

Health Consultation

PETRO PROCESSORS OF LOUISIANA, INC.
POST-HURRICANE GROUNDWATER SAMPLING EVALUATION

EAST BATON ROUGE PARISH, LOUISIANA

EPA FACILITY ID: LAD057482713

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U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Agency for Toxic Substances and Disease Registry
Division of Health Assessment and Consultation
Atlanta, Georgia 30333

Health Consultation: A Note of Explanation

An ATSDR health consultation is a verbal or written response from ATSDR to a specific request for information about health risks related to a specific site, a chemical release, or the presence of hazardous material. In order to prevent or mitigate exposures, a consultation may lead to specific actions, such as restricting use of or replacing water supplies; intensifying environmental sampling; restricting site access; or removing the contaminated material.

In addition, consultations may recommend additional public health actions, such as conducting health surveillance activities to evaluate exposure or trends in adverse health outcomes; conducting biological indicators of exposure studies to assess exposure; and providing health education for health care providers and community members. This concludes the health consultation process for this site, unless additional information is obtained by ATSDR which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

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HEALTH CONSULTATION

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Prepared By:

Louisiana Department of Health and Hospitals
Office of Public Health
Section of Environmental Epidemiology and
Toxicology
Under Cooperative Agreement with the
U.S. Department of Health and Human Services
Agency for Toxic Substances and Disease Registry

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List of Acronyms

ATSDR	Agency for Toxic Substances and Disease Registry
CD	Consent Decree
EPA	Environmental Protection Agency
LDEQ	Louisiana Department of Environmental Quality
LDHH	Louisiana Department of Health and Hospitals
MSL	Mean Sea Level
NA	Natural Attenuation
NAPLs	Non-aqueous phase liquids
NPC	NPC Services, Inc.
NPDES	National Pollution Discharge Elimination System
NPL	National Priorities List
O&M	Operation and Maintenance
OPH	Office of Public Health
PAHs	Polycyclic aromatic hydrocarbons
PRPs	Potentially Responsible Parties
RA	Remedial action
RI/FS	Remedial Investigation/Feasibility Study
SEET	Section of Environmental Epidemiology and Toxicology
SRAP	Supplemental Remedial Action Plan
VOCs	Volatile organic compounds

Summary and Statement of Issues

On August 29 and September 24, 2005, hurricanes Katrina and Rita made landfall along the Gulf Coast. From September 29, 2005 through October 14, 2005, a team of U.S. Environmental Protection Agency (EPA) contractors collected samples at the National Priority List (NPL) sites in Louisiana to assess any potential impacts that the hurricanes may have had on remedies completed at those sites. On October 12, 2005, EPA collected groundwater samples from two monitoring wells at the Petro Processors site, located in East Baton Rouge Parish, Louisiana. As part of prudent public health practices, the Louisiana Department of Health and Hospitals/Office of Public Health/Section of Environmental Epidemiology and Toxicology (LDHH/OPH/SEET) have performed a review of the post-hurricane groundwater data through a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). SEET staff reviewed the contaminant concentrations found in groundwater from the Petro Processors monitoring wells to determine whether the groundwater was affected by the hurricane. SEET staff evaluated the data to determine whether the groundwater would pose a threat to human health and to establish what further public health actions, if any, may be needed.

Background

Site Description & History

The Petro Processors of Louisiana Inc. Superfund Site is located near Scotlandville, East Baton Rouge Parish, Louisiana, about ten miles north of the City of Baton Rouge. The site consists of two petrochemical disposal areas on the banks of Bayou Baton Rouge in or near the floodplain of the Mississippi River. The two disposal areas, Scenic Highway and Brooklawn, are situated about 1.5 miles apart and total 77 acres. Brooklawn is the larger of the two areas, estimated at 60 acres. The Scenic Highway location is just west of U.S. Highway 61 and north of the intersection of Scenic Highway 964 and U.S. Highway 61. The Brooklawn location is west-southwest of the Scenic Highway location. Bayou Baton Rouge meanders around both the Scenic Highway and Brooklawn areas, and fingers out into Devil's Swamp [1].

