Essential Fish Habitat Assessment

Galena Park Terminal Condensate Splitter Project
Harris County, Texas

Prepared for

KM Liquids Terminals, LLC

Prepared by

Whitenton Group, Inc.

November 2012
Revised February 2013

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WGI Project No. 1209

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TABLE OF CONTENTS

ACRONYMS

BA	Biological Assessment
bbl/day	barrels per day
CO	Carbon Monoxide
EFH	Essential Fish Habitat
EFHA	Essential Fish Habitat Assessment
EPA	Environmental Protection Agency
FMC	Fishery Management Council
FMP	Fishery Management Plan
GHG	Greenhouse Gas
GLCMax	maximum predicted ground level concentration
GPT	Galena Park Terminal
KMLT	KM Liquids Terminals LLC
Magnuson-Stevens Act	Magnuson-Stevens Fishery Conservation and Management Act
NAAQS	National Ambient Air Quality Standards
NMFS	National Marine Fisheries Service
NNSR	Non-attainment New Source Review
NOAA	National Oceanic and Atmospheric Administration
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxide
PM	Particulate Matter
POTW	Publicly Owned Treatment Work
PSD	Prevention of Significant Deterioration
SIL	Significant Impact Level
SO_2	Sulfur Dioxide
SWPPP	Storm Water Pollution Prevention Plan
TCEQ	Texas Commission on Environmental Quality
TPWD	Texas Parks and Wildlife Department
US	United States
USGS	US Geological Survey
VOC	Volatile Organic Compound
WGI	Whitenton Group, Inc.
$\mu g/m^3$	microgram per cubic meter

1.0 INTRODUCTION

The KM Liquids Terminals LLC (KMLT) Galena Park Terminal (GPT) is a for-hire bulk petroleum storage terminal in Harris County, TX. Petroleum products and specialty chemicals are stored in various storage tanks and transferred in and out of the terminal tankage for external customers via pipeline, tank truck, railcar, and marine vessel. The facility consists of various storage tanks and associated piping, loading, and control equipment. KMLT proposes to construct and operate a new 100,000 barrels per day (bbl/day) condensate splitter at the existing GPT, to be constructed in two phases. The proposed condensate splitter will consist of two trains that are each capable of processing 50,000 bbl/day of petroleum condensate material. The process will utilize conventional distillation technology.

The proposed project is located near the Houston Ship Channel, less than one mile west of Federal Road and less than three miles east of Interstate 610 in Galena Park, TX (Figures 1 and 2 – Appendix A). This project is a major source for nitrogen oxides (NOx), volatile organic compounds (VOC), and greenhouse gases (GHG). Since the facility is a major source for NOx and VOC and it is located in the Houston Galveston Brazoria Ozone Non-attainment Area, the project requires a Non-attainment New Source Review (NNSR) permit. The Texas Commission on Environmental Quality (TCEQ) is responsible for issuance of the NNSR permit. Since the source is major for GHG, a Prevention of Significant Deterioration (PSD) GHG permit will be required. The United States (US) Environmental Protection Agency (EPA) is responsible for issuing GHG PSD permits in Texas.

The 1996 Essential Fish Habitat (EFH) amendments to the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) set forth a mandate for the National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS), regional fishery management councils (FMC), and other federal agencies to identify and protect important marine and anadromous fish habitat. EFH is defined in the Magnuson-Stevens Act as "...those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity[1]." A generic Fishery Management Plan (FMP) amendment delineating EFH for species managed by the Gulf of Mexico FMC was approved in early 1999. The generic FMP subsequently was updated and revised in 2005 and became effective in January 2006[2].

In addition, EFH for highly migratory species managed by the NMFS was identified in two Secretarial FMPs. The consultation requirements in the Magnuson-Stevens Act direct federal agencies to consult with NMFS when any of their activities may have an adverse effect on EFH. The Magnuson-Stevens Act defines "adverse effect," in part, as "any impact that reduces quality and/or quantity of EFH." This definition also provides that "adverse effect" may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species' fecundity), site-specific or habitat wide effects, including individual, cumulative, or synergistic consequences of actions[1]."

Whitenton Group, Inc. (WGI), KMLT's environmental consultant for the project, has prepared this EFH Assessment (EFHA) to report the results of the critical review of the proposed condensate splitter project's potential for direct, indirect, and cumulative adverse effects on federally-managed EFH.

This EFHA is provided as a supplement to the GPT Condensate Splitter Biological Assessment (BA). More detailed information, research, and analysis can be found in the GPT Condensate Splitter BA[3].

2.0 PROJECT DESCRIPTION

2.1 PROJECT PURPOSE AND LOCATION

The purpose of the project is to construct and operate a new 100,000 bbl/day condensate splitter at the existing KMLT GPT. The project will be constructed in two 50,000 bbl/day phases. The proposed condensate splitter will consist of two trains which will each process 50,000 bbl/day of petroleum condensate material to obtain products suitable for commercial use. The process utilizes conventional distillation technology.

The proposed project is located adjacent to the Houston Ship Channel, less than one mile west of Federal Road and less than three miles east of Interstate 610 in Galena Park, TX (Figure 1 – Appendix A).

Project location information:

USGS Quad	Latitude/Longitude
Pasadena	29.737882 -95.218805

2.2 CONSTRUCTION INFORMATION

Construction of the proposed condensate splitter, associated infrastructure, and auxiliary equipment will take place within the existing GPT. The project footprint will also include two new pipelines within one right-of-way that will connect the condensate splitter facility to the existing industrial facility immediately south of the Project Area. The total area of the project footprint, referred to as the "Project Area," is approximately 49.3 acres. The civil construction activities include site preparation and drainage, installation of concrete piles, concrete foundations and mats, concrete slab on grade, structural steel, stairs and ladders. The Project Area is shown in Figure 2 (Appendix A).

