FINAL
BIOLOGICAL ASSESSMENT
FOR THE
OCI BEAUMONT LLC FACILITY
TCEQ AIR PERMIT NO. 901 PSD TX 1334 AMENDMENT

Nederland, Jefferson County, Texas

April 2014

Submitted to:
United States Environmental Protection Agency Region VI
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Table of Contents

List of Acronyms

AQA – Air Quality Analysis
BA – Biological Assessment
CAA – Clean Air Act
CO – Carbon Monoxide
CO_2 – Carbon Dioxide
EFH – Essential Fish Habitat
EFHA – Essential Fish Habitat Assessment
EPA – Environmental Protection Agency
ESA – Endangered Species Act
FEMA – Federal Emergency Management Agency
GHG – Greenhouse Gases
gpm – gallon per minute
HUC – Hydrologic Unit Code
NAAQS – National Ambient Air Quality Standards
NO_2 – Nitrogen Dioxide
NHD – National Hydrography Dataset
NMFS – National Marine Fisheries Service
NOAA – National Oceanic and Atmospheric Administration
NSR – New Source Review
NWI – National Wetlands Inventory
OCI – Orascom Construction Industries
PM_{10} – Particulate Matter (with a diameter of 10 micrometers or less)
$PM_{2.5}$ – Particulate Matter (with a diameter of 2.5 micrometers or less)
PSD – Prevention of Significant Deterioration
SIL – Significant Impact Level
SO_2 – Sulfur Dioxide
TCEQ – Texas Commission on Environmental Quality
TNDD – Texas Natural Diversity Dataset
TPDES – Texas Pollutant Discharge Elimination System
TPWD – Texas Parks and Wildlife Department
USFWS – U.S. Fish and Wildlife Service
USGS – U.S. Geological Survey
VOC – Volatile Organic Compounds

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Final Biological Assessment for Documentation under Section 7 of the Endangered Species Act on the OCI Beaumont LLC Facility in Nederland, Jefferson County, Texas.

1.0 INTRODUCTION

This Biological Assessment (BA) addresses the OCI Beaumont Facility located in Jefferson County, Texas. The BA serves to provide documentation for the United States Environmental Protection Agency (EPA) for their determination of compliance with the Endangered Species Act (ESA), specifically if Section 7 consultation with the U.S. Fish and Wildlife Service (USFWS) or National Marine Fisheries Service (NMFS) is necessary for the potential to cause a "may affect" to federally-listed species.

Pursuant to the federal Clean Air Act (CAA), the OCI Beaumont Facility is seeking an amendment to Air Permit No. 901 PSD TX 1334 under the EPA Greenhouse Gas (GHG) Prevention of Significant Deterioration (PSD) Program to authorize construction and changes to the site operations. The purpose of this BA is to determine if any federal listed threatened or endangered or state endangered species in Jefferson County, Texas may be affected by the EPA's issuance of the permit, and if so, to what extent.

Section 9 of the ESA prohibits certain activities that may result in the "take" of federally listed threatened and endangered species. "Take" is defined in the ESA as "harass, harm, pursue, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." "Harm" has been defined to include activities that modify or degrade habitat in a way that significantly impairs essential behavior patterns and results in death or injury. The USFWS and NMFS are the agencies within the Department of Interior and Department of Commerce, respectively, that evaluate the threats to species. The Secretary of Interior makes the final determination on the listing status of a species. In the final rule for listing a species, USFWS will identify the types of activities that may result in death or injury to the species and also the types of activities that would not result in death or injury.

aci consulting analyzed the extent of Essential Fish Habitat (EFH) in relation to the modification area within the DuPont Beaumont Works Industrial Park (NOAA 2013). The proposed actions for the modification area will not extend into the Neches River therefore EFH will not be impacted per the Magnuson-Stevens Fishery Conservation and Management Act.

2.0 PROJECT DESCRIPTION

2.1 Project Site Location

The OCI Beaumont LLC Facility is located within the approximate 787-acre DuPont Beaumont Works Industrial Park (Beaumont Industrial Park) north of Nederland in Jefferson County, Texas. The industrial park and facility are located south of the Neches River in Jefferson County, Texas (Appendix A, Figure 1). The approximate location and USGS Quadrangle for the OCI Beaumont facility are listed below in Table 1.

Table 1: Approximate Facility Location

USGS Quadrangle	Latitude/Longitude*
Beaumont East	30°1'2.125"N 94°2'11.836"W

***coordinates are in NAD83 degrees minutes seconds**

2.2 Project Site History and Proposed Modifications

OCI Beaumont LLC owns and operates a methanol and ammonia plant on approximately 22 acres within the 787-acre Beaumont Industrial Park and a barge dock on the Neches River. The Beaumont Industrial Park was built in 1953. DuPont built the methanol process in 1968. The unit was re-designed in 1981 to convert the facility from a methanol high pressure production train to a low pressure process train. The unit was purchased by BMC in 1991. The Eastman Chemical Company purchased the site in 2008 and OCI acquired the site in 2011. In 2000, an integrated anhydrous ammonia plant was built. Lucite International also operates approximately 16 acres within the Beaumont Industrial Park and owns and operates a marine dock adjacent to OCI on the Neches River.

On December 21, 2011, OCI Beaumont was granted a New Source Review (NSR) permit to construct an autothermal reforming process at the site; however, this project will not be completed. Instead, the amendment currently under review by Texas Commission on Environmental Quality (TCEQ) and EPA will replace the proposed project with a debottlenecking project to modernize and increase capacity of the methanol and ammonia units. This debottlenecking project will allow the OCI Beaumont facility to improve the energy efficiency of the methanol and ammonia processes. Appendix A, Figure 1 shows the areas where the OCI Beaumont Facility (and the proposed debottlenecking project) is located within the greater Beaumont Industrial Park. The location of the proposed project is slightly southwest of the center of the industrial park, approximately 1,170 feet northeast of Highway 347 and approximately 2,600 feet southwest of the Neches River. The debottlenecking improvements are

proposed at the existing methanol facility and are surrounded by the existing industrial facilities.

The OCI Beaumont facility will not construct any linear facilities that extend outside of the action area. All new linear facilities will be tied into existing facilities that will remain inside of the OCI Beaumont facility.

The debottlenecking modifications would not cause the OCI Beaumont facility to discharge wastewater in addition to what is currently permitted by the current Texas Pollutant Discharge Elimination System (TPDES) permit for the greater Beaumont Industrial Park. The TPDES permit is owned and managed by Lucite International which also operates industrial facilities within the complex.

The only significant change in wastewater flows after the Debottleneck Project are a reduction in flow associated with the low concentration of methanol/water mixture being sent to the on-site bio-oxidation system operated by Lucite. This stream (<0.05% Methanol) will be reduced from its current 100 gallon per minute (gpm) to approximately 10 gpm. This reduction of 90 gpm should have little effect on the total outfall average flow of 3,000 gpm.

The project triggers the requirements for PSD for the following pollutants: NOx, PM, PM10, PM2.5, GHGs, carbon monoxide (CO) and VOC. All of these pollutants except for the GHG are being reviewed by the TCEQ; however, GHG emissions are permitted by the EPA at this time.

3.0 EXISTING ENVIRONMENT

3.1 Ecoregion Description

The OCI Beaumont facility is located within the "Western Gulf Coast Plain" according to the Level III Ecoregions of Texas (Griffith et al. 2007). This ecoregion is adjacent to the Gulf of Mexico and is mostly comprised of flat low land areas ranging from 50 to 90 miles wide. The defining characteristics of the Western Gulf Coast Plains, other than the flat topography, are grassland vegetation and more forested or savanna-type vegetation inland. Most of the ecoregion is cropland; however, the oil and gas production industries have increased greatly within the ecoregion (Griffith et al. 2007).

Although the OCI Beaumont facility lies within the "Western Gulf Coast Plain" ecoregion, the site and the surrounding industrial facility do not reflect this designation. The OCI Beaumont facility exists within the Beaumont Industrial Park that was originally developed in 1953; consequently, no gulf coast plains vegetation exists within the boundaries of the OCI Beaumont facility. Appendix B includes reference photographs of the existing conditions on the industrial site.

3.2 Topography

According to the U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle *Beaumont East*, the elevation of the OCI Beaumont facility ranges from approximately 5 to 20 feet above mean sea level (Appendix A, Figure 2). The general slope across the facility boundaries is from south to north towards the Neches River.

3.3 Hydrology

According to the Federal Emergency Management Agency (FEMA) flood zones the OCI Beaumont facility is within the 100- and 500-year floodplains.

