

Health Consultation

MALLARD BAY LANDING BULK PLANT
POST HURRICANE SOIL SAMPLING EVALUATION
CAMERON PARISH, LOUISIANA
EPA FACILITY ID: LAD0000187518

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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
EPA	Environmental Protection Agency
ICW	Intracostal Waterway
LDEQ	Louisiana Department of Environmental Quality
LDHH	Louisiana Department of Health and Hospitals
NPL	National Priorities List
OPH	Office of Public Health
PAHs	Polycyclic aromatic hydrocarbons
RA	Remedial Action
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
SEET	Section of Environmental Epidemiology and Toxicology
SVOCs	Semivolatile organic compounds
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 14, 2005, EPA collected soil samples from Mallard Bay site, located in Cameron 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) has performed a review of the post-hurricane soil data through a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). SEET staff reviewed the contaminant concentrations found in soil from the Mallard Bay site to determine whether the soil 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 Mallard Bay Landing Bulk Plant Superfund Site is located on the north bank of the Intracoastal Waterway (ICW), near mile marker 193, 23 miles northeast of Grand Cheniere, Cameron Parish, Louisiana. The facility is an inactive crude oil refining facility and bulk storage facility, situated on a 10-acre tract of land. It consists of two 5-acre tracts of land separated by an inlet from the ICW and Talen's Marina and Fuel, an active refueling facility and dock. Those two 5-acre tracts of land are referred as the East and West facilities. The site is bordered to the north and west by an unnamed road and to the south by Talen's Marine and Fuel. Wooded wetlands border the eastern, western, and southern portions of the facility property [1].

In early 1980 through 1983, this facility operated as a crude oil refinery. Mixed crude oil was refined to produce naphtha, diesel fuel, and No. 6 fuel oil. In August 1985, the facility resumed crude oil refining operations and continued operations until early 1987, when the owners filed for bankruptcy and the facility was closed. In 1987, the Louisiana Department of Environmental Quality (LDEQ) conducted a site inspection in response to the bankruptcy proceedings. LDEQ noted that the facility had allegedly accepted hazardous waste fuels for which it was not permitted and had received and attempted to process styrene, a compound commonly used to produce plastics [1].

In 1993, LDEQ referred the site to EPA, which found that styrene, arsenic, chromium, lead, mercury and other hazardous materials and metals either had migrated or could migrate to the nearby water bodies and wetlands. The site was proposed for inclusion to the NPL on May 11, 2000, and listed on July 27, 2000 [1]. From late 2000 to early 2002, EPA conducted field sampling and investigation activities at the site including collection and analyses of soil, sediment, surface water, ground water, waste materials, and asbestos-containing materials to determine if significant pollutant concentrations were present. The Remedial Investigation and Feasibility Study (RIFS) identified the types, quantities and locations of contaminants found in these samples. The results generally indicated that the site had been impacted by volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and metal constituents commonly found at oil refinery facilities [2]. The Record of Decision (ROD) was signed on

March 12, 2003 [1]. A ROD amendment was signed on July 10, 2003, providing additional measures to address remedial actions for sludge wastes at the site [2].

The 2003 Remedial Action (RA) at the site included the following [3]:

- 200,150 gallons of sludge was extracted from the site and utilized as a supplemental fuel source at a thermal destruction facility.
- 895 tons of onsite tanks, piping, and vessels were demolished, removed, decontaminated, and recycled or disposed.
- 1120 cubic yards of contaminated soil was excavated and disposed in an appropriate landfill.
- 5875 feet of 10-inch, 6-inch, and 4-inch pipe was demolished, cleaned out (combined with sludge wastes), and removed.
- 7785 feet of 10-inch, 6-inch, and 4-inch pipe was evacuated and abandoned in place.
- 4000 square feet of above ground buildings were dismantled, demolished, and disposed or recycled offsite.
- 21 cubic yards of asbestos containing material was abated during demolition activities.
- Surface water from onsite ponds meeting State discharge standards was discharged into an adjacent drainage canal.
- Ground water met all Federal and State standards, so no further action was needed concerning ground water at the site.
- The site was graded to prevent water accumulation.

