
38	1,3-Dichlorobenzene						0
39	1,4-Dichlorobenzene	98.19					0
40	1,2-Dichlorobenzene	245.47					0
41	1,2,4-Trichlorobenzene	49.05					0

**2008 Statistical Summary - Stationary Site Air Toxics Monitoring Data (24 Hour Average)**

Mayo Clinic

13600 WM Davis Parkway

Site ID#

0100

Data Starting Date:

01/01/08

Data Ending Date:

11/20/2008

Number of Samples:

37

\* FARC is the Florida Ambient Reference Concentration (FARC)

\*MAX is the maximum concentration recorded at this site

\*AVG is the average of all concentrations recorded at this site

\*MIN is the minimum concentration recorded at this site

\* Count is the # of samples in which the compound is found

\*# EXC indicates the number of exceedances of the FARC

\* All concentrations are in parts per billion by volume (ppbv)

<u>LAB#</u>	<u>COMPOUND</u>	<u>FARC</u>	<u>MAX</u>	<u>AVG</u>	<u>MIN</u>	<u>Count</u>	<u>#EXC</u>
1	Dichlorodifluoromethane-F12	9842.68	0.910	0.538	0.320	37	0
2	Chloromethane	490.81	2.140	1.024	0.430	35	0
3	1,1,2-Trichloro-1,2,2-trifluoroethane-F114	9752.01					0
4	Vinyl chloride	50.04					0
5	1,3-Butadiene						0
6	Bromomethane	48.13					0
7	Chloroethane	9847.26					0
8	Trichloromonofluoromethane-F11	9801.53	0.320	0.224	0.130	27	0
9	Acrylonitrile						0
10	1,1-Dichloroethene	49.62					0
11	Dichloromethane	492.69					0
12	3-Chloropropene						0
13	1,2-Dichloro-1,1,2,2-tetrafluoroethane-F113	9832.63	0.070	0.070	0.070	1	0
14	1,1-Dichloroethane	972.30					0
15	cis-1,2-Dichloroethene						0
16	Chloroform	98.70					0
17	1,2-Dichloroethane	97.23					0
18	1,1,1-Trichloroethane	3425.27					0
19	Benzene	9.25	0.210	0.200	0.180	5	0
20	Carbon Tetrachloride	48.46	0.160	0.148	0.140	5	0
21	1,2-Dichloropropane	738.87					0
22	Trichloroethene	492.33					0
23	cis-1,3-Dichloropropene						0
24	trans-1,3-Dichloropropene						0
25	1,1,2-Trichloroethane	99.15					0
26	Toluene	491.25	0.520	0.290	0.190	23	0
27	1,2-Dibromoethane	38.40					0
28	Tetrachloroethene	246.49					0
29	Chlorobenzene	98.34					0
30	Ethyl benzene	984.28	0.260	0.224	0.170	5	0
31	m + p-Xylene	984.28	0.540	0.540	0.540	1	0
32	Styrene	492.36	0.390	0.353	0.310	4	0
33	1,1,2,2-Tetrachloroethane	9.89					0
34	o-Xylene	984.28	0.330	0.243	0.160	4	0
35	Ethyltoluene		0.390	0.390	0.390	1	0
36	1,3,5-Trimethylbenzene						0
37	1,2,4-Trimethylbenzene		0.450	0.450	0.450	1	0
38	1,3-Dichlorobenzene						0
39	1,4-Dichlorobenzene	98.19					0
40	1,2-Dichlorobenzene	245.47					0
41	1,2,4-Trichlorobenzene	49.05					0
42	Hexachlorobutadiene	0.19					0

**2008 Statistical Summary - Stationary Site Air Toxics Monitoring Data (24 Hour Average)**

Sheffield Elementary School

13333 Lanier Road

Site ID#

0077

Data Starting Date:

01/01/08

Data Ending Date:

11/26/08

Number of Samples:

44

\* FARC is the Florida Ambient Reference Concentration (FARC)

\*MAX is the maximum concentration recorded at this site

\*AVG is the average of all concentrations recorded at this site

\*MIN is the minimum concentration recorded at this site

\* Count is the # of samples in which the compound is found

\*# EXC indicates the number of exceedances of the FARC

\* All concentrations are in parts per billion by volume (ppbv)