According to the U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) the greater Beaumont Industrial Park overlaps nine wetland features listed below (Appendix A, Figure 3). The OCI Beaumont facility and the proposed action do not overlap any NWI features. The NWI features within the greater Beaumont Industrial Park include:

- PEM1C (Freshwater Emergent Wetland)
- PEM1Cx (Freshwater Emergent Wetland)
- PEM1F (Freshwater Emergent Wetland)
- PFO1A (Freshwater Forested/Shrub Wetland)
- PSS1A (Freshwater Forested/Shrub Wetland)
- PUBFx (Freshwater Pond)
- PUBHx (Freshwater Pond)
- PUSCx (Other)
- R2UBH (Riverine)

The OCI Beaumont facility is located in the Hydrologic Unit Code (HUC) 1202000304, or the Tenmile Creek-Neches River watershed. This watershed is within the Neches River basin which drains into Sabine Lake and ultimately into the Gulf of Mexico. The greater Beaumont Industrial Park is along the Neches River approximately 12 miles upstream of Sabine Lake and an additional 22 miles north of Sabine Lake's hydrological connection with the Gulf of Mexico (34 miles total approximate distance to Gulf of Mexico).

According to the USGS National Hydrography Dataset (NHD) the greater Beaumont Industrial Park includes several canal/ditch features, flowlines, lake/pond features, and swamp/marsh features.

3.4 Geology and Soils

The greater Beaumont Industrial Park is overlain by (Barnes 1992):

- fill and spoil (FS),
- alluvium (Qal),
- nonstippled areas dominated by clay within the Beaumont Formation (Qbc), and
- stippled areas dominated by sand within the Beaumont Formation (Qbs).

The greater Beaumont Industrial Park is located within two soil associations, Bancker-Creole-Veston and Ijam-Neel-Neches (SCS 2006). The Bancker-Creole-Veston association is in coastal marsh lands that are found in lower parts of the coast and has 0 to 1 percent slopes. The Ijam-Neel-Neches association is in spoil banks adjacent to the coastal marsh, are found adjacent to the Intracoastal Waterway, Sabine Lake, and Neches River, and has 0 to 5 percent slopes (SCS 2006). The following seven soil units are found within the greater Beaumont Industrial Park:

- *Anahuac very fine sandy loam, 0 to 2 percent slopes (AnA)*
- *Anahuac-Aris complex, 0 to 1 percent slopes (AsA)*
- *Creole mucky peat, 0 to 1 percent slopes, frequently flooded, tidal (CsA)*
- *Ijam clay, 0 to 2 percent slopes, frequently flooded, tidal (ImA)*
- *Labelle-Urban land complex, 0 to 1 percent slopes (LeA)*
- *League-Urban land complex, 0 to 1 percent slopes (LuA)*
- *Neel-Urban land complex, 2 to 5 percent slopes, rarely flooded, tidal (NuC)*

4.0 AIR QUALITY ANALYSIS RESULTS

4.1 Air Emissions Analysis

Wolf Environmental LLC, the air modeling consultant for the project, performed refined air dispersion modeling in support of the OCI Beaumont facility Permit No. 901 PSD TX 1334 debottlenecking amendment application submitted to the TCEQ (Wolf Environmental 2013). The Wolf Environmental (2013) report will be provided to be included as Appendix C once TCEQ approves the final air dispersion modeling. According to the report, the permit amendment application is a PSD application for NOx, PM, PM10, PM2.5, GHGs, carbon monoxide (CO) and VOC (Ozone). All other pollutants are minor with respect to PSD and state only requirements that will apply to those pollutants. The air quality analysis (AQA) consists of the following analyses:

- State NAAQS (SO_2),
- State Property Line Analysis (SO_2),
- State Effects (ammonia and methanol),
- PSD NAAQS (NO2, PM10, and PM2.5),
- PSD Increment Analysis (NO2, PM10, and PM2.5)

- Growth Analysis,
- Soils and Vegetation Analysis,
- Class II Visibility Impairment Analysis, and
- PSD Monitoring Analysis.

Per the approved modeling protocol submitted to TCEQ in May 2013, no modeling was performed for CO since there are only annual emission increases with a large decrease in short term (lb./hr.) emissions. Since the overall magnitude of the hourly decrease for the project is so substantial, the environmental conditions related to short term effects from CO emissions are expected to improve as a result of the debottlenecking modification. Additionally, since the National Ambient Air Quality Standards (NAAQS) are short term (1-hour and 8-hour) and since there is no PSD increment, no evaluation for CO was performed. The AQA was performed in accordance with TCEQ "Air Quality Modeling Guidelines" (TCEQ 1999), published guidance documents and memos, and guidance from TCEQ staff. The results of the AQA demonstrate that the project will not cause or contribute to a condition of air pollution.

According to air dispersal modeling completed in accordance with EPA and TCEQ requirements, there are no significant impacts (model results predict off-site concentrations less than the SIL values provided in Table 3) outside the 787-acre Beaumont Industrial Park. Table 2 lists the total annual emission increases associated with the debottlenecking process.

Table 2: Total Annual Emission Increases

Emission Type	Increase Amount (tpy)
Volatile Organic Compounds (VOC)	96.94
Sulfur Dioxide (SO_2)	0.29
Carbon Monoxide (CO)	86.39
Nitrogen Oxides (NO_x)	-470.43
Particulate Matter (PM)	77.36
PM_{10} microns or less	77.36
$PM_{2.5}$ microns or less	77.36
Lead (Pb)	N/A
Hazardous Air Pollutants (HAPs)	N/A
Other air contaminates not listed above:	
Ammonia	53.74
CO_2	1,460,888.2
CH_4	252.0
N_2O	14.7
CO_{2e}	1,470,750.6

Table 3: Standards for Air Modeling Comparison (NAAQS 2011)

Pollutant		Regulation	Averaging Period	Significant Impact Level (SIL) (µg/m^3)
Sulfur Dioxide (SO_2)		NAAQS	1-hour	7.8
			3-hour	25
Nitrogen Dioxide (NO_2)		NAAQS	1-hour	7.5
			Annual	1
Carbon Monoxide (CO)		NAAQS	1-hour	2000
			8-hour	500
Particulate Matter (PM)	PM_{10}	NAAQS	1-hour	5
			Annual	1
	$PM_{2.5}$	NAAQS	1-hour	1.2
			Annual	0.3

4.2 Determination of Action Area

Since the project air dispersal modeling report (Wolf Environmental 2013) found no impact to air quality from the proposed action, the proposed action would not contribute to an exceedance of the Significant Impact Level (SIL) outside of the greater Beaumont Industrial Facility. As such, the Action Area for the proposed action is contained within the Beaumont Industrial Park. Table 3 lists the pollutants and their SILs with NAAQS. Table 4 displays the maximum predicted concentrations compared to the SIL levels.

Table 4: Maximum Predicted Concentrations

Pollutant		Regulation	Averaging Period	SIL (µg/m^3)	AQA Results Less Than SIL?
Sulfur Dioxide (SO_2)		NAAQS	1-hour	7.8	Yes
			3-hour	25	Yes
Nitrogen Dioxide (NO_2)		NAAQS	1-hour	7.5	Yes
			Annual	1	Yes
Carbon Monoxide (CO)		NAAQS	1-hour	2000	Yes
			8-hour	500	Yes
Particulate Matter (PM)	**PM_{10}**	NAAQS	1-hour	5	Yes
			Annual	1	Yes
	$PM_{2.5}$	NAAQS	1-hour	1.2	Yes
			Annual	0.3	Yes

5.0 FEDERALLY LISTED SPECIES

Based on an online database search (USFWS 2013b) the USFWS and National Oceanic and Atmospheric Administration (NOAA) list 14 species that are federally listed as endangered or threatened. A review of Texas Parks and Wildlife Departments (TPWD) "Rare, Threatened, and Endangered Species" database includes two state listed endangered species in Jefferson County, Texas:

1) Piping plover,
2) West Indian manatee,
3) Black bear,
4) Red wolf
5) Hawksbill sea turtle,
6) Green sea turtle,
7) Kemp's ridley sea turtle,

8) Leatherback sea turtle,
9) Smalltooth sawfish,
10) Blue whale,
11) Finback whale,
12) Humpback whale,
13) Sei whale, and
14) Sperm whale

One of the species, the piping plover, is a shorebird known to utilize Gulf of Mexico shorelines, including Jefferson County, Texas. Two species, black bear and red wolf, are terrestrial mammals. The remaining 11 federally listed species are all marine species listed by NOAA in Jefferson County based on their known occurrence in the Gulf of Mexico and waters influenced by the Gulf of Mexico. Each of the 14 species is presented below with brief descriptions of each and their respective habitat.

5.1 Piping Plover

5.1.1 Life History

The piping plover (*Charadrius melodus*) is a migratory North American shorebird that was federally listed as threatened and endangered within certain ranges on January 10, 1986 (50 FR 50726) (USFWS 2014c). The species populations that exist within the Great Lakes region were listed as endangered and those populations within the Atlantic Coast and Northern Great Plains were listed as threatened. The piping plover only breeds in North America (USFWS 1996). Three separate breeding populations of the piping plover have been recognized: 1) the Atlantic Coast (threatened), 2) the Great Lakes (endangered), and 3) the Northern Great Plains (threatened) (USFWS 2009d). Nesting habitat includes high tide lines, sloping foredunes and blowout areas behind primary dunes, washover areas or cuts between dunes and sandflats near the ends of sand pits (USFWS 1996).

