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**Appendix B**

**Site Summaries  
FY 2007-08**

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## **Amax Metals Recovery, Inc., Port Nickel Facility**

**Agency Interest # 16817**

**Braithwaite, Louisiana**

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The AMRI Port Nickel Facility (the Facility) is located in Braithwaite, Plaquemines Parish, Louisiana. The Facility comprises approximately 1,100 acres on the east bank of the Mississippi River, approximately 15 miles south of New Orleans, Louisiana. From 1957 to 1959, the Cuban-American Nickel Company used the Facility to process metal sulfide concentrates and produce pure forms of nickel and cobalt. From 1972 through 1985, AMAX Inc. owned the plant and produced metallic nickel, cobalt and copper. In 1985, the Facility's name was changed to AMRI when AMAX and Shell Oil Company partnered to modify the facility to use spent catalysts from petroleum refining operations as its principal feed stock. AMRI produced aluminum, nickel, molybdenum, and other metals until closing in 2000. The current owner continues to be AMRI, which is a wholly owned subsidiary of Freeport-McMoRan.



**AMAX Metals Recovery Inc., Port Nickel Facility Before Cleanup Activities  
and Hurricane Katrina**

Prior to closure of the facility, an environmental assessment was necessary. In EPA's March 24, 1994 RCRA Facility Assessment (RFA) Report, 58 SWMUs were identified. Of these, 32 were identified in the LDEQ's November 25, 1998 Administrative Order as requiring investigation. A site investigation plan for the 32 SWMUs was submitted January 28, 2000, resulting in the termination of the Order on October 13, 2000. Remedial activities at AMRI were undertaken during 2000 through 2007 in accordance with its permits and voluntary actions. An additional two areas of interest (AOI) were also voluntarily investigated by the facility. Implementation of the investigations, risk evaluations, and corrective actions were completed for 24 of the SWMUs/AOIs by November 15, 2007 and included in the LDEQ VRP Certificate of Completion/NFA. Five more areas were addressed by June 3, 2008 under the State/Federal Ready for Reuse Determination. The remaining three areas are addressed under AMRI's current Solid Waste Permit.



**AMAX Metals Recovery Inc., Port Nickel Facility Following Cleanup Activities**



**Aerial Photograph of the Facility**

On August 13, 2007, AMRI submitted an application to participate in LDEQ's VRP for a 215 acre area of the Port Nickel Facility. All requirements of the VRP were met including a CA performed at the last remaining unit requiring remediation, the Former UST Waste Pile Area (SWMU 42). A VRP Certification of Completion/No Further Action (COC/NFA) determination dated November 15, 2007 was issued at a ceremony held at the AMRI facility in Braithwaite.

On May 13, 2008, AMRI submitted a request for a Ready for Reuse Determination. The 410 acre area covered by this determination includes the entire area addressed by the VRP COC/NFA (24 SWMUs), plus additional parts of SWMU 10 (Oxidation Pond and Process Water Pond), SWMU 12 (Landfills A and AI), the Dock Structures, and SWMU 18, the NPDES Stormwater Drainage Ditches. Following extensive review of facility records and the filing of a conveyance notification by AMRI with Plaquemines Parish, a Ready for Reuse Determination letter was prepared and signed by both the Secretary of LDEQ, Hal Leggett, and the Director of Multimedia Planning and

Permitting Division of EPA Region 6, Carl Edlund. The determination letter states that LDEQ and EPA Region 6 agree that AMRI has successfully conducted investigation and risk management activities and the environmental conditions at the included area of the former Port Nickel Facility property are protective of human health and the environment based on its current and planned future commercial/industrial and ecological uses. The award ceremony was held June 3, 2008 at the National RCRA Corrective Action Conference held in New Orleans, Louisiana. Presentations were made jointly by OEA Assistant Secretary Louis Buatt for LDEQ and Carl Edlund for EPA.

Also during FY 2007-08, LDEQ prepared documentation of the achievement of two important environmental indicators for LDEQ's Performance Partnership Grant with EPA, and for LDEQ's Operational Plan: completion of remedy selection for the entire facility and completion of remedy construction for the entire facility. A memo was prepared on December 12, 2007 documenting the completion of requirements for the remedy selection indicator. The final unit with a remedy selected was SWMU 42, the Former UST Waste Pile Area. A memo was prepared on April 2, 2008 documenting the completion of requirements for remedy construction or documentation that no remedy construction was required. The final unit with a remedy construction approved was also SWMU 42, the Former UST Waste Pile Area.