<b>LAB#</b>	<b>COMPOUND</b>	<b>FARC</b>	<b>MAX</b>	<b>AVG</b>	<b>MIN</b>	<b>Count</b>	<b>#EXC</b>
1	Dichlorodifluoromethane-F12	9842.68	0.840	0.493	0.310	44	0
2	Chloromethane	490.81	1.070	0.702	0.420	44	0
3	1,1,2-Trichloro-1,2,2-trifluoroethane-F114	9752.01					0
4	Vinyl chloride	50.04					0
5	1,3-Butadiene						0
6	Bromomethane	48.13					0
7	Chloroethane	9847.26					0
8	Trichloromonofluoromethane-F11	9801.53	0.350	0.225	0.130	34	0
9	Acrylonitrile						0
10	1,1-Dichloroethene	49.62					0
11	Dichloromethane	492.69					0
12	3-Chloropropene						0
13	1,2-Dichloro-1,1,2,2-tetrafluoroethane-F113	9832.63					0
14	1,1-Dichloroethane	972.30					0
15	cis-1,2-Dichloroethene						0
16	Chloroform	98.70					0
17	1,2-Dichloroethane	97.23					0
18	1,1,1-Trichloroethane	3425.27					0
19	Benzene	9.25	0.330	0.211	0.130	15	0
20	Carbon Tetrachloride	48.46	0.150	0.137	0.120	3	0
21	1,2-Dichloropropane	738.87					0
22	Trichloroethene	492.33					0
23	cis-1,3-Dichloropropene						0
24	trans-1,3-Dichloropropene						0
25	1,1,2-Trichloroethane	99.15					0
26	Toluene	491.25	1.340	0.512	0.270	39	0
27	1,2-Dibromoethane	38.40					0
28	Tetrachloroethene	246.49					0
29	Chlorobenzene	98.34					0
30	Ethyl benzene	984.28	0.370	0.218	0.120	17	0
31	m + p-Xylene	984.28	0.840	0.513	0.130	7	0
32	Styrene	492.36	0.410	0.321	0.210	10	0
33	1,1,2,2-Tetrachloroethane	9.89					0
34	o-Xylene	984.28					0
35	Ethyltoluene		0.42	0.255	0.14	8	0
36	1,3,5-Trimethylbenzene		0.32	0.242	0.14	5	0
37	1,2,4-Trimethylbenzene		0.4	0.291	0.17	10	0
38	1,3-Dichlorobenzene						0
39	1,4-Dichlorobenzene	98.19					0
40	1,2-Dichlorobenzene	245.47					0
41	1,2,4-Trichlorobenzene	49.05					0
42	Hexachlorobutadiene	0.19					0

**2008 Statistical Summary - Stationary Site Air Toxics Monitoring Data (24 Hour Average)**

Southside Playground

1605 Minerva Avenue

Site ID#

0080

Data Starting Date:

01/01/08

Data Ending Date:

12/20/08

Number of Samples:

50

\* FARC is the Florida Ambient Reference Concentration (FARC)

\*MAX is the maximum concentration recorded at this site

\*AVG is the average of all concentrations recorded at this site

\*MIN is the minimum concentration recorded at this site

\* Count is the # of samples in which the compound is found

\*# EXC indicates the number of exceedances of the FARC

\* All concentrations are in parts per billion by volume (ppbv)

<b>LAB#</b>	<b>COMPOUND</b>	<b>FARC</b>	<b>MAX</b>	<b>AVG</b>	<b>MIN</b>	<b>Count</b>	<b>#EXC</b>
1	Dichlorodifluoromethane-F12	9842.68	0.940	0.539	0.310	50	0
2	Chloromethane	490.81	1.980	0.994	0.560	50	0
3	1,1,2-Trichloro-1,2,2-trifluoroethane-F114	9752.01					0
4	Vinyl chloride	50.04					0
5	1,3-Butadiene		1.450	0.620	0.230	6	0
6	Bromomethane	48.13					0
7	Chloroethane	9847.26					0
8	Trichloromonofluoromethane-F11	9801.53	0.460	0.233	0.130	41	0
9	Acrylonitrile		0.610	0.610	0.610	1	0
10	1,1-Dichloroethene	49.62					0
11	Dichloromethane	492.69					0
12	3-Chloropropene						0
13	1,2-Dichloro-1,1,2,2-tetrafluoroethane-F113	9832.63					0
14	1,1-Dichloroethane	972.30					0
15	cis-1,2-Dichloroethene						0
16	Chloroform	98.70					0
17	1,2-Dichloroethane	97.23					0
18	1,1,1-Trichloroethane	3425.27					0
19	Benzene	9.25	2.290	0.425	0.160	19	0
20	Carbon Tetrachloride	48.46	0.140	0.130	0.120	2	0
21	1,2-Dichloropropane	738.87					0
22	Trichloroethene	492.33	0.180	0.180	0.180	1	0
23	cis-1,3-Dichloropropene						0
24	trans-1,3-Dichloropropene						0
25	1,1,2-Trichloroethane	99.15					0
26	Toluene	491.25	14.500	0.852	0.240	49	0
27	1,2-Dibromoethane	38.40					0
28	Tetrachloroethene	246.49					0
29	Chlorobenzene	98.34					0
30	Ethyl benzene	984.28	1.920	0.310	0.110	22	0
31	m + p-Xylene	984.28	8.430	1.172	0.310	13	0
32	Styrene	492.36	0.400	0.260	0.140	9	0
33	1,1,2,2-Tetrachloroethane	9.89					0
34	o-Xylene	984.28	2.310	0.392	0.130	17	0
35	Ethyltoluene		1.520	0.398	0.170	13	0
36	1,3,5-Trimethylbenzene		1.670	0.590	0.170	4	0
37	1,2,4-Trimethylbenzene		4.450	0.514	0.160	25	0
38	1,3-Dichlorobenzene						0
39	1,4-Dichlorobenzene	98.19					0
40	1,2-Dichlorobenzene	245.47					0
41	1,2,4-Trichlorobenzene	49.05					0
42	Hexachlorobutadiene	0.19					0

