

**Sabine Pass to Galveston Bay, Texas
Coastal Storm Risk Reduction and Ecosystem Restoration
Draft Integrated Feasibility Report and
Environmental Impact Study**

Draft Appendix N

**Hazardous, Toxic, and Radioactive Waste
Assessment**

September 2015

APPENDIX N

**HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE
AND
HAZARDOUS MATERIALS ASSESSMENT**

for the

Draft

**Integrated Feasibility Report/Environmental Impact Statement
for
Sabine Pass to Galveston Bay, Texas
Coastal Storm Damage Risk Management Study**

Prepared by:



**Gulf South Research Corporation
8081 Innovation Park Drive
Baton Rouge, Louisiana 70820**

September 2015

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1 INTRODUCTION

This appendix identifies sites and activities in proximity to the tentative levee and floodwall alignments in the Orange County, Jefferson County-Port Arthur, and Freeport, Texas, project areas with a potential for environmental risk due to hazardous materials use or generation of hazardous waste, as outlined by the U.S. Army Corps of Engineers, Galveston District (USACE), for the Southwestern Division's Regional Planning and Environmental Center Draft Integrated Feasibility Report/Environmental Impact Statement (DIFR-EIS) for the Sabine Pass to Galveston Bay Coastal Storm Risk Management and Ecosystem Restoration Study (S2G Study). Gulf South Research Corporation (GSRC) was tasked with identifying Hazardous, Toxic, and Radioactive Waste (HTRW) sites and facilities within a distance of the tentative storm risk management levees and floodwalls to pose an environmental risk. The alignments analyzed here are the full potential alignments evaluated during alternatives analysis. Incremental analysis of levee/floodwall reaches may result in shorter alignments for the Tentatively Selected Plan.

The USACE is obligated under Executive Resolution (ER) 1165-2-132 to assume responsibility for reasonable identification and evaluation of all contamination within the vicinity of the tentative levee and floodwall corridors. ER 1165-2-132 identifies USACE's HTRW policy to avoid use of project funds for HTRW removal and remediation activities. Costs for necessary special handling or remediation of wastes (e.g., Resource Conservation and Recovery Act [RCRA] regulated wastes), pollutants, and other contaminants that are not regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) would be treated as project costs if the requirement is the result of a validly promulgated Federal, state, or local regulation.

2 EXISTING CONDITIONS

The three general project corridor areas (Orange County, Jefferson County-Port Arthur, and Freeport) (Figure 2-1) were investigated as separate project corridors with regard to the presence of hazardous materials, hazardous waste, and the potential for contamination by current or past industrial or other activities. The location basis for the investigations is the tentative levee and floodwall centerlines as indicated by geographic information system (GIS) alignments provided by the USACE. The locations of HTRW areas of concern were identified by latitude and longitude along the alignments in the absence of any surveyed segments or stations. For the purposes of this investigation, a risk to the tentative levee and floodwall alignments is defined as the presence of an HTRW contamination site or HTRW generation site on or adjacent to an alignment, the presence of an activity with the potential for contamination adjacent to or within 0.25 mile of an alignment, or the presence of a past HTRW contamination site or activity adjacent to or within 0.25 mile of an alignment. It is GSRC's experience that, with the exception of large oil refining and chemical plants, small HTRW sites such as commercial gas stations in excess of 0.25 mile from the alignment corridor do not pose an environmental risk to the project. Very large facilities, such as refineries and chemical plants, are shown on the project area maps even when they are more than 0.25 mile from the alignments.

HTRW concerns were investigated through a review of state and Federal databases maintained to monitor permits and activities regulated by state and Federal agencies, such as the Texas Commission on Environmental Quality (TCEQ) and the U.S. Environmental Protection Agency (USEPA). EnviroSite Corporation was contracted to search relevant environmental databases for sites and activities on or near the levee and floodwall alignments. The USEPA's Enforcement and Compliance History Online (ECHO) website was visited to identify past HTRW incidents or permit noncompliance violations for sites identified in the EnviroSite Corporation database reviews, primarily violations of the Clean Air Act (CAA), Clean Water Act (CWA), and RCRA. In addition, historical U.S. Geological Survey (USGS) topographic maps and historical aerial photographs were obtained along the levee and floodwall alignments to identify former industrial or other activities that may have contributed to HTRW contamination in the project areas. The volume of material examined for this HTRW report is too large to include in this appendix (over 28,500 pages of reports and maps), but the data are available in electronic format from the USACE for further review.

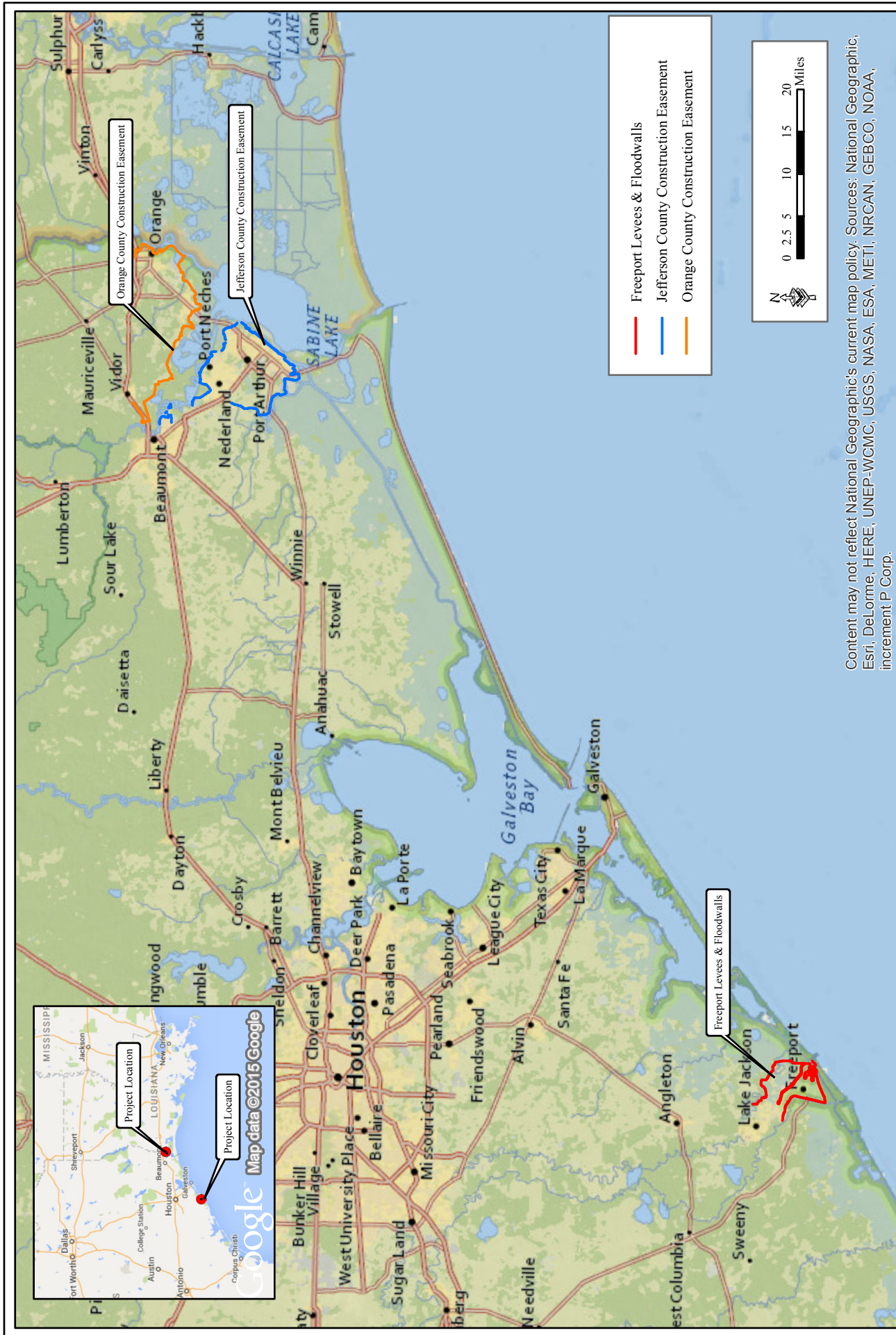


Figure 2-1. Project Areas - Regional Map Showing All Project Areas

HTRW information for the project corridors is summarized in individual tables for each of the three project areas. The level of risk posed by a facility to a project corridor is defined as:

- *Low* - the facility generates or stores hazardous waste with the potential to contaminate the project corridor from a release incident;
- *Moderate* - the facility generates or stores hazardous waste with a recent release to the environment near the project corridor that has been resolved; and
- *High* - the facility has a recent or current release of hazardous materials near or in the project corridor that is unresolved.

In addition to facilities and industrial sites handling or generating HTRW, there are numerous points along the tentative levee and floodwall alignments where pipelines or other conveyances cross the alignments transporting hazardous materials for shipment or processing. These pipeline crossings are identified as points of concern along the tentative alignments where special caution should be exercised during construction to avoid damage to the pipelines and release of hazardous materials into the environment. Database entries in the tables for each site are abbreviated from the following definitions:

2.1 DATABASE ABBREVIATIONS AND DEFINITIONS

FEDERAL CERCLIS LIST

CERCLIS	Comprehensive Environmental Response Compensation and Liability Act program sites reported to the Environmental Protection Agency and can be proposed for the NPL List
CERCLIS NFRAP	Comprehensive Environmental Response Compensation and Liability Act No Further Remedial Action Planned sites that have been removed and archived
FEDERAL FACILITY	Sites where Federal Facilities Restoration and Reuse Office (FFRRO) arranged cleanup for Base Closure and Property Transfer at Federal Facilities

FEDERAL RCRA CORRACTS FACILITIES LIST

CORRACTS	Hazardous Waste Corrective Action: List of facilities where Resource Conservation and Recovery Act Corrective Action Program was used to investigate and remediate hazardous releases
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FEDERAL DELISTED NPL SITE LIST

DELISTED NPL Delisted National Priority List of sites that were delisted and no longer require action

DELISTED PROPOSED NPL Sites that have been delisted from the proposed National Priority List

FEDERAL ERNS LIST

ERNS Emergency Response Notification System records of reported spills (maintained by the U.S. Coast Guard)

FEDERAL INSTITUTIONAL CONTROLS / ENGINEERING CONTROLS REGISTRIES

FED EC Engineering Controls: Federal listing of remediation sites with engineering controls

FED IC Institutional Controls: Federal listing of remediation sites with institutional controls

FED-PUBLISHED INSTITUTIONAL CONTROLS A land use restricted site is a property where there are limits or requirements on future use of the property due to varying levels of cleanup possible, practical, or necessary at the site.