Site conditions are characterized by the hydrologic connection of the disposal areas with the underlying aquifer system. Bayou Baton Rouge historically ran through both the Brooklawn and Scenic disposal areas, but was rerouted during early remedial activities at each site. The fluvial sediments that underlie the site include terrace deposits, that are predominately clays, and alluvium deposits, composed of inter-bedded silty clays and sandy silts. The shallow groundwater regime is referred to as the 40 mean sea level (MSL) zone. The deep groundwater regime of concern is known as the "400-foot sand". The nearest drinking water well is 3,000 feet upgradient of the site [1].

Both areas were operated by the same management and equipment and personnel were used interchangeably. The Scenic Highway area, originally a borrow pit, was used for petrochemical waste disposal from 1961 to 1974. Brooklawn was opened in 1969 to accept petrochemical wastes since the Scenic Highway area was filled to capacity. Operations at Brooklawn ceased in 1980, but ponds were left open to the elements [1].

The site closure process for the facility commenced with a preliminary assessment, which was completed on September 1, 1979, and a site inspection that was performed in February 1, 1980. In July 1980, the United States, the State of Louisiana, the City of Baton Rouge and the Parish of

East Baton Rouge filed suit against Petro Processors of Louisiana Inc., and several generators which had materials transported to the site, alleging that toxic organic compounds and heavy metals had been released into local waterways, and were posing a threat to an underground drinking water supply. A final site assessment decision was made on September 9, 1983. The potentially responsible parties (PRPs) initiated the remediation investigation/feasibility study (RI/FS) process on September 23, 1983 [1].

A Consent Decree (CD) for site closure was developed with the participation of all PRPs and it was entered into the Federal Court's record on February 16, 1984. The CD states that the PRP defendants, called NPC Services, Inc., are responsible for perpetual maintenance. The Petro-Processors of Louisiana, Inc. site was added to the final National Priorities List (NPL) by EPA on September 21, 1984 [1].

The Supplemental Remedial Action Plan (SRAP), dated December 1988, presented NPC's evaluation of alternate remediation methods. Upon review, EPA Region 6 rejected the SRAP because it did not contain a sufficiently rigorous evaluation of the alternate technologies. The CD was amended in 1989, and specified the implementation of hydraulic containment and recovery. The initial 1984 CD and subsequent 1989 Amendment comprise the framework for a Source Control and Ground Water Containment Remedial Action (RA) for the Petro Processors site. NPC subsequently began additional investigations, design, and construction activities necessary to implement the new remedy. Based on investigation results, the site's principal pollutants are petrochemical wastes including chlorinated hydrocarbons (hexachlorobutadiene and hexachlorobenzene), polycyclic aromatic hydrocarbons (PAHs), heavy metals and oils. Groundwater at both disposal areas was the primary contaminated media, while stream sediments at the Scenic Site were also a concern [1].

The RA for the Petro Processors site is nearing completion. All contaminated source areas at both disposal areas, except the lower lagoon at Brooklawn, were capped in the early 1990s. These engineered clay caps combined with rerouting of the bayou have reduced the migration of the site contaminants and prevented air emissions from the source areas and exposure to nearby industries and residences. Ongoing remedial actions at the site include the following:

- Full-scale treatment facility operates at the Brooklawn location to treat contaminated groundwater and non-aqueous phase liquids (NAPLs) recovered. Treated water is discharged via a National Pollutant Discharge Elimination System (NPDES) permit.
- At the Scenic Highway site well pumps, electrical, controls, piping, and a liquids transfer facility were installed in 1999. Recovery operations and maintenance activities were initiated in 2000, and the recovery operations were terminated in 2003 after the completion of additional modeling studies. Currently maintenance and monitoring activities are conducted at this site.
- Natural attenuation (NA) of the dissolved plume is quantified and monitored to ensure remedial goals are being met at the Scenic Highway site. In addition stream sediments are monitored.
- Initially the recovery system included up to approximately 190 recovery wells and 98 recovery sumps. Currently, the sumps or French drains, are no longer in operation, and many of the wells were turned off to enhance recovery of the NAPLs and reduce

migration of NAPLs. As of July 2002, a total of 72 NAPL recovery wells were operating at the Brooklawn and Scenic Highway sites.

- Site long-term monitoring activities and inspection continue [1].

In coordination with the Louisiana Department of Environmental Quality (LDEQ) and NPC Services, EPA conducted a five-year review of the remedy in 2005, and found that the operations and maintenance phase of the remedy is functional and protective of human health and the environment [2].

Demographics

Petro Processors is located in East Baton Rouge Parish, Louisiana. Census 2000 results record a parish population of 396,735. The largest ethnic group in the parish at that time was Caucasian (52.7%), followed by African American (43.1%), American Indian and Alaska Native (0.2%), Asian (2.4 %), with 1.6% of the population reporting as Other. 85.6% of the population age 25 or older in 2000 had earned at least a high school diploma. The median household income in 2005 was \$39,847, with 20.9% of persons living below poverty level [3]. The largest employers in the parish were the health care and social assistance; the retail trade industry; administrative, support, waste management, and remediation services; accommodations and food services; professional, scientific and technical services; and the manufacturing industry [4].

The land near the facility is predominantly rural and sparsely populated. The population within a one-mile radius of the site is approximately 100. The nearest residence is about 3,000 feet from the site [1].

Discussion

Exposure Pathways

To determine whether a child or adult would be exposed to contaminants detected in groundwater from the Petro Processors site, SEET evaluated the environmental and human components that lead to exposure. An exposure pathway contains the following five elements: a source of contamination, transport through some kind of environmental medium, a point of exposure, a route of exposure, and a receptor population. ATSDR categorizes an exposure pathway as a completed or potential exposure pathway if the exposure pathway cannot be eliminated. Completed pathways require that the five elements exist and indicate that exposure to a contaminant has occurred in the past, is presently occurring, or will occur in the future. Potential pathways, however, indicate that exposure to a contaminant could have occurred in the past, could be occurring now, or could occur in the future. An exposure pathway can be eliminated if at least one of the five elements is missing and will never be present.

The Petro Processors site is located over the “400-foot sands”, a major drinking water aquifer. However, the local population is unlikely to come into contact with contaminants present in this exposure medium unless the contaminants migrate into the domestic groundwater sources. Long-term groundwater monitoring at the site currently shows no evidence of such migration.

Therefore, there is no current exposure pathway between shallow groundwater from the site and the local population.

Environmental Data

On October 12, 2005, EPA collected groundwater samples from 2 monitoring wells at the Petro Processors site. Groundwater samples were collected at monitoring wells P-2522 and P-2528 [see figure 1]. All samples were analyzed for volatile organic compounds (VOCs) via EPA method 8260B.

A site inspection was also conducted on October 12, 2005 by LDEQ, EPA and their contractors. The agency representatives completed a walking tour of the site and did not observe any flooding or hurricane related damage at the entire site. No erosion or damage was observed to the site caps; the recovery system and equipment did not have any damage as a result of the hurricane; no flooding or damage was observed to the recovery wells at the site [1]. Several site photographs are included in the Post Hurricane Site Photographs appendix.

No contaminants were detected above health based comparison values during the sampling event. Health based comparison values are media-specific concentrations of chemicals used by health assessors to select environmental contaminants for further evaluation. They are not used to predict health effects or to set clean-up levels. Contaminants with media concentrations above a health based comparison value do not necessarily represent a health threat, but are selected for further evaluation. Contaminants with media concentrations below a health based comparison value are unlikely to be associated with illness and are not evaluated further.

Health Effects Evaluation

There are no completed or potential exposure pathways at the Petro Processors site, as site-related contaminants have not migrated into the domestic groundwater aquifer. Therefore, no adverse health effects are expected. Regular groundwater sampling will continue at the site as part of the Operations and Management (O&M) plan to monitor any changes.

Child Health Considerations

In communities faced with air, water, or food contamination, the many physical differences between children and adults demand special emphasis. Children could be at greater risk than are adults from certain kinds of exposure to hazardous substances. Children play outdoors and sometimes engage in hand-to-mouth behaviors that increase their exposure potential. Children are shorter than are adults; this means they breathe dust, soil, and vapors close to the ground. A child's lower body weight and higher intake rate results in a greater dose of hazardous substance per unit of body weight. If toxic exposure levels are high enough during critical growth stages, the developing body systems of children can sustain permanent damage. Finally, children are dependent on adults for access to housing, for access to medical care, and for risk identification. Thus adults need as much information as possible to make informed decisions regarding their children's health. SEET found no public health hazard to children living near the Petro Processors site.

Conclusions

Evaluation of the groundwater sampled by EPA during its post-hurricane investigation suggests that there is no public health hazard related to groundwater from the Petro Processors site. Furthermore, there appears to be no storm-related damage to this site that would suggest potential for the hurricane to have introduced contamination into exposure pathways.

Recommendations

There are no recommendations to be made at this time regarding Petro Processors groundwater. LDHH/OPH/SEET will examine future data as needed or requested.

Public Health Action Plan

The information produced within this health consultation will be disseminated to the public repositories, community members and stakeholders within East Baton Rouge Parish, Louisiana by SEET.

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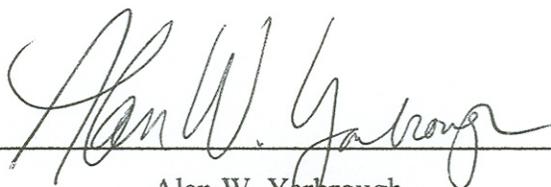
Certification

This health consultation for Petro Processors was prepared by Louisiana Department of Health and Hospitals under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). It was completed in accordance with approved methodology and procedure existing at the time the health consultation was initiated. Editorial review was completed by the Cooperative Agreement Partners.



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The Division of Health Assessment and Consultation (DHAC), ATSDR, has reviewed this health consultation and concurs with its findings.



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References

1. CH2MHILL. Technical Memorandum: Hurricane Katrina Response Petro Processors of Louisiana, Inc. Site Inspection and Sampling Results; February 16, 2006.
2. Environmental Protection Agency Region 6, Superfund Division. First 5-year Report for the Petro Processors of Louisiana, Inc. Superfund Site, East Baton Rouge Parish, Louisiana; December 22, 2005.
3. U.S. Census Bureau, East Baton Rouge Parish, Louisiana Population Finder- American Fact Finder. Generated by Darcie Olexia. Accessed 25 Aug 2006 at URL: <http://factfinder.census.gov/>
4. U.S. Census Bureau, East Baton Rouge Parish, Louisiana American Fact Finder. Generated by Darcie Olexia. Accessed 25 Aug 2006 at URL: <http://factfinder.census.gov/>

Figures

Figure 1: October 2005 groundwater sampling locations, Petro Processors site. East Baton Rouge Parish, LA.



Source: CH2MHILL Technical Memorandum, Hurricane Katrina Response Petro Processors of Louisiana, Inc. Site Inspection and Sampling Results. February 16, 2006.

Post Hurricane Site Photographs



Photo: 246
Date / Time: 12 October 2005,
Description: Two (2) monitoring wells at the Petro Processing site, looking NE



Photo: 249
Date / Time: 12 October 2005,
Description: Looking W along the ditch that transects the Petro Processing site



Photo: 254
Date / Time: 12 October 2005,
Description: Three (3) monitoring wells located at the Petro Processing site, looking W



Photo: 256
Date / Time: 12 October 2005,
Description: Edge of natural gas right-of-way at the Petro Processing site, looking SW



Photo: 258
Date / Time: 12 October 2005,
Description: Main water channel at the Petro Processing site, looking SE



Photo: 259
Date / Time: 12 October 2005,
Description: End of the secondary channel, where the Main Water Channel begins, on the Petro Processing site, looking S



Photo: 263
Date / Time: 12 October 2005,
Description: Monitoring wells at the Petro Processing site, looking N



Photo: 265
Date / Time: 12 October 2005,
Description: Staging area for soils used to fill creek low areas, looking SE

Source: CH2MHILL Technical Memorandum, Hurricane Katrina Response Petro Processors of Louisiana, Inc. Site Inspection and Sampling Results. February 16, 2006.