EPA conducted a final inspection of the Mallard Bay site on October 2, 2003, at which time all RA field activities had been completed. On August 23, 2004, EPA signed a Remedial Action Report signifying successful completion of construction activities [3]. There are no long-term operation and maintenance requirements for the site since all contaminated wastes and materials have been removed from the site [1].

Per the EPA site manager, EPA relinquished the keys to the locks on the gates to the site owner on September 1, 2004, as well as all normal landowner responsibilities and liabilities regarding further development and/or activities at the site. The site was delisted from the NPL on September 19, 2005 [3].

Since the completion of the remedy, the Mallard Bay site has been redeveloped for unloading oil products from barges and is actively operating [4].

Demographics

The Mallard Bay site is located in Cameron Parish, Louisiana. Census 2000 results record a parish population of 9,991. The largest ethnic group in the parish at that time was Caucasian (93.7%), followed by African American (3.9%), American Indian and Alaska Native (0.4%), Asian (0.4 %), with 1.6% of the population reporting as Other. Sixty-eight percent of the population age 25 or older in 2000 had earned at least a high school diploma. The median

household income in 1999 was \$34,232, with 12.3% of persons living below poverty level [5]. The largest employers in the parish were the retail trade industry; accommodations and food services; and the real estate, rental, and leasing industry [6].

The nearest individual or regularly occupied building is the resident manager of the Jupiter Plant, a small pipeline facility located approximately 1200 feet northeast of the site. The Mallard Bay site remains mainly undeveloped. More than 20 miles of wetland frontage exists within a 15 mile range of the facility [1].

Discussion

Environmental Data

On October 14, 2005, EPA collected onsite surface soil samples from the eastern and western tracts at the Mallard Bay site [see figure 1]. All samples were analyzed for VOCs, SVOCs, mercury and total metals.

A site inspection was also conducted on October 14, 2005 by LDEQ, EPA, and their contractors. There was no evidence of hurricane-associated damages to the site. Rains from Hurricane Rita raised the water levels in the surrounding swamps and flooded some low-lying roads leading to the site; however, the site is several feet in elevation above the surrounding swamps, and it did not flood during the hurricane. There was no evidence of erosion or of any other activity which might have disturbed the ground surface area. No damage to the perimeter security fencing was observed [1].

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. These comparison values 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.

The following table depicts the contaminant levels detected in onsite surface soil samples from the Mallard Bay site. PAH constituents are reported as total PAHs. Constituents with non-detect values are utilized at half the detection limit in the total PAH determination. Additionally, it should be noted that sample MAB-001FD is a field duplicate, which is generally used as a quality assurance/quality control sample. However, EPA has cited many of these contaminants as primary samples on the response to 2005 hurricanes webpage; therefore, the field duplicate is included for consistency purposes [4].

Contaminants detected in onsite surface soil samples at the Mallard Bay site, Cameron Parish, LA. October 14, 2005.

Detected Contaminants (mg/kg) ¹	Soil Sample MAB-001	Soil Sample MAB-001FD	Soil Sample MAB-002
Metals:			
Aluminum	6050	6400	4110
Iron	9080	9650	7240
Manganese	177	363	260
Nickel	9.5	19.2	7.52
Arsenic	4.09	4.92	3.01
Barium	238	348	172
Beryllium	0.59	0.63	0.274
Cadmium	NA	NA	1.05
Chromium	8.51	9.54	7.97
Cobalt	4.32	8.9	2.84
Copper	6.21	8.79	5.86
Vanadium	13.9	15.8	10.2
Lead	10.7	11.7	9.71
Mercury:			
Mercury	NA ²	0.025	0.097
Volatiles:			
Methyl acetate	NA	NA	0.0027
Acetone	NA	0.0043	NA
Dibenzofuran	NA	0.291	NA
Carbazole	NA	0.684	NA
Semi-volatiles:			
Total PAHs ³	0.13	6.98	0.18

¹mg/kg- milligrams per kilogram; ²NA- not applicable; ³PAHs- polycyclic aromatic hydrocarbons

Exposure Pathways

To determine whether a child or adult would be exposed to contaminants detected in soil from the Mallard Bay 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 Mallard Bay site remains mainly undeveloped. More than 20 miles of wetland frontage exists within a 15 mile range of the facility [1]. There are no residents living in the vicinity of the site, and trespassing and/or recreational usage is not expected. As a result, in addition to the finding that no contaminants were detected at levels that might present a public health hazard, there are no exposure pathways between the onsite surface soil from the site and the general population.

