

MISSISSIPPI RIVER -- GULF OUTLET
NEW LOCK AND CONNECTING CHANNELS

APPENDIX - C, PART II

SAMPLING AND ANALYSIS REPORT (SAR)
PHASE II HTRW INVESTIGATION
INNER HARBOR NAVIGATION CANAL
New Orleans, Louisiana

Prepared by

US ARMY CORPS OF ENGINEERS,
NEW ORLEANS DISTRICT
ST. LOUIS DISTRICT

Sampling and Analysis Report (SAR)
Phase II Hazardous, Toxic and
Radiological Waste (HTRW) Investigation

Inner Harbor Navigation Canal
New Orleans, Louisiana

EXECUTIVE SUMMARY

Field investigation, sampling and analytical testing were undertaken by the New Orleans District and St. Louis District of the United States Army Corps of Engineers (i.e. USACE-NOD and USACE-SLD, respectively) to generate baseline chemical data at the Inner Harbor Navigation Canal (IHNC) New Lock project site, New Orleans, Louisiana. Data acquired were examined to assess the type and extent of contamination in soils, groundwater, sediments and surface water at the project site. The main objective is to determine acceptable disposal and treatment options for soils and sediments excavated or dredged during construction of the new lock and bypass channel structures. The disposal alternatives investigated include land disposal (i.e. landfill) and aquatic disposal (i.e. open water or beneficial use).

This Phase II HTRW study was undertaken in two (2) major stages - Phase IIA and Phase IIB. The Phase IIA investigations include: (a) a passive soil gas survey (Phase IIA1) followed by confirmatory sampling and testing of soils and groundwater undertaken in 1993 on 32 acres of property situated in the northeast bank of the IHNC; and (b) sampling and testing of bottom sediments and surface water in the Canal and the proposed (aqueous) disposal sites. The Phase IIB investigations include: (a) a passive soil gas survey (Phase IIB1) in March 1994 followed by confirmatory sampling and testing in May and June 1996 of soil and groundwater on 45 acres of property located on the west and southeast banks of the Canal. The Port of New Orleans, in May 1994, undertook hazard characterization (HazCat) of containerized wastes (i.e. drums and cans) at industrial sites located along the northeast section of the project.

The results of the above investigations are discussed in two summary reports prepared by USACE-NOD (Phase IIA2) and by USACE-SLD (Phase IIB2). The complete chemical data submittals from the contract laboratories are compiled in eleven (11), one- to three-inches thick, binders. These submittals are not attached to this Phase II HTRW report but are available for inspection in their entirety at USACE-NOD. Detailed results of the soil gas surveys are available in two (2) separate reports prepared and submitted by the Northeast Research Institute (NRI) to USACE-NOD. Detailed results of the HazCat of containerized wastes are likewise available in a separate report prepared by Materials Management Group (MMG) for the Port of New Orleans.

The results of the above investigations are as follows:

(a) The soil gas surveys screened "hot spots" or areas with elevated organic contamination. The hot spots are concentrated at industrial sites situated in the northeast sector of the project corridor as well as at the US Coast Guard compound on the west bank. The soil gas survey reports as well as the Phase I Initial Assessment report were used as guidance for the confirmatory sampling and testing during the Phase IIA2 and Phase IIB2 investigations.

(b) Results of the Phase IIA2 investigations indicate the presence of contaminated soils and groundwater at the northeast bank of the project. Except for one soil analysis that failed EPA toxicity criteria for lead (Pb), tests performed on several samples yield results that generally pass the toxicity limits and ignitability criteria established by EPA. Although majority of the soils show total concentrations that also passed the 1990 EPA action levels, preliminary estimates yield 14000 cubic yard of soil with lead concentration of >100 mg/kg, 8250 cubic yard of soil saturated with used oil and 3820 cubic yard of soil contaminated with petroleum fuel that may require special handling or treatment prior to disposal. An unestimated volume of nonaqueous petroleum-product-rich liquids at the bottom of oil-saturated soils as well as an unestimated volume of groundwater contaminated with metals may also require special handling.

(c) Bottom sediment samples from the Canal show detectable total and TCLP concentration levels of metals and certain herbicides. Based on EPA's TCLP criteria, the Canal sediments do not require special hazardous handling. The Canal sediments were also determined to be generally acceptable for disposal at the mitigation site and at an existing site used for maintenance dredging of the Mississippi River Gulf Outlet (USACE-NOD Water Quality Report, 1993).

(d) Hazard characterization of a total of 242 drums and 840 cans collected and staged yielded the following waste streams: solid wastes, mixed oil and water, dry and liquid paint, and blended solvent. These wastes were bulked and transferred into 46 drums that are grouped into 4 waste streams: solid waste (26 drums), dry paint (10 drums), liquid paint (9 drums) and blended solvent (1 drum). Representative samples from these drums were tested for land disposal, incineration and recycling requirements including ignitability, corrosivity, reactivity, toxicity, PCB and BTU. The 20 drums of wastes including dry paint, liquid paint and solvent fail the RCRA ignitability and toxicity criteria and are classified as hazardous, these waste groups are recommended for incineration. Drums with solid wastes were determined to be nonhazardous and acceptable for disposal at an industrial landfill. About 1500 gallons of mixed oil and water from original drums were bulked for recycling. Pollutants, principally lead and organics, determined in the drums are similar to those discovered by the Phase IIA2 soil sampling effort. Disposal of the drums by the Port of New Orleans will prevent potential contamination of the soil and groundwater.

(e) Results of the Phase IIB2 investigations indicate the presence of contaminants at concentration levels in the parts per billion to parts per million range in nine areas investigated in the west bank of IHNC. According to USACE-SLD, the contaminants were not detected at concentrations which would classify the soils and groundwater as hazardous.