RCRA IC EC Published Institutional Controls
RCRA sites with Institutional and Engineering Controls related to the Resource Conservation and Recovery Act

FEDERAL NPL SITE LIST

NPL National Priority List: List of priority contaminated sites among identified releases or threatened releases of hazardous substances, pollutants, or contaminants nationally (Superfund Sites)

NPL LIENS National Priority List of sites with Liens

PART NPL Sites that are part of a National Priority List site referred to as the parent site

PROPOSED NPL Sites that have been proposed for the National Priority List

FEDERAL RCRA GENERATORS LIST

RCRA CESQG Resource Conservation and Recovery Act listing of licensed conditionally exempt small quantity generators

RCRA LQG Resource Conservation and Recovery Act listing of licensed large quantity generators

RCRA SQG Resource Conservation and Recovery Act listing of licensed small quantity generators

FEDERAL RCRA NON-CORRACTS TSD FACILITIES LIST

RCRA TSDF Resource Conservation and Recovery Act hazardous waste transportation storage disposal and treatment facilities

STATE AND TRIBAL REGISTERED STORAGE TANK LISTS

FEMA UST FEMA Underground Storage Tank listing

MSD-TX Municipal Settings Designation Database: Designation given to property within a municipality that certifies that designated groundwater at the property is not used as potable water

PST-TX Registered Petroleum Storage Tanks in Texas

PST NON REGISTERED-TX Non-Registered Petroleum Storage Tanks in Texas

UST-TX Registered Underground Storage Tanks in Texas

RECORDS OF EMERGENCY RELEASE REPORTS

HMIRS (DOT) Hazardous Material spills reported by the Department of Transportation

STATE AND TRIBAL LANDFILL AND/OR SOLID WASTE DISPOSAL SITE LISTS

SWF/LF-TX Solid Waste Facilities and Landfills in Texas

WASTE MGT-TX Commercial Hazardous and Solid Waste Management Facilities locations in Texas

CLI-TX Closed or abandoned landfills in Texas

STATE- AND TRIBAL - EQUIVALENT CERCLIS

DEL SHWS-TX Delisted State Hazardous Waste Sites in Texas

IOP-TX Innocent Owner/Operator Program sites in Texas

STATE AND TRIBAL LEAKING STORAGE TANK LISTS

LTANK-TX Leaking Petroleum Storage Tank Database for Texas

STATE- AND TRIBAL - EQUIVALENT NPL

SSR-TX State Superfund Registry for Texas

STATE AND TRIBAL VOLUNTARY CLEANUP SITES

VCP-TX	Voluntary Cleanup Program sites in Texas
VCP RRC-TX	Voluntary Cleanup Program sites registered with the Texas Railroad Commission

OTHER ASCERTAINABLE RECORDS

RCRA FULL DETAIL	Full detail of related sites to the Resource Conservation and Recovery Act
RCRA NONGEN	Resource Conservation and Recovery Act listing of licensed non-generators

LOCAL LISTS OF HAZARDOUS WASTE / CONTAMINATED SITES

FED CDL	U.S. Department of Justice listing of Clandestine Drug Lab locations
US HIST CDL	Historical Clandestine Drug Lab locations listed by the U.S. Department of Justice

LOCAL LAND RECORDS

LIENS 2	CERCLA sites with lien Information
LIENS-TX	Listing of sites with Environmental Liens in Texas

LOCAL LISTS OF LANDFILL / SOLID WASTE DISPOSAL SITES

ODI	Open Dump Inventory sites
TRIBAL ODI	Indian Land Open Dump Inventory sites

LOCAL BROWNFIELD LISTS

BROWNFIELDS-TX	List of Brownfield remediation sites in Texas
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RECORDS OF EMERGENCY RELEASE REPORTS

SPILLS-TX	List of reported chemical spills from the TCEQ
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OTHER ASCERTAINABLE FEDERAL RECORDS

AFS	Air Facility Systems quarterly extract
BRS	Biennial Reporting Systems: Reporting of hazardous waste generation and management from large quantity generators

CDC HAZDAT	Hazardous Substance Release and Health Effects Information: The Agency for Toxic Substances and Disease Registry's Hazardous Substance Release/Health Effects Database.
COAL ASH DOE	Coal Ash: Department of Electricity steam electric plant operation
COAL ASH EPA	Coal combustion residues surface impoundments list
COAL GAS	Former Manufactured Gas Plant locations
CONSENT (DECREES)	Superfund locations with legal decisions regarding responsibility
DIGITAL OBSTACLE	Obstacles of interest to aviation users
DOT OPS	Department of Transportation Office of Pipeline Safety incident data reports
ENOI	Electronic Notice of Intent database containing construction sites, industrial facilities, pesticide facilities, and vessel operators required to apply for coverage and submit a variety of other reports electronically required under EPA's Construction General Permit (CGP), Multi-Sector General Permit (MSGP), Pesticides General Permit (PGP), and Vessel General Permit (VGP)
FA HWF	Hazardous Waste Facilities with Financial Assurance
FEDLAND	Federal land locations
FRS	Facility Index Systems
FTTS	Tracking system of administrative and enforcement activities related to FIFRA/TSCA
FTTS INSP	Tracking of inspections related to FIFRA/TSCA
FUDS	Formerly Used Defense Sites that require cleanup
ICIS	Comprised of all Federal Administrative and Judicial enforcement information [intended to replace PCS] by tracking enforcement and compliance information (also contains what used to be known as FFTS)
LEAD SMELTER	Listing of former Lead Smelter Sites
LUCIS	Land Use Control Information Systems
MLTS	Material Licensing Tracking Systems for sites in possession/use of radioactive materials regulated by the NRC
OSHA	Occupational Safety & Health Administration listing of inspections violations and fatality information

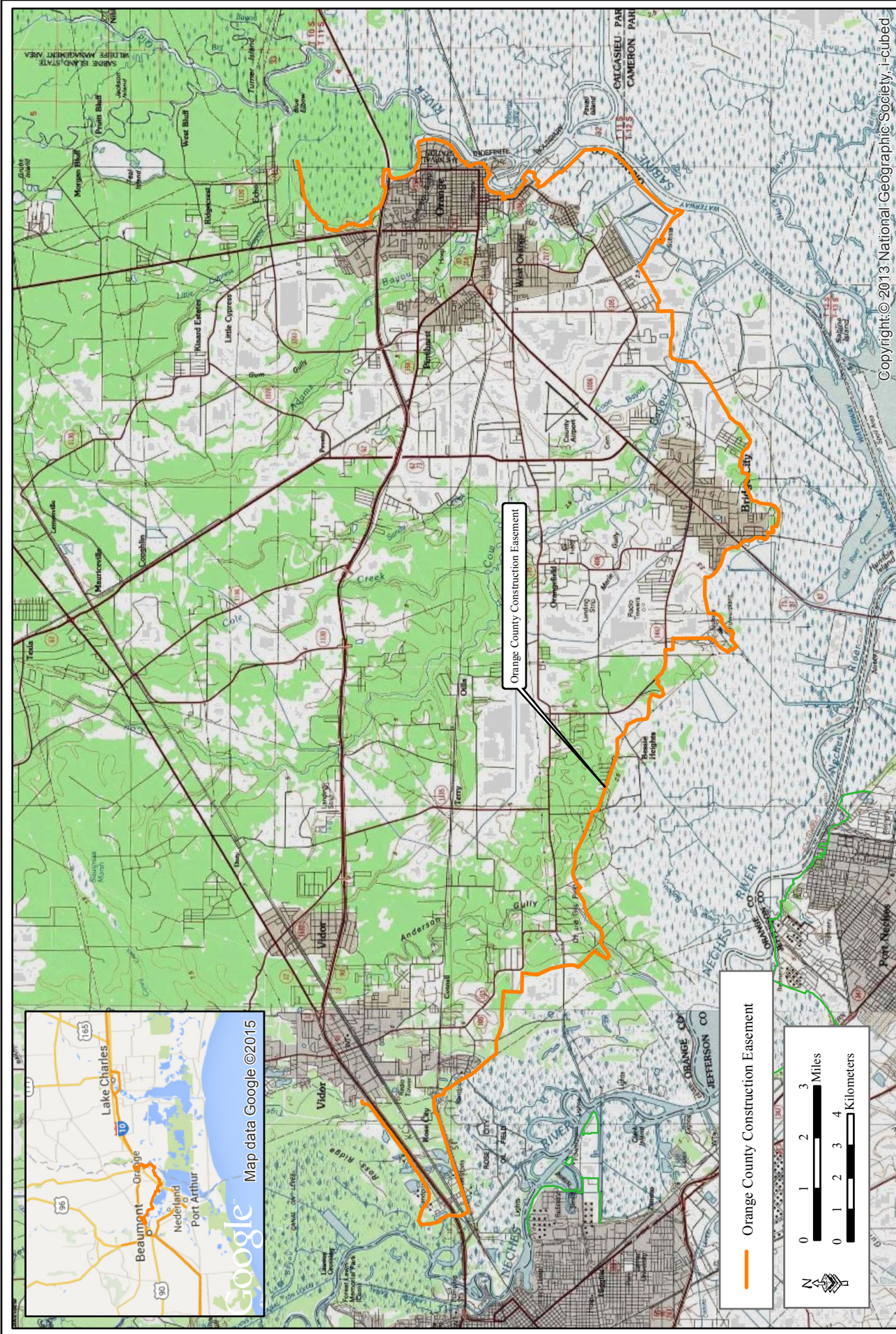
PADS	Listing of generators, transporters, commercial store/brokers, and disposers of PCB
PCB TRANSFORMER	Polychlorinated Biphenyls Transformers registry
RAATS	Listing of major violators with enforcement actions issued under RCRA, includes administrative and civil actions filed by the EPA.
RADINFO	Radiation Information Systems: EPA regulated facilities with radiation and radioactive materials
ROD	Record of Decision: Permanent remedy at an NPL site
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners
SSTS	Section 7 Tracking Systems: Tracking of facilities that produce pesticides and their quantity
TOSCA-CHEMICAL	Toxic Substance Control Act: Controlled Chemicals
TOSCA-PLANT	Toxic Substance Control Act: Controlled Plants
TRANSMISSIONS	Electrical power line transmissions
TRIS	Information regarding toxic chemicals that are being used/manufactured/treated/ transported/released into the environment
 <i>OTHER ASCERTAINABLE STATE RECORDS</i>	
AIRS-TX	Air Emission Inventory Data
AUL-TX	Sites with Activity and Use Limitations in place
COMP HIST-TX	Compliance History
DRYCLEANERS-TX	Drycleaners facilities
ENF-TX	Sites with notice of violations and enforcement
FA-TX	Underground Storage Tanks with Financial Assurance
IND HAZ WASTE-TX	Industrial and Hazardous Waste reports regarding handlers, generators, and shippers of waste
PRIORITY CLEANERS-TX	Drycleaner sites in the Drycleaner Remediation Program that have contamination caused by drycleaning solvents.
PST STAGE II-TX	Stage II Petroleum Storage Tanks
RWS-TX	Sites used to dispose, store, and process radioactive waste
T 2-TX	Facilities that must submit a hazardous chemical inventory report
UIC-TX	Regulated Class V Underground Injection Controlled wells

3 ORANGE COUNTY CORRIDOR

The Orange County levee and floodwall corridor comprises approximately 42.84 miles from north of the intersection of the Sabine River with Interstate 10, around the cities of Orange and Bridge City, Texas, and up to and along Interstate 10 near the Neches River to the City of Vidor, Texas (Figure 3-1). The corridor runs near numerous industrial facilities, including the Port of Orange, several ship-building yards, DuPont-Invista Sabine River Works, Lanxess Chemical Corporation, Firestone Polymers, and Chevron Phillips Chemical Company. The locations of the industrial facilities are indicated in Figures 3-2 and 3-3. The Federal and state hazardous materials database listings for all facilities and prior events are found in Table 3-1, along with the latitude and longitude locations of the HTRW sites along the Orange County corridor alignment, as well as pipeline crossings. For sites other than a single point, a location is given for each end of the site that intersects the corridor alignment. Shaded outlines of the apparent footprint for major facilities are also shown in Figures 3-2 and 3-3.

