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ENGINEERING & HYDROGEOLOGY

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October 6, 2005

Ms. Wilma Subra
Subra Company
P.O. Box 9813
New Iberia, LA 70562

Subject: Sediment and Surface Water Sampling and Analyses
Five Louisiana Locations

Dear Ms. Subra:

On September 16, 2005, Altamont Environmental, Inc. (Altamont) assisted Subra Company with sediment and surface water sampling at five locations in south Louisiana. The sampling was conducted as part of an effort to assess potential contamination that may have resulted in residential areas due to the affects of Hurricane Katrina.

In summary: using a small population of samples, this study has shown that several contaminants exist in the residential areas that were sampled. However, two facts remain unknown: the physical extent of these contaminants, and the range of existing concentrations. These determinations can only be made on the basis of additional sampling and characterization of these areas.

This letter contains a description of the background, findings, and conclusions of the sampling and the associated sample analyses.

BACKGROUND

Following Hurricane Katrina, Subra Company requested assistance from Altamont with collection and analyses of sediment and surface water samples at the following general locations:

- Bywater neighborhood in New Orleans
- Near the Industrial Canal in New Orleans
- Chalmette and Meraux

Flooding associated with Hurricane Katrina deposited a layer of sediment in many areas of southeast Louisiana, including these three general areas. The purpose of this project was to screen sediments in residential areas for a wide range of organic and inorganic compounds. Samples were to be similarly collected and analyzed where standing surface water was observed. The samples were analyzed for compounds that might reasonably be expected to occur in these areas, given nearby land uses.

As shown in the following text and tables, the analytical results have been compared to Louisiana Department of Environmental Quality (LDEQ) and US Environmental Protection Agency (US EPA) criteria.

METHODS AND OBSERVATIONS

SAMPLE LOCATION SELECTION

A total of five sample locations were selected in the three previously described general areas. The locations of these samples with respect to the New Orleans area are shown in Figure 1. Each location was chosen on the following bases:

Bywater (SS-1)

The Bywater neighborhood was selected because of the extensive flooding that occurred in a densely populated residential area. During a drive through of the area, a thin layer of residual sediment was observed in most locations southeast of Interstate-10 along North Claiborne Avenue and North Robertson Streets, west of Franklin Avenue. The actual sampling location was in the median at the intersection of North Claiborne and St. Roch Avenues. Figure 2 shows the approximate location of SS-1.

East New Orleans (SS-2 and SW-2; SS-3)

The area in east New Orleans near the Industrial Canal was selected due to extensive flooding that occurred there and the proximity of an EPA Superfund site (Agriculture Street Landfill) to a residential neighborhood.

A sediment layer of variable thickness was also observed in most locations during a drive through of the area. Two sample locations were selected: one (SS-2 and SW-2) near the corner of Almonaster Boulevard and Liberty Terrace Drive, and one (SS-3) along Morrison Avenue near Foch Road. Respectively, these sites were south and north of Interstate 10.

Sample SS-2 was collected from a grassy median, and SW-2 was collected from standing water near the middle of the northbound portion of Almonaster. Both locations were approximately 60 feet south of the northern intersection of Liberty Terrace with Almonaster.

Sample SS-3 was collected from the intersection of Morrison Avenue and the entry drive to "Georgetown of New Orleans;" an apartment complex north of Morrison Avenue.

Samples SS-2 and SW-2 are shown in Figure 3. Sample SS-3 is shown in Figure 4.

Meraux (SS-4)

The Meraux area was selected for sampling due to extensive flooding and the proximity of the Murphy Oil Company refinery to residential areas. Altamont attempted to enter streets west and east of the refinery. Several streets on both of these sides of the refinery were blocked by police barricades. Judy Drive was the first open street east of the refinery. In an attempt to sample near the tank farm portion of the refinery, Altamont selected a location on the west side of Judy Drive, near its intersection with East

Judge Pérez Drive. The sample was collected from the west side of Judy Drive, approximately 100 feet south of East Judge Pérez Drive, in a location where sediment had been cleared from the street. Sediment thickness near SS-4 ranged from approximately one to four inches. Figure 5 shows the approximate location of SS-4.

Chalmette (SS-5)

The Chalmette area was selected for sampling due to extensive flooding and the proximity of the Exxon/Mobil Oil refinery to residential areas. Altamont collected the sample from the east side of Lloyds Avenue in an area where dried sediment had accumulated. This location was some 850 feet north of West St. Bernard Highway, which is adjacent to the northern boundary of the refinery. Figure 6 shows the approximate location of SS-5.

SAMPLE COLLECTION

Altamont restricted sediment sampling to the apparent layer of recently deposited material. All sediment samples were collected from undisturbed areas in public rights-of-way. The sole surface water sample was collected from water standing in the street.

In each case, except that encountered at the Almonaster Avenue location, the sediment layer was visibly distinct from the native soil. Sediment observed at Almonaster was saturated and, based on the wet appearance of grass and portions of the adjacent street, flood waters appeared to have receded within hours of the time that the sample was collected. As a result, the relatively thin sediment layer, approximately 1/8-inch, was indistinct from the native soil.

Conditions at the five sample locations were noted with the following observations:

- SS-1: Light gray, fine grained, dry sediment; approximately 1/8-inch thick
- SS-2: Dark brown, fine grained, saturated sediment; approximately 1/8-inch thick
- SW-2: Standing water
- SS-3: Medium gray and grayish-tan (two distinct colors), fine grained, dry sediment; approximately 1/4-inch thick
- SS-4: Dark brown, fine grained, nearly saturated sediment; approximately 1 to 2 inches thick
- SS-5: Medium brown-brown, fine grained, dry sediment; approximately 1/2-inch thick

All samples were collected using stainless steel scoops and/or new vinyl gloves. The collected quantities of soil and water were placed in new sample containers provided by Pace Analytical Services (Pace). The sample containers were then placed in coolers and covered with ice. Altamont maintained control of the cooler throughout the sampling period until delivery of the cooler containing all five samples plus a trip blank, to the Pace laboratory in St. Rose, Louisiana at approximately 5:30 pm on the day of sampling.