**Ready For Reuse Ceremony, June 3, 2008**



**Elvis, One of AMRI's Most Famous Residents Will Continue to Enjoy His Home**

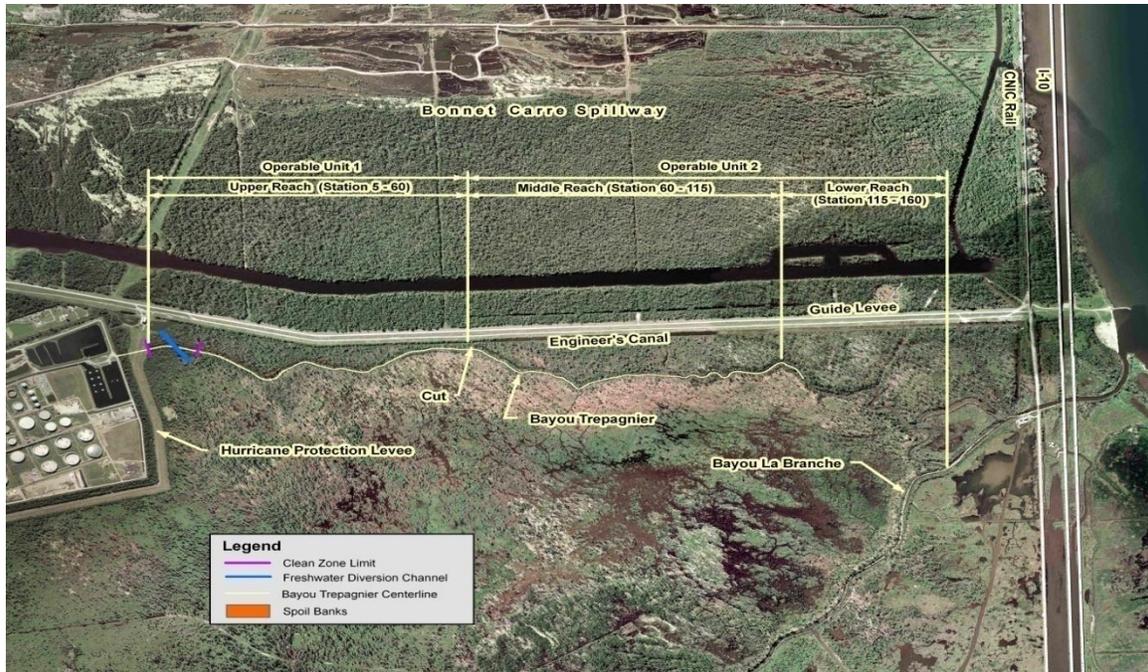
Future LDEQ monitoring activities will be conducted at the three areas of the Port Nickel Facility not included in the Ready for Reuse Determination: the Reclamation Process Pond (SWMU 8), the Wastewater Pond (part of SWMU 10), and the Wastewater Storage Pond (part of SWMU 10). These units were closed in-place and are currently being maintained under LDEQ Solid Waste Permit P-0135. The closure of the two areas included in SWMU 10 under the Solid Waste regulations was confirmed by LDEQ on October 8, 2007.

**Bayou Trepagnier**  
**Agency Interest # 44765**  
**Norco, Louisiana**

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Since spring 2001, LDEQ has worked with the responsible party, other federal and state agencies, and non-governmental organizations to develop solutions for the cleanup of the Bayou Trepagnier site. Bayou Trepagnier is located east of the lower guide levee north of Airline Highway (U.S. 61) near Norco. The bayou received discharges of wastewater from petroleum refinery operations from the 1930's to 1995. The site was split into two identifiable units – Operable Unit 1 (OU1) and Operable Unit 2 (OU2). OU1 is the upper reach of the bayou and extends approximately 5,500 feet in length. OU2 is the middle and lower reach of the bayou that comprises approximately 10,000 feet in length. A public meeting was held on June 5, 2007 to present the proposed remedy for the upper reach OU1 of Bayou Trepagnier. The proposed remedy of OU1 includes sediment stabilization and capping, construction of a clean zone for any potential conveyance of Mississippi River water into the LaBranch Wetlands, closure of the small “cut” into Engineer’s Canal, and other ancillary activities. The Decision Document, a project milestone, was signed by LDEQ in February 2007. It outlines the final remedy for the upper reach OU1 of Bayou Trepagnier. In August 2007, LDEQ signed a cooperative agreement with the responsible party which details the requirements, actions required, and deadlines for the future remedial action for OU1, and includes provisions for additional investigation sampling and risk assessment for OU2.

Motiva submitted the MO-3 RECAP Investigation Work Plan for OU2 in February 2008 and the Remedial Design for OU1 in June 2008. These documents were reviewed and modified, with approvals forthcoming in the next fiscal year. Future actions in FY 2008-09 will include completion of the additional investigation and risk assessment work for OU2 and gathering necessary field and pilot test data for completion of the Remedial Design for OU1 and completion of the Remedial Project Plan.



**Aerial Overview of Bayou Trepagnier**



**Typical Segment of Bayou Trepagnier**

## **Marine Shale Processors**

**Agency Interest # 5414**

**Amelia, Louisiana**

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In 2006, EPA, LDEQ, Marine Shale Processors (MSP), Recycling Park Inc. (RPI), and John Kent, Sr. entered into a Stipulation of Settlement and Judgment (Stipulated Judgment). Under the Stipulated Judgment, \$7,075,995 plus interest, was paid to the Secretary of LDEQ. Upon receipt, the LDEQ Secretary was required to deposit the funds in an escrow account and to expend such funds solely for the closure and remediation of the contamination at the MSP facility and/or the RPI facility.

In April 2007, LDEQ awarded a contract to begin remediation activities at MSP. The site, located on 9828 Highway 182 East in the Amelia area, was the location of a hazardous waste incinerator. The initial removal action addressed only the tanks in critical condition and in danger of failure. Initial removal activities were completed in March 2008 at a cost of \$2,002,145 and included:

- Treatment and off-site disposal of 2,317.36 tons of waste material,
- Recycling of 289.55 tons of steel from 13 storage tanks; and
- Treatment and off-site disposal of 194,534 gallons of waste water.

LDEQ is currently in negotiations with a group of potentially responsible parties (PRPs) to complete a facility-wide investigation and CA study for the remainder of the facility. LDEQ is withholding the remainder of the funds to be used for remediation activities until the remedial studies are completed by the PRPs. If an agreement cannot be reached with the PRPs, LDEQ will proceed with clean-up activities until the funds are exhausted. The benefit of having a completed investigation before conducting more cleanup is that the final remedy can be streamlined with removal of the remainder of the waste at potentially significant cost savings.



**View of Tanks H-1 through H-4, following removal of Tanks H-5 through H-7**



**View of Proprietary Reagent Being Added to the Waste for Stabilization Purposes**

**Myrtle Grove Trailer Park (aka A. Wilbert & Sons Trailer Park)**  
**Plaquemine Aquifer Contaminant Plume**  
**Agency Interest # 81438**  
**Plaquemine, Louisiana**

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On November 5, 1997 and September 30, 1998, the Louisiana Department of Health and Hospitals (LDHH) sampled water wells at the Myrtle Grove Trailer Park in Plaquemine, Louisiana, and detected levels of vinyl chloride and cis-1, 2-dichloroethylene, exceeding maximum contaminant levels (MCLs) established for drinking water under the federal Safe Drinking Water Act. The two chemicals were detected again during a February 26, 2001 sampling event and verified on March 13, 2001. LDHH notified LDEQ on March 29, 2001.