There are seven major HTRW sites and facilities near or adjacent to the Orange County levee and floodwall alignment corridor identified from the research conducted. These sites consist of industrial facilities currently operating that are listed in databases identifying the generation, handling, or release of hazardous materials and waste. The largest of these, DuPont Chemical Corporation, maintains several large wastewater treatment and cooling ponds along the tentative alignment. No pipelines were identified crossing the alignment in Orange County.

The general HTRW risk for the levee alignment in Orange County is classified as *Low*, since no unresolved current or recent hazardous material releases were found, and no significant recent RCRA or CWA permit violations were identified. The HTRW facilities indicated should be more thoroughly investigated with visual inspections and interviews with facility managers to confirm the potential HTRW risks along the levee alignment prior to construction or more detailed design.



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Figure 3-1. Orange County Project Alignment

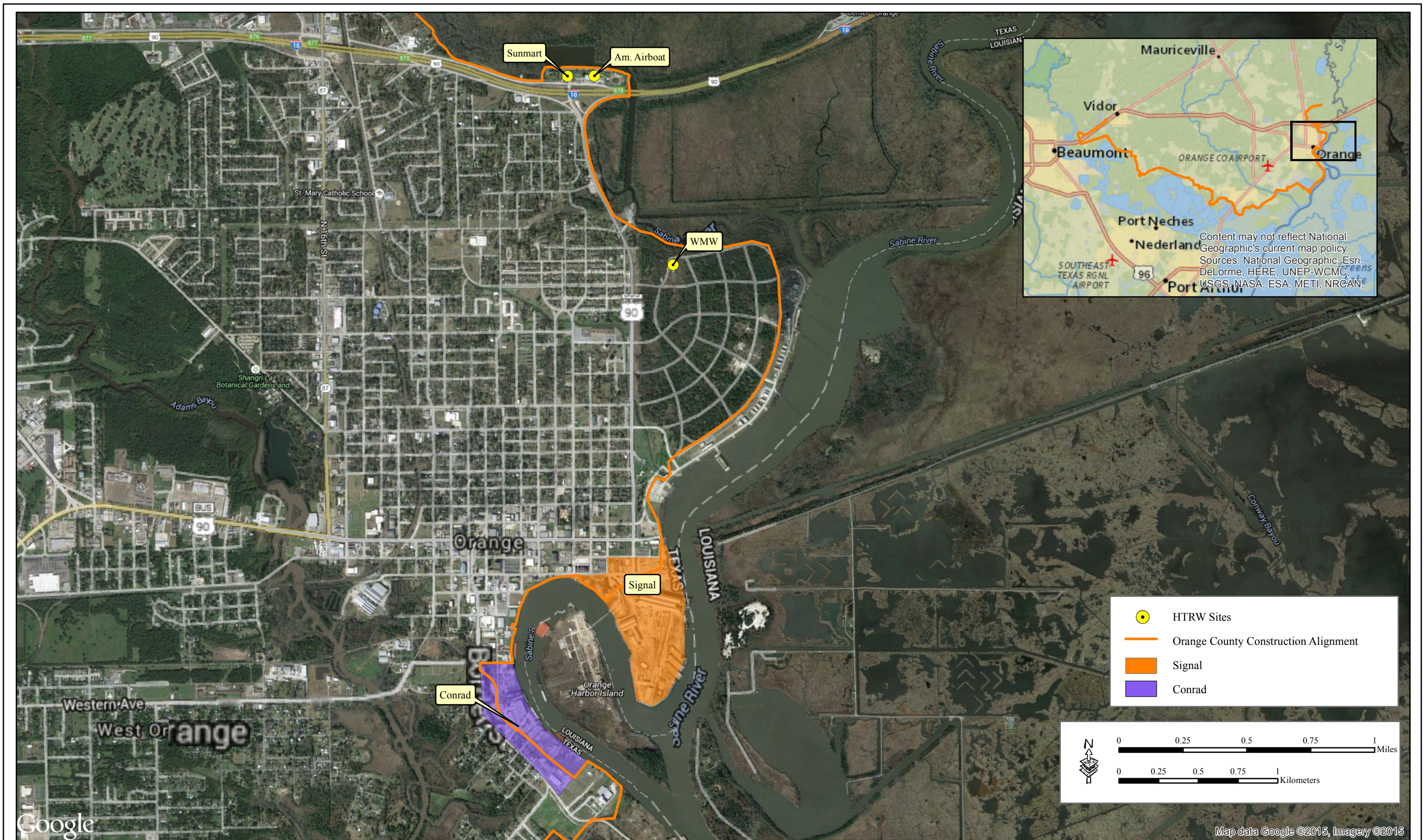


Figure 3-2. Orange County HTRW Sites Map 1

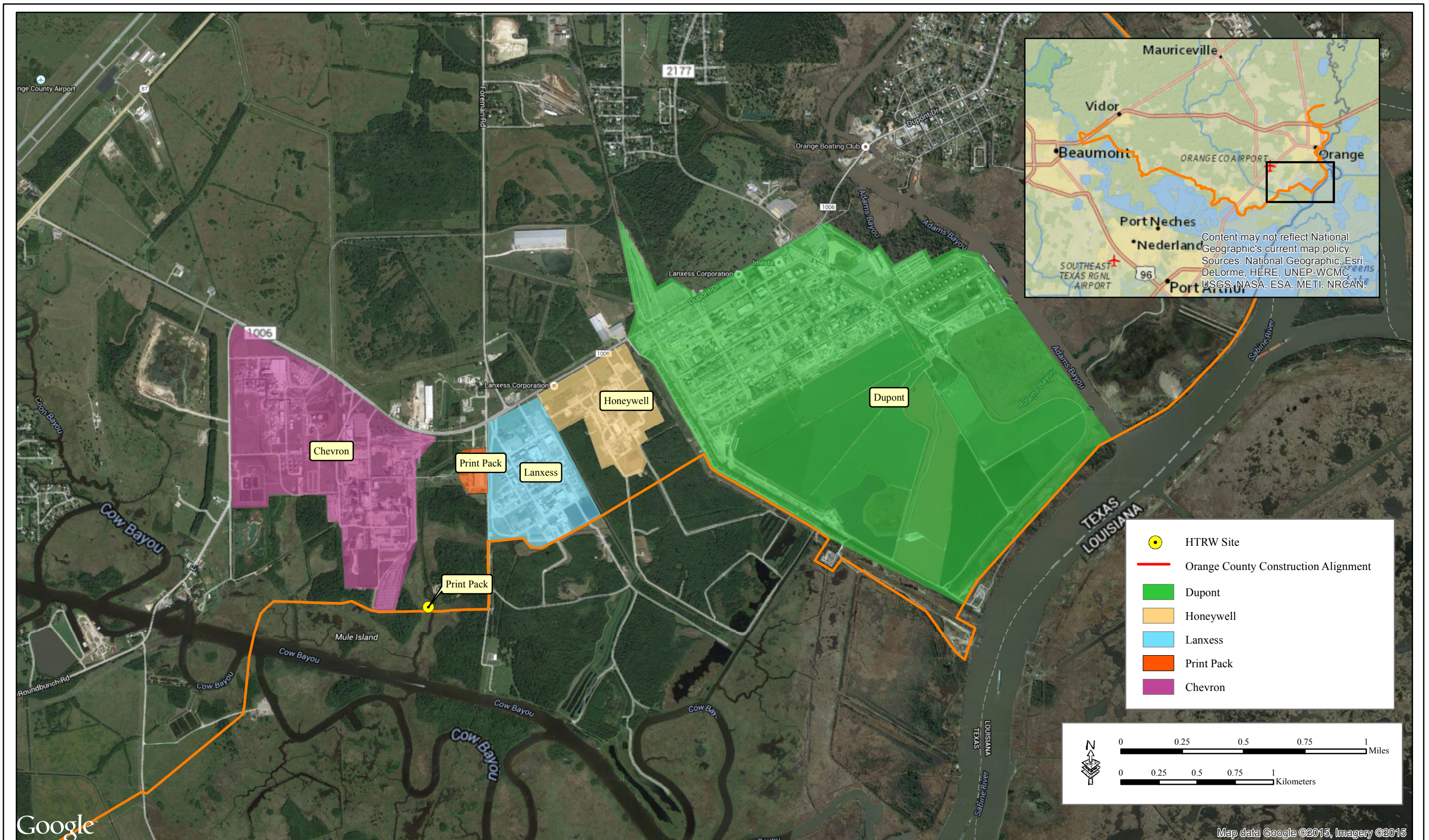


Figure 3-3. Orange County HTRW Sites Map 2



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Table 3-1. Orange County Construction Corridor HTRW Sites