The piping plover is a small stocky shorebird with a sandy-colored body, white undersides, a white rump and orange legs. During the breeding season adults get a dark narrow breast band, a dark strip across their forehead and a black-tipped orange bill (Campbell 2003). They typically forage for beetles, crustaceans, fly larvae, marine worms and mollusks. Feeding areas include mud- and sand- flats, washover areas, portions of ocean beaches, wrack lines and shorelines of coastal lagoons, ponds or salt marshes (USFWS 1996).

The piping plover migrates throughout North America. Historically this species was found along the Gulf and Atlantic coasts, river systems and lakes near the northern Great Plans and Great Lakes region and in the West Indies and Bahamas. Populations have reduced dramatically within their historic range leaving sandy beaches along the

Atlantic Coast and Canada to North Carolina, the sand and gravel shores of Lake Michigan (Michigan and Wisconsin), Huron (Michigan only) and Superior (Michigan and Wisconsin) and within bare shorelines and inland lakes, wetlands and river sandbars and islands throughout the northern Great Plains of Canada and the U.S (Campbell 2003).

Wintering critical habitat for this species has been defined as "intertidal sand beaches including sand flats, or mud flats (between the mean lower low water line and annual high tide) with no or very sparse emergent vegetation for feeding" (USFWS 1996). They usually winter on Caribbean islands, along Gulf coast beaches from Mexico to Florida and along the Atlantic Coast from North Carolina to Florida (Campbell 2003). USFWS designated several critical habitat units in Texas along the Gulf coast within the following counties: Aransas, Brazoria, Calhoun, Cameron, Kenedy, Kleberg, Matagorda, Nueces, and Wilacy (USFWS 2009c). Piping plovers typically arrive in their wintering grounds on the Texas coast in mid-July and move back up the coast in March to prepare for the breeding season (Campbell 2003). While at the wintering grounds the piping plover prefers "sandflats adjacent to inlets or passes, sandy mudflats along prograding spits, and overwash areas as foraging habitats" (USFWS 1996).

The main threats to the piping plover include: 1) habitat alterations and habitat destruction due to recreational, residential or commercial development, 2) urban expansion and 3) pollution spills (Campbell 2003).

5.1.2 Impact Analysis

The proposed action occurs within the existing 787-acre Beaumont Industrial Park that consists of existing industrial development facilities. This is not considered nesting, foraging or breeding habitat for the piping plover and therefore the proposed actions will not affect potential habitat for the species.

According to the TPWD Texas Natural Diversity Dataset (TNDD) the nearest piping plover occurrence is approximately 23 miles south, along the Texas coast line, of the greater Beaumont Industrial Park (TPWD 2013b) (Appendix A, Figure 4).

According to USFWS Critical Habitat Portal the nearest occurrence of critical habitat for this species is approximately 23.5 miles southeast of the greater Beaumont Industrial Park, on the coastline to the east of the estuary of Sabine Lake and the Gulf of Mexico (USFWS 2013a).

5.1.3 Preliminary Determination

Based on the above conclusion, no effect to the piping plover is anticipated from the proposed action.

5.2 West Indian Manatee

5.2.1 Life History

The West Indian manatee (*Trichechus manatus*) includes two subspecies: the Florida manatee (*T. m. latirostris*) and the Antillean manatee (*T. m. manatus*). The Florida manatee was originally listed as endangered in 1967 (32 FR 4061); however, the revised listing for the species in 1970 included both subspecies to be listed as endangered (35 FR 18319) (USFWS 2007e). This species is a large, almost hairless, gray aquatic mammal that does not have hind limbs (Schmidly 1994).

The Florida manatee's range is generally limited to the southeastern U.S. but can range as for north as Massachusetts and as far west as Texas. The Antillean manatee is found in riverine and coastal systems in South and Central America and in the Greater and Lesser Antilles within the Caribbean Basin (USFWS 2013c).

This species moves between marine and freshwater habitats that generally include warm water sites including areas influenced by the Gulf Stream, industrial plants, and deep water areas. The manatees are herbivorous and eat a variety of marine, estuarine, and freshwater plants, which include submerged, floating, and emergent vegetation (USFWS 2013c). In saline waters they feed on sea grass (Schmidly 1994). This species mainly occurs in larger rivers and marine water bays. Within the Texas coast area these manatees are rare, however some species have been seen from Cow Bayou, Sabine Lake, Copano Bay, the Bolivar Peninsula, and the mouth of the Rio Grande (Schmidly 1994). The West Indian manatee is rarely seen around the Texas coast. Breeding and calving occurs year-round with manatees (Schmidly 1994).

The main threats to the West Indian manatee include: 1) collisions with boats, 2) habitat loss from land development and channelization and 3) poaching.

5.2.2 Impact Analysis

The proposed action will not occur within the Neches River banks and will only occur within the existing 787-acre Beaumont Industrial Park that consists of existing industrial development facilities. The proposed action would not modify the existing TPDES stormwater permit in use for the greater Beaumont Industrial Park and would therefore not be discharging any additional amounts of water or pollutants into the Neches River to alter its existing conditions. This industrial park is not considered potential foraging or breeding habitat for the West Indian manatee and therefore the propose actions will not affect potential habitat for this species.

According to the TPWD TNDD dataset the nearest West Indian manatee occurrence is approximately 58 miles southwest of the greater Beaumont Industrial Park, along the Texas coast line near Galveston (TPWD 2013b) (Appendix A, Figure 5). According to

the USFWS Critical Habitat Portal, the nearest occurrence of critical habitat for this species is approximately 688 miles east of the greater Beaumont Industrial Park, along the Florida Gulf of Mexico coast line (USFWS 2013a).

The proposed action occurs approximately 2,900 feet west of the Neches River within the existing Beaumont Industrial Park, approximately 34 miles upstream from the Neches River's ultimate connection to the Gulf of Mexico.

5.2.3 Preliminary Determination

Based on the above conclusion, no effect to the West Indian manatee is anticipated from the proposed action.

5.3 Black Bear

5.3.1 Life History

The subspecies Louisiana black bear (*Ursus americanus luteolus*) and all other free living bears of the American black bear (*U. americanus*) species were federally listed as threatened by the USFWS on January 7, 1992. All *U. americanus* species were listed within the Louisiana black bears historic range due to similarity of appearance (USFWS 1992). Critical habitat for the Louisiana black bear was designated by USFWS in 2009 to include approximately 1,195,821 acres within Avoyelles, Catahoula, Concordia, East Carroll, Franklin, Iberia, Iberville, Madison, Pointe Coupee, Richland, St. Martin, St. Mary, Tensas, West Carroll and West Feliciana Parishes, Louisiana (USFWS 2009b).

There are 16 subspecies of *U. americanus*. The adult American black bear has distinguishing characteristics such as having a large black body with a brown muzzle and infrequently a white blaze on the chest. This species diet typically changes with the season, in the spring the bear will eat grasses, sedges, forbs, leaves from trees and shrubs and catkins; while in the summer they will eat berries from various plant species such as *Vitis* spp., *Crataegus* spp., *Morus rubra*, *Sassafras albidum*, *Diospyros virginiana* and *Rivina humilis* (Trani et. al 2007).

The primary habitat for the Louisiana black bear includes bottomland hardwood forests and associated habitat within the Lower Mississippi River Alluvial Valley. Habitat is typically characterized by abundant food sources (plant vegetation and mast), thick understory vegetation and unreachable terrain. This subspecies movement is correlated with forest density and for males, the number of females in the area. In the winter time this subspecies enters its den and goes through a period of dormancy to compensate for the shortage of food or harsh weather. Ground den sites are found within wooded habitat and created from stacked vegetation, such as palmettos, and arranged in a wreath like pattern. Breeding for this subspecies occurs during the

summer and births are expected about 7 to 8 months afterwards during denning season. Cubs will exit the den sites with the female in April or May (USFWS 2009b).

The main threats to the American black bear and its subspecies include: 1) habitat loss from forest fragmentation which could lead to the reduction of genetic exchange and 2) mortalities from human encroachment or activities (Trani et. al 2007; USFWS 2009b).

5.3.2 Impact Analysis

The proposed action will not occur within the Neches River banks and will only occur within the existing 787-acre Beaumont Industrial Park that consists of existing industrial development facilities. This industrial park is not considered potential foraging or breeding habitat for the black bear; and therefore, the propose actions will not affect potential habitat for this species.

According to the TPWD TNDD dataset the nearest black bear occurrence is approximately 84 miles northwest of the greater Beaumont Industrial Park, within Polk County, Texas (TPWD 2013b) (Appendix A, Figure 6). According to the USFWS Critical Habitat Portal, the nearest occurrence of critical habitat for the subspecies of Louisiana black bear is approximately 126 miles east of the greater Beaumont Industrial Park, within Iberia Parish, Louisiana, the American black bear did not have critical habitat within this dataset (USFWS 2013a).

5.3.3 Preliminary Determination

Based on the above conclusion, no effect to the black bear is anticipated from the proposed action.

