2006 Annual Air Toxics Report

April 12, 2007

CITY OF JACKSONVILLE
ENVIRONMENTAL RESOURCE MANAGEMENT DEPARTMENT
ENVIRONMENTAL QUALITY DIVISION
117 WEST DUVAL STREET
SUITE 225
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 the data. 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.

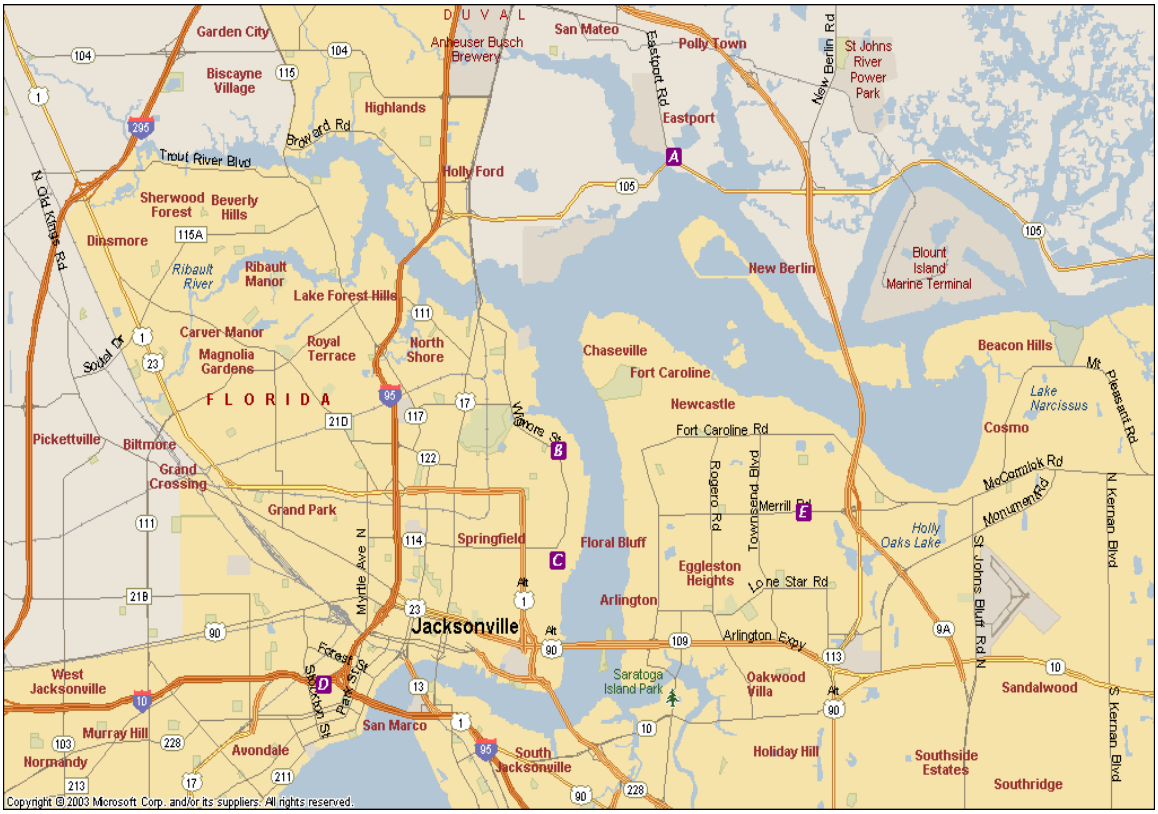
Air Toxic Monitoring – Mobile Laboratory

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 2006 the mobile laboratory collected samples at three mobile laboratory monitoring sites. A statistical summary of the 2006 mobile lab data is presented in Table 1. The pollutant with the highest concentration detected is xylene and the second highest concentration is 1,2,4-Trimethylbenzene. Other pollutants found with high concentrations include ethyl benzene and toluene. Also a benzene concentration above health benchmarks was found. 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. 2006 Statistical Summary - Mobile Laboratory Air Toxics Monitoring Data (4 Hour Average)

Data Starting Date: **03/27/06**
Data Ending Date: **12/23/06**
Number of Samples: **202**

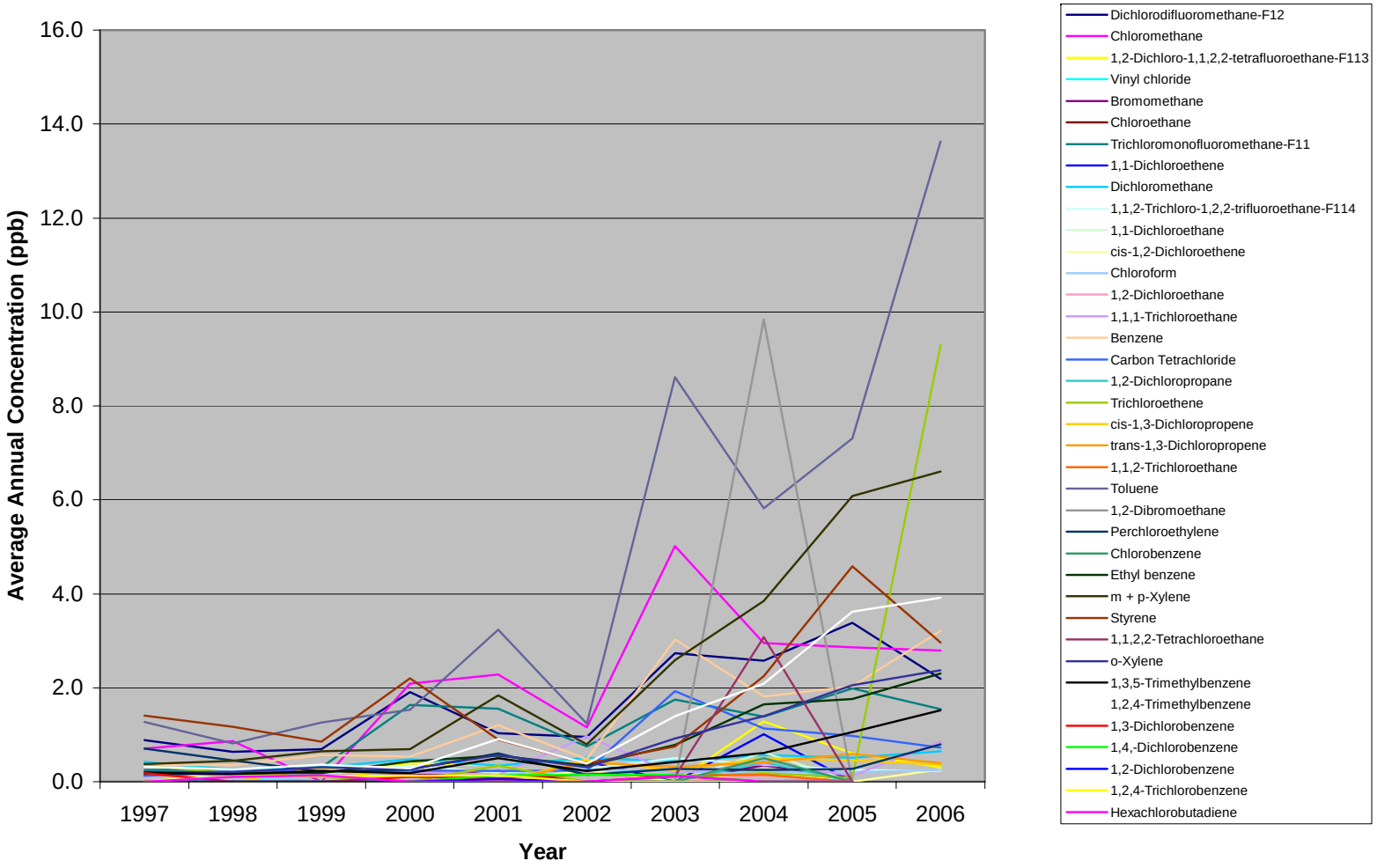
* FARC is the Florida Ambient Reference Concentration (FARC)
*MAX is the maximum concentration recorded at this site
*AVG is the average of all concentrations recorded at this site
*MIN is the minimum concentration recorded at this site
* Count is the # of samples in which the compound is found
*# EXC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

LAB#	COMPOUND	FARC	MAX	AVG	MIN	Count	#EXC
1	**Dichlorodifluoromethane-F12**	9842.68	8.313	2.190	0.140	200	0
2	**Chloromethane**	490.81	8.250	2.792	0.300	202	0
3	**1,1,2-Trichloro-1,2,2-trifluoroethane-F114**	9752.01	0.230	0.230	0.230	1	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	3.310	1.539	0.440	199	0
9	**Acrylonitrile**						0
10	**1,1-Dichloroethene**	49.62					0
11	**Dichloromethane**	492.69	3.180	0.651	0.125	80	0
12	**3-Chloropropene**						0
13	**1,2-Dichloro-1,1,2,2-tetrafluoroethane-F113**	9832.63	1.000	0.308	0.100	75	0
14	**1,1-Dichloroethane**	972.30					0
15	**cis-1,2-Dichloroethene**		0.260	0.260	0.260	1	0
16	**Chloroform**	98.70	0.450	0.247	0.140	26	0
17	**1,2-Dichloroethane**	97.23					0
18	**1,1,1-Trichloroethane**	3425.27	4.000	0.849	0.100	9	0
19	**Benzene**	9.25	11.670	3.213	0.300	200	1
20	**Carbon Tetrachloride**	48.46	2.370	0.725	0.100	139	0
21	**1,2-Dichloropropane**	738.87					0
22	**Trichloroethene**	492.33	9.290	9.290	9.290	1	0
23	**cis-1,3-Dichloropropene**		0.480	0.362	0.230	5	0
24	**trans-1,3-Dichloropropene**		0.550	0.392	0.170	6	0
25	**1,1,2-Trichloroethane**	99.15					0
26	**Toluene**	491.25	69.490	13.631	0.300	202	0
27	**1,2-Dibromoethane**	38.40					0
28	**Tetrachloroethene**	246.49	10.540	0.794	0.120	19	0
29	**Chlorobenzene**	98.34					0
30	**Ethyl benzene**	984.28	58.900	2.299	0.075	155	0
31	**m + p-Xylene**	984.28	74.225	6.606	1.010	196	0
32	**Styrene**	492.36	32.460	2.958	1.330	172	0
33	**1,1,2,2-Tetrachloroethane**	9.89					0
34	**o-Xylene**	984.28	28.400	2.367	0.150	139	0
35	**Ethyltoluene**		19.225	1.349	0.220	104	0
36	**1,3,5-Trimethylbenzene**		22.750	1.515	0.140	116	0
37	**1,2,4-Trimethylbenzene**		72.475	3.916	0.125	172	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

The average annual concentrations of each pollutant per year from 1997 through 2006 monitored by the mobile laboratory are compared in Figure 2 to determine if pollutant concentrations are following any particular trend. Elevated average annual concentrations for several pollutants can be observed from the year 2000 through 2006. These pollutants include toluene, chloromethane, styrene, xylene and several others. The sample collection period has changed over the years since monitoring began. In 2000, the sample collection period was changed from eight hours to four hours and at the end of 2006 the sampling period was changed to twenty-four hours. These changes in the duration of the sample could affect the annual average of all pollutants, however concentration increases for several pollutants continues through 2006. This indicates factors other than a change in sample collection periods have caused an increase in emissions for several pollutants. For example, the increase in emissions beyond 2000 may also be due to the locations visited by the mobile laboratory in these years. Prior to 2000, the mobile laboratory was located in mostly suburban neighborhoods to establish background data and to determine concentrations which citizens may be exposed to in the vicinity of their homes. This may account for some of the lower concentrations recorded in those years. After 2000, the mobile laboratory was located at several heavily industrialized or high vehicle traffic areas. Also meteorology or changes in analytical procedures in sample analysis may play a part in increasing trends shown in the data. Because the mobile laboratory visits many different locations at varying seasons of the year, many variables can affect the data. In 2002 many pollutant concentrations appear to decrease but in 2003 to 2006 the average annual concentrations for many pollutants again appears to be on the rise. These variations in the annual average emissions are being investigated further.

Two-hundred-two samples were collected in 2006 using the mobile monitoring laboratory. Twenty-three of the forty-two pollutants were found. Six pollutants were present in ninety percent of the samples collected. These pollutants include toluene, benzene, chloromethane, xylene, and two chlorofluorocarbons (freon 11 and 12). Both chloromethane and toluene were found in all of the samples collected. The 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. Benzene and toluene are generally emitted from the evaporation or combustion of gasoline and other petroleum products. One sample collected at JEA Liftstation #25 contained benzene concentrations above health benchmarks. This monitoring site is located in the vicinity of several bulk gasoline terminals. Concentrations of benzene are being studied further due to prior exceedances of health benchmarks in 2003/2004, and higher annual averages in recent years. Benzene is a carcinogen with both cancer and non-cancer health effects. According to the 2002 Hazardous Air Pollutant emission inventory prepared by EQD, mobile sources contribute 70% of the benzene emissions in Jacksonville. Other sources of benzene emissions include evaporative emissions. Although mobile sources have been determined to be a significant contributor to benzene emissions in Jacksonville, other factors may also contribute to high monitored concentrations of benzene such as evaporative emissions from bulk gasoline terminals and gasoline service stations. Benzene concentrations and trends will continue to be studied in the future.

Figure 2. Mobile Laboratory Air Toxics Monitoring Sites
Average Annual Concentration Per Year Per Pollutant (1997-2006)



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 3. 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 2006 stationary site data is presented in Table 2. Data for each of the five individual stationary monitoring sites can be found in Appendix B. Two-hundred-fifty-seven samples were collected in 2006 from the stationary monitoring sites. Data was obtained for twenty-one pollutants. The pollutant with the highest concentration found was 1,2,4-trimethylbenzene. The pollutant with the second highest concentration was xylene. Six pollutants were found in ninety percent of the samples. These pollutants include: freon 11 & 12, benzene, toluene, xylene and 1,2,4-trimethylbenezene. None of the pollutants were found in all of the samples collected.

Figure 4 compares the average annual concentrations for each pollutant from 1999 through 2006. Annual averages for the majority of the pollutants increased from 2003 and 2006. Pollutants with the highest annual averages include: toluene, dichloromethane, freon 12 and xylene. The graph indicates the annual average concentration for benzene decreased in 2005 and 2006; however it is still high in comparison to many other pollutants and to earlier benzene concentrations. Although the annual average concentration of toluene has decreased in 2005 and 2006, it is still the highest of all pollutants monitored. Annual averages for several pollutants decreased from 1999 to 2000, increased in 2001, decreased in 2002 and then increased again in 2003. Freon 12 decreased significantly from 1999 to 2000 but then continues to increase from 2003 through 2005. All of the monitored pollutants show an increased annual average for 2003 and many continue to increase through 2005.