LDEQ began a groundwater investigation April 2, 2001. The initial objectives for the investigation were to: identify the source and extent of groundwater contamination and determine if additional exposure was occurring; identify potential sampling locations; perform a survey of water wells, irrigation wells, and petroleum production wells; review and investigate potential sources listed in the Source Water Protection Plan for the City of Plaquemine supply wells and the Myrtle Grove Trailer Park; review historical land use and potential sources using aerial photos; discuss historical activities and potential sampling locations with local citizens; and investigate reports from citizens of potential hazardous activity.

The initial sampling program centered in the area nearest to the Myrtle Grove Trailer Park. A number of private wells, used primarily for irrigation and pond supply, were identified during the well survey. Contamination was found to be highest north of the trailer park. The Dow Chemical Company, approximately one mile north, was informed of the investigation and both the LDEQ and Dow reviewed the status of known shallow groundwater contamination at the plant. Dow has several monitoring wells at the depth of the Plaquemine Aquifer that are used to determine if the shallow contamination at

the plant has moved deeper and away from the facility. None of these wells indicated contamination.

Dow entered into the investigation by beginning a soil boring program within the greenbelt south of the main plant entrance, sampling three different levels of the Plaquemine Aquifer to aid in the determination of the location and source of the contamination. Combining Dow's data with LDEQ's, over 120 sample points were used to delineate the extent of the plume. The investigation revealed that the area of contamination exists at approximately 120 – 200 feet below land surface (bls) and is approximately 1 mile wide by 2 miles long from just south of the Dow Chemical Plant to north of the City of Plaquemine supply wells. Use of the aquifer by the City of Plaquemine for drinking water and The Island Country Club for pond supply and irrigation has increased the movement of the plume southward.

The Louisiana Geological Survey Water Resources Bulletin No. 16 "Groundwater in the Plaquemine-White Castle Area, Iberville Parish" refers to the contaminated aquifer as the Mississippi River Alluvial Aquifer, which is known locally as the Plaquemine Aquifer. It is encountered at approximately 100 feet bls and is approximately 100 feet thick. The water is of poor quality, is hard and has high levels of naturally occurring iron and arsenic. The City of Plaquemine supplements its primary source of drinking water (wells located in Port Allen at approximately 2000 ft. deep in the Southern Hills Aquifer System) with treated water from this aquifer. Drinking water in Plaquemine is currently (2008) supplied equally from the two sources.

LDEQ first requested assistance on June 14, 2001 from the EPA's nationally known experts at the National Risk Management Research Laboratory Subsurface Protection and Remediation Division in Ada, Oklahoma. The national laboratory provided expertise in evaluation of the fate and transport of contaminants in the aquifer. Additionally, EPA Region 6 in Dallas, Texas, provided assistance with installation of monitor wells and expertise in modeling both potential sources and movement of the contaminants in the subsurface.

Due to the probable age and nature of the contamination, the exact location of the source of contamination is not likely to be determined. However, modeling performed by EPA Region 6 suggests a source area at and south of the former Lighthouse Road disposal site, owned by the Dow Chemical Company. This site, used in the 1960's and 1970's as an alternative location for disposal of waste, was remediated under the purview of LDEQ and EPA in 2004 and 2005.

In October 2004, LDEQ, EPA and Dow entered into a cooperative agreement wherein Dow committed to conduct a study of the current capability of the City of Plaquemine's ("the City") water treatment facility to treat contaminants, should they reach the City's system. Dow also agreed to perform semi-annual sampling of 19 wells in the Plaquemine area to observe and track the contaminant plume. The final requirement of the agreement was for Dow to perform a Remediation Study to evaluate the long-term need for remediation, and to evaluate options for remediation for the protection of human health and the environment. Dow submitted a final Remediation Study to both LDEQ and EPA, dated April 27, 2007. This study was approved by both agencies in correspondence dated July 24, 2007.

The Final Basis of Decision for the final remedy for contamination of the Plaquemine Aquifer was issued July 9, 2008. The public has been kept informed of investigation activities and the Final Basis of Decision through various public meetings and public hearings. A new cooperative agreement between Dow, LDEQ and EPA is being prepared wherein Dow will be required to submit various work plans and reports regarding the implementation of the preferred remedy. A Community Relations Plan will be required to describe how the community will be informed of monitoring results and progress of the remedy.

Sentinel wells near the City drinking water supply wells are sampled quarterly to determine if the plume is nearing the City's water supply. Eighteen wells in and around the plume are monitored semi-annually. Upon review and approval of a new sampling

plan that will be required in the new cooperative agreement, the number, location of wells and sampling parameters for the monitoring system may be modified.