The Phase IIA2 report has been distributed for review to the Department of Environmental Quality of the State of Louisiana and the US Fish and Wildlife Service to coordinate appropriate disposal and treatment options for questionable contaminated solid and liquid material discovered at the IHNC project site. USACE-SLD recommends the Phase IIB2 report to be distributed for review by appropriate state agencies in Louisiana.

**MISSISSIPPI RIVER -- GULF OUTLET
NEW LOCK AND CONNECTING CHANNELS**

APPENDIX - C, PART II

**SAMPLING AND ANALYSIS REPORT (SAR)
PHASE IIA2 ETRW INVESTIGATION
INNER HARBOR NAVIGATION CANAL
(Northeast Bank, Canal, Disposal Site)
New Orleans, Louisiana**

Prepared by

**FOUNDATION AND MATERIALS BRANCH
AND
HYDRAULICS AND HYDROLOGIC BRANCH
ENGINEERING DIVISION
US ARMY CORPS OF ENGINEERS
NEW ORLEANS DISTRICT**

**October 1993
(1st Draft Rev: August 1995)**

(Exec. Sum. Update: 10 October 1996)

EXECUTIVE SUMMARY

Following the conclusions reached by the 1992 Phase I HTRW Initial Assessment report, Phase II field investigation, sampling and analytical testing were undertaken by the US Army Corps of Engineers, New Orleans District (USACE NOD), to generate baseline chemical data at the Inner Harbor Navigation Canal (IHNC) New Lock project site, New Orleans, Louisiana. Data acquired were examined to assess the type and extent of contamination in soils, groundwater, sediments and surface water at the project site as well as to determine acceptable disposal and treatment options for soils and sediments excavated or dredged during construction of the new lock and bypass channel structures.

This Sampling and Analysis Report (i.e. Phase IIA2 HTRW Investigation) summarizes the investigations performed on 32 acres of property situated on the northeast bank of the Canal, an area considered as the most industrialized sector of the project, as well as on the Canal and the proposed disposal sites. The investigations included: (a) a passive soil gas survey followed by (b) confirmatory sampling and testing of soils and groundwater, and (c) sampling and testing of bottom sediments and surface water in the Canal and the proposed disposal sites. This report was initially called as HTRW Remedial Investigation. To be consistent with the report on the west bank, this report shall be termed hereon as Sampling and Analysis Report (SAR), Phase A2 HTRW Investigation.

The field and chemical data collected during this Phase IIA2 study reveal the following:

1. Bottom sediment samples from the Canal show detectable total and TCLP concentration levels of metals including arsenic, barium, chromium, lead and mercury. Except for herbicides, 2,4-D and 2,4,5-TP (silvex), all other targeted organic pollutants are below detection limits. Based on EPA's TCLP criteria, the Canal sediments do not require special hazardous handling.
2. The soil and groundwater samples from the east bank are contaminated with pollutants released as a result of industrial activities at the site. The most contaminated soils occur at the nearsurface from the top of ground till depths of about 5 feet. Among the targeted pollutants, metals, volatile organic compounds and base / neutral semivolatile organic compounds yield detectable total concentration levels. The metal of concern is lead while the organic compounds include PAHs and BTEX commonly found in oil and petroleum fuel. Chlorinated hydrocarbons were also detected at low levels in the soil and groundwater. Very low levels of pesticides including 4,4'-DDT and 4,4'-Metoxychlor were detected in one soil sample. Soil samples collected for special tests show one positive result for asbestos (5 - 10% chrysotile fibers), negative results for dioxin (screen-test) and nondetectable results for PCBs.
3. With few exceptions, majority of the pollutants detectable in the soils have total concentration levels below the 1990 action levels proposed by EPA. Except for one soil analysis that failed EPA toxicity limits for lead (Pb), TCLP and ignitability tests performed on several samples yield results that generally pass the regulatory toxicity limits and ignitability criteria established by EPA.
4. The analytical data indicate that majority of the soils to be excavated from the east bank is generally acceptable for disposal at an

industrial landfill. If the top five foot soils are excavated for land disposal, preliminary estimates yield about 14000 cubic yard of soil with lead concentrations of >100 mg/kg, 8250 cubic yard of soil saturated with used oil, and 3820 cubic yard of soil contaminated with petroleum fuel that may require special handling or treatment prior to disposal. An unestimated volume of nonaqueous petroleum-product-rich liquids at the bottom of oil-saturated soils may require collection and proper disposal prior to excavation of the soils. In addition, an unestimated volume of the groundwater may require treatment of metals. These estimates are tentative and will change as new field and analytical data are acquired, action or treatment levels are agreed upon with regulatory agencies, and disposal and treatment methods are selected.

5. Soils from the east bank excavation area were not tested for aqueous disposal. However, the pollutant total concentration levels in soils below depths of 5 feet show abundance levels comparable to moderately higher to the same type of pollutants found in the Canal bottom sediments. The Canal sediments are determined to be generally acceptable for disposal at the mitigation site and at an existing site used for maintenance dredging of the Mississippi River Gulf Outlet (USACE-NOD Water Quality Report, 1993).

Although majority of the soils generally pass published Federal numerical criteria, the State may have special concerns. Consultations with the State of Louisiana Department of Environmental Quality (LDEQ) as well as with the US Fish and Wildlife Service (USFWS) are underway to acquire specific guidance on State action levels for lead, oil saturated soils and petroleum fuel contaminated soils, help guide future investigations, resolve concerns on public health and environmental risks associated with soil and sediment excavation at the site, and explore acceptable disposal and treatment schemes.