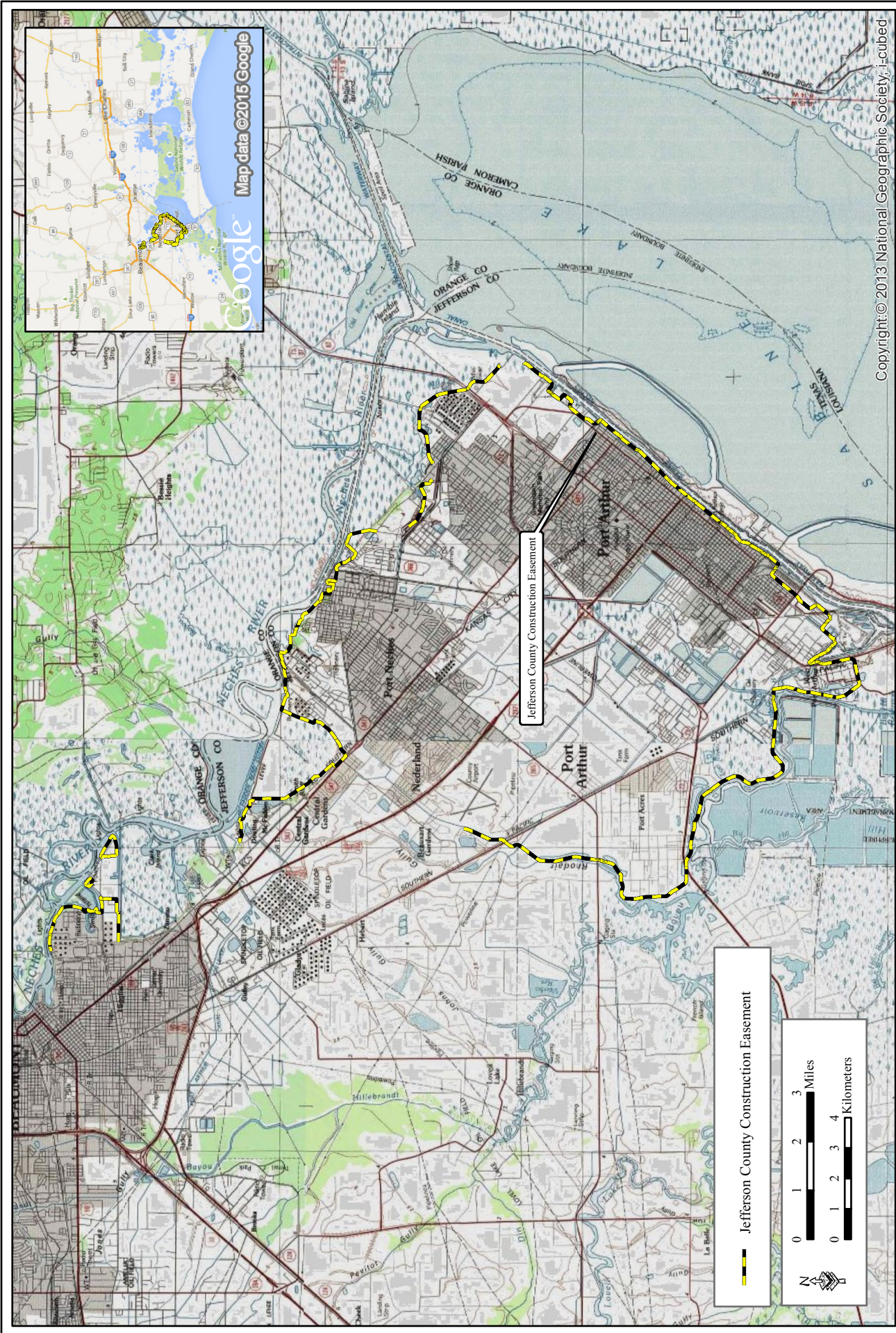
Date	Description	Distance from Corridor	Latitude	Longitude	Database Listing	Contaminants of Concern	Risk Analysis
2015	Sunmart 363 , active service station with USTs	Adjacent	30.120011	-93.731346	LTANK-TX, FA-TX, UST-TX	Gasoline, diesel	Low Risk, UST release in 2012, remediated with well closure pending
2015	American Airboat , boat manufacturing	Adjacent	30.119984	-93.729735	PST NONREGISTERED-TX	Gasoline	Low Risk, non-registered petroleum storage tank on-site
1996	WMW Holding Company , 1904 Simmons Drive. Closed industrial hazardous waste disposal site	Adjacent	30.109252	-93.724115	RCRA-NONGEN, IND HAZ WASTE-TX	Unknown, site closed	Low Risk, site closed by TCEQ and classified as clean
2015	Signal International-Front Street Yard . Ship-building and repair yard.	Adjacent	N30.092851 S30.090391	N-93.725069 S-93.727924	T2-TX, PST-TX, RCRA-CESQG,	Lead, other metals, fuel, ignitable wastes, past RCRA violations found	Low Risk, no reported spills
2015	Conrad Orange Shipbuilding Company , Ship-building and repair yard.	Adjacent	N30.084696 S30.080593	N-93.736064 S-93.730085	FTTS INSP, T2-TX, TRIS, RCRA-LQG, RCRA-NONGEN, RAATS, RCRA-CESQG, ICIS, IND HAZ WASTE-TX,	Lead, other metals, fuel, ignitable wastes	Low Risk, no reported spills
2015	DuPont–Invista Sabine River Works , chemical manufacturing plant, wastewater treatment ponds adjacent	Adjacent	E30.048432 W30.046977	E-93.730468 W-93.758410	RMP, T2-TX, RCRA-LQG, RCRA-TSDF, TOSCA-Plant, AFS, AIRS-TX, IND HAZ Waste-TX, RAATS, BRS, TRIS, UST-TX, CERCLIS NFRAP	Petrochemicals. numerous past RCRA, CAA, and NPDES violations resulting in penalties	Low Risk, site generates and stores large quantities of hazardous chemicals and wastes, no recent RCRA violations
2015	Lanxess Corporation , chemical manufacturing plant	Adjacent	E30.043513 W30.041803	E-93.765022 W-93.772889	RCRA-LQG	Numerous past NPDES violations resulting in penalties	Low Risk, no recent RCRA violations
2015	Honeywell, Inc. , chemical manufacturing plant, runoff overflow canal intersecting	Adjacent	30.045433	-93.761306	RCRA-LQG, RMP	No past NPDES violations found, past CAA violations found	Low Risk, no recent RCRA violations
2015	Chevron Phillips Chemical Company , overflow drainage canal intersecting	1,300 feet north	30.038288	-93.786072	RCRA-LQG, TOSCA-PLANT, RMP, ICIS, FTTS INSP	Petrochemicals, numerous past NPDES and CAA violations	Low Risk, no recent RCRA violations
2015	Firestone Polymers, Firestone Synthetic Rubber & Latex Company , drainage canal intersecting	2,400 feet north	30.038288	-93.786072	CERCLIS NFRAP, CORRACTS, RMP, RCRA-LQG, T 2-TX	Numerous past NPDES violations resulting in penalties, RCRA permit in violation for manifest	Low Risk, current RCRA manifest violation
2015	PrintPack, Inc. , drainage canal intersecting	1,150 feet north	30.037789	-93.776636	RCRA-SQG	No past violations found	Low Risk, no violations

Note: Where a facility borders a project alignment for some distance, the start and end points are indicated by North (N), South (S), East (E), and West (W) end points in the tables.

4 JEFFERSON COUNTY-PORT ARTHUR CORRIDOR

The Jefferson County and Port Arthur levee and floodwall alignment corridor comprises approximately 45.6 miles around the cities of Port Arthur, Groves, and Port Neches, Texas, as well as around the Exxon Mobil refinery in Beaumont, Texas (Figure 4-1). The corridor runs near 11 major petroleum and chemical facilities, including the Exxon Mobil refinery, DuPont Chemical Corporation, the Huntsman refinery, the Texaco refinery, the Total-BASF refinery, the Valero refinery, and the Motiva Enterprises refinery, as well as numerous petroleum and chemical tank farms and loading facilities. The locations of the major industrial facilities are indicated with shaded facility boundaries in Figures 4-2 through 4-5. The Federal and state hazardous materials database listings for all facilities and prior events are found in Table 4-1, along with the latitude and longitude locations of the sites along the project corridor alignment. For sites other than a single point, a location is given for each end of the site that intersects the corridor alignment. There are numerous pipelines crossing the levee alignment in Jefferson County transporting hazardous materials for shipment or further processing, as indicated in Figures 4-2 through 4-5. These pipeline crossings are identified as points of concern along the tentative alignment where special caution should be exercised during construction to avoid damage to the pipelines and release of hazardous materials into the environment.

Most of the refineries and chemical plants have numerous Clean Air Act violations in the past or currently in effect due to stack emissions. No currently active spills or land/water releases of hazardous materials were found. The Star Lake Canal, emanating from the Huntsman Refinery, runs adjacent to the Jefferson County alignment and is listed as an active NPL site due to past release of wastewater and storm runoff containing hazardous materials (Figure 4-4). This canal is scheduled for remediation by USEPA with proposed removal of contaminated bottom sediments. Due to the presence of toxic sediments, this canal would be considered a *High* risk; however, minor construction on the existing levee along the canal would not expose any sediments within the canal. Therefore, despite the large number of potential HTRW release facilities, the Jefferson County-Port Arthur project area is classified as a generally *Low* risk for HTRW. The HTRW facilities indicated should be more thoroughly investigated with visual inspections and interviews with facility managers to confirm the potential HTRW risks along the alignment corridor prior to construction or more detailed design. Coordination with USEPA remediation of the Star Lake Canal would also be required. Some large refineries and chemical plants are shown in the figures, even though they are not within 0.25 mile of the project alignment, since a major release from these facilities could affect the project corridor.



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Figure 4-1. Jefferson County - Port Arthur Project Alignment