The projected construction start date is on or about February 1, 2013. Construction of the second train will commence within 18 months after completion of the first train. The projected operation start date is on or about mid-March 2014 for the first 50,000 bbl/day processing unit.

The total time estimated to complete the project is approximately 64 weeks (10 weeks for site preparation and 54 weeks of field erection and startup for the first processing unit), and includes the following list of general construction activities. The second processing unit will be built within 18 months of startup of the first processing unit with the same construction timeline.

- grading and site fill to the agreed upon elevation
- install pilings
- install underground facilities and grounding grid
- install equipment and pipe rack foundations
- construct storage tanks
- install equipment, bullet tanks, and pre-fab electrical buildings
- install overhead feed line to electrical building
- install piping and instrumentation

- finalize piping to tanks
- final dress-up, drain, and stormwater outfall structure
- completion of instrumentation & electrical work
- insulation
- touch-up painting
- Commissioning & Startup

Construction of the proposed condensate splitter project will include the addition of one stormwater outfall structure to the shoreline of Hunting Bayou.

Detailed construction and operation information is provided in Section 4.0 of the GPT Condensate Splitter BA[3].

2.3 MARINE VESSEL TRAFFIC

The existing Galena Park Dock Facility handles approximately 40 ships per month (1.3 ships per day) and 100 barges per month (3.3 barges per day). Ships and barges declare arrival in Houston at Bolivar Roads in Galveston Bay and follow the Houston Ship Channel approximately 39 miles to the Galena Park Dock Facility. Vessels are piloted by mariners with pilotage certification on the Houston Ship Channel. Vessel speed varies depending on conditions including weather, visibility, congestion, currents, and tides. The average time to traverse the 39 miles to the Galena Park Dock Facility is 5-6 hours at an average speed of 7 knots.

Barges are 200-300 feet in length, 35-55 feet in width, and carry 10,000-30,000 barrels. Ships are 425-850 feet in length, 65-116 feet in width, and carry 80,000-300,000 barrels. The average ship transfer volume is 160,000 barrels. Approximately 1.3 ships per day could transfer an average of 208,000 barrels per day. The average barge transfer volume is 20,000 barrels. Approximately 3.3 barges per day could transfer an average of 66,000.

All of the feed product to be processed by the condensate splitter project will be received via pipeline. Most, of the finished products produced by the condensate splitter project are expected to go outbound via pipeline; some of the finished products will go outbound via marine vessel that will result in a small increase in marine vessel traffic within the Houston Ship Channel. The anticipated increase in marine vessel traffic would be approximately 5-6 ships per

per month (~0.2 ships per day) and 15 barges per month (~0.5 barges per day). Barges utilize Barge Docks 2 and 3 of the Galena Park Dock Facility. Ships utilize Ship Docks 1-4. Dock locations are identified in Plot Plan 88-MS-0060 (Appendix B).

2.3 STORMWATER AND WASTEWATER INFORMATION

Erosion and sedimentation controls will be utilized to protect water quality during the construction and operation of the proposed project, in accordance with Section 401 of the Clean Water Act and 30 Texas Administrative Code Chapter 279 and as prescribed in the Storm Water Pollution Prevention Plan (SWPPP) required for construction.

Less than five gallons per minute of wastewater is expected to be generated by the proposed project. The water quality characteristics (i.e. temperature, flow rate, pH, constituent concentration, etc.) of the additional wastewater are not expected to be significantly different than the wastewater currently generated by operations at the GPT.

The existing operations at the GPT are authorized under the EPA Multi-sector General Permit number TXR05W588. The GPT wastewater that is generated on site is collected via sumps and stored in above ground internal floating roof tanks and sent via hard pipe to Gulf Coast Waste Disposal Authority, a publically owned treatment work (POTW) facility for treatment.

Flushing of the units and contact stormwater will be contained, treated, and properly disposed of at the Gulf Coast Waste Disposal Authority POTW facility.

Non-contact stormwater will be discharged through an outfall structure into Hunting Bayou. A bull rock apron will be constructed to prevent bank erosion or scour at the stormwater outlet. Bull rock is a rounded flint rock that is similar to gravel, only larger. The bull rock apron will be designed to absorb the initial impact of the stormwater flow and reduce the flow velocity to a level that will not erode the stream bank or channel. The bull rock apron will be constructed at a zero grade at the optimal distance to reduce flow velocity and prevent scour.

3.0 BACKGROUND INFORMATION

3.1 GENERAL ENVIRONMENTAL INFORMATION

This section provides applicable environmental characteristics for the general region in which the project is located.

3.1.1 REGIONAL ENVIRONMENTAL INFORMATION

The proposed construction site is located in Harris County within the Gulf Coast Prairies and Marshes ecoregion of Texas[4] which is in the Gulf Coastal Plain physiographic province of North America[5]. The area in which the project is located is typical for the West Gulf Coastal Plains ecoregion.

This region borders the Gulf Coast within the state of Texas. The Gulf Coast influence creates multiple dynamic ecosystems within this ecoregion including bays, estuaries, salt marshes, and tidal flats. These ecosystems are home to an abundance and variety of wildlife including mammals, birds, reptiles, amphibians, fish, and invertebrates. This region is prime wintering grounds for migratory birds. The bays and estuaries are invaluable breeding grounds and fish hatcheries[6].

