

# **Health Consultation**

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**COMBUSTION, INC.  
POST-HURRICANE GROUNDWATER SAMPLING EVALUATION**

**LIVINGSTON PARISH, LOUISIANA**

**EPA FACILITY ID: LAD072606627**

**AUGUST 30, 2006**

**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

COMBUSTION, INC.  
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EPA FACILITY ID: LAD072606627

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

AST	Aboveground storage tank
ATSDR	Agency for Toxic Substances and Disease Registry
bgs	Below ground surface
EPA	Environmental Protection Agency
LDEQ	Louisiana Department of Environmental Quality
LDHH	Louisiana Department of Health and Hospitals
MW	Monitoring well
NPL	National Priorities List
OPH	Office of Public Health
PCBs	Polychlorinated biphenyls
PRPs	Potentially responsible parties
ROD	Record of Decision
SEET	Section of Environmental Epidemiology and Toxicology
SVOCs	Semivolatile organic compounds
UST	Underground storage tank
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 13, 2005, to determine whether contamination may have reached the groundwater via recharge from the surface, EPA collected groundwater samples from two monitoring wells at the Combustion, Inc. site, located in Livingston 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 Combustion, Inc. monitoring wells to determine whether contaminants in 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 Combustion, Inc. site is an inactive, abandoned waste oil recycling facility in Livingston Parish, Louisiana. The facility is located 3 miles northeast of Denham Springs, Louisiana, at Milton Road and Burgess Road. Combustion, Inc., formerly Dubose Oil Company, operated from the late 1960s until the early 1980s. The facility consisted of a small processing plant, a pond area, and a connecting pipeline. The facility conducted both oil reclamation and wastewater treatment. The 2.5 acre process area contained 16 aboveground storage tanks (ASTs), a small tanker truck, 11 underground storage tanks (USTs), a boiler, a boiler shed, a pump shed and associated foundations, piping, sumps and containment walls. The wastewater treatment system in the former pond area treated storm water run-off and excess water from hydrocarbon recycling, activities contaminated by oil or oily wastes. The 6.5 acre pond area contained two ASTs, one UST and 14 interconnected ponds with a total surface area of approximately 2.4 acres and an estimated capacity of approximately 4 million gallons [1].

The site hydrology is characterized by two water bearing zones, the upper and lower water bearing zones identified in the vicinity of the former process area. Based on interpreted boring logs, these zones are hydraulically connected, although varying degrees of separation occur. The top of the upper water bearing zone is generally encountered at depths ranging from 4 to 18 feet below ground surface (bgs) and the base is variable but no greater than 30 feet bgs. The top of the lower water bearing zone is encountered at depths of 26 to 42 feet bgs but is usually near 30 feet bgs and the base is encountered at depths of 59 to 102 feet bgs [2].

Combustion, Inc. completely shut down operations in May 1982. In October 1983, the Louisiana Department of Environmental Quality (LDEQ) analyzed wastes from the site and found they contained polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), and heavy metals. In February 1985, LDEQ detected lead and thallium in groundwater at the site, and VOCs in the air. The site was added to the NPL in August 1990 following the identification of potentially responsible parties (PRPs) and site assessment [1].

An expedited removal action was completed during late 1992 through 1993. Approximately 25,700 tons of soil and 2,000 tons of debris and foundation materials were excavated and disposed offsite; 8,000 tons of solidified sludge and paraffin and 3,400 linear feet of pipeline were excavated and disposed offsite; approximately 58,086 gallons of oil was sent offsite for energy recovery; 18 ASTs and 12 USTs were emptied of contents, dismantled and recycled; and 11.3 million gallons of wastewater were treated and discharged. Per EPA, this removal action eliminated unacceptable health risks associated with soil, sludge and waste for future industrial workers and future residents [2].

Groundwater beneath the former facilities in the process area has been impacted by site activities. Based on sample results, the groundwater contains concentrations of VOCs and semivolatile organics (SVOCs). No non-aqueous phase liquid was detected at the top or bottom of the water column. The more widely distributed constituent groups in this area are the semivolatile aromatic amines and volatile chlorinated organics including 1,2-dichloroethane. The constituents are present in the groundwater to approximately 30 feet bgs, and groundwater movement to the south has contributed to contaminant migration approximately 500 feet beyond the former process area, leaving approximately a 500-foot wide zone between the plume edges and the southern site boundary [1].

The Record of Decision (ROD) was signed by LDEQ April 30, 2004 and by EPA on May 28, 2004. The major elements of the remedy will include phytoremediation to prevent further migration of contaminants in the groundwater; groundwater monitoring in the upper and lower water bearing zones in the vicinity of the former process area; natural attenuation and fate and transport modeling of the groundwater; groundwater monitoring in the vicinity of the former pond area for VOCs; a site long-term care plan that provides a framework for site upkeep during the remedial action; hot-spot treatment as the contingency remedy in the more highly contaminated area of the groundwater plume; and institutional controls [1]. Remedial action construction was completed on July 10, 2006, with the signature of the preliminary closeout report by LDEQ. Because this remedy involves groundwater restoration, the end of the remedial action will be documented in an Interim Remedial Action Report scheduled for completion in June 2007 [2].