Health Effects Evaluation

There were no contaminants detected at levels that might present a public health hazard. Also, there are no completed or potential exposure pathways at the site; therefore, no adverse health effects are expected.

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. It can be concluded from the data evaluations and the environmental pathway analyses that no site-related health hazards specific to children are occurring.

Conclusions

Evaluation of the onsite surface soil sampled by EPA during its post-hurricane investigation suggests that there is no public health hazard from exposures to soil from the Mallard Bay 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 the Mallard Bay soil. 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 Cameron Parish, Louisiana by SEET.

Preparers of this Report

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Certification

This health consultation for Mallard Bay 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 Rita Response Mallard Bay Superfund Site, Louisiana Inspection and Sampling Results; February 2, 2006.
2. U. S. Environmental Protection Federal Register Notice. Direct Final Notice of Deletion of the Mallard Bay Landing Bulk Plant Superfund Site from the National Priorities List. 41625-41629 Federal Register / Vol. 70, No. 138 / Wednesday, July 20, 2005 / Rules and Regulations.
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http://oaspub.epa.gov/storetkp/storet_wme_pkg.Station_Sediment_Chem_Results?p_station_id=11426&p_org_id=KATSPROJ&p_sample_date=10-14-2005
5. U.S. Census Bureau, Cameron Parish, Louisiana Population Finder- American Fact Finder. Generated by Darcie Olexia. Accessed 12 Sept 2006 at URL: <http://factfinder.census.gov/>
6. U.S. Census Bureau, Cameron Parish, Louisiana American Fact Finder. Generated by Darcie Olexia. Accessed 12 Sept 2006 at URL: <http://factfinder.census.gov/>

Figures

Figure 1: October 2005 soil sampling locations, Mallard Bay site. Cameron Parish, LA.



Adapted From: CH2MHILL Technical Memorandum, Hurricane Rita Response Mallard Bay Superfund Site, Louisiana Site Inspection and Sampling Results. February 2, 2006.

Post-Hurricane Site Photographs



File Name: MallardBay West003.JPG
Date/Time Taken: 14 Oct 2005
Description: West Site, view to west.
[coordinates not recorded]



File Name: MallardBay East004.JPG
Date/Time Taken: 14 Oct 2005
Description: East Site, view to south from gate.
[coordinates not recorded]



File Name: MallardBay East005.JPG
Date/Time Taken: 14 Oct 2005
Description: View to southwest from interior of East Site.
[coordinates not recorded]



File Name: MallardBay East006.JPG
Date/Time Taken: 14 Oct 2005
Description: Old pad of processing plant, view to north.
[coordinates not recorded]

Mallard Bay Landing Bulk Plant, Post-hurricane Soil Sampling Evaluation
Cameron Parish, Louisiana



File Name: MallardBay Outside007.JPG
Date/Time Taken: 14 Oct 2005
Description: Drum beside road, north of East Site, view to southeast.
[coordinates not recorded]



File Name: MallardBay West008.JPG
Date/Time Taken: 14 Oct 2005
Description: West site, view to west from gate.
[coordinates not recorded]



File Name: MallardBay West009.JPG
Date/Time Taken: 14 Oct 2005
Description: West site, view to northwest from gate.
[coordinates not recorded]



File Name: MallardBay West010.JPG
Date/Time Taken: 14 Oct 2005
Description: West site, view to north from gate.
[coordinates not recorded]

Mallard Bay Landing Bulk Plant, Post-hurricane Soil Sampling Evaluation
Cameron Parish, Louisiana



File Name: MallardBay Tal011.JPG
Date/Time Taken: 14 Oct 2005
Description: View to south, towards Talens and the water.
[coordinates not recorded]



File Name: MallardBay West012.JPG
Date/Time Taken: 14 Oct 2005
Description: View to northwest from the middle of the West Site.
[coordinates not recorded]

Source: CH2MHILL Technical Memorandum, Hurricane Rita Response Mallard Bay Superfund Site, Louisiana Site Inspection and Sampling Results. February 2, 2006.