The majority of the river basins of Texas drain towards the Gulf of Mexico. This ecoregion also receives more rainfall than many other ecoregions in Texas. As a result, this region is ecologically diverse inland as well as immediately adjacent to the coastline. Freshwater wetlands, marshes, and swamps as well as hardwood bottomlands, prairies, and oak mottes are common throughout this region[7].

The Gulf Coast Prairies and Marshes ecoregion spans the Texas Coastline. Because of the abundant water resources, the rich soils, and the proximity to the coast, this area is commonly converted to cropland, ranchland, and industrial development[4]. These land uses have reduced and fragmented the critical protected species habitat throughout the region.

3.1.2 WATER RESOURCES

Harris County has abundant water resources, with its southeast border on the Gulf of Mexico. Other prominent water features in the area include Hunting Bayou, Buffalo Bayou/Houston

Ship Channel, Luce Bayou, Greens Bayou, San Jacinto River, and Trinity and Galveston Bays. The low, flat topography invites freshwater and tidal influence to create a variety of aquatic ecosystems mentioned above in Section 3.1.1 General Region Information.

The watersheds or river basins that contribute water resources into the proposed project site and surrounding areas are the West San Jacinto, Spring, East Fork San Jacinto, Buffalo-San Jacinto, North Galveston Bay, West Galveston Bay, and the Lower Brazos.

According to the Texas Parks and Wildlife Department (TPWD) available digital data, Armand Bayou is the closest designated Ecologically Unique River and Stream Segment to the Project Area[8]. Armand Bayou is approximately 10 miles southeast of the Project Area. Hunting Bayou is a tributary to Buffalo Bayou/Houston Ship Channel. The Houston Ship Channel/Buffalo Bayou is not directly connected to Armand Bayou. However, all of these waterways eventually flow into the Galveston Bay system.

Based on the background review, the water resources in the areas surrounding the project site include freshwater/storm retention ponds, freshwater emergent wetland, riverine/riparian, estuarine and marine wetland, freshwater forested/scrub-shrub wetland, and estuarine and marine deepwater. The Houston Ship Channel is less than one mile south and east of the Project Area at its closest point. Hunting Bayou is within the Project Area.

Galveston Bay and the Trinity-San Jacinto Estuary lie in the warm temperate climatic zone of the upper Texas coast and cover an area of about 600 square miles—the largest of all seven major bay and estuary (tidal) systems in Texas. Although transected by a deep (>40 feet) ship channel, the average depth of the estuary is only 8.5 feet. According to multiple sources including the TPWD and US Geological Survey (USGS), the Trinity-San Jacinto estuary and its component waterbodies are tidally-influenced.

4.0 AIR QUALITY ANALYSIS RESULTS

RPS, KMLT's air quality permitting consultant for the project, performed dispersion modeling to predict emissions of constituents from the proposed condensate splitter project in accordance with air permitting requirements. Dispersion modeling uses mathematical formulations to characterize the atmospheric processes that disperse constituents emitted by a source. This section provides a summary of the results of the dispersion modeling. More details regarding

air quality analysis results and methods are provided in Section 7.0 of the GPT Condensate Splitter BA[3].

Together with air dispersion modeling results, EPA Significant Impact Levels (SILs) were used as a tool to determine the potential for project emissions to adversely affect EFH. SILs are levels set by the EPA, below which, modeled source criteria pollutant impacts would be considered insignificant. The GLCMax value is the maximum ground level concentration predicted by the model for each constituent and averaging period resulting from this project. If a GLCMax value is less than the SIL, the modeled source impacts are considered insignificant and are not considered to cause or contribute to a violation of a National Ambient Air Quality Standards (NAAQS) or PSD Increment for that criteria pollutant and averaging period. If a GLCMax is greater than the SIL, additional analysis is required to demonstrate that the project would not cause or contribute to a violation of the NAAQS or PSD Increment for that constituent and averaging period.

The project GLCMax values are all less than the SILs for the following: 1-Hour carbon monoxide (CO), 8-Hour CO, 24-Hour particulate matter (PM_{10}), annual PM_{10}, 24-Hour $PM_{2.5}$, annual $PM_{2.5}$, 1-Hour nitrogen dioxide (NO_2), annual NO_2, 1-Hour sulfur dioxide (SO_2), 3-Hour SO_2, 24-Hour SO_2, and annual SO_2. Accordingly, the proposed project's predicted criteria pollutant emissions are considered insignificant based on EPA's SIL analysis method with screening levels set to protect sensitive populations.

Table 1 shows the maximum predicted concentrations from the condensate splitter project for each constituent and averaging period. Table 1-1 (Appendix C) is the NNSR/PSD Applicability Analysis Summary provided in the application that KMLT submitted to the TCEQ for a permit to authorize non-GHG emissions from the project.

Table 1. Maximum Predicted Concentrations[9]

Constituent	Standard	Averaging Period	Project GLCMax (µg/m³)	SIL (µg/m³)	Less Than SIL?
NO_2	NAAQS	1-hour	4.5	7.5	Yes
		Annual	0.3	1	Yes
CO	NAAQS	1-hour	22.0	2000	Yes
		8-hour	11.3	500	Yes
PM_{10}	NAAQS	24-hour	0.7	5	Yes
		Annual	0.03	1	Yes
$PM_{2.5}$	NAAQS	24-hour	0.6	1.2	Yes
		Annual	0.03	0.3	Yes
SO_2	NAAQS	1-hour	0.8	7.8	Yes
		3-hour	17.6	25	Yes
		24-hour	0.5	5	Yes
		Annual	0.1	1	Yes

1 - EPA's AERMOD model calculates concentrations for a minimum time interval of 1-hour. Per TCEQ guidance, the model-predicted 1-hour concentration is compared to the 30-minute standard.
2 - The GLCMax is the maximum concentration predicted for each constituent and averaging period.