**Source Investigation: Sampling Sediment in Bayou Plaquemine**



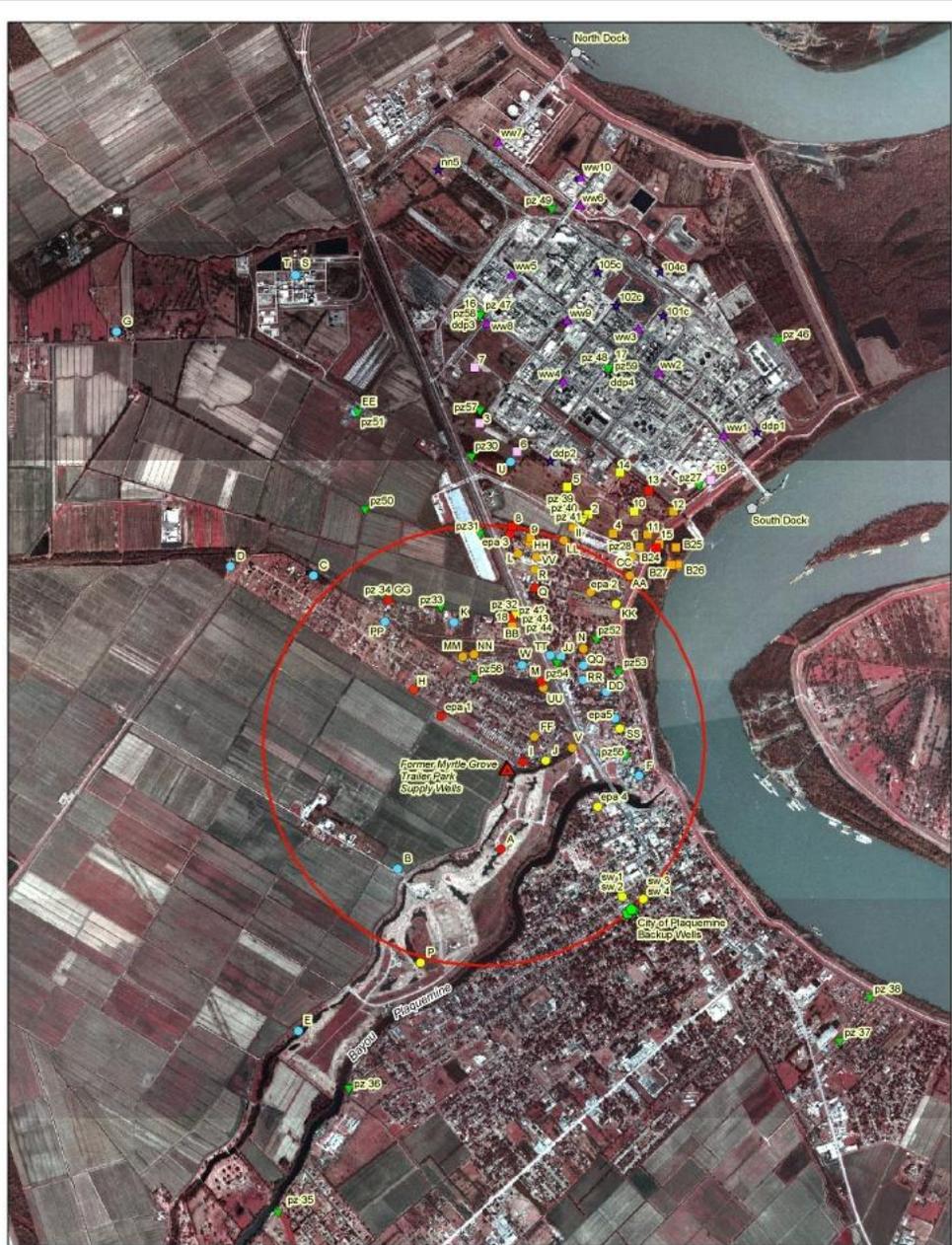
**Sampling a Citizen's Well in North Plaquemine**



**Piezometer Installed by Dow Chemical Company to Aid in Determining Flow Direction in the Plaquemine Aquifer**



**One of the Two Drinking Water Supply Wells at the Myrtle Grove Trailer Park**

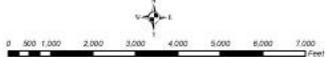


**Myrtle Grove Ground Water Investigation**

Number: 200701068  
 Date: April 10, 2007  
 Projection: Universal Transverse Mercator, Zone 15, NAD 83  
 Source: 2001 Aerial Photography, DOTD Water Wells, (2001);  
 Public Water Supply Locations from SWAP;  
 Location of DEQ Sampled Wells derived using  
 LDEQ GPS procedures, ESRI Streetmap



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 The Louisiana Department of Environmental Quality (LDEQ) has made every reasonable effort to ensure quality and accuracy in producing the map or data set. Nevertheless, the user should be aware that the information on which it is based may have come from any of a variety of sources, which are of varying degrees of map accuracy. Therefore, LDEQ cannot guarantee the accuracy of the map or data set, and does not accept any responsibility for the consequences of its use.



**Legend**

- ▲ Myrtle Grove Trailer Park Wells
- DEQ Sampled Well
- Borehole
- ▲ Fire Water Well
- ▲ Public Water Supply
- ▲ Piezometer
- ★ Dow Chemical Plaquemine Aquifer Well
- Dow Chemical River Gauge
- 1 Mile Radius
- Vinyl Chloride Detection (red)
- cis-1,2-Dichloroethene Detection (yellow)
- Vinyl Chloride & cis-1,2-Dichloroethene Detection (orange)

**Map Showing Sample Locations and Location of the Myrtle Grove Trailer Park**

## **Pan American Southern Corp. Refinery**

**Agency Interest # 4356**

**Destrehan, Louisiana**

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The LDEQ and EPA Region 6 granted a Ready for ReUse Determination for a large portion of the site, in April 2008. This determination was the culmination of a joint effort between BP Amoco (BP) and LDEQ that began in 1986 with a Remedial Investigation and Feasibility Study (RI/FS).

The RI/FS identified locations (also termed Areas of Investigation or AOIs) that required remediation for protection of human health and the environment. It also proposed remedies for each of these AOIs. The process of remediation, monitoring, and re-evaluation of the AOI in the event of changing conditions was governed by the Environmental Remediation and Monitoring Agreement (ERMA). BP and LDEQ entered into the ERMA on June 12, 1995.

Implementation of remedies required to protect human health and the environment were completed in 1997-1999. Remediation was also completed in specific areas of aesthetic concern on the north side of the railroad switchyard.