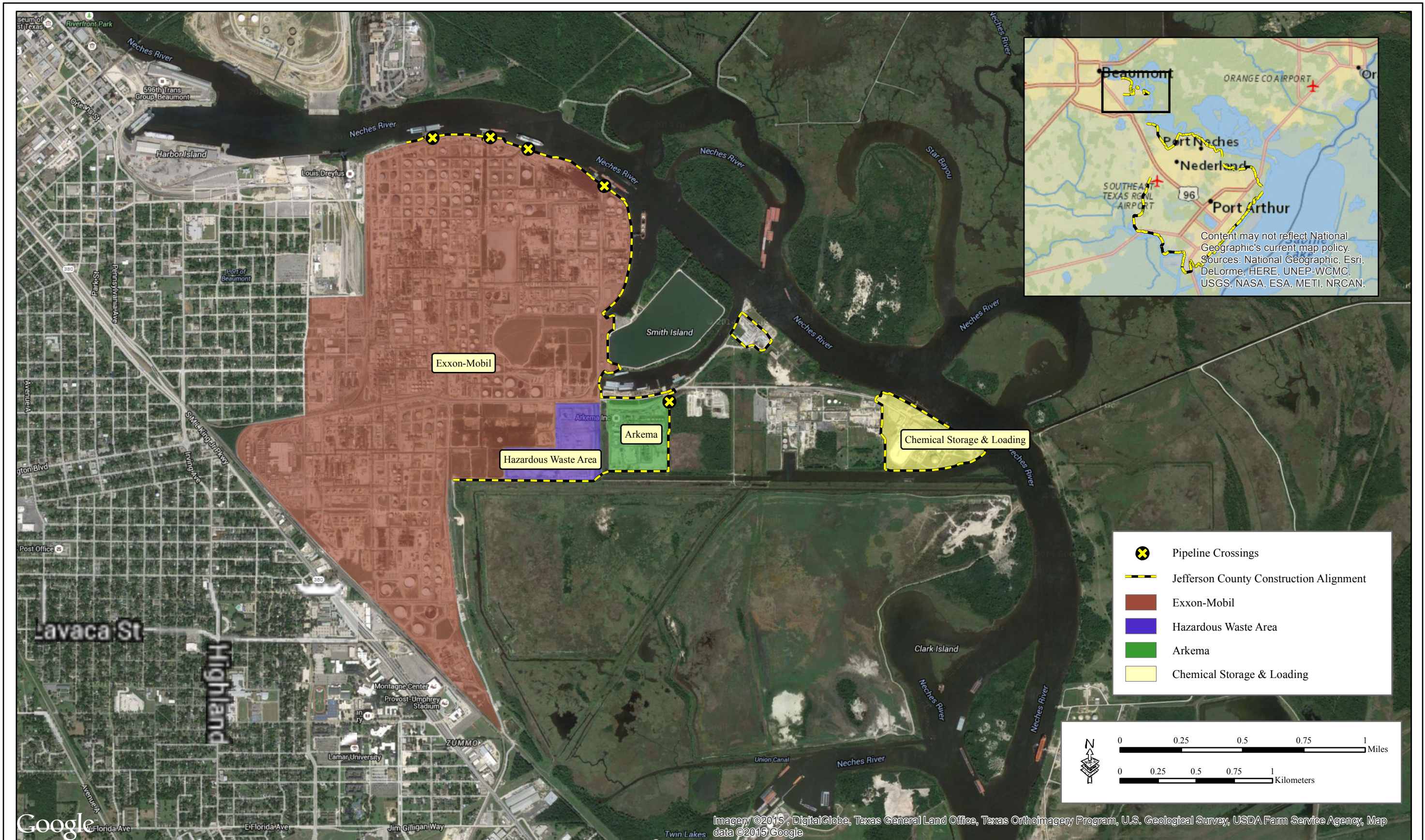


Figure 4-2. Beaumont HTRW Sites

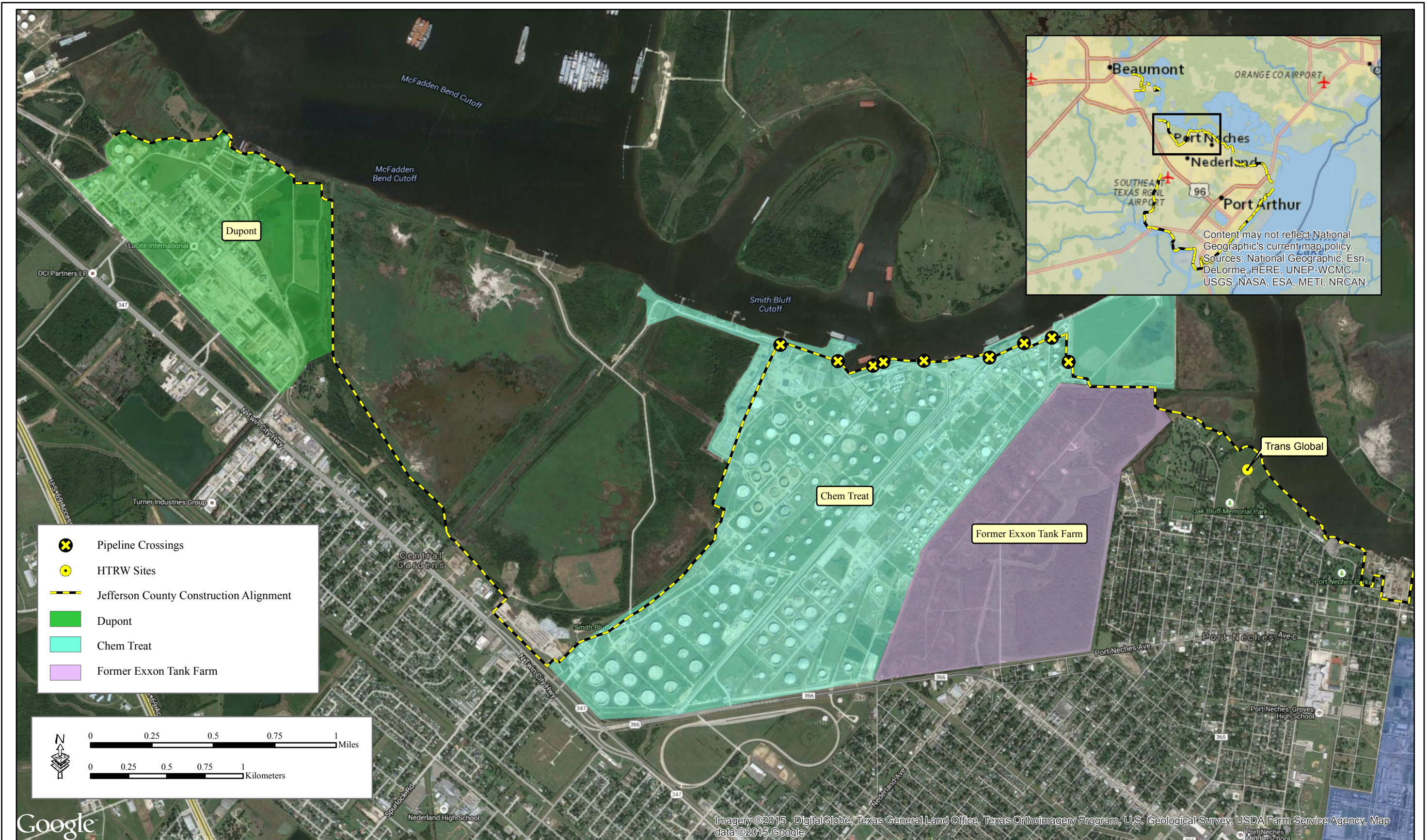


Figure 4-3. Jefferson County - Port Arthur HTRW Sites Map 1

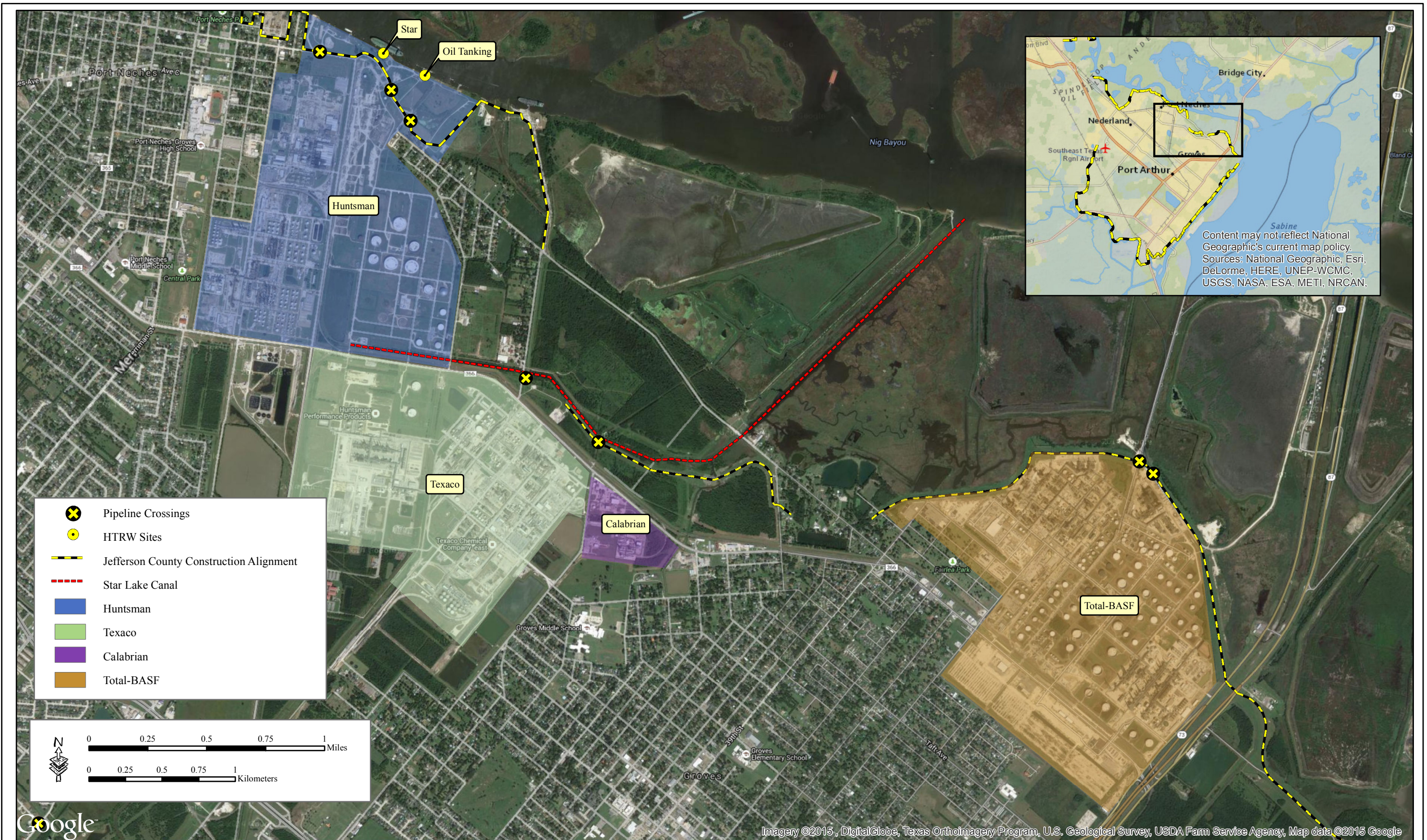


Figure 4-4. Jefferson County - Port Arthur HTRW Sites Map 2

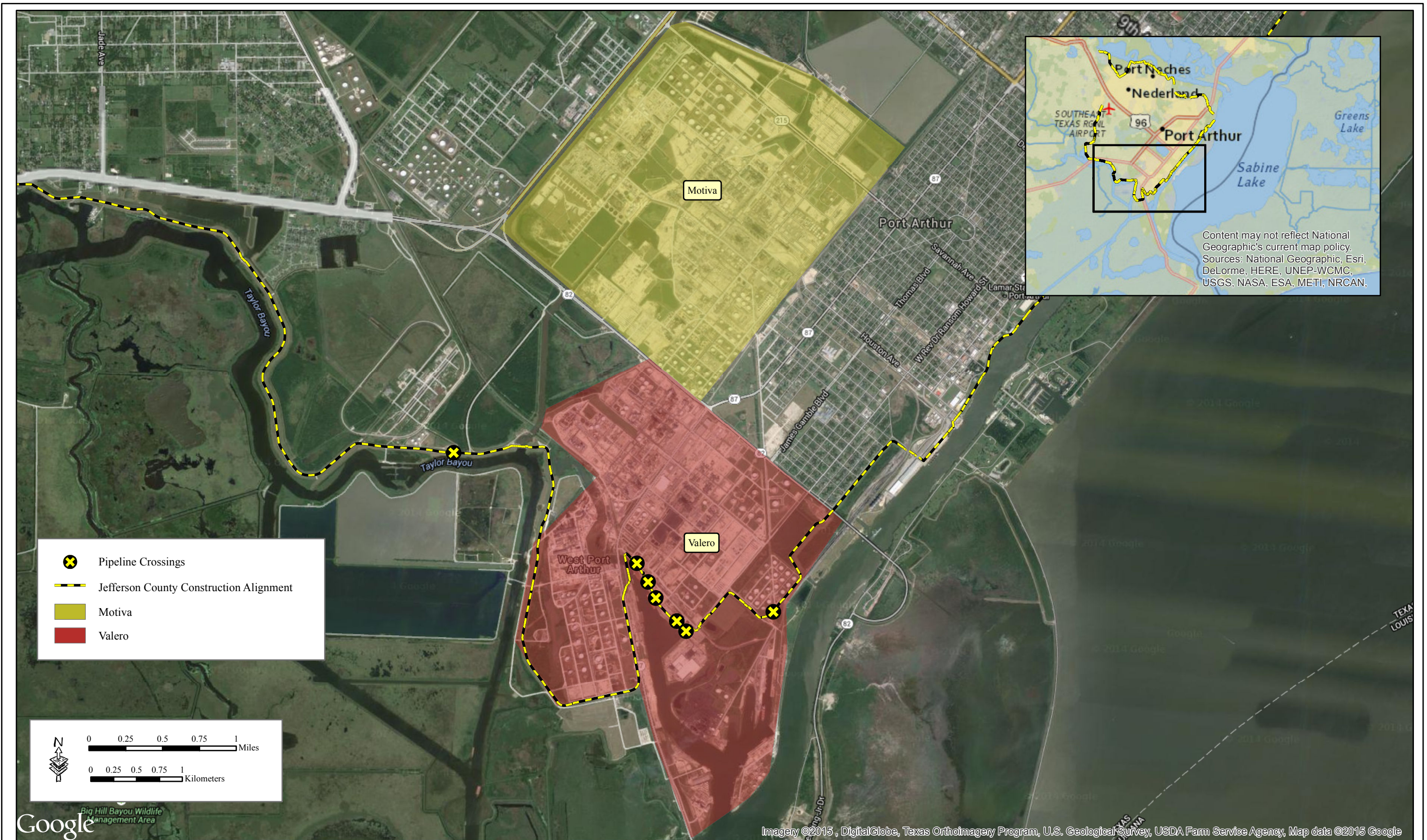


Figure 4-5. Jefferson County - Port Arthur HTRW Sites Map 3

Table 4-1. Jefferson County-Port Arthur Construction Corridor HTRW Sites

Date	Description	Distance from Corridor	Latitude*	Longitude*	Database Listing	Contaminants of Concern	Risk Analysis
2015	ExxonMobil Refinery	Adjacent	N30.076237 S30.055130 PL30.076578 PL30.076650 PL30.075969 PL30.073820 PL30.061092	N-94.071964 S-94.067497 PL-94.071180 PL-94.067250 PL-94.064658 PL-94.059460 PL-94.054895	CORRACTS, RAATS, RCRA-IC-EC, RMP, TRIS, RCRA-NONGEN, IND HAZ WASTE-TX, AFS, SPILLA-TX, FA-TX, UST-TX, T2-TX, FTTS-INSP, CERCLIS-NFRAP	Petroleum products, petrochemicals	Low Risk, no recent RCRA violations
2015	Mobil Chemical Company	Adjacent	30.059844	-94.175100	RCRA-TSDF, RCRA-NONGEN, ICIS-NPDES, TSCA	Industrial chemicals	Low Risk, no recent RCRA violations
2015	DuPont Beaumont Works	Adjacent	N30.020781 S30.007482 PL30.019668 PL30.019512 PL30.019380 PL30.019460 PL30.019319	N-94.035557 S-94.020509 PL-94.026980 PL-94.026636 PL-94.026127 PL-94.025391 PL-94.025051	CORRACTS, COAL GAS,	Industrial chemicals	Low Risk, no recent RCRA violations
2015	Star-Motiva Enterprise, Spur 136, refinery site	Adjacent	29.992446	-93.941171	RCRA-TSDF, RCRA-LQG	Petroleum products, petrochemicals	Low Risk, no recent RCRA violations
2015	ChemTreat	Adjacent	W29.990788 E30.006014 PL30.008385 PL30.007448 PL30.007195 PL30.007414 PL30.007519 PL30.007735 PL30.008607 PL30.008938 PL30.007522	W-94.004383 E-93.964307 PL-93.989742 PL-93.985832 PL-93.983449 PL-93.982740 PL-93.979995 PL-93.975545 PL-93.973193 PL-93.971318 PL-93.970163	T2-TX, RCRA-CESQG, HMIRS (DOT), RCRA-LQG, RAATS, RMS, SSTA, TRIS	Organic and industrial chemicals and waste	Low Risk, no recent violations
2015	OilTanking Port Neches, LLC., Motiva Terminal, Port Neches Terminal, Flint Hills Resources Terminal	Adjacent	29.991272 PL29.990396 PL29.988502	-93.937148 PL-93.939531 PL-93.938145	T2-TX, RCRA-CESQG, RCRA-LQG, BRS, ICIS, AFS, RCR, COAL GAS, RAATS	Oil and petroleum products storage and shipping	Low Risk, CWA violations in 2013, significant CAA violations
2010	Former tank farm	550 feet south	30.006058	-93.968661	N/A	Tank farm active from <1938 to 2010	Low Risk, tanks removed
2015	Star-Motiva Enterprises Port Neches Terminal Plant	Adjacent	29.886540	-93.963144	RAATS, ERNS, RCRA-LQG, BRS, ICIS, T2-TX, CORRACTS	RCRA metals	Low Risk, oil spill in river in 2014 remediated
2015	Trans-Global Solutions, Erickson Refining	Adjacent	30.001459	-93.957237	CORRACTS, RAATS, BROWNFIELDS-TX, VCP-TX	Surface disposal, oil terminal	Low Risk, no current action

Table 4-1, continued

Date	Description	Distance from Corridor	Latitude*	Longitude*	Database Listing	Contaminants of Concern	Risk Analysis
2015	Huntsman Refinery	Adjacent	W29.994666 E29.989649 PL29.992718	W-93.945494 E-93.932334 PL-93.944609	RCRA-LQG, T2-TX, DOCKET, TRIS, TOSCA-PLANT, RAATS, AFS, RCRA-NONGEN. RCRA-TSDF, CORRACTS	Petroleum products, petrochemicals	Low Risk, no recent RCRA violations
2015	Star Lake Canal	Adjacent	W29.972980 E29.966582	W-93.972890 E-93.916250	NPL	Petroleum products, heavy metals, PCBs	High Risk, cleanup and remediation scheduled, construction coordination required
2015	Texaco Chemical Company Neches Plant	Adjacent	W29.989297 E29.968645 PL29.972692 PL29.968799	W-93.931014 E-93.924453 PL-93.929838 PL-93.924668	RCRA-TSDF, RCRA-LQG, FTTS, CERCLIS-NFRAP	Petroleum products, petrochemicals	Low Risk, no recent RCRA violations
2015	Calabrian Corporation	900 feet west	29.965704	-93.923863	CERCLIS-NFRAP, RCRA-NONGEN. TRIS, DOCKET, T2-TX, TRIS, RMP, RAATS, RCRA-CESQG, RCRA-LQG	Chemicals	Low Risk, site required no further action in 1979