LABORATORY ANALYSES

The analyses included the following parameter suites and methods:

- Volatile Organic Compounds (VOCs) by US EPA Method 8260
- Semivolatile Organic Compounds (SVOCs) by US EPA Method 8270
- The eight Resource, Conservation, and Recovery Act (RCRA) metals by various US EPA Methods in the 6000/7000 series
- Total Petroleum Hydrocarbons (TPH), as Diesel Range and Gasoline Range Organics (DRO/GRO)

Specifically however, the samples were analyzed for the parameter suites:

- SS-1: VOCs, SVOCs, and metals
- SS-2: VOCs, SVOCs, and metals
- SW-2: VOCs, SVOCs, and metals
- SS-3: Metals, TPH-DRO, TPH-GRO
- SS-4: VOCs, SVOCs, and metals
- SS-5: VOCs, SVOCs, and metals

The analytical detections are presented in Tables 1 through 3. The detections, however, are summarized by the following statements:

- Synthetic organic compounds, primarily SVOCs, were identified in all five soil samples.
- Elevated reporting limits for SVOCs exceeded US EPA criteria in at least one case (i.e., Benzo(a) pyrene).
- Metals were identified in all five soil samples.
- Synthetic organic compounds, primarily VOCs, were identified in the single surface water sample that was collected.

Soil

Specifically, the following VOCs were identified in soil:

Acetone
Benzene
2-Butanone
(MEK)

Carbon Disulfide
Chlorobenzene
1,2-Dichloroethane

Methylene Chloride
Toluene
Xylenes (Total)
TPH – GRO

The following SVOCs were identified in soil:

Acenaphthylene	Benzo(g,h,i)perylene	Fluoranthene
Anthracene	Benzo(a)pyrene	Indeno(1,2,3-cd)pyrene
Benzo(a)anthracene	Carbazole	Phenanthrene
Benzo(b)fluoranthene	Chrysene	Pyrene
	bis(2-Ethylhexyl)phthalate	TPH - DRO

The following metals were identified in soil:

Arsenic	Cadmium	Lead
Barium	Chromium	Mercury

Water

The following compounds were identified in surface water: Benzene, 2-Butanone (MEK), Carbon Disulfide, Ethylbenzene, 2-Hexanone, Toluene, m,p-Xylene, o-Xylene (VOCs); bis (2-Ethylhexyl) phthalate (SVOC), and Barium (Metal).

Quality Control

As shown in Tables 1 through 3, many detections reported by the laboratory were estimated (also known as "J values"). Such values may be reported when the concentration of an analyte is below the US EPA method reporting limit, but above the instrument reporting limit.

Additionally, as noted in footnote No. 14 on Table 1: acetone and methylene chloride may have been detected due to ambient concentrations of these compounds in the laboratory.

The trip blank was analyzed for VOCs. Acetone and 2-Butanone were detected at estimated concentrations of 9.18 and 1.85 micrograms per liter ($\mu\text{g/L}$), respectively.

CONCLUSIONS

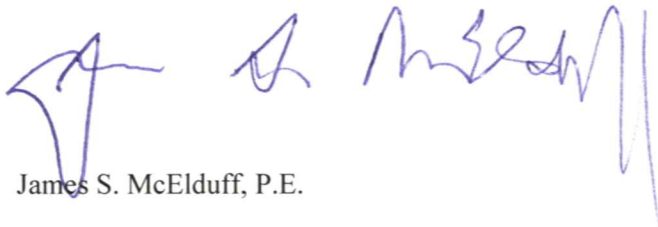
- Sampling conducted on September 16, 2005 documented contamination in five residential areas within New Orleans, Chalmette, and Meraux.
- Together, the sediment samples collected from the three neighborhoods contained arsenic, benzo(a)pyrene, and petroleum hydrocarbons at levels exceeding US EPA and LDEQ standards.

- Regulatory criteria were exceeded at the following three sampling locations:
 - Intersection of North Claiborne Avenue and St. Roch Avenue in New Orleans (Figure 2)
 - Near the intersection of Almonaster Boulevard and Liberty Terrace Drive in New Orleans (Figure 3)
 - Near the intersection of Morrison Road and Foch Road in New Orleans (Figure 4)
- Elevated reporting limits for SVOCs may have masked the presence of these compounds. In one case (i.e., Benzo(a) pyrene), the US EPA standard is lower than the reporting limit. The absence of reported concentrations of this compound in Chalmette and Meraux, should not be taken as an assurance that it is not present at concentrations exceeding the US EPA standard.

The purpose of the sampling conducted on September 16, 2005 was to screen sediments and surface water in an attempt to determine whether contaminants exist in residential areas. Using a small population of samples, this study has shown that several contaminants exist in these areas. However, two facts remain unknown: the physical extent of these contaminants, and the range of existing concentrations. These determinations can only be made on the basis of additional sampling and characterization of these areas.

Thank you for providing Altamont the opportunity to provide these environmental services. If you have any questions or comments concerning the proposal, please contact us at your convenience.

Sincerely,



James S. McElduff, P.E.

Attachments: Figures 1 - 6
Tables 1 - 3
Laboratory Data Sheets