In 2003, BP and LDEQ began to evaluate the part of the site on the south side of the railroad switchyard for reutilization in accordance with Louisiana's RECAP. The Area of Concern (AOC) was divided into fifteen (AOI) for the assessment: AOI-A, AOI-B, AOI-C, 1-10, undeveloped area, and Destrehan Plantation License area. The RECAP investigation reached the following conclusions: that AOI-A, AOI-



**Gate on Alpha Drive**

B, AOI-C, AOI-2, AOI-4, AOI-8, AOI-9, AOI-10, undeveloped area, and plantation license

area comply with Non-industrial Soil (*Soil<sub>NI</sub>*) Remedial Standards. These AOIs can be used for any purpose. AOI-1, AOI-5, AOI-6, and AOI-7 complied with Industrial Standards (*Soil<sub>I</sub>*). These AOIs can be used for any industrial and commercial purpose.



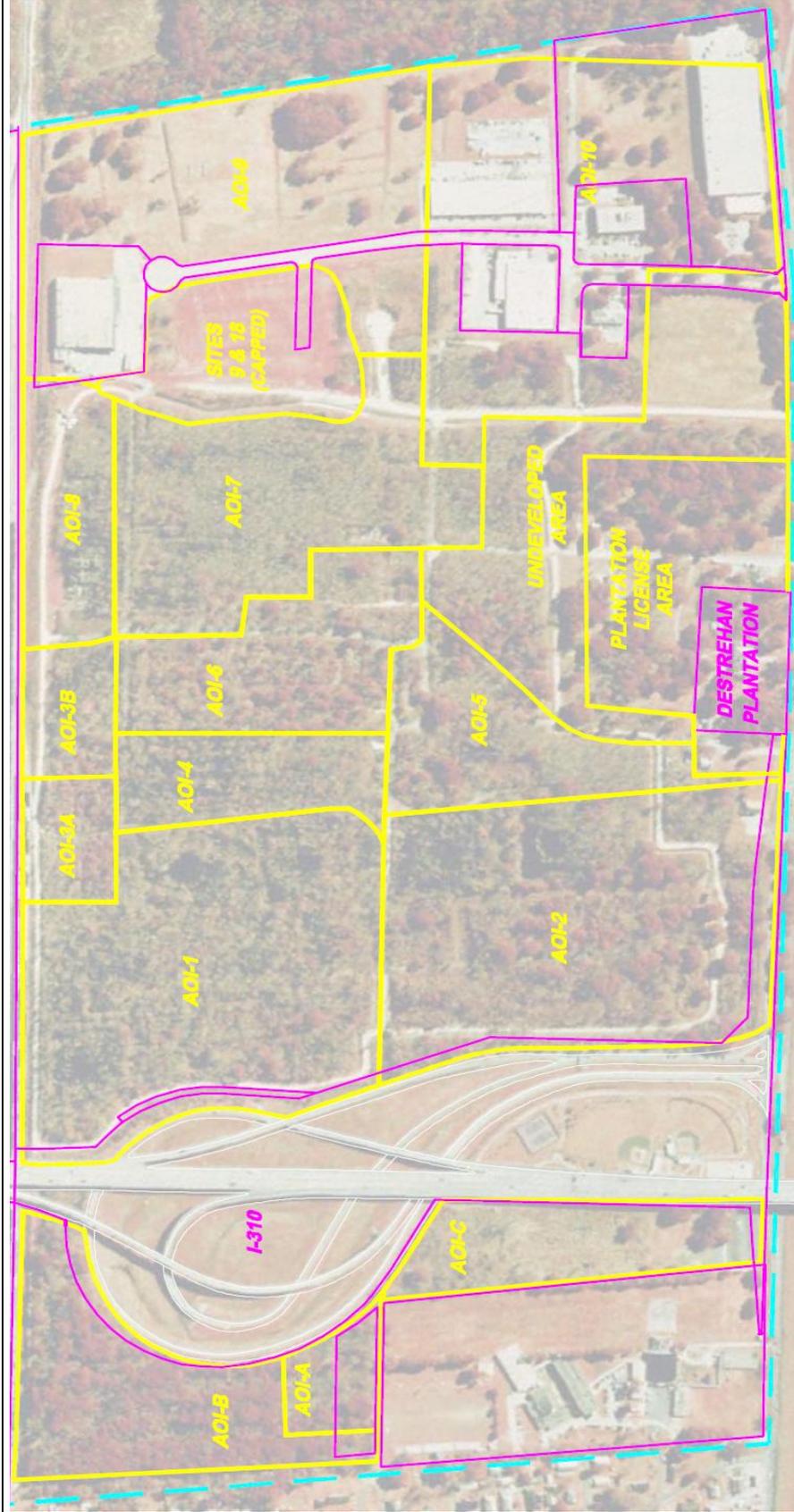
**Gate Closest to Destrehan Plantation**

AOI-3 was subdivided into AOI-3A & AOI-3B due to detection of Polycyclic Aromatic Hydrocarbon compounds in excess of *Soil<sub>I</sub>* in its western half. AOI-3B is available for industrial and commercial usage. AOI-3A was the location of a petroleum coke stockpile during operation of the facility. There is a large quantity of coke imbedded in the ground in this fenced area. BP is currently negotiating with firms that can use the mixture for energy to reduce the cost of remediating the AOI. The aesthetic concerns (debris and structures not associated with contamination) within AOI-3A have also been remedied. These concerns included foundations and support structures for refinery production facilities, holding ponds that collected water that bred mosquitoes, metal, and cement debris, and other items not related to the operation of the facility.

BP retains ownership of the property on the northern side of the railroad switchyard at the current time. Tracts of land on the south side of the railroad switchyard were either unaffected by the former refinery operations or are in compliance with the applicable RECAP standards for each AOI with the exception of AOIs 9 and 18, which are capped, held and maintained by BP. In addition, remedial action to address AOI-3A has been temporarily deferred as referenced above.