2015	Total Refinery-BASF Chemicals	Adjacent	W29.965529 E29.954440 PL29.968329 PL29.967866 PL29.967116	W-93.901281 E-93.880116 PL-93.982561 PL-93.886376 PL-93.885393	RCRA-TSDF, RMP,	Petroleum products and petrochemicals, past CAA violations with significant penalties, full range of organic, petroleum, and metals waste releases	Low Risk, no recent CWA or RCRA violations
2015	Valero Refinery	Adjacent	E29.850291 W29.856403 PL29.846451 PL29.944990 PL29.844470 PL29.845460 PL29.847722 PL29.849298 PL29.384972 PL29.851135 PL29.861893	E-93.952668 W-93.981225 PL-93.955676 PL-93.964052 PL-93.965528 PL-93.966585 PL-93.968972 PL-93.969865 PL-93.970179 PL-93.971134 PL-93.991987	RCR, ICIS, AFS	Petroleum products and petrochemicals, past and current CAA violations	Low Risk, recent and current RCRA manifest violations, no releases

* PL=pipeline crossing

5 FREEPORT CORRIDOR

The Freeport project area consists of levee and floodwall protection around the cities of Clute, Oyster Creek, and Freeport, Texas, extending along Oyster Creek in the northeast, down to the Intracoastal Waterway, then north along both sides of the Dow Access Canal, around the port facilities at Freeport, west to the Bryan Mound Strategic Petroleum Reserve on the Brazos River, and then north along the Brazos River to the Dow Chemical plant. The entire levee alignment comprises 43.2 miles of levees and floodwalls (Figure 5-1). Nine major industrial facilities are located in the vicinity of the proposed levees and floodwalls in the Freeport area.

The largest of these is the Dow Chemical facility, which includes three large chemical processing plants. Other chemical and refining facilities are located in close proximity to the Dow operations, and include numerous shipping points along the Port of Freeport, and Intracoastal Waterway shipping corridors. The major industrial plants with HTRW concerns are indicated in Figures 5-2, 5-3, and 5-4 with shaded property boundaries. Smaller sites of less concern are also indicated. The Federal and state hazardous materials database listings for all facilities and prior events are found in Table 5-1, along with the latitude and longitude locations of the sites along the project alignment corridor. For sites other than a single point, a location is given for each end of the site that intersects the alignment. Dow Chemical Company has three plant sites in the area, Dow Chemical Company Texas Operations, Dow Chemical Oyster Creek Site, and Dow Chemical Shipping Site located along the Intracoastal Waterway.

There are numerous pipeline crossings along the tentative levee and floodwall alignments, and these are also indicated in Figures 5-2, 5-3, and 5-4. Many of the pipeline crossings transport hazardous materials between processing facilities, and others transport finished products to shipping terminals. These pipeline crossings are identified as points of concern along the alignments where special caution should be exercised during construction to avoid damage to the pipelines and release of hazardous materials into the environment. Some sites are not shown on the maps due to their lack of risk to the project corridor.

The tentative alignment corridor also crosses the Bryan Mound Strategic Petroleum Reserve facility located on the Brazos River. There is a large, 48-inch buried pipeline connecting the Bryan Mound facility to the refineries at Texas City to the northeast, but the exact location of this pipeline is not known.

The general risk level for the Freeport area is indicated as *Low* risk, since no current or recent unresolved RCRA or CWA releases were identified for any of the industrial facilities in the Freeport area. Many of the facilities have ongoing CAA violations due to stack emissions. The

HTRW facilities indicated should be more thoroughly investigated with visual inspections and interviews with facility managers to confirm the potential HTRW risks along the alignment corridor prior to construction or more detailed design.