**2008 Statistical Summary - Stationary Site Air Toxics Monitoring Data (24 Hour Average)**

Kooker Park

2900 Bennett Street

Site ID# 0032

Data Starting Date: 01/01/08

Data Ending Date: 11/20/08

Number of Samples: 74

\* FARC is the Florida Ambient Reference Concentration (FARC)

\*MAX is the maximum concentration recorded at this site

\*AVG is the average of all concentrations recorded at this site

\*MIN is the minimum concentration recorded at this site

\* Count is the # of samples in which the compound is found

\*# EXC indicates the number of exceedances of the FARC

\* All concentrations are in parts per billion by volume (ppbv)

<u>LAB#</u>	<u>COMPOUND</u>	<u>FARC</u>	<u>MAX</u>	<u>AVG</u>	<u>MIN</u>	<u>Count</u>	<u>#EXC</u>
1	Dichlorodifluoromethane-F12	9842.68	0.860	0.501	0.081	74	0
2	Chloromethane	490.81	1.170	0.640	0.360	74	0
3	1,1,2-Trichloro-1,2,2-trifluoroethane-F114	9752.01					0
4	Vinyl chloride	50.04					0
5	1,3-Butadiene		0.320	0.203	0.170	4	0
6	Bromomethane	48.13					0
7	Chloroethane	9847.26					0
8	Trichloromonofluoromethane-F11	9801.53	0.470	0.245	0.130	55	0
9	Acrylonitrile						0
10	1,1-Dichloroethene	49.62					0
11	Dichloromethane	492.69					0
12	3-Chloropropene						0
13	1,2-Dichloro-1,1,2,2-tetrafluoroethane-F113	9832.63					0
14	1,1-Dichloroethane	972.30					0
15	cis-1,2-Dichloroethene						0
16	Chloroform	98.70					0
17	1,2-Dichloroethane	97.23					0
18	1,1,1-Trichloroethane	3425.27					0
19	Benzene	9.25	1.020	0.320	0.160	41	0
20	Carbon Tetrachloride	48.46	0.150	0.150	0.150	1	0
21	1,2-Dichloropropane	738.87					0
22	Trichloroethene	492.33					0
23	cis-1,3-Dichloropropene						0
24	trans-1,3-Dichloropropene						0
25	1,1,2-Trichloroethane	99.15	2.930	0.749	0.140	34	0
26	Toluene	491.25	3.750	0.815	0.260	35	0
27	1,2-Dibromoethane	38.40					0
29	Chlorobenzene	98.34	0.470	0.238	0.120	18	0
30	Ethyl benzene	984.28	1.270	0.526	0.130	23	0
31	m + p-Xylene	984.28	1.590	0.610	0.220	11	0
32	Styrene	492.36	0.540	0.447	0.310	3	0
33	1,1,2,2-Tetrachloroethane		0.510	0.307	0.130	10	0
34	o-Xylene	984.28	0.580	0.325	0.140	17	0
35	Ethyltoluene		0.520	0.388	0.270	6	0
36	1,3,5-Trimethylbenzene		0.510	0.289	0.190	14	0
37	1,2,4-Trimethylbenzene		0.590	0.354	0.190	26	0
38	1,3-Dichlorobenzene						0
39	1,4-Dichlorobenzene	98.19	0.140	0.140	0.140	1	0
	Benzyl Chloride						0
40	1,2-Dichlorobenzene	245.47					0
41	1,2,4-Trichlorobenzene	49.05					0