**Middle of the Site**



LEGEND	
Symbol	Description
	Approximate Property Line of original refinery property and currently owned by BP Products North America
	Approximate Property Lines of parcels not owned by BP Products North America
	Approximate boundaries of investigation areas described in this summary

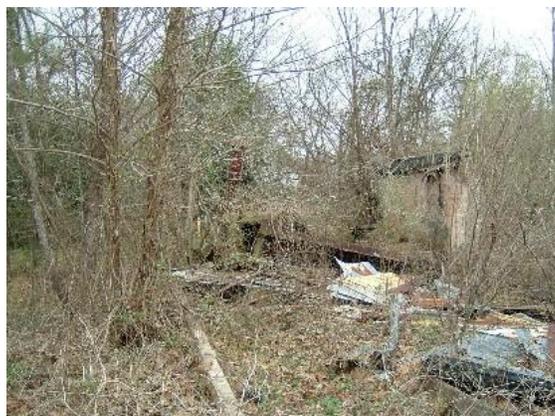
## **Ruston Foundry**

**Agency Interest # 12443**  
**Alexandria, Louisiana**

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The former Ruston Foundry site was an abandoned metal foundry that operated from 1908 until 1985, and is located in an urban area with mixed development within the city limits of Alexandria, Louisiana. The nearest resident is located approximately 80 feet northwest of the site. Approximately 6,000 residents are located within a one-mile radius of the site. There is a recreational park located approximately 1/4 mile southeast of the site, and schools identified within one mile of the site include: Peabody Elementary, Peabody Magnet, Jones Street Junior High, Bolton High, South Alexandria Sixth Grade School, and Alma Redwine Primary School.

The site consists of 6.6 acres, and prior to remediation consisted primarily of dilapidated structures and building foundations overgrown with thick brush. The site is bordered by a series of abandoned railroad tracks to the west, Chatlin Lake Canal to the northeast and east, and Mill Street Ditch to the south and southeast. A 1.62 acre portion of the site is located just south of Mill Street ditch. Residential property is located to the north, south, and east of the site. Historical and active industrialized areas lie further west and north of the site. During the 1990s, LDEQ and EPA conducted a series of site investigations. On January 19, 1999, the Ruston Foundry site was proposed to the National Priorities List (NPL), and on May 10, 1999, EPA formally announced the addition of the site to the NPL in the Federal Register.



**2005: Portion of the Site Prior to Remediation**

On January 14, 2008, a Consent Decree (CD) was entered by the US District Court, Western District of Louisiana. Among other things, this Consent Decree granted Kansas City Southern (KCS), a PRP, authorization to proceed as the supervising

contractor for the remedial design and remedial action work at the Ruston Foundry site. KCS performed the remedial action, rather than EPA using its contractors to do the work. According to the CD, KCS will pay EPA \$750,000 for past response costs within 30 days of January 14, 2008. Historical foundry operations resulted in metals contaminated waste (primarily lead and antimony) which was dispersed throughout the property as fill material. As a result of this disposal activity, foundry-derived process wastes (slag, foundry sand piles, metal scrap, and castings) covered most of the site and contaminated the soil.



**Example of Buried Lead Foundry Slag, February, 2005, Prior to Remediation-Removal and Offsite Disposal**

Remediation was conducted February 2008 through July 2008 and included excavation and off-site disposal of soils and slag that exceeded 400 ppm lead left over from foundry operations. Confirmatory sampling was conducted and verified that all slag and contaminated soils that exceeded the standard had been removed. KCS, in cooperation with EPA with the support of LDEQ, completed all remedial actions to

attain “Construction Completion” Status as of July 15, 2008, nearly two years ahead of KCS’s approved construction schedule.