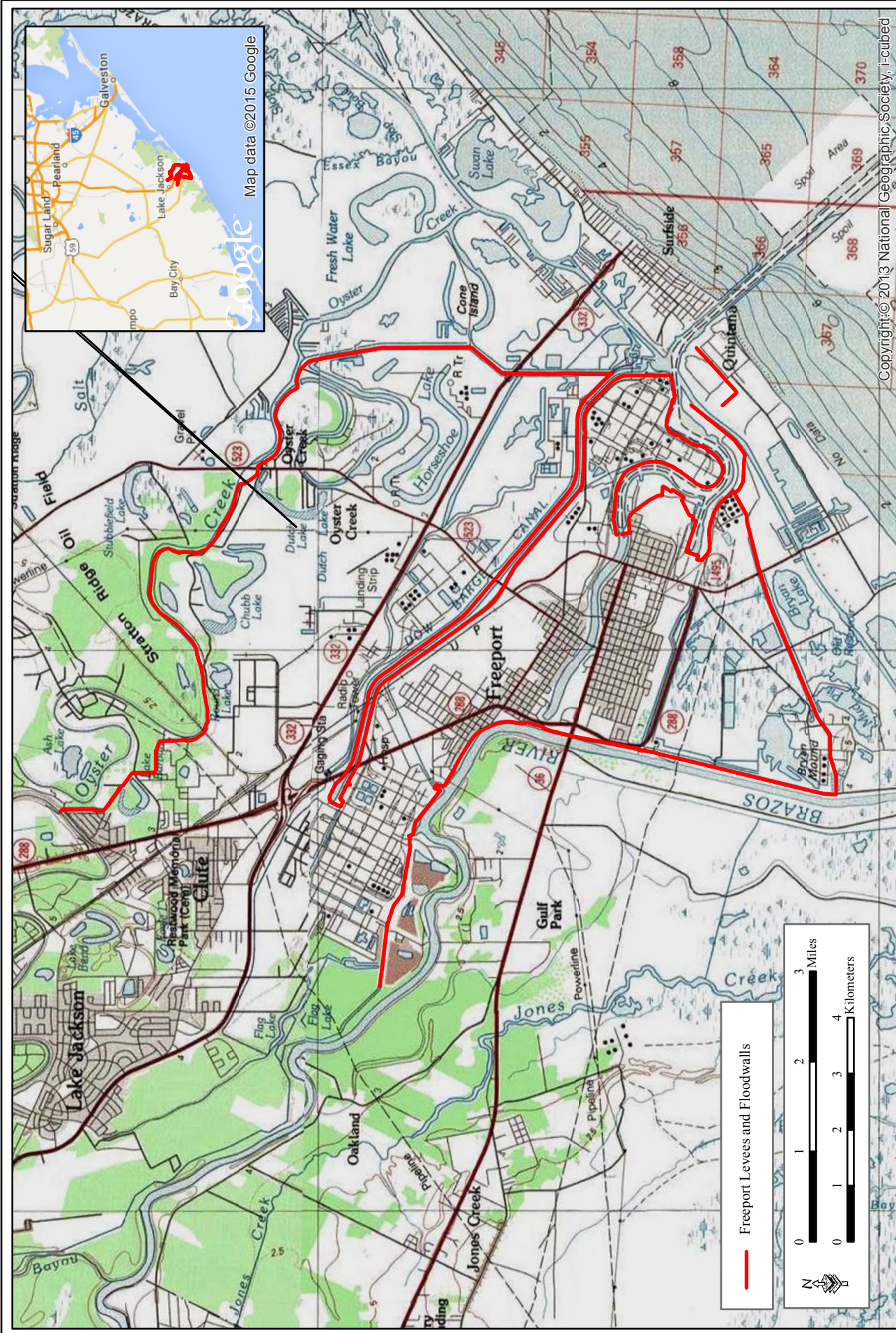


Figure 5-1. Freeport Project Alignment

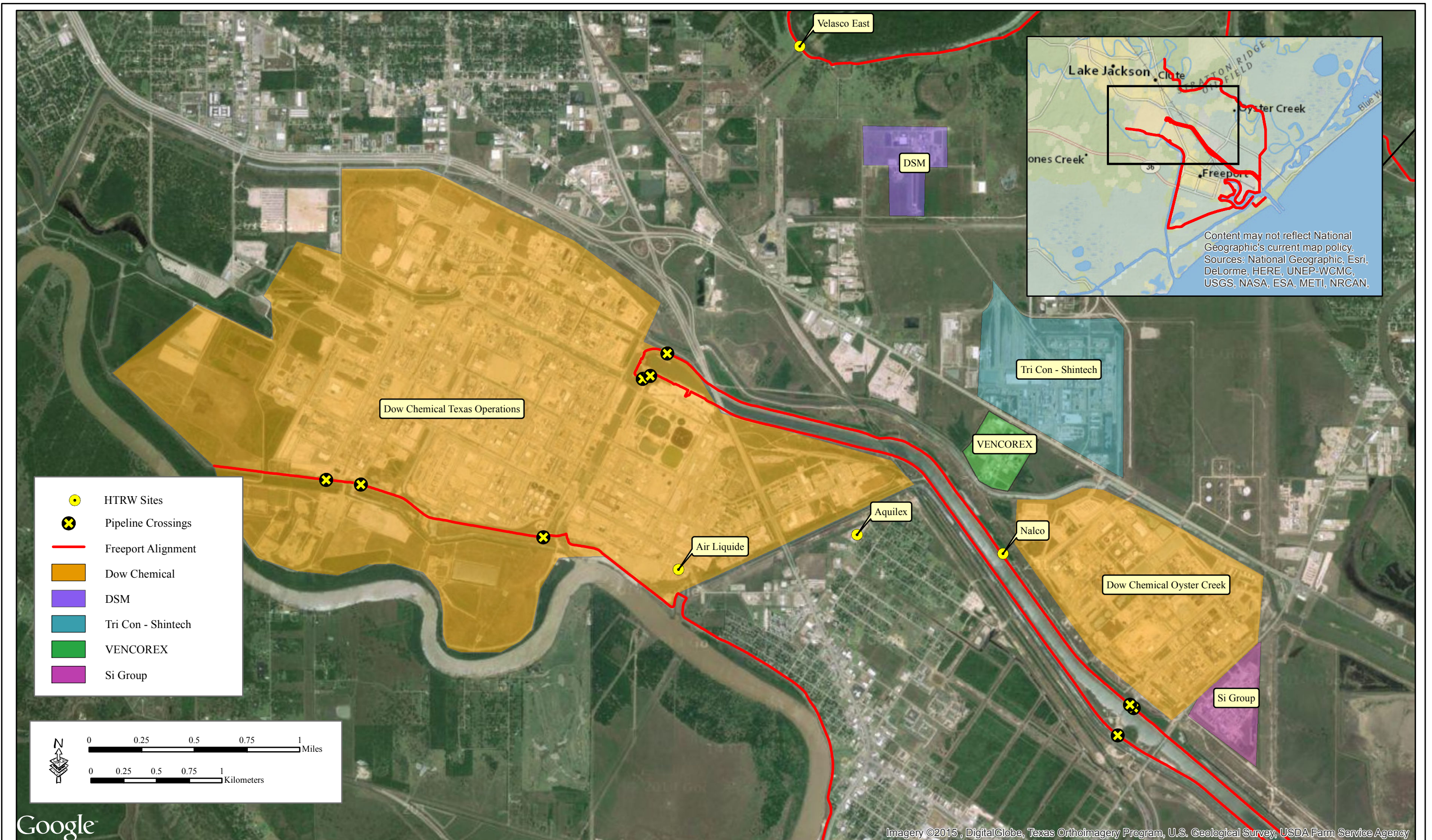


Figure 5-2. Freeport HTRW Sites Map 1

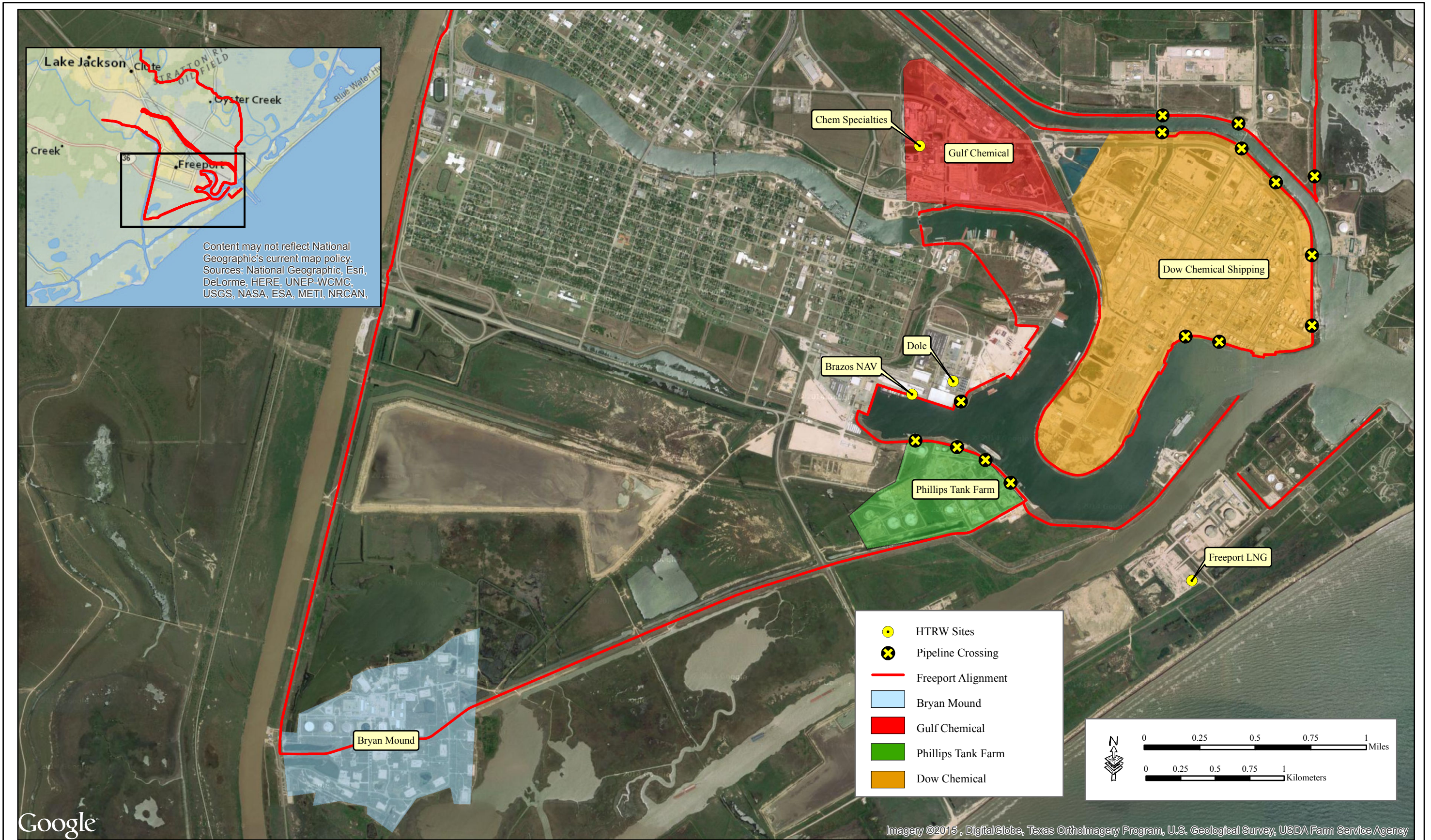


Figure 5-3. Freeport HTRW Sites Map 2

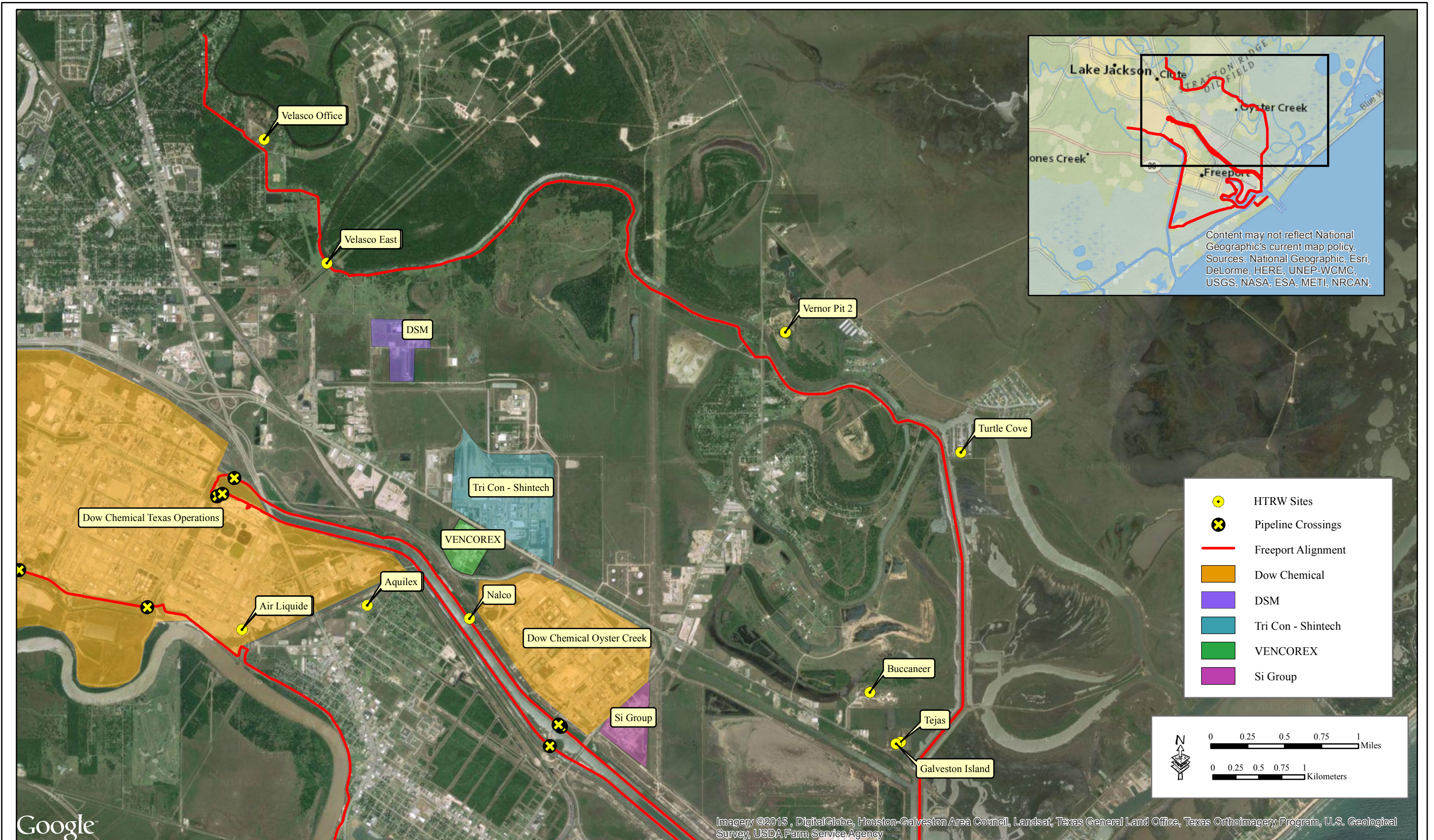


Figure 5-4. Freeport HTRW Sites Map 3

Table 5-1. Freeport Levees and Floodwalls Corridor HTRW Sites

Date	Description	Distance from Corridor	Latitude*	Longitude*	Database Listing	Contaminants of Concern	Risk Analysis
2015	Velasco Drainage District , East Levee Pump Station Intersecting	Adjacent	29.018125	-95.377201	PST-TX, T2-TX	No past violations found	Low Risk, site stores small quantities of diesel, no reported spills
2015	Velasco Drainage District , office building and equipment warehouse	Adjacent	29.030164	-95.384500	T2-TX, PST-TX, UST-TX	No past violations found	Low Risk, site stores small quantities of gasoline , diesel, and hazardous chemicals, no reported spills
2015	Vernor Material Pit 2 , construction sand and gravel pit, petroleum storage tank located at site	1,107 feet east	29.012213	-95.325799	PST-TX	No past violations found	Low Risk, site stores small quantities of refined petroleum fuel in an above ground storage tank
2015	Montgomery Tank Lines , General trucking shipping and receiving facility	600 feet southwest	29.005582	-95.327108	RCRA_NONGEN, RAATS, IND HAZ WASTE – TX, UST-TX	Numerous past RCRA violations, currently in violation of RCRA permit for manifest	Low Risk, site handles and transports limited quantities of hazardous materials, no reported spills, UST removed from ground 1/31/1990
2015	Turtle Cove Lot Owners Assoc., Inc. , Marina	600 feet east	29.00528	-95.305931	T2-TX	Chlorine, fuel, no past violations found.	Low Risk, site stores limited quantity(≤ 1000 gallons) of fuel and ≤ 500 gallons of chlorine in ASTs, no reported spills
2015	Nalco Freeport Plant , chemical plant, pipelines adjacent, pipelines intersecting	Adjacent, co-located with Dow Oyster Creek facility	E28.971264 W28.985289	E-95.347570 W-95.362111	RMP, CORRACTS, RAATS, RCRA_LQG, T2-TX	Organic and industrial chemicals and waste, ignitable waste, corrosive waste. Numerous past RCRA and CWA/NPDES violations, currently in violation of RCRA permit for manifest	Low Risk, site generates and stores large quantities of hazardous materials.
2015	Buccaneer Gas Plant , crude petroleum and natural gas processing plant,	2,195 feet west	28.976987	-95.315579	COAL GAS	Crude petroleum and natural gas , no past violations found	Low Risk, site processes crude petroleum and natural gas brought on site from a pipeline system, no reported spills
2015	Aquilex Hydrochem Inc. , industrial cleaning, office building and equipment warehouse,	2,199 feet west	28.984552	-95.371929	HMIRS (DOT)	Industrial chemicals and solvents, corrosive/caustic materials, no past violations found	Low Risk, site generates and stores limited quantities of hazardous chemical used in industrial cleaning processes, one spill of 2 gallons of 50% caustic solution was reported 8/13/1997, no remediation was required
2015	Tejas Power , natural gas transmission and distribution, drainage canal intersecting	Adjacent	28.972154 28.969880	-95.312046 -95.310607	IND HAZ WASTE-TX	Crude petroleum and natural gas, fuel no past violations found	Low Risk, site generates and stores small quantities of hazardous materials, no reported spills
2015	Galveston Island Gathering System , natural gas gathering system, drainage canal intersecting	Adjacent	28.971988 28.969880	-95.312520 -95.310607	COAL GAS	Crude petroleum and natural gas, fuel, ignitable waste, no past violations found	Low Risk, site generates and stores small quantities of hazardous materials. No reported spills
2015	Chemical pipeline crossing		PL28.953970	PL-95.309568	N/A	Unknown	
2015	Dow Chemical Company, Texas Operations , chemical manufacturing plant, drainage canal intersecting, storage tanks adjacent, pipelines adjacent, pipelines intersecting	Adjacent	W28.988025 E28.980275 N28.996764 S28.988593 PL28.996796 PL28.983943 PL28.987601 PL28.987335 PL28.994996 PL28.995223	W-95.418540 E-95.385853 N-95.386950 S-95.366624 PL-95.387094 PL-95.396517 PL-95.413620 PL-95.410900 PL-95.388963 PL-95.388383	DOT OPS, PIPELINES, RCRA-TSDF, RCRA-LQG, TRI	Organic and industrial chemicals and waste, ignitable waste, corrosive waste. Numerous past RCRA and CWA/NPDES violations with significant penalties, currently in violation of RCRA permit for manifest	Low Risk, site generates and stores large quantities of hazardous material

Table 5-1, continued