The dispersion model predicts concentrations at specific downwind receptor locations for constituent averaging periods. Since all constituents were below their SILs at all locations outside of the GPT, the limit of potential significant air emissions is the GPT boundary. The GPT boundary shown in Figure 2 (Appendix A) includes the earth disturbance footprint, the proposed stormwater discharge location on the south bank of Hunting Bayou, and the Galena Park Dock Facility.

In addition to the air quality analysis performed for criteria pollutants, RPS performed dispersion modeling and evaluated the potential for impacts from the other (non-criteria) pollutants that will emitted by the proposed project. This effects evaluation was performed in accordance with TCEQ air permitting guidelines for the assessing non-criteria pollutants. The predicted concentrations were compared with TCEQ Effects Screening Levels (ESLs)[10].

The specific results of the dispersion modeling and evaluation for other (non-criteria) pollutants that will be emitted by the proposed project are provided in Section 7.1.3 of the GPT

Condensate Splitter BA[3]. With the conservatively-predicted concentrations of routine emissions and MSS emissions being below TCEQ guideline levels for evaluating non-criteria pollutant emissions, the predicted concentrations are acceptable in that they are not expected to cause or contribute to adverse human health or welfare effects. No measurable amounts of mercury or other heavy metals will be emitted by the condensate splitter project.

5.0 EFFECTS OF THE PROPOSED ACTION ON EFH

This section presents the results of the analysis of potential adverse effects on federally-managed EFH as a result of the proposed condensate splitter project.

5.1 EFH

The GPT boundary includes a portion of Hunting Bayou, which is considered tidal from the confluence with Buffalo Bayou upstream to Interstate Highway 10. The GPT boundary also includes a portion of the Houston Ship Channel, which is considered tidal. According to the EPA, designated EFH within the Gulf of Mexico FMC includes all tidally-influenced aquatic habitats. Therefore, the tidal portions of Hunting Bayou and the Houston Ship Channel are designated EFH. The GPT boundary and EFH are demonstrated in Figure 2 (Appendix A). Portions of the Houston Ship Channel and its tidal tributaries (Ecoregion 4) have been identified as EFH by the Gulf FMC for all life stages of red drum (*Sciaenops ocellatus*), shrimp (*Penaeus aztecus, Penaeus setiferus, Penaeus duorarum, Pleoticus rubustus*), coastal migratory pelagics, and reef fish (43 species)[11].

Furthermore, these tidally influenced areas have also been identified by NMFS to contain EFH for neonate/young of the year scalloped hammerhead sharks (*Sphyrna lewini*); neonate/young of the year and juvenile blacktip sharks (*Carcharhinus limbatus*), bull sharks (*Carcharhinus leucas*) and bonnethead sharks (*Sphyrna tiburo*); and neonate/young of the year and adult Atlantic sharpnose sharks (*Rhizoprionodon terraenovae*)[12].

5.2 HABITAT AREAS OF PARTICULAR CONCERN

There are no EFH Habitat Areas of Particular Concern within the GPT boundary[13].

5.3 POTENTIAL LAND-BASED EFFECTS ON EFH

The construction of the bullrock apron, described above in Section 2.3, for the outfall structure will cause a temporary disturbance on the bank of Hunting Bayou, adjacent to EFH. The bullrock apron will provide long-term erosion protection from stormwater discharge events. No construction or maintenance activities will take place within EFH. Designated EFH will not be adversely affected by construction or maintenance activities associated with the proposed condensate splitter project.

Erosion and sedimentation controls will be utilized to protect water quality during the construction and operation of the proposed project. Erosion and sedimentation controls filter sediment and some pollutants from stormwater. Erosion and sedimentation controls also minimize erosion and slow the flow of stormwater, which allows additional time for water to reach ambient temperature and for sediment to settle out of the water column.

Non-contact stormwater will be discharged through an outfall structure into Hunting Bayou. Flow velocity of stormwater would be minimized by the bullrock apron described above in Section 2.3. Stormwater effluent discharged into Hunting Bayou from the condensate splitter project would be similar to existing point and non-point stormwater discharges into Hunting Bayou. Since erosion controls, including the bullrock apron for the outfall structure, will be utilized in accordance with federal water quality standards, no adverse effects to EFH are anticipated as a result of non-contact stormwater from the proposed condensate splitter project.

Since the GPT wastewater that is generated on site, as well as contact stormwater, will be treated and properly disposed of by Gulf Coast Waste Disposal Authority, no adverse effects to EFH are anticipated as a result of wastewater produced by the proposed condensate splitter project.

5.4 POTENTIAL WATER QUALITY EFFECTS ON EFH THROUGH DEPOSITION OF AIR POLLUTANTS WITHIN EFH

This analysis is based on predicted project emissions from dispersion modeling conducted by RPS, field survey and background review data collected by WGI, and literature review and research of the potential for predicted project emissions to affect flora and fauna associated with

EFH. A detailed description of the potential for effects to flora and fauna within the GPT boundary are provided in Section 8.0 of the GPT Condensate Splitter BA[33].

The general potential effects on aquatic habitats from criteria pollutant emissions such as NO_2 or SO_2 include indirect, long-term effects, such as acidification or eutrophication. Acidification is the decrease of the pH of an environment, such as water or soil. The effects of acidification on water quality, whether introduced by direct acid deposition or leaching from adjacent terrestrial ecosystems, include increased acidity, reduced acid neutralization capacity, hypoxia, and mobilization of aluminum[14]. Eutrophication is the over enrichment of nutrients into an aquatic system, which can result in excess algal growth. The decomposition of the excess algae can result in a decrease in dissolved oxygen, which can be harmful to fish and other aquatic organisms[15]. The project GLCMax values are less than EPA SILs for criteria pollutants.[9] Accordingly, the proposed project's criteria pollutant emissions are considered insignificant based on EPA's SIL analysis method with screening levels set to protect sensitive human populations.

Since the increased concentration of constituents predicted to occur as a result of the condensate splitter project are all significantly below the SILs and Hunting Bayou is at the northernmost edge of the GPT boundary, acidification, resulting from deposition or leaching, is not likely to occur as a result of the proposed condensate splitter project. If acidification is not likely to occur as a result of the proposed project, it is reasonable to assume the subsequent eutrophication will not occur.

With the conservatively-predicted concentrations of routine emissions and MSS emissions being below TCEQ guideline levels for evaluating non-criteria pollutant emissions, the predicted concentrations are acceptable in that they are not expected to cause or contribute to adverse human health or welfare effects. No measurable amounts of mercury or other heavy metals will be emitted by the condensate splitter project.

Since it has been determined that the potential indirect effects are unlikely to occur as a result of the proposed condensate splitter project, no adverse effects to EFH are anticipated as a result of air emissions produced by the proposed condensate splitter project.

5.5 POTENTIAL EFFECTS OF INCREASED MARINE VESSEL TRAFFIC WITHIN EFH

As discussed in Section 2.3 above, all of the feed product to be processed by the condensate splitter project will be received via pipeline and most of the finished products produced will go outbound via pipeline, it is possible that operation of the proposed condensate splitter project could result in a small increase in vessel traffic in the Houston Ship Channel (potential increase of approximately up to 6 ships per month and up to 15 barges per month). The Houston Ship Channel was designed and is maintained to accommodate heavy marine vessel traffic. It is estimated that 50 ships utilize the Houston Ship Channel daily (~1500 ships per month)[16]. Since the potential maximum increase in vessel traffic from the proposed condensate splitter project would be less than 1% of the existing vessel traffic in the Houston Ship Channel, no adverse effects to EFH are anticipated as a result of the proposed project.

6.0 CONCLUSIONS

EFH was identified within Hunting Bayou at the northernmost edge and the Houston Ship Channel at the southernmost edge of the GPT boundary. As described in above in Section 5.0 and in greater detail in Section 8.0 of the GPT Condensate Splitter BA[33], the EFH located within the GPT boundary would not be adversely affected by construction or maintenance activities, stormwater, wastewater, air emissions, or marine vessel traffic resulting from the proposed condensate splitter project. The proposed condensate splitter project does not have the potential to adversely affect EFH. Accordingly, no mitigating actions would be required.

7.0 REFERENCES

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the Gulf of Mexico; Spiny Lobster in the Gulf of Mexico and South Atlantic; Coral and Coral Reefs of the Gulf of Mexico. Gulf of Mexico Fishery Management Council. Tampa, FL.

[12]NMFS. 2009. Final Amendment 1 to the 2006 Consolidated Atlantic Highly Migratory Species Fishery Management Plan, Essential Fish Habitat. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Office of Sustainable Fisheries, Highly Migratory Species Management Division, Silver Spring, MD. Public Document. pp. 395.

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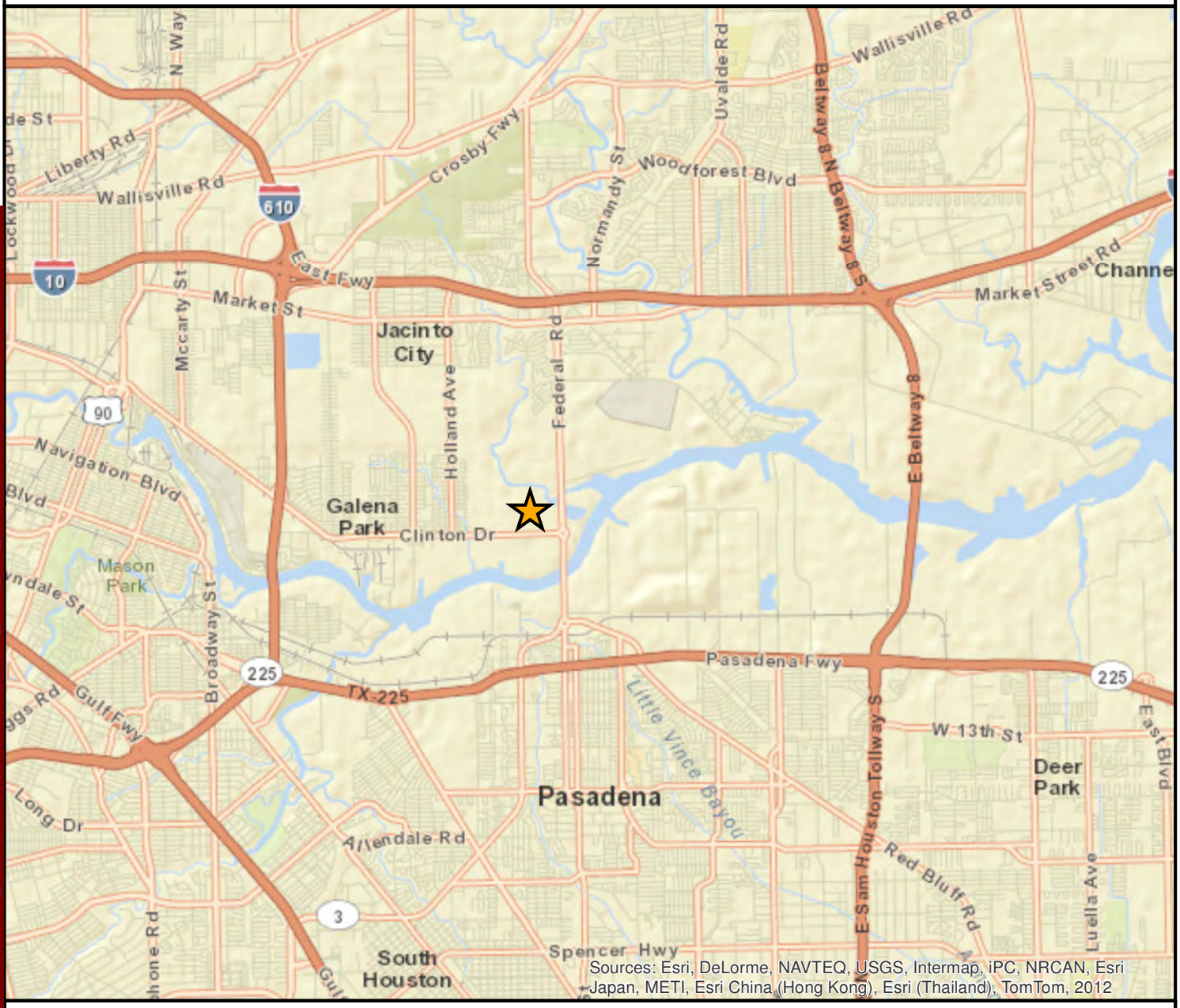
APPENDIX A

FIGURES

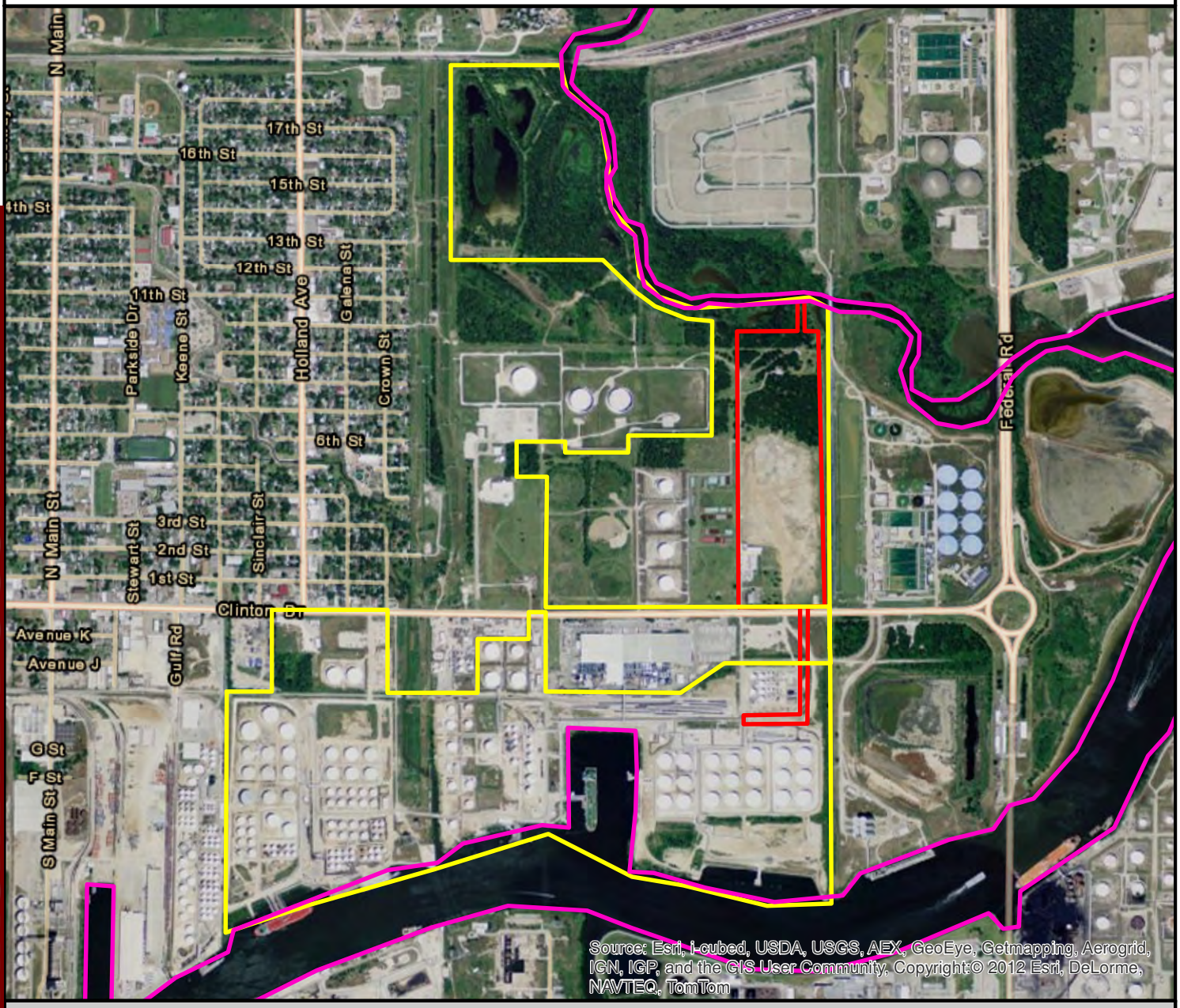
Figure 1
Project Location
Galena Park Terminal Condensate Splitter Project
Harris County, Texas



Project Location

Background Resources: USGS 100K DRG Esri USA Topo Basemap	Surveyor(s): Jayme Shiner PWS Bryan Whisenant	Project Number and Information: 1209 Galena Park Condensate Splitter Biological Assessment	WHITENTON group environmental consultants 3413 Hunter Road San Marcos Texas 78666
GPS and Coordinate Type: Trimble Geo XH 6000 Series UTM NAD 1983 Zone 15 North	Map Created: 06/03/2012 by JS Revised 2/21/2013		0 7,500 15,000 Feet N

Figure 2
Project and Action Area - Aerial Photograph
Galena Park Terminal Condensate Splitter Project
Essential Fish Habitat
Harris County, Texas



Project Area (~49.3 Acres)

Galena Park TerminalBoundary

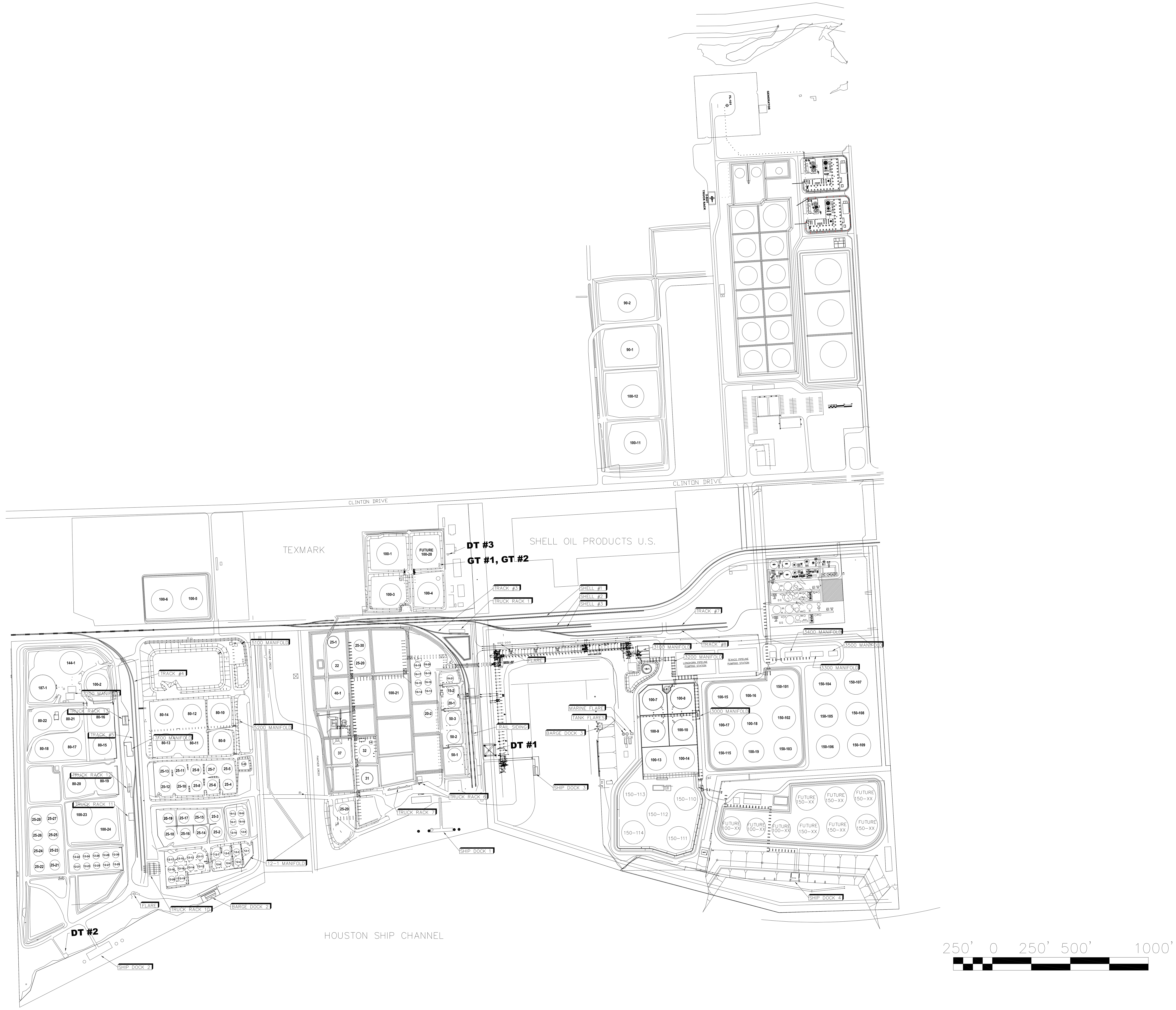
Essential Fish Habitat

Background Resources: USGS 1 Meter DOQQ (2010) Pasadena (NW) ESRI Streetmap	Surveyor(s): Jayme Shiner PWS Bryan Whisenant	Project Number and Information: 1209 Galena Park Condensate Splitter Biological Assessment	WHITENTON group environmental consultants 3413 Hunter Road San Marcos Texas 78666
GPS and Coordinate Type: Trimble Geo XH 6000 Series UTM NAD 1983 Zone 15 North	Map Created: 6/03/2012 by JS Revised 2/201/2013		0 1,000 2,000 Feet

APPENDIX B

PLOT PLAN – 88-MS-0060

PLOT DATE: Feb 19, 2013–8:54AM



CONTRACTOR BLOCK

NOTES

DRAWING NUMBER	REFERENCE DRAWING

REV. No.	DESCRIPTION	DATE	DRAWN	CHK'D	APP'D
4	ADD BARGE DOCK 3 REV NORTH PLANT	2-19-13	SGM		
3	GENERAL UPDATES	6-13-08	JLM	JS	JS
2	RELOCATED TANKS 100-13 AND 100-14	4-27-06	SGM		
1	ADDED TANKS 100-13 AND 100-14	10-29-05	SGM		

KINDER MORGAN

DRAWN S. MARTIN
CHECKED
APPROVED PROJ. ENGR.

APPROVED REGIONAL ENGR.

GALENA PARK TERMINAL

MISCELLANEOUS

PLOT PLAN – GALENA PARK FACILITY

GENERAL ARRANGEMENT

DWG. NO. 88-MS-0060

SCALE 1" = 250' | TERMINAL 88 | DATE 9-16-03

APPENDIX C

TABLE 1-1

Table 1-1
NNSR/PSD Applicability Analysis Summary
KM Liquids Terminals LLC
Galena Park Terminal

EPN	Included in Construction Phase	VOC			NOx			CO			SO2			PM/PM10			PM2.5		
		Baseline	Proposed	Change	Baseline	Proposed	Change	Baseline	Proposed	Change	Baseline	Proposed	Change	Baseline	Proposed	Change	Baseline	Proposed	Change
		tpy	tpy	tpy	tpy	tpy	tpy	tpy	tpy	tpy	tpy	tpy	tpy	tpy	tpy	tpy	tpy	tpy	tpy
F-101	1	-	2.43	2.43	-	2.71	2.71	-	16.67	16.67	-	2.71	2.71	-	3.36	3.36	-	2.26	2.26
F-102	1	-	1.97	1.97	-	2.19	2.19	-	13.50	13.50	-	2.19	2.19	-	2.72	2.72	-	1.83	1.83
F-201	2	-	2.43	2.43	-	2.71	2.71	-	16.67	16.67	-	2.71	2.71	-	3.36	3.36	-	2.26	2.26
F-202	2	-	1.97	1.97		2.19	2.19		13.50	13.50		2.19	2.19		2.72	2.72		1.83	1.83
FL-101	1	-	0.71	0.71	-	0.62	0.62	-	2.28	2.28	-	0.00	0.00	-	-	-	-	-	-
200-201	1	-	4.62	4.62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
200-202	1	-	4.62	4.62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
200-203	2	-	4.62	4.62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
100-201	1	-	1.90	1.90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
100-202	1	-	1.90	1.90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
100-209	2	-	1.90	1.90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
100-203	1	-	0.86	0.86	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
100-204	1	-	0.86	0.86	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
100-210	2	-	0.86	0.86	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5-201	1	-	0.99	0.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
100-205	1	-	2.92	2.92	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
100-206	1	-	2.92	2.92	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
100-211	2	-	2.92	2.92	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
100-207	1	-	3.64	3.64	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
100-208	1	-	3.64	3.64	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
100-212	2	-	3.64	3.64	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1-201	1	-	0.04	0.04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B5-201	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B5-202	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B5-203	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B5-204	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B5-205	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B5-206	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B5-207	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FUG	1	-	3.88	3.88	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FUG	2	-	3.88	3.88	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MAR-LOADFUG	1	-	22.32	22.32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MAR-LOADFUG	2	-	22.32	22.32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MAR-VCU	1	-	4.17	4.17	-	1.41	1.41	-	1.88	1.88	-	0.01	0.01	-	-	-	-	-	-
MAR-VCU	2	-	4.17	4.17	-	1.41	1.41	-	1.88	1.88	-	0.01	0.01	-	-	-	-	-	-
MSS	1	-	2.30	2.30	-	1.42	1.42	-	5.43	5.43	-	0.07	0.07	-	0.16	0.16	-	0.16	0.16
MSS	2	-	1.61	1.61	-	1.28	1.28	-	5.16	5.16	-	0.07	0.07	-	0.11	0.11	-	0.11	0.11
TNK-TRANS[1]	1	-	5.00	5.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phase I Project Increas (tpy)				***71.69***			***8.35***			***39.77***			***4.98***			***6.24***			***4.24***
Phase II Project Incrase (tpy)				***50.33***			***7.59***			***37.21***			***4.98***			***6.20***			***4.20***
Combined Project Increase (tpy)				***122.01***			***15.94***			***76.98***			***9.95***			***12.44***			***8.44***
Netting Threshold (tons)				***5***			***5***			***100***			***40***			***25/15***			***10***
Netting Required (Yes/No)				***Yes***			***Yes***			***No***			***No***			***No***			***No***
Contemporaneous Period Change (tons)				***> 25***			***> 25***			***-***			***-***			***-***			***-***
Significant Modification Threshold (tons)				***25***			***25***			***100***			***40***			***25/15***			***10***
Federal Revew Required (Yes/No)				***Yes***			***Yes***			***No***			***No***			***No***			***No***

Notes:
1. All of the existing Galena Park Terminal storage tanks are considered affected facilities for NNSR and PSD applicability purposes. Projected actual emission increases (i.e., storage tank working emissions) associated with additional product from the proposed condensate splitter are 5 tpy.