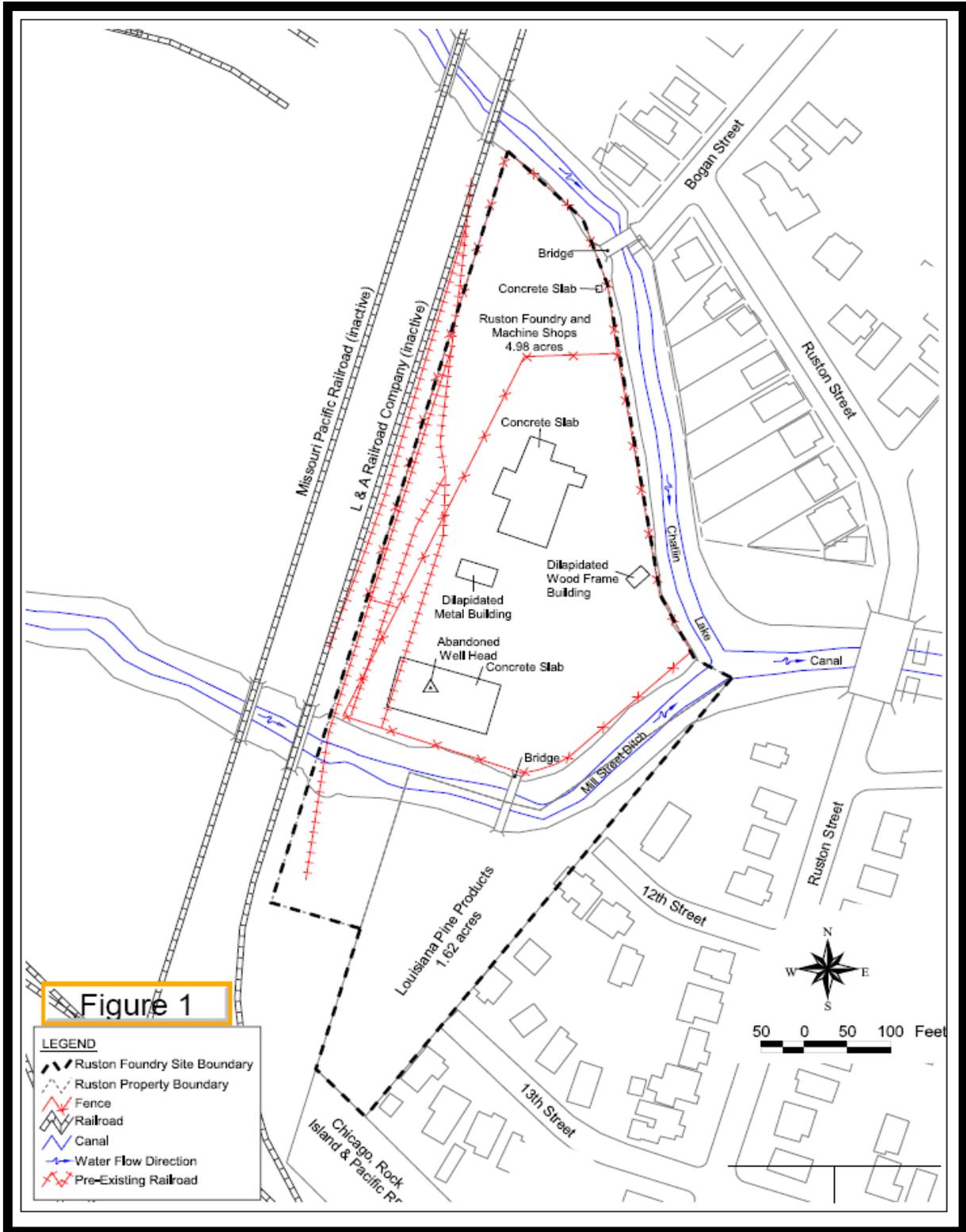


**Remediation in Progress**

With all remediation completed, the proposed future use of the property includes commercial/light industrial in concert with the City of Alexandria's re-development plans. Currently the property is an open field that can be utilized as the city of Alexandria desires. The property is currently eligible to be formally removed from the NPL, and EPA has scheduled its deletion in the year 2010, depending on EPA's priorities.



**Remediation Completed July 2008**



Ruston Foundry Site Map Diagram

## **Teche Sugar Mill**

**Agency Interest # 44044**  
**Franklin, Louisiana**

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A preliminary assessment dated June 14, 2000, led to remediation of the Teche Sugar Mill site. The site is located at 2817 LA Highway 87, near Franklin, Louisiana in St. Mary Parish. Teche Sugar Mill operated from 1806 to 1990. An EPA removal assessment was conducted in April 1998. However, EPA declined to perform a removal action at the site. The removal assessment documented large quantities of exposed friable asbestos at the site. Fifty-eight drums containing waste material were identified. One hundred thirty other drums that were empty or inaccessible were also documented. Two of the eight drums sampled during EPA's removal assessment were found to be characteristic hazardous waste. Other potential sources of contamination included heavy metal contaminated oily sludge, stained soil areas, two USTs, and eleven water-filled sumps.



**Drum Area 1 before Remediation**

Remediation occurred in two phases: Phase 1 (May 3, 2005) and Phase 2 (February 2008), utilizing funds from the HWSCF. In January 2005, LDEQ contractors conducted an asbestos mitigation, a waste characterization, and prepared a majority of un-containerized waste for removal/disposal. From April 2007 to January 2008,

several remediation activities were conducted by LDEQ contractors. All remaining asbestos containing materials were removed from the site. This included the demolition of several buildings and the excavation of several areas of soil. Two hundred forty-seven drums of waste material were removed from the site and properly disposed. Approximately 19,500 gallons of waste water were removed from four USTs and a UST closure was conducted on all four USTs. Approximately 289 tons of contaminated soils were also removed from the site and disposed at the BFI Colonial Landfill. Confirmatory sampling was conducted indicating the site is eligible for NFA, which was issued on September 23, 2008. DEQ successfully remediated the Teche Sugar Mill site utilizing funds from the HWSCF. The site did not have a solvent responsible party and the property was adjudicated to St. Mary Parish.



**Drum Area 1 after Remediation**



Tech Sugar Mill  
AI#44044

## **Thompson Hayward**

**Agency Interest # 1275**

**New Orleans, Louisiana**

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The Thompson Hayward site consists of a 2.7 acre property located on 7700 Earhart Boulevard in the Gert Town area of New Orleans, Louisiana, as well as the public right-of-ways and servitudes of all the streets contiguous with or adjacent to the site where site-related contaminated soils, sediments and debris were located. The property was used for pesticide formulation between 1940 and 1977 and for other industrial activities, such as bagging of soda ash material, warehousing and distribution of industrial chemicals (that included dry cleaning fluids and commercial pest control products) between 1977 and 1988. All industrial and commercial activities ended at the site in 1988. Since then the property has remained unoccupied.

Environmental activities at the site started in the late 1980s as a part of a response to a site-related release of dry-cleaning chemicals into the drainage system of the Sewerage and Water Board of New Orleans. Follow-up investigations revealed that the on-site soil media (i.e., surface and subsurface soil) was impacted with banned pesticides and dry-cleaning contaminants leading to an initial site remediation between 1989 and 1990. This remediation, which excluded areas suspected of having the most impacts at the site, involved the excavation and backfilling of significant sections of the site, demolition and off-site disposal of the former mixing building and all above-ground tanks, and the plugging of the sewer and drain lines exiting the property. The remediation of the excluded areas was delayed to afford the responsible parties enough time to find and employ appropriate technologies capable of addressing the perceived severity of the contaminated media.