## **Demographics**

The Combustion, Inc. site is located in Livingston Parish, Louisiana. Census 2000 results record a parish population of 91,814. The largest ethnic group in that parish at that time was Caucasian (94.3%), followed by African American (4.2%), American Indian or Alaska Native (0.4%), Asian (0.2%), with 0.9% of the population reporting as Other. 77.2% of the population age 25 or older in 2000 had earned at least a high school diploma. The median household income in 1999 was \$38,887 with 11.4% of persons living below poverty level [3]. The largest employers in the parish were the retail trade industry; the manufacturing industry; accommodation and food services; health care and social assistance; administrative, support, waste management, and remediation services [4].

There are approximately 1,000 residents that live within a 1-mile radius of the site. The immediate residential properties are located along the northern, eastern, and western boundaries and consist of 36 homes [2].

## **Discussion**

### **Environmental Data**

On October 13, 2005, EPA collected shallow groundwater samples from monitoring wells MW210S and MW212S located in the far down gradient side of the property. All samples were analyzed for VOCs. The shallow sources of groundwater were tested after the hurricane to determine if any site-related residual contamination migrated from soils at the site into the shallow groundwater.

EPA and LDEQ completed a walking tour of the entire Combustion site on October 13, 2005. No evidence of damage at the site associated with the hurricanes was observed. No standing water or evidence of flooding was seen. There was no evidence of erosion or of any other activity (such as ruts, digging, or similar) which might have disturbed the ground surface area. No damage to the perimeter security fencing was observed (See Site Photographs) [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. 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.

### **Exposure Pathways**

To determine whether a child or adult would be exposed to contaminants detected in groundwater from the Combustion, Inc. 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 residential water supply is sourced from public groundwater wells. The Combustion, Inc. site has an upper and lower water bearing zone, unconnected with the city drinking water source. The local population is unlikely 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 contaminants at the site and the local population.

### **Health Effects Evaluation**

There are no completed or potential exposure pathways at the Combustion, Inc. site, as the residential water supply is not sourced from the onsite water bearing zones. 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. SEET found no public health hazard to children living near the Combustion, Inc. site.

### **Conclusions**

Evaluation of the groundwater sampled by EPA during its post-hurricane investigation suggests that there is no public health hazard from exposures to groundwater from the Combustion, Inc. 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 Combustion, Inc. 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 Livingston Parish, Louisiana by SEET.

**Preparers of this Report**

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### Certification

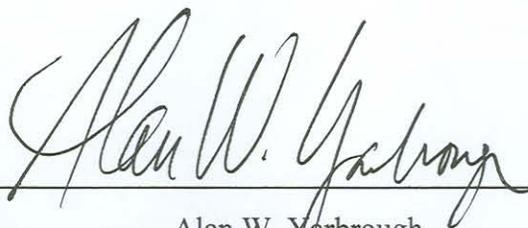
This health consultation for Combustion, Inc. was prepared by Louisiana Department of Health and Hospitals under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). It was completed in accordance with approved methodology and procedure existing at the time the health 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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Alan W. Yarbrough  
Cooperative Agreement Team Leader, DHAC, ATSDR

## References

1. CH2MHILL. Technical Memorandum: Hurricane Katrina Response Combustion, Inc., Louisiana Site Inspection and Sampling Results; December 2005.
2. Environmental Protection Agency Region 6. Fact Sheet for the Combustion, Inc. Site, Livingston Parish, Louisiana. Accessed 22 Jun 2006 at URL: <http://www.epa.gov/superfund/sites/npl/la.htm>
3. U.S. Census Bureau, Livingston Parish, Louisiana Population Finder- American Fact Finder. Generated by Darcie Olexia. Accessed 9 Aug 2006 at URL: <http://factfinder.census.gov/>
4. U.S. Census Bureau, Livingston Parish, Louisiana American Fact Finder. Generated by Darcie Olexia. Accessed 9 Aug 2006 at URL: <http://factfinder.census.gov/>

**Figures**

**Figure 1: October 2005 groundwater sampling locations, Combustion, Inc. site.  
Livingston Parish, LA.**



Source: CH2MHILL Technical Memorandum, Hurricane Katrina Response Combustion, Inc. Superfund Site, Louisiana Site Inspection and Sampling Results. December 2005.

**Site Photographs**

Combustion, Inc. Post-hurricane Groundwater Sampling Evaluation  
Livingston Parish, Louisiana

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**File Name:** CombustionMW210S.JPG  
**Date/Time Taken:** 13 Oct 2005  
**Description:** Photo of MW210S being sampled.



**File Name:** CombustionMW210Sb.JPG  
**Date/Time Taken:** 13 Oct 2005  
**Description:** Photo of MW210S being sampled.



**File Name:** CombustionMW212Sb.JPG  
**Date/Time Taken:** 13 Oct 2005  
**Description:** Photo of MW212S being sampled.



**File Name:** CombustionPhyto1.JPG  
**Date/Time Taken:** 13 Oct 2005  
**Description:** Photograph of phyto-remediation trees at site.

Source: CH2MHILL Technical Memorandum, Hurricane Katrina Response Combustion, Inc. Superfund Site, Louisiana Site Inspection and Sampling Results. December 2005.