Date	Description	Distance from Corridor	Latitude*	Longitude*	Database Listing	Contaminants of Concern	Risk Analysis
2015	Dow Chemical, Oyster Creek , chemical manufacturing plant, drainage canal intersecting, railway intersecting, wastewater treatment ponds adjacent, pipelines intersecting	Adjacent	PL28.973006 PL28.973219 PL28.971087	PL-95.350005 PL-95.350309 PL-95.351212	CORRACTS, RCRA-TSDF, RCRA-LQG, TRIS	Organic and industrial chemicals and waste, ignitable waste, corrosive waste. Numerous past RCRA and CWA/NPDES violations with significant penalties, currently in violation of RCRA permit for manifest	Low Risk, site generates and stores large quantities of hazardous material
2015	Dow Chemical, Shipping , chemical manufacturing plant, drainage canal intersecting, railway intersecting, wastewater treatment ponds adjacent, pipelines intersecting	Adjacent	PL28.949513 PL28.958024 PL28.944908 PL28.958439 PL28.957334 PL28.956393 PL28.954216 PL28.944917 PL28.943743 PL28.944034	PL-95.309665 PL-95.315321 PL-95.309574 PL-95.320980 PL-95.320980 PL-95.315062 PL-95.312451 PL-95.309569 PL-95.316439 PL-95.318939	DOT OPS, PIPELINES, RCRA-TSDF, RCRA-LQG, TRI	Organic and industrial chemicals and waste, ignitable waste, corrosive waste. Numerous past RCRA and CWA/NPDES violations with significant penalties, currently in violation of RCRA permit for manifest	Low Risk, site generates and stores large quantities of hazardous material
2015	Gulf Chemical, Chemical Specialties Inc. , chemical manufacturing plant	Adjacent	28.956143	-95.338945	RCRA-LQG, TRIS	Organic and industrial chemicals and waste, ignitable waste, corrosive waste. Numerous past RCRA and CWA/NPDES violations with significant penalties, currently in violation of RCRA permit-informal	Low Risk, site generates and stores large quantities of hazardous material
2015	SI Group Operations Texas , chemical manufacturing plant, drainage canal adjacent	1,757 feet east	28.972379	-95.341854	RMP, RCRA-LQG	Organic and industrial chemicals and waste, ignitable waste, corrosive waste. Numerous past CWA/NPDES, CAA, and RCRA violations	Low Risk, site generates and stores large quantities of hazardous material. Not currently in violation of any Federal regulation or permit
2015	Freeport LNG Receiving Storage , liquefied natural gas import terminal, drainage canal adjacent	Adjacent, across the shipping channel	28.928100	-95.318117	RAATS	Crude petroleum and natural gas, fuel, ignitable waste , 3 past CAA violations and 1 past CWA violation	Low Risk, site generates and stores small quantities of hazardous materials. No reported spills, separated by shipping channel
2015	Air Liquide Freeport HYCO Plant	Adjacent, co-located with Dow	28.981913	-95.385863	TRIS, RCRA-CESQG	Organic and industrial chemicals and waste, 2 past CWA/NPDES violations found	Low Risk, site generates and stores small quantities of hazardous materials, no current violations, no spills reported
2015	Bryan Mound Strategic Petroleum Reserve , crude oil storage, petroleum bulk stations, pipeline intersecting, storage tanks adjacent	Adjacent	E28.919680 W28.917303	E-95.369450 W-95.385544	IND HAZ WASTE-TX, RAATS, T2-TX, RCRA-CESQG, TRI	Crude petroleum, No past violations found	Low Risk, site receives and stores large quantities of crude oil and unrefined petroleum products, no spills reported
2015	Dole Fresh Fruit , produce shipping facility	Adjacent	28.940818 PL28.939497	-95.336110 PL-95.335519	T2-TX	No past violations found	Low Risk, site generates and stores small quantities of hazardous materials, no spills reported
2015	Brazos River Harbor NAV District , marine shipping terminal	Adjacent	28.939905	-95.339160	UST-TX	No past violations	Low Risk, UST removed from ground 3/15/1999. No spills or leaks reported

Table 5-1, continued

Date	Description	Distance from Corridor	Latitude*	Longitude*	Database Listing	Contaminants of Concern	Risk Analysis
2015	DSM Nutritional Products , manufacturing plant	0.35 mile south	29.011557	-95.367157	RCRA-LQG, TRIS	Past CWA and RCRA violations	Low Risk, no recent CWA violations
2015	Phillips Tank Farm , loading dock	Adjacent	PL28.936885 PL28.936515 PL28.935719 PL28.934275	PL-95.338848 PL-95.335747 PL-95.333615 PL-95.331719	N/A	Unknown, probably unrefined petroleum	Low Risk, potential spills loading petroleum products and chemicals
2015	Tri Con - Shintech	2,500 feet east	28.994118	-95.356273	SPILLS-TX, RMP, ICIS, T2-TX	No current violations or spills	Low Risk due to distance
2015	VENCOREX	1,300 feet east	28.990266	-95.360870	ICIS	NO other information available	Low Risk due to distance and no violations