In 1997, LDEQ and the Louisiana Department of Agriculture and Forestry entered into a cooperative agreement with the responsible parties [T H Agriculture & Nutrition and Elementis Chemical, Incorporated] to address the difficulties presented

by the excluded areas of the site and conclude the remediation of the site. The agreement stipulated a phased process towards meeting the remediation goal. The process included the performance of additional sampling and analyses of surrounding streets to supplement prior on-site data. The data from this sampling event were combined with those from past sampling activities to determine the nature and extent of the remaining contamination on the property and surrounding areas. A risk assessment conducted afterwards, and based on the assumption that the property's land use will remain industrial/commercial, was used to identify the contaminants of concern (COCs), the level of risk posed by the COCs present at both the facility and surrounding streets, and to determine the remedial action levels (RALs) to be used as the standard for the site's remediation. The RALs or remediation standards were based on a target carcinogenic risk level of  $1 \times 10^{-5}$  and a non-carcinogenic total hazard index of 1.0. The risk assessment also used information generated from a 1992 phase 2 groundwater quality assessment to classify the underlying surficial aquifer as a Groundwater 3 (GW-3) aquifer that does not pose any risk to human health and the environment. This conclusion was reached mainly because this aquifer is not anticipated to be used as a source of drinking water or for any other beneficial purpose.

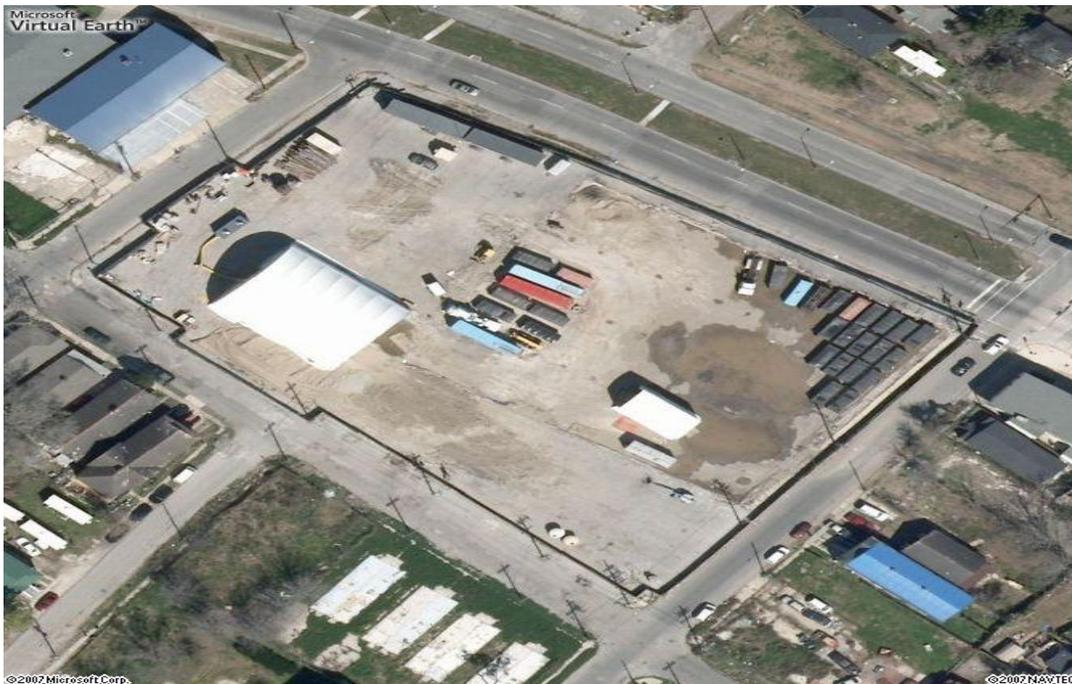
The risk assessment was followed by a feasibility study that explored several viable remediation technologies and recommended the most efficient alternative. Based on this study, excavation and off-site disposal of contaminated media was recommended to and accepted by LDEQ.



**Pre-remediation: Post-Katrina Photo  
Taken From the Burdette Street Side  
and Facing East**

The accepted remedial alternative was implemented between October 2006 and August 2007. Site remediation activities entailed the excavation and off-site treatment/disposal of soil material; extraction and off-site disposal of contaminated sediment and water from two nearby storm

drain lines; the demolition and removal of the on-site warehouse and finally the restoration of the soil at the property. As indicated above, remediation was conducted subject to site-specific RALs developed during the risk assessment. Due to the proximity of commercial and residential dwellings to the site, the remediation was conducted in a manner that presented the least amount of impact to the safety of the public. Some of the instituted safety measures included the piece-by-piece demolition of the warehouse to reduce dust emission and the performance of soil excavation in an enclosed structure called the Enclosed Remedial Activities Building (ERAB). The ERAB was a 70' x 90' engineered stress membrane structure that was fitted with a ventilation/air filtration system and other ancillary equipment to prevent or reduce remediation-related air emissions.



Remediation in Progress: 2007 satellite Photo of the Enclosed Remedial Activities Building (ERAB) (i.e., Large White Building and Associated Ventilation/Air Filtration System; Majority of the Excavation Activities were conducted inside the ERAB)

During the remediation phase, 751 tons of hazardous debris was disposed of by micro-encapsulation at the Clean Harbors facility in Lone Mountain, Oklahoma. Over 4,800 tons of excavated soil, classified as hazardous waste, was disposed of by incineration at facilities located in both Deer Park, Texas and Kimball, Nebraska.

About 5,800 tons of construction and debris waste was disposed of as solid waste at the Riverbirch Landfill in Waggaman, Louisiana in Jefferson Parish. Also, approximately 111,000 gallons of site-related contact liquid was treated or disposed of at Clean Harbor facilities in Deer Park, Texas and Baton Rouge, Louisiana. At the end of the remediation activities, confirmatory sampling data determined that the remaining concentrations of the contaminants have been reduced to levels that are below the approved RALs. Also, a new chain-link fence surrounds the facility to help limit unauthorized access.



**Post-Remediation: Photo Taken from Burdette Street Side and Facing East**

On February 8, 2008, a LDEQ-approved Conveyance Notification was recorded in the Conveyance Records of the Orleans Parish Clerk of Court noting that the site was closed under industrial standards. Following this and prior remediation activities, the RSD granted a No Further Action at This Time to the site on June 5, 2008, thereby terminating LDEQ's oversight of the Thompson Hayward site.