Table 2. 2006 Statistical Summary - Stationary Site Air Toxics Monitoring Data (24 Hour Average)

Data Starting Date: **01/05/06**
Data Ending Date: **12/31/06**
Number of Samples: **257**

* 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)

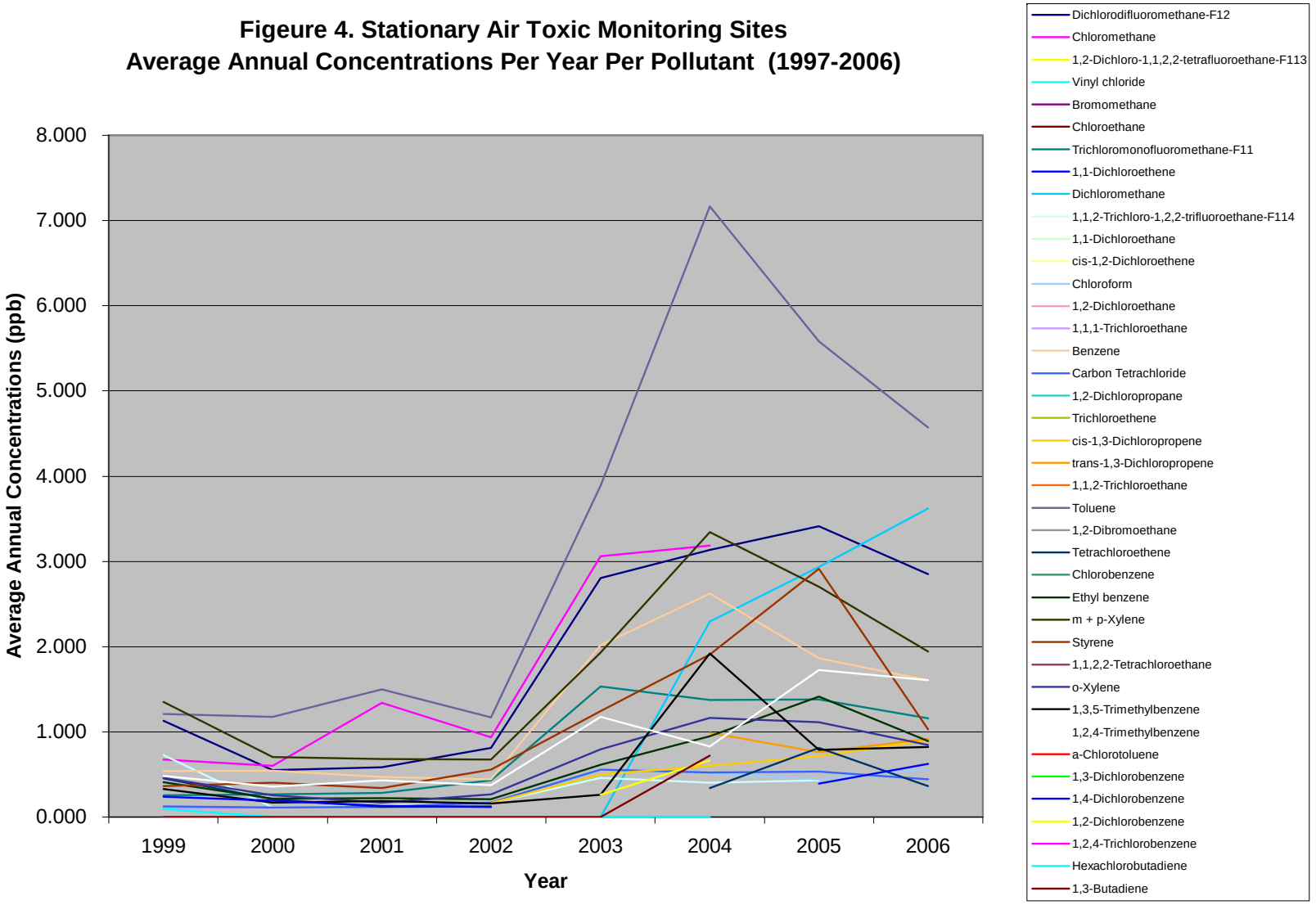
LAB#	COMPOUND	FARC	MAX	AVG	MIN	Count	#EXC
1	**Dichlorodifluoromethane-F12**	9842.68	5.100	2.850	0.333	246	0
2	**Chloromethane**	490.81					0
3	**1,1,2-Trichloro-1,2,2-trifluoroethane-F114**	9752.01					0
4	**Vinyl chloride**	50.04					0
5	**1,3-Butadiene**		2.110	1.104	0.750	5	0
6	**Bromomethane**	48.13					0
7	**Chloroethane**	9847.26	2.190	1.580	1.520	3	0
8	**Trichloromonofluoromethane-F11**	9801.53	1.940	1.159	0.059	254	0
9	**Acrylonitrile**						0
10	**1,1-Dichloroethene**	49.62					0
11	**Dichloromethane**	492.69	11.200	3.623	0.630	10	0
12	**3-Chloropropene**						0
13	**1,2-Dichloro-1,1,2,2-tetrafluoroethane-F113**	9832.63	2.580	0.385	0.200	136	0
14	**1,1-Dichloroethane**	972.30					0
15	**cis-1,2-Dichloroethene**						0
16	**Chloroform**	98.70	0.560	0.560	0.560	1	0
17	**1,2-Dichloroethane**	97.23					0
18	**1,1,1-Trichloroethane**	3425.27					0
19	**Benzene**	9.25	8.960	1.607	0.330	252	0
20	**Carbon Tetrachloride**	48.46	2.000	0.442	0.200	224	0
21	**1,2-Dichloropropane**	738.87					0
22	**Trichloroethene**	492.33					0
23	**cis-1,3-Dichloropropene**		0.900	0.900	0.900	1	0
24	**trans-1,3-Dichloropropene**		0.920	0.920	0.920	1	0
25	**1,1,2-Trichloroethane**	99.15					0
26	**Toluene**	491.25	23.500	4.571	0.370	253	0
27	**1,2-Dibromoethane**	38.40					0
28	**Tetrachloroethene**	246.49	1.900	0.363	0.210	18	0
29	**Chlorobenzene**	98.34					0
30	**Ethyl benzene**	984.28	8.760	0.893	0.240	227	0
31	**m + p-Xylene**	984.28	30.200	1.941	0.260	242	0
32	**Styrene**	492.36	4.880	1.027	0.360	165	0
33	**1,1,2,2-Tetrachloroethane**	9.89					0
34	**o-Xylene**	984.28	6.640	0.845	0.250	225	0
35	**Ethyltoluene**		19.200	1.138	0.230	206	0
36	**1,3,5-Trimethylbenzene**		7.480	0.821	0.240	77	0
37	**1,2,4-Trimethylbenzene**		41.800	1.606	0.280	233	0
38	**1,3-Dichlorobenzene**						0
39	**1,4-Dichlorobenzene**	98.19	1.240	0.627	0.240	12	0
40	**1,2-Dichlorobenzene**	245.47					0
41	**1,2,4-Trichlorobenzene**	49.05					0
42	**Hexachlorobutadiene**	0.19					0

Figure 3. 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

As with the mobile laboratory, certain pollutants continue to be present in the majority of samples collected at the stationary sites. Eight pollutants were present in the majority of the samples at both the stationary and mobile monitoring sites. These pollutants are: freon 11 & 12, benzene, carbon tetrachloride, toluene, 1,2,4-trimethylbenzene, xylene and ethyl benzene. In 2001 ethyl benzene began appearing in many of the samples and in 2002 carbon tetrachloride began appearing. As indicated previously, toluene, benzene, ethyl benzene and xylene are products of evaporation or combustion from gasoline and other petroleum based fuels. Freon 11& 12 are chloroflurocarbons emitted by air-conditioning and refrigeration systems. Despite phase-out of chloroflurocarbons, concentrations are expected to remain high due to their long tropospheric lifetime.

Figeure 4. Stationary Air Toxic Monitoring Sites
Average Annual Concentrations Per Year Per Pollutant (1997-2006)



HAP Emissions Inventory

EQD conducts emission inventories for Hazardous Air Pollutants (HAPs) every three years. Emissions are generally calculated for point, area and mobile sources. The most recent inventory conducted was a 2005 point source inventory. Since Jacksonville is currently meeting all of the federal ambient air quality standards, extensive inventories are no longer required. Point sources are large industrial facilities that emit over one hundred tons per year of criteria pollutant emissions. 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 completed a 2005 point source HAP emissions inventory for the 188 pollutants on EPA's HAP list. Previous HAP inventories have been completed for the years 1997, 2000 and 2002. A summary of the top ten pollutants from the 2005 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. The inventory has been used to determine the origin of HAPs found from air monitoring. Ten of the pollutants found at air toxics monitoring sites were analyzed further by EQD using emission inventory data in a study called "The Ten Pollutant Study in Jacksonville, Florida" and can be found on the web at: http://www.epa.gov/ttn/chief/conference/ei13/toxics/tilley.pdf.

Table 3. 2005 HAP Point Source Emission Inventory - Top Ten HAPs (lbs/year)

HAP	LBS
hydrogen chloride (HCl)	4,878,046
Hydrogen fluoride (HF)	608,776
hexane	421,105
mercury	179,647
toluene	73,568
xylenes	71,084
styrene	54,045
chromium	35,699
formaldehyde	35,646
glycol ethers	28,493

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

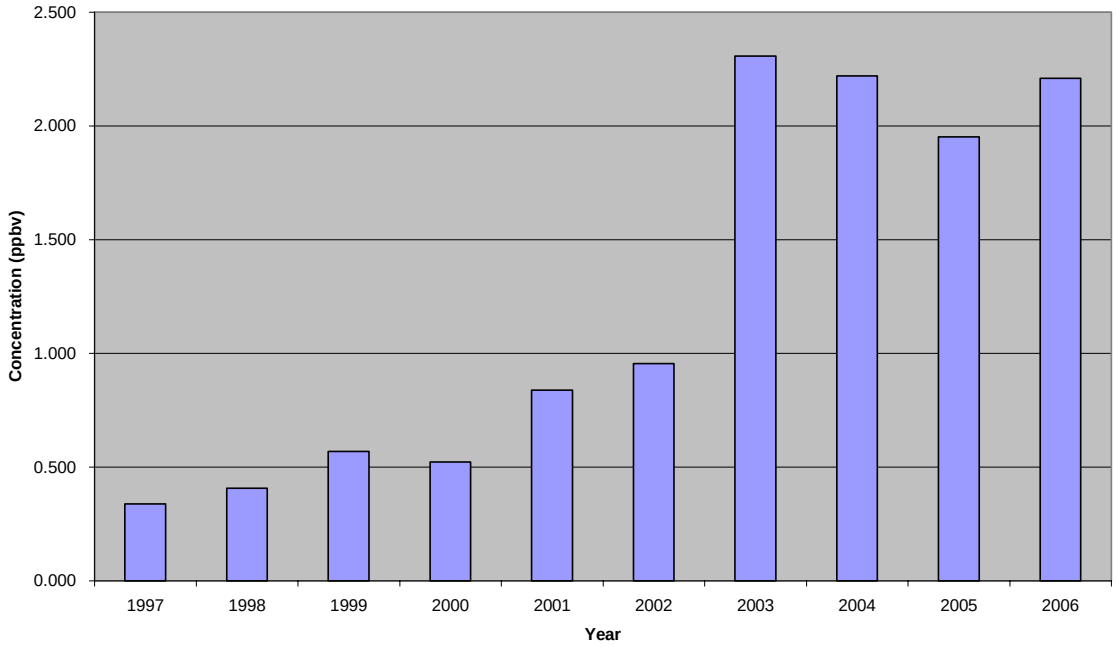
Benzene Concentrations at Air Toxics Monitoring Sites

In 2003 and future years a large increase in the annual average concentration of many of the monitored pollutants was observed. Of particular interest was an increase in the concentrations of benzene. Benzene concentrations above health benchmarks were found at two mobile laboratory air toxic monitoring sites in 2003, one mobile laboratory site and one stationary site in 2004 and one mobile laboratory site in 2006. In 2003 the sites with concentrations above health benchmarks were the Merrill Road Substation in Arlington and the Eastport Road Substation, north of town. In 2004 the sites with exceedances were JEA Lift Station #39 (a mobile laboratory site) and Kooker Park (a stationary site), both located in an industrial area. In 2006 another concentration above the health benchmark was recorded for benzene at JEA Lift Station #39. At

the Merrill Road site in 2003, 304 samples were collected from September to December. Twenty-two of these samples were above the health benchmark of 9.25 ppb for benzene. At the Eastport Road site 91 samples were collected in March of 2003 with one sample above the health benchmark. In 2004 at JEA Lift Station #39, 215 samples were collected from January through March. Eight samples included concentrations above benzene health benchmarks. At the Kooker Park site one 24 hour sample was collected in April of 2004 with a concentration above the benzene health benchmark. In 2006 one 24 hour sample was collected at JEA Lift Station #39 in December with a concentration above the benzene health benchmark. The samples containing high benzene concentrations also contain high toluene and xylene concentrations. Most of the high concentration samples were collected in the early morning and on a weekday. The majority of these samples were not collected during peak morning or afternoon commuter traffic.

Benzene annual average concentrations found from air toxics monitoring have increased over the years. Figure 5 shows the average benzene concentrations per year from 1997 through 2006. The graph indicates benzene concentrations are increasing with the largest increases from 2002 to 2003. In 2004 the annual average decreases slightly and shows further decline in 2005 but increases again in 2006. Benzene concentrations above health benchmarks were not found in 2005.

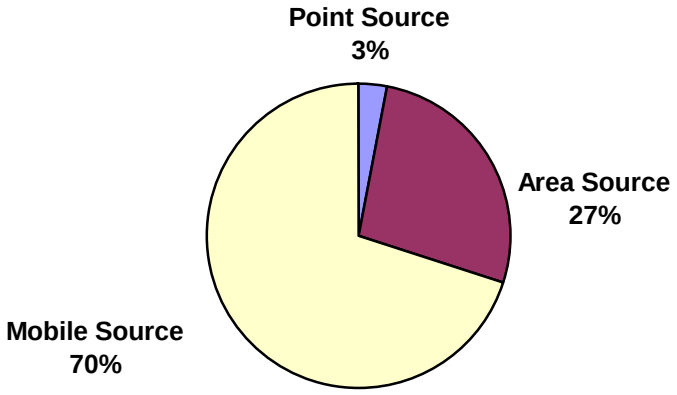
Figure 5. Jacksonville Air Toxics Monitoring Data
Benzene Annual Averages (1997-2006)



Emission inventory data indicates the majority of benzene emissions (70%) are from mobile sources. Past inventories indicate the majority of benzene emissions from mobile sources were from on road vehicles. The 2002 inventory which uses a newer version of the MOBILE model (MOBILE 6.2) for estimating emissions of on road vehicles indicates the majority of mobile source benzene emissions are from non-road sources such as heavy construction equipment and lawn equipment. MOBILE 6.2 includes new emission estimates, which take into consideration federal tailpipe emission standards, restricting the amount of air toxics emitted from vehicle exhaust. Benzene emissions from area sources are estimated at 27% and 3% from point sources see Figure 6. Types of point and area sources emitting benzene include coal combustion,

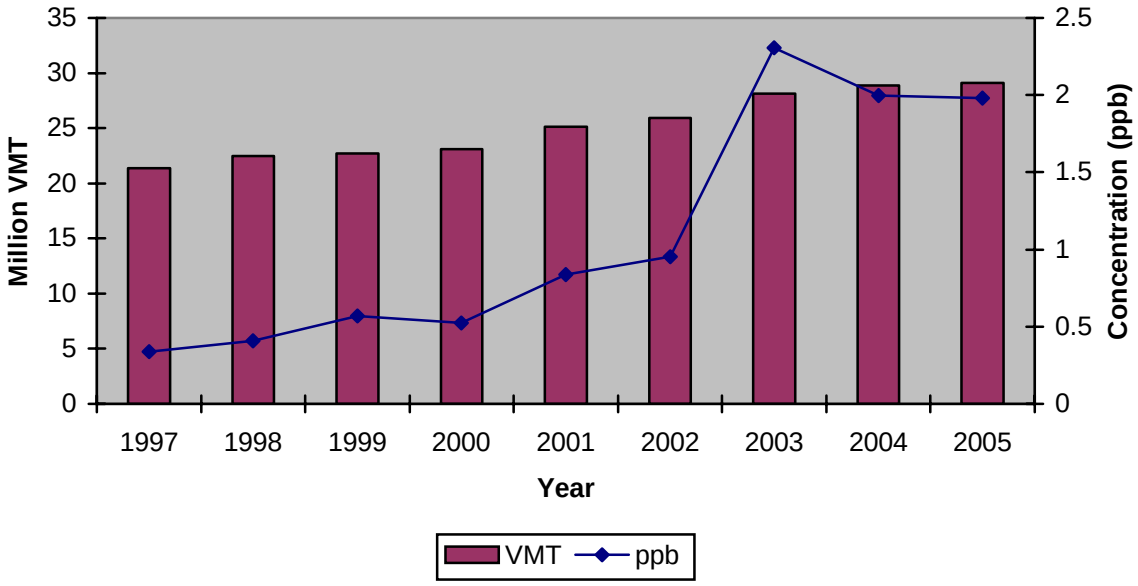
petroleum product storage, prescribed burning, gasoline evaporation, aircraft refueling, degreasing, surface coating and residential wood burning such as in fireplaces.

Figure 6. 2002 Jacksonville HAP Inventory Benzene Emissions



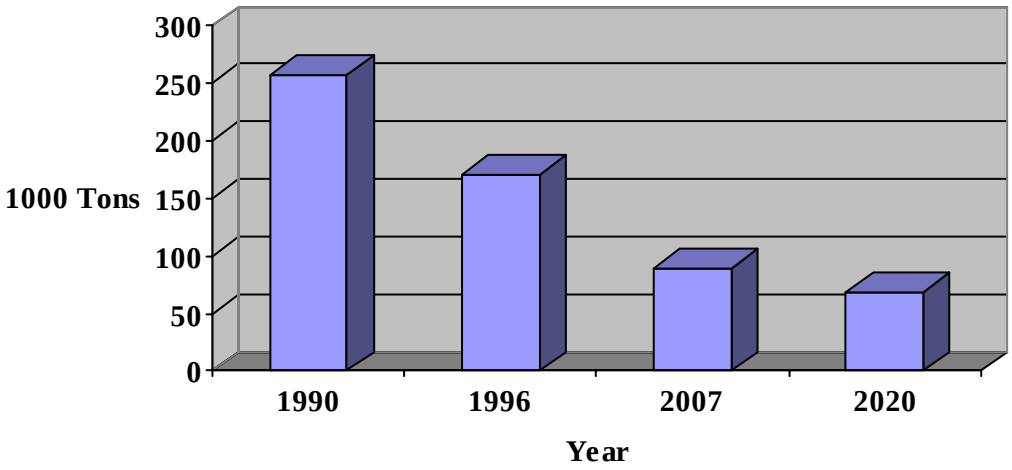
The average annual concentrations of benzene were compared with vehicle miles traveled (VMT) in Figure 7. This graph indicates from 1997 to 2005 VMT steadily increases. Benzene concentrations also increase but not at the same rate as VMT. Annual average concentrations of benzene increase dramatically in 2003. VMT does not show the same rate of increase for that year which indicates factors other than on road vehicles are causing increases in benzene concentrations.

Figure 7. Jacksonville Average Annual Benzene Concentrations Per Year VS VMT



Current programs to control benzene emissions include volatile organic compound (VOC) Reasonable Available Control Technology (RACT) rules such as those for Stage I Vapor Recovery, bulk gasoline terminals and surface coating operations. Maximum Achievable Control Technology (MACT) rules for HAPs also are currently reducing emissions from gasoline distribution, surface coating and fuel combustion sources. Other rules, which will decrease benzene emissions in the future, include Onboard Refueling Vapor Recovery (ORVR) requirements. ORVR requirements were phased in starting in 1998 to 2000 requiring new cars to have controls that will reduce VOC and HAP emissions from vehicle refueling at gasoline service stations but the full effect of these rules is not expected until 2020. Ninety-five percent of VOC emissions will be captured when the rule becomes fully effective. Additional mobile source programs, which will reduce benzene emissions, are the National Low Emission Vehicle (NLEV) program, Tier 2 Motor Vehicle Emissions Standards and Gasoline Sulfur Control Requirements, Gasoline Toxic Emission Performance Requirements (TPR) and 2007 Heavy-Duty Fuel Sulfur Control Requirements. NLEV introduced in the late 1990's, reduces vehicle tailpipe emissions. Tier 2 Standards, which will also reduce benzene exhaust emissions, were phased in starting in 2004 and apply the same set of emission standards to passenger vehicles, light trucks and small SUVs. Tier 2 will also set more stringent evaporative emission standards for motor vehicles. TPR is a fuel-based control, which requires refiners to maintain their average 1998-2000 gasoline toxic emission performance levels. The 2007 Heavy Duty Vehicle Standards were established in 2000 and will significantly reduce emissions of particulate matter, nitrous oxide & hydrocarbons. All of these programs when fully implemented in 2020 are expected to reduce benzene emissions by 73% nationwide from 1990 levels as indicated in Figure 8. Benzene emissions account for 70% of the air toxic emissions from motor vehicles.

Figure 8. Projected National On-Road Vehicle Benzene Emissions



EQD has not identified an explanation for increased benzene concentrations in Jacksonville. Although the annual average concentration for benzene in 2006 is higher then averages found in earlier years of monitoring, concentrations seem to be on the decline from those found in 2003 and 2004. EQD will continue to monitor for air toxics, develop trend analyses for benzene emissions and other air toxics. Also EQD is evaluating sampling and analysis methodologies.

Changes in analytical equipment and the purchase of new standards used at the EQD could account for variations in benzene concentrations. Air toxics monitoring methods have been found to be inconsistent amongst regulatory agencies. Quality assurance and quality control requirements are currently being reevaluated. EQD will determine if changes in procedure or equipment may have caused an increase in sample concentrations for 2003 thru 2006.

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 2005. Table 4 lists the total TRI air releases per pollutant for Jacksonville/Duval County for 2005.

Table 4. 2005 Jacksonville Toxic Release Inventory (TRI) Data

Chemical	Total Air Emissions (lbs)
1,2,4-TRIMETHYLBENZENE	2,210
ALUMINUM (FUME OR DUST)	1,253
AMMONIA	101,923
ANTIMONY COMPOUNDS	750
ARSENIC COMPOUNDS	250
BARIUM COMPOUNDS	3,524
BENZENE	2,117
BENZO(G,H,I)PERYLENE	1
CADMIUM COMPOUNDS	100
CERTAIN GLYCOL ETHERS	48,194
CHLORINE	4
CHROMIUM COMPOUNDS	646
COBALT COMPOUNDS	250
COPPER COMPOUNDS	4,235
DICYCLOPENTADIENE	598
DIISOCYANATES	272
DIOXIN COMPOUNDS	5.95E-02
ETHYLBENZENE	376
ETHYLENE	1,965
ETHYLENE GLYCOL	100
HYDROCHLORIC ACID	2,527,888
HYDROGEN FLUORIDE	85,013
LEAD	132
LEAD COMPOUNDS	2,522
MALEIC ANHYDRIDE	299
MANGANESE COMPOUNDS	2,980
MERCURY COMPOUNDS	372
METHANOL	255
METHYL TERT-BUTYL ETHER	2,821
MOLYBDENUM TRIOXIDE	250
N-BUTYL ALCOHOL	71,747
N-HEXANE	10,887
NAPHTHALENE	160
NICKEL	5
NICKEL COMPOUNDS	7,275
PHTHALIC ANHYDRIDE	196
POLYCYCLIC AROMATIC COMPOUNDS	33
STYRENE	50,587
SULFURIC ACID	1,800,000
THALLIUM COMPOUNDS	250
TOLUENE	10,042
VANADIUM COMPOUNDS	9,882
XYLENE (MIXED ISOMERS)	4,745
ZINC COMPOUNDS	29,524
Total	**4,786,634**

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. EPA is working to complete the 2005 NEI, which will be available on their website at www.epa.gov/ttn/chief. Currently the 2002 NEI can be found on the website. 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 two such characterizations of the nationwide health risk estimates from inhalation of air toxics; one completed using 1996 data and the other using 1999 data. In February 2006, EPA released the results of its national-scale assessment using 1999 data. EPA is working towards updating NATA with 2002 data. The 1999 NATA study and general information about NATA can be found at www.epa.gov/ttn/atw/nata1999.

EQD is also providing local 2006 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.

In 2006, EQD also participated in the “Southeastern Air Toxics Data Analysis” developed by the Southeastern States Air Resources Managers (SESARM) and Sonoma Technology Inc. (STI). This study analyzed ambient air toxics concentrations in the Southeast from 1990 through 2005. A project plan was created by STI with the assistance of the participating agencies which required acquiring, validating and analyzing the air toxics data, and attending an air toxics summit conference to review the results of the study. Visual and statistical data displays of the temporal and spatial variability of air toxics concentrations in the southeastern states were presented, as well as trend analysis, geographic comparisons, and comparison of ambient data to the 1999 National Air Toxics Assessment (NATA99) model predictions. For more information on the study go to the following website: http://www.metro4-sesarm.org/airtoxics.asp#.

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 monitoring data for various correlations and trends. The feasibility of conducting air toxics monitoring for additional HAPs is being reviewed. The pollutant acrolein may be added to the list of monitored pollutants in 2007. EQD is currently updating the Quality Assurance Project Plan (QAPP) required by EPA for air toxics monitoring. EQD will also participate in EPA’s quality assurance Proficiency Testing (PT) sample trading program once per quarter in 2007.

APPENDIX A
Mobile Laboratory Monitoring Site Statistical Summaries

2006 Statistical Summary - Mobile Laboratory Air Toxics Monitoring Data (4 Hour Average)

Merrill Road Substation

7730 Merrill Road

Site ID# **0102**

Data Starting Date: **03/27/06**

Data Ending Date: **05/15/06**

Number of Samples: **160**

* 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)

LAB#	COMPOUND	FARC	MAX	AVG	MIN	Count	#EXC
1	**Dichlorodifluoromethane-F12**	9842.68	8.313	2.115	0.800	160	0
2	**Chloromethane**	490.81	8.250	2.168	0.825	160	0
3	**1,1,2-Trichloro-1,2,2-trifluoroethane-F114**	9752.01				0	0
4	**Vinyl chloride**	50.04				0	0
5	**1,3-Butadiene**					0	0
6	**Bromomethane**	48.13				0	0
7	**Chloroethane**	9847.26				0	0
8	**Trichloromonofluoromethane-F11**	9801.53	2.675	1.171	0.600	158	0
9	**Acrylonitrile**					0	0
10	**1,1-Dichloroethene**	49.62				0	0
11	**Dichloromethane**	492.69	1.825	0.404	0.125	41	0
12	**3-Chloropropene**					0	0
13	**1,2-Dichloro-1,1,2,2-tetrafluoroethane-F113**	9832.63	0.375	0.239	0.100	38	0
14	**1,1-Dichloroethane**	972.30				0	0
15	**cis-1,2-Dichloroethene**					0	0
16	**Chloroform**	98.70	0.450	0.315	0.250	8	0
17	**1,2-Dichloroethane**	97.23				0	0
18	**1,1,1-Trichloroethane**	3425.27	4.000	2.175	0.350	2	0
19	**Benzene**	9.25	7.025	1.650	0.300	158	0
20	**Carbon Tetrachloride**	48.46	0.675	0.394	0.100	97	0
21	**1,2-Dichloropropane**	738.87				0	0
22	**Trichloroethene**	492.33				0	0
23	**cis-1,3-Dichloropropene**					0	0
24	**trans-1,3-Dichloropropene**		0.400	0.400	0.400	1	0
25	**1,1,2-Trichloroethane**	99.15				0	0
26	**Toluene**	491.25	28.925	4.090	0.300	160	0
27	**1,2-Dibromoethane**	38.40				0	0
28	**Tetrachloroethene**	246.49	0.430	0.430	0.430	1	0
29	**Chlorobenzene**	98.34				0	0
30	**Ethyl benzene**	984.28	58.900	1.653	0.075	116	0
31	**m + p-Xylene**	984.28	74.225	2.623	0.000	154	0
32	**Styrene**	492.36	10.525	1.284	0.000	145	0
33	**1,1,2,2-Tetrachloroethane**	9.89				0	0
34	**o-Xylene**	984.28	28.400	1.232	0.150	116	0
35	**Ethyltoluene**		19.225	1.213	0.000	78	0
36	**1,3,5-Trimethylbenzene**		22.750	1.651	0.000	89	0
37	**1,2,4-Trimethylbenzene**		72.475	3.940	0.125	148	0
38	**1,3-Dichlorobenzene**					0	0
39	**1,4-Dichlorobenzene**	98.19				0	0
40	**1,2-Dichlorobenzene**	245.47				0	0
41	**1,2,4-Trichlorobenzene**	49.05				0	0
42	**Hexachlorobutadiene**	0.19				0	0

2006 Statistical Summary - Mobile Laboratory Air Toxics Monitoring Data (4 Hour Average)

Rosselle & Copeland

2195 Rosselle Street

Site ID# **0084**

Data Starting Date: **08/14/06**

Data Ending Date: **09/27/06**

Number of Samples: **15**

* 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)

LAB#	COMPOUND	FARC	MAX	AVG	MIN	Count	#EXC
1	**Dichlorodifluoromethane-F12**	9842.68	6.170	2.142	0.140	13	0
2	**Chloromethane**	490.81	6.530	3.417	0.300	15	0
3	**1,1,2-Trichloro-1,2,2-trifluoroethane-F114**	9752.01	0.230	0.230	0.230	1	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	2.130	1.636	0.620	14	0
9	**Acrylonitrile**						0
10	**1,1-Dichloroethene**	49.62					0
11	**Dichloromethane**	492.69	1.220	0.535	0.240	13	0
12	**3-Chloropropene**						0
13	**1,2-Dichloro-1,1,2,2-tetrafluoroethane-F113**	9832.63	0.430	0.293	0.100	11	0
14	**1,1-Dichloroethane**	972.30					0
15	**cis-1,2-Dichloroethene**		0.260	0.260	0.260	1	0
16	**Chloroform**	98.70	0.250	0.197	0.140	10	0
17	**1,2-Dichloroethane**	97.23					0
18	**1,1,1-Trichloroethane**	3425.27	0.280	0.195	0.110	2	0
19	**Benzene**	9.25	5.940	3.188	1.550	15	0
20	**Carbon Tetrachloride**	48.46	2.370	1.096	0.200	15	0
21	**1,2-Dichloropropane**	738.87					0
22	**Trichloroethene**	492.33	9.290	9.290	9.290	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	20.500	11.347	5.490	15	0
27	**1,2-Dibromoethane**	38.40					0
28	**Tetrachloroethene**	246.49	0.480	0.350	0.210	8	0
29	**Chlorobenzene**	98.34					0
30	**Ethyl benzene**	984.28	4.790	2.073	0.840	15	0
31	**m + p-Xylene**	984.28	14.380	5.765	2.100	15	0
32	**Styrene**	492.36					0
33	**1,1,2,2-Tetrachloroethane**	9.89					0
34	**o-Xylene**	984.28					0
35	**Ethyltoluene**						0
36	**1,3,5-Trimethylbenzene**						0
37	**1,2,4-Trimethylbenzene**						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

2006 Statistical Summary - Mobile Laboratory Air Toxics Monitoring Data (24 Hour Average)

JEA Lift Station #39

1640 Talleyrand Avenue

Site ID# **0101**

Data Starting Date: **10/30/06**

Data Ending Date: **12/23/06**

Number of Samples: **27**

* 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)

LAB#	COMPOUND	FARC	MAX	AVG	MIN	Count	#EXC
1	**Dichlorodifluoromethane-F12**	9842.68	3.820	2.313	0.970	27	0
2	**Chloromethane**	490.81	5.320	2.789	1.140	27	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	3.310	1.809	0.440	27	0
9	**Acrylonitrile**						0
10	**1,1-Dichloroethene**	49.62					0
11	**Dichloromethane**	492.69	3.180	1.014	0.270	26	0
12	**3-Chloropropene**						0
13	**1,2-Dichloro-1,1,2,2-tetrafluoroethane-F113**	9832.63	1.000	0.392	0.120	26	0
14	**1,1-Dichloroethane**	972.30					0
15	**cis-1,2-Dichloroethene**					0	0
16	**Chloroform**	98.70	0.420	0.229	0.140	8	0
17	**1,2-Dichloroethane**	97.23					0
18	**1,1,1-Trichloroethane**	3425.27	0.400	0.176	0.100	5	0
19	**Benzene**	9.25	11.670	4.802	0.800	27	1
20	**Carbon Tetrachloride**	48.46	2.350	0.685	0.170	27	0
21	**1,2-Dichloropropane**	738.87					0
22	**Trichloroethene**	492.33					0
23	**cis-1,3-Dichloropropene**		0.480	0.362	0.230	5	0
24	**trans-1,3-Dichloropropene**		0.550	0.384	0.170	5	0
25	**1,1,2-Trichloroethane**	99.15					0
26	**Toluene**	491.25	69.490	25.455	1.600	27	0
27	**1,2-Dibromoethane**	38.40					0
28	**Tetrachloroethene**	246.49	10.540	1.602	0.120	10	0
29	**Chlorobenzene**	98.34					0
30	**Ethyl benzene**	984.28	7.830	3.173	0.210	24	0
31	**m + p-Xylene**	984.28	30.640	11.429	1.010	27	0
32	**Styrene**	492.36	32.460	4.632	1.330	27	0
33	**1,1,2,2-Tetrachloroethane**	9.89					0
34	**o-Xylene**	984.28	13.240	3.502	0.230	23	0
35	**Ethyltoluene**		5.640	1.484	0.220	26	0
36	**1,3,5-Trimethylbenzene**		4.050	1.379	0.140	27	0
37	**1,2,4-Trimethylbenzene**		11.610	3.892	0.500	24	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

APPENDIX B
Stationary Monitoring Site Statistical Summaries

2006 Statistical Summary - Stationary Site Air Toxics Monitoring Data (24 Hour Average)

Southside Playground

1605 Minerva Avenue

Site ID# **0080**

Data Starting Date: **01/05/06**

Data Ending Date: **12/31/06**

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)

LAB#	COMPOUND	FARC	MAX	AVG	MIN	Count	#EXC
1	**Dichlorodifluoromethane-F12**	9842.68	5.100	2.877	1.580	30	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
5	**1,3-Butadiene**						0
6	**Bromomethane**	48.13					0
7	**Chloroethane**	9847.26	2.190	1.640	1.090	2	0
8	**Trichloromonofluoromethane-F11**	9801.53	1.920	1.099	0.490	37	0
9	**Acrylonitrile**						0
10	**1,1-Dichloroethene**	49.62					0
11	**Dichloromethane**	492.69	1.840	0.960	0.500	3	0
12	**3-Chloropropene**						0
13	**1,2-Dichloro-1,1,2,2-tetrafluoroethane-F113**	9832.63	0.560	0.365	0.220	20	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	6.020	2.188	0.440	35	0
20	**Carbon Tetrachloride**	48.46	0.660	0.406	0.200	33	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	12.300	4.753	1.690	36	0
27	**1,2-Dibromoethane**	38.40					0
28	**Tetrachloroethene**	246.49	0.310	0.260	0.210	2	0
29	**Chlorobenzene**	98.34					0
30	**Ethyl benzene**	984.28	2.820	1.036	0.310	37	0
31	**m + p-Xylene**	984.28	6.200	2.119	0.600	37	0
32	**Styrene**	492.36	2.960	1.157	0.490	34	0
33	**1,1,2,2-Tetrachloroethane**	9.89					0
34	**o-Xylene**	984.28	4.540	1.044	0.310	37	0
35	**Ethyltoluene**		19.200	2.985	0.310	37	0
36	**1,3,5-Trimethylbenzene**		7.480	1.570	0.450	26	0
37	**1,2,4-Trimethylbenzene**		41.800	4.476	0.840	37	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

2006 Statistical Summary - Stationary Site Air Toxics Monitoring Data (24 Hour Average)

Mayo Clinic

13600 WM Davis Parkway

Site ID# **0100**

Data Starting Date: **02/10/06**

Data Ending Date: **12/31/2006**

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)

LAB#	COMPOUND	FARC	MAX	AVG	MIN	Count	#EXC
1	**Dichlorodifluoromethane-F12**	9842.68	4.160	2.858	0.333	45	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
5	**1,3-Butadiene**						0
6	**Bromomethane**	48.13					0
7	**Chloroethane**	9847.26					0
8	**Trichloromonofluoromethane-F11**	9801.53	1.750	1.167	0.111	45	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	0.600	0.358	0.200	26	0
14	**1,1-Dichloroethane**	972.30					0
15	**cis-1,2-Dichloroethene**						0
16	**Chloroform**	98.70	0.560	0.560	0.560	1	0
17	**1,2-Dichloroethane**	97.23					0
18	**1,1,1-Trichloroethane**	3425.27					0
19	**Benzene**	9.25	2.620	0.871	0.340	43	0
20	**Carbon Tetrachloride**	48.46	0.700	0.459	0.280	37	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	11.600	2.123	0.370	44	0
27	**1,2-Dibromoethane**	38.40					0
28	**Tetrachloroethene**	246.49	0.270	0.270	0.270	1	0
29	**Chlorobenzene**	98.34					0
30	**Ethyl benzene**	984.28	1.320	0.564	0.240	18	0
31	**m + p-Xylene**	984.28	3.890	0.947	0.260	33	0
32	**Styrene**	492.36	1.850	0.925	0.360	6	0
33	**1,1,2,2-Tetrachloroethane**	9.89					0
34	**o-Xylene**	984.28	1.450	0.552	0.250	19	0
35	**Ethyltoluene**		1.300	0.512	0.230	13	0
36	**1,3,5-Trimethylbenzene**		0.530	0.530	0.530	1	0
37	**1,2,4-Trimethylbenzene**		1.460	0.525	0.280	30	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

2006 Statistical Summary - Stationary Site Air Toxics Monitoring Data (24 Hour Average)

Sheffield Elementary School

13333 Lanier Road

Site ID# **0077**

Data Starting Date: **04/29/06**

Data Ending Date: **12/31/06**

Number of Samples: **29**

* 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)

LAB#	COMPOUND	FARC	MAX	AVG	MIN	Count	#EXC
1	**Dichlorodifluoromethane-F12**	9842.68	4.740	2.937	1.790	28	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
5	**1,3-Butadiene**						0
6	**Bromomethane**	48.13					0
7	**Chloroethane**	9847.26					0
8	**Trichloromonofluoromethane-F11**	9801.53	1.920	1.217	0.540	29	0
9	**Acrylonitrile**						0
10	**1,1-Dichloroethene**	49.62					0
11	**Dichloromethane**	492.69	5.640	5.640	5.640	1	0
12	**3-Chloropropene**						0
13	**1,2-Dichloro-1,1,2,2-tetrafluoroethane-F113**	9832.63	2.580	0.472	0.230	21	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	2.020	0.976	0.340	29	0
20	**Carbon Tetrachloride**	48.46	0.870	0.472	0.240	28	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	6.300	3.553	0.970	29	0
27	**1,2-Dibromoethane**	38.40					0
28	**Tetrachloroethene**	246.49					0
29	**Chlorobenzene**	98.34					0
30	**Ethyl benzene**	984.28	1.180	0.619	0.330	28	0
31	**m + p-Xylene**	984.28	2.310	1.173	0.440	29	0
32	**Styrene**	492.36	0.980	0.633	0.470	19	0
33	**1,1,2,2-Tetrachloroethane**	9.89					0
34	**o-Xylene**	984.28	0.870	0.493	0.250	27	0
35	**Ethyltoluene**		0.840	0.456	0.270	21	0
36	**1,3,5-Trimethylbenzene**		0.650	0.420	0.240	3	0
37	**1,2,4-Trimethylbenzene**		1.630	0.616	0.340	28	0
38	**1,3-Dichlorobenzene**						0
39	**1,4-Dichlorobenzene**	98.19	1.240	1.240	1.240	1	0
40	**1,2-Dichlorobenzene**	245.47					0
41	**1,2,4-Trichlorobenzene**	49.05					0
42	**Hexachlorobutadiene**	0.19					0

2006 Statistical Summary - Stationary Site Air Toxics Monitoring Data (24 Hour Average)

Rosselle & Copeland

2189 Rosselle Street

Site ID# **0084**

Data Starting Date: **01/29/06**

Data Ending Date: **12/31/06**

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)

LAB#	COMPOUND	FARC	MAX	AVG	MIN	Count	#EXC
1	**Dichlorodifluoromethane-F12**	9842.68	4.300	2.815	1.620	44	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
5	**1,3-Butadiene**		2.110	1.403	1.000	3	0
6	**Bromomethane**	48.13					0
7	**Chloroethane**	9847.26	1.520	1.520	1.520	1	0
8	**Trichloromonofluoromethane-F11**	9801.53	1.770	1.181	0.510	44	0
9	**Acrylonitrile**						0
10	**1,1-Dichloroethene**	49.62					0
11	**Dichloromethane**	492.69	11.200	6.445	1.690	2	0
12	**3-Chloropropene**						0
13	**1,2-Dichloro-1,1,2,2-tetrafluoroethane-F113**	9832.63	0.810	0.383	0.220	20	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	8.960	2.370	0.330	44	0
20	**Carbon Tetrachloride**	48.46	2.000	0.478	0.220	37	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	23.500	7.196	1.640	44	0
27	**1,2-Dibromoethane**	38.40					0
28	**Tetrachloroethene**	246.49	1.900	0.559	0.210	8	0
29	**Chlorobenzene**	98.34					0
30	**Ethyl benzene**	984.28	4.590	1.181	0.330	45	0
31	**m + p-Xylene**	984.28	8.220	2.951	0.650	44	0
32	**Styrene**	492.36	4.350	1.363	0.490	33	0
33	**1,1,2,2-Tetrachloroethane**	9.89					0
34	**o-Xylene**	984.28	4.460	1.187	0.310	45	0
35	**Ethyltoluene**		3.930	0.956	0.250	44	0
36	**1,3,5-Trimethylbenzene**		1.450	0.624	0.350	18	0
37	**1,2,4-Trimethylbenzene**		4.810	1.340	0.480	43	0
38	**1,3-Dichlorobenzene**						0
39	**1,4-Dichlorobenzene**	98.19	0.310	0.310	0.310	1	0
40	**1,2-Dichlorobenzene**	245.47					0
41	**1,2,4-Trichlorobenzene**	49.05					0
42	**Hexachlorobutadiene**	0.19					0

2006 Statistical Summary - Stationary Site Air Toxics Monitoring Data (24 Hour Average)

Kooker Park

2900 Bennett Street

Site ID# **0032**

Data Starting Date: **01/05/06**

Data Ending Date: **12/31/06**

Number of Samples: **101**

* 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)

LAB#	COMPOUND	FARC	MAX	AVG	MIN	Count	#EXC
1	**Dichlorodifluoromethane-F12**	9842.68	4.550	2.764	1.310	99	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
5	**1,3-Butadiene**		0.860	0.805	0.750	2	0
6	**Bromomethane**	48.13					0
7	**Chloroethane**	9847.26					0
8	**Trichloromonofluoromethane-F11**	9801.53	1.940	1.132	0.059	99	0
9	**Acrylonitrile**						0
10	**1,1-Dichloroethene**	49.62					0
11	**Dichloromethane**	492.69	3.750	1.445	0.630	4	0
12	**3-Chloropropene**						0
13	**1,2-Dichloro-1,1,2,2-tetrafluoroethane-F113**	9832.63	0.630	0.349	0.210	49	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	4.410	1.628	0.370	101	0
20	**Carbon Tetrachloride**	48.46	0.780	0.397	0.200	89	0
21	**1,2-Dichloropropane**	738.87					0
22	**Trichloroethene**	492.33					0
23	**cis-1,3-Dichloropropene**			0.900	0.900	1	0
24	**trans-1,3-Dichloropropene**			0.920	0.920	1	0
25	**1,1,2-Trichloroethane**	99.15					0
26	**Toluene**	491.25	13.040	5.231	0.980	100	0
27	**1,2-Dibromoethane**	38.40					0
28	**Tetrachloroethene**	246.49	0.680	0.365	0.250	7	0
29	**Chlorobenzene**	98.34					0
30	**Ethyl benzene**	984.28	8.760	1.068	0.250	99	0
31	**m + p-Xylene**	984.28	30.200	2.515	0.520	99	0
32	**Styrene**	492.36	4.880	1.055	0.380	73	0
33	**1,1,2,2-Tetrachloroethane**	9.89					0
34	**o-Xylene**	984.28	6.640	0.948	0.250	97	0
35	**Ethyltoluene**		5.360	0.779	0.240	91	0
36	**1,3,5-Trimethylbenzene**		7.120	0.960	0.240	29	0
37	**1,2,4-Trimethylbenzene**		8.140	1.072	0.350	95	0
38	**1,3-Dichlorobenzene**						0
39	**1,4-Dichlorobenzene**	98.19	0.580	0.332	0.240	10	0
40	**1,2-Dichlorobenzene**	245.47					0
41	**1,2,4-Trichlorobenzene**	49.05					0
42	**Hexachlorobutadiene**	0.19					0