

**Air Toxics Monitoring Report  
Kenner Site - Post Katrina  
Interim Report**



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**Air Monitoring Report for the Kenner Project**

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# Project Overview

The project was designed to determine the ambient air concentrations in the Kenner area of Jefferson Parish (Figure 1). Prior to hurricane Katrina, DEQ had not conducted sampling for air toxics at that location. DEQ has previously conducted an air toxics monitoring project on the west bank of Jefferson Parish at the Marrero site. Due to similarities in the locations with respect to local emission sources, the results at the Kenner site were expected to be very similar to the results obtained at Marrero. DEQ as part of the post hurricane response, sought to reestablish ambient air monitoring to the New Orleans area as the power was restored. In addition, the Kenner site was enhanced with extra monitoring capability including the air toxics sampler. The site is physically located on West Temple Place in Kenner just south of Lake Pontchartrain. The sampling effort was initially conducted daily using 24-hour composite canister sampling.

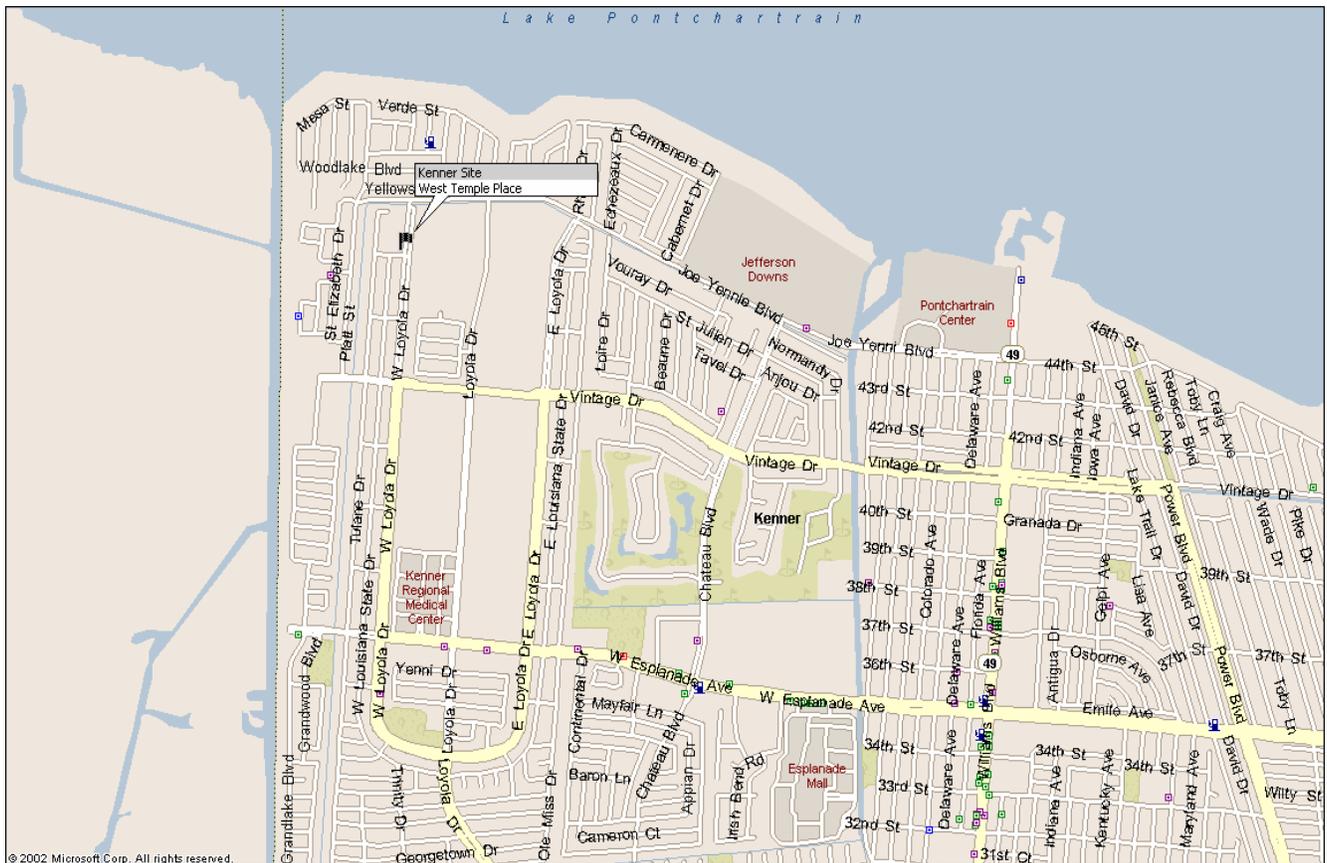


Figure 1. Kenner Site Location

## Study Focus

The focus of the study was to:

- Identify the chemical compounds that are most abundantly present in the ambient air in the Kenner Community
- Compare the measured chemical levels, along with appropriate statistical confidence limits, to the applicable ambient air standards established by DEQ.
- Determine if any of the chemical concentrations represent any health concern to the citizens residing in the area.

The coordinates for the location of the sampler are 30° 02' 27.7" North, 90° 16' 21.5" west. An examination of a wind rose generated for the greater New Orleans area shows the winds predominantly from southerly & easterly directions. This means that mobile source emissions should be the principal emission source affecting the site. The nearest industrial sources in the area are located several miles to the south and to the west of the site. These emissions should impact a sampler at a much lesser frequency than the mobile source emissions. The sampler being located in a predominately downwind area of the community, should provide a representative sampling of the average exposure of the citizens to any toxic compounds in the ambient air. This should give a good indication if the post Katrina flood left any toxics compounds behind which could affect the air quality in the community.

## Sampling & Analytical Methods

All sampling and analysis was conducted using Method TO-15 of the U.S. Environmental Protection Agency's "Compendium to the Determination of Toxic Organic Compounds in Ambient Air." This method involves the collection of air samples in specially prepared stainless steel canisters with subsequent analysis using gas chromatography techniques with Flame Ionization Detectors (FID) and Mass Spectrometry Detectors (MSD). The samples were analyzed in the laboratory for nearly 100 Volatile Organic Compounds (VOCs).

The sampling array was outfitted with a Model 911A Portable Summa Canister manufactured by RM Environmental Systems Incorporated. This sampler was configured to collect single 24-hour duration samples following the statewide air toxics sampling schedule.

All samples collected were picked up within 24 hours after sample collection and returned to the DEQ Laboratory for analysis.

In addition to identifying approximately 100 compounds including Hazardous Air Pollutants (HAPs) and other VOCs, the laboratory also used the GC/MS Tentatively Identified Compound analysis to identify other compounds that may have been in the sample matrix. The laboratory identified and listed any compound that had an estimated concentration of 5 ppbv or higher.

## Twenty-four hour Sample Results

A total of 47 samples have been collected and analyzed on the 24-hour sampler between September 11, 2005 and November 13, 2005. The most abundant compounds found in these samples were propane, ethane, acetone, isopentane, toluene and n-butane. All of these compounds were detected within the normal concentration range for an urban area. The general profile of compounds detected was very typical of an area dominated by mobile source emissions. The total hydrocarbon reading averaged 147 ppbC which is slightly below the normal range for an urban area. None of the average concentrations for any of the targeted VOCs were above the annual average Louisiana Ambient Air Standards nor were any of the individual sample concentrations above the 8 hour ambient air standards.

The results for most of the sample group were very consistent and showed very little variability. All of the readings were well below the ATSDR acute Minimal Risk Level (MRL). None of the samples contained any Tentatively Identified Compounds at a sufficient level to represent any health concern.

## Conclusions

During the course of the study none of the average concentrations for the HAP's studied have exceeded the Louisiana Ambient Air Standards. All of the averages combined with the 95% confidence intervals are well below the standards and do not appear to represent a health risk to the residents living nearby.

Table 4. Mean Average Concentrations versus. Ambient Air Standards

<u>Compound</u>	<u>Mean Average.</u>	<u>La. Standard</u>	<u>ATSDR Acute MRL</u>
Benzene	0.33	3.76 ppbv	50 ppbv
Carbon tetrachloride	0.08	1.06 ppbv	30 ppbv
Carbon disulfide	0.04	22.97 ppbv	300 ppbv
Trichloroethylene	0.06	10.94 ppbv	2000 ppbv
Chloromethane	0.59	26.12 ppbv	500 ppbv
1-3-butadiene	0.04	0.42 ppbv	none
Acetone	6.53	none	26000 ppbv
Methylene chloride	0.21	61.25 ppbv	600 ppbv

Most of the samples contained low levels of VOCs that are typical of urban areas. The principal source of these VOCs is mobile sources. All of the average concentrations are very close to or below the statewide averages. The carbon tetrachloride & trichloroethylene in the table are very close to the background levels for Louisiana. This is an indication there is no local source for those compounds.

Benzene is most often cited by the general public as one of the HAPs they are most often concerned about. The EPA National Air Toxics Assessment Study (NATA) estimated the average concentration of benzene in Jefferson Parish to be 0.45 ppbv with one half originating from mobile sources, one sixth originating

from local point & area sources and one third from transported background. The results from the Kenner monitor show the benzene levels are consistent with the NATA estimations and indicate no significant contribution from local industries.

Because all of the samples have been unremarkable, it was decided to cut back the daily sampling schedule to a more traditional 1 sample every six day schedule. This will allow the department to detect any changes in the air toxics characteristics as the area returns to normal traffic & industrial activity.

# **Appendix A**

## **Summary of Results**

**(All analyses completed as of November 15<sup>th</sup>)**

# Louisiana Department of Environmental Quality

## Air Toxics Summary

11/15/2005

Monitoring Site Code KEN

Sample Duration: 24

Samples Collected: 39

Sample Date Range: 9/11/2005 - 11/3/2005

All Concentrations are in parts per billion molar volume (ppbv)

Compound	Mean	Max	Compound	Mean	Max
Freon-12	0.53	0.62	trans-1,3-dichloropropene	0.00	0.00
Chloromethane	0.59	1.16	1,1,2-trichloroethane	0.00	0.00
Freon-114	0.02	0.03	Toluene	0.67	2.86
Vinyl Chloride	0.00	0.00	2-Butanone	0.49	0.87
1,3-butadiene	0.04	0.23	1,2-dibromoethane	0.00	0.01
Bromomethane	0.01	0.04	Tetrachloroethylene	0.01	0.05
Carbon disulfide	0.04	0.13	Methyl Acrylate	0.00	0.04
Chloroethane	0.00	0.00	Chlorobenzene	0.00	0.01
Freon-11	0.24	0.29	Ethylbenzene	0.09	0.36
Acetonitrile	0.27	0.50	Vinyl Acetate	0.00	0.00
1,1-dichloroethene	0.00	0.03	m/p Xylene	0.32	1.52
Methylene Chloride	0.21	0.34	Styrene	0.02	0.05
Freon-113	0.08	0.09	o Xylene	0.11	0.43
Acetone	6.53	14.78	2-nitropropane	0.00	0.00
1,1-dichloroethane	0.00	0.02	1,1,2,2-tetrachloroethane	0.00	0.01
cis-1,2-dichloroethene	0.00	0.00	1,3,5-trimethylbenzene	0.03	0.12
Acrylonitrile	0.21	0.96	1,2,4-trimethylbenzene	0.11	0.44
Chloroform	0.05	0.12	Chlorobutane	0.00	0.00
1,2-dichloroethane	0.02	0.09	Benzyl Chloride	0.00	0.01
Diethyl ether	0.02	0.14	4-methyl-2-pentanone	0.00	0.00
1,1,1-trichloroethane	0.02	0.07	Chloroacetonitrile	0.00	0.00
Benzene	0.33	0.98	1,3-dichlorobenzene	0.01	0.01
Carbon Tetrachloride	0.08	0.09	1,4-dichlorobenzene	0.03	0.17
Allyl Chloride	0.00	0.00	1,2-dichlorobenzene	0.01	0.01
1,2-dichloropropane	0.00	0.00	1,2,4-trichlorobenzene	0.02	0.04
Trichloroethylene	0.06	0.28	1,3-hexachlorobutadiene	0.02	0.03
cis-1,3-dichloropropene	0.00	0.00	2-Hexanone	0.00	0.09
MTBE	0.02	0.26	Methyl Methacrylate	0.00	0.03
Tetrahydrofuran	0.00	0.00	Ethyl Methacrylate	0.00	0.00
Methacrylonitrile	0.01	0.08	Nitrobenzene	0.01	0.06

**Louisiana Department of Environmental Quality**  
**Photochemical Precursor Summary**  
**GC Flame Ionization Results**

11/15/2005

Monitoring Site Code CAN\_KEN

Sample Duration: 24

Samples Collected: 47

Sample Date Range: 9/11/2005 - 11/13/2005

All Concentrations are in parts per billion carbon (ppbc)

Compound	Mean	Max	Compound	Mean	Max
Ethylene	2.60	13.58	3-methylhexane	0.82	2.63
Acetylene	1.67	5.89	2,2,4-trimethylpentane	1.53	5.88
Ethane	8.47	35.30	n-Heptane	0.70	2.06
Propylene	1.39	5.03	Methylcyclohexane	0.47	1.94
Propane	8.88	27.28	2,3,4-trimethylpentane	0.49	1.95
Isobutane	3.48	15.31	Toluene	5.80	19.01
1-butene	0.29	1.63	2-methylheptane	0.26	0.85
n-Butane	10.30	55.65	3-methylheptane	0.25	0.92
trans-2-Butene	0.76	18.83	n-Octane	0.46	1.59
cis-2-Butene	0.16	1.13	Ethylbenzene	1.08	3.54
2-methylbutane	6.57	25.20	m/p Xylene	3.52	12.36
1-Pentene	0.28	1.14	Styrene	0.24	2.37
n-Pentane	3.37	10.71	o Xylene	1.39	4.06
Isoprene	0.60	1.53	n-Nonane	0.44	1.34
trans-2-Pentene	0.54	2.64	Cumene	0.06	0.45
cis-2-Pentene	0.30	1.33	n-propylbenzene	0.18	0.78
2,2-dimethylbutane	0.20	0.95	m-ethyltoluene	0.82	3.01
Cyclopentane	0.30	1.04	p-ethyltoluene	0.33	1.37
2,3-dimethylbutane	0.58	2.18	1,3,5-trimethylbenzene	0.47	1.56
2-methylpentane	2.24	7.43	o-ethyltoluene	0.31	1.02
3-methylpentane	1.47	4.51	1,2,4-trimethylbenzene	3.58	11.25
1-Hexene	0.22	1.91	n-Decane	0.51	1.86
n-Hexane	1.94	5.56	1,2,3-trimethylbenzene	0.56	4.69
Methylcyclopentane	1.11	3.44	m-diethylbenzene	0.10	0.99
2,4-dimethylpentane	0.27	1.10	p-diethylbenzene	0.25	1.04
Benzene	2.33	6.11	n-Undecane	0.50	2.04
Cyclohexane	0.36	1.08	1,3-butadiene	0.10	0.52
2-methylhexane	0.76	2.58			
2,3-dimethylpentane	0.38	1.35	TNMOC (ppbc)	147.62	368.00