5.4 Red Wolf

5.4.1 Life History

The red wolf (*Canus rufus*) was originally listed as endangered by the USFWS on March 11, 1967 (USFWS 1967). This species is characterized by its red-gray-black coat color variation and bushy black-tipped tail. The belly, throat and nose are all a white-buff color while the ears, muzzle, nape and outer surfaces of the legs are a cinnamon-buff color (Trani et. al 2007).

The red wolf was thought to be extinct in the wild by 1980, however four locations within the species' historic range have introduced the red wolf in hopes to recover the species (USFWS 1989). Typically this species prefers large free tracts of land that are free fom human activity, high traffic and livestock. This species has utilized a variety of habitats throughout its range that includes bayous, fallow fields, coastal prairies and marshes in Texas and Louisiana, densely vegetation habitats such as hardwood swamps and

forests in the South and agricultural fields and pine forests within North Carolina (Trani et. al 2007).

The red wolf breeding occurs from February to March and depending on its location can make a den within dense vegetation in shallow depressions, deep burrows between agricultural lands or hollowed out bases of large trees. Depending on where the species resides, it can feed on a range of prey items such as nutria, rabbits, rodents, small domestic animals, squirrels, raccoons and waterfowl (Trani et. al 2007).

The main threats to the red wolf includes: 1) hybridization of genetic material, 2) vehicle and other human induced mortalities and 3) disease (Trani et. al 2007).

5.4.2 Impact Analysis

The red wolf is considered extirpated in Texas. The proposed action will not occur within the Neches River banks and will only occur within the existing 787-acre Beaumont Industrial Park that consists of existing industrial development facilities. This industrial park is not considered potential foraging, breeding or den habitat for the red wolf and therefore the propose actions will not affect potential habitat for this species.

Review of TNDD data, found no elemental occurrence data for the red wolf within the dataset (TPWD 2013b). Review of the USFWS Critical Habitat Portal found no data listed for the red wolf within the dataset (USFWS 2013a).

5.4.3 Preliminary Determination

Based on the above conclusion, no effect to the red wolf is anticipated from the proposed action.

5.5 Hawksbill Sea Turtle

5.5.1 Life History

The hawksbill sea turtle (*Eretmochelys imbricata*) was originally listed in 1970 as endangered wherever found (35 FR 8491). This is a migratory turtle that is distributed throughout the tropical and subtropical waters of the Atlantic Ocean, Indian Ocean and Pacific Ocean (USFWS 2007b). Critical habitat for this species was designated in 1998 on the Mona and Monito Islands (Puerto Rico) and those waters surrounding the islands (63 FR 46693) (USFWS 1998).

The hawksbill sea turtle is characterized by its dark brown with faint yellow upper shell streaks and blotches, its yellow under shell and its hooked beak (USFWS 2014b). This species nests from April to November and prefers almost any undisturbed deep sand beach in the tropics whether narrow, confined or on a mainland sandy beach (TPWD 2013a; USFWS 2007b).

This species feeds on sponges, mollusks, jellyfish, sea urchins, and crustaceans and can be found in the Gulf and bay systems. Its habitat includes warm, shallow waters, especially rocky marine environments like coral reefs and jetties. Sometimes juveniles can be found floating in clusters of sea plants (TPWD 2013a; USFWS 2012b).

The main threats to the hawksbill sea turtle include: 1) urban development destroying nesting sites, 2) loss of beach habitat and 3) hatchling mortality from artificial lighting and coastal development (USFWS 2007b).

5.5.2 Impact Analysis

The proposed action will not occur within the Neches River banks and will only occur within the existing 787-acre Beaumont Industrial Park that consists of existing industrial development facilities. The proposed action would not modify the existing TPDES stormwater permit in use for the greater Beaumont Industrial Park and would therefore not be discharging any additional amounts of water into the Neches River to alter its existing conditions. This industrial park is not considered potential foraging, breeding or nesting habitat for the hawksbill sea turtle and therefore the propose actions will not affect potential habitat for this species.

Review of TNDD data, found no elemental occurrence data for the hawksbill sea turtle within the dataset (TPWD 2013b). According to the USFWS Critical Habitat Portal, the nearest occurrence of critical habitat for this species is approximately 1,840 miles southeast of the greater Beaumont Industrial Park, surrounding Isla de Mona of Puerto Rico (USFWS 2013a).

The proposed action occurs within the existing Beaumont Industrial Park approximately 2,900 feet west of the Neches River at a point approximately 34 miles upstream from the Neches River's ultimate connection to the Gulf of Mexico.

5.5.3 Preliminary Determination

Based on the above conclusion, no effect to the hawksbill sea turtle is anticipated from the proposed action.

5.6 Green Sea Turtle

5.6.1 Life History

The green sea turtle (*Chelonia mydas*) was originally listed as two separate populations, one as threatened and the other as endangered in 1978 (43 FR 32800) (USFWS 1978; USFWS 2007a). The green sea turtle is characterized by its small head, single-clawed flippers and heart-shaped shell (USFWS 2014a).

The endangered breeding population of this species ranges from Florida to the Pacific coast of Mexico. The threatened population exists wherever the species is found outside of those areas that are listed as endangered (USFWS 2014a). This species can be found in the Gulf and bay systems within barrier island beaches, open waters between feeding and nesting areas, and shallow water seagrass beds (TPWD 2013a). The typical nesting habitat includes open beaches with little disturbance and a sloping platform (USFWS 2012a).

This species feeds on herbivorous foods like sea grass and seaweed, some juveniles are omnivorous feeders that eat marine invertebrates. The nesting season occurs from March to October with peak activity in May and June (TPWD 2013a).

The main threats to the green sea turtle include: 1) commercial harvesting for eggs and meat, 2) mortality factors such as diseases that interfere with breeding, swimming and breathing, 3) nest predation by predators and 4) loss of nesting habitat from beach development (USFWS 2012a).

5.6.2 Impact Analysis

The proposed action will not occur within the Neches River banks and will only occur within the existing 787-acre Beaumont Industrial Park that consists of existing industrial development facilities. The proposed action would not modify the existing TPDES stormwater permit in use for the greater Beaumont Industrial Park and would therefore not be discharging any additional amounts of water into the Neches River to alter its existing conditions. This industrial park is not considered potential foraging, breeding or nesting habitat for the green sea turtle and therefore the propose actions will not affect potential habitat for this species.

According to the TPWD TNDD dataset the nearest green sea turtle occurrence is approximately 86 miles southwest of the greater Beaumont Industrial Park, along the Texas coast line within Chocolate Bay, Brazoria County (TPWD 2013b) (Appendix A, Figure 7). According to the USFWS Critical Habitat Portal the nearest occurrence of critical habitat for this species is approximately 1,980 miles southeast of the greater Beaumont Industrial Park, surrounding Culebra, Puerto Rico (USFWS 2013a).

The proposed action occurs within the existing Beaumont Industrial Park approximately 2,900 feet west of the Neches River at a point approximately 34 miles upstream from the Neches River's ultimate connection to the Gulf of Mexico.

5.6.3 Preliminary Determination

Based on the above conclusion, no effect to the green sea turtle is anticipated from the proposed action.

5.7 Kemp's Ridley Sea Turtle

5.7.1 Life History

The Kemp's ridley sea turtle (*Lepidochelys kempii*) was federally listed as endangered on December 2, 1970 (35 FR 18319) (USFWS 1970). This species is one of the smallest sea turtles weighing up to 100 pounds and reaching up to 2 feet in length. It is characterized by its olive-gray, oval upper shell, triangular head and somewhat of a hooked beak (USFWS 2012c).

The Kemp's ridley sea turtle prefers shallow waters where they can feed on sea stars, crabs, shrimp, sea urchins, jellyfish, fish, marine plants, and bivalves that live near the bottom (Campbell 2003). This species is typically found in the Gulf of Mexico and along the Atlantic coast of the U.S (Campbell 2003; USFWS 2007c).

Their breeding season generally occurs from April to June but can extend into July and August if temperatures are cool. Courtship and mating occurs offshore from the nesting beaches prior to and during the nesting period. Females will migrate towards the beaches and use well-defined, elevated dunes (above the tidal zones) for their nesting areas, however the majority of the male population stays offshore (Campbell 2003).

The main threats to the Kemp's ridley sea turtle include: 1) harvesting of adults and eggs and 2) accidental capture in the commercial fishing industry (USFWS 2012c).

5.7.2 Impact Analysis

The proposed action will not occur within the Neches River banks and will only occur within the existing 787-acre Beaumont Industrial Park that consists of existing industrial development facilities. The proposed action would not modify the existing TPDES stormwater permit in use for the greater Beaumont Industrial Park and would therefore not be discharging any additional amounts of water into the Neches River to alter its existing conditions. This industrial park is not considered potential foraging, breeding or nesting habitat for the Kemp's ridley sea turtle and therefore the propose actions will not affect potential habitat for this species.

According to the TPWD TNDD dataset the nearest Kemp's ridley sea turtle occurrence is approximately 16 miles southeast of the greater Beaumont Industrial Park, along the within Sabine Lake in Cameron Parish, Louisiana (TPWD 2013b) (Appendix A, Figure 8). Review of the USFWS Critical Habitat Portal found no data listed for the Kemp's ridley sea turtle within the dataset (USFWS 2013a).

The proposed action occurs within the existing Beaumont Industrial Park approximately 2,900 feet west of the Neches River at a point approximately 34 miles upstream from the Neches River's ultimate connection to the Gulf of Mexico.

For more detailed information about the Kemp's ridley sea turtle and its habitat the Sabine Lake aci consulting contacted Dr. Donna Shaver with the National Park Service on South Padre Island. However, Dr. Shaver could not be reached by phone or email.

5.7.3 Preliminary Determination

Based on the above conclusion, no effect to the Kemp's ridley sea turtle is anticipated from the proposed action.

5.8 Leatherback Sea Turtle

5.8.1 Life History

The leatherback sea turtle (*Dermochelys coriacea*) was originally listed in 1970 as endangered wherever found (35 FR 8491) (USFWS 2007d). This species is the largest, most migratory and deepest diving sea turtle. It can reach up to 4 to 8 feet in length and weigh anywhere from 500 to 2,000 pounds. Its shell is characterized by a mix of small bones covered with rubbery, yet firm skin with seven longitudinal ridges. Adult's skin is typically black with different degrees of pale spots while hatchlings are black with white flipper margins and ridges on their upper shell (USFWS 2012d).

The leatherback sea turtle is a migratory species that is believed to occur from the beaches in the tropics and subtropics to the subpolar waters in higher latitudes. Within the Pacific Ocean they occur from the waters of British Columbia and the Gulf of Alaska to the waters of Chile and South Island, New Zealand. In the Atlantic Ocean they can be found from Newfoundland and the Barents Sea to Argentina and the Cape of Good Hope, and the species also occur in the Indian Ocean (USFWS 2011). Within the Texas coast vicinity they prefer gulf and bay systems and nest from March to August (TPWD 2013a).

The leatherback sea turtle is omnivorous and primarily feeds on jellyfish but can also consume sea urchins, squid, crustaceans, fish, floating seaweed and blue-green algae (TPWD 2013a; USFWS 2012d). Preferable nesting habitat includes sloped sandy beaches with vegetation and typically their preferred beaches are proximate to deep water and rough seas (USFWS 2012d).

The main threats to the leatherback sea turtle include: 1) harvesting for meat and eggs, 2) accidental take in the commercial fishing industry within the Pacific Ocean, 3) loss or destruction of nesting and foraging habitat from development along the coast, 4) hatchling disorientation from coastal lighting, 5) non-native and native nest predators, 6) pollution and debris within the waters and 7) human recreation mortalities (watercraft strikes) (USFWS 2012d).

5.8.2 Impact Analysis

The proposed action will not occur within the Neches River banks and will only occur within the existing 787-acre Beaumont Industrial Park that consists of existing industrial development facilities. The proposed action would not modify the existing TPDES stormwater permit in use for the greater Beaumont Industrial Park and would therefore not be discharging any additional amounts of water into the Neches River to alter its existing conditions. This industrial park is not considered potential foraging or nesting habitat for the leatherback sea turtle and therefore the propose actions will not affect potential habitat for this species.

Review of TNDD data, found no elemental occurrence data for the leatherback sea turtle within the dataset (TPWD 2013b). According to the USFWS Critical Habitat Portal, the nearest occurrence of critical habitat for this species is approximately 2,030 miles southeast of the greater Beaumont Industrial Park, surrounding the southwest coast line of the U.S. Virgin Islands, Sandy Point National Wildlife Refuge (USFWS 2013a).

The proposed action occurs within the existing Beaumont Industrial Park approximately 2,900 feet west of the Neches River at a point approximately 34 miles upstream from the Neches River's ultimate connection to the Gulf of Mexico.

5.8.3 Preliminary Determination

Based on the above conclusion, no effect to the leatherback sea turtle is anticipated from the proposed action.

5.9 Smalltooth Sawfish

5.9.1 Life History

The smalltooth sawfish (*Pristis pectinata*) was federally listed as endangered by USFWS on November 16, 2005 (USFWS 2005). This species can reach 18 to 25 feet in length, weighs 770 pounds and is characterized by its long, flat snout with pairs of teeth. The smalltooth sawfish prefers to consume mostly fish, however crustaceans are a part of their diet as well (NMFS 2013c). According to the species recovery plan (2009) prey such as mullet, bottom dwelling marine inhabitants and other marine forage fish are included in their diet (NMFS 2009).

The smalltooth sawfish has been seen in the Pacific Ocean, Atlantic Ocean and Gulf of Mexico. Historically the U.S. population was found within the Gulf from Texas to Florida and along the east coast from Florida to Cape Hatteras, however the U.S. population has been found within the Atlantic Ocean and Gulf of Mexico. Outside of the U.S. waters this species was historically found in Madagascar, South Africa, Arabia, India, the Red Sea, portions of South America including Brazil, Ecuador and the Caribbean

Sea, the Mexican Gulf of Mexico, Bermuda, the Philippines and along the west coast of Africa. The current range of the smalltooth sawfish in the U.S. is along the peninsula of Florida and some are common in the Everglades at the southernmost tip of Florida (NMFS 2013c). The NMFS proposed critical habitat for this species on November 20, 2008 and finalized by the USFWS and NOAA on September 2, 2009 (NMFS 2013c; USFWS 2009a). Critical habitat for this species includes two units totaling 840,472 acres along the southwestern coast of Florida between Charlotte Harbor and Florida Bay (USFWS 2009a).

According to the USFWS and NOAA, there have been confirmed breeding sites identified since research began in 1998. However, it is known that brood sizes can be from one to thirteen individuals and females likely produce a litter every second year (USFWS 2009a).

The main threats to the smalltooth sawfish include: 1) habitat or range destruction or modification, 2) harvesting for commercial, recreational, or educational purposes, 3) disease or predation, 4) lack of regulatory mechanisms and 5) other human or natural factors that affect its existence (NMFS 2009).

5.9.2 Impact Analysis

The proposed action will not occur within the Neches River banks and will only occur within the existing 787-acre Beaumont Industrial Park that consists of existing industrial development facilities. The proposed action would not modify the existing TPDES stormwater permit in use for the greater Beaumont Industrial Park and would therefore not be discharging any additional amounts of water into the Neches River to alter its existing conditions. This industrial park is not considered habitat for the smalltooth sawfish and therefore the propose actions will not affect potential habitat for this species.

Review of TNDD data, found no elemental occurrence data for the smalltooth sawfish within the dataset (TPWD 2013b). Review of the USFWS Critical Habitat Portal found no data listed for the smalltooth sawfish within the dataset (USFWS 2013a).

The proposed action occurs within the existing Beaumont Industrial Park approximately 2,900 feet west of the Neches River at a point approximately 34 miles upstream from the Neches River's ultimate connection to the Gulf of Mexico.

5.9.3 Preliminary Determination

Based on the above conclusion, no effect to the smalltooth sawfish is anticipated from the proposed action.

5.10 Blue Whale

5.10.1 Life History

The blue whale (*Balaenoptera musculus*) was federally listed as endangered by the USFWS in 1970 (USFWS 1970). No critical habitat has been designated for this species. The blue whale can reach up to 330,000 pounds and range anywhere from 88 to 108 feet in length. Their bodies are characterized by their gray color pattern that appears light blue in the water (NMFS 2014). According to their recovery plan (1998) this species typical diet consists of krill and sometimes large crustaceans (NMFS 1998).

The blue whale's overall range extends from the subtropics north to Greenland (Baffin Bay and Greenland Sea) in North America. In general this species is found worldwide in all oceans and populations are separated by ocean basins in the North Atlantic, North Pacific and Southern Hemisphere. They have seasonal migration patterns but typically their movements follow their food. This species is most often found in coastal waters however they can be found offshore just like humpback whales. Reproductive behavior, including births and mating, happen during the winter (NMFS 2014).

The main threats for the blue whale include: 1) boat strikes and disturbance, 2) fishery operations, 3) habitat degradation from pollution, long-term climate changes and 4) noise disturbance from humans (NMFS 2014).

5.10.2 Impact Analysis

The proposed action will not occur within the Neches River banks and will only occur within the existing 787-acre Beaumont Industrial Park that consists of existing industrial development facilities. The proposed action would not modify the existing TPDES stormwater permit in use for the greater Beaumont Industrial Park and would therefore not be discharging any additional amounts of water into the Neches River to alter its existing conditions. This industrial park is not considered habitat for the blue whale and therefore the propose actions will not affect foraging or breeding habitat for this species.

Review of TNDD data, found no elemental occurrence data for the blue whale within the dataset (TPWD 2013b). Review of the USFWS Critical Habitat Portal found no data listed for the blue whale within the dataset (USFWS 2013a).

The proposed action occurs within the existing Beaumont Industrial Park approximately 2,900 feet west of the Neches River at a point approximately 34 miles upstream from the Neches River's ultimate connection to the Gulf of Mexico.

5.10.3 Preliminary Determination

Based on the above conclusion, no effect to the blue whale is anticipated from the proposed action.

5.11 Finback Whale

5.11.1 Life History

The finback whale (*Balaenoptera physalus*) was federally listed as endangered by the USFWS in 1970 (USFWS 1970). No critical habitat has been designated for this species. This species can range from 80,000 to 160,000 pounds and 75 to 85 feet in length. The finback whale is characterized by its sleek body and distinctive black or dark brownish-gray coloration along the back and sides with the ventral surface appearing white. The finback whale's typical diet consists of krill, squid and smaller schooling fish (NMFS 2013a).

The finback whale can be found in deep, offshore waters in all major oceans but more so in the polar latitudes than the tropics. This species has a complex seasonal migration pattern that coincides with their feeding areas. In the summer the finback whale feasts on their typical diet, however in the winter they fast. There are two subspecies of finback whale: 1) *B. p. physalus* occurs in the North Atlantic Ocean and 2) *B. p. quoyi* occurs in the Southern Ocean. Little is known about their social or mating habits; however, research shows their gestation periods last from 11 to 12 months and calves are born in subtropical or tropical areas during midwinter (NMFS 2013a).

The main threats to the finback whale include: 1) commercial harvesting (historically), 2) boat strikes, 3) habitat loss, 4) disturbance from low-frequency noises, 5) reduction in prey from fishing operations and 6) becoming tangled in fishing gear (NMFS 2013a).

5.11.2 Impact Analysis

The proposed action will not occur within the Neches River banks and will only occur within the existing 787-acre Beaumont Industrial Park that consists of existing industrial development facilities. The proposed action would not modify the existing TPDES stormwater permit in use for the greater Beaumont Industrial Park and would therefore not be discharging any additional amounts of water into the Neches River to alter its existing conditions. This industrial park is not considered habitat for the finback whale and therefore the propose actions will not affect foraging or breeding habitat for this species.

Review of TNDD data, found no elemental occurrence data for the finback whale within the dataset (TPWD 2013b). Review of the USFWS Critical Habitat Portal found no data listed for the finback whale within the dataset (USFWS 2013a).

The proposed action occurs within the existing Beaumont Industrial Park approximately 2,900 feet west of the Neches River at a point approximately 34 miles upstream from the Neches River's ultimate connection to the Gulf of Mexico.

5.11.3 Preliminary Determination
Based on the above conclusion, no effect to the finback whale is anticipated from the proposed action.

5.12 Humpback Whale

5.12.1 Life History
The humpback whale (*Megaptera novaeangliae*) was federally listed as endangered by the USFWS in 1970 (USFWS 1970). No critical habitat has been designated for this species. This species weighs from 25 to 40 tons and can reach up to 60 feet in length. The humpback whale is characterized by its dark grey appearance with areas of white. The whale's typical diet consists of krill, plankton and small fish and feeding grounds are generally in cold, coastal waters (NMFS 2013b).

The humpback whale can be found near the surface of the ocean during migration and while feeding or calving they prefer shallow waters. Calving grounds are typically within warm waters and commonly near islands, shores or offshore reef systems. Calving occurs during the winter while feeding is done in the high latitudes during the summer time. Humpback whales live in all major oceans from the sub-polar latitudes to the equator. When feeding during the spring and summer they range throughout the eastern coast of the United States, the Gulf of St. Lawrence, Newfoundland and western Greenland. In the Southern Hemisphere there are seven designated feeding/breeding areas (NMFS 2013b).

The main threats to the humpback whale include: 1) commercial harvest (historically), 2) becoming tangled in fishing equipment, 3) boat collisions, 4) disturbance from manmade noise, 5) habitat degradation or destruction from pollution and coastal development, and 6) competition with humans for resources (NMFS 1991).

5.12.2 Impact Analysis
The proposed action will not occur within the Neches River banks and will only occur within the existing 787-acre Beaumont Industrial Park that consists of existing industrial development facilities. The proposed action would not modify the existing TPDES stormwater permit in use for the greater Beaumont Industrial Park and would therefore not be discharging any additional amounts of water into the Neches River to alter its existing conditions. This industrial park is not considered habitat for the humpback whale and therefore the propose actions will not affect foraging or breeding habitat for this species.

Review of TNDD data, found no elemental occurrence data for the humpback whale within the dataset (TPWD 2013b). Review of the USFWS Critical Habitat Portal found no data listed for the humpback whale within the dataset (USFWS 2013a).

The proposed action occurs within the existing Beaumont Industrial Park approximately 2,900 feet west of the Neches River at a point approximately 34 miles upstream from the Neches River's ultimate connection to the Gulf of Mexico.

5.12.3 Preliminary Determination

Based on the above conclusion, no effect to the humpback whale is anticipated from the proposed action.

5.13 Sei Whale

5.13.1 Life History

The sei whale (*Balaenoptera borealis*) was federally listed as endangered by the USFWS in 1970 (USFWS 1970). No critical habitat has been designated for this species. This species can weigh up to 100,000 pounds and reach anywhere from 40 to 60 feet in length. The sei whale is characterized by its dark blueish-gray to black long and sleek body with pale underside. This species also has an erect dorsal fin far down the back of the whale. The sei whale's typical diet consists of plankton (krill), squid and other cephalopods and small schooling fish (NMFS 2012).

The sei whale prefers subpolar to subtropical water worldwide on the edge and slope of the continental shelf. Typically they are found in deeper waters of ocean areas not near the coastline. The sei whale prefers mid-latitude temperate waters in the Atlantic Ocean, Indian Ocean and Pacific Ocean. Sei whales may migrate to lower latitudes during the winter and higher latitudes during the summer (NMFS 2012). During the colder months such as November and December the sei whale will give birth and then calves are weaned for approximately six months on feeding grounds during the summer or autumn. Feeding grounds are in the higher trophic levels (NMFS 2011).

The main threats to the sei whale include: 1) becoming entangled in fishing gear, 2) manmade noises that may cause hearing impairment or loss and behavior responses, 3) interactions with boats such as ship strikes, 4) habitat degradation from pollution, 5) competition for resources, 6) hunting (historically) and 7) loss of prey from long-term climate changes (NMFS 2011).

5.13.2 Impact Analysis

The proposed action will not occur within the Neches River banks and will only occur within the existing 787-acre Beaumont Industrial Park that consists of existing industrial development facilities. The proposed action would not modify the existing TPDES

stormwater permit in use for the greater Beaumont Industrial Park and would therefore not be discharging any additional amounts of water into the Neches River to alter its existing conditions. This industrial park is not considered habitat for the sei whale and therefore the propose actions will not affect foraging or breeding habitat for this species.

Review of TNDD data, found no elemental occurrence data for the sei whale within the dataset (TPWD 2013b). Review of the USFWS Critical Habitat Portal found no data listed for the sei whale within the dataset (USFWS 2013a).

The proposed action occurs within the existing Beaumont Industrial Park approximately 2,900 feet west of the Neches River at a point approximately 34 miles upstream from the Neches River's ultimate connection to the Gulf of Mexico.

5.13.3 Preliminary Determination
Based on the above conclusion, no effect to the sei whale is anticipated from the proposed action.

5.14 Sperm Whale

5.14.1 Life History
The sperm whale (*Physeter macrocephalus*) was federally listed as endangered by the USFWS in 1970 (USFWS 1970). No critical habitat has been designated for this species. The female sperm whale can weigh up to 15 ton and reach about 36 feet in length while the male can weigh up to 45 tons and reach up to 52 feet in length. The sperm whale's appearance is characterized as being mostly dark gray with an extremely large head, some have white patches on their belly. The typical diet for a sperm whale includes sharks, skates, fish and large squid (NMFS 2013d).

Sperm whales inhabit areas with a water depth of 600 meters or more and are not common in water depths less than 300 meters deep. Females can be found in even deeper waters (1,000 meters) at low latitudes far from land. Immature males will, at times, stay with females in the tropical and subtropical water but will begin to migrate towards the poles around four to 21 years of age. More mature males can be found near the ice pack edge within both hemispheres but will return to warmer waters to breed at times. Sperm whales inhabit all oceans of the world and are not only common around each hemisphere's ice pack edge but also along the equator, especially near the Pacific. Just as many whale species their movements are dependent upon their food source and suitable conditions for breeding (NMFS 2013d).

The main threats to the sperm whale include: 1) hunting (historically), 2) boat strikes, 3) becoming entangled in fishing gear, 4) disturbance from manmade noises and 5) habitat degradation from pollution (NMFS 2013d).

5.14.2 Impact Analysis

The proposed action will not occur within the Neches River banks and will only occur within the existing 787-acre Beaumont Industrial Park that consists of existing industrial development facilities. The proposed action would not modify the existing TPDES stormwater permit in use for the greater Beaumont Industrial Park and would therefore not be discharging any additional amounts of water into the Neches River to alter its existing conditions. This industrial park is not considered habitat for the sperm whale and therefore the propose actions will not affect foraging or breeding habitat for this species.

Review of TNDD data, found no elemental occurrence data for the sperm whale within the dataset (TPWD 2013b). Review of the USFWS Critical Habitat Portal found no data listed for the sperm whale within the dataset (USFWS 2013a).

The proposed action occurs within the existing Beaumont Industrial Park approximately 2,900 feet west of the Neches River at a point approximately 34 miles upstream from the Neches River's ultimate connection to the Gulf of Mexico.

5.14.3 Preliminary Determination

Based on the above conclusion, no effect to the sperm whale is anticipated from the proposed action.

6.0 CONCLUSION

OCI Beaumont LLC is debottlenecking an existing process within a 22-acre section of the existing 787-acre Beaumont Industrial Park in Jefferson County, Texas. This BA evaluated the potential to affect 14 federally listed threatened and endangered with the potential of occurring in or adjacent to Jefferson County, Texas.

As presented above, the 14 species include a shorebird (piping plover), 11 marine species and two land mammals which are very unlikely to occur at OCI Beaumont facility or within the existing 787-acre Beaumont Industrial Park. No TPWD TNDD elemental occurrences or USFWS critical habitat were found within the existing 787-acre Beaumont Industrial Park. Also the existing facility was built in 1953; and therefore, is not likely to have the vegetative structure to provide adequate habitat for food for the land species. As for the marine species, the proposed actions for the debottlenecking process will not cause the OCI Beaumont facility to discharge wastewater in addition to what is currently permitted by the current TPDES permit for the greater Beaumont Industrial Facility. The most substantial change is a reduction of a methanol/water mixture from 100 gpm to 10 gpm.

No effect to any of the federally listed species or their respective critical habitat is anticipated from the proposed action.

The modification area lies within the existing DuPont Beaumont Works Industrial Park and the proposed action will not extend into the Neches River therefore no EFH will be impacted per the Magnuson-Stevens Fishery Conservation and Management Act.

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Appendix A:

Site Figures

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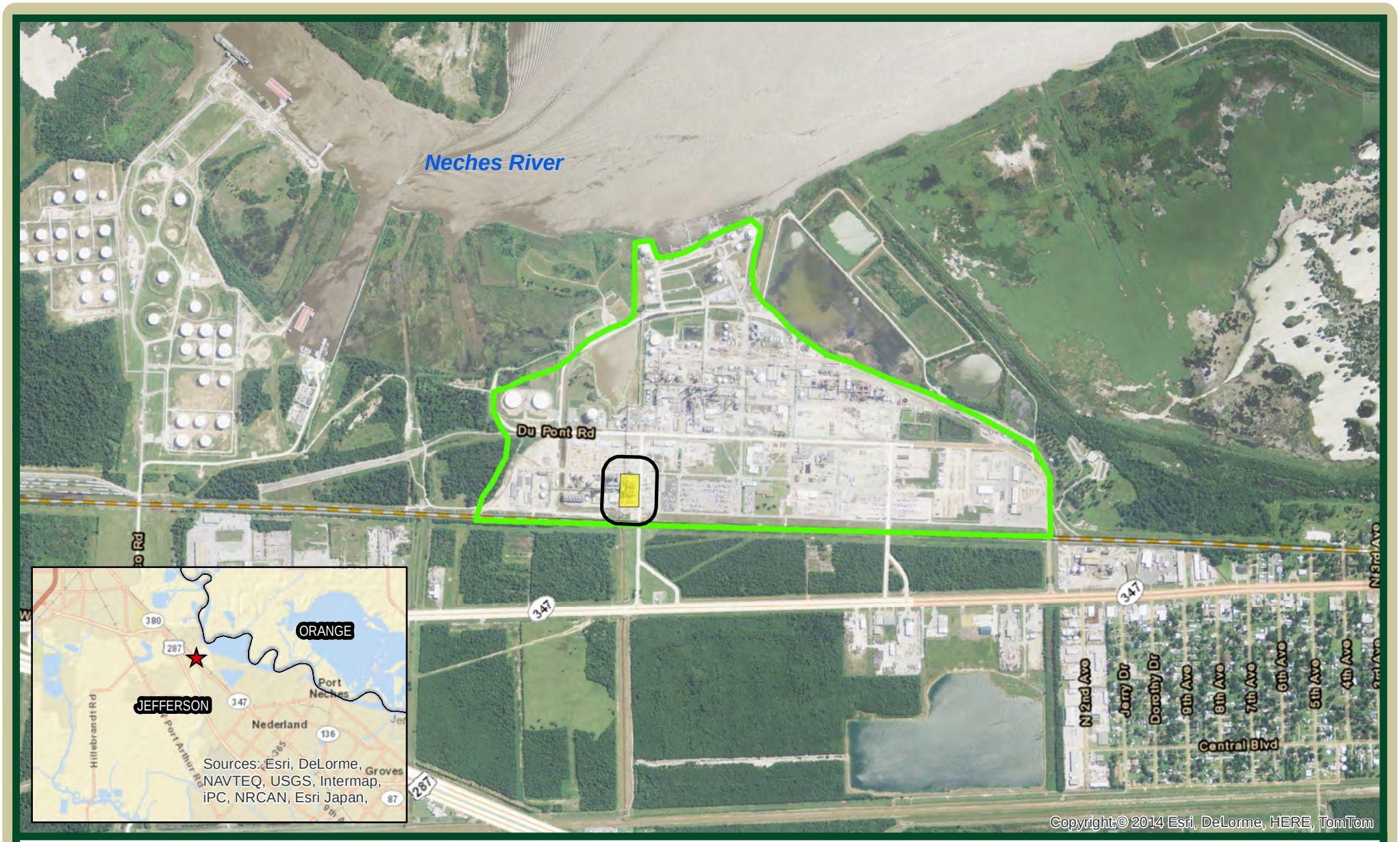


This map is intended for planning purposes only. All map data should be considered preliminary. All boundaries and designations are subject to confirmation.

1,500 750 0 1,500 Feet

1:18,000 1 inch = 1,500 feet

200ft Buffer

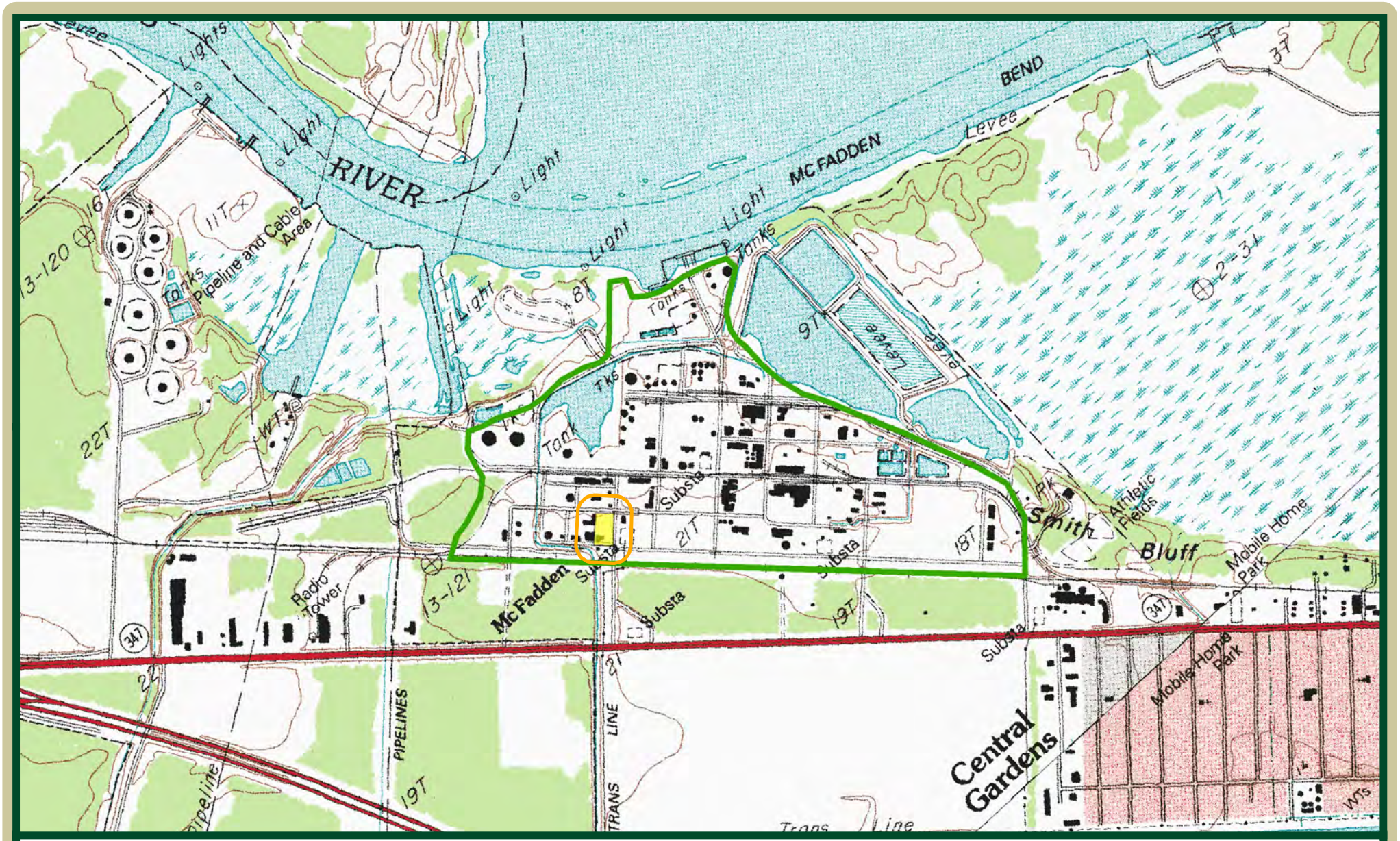
Modification Area

DuPont Beaumont Works Industrial Park

aci consulting austin • denver

OCI Beaumont LLC Facility Biological Assessment **April 2014**

Figure 1: Project Site Location & Modification Area



This map is intended for planning purposes only. All map data should be considered preliminary. All boundaries and designations are subject to confirmation.

1,500 750 0 1,500 Feet

1:18,000 1 inch = 1,500 feet

200ft Buffer

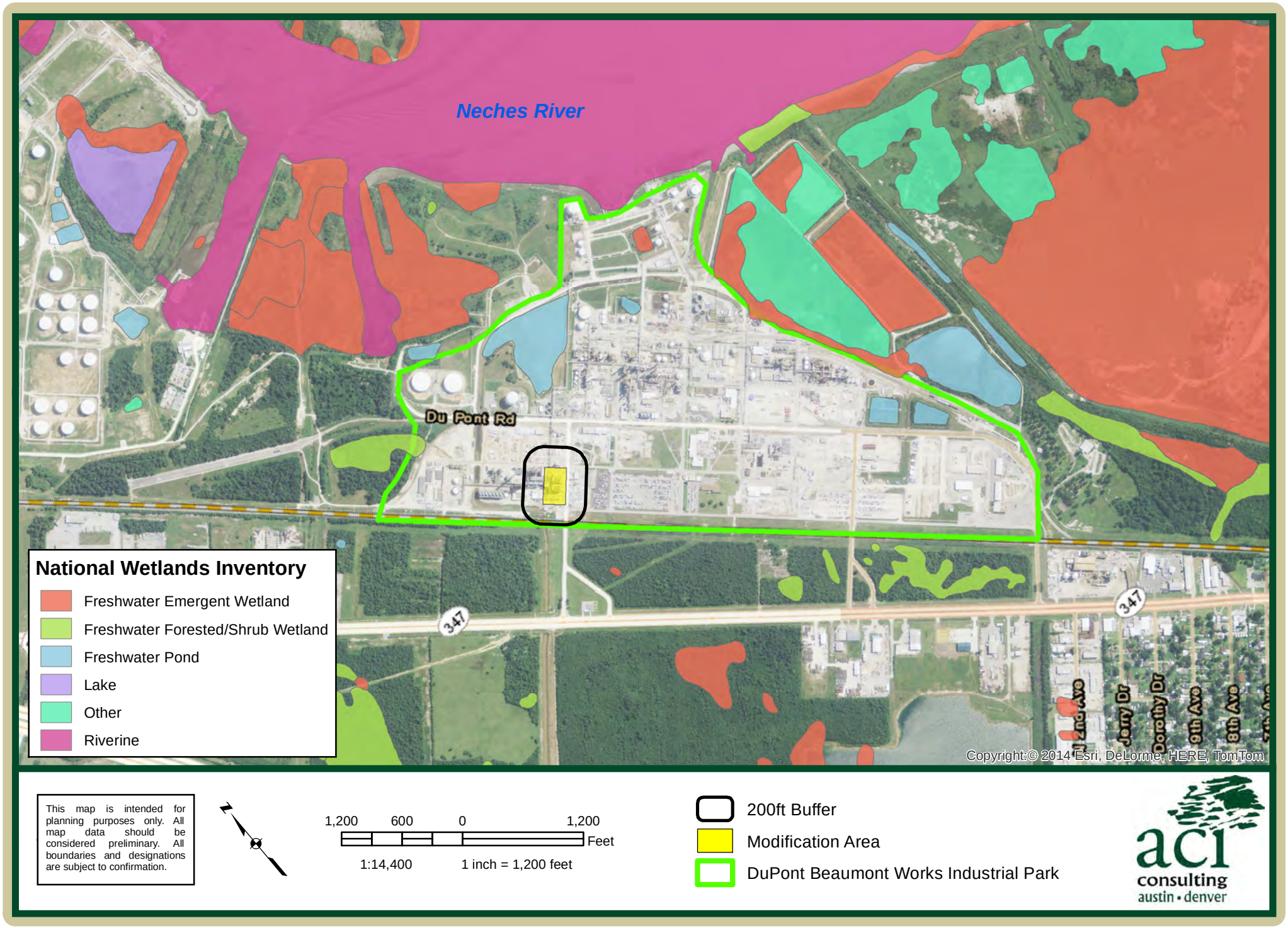
Modification Area

DuPont Beaumont Works Industrial Park

aci consulting austin • denver

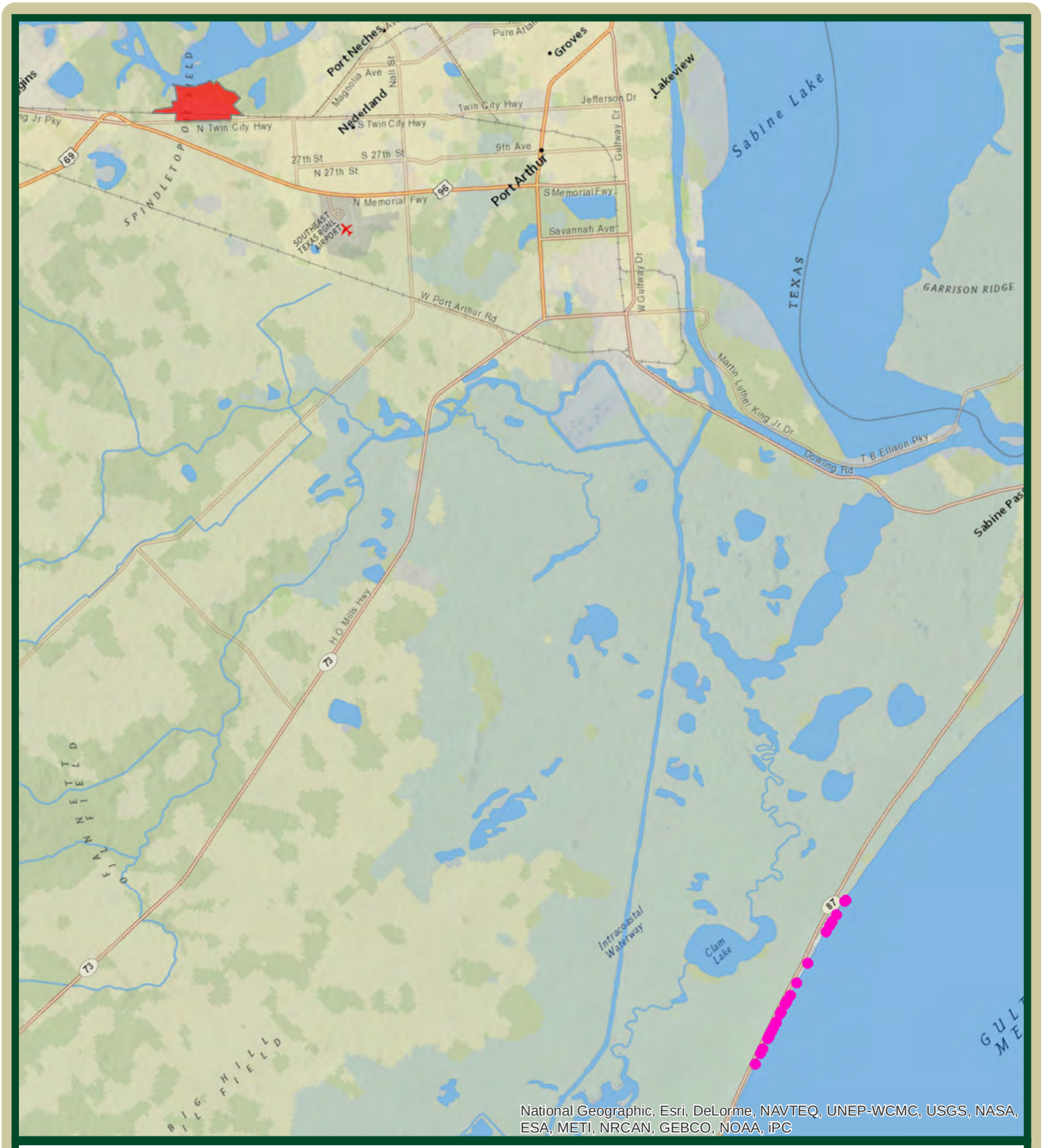
OCI Beaumont LLC Facility Biological Assessment **April 2014**

Figure 2: Topography



OCI Beaumont LLC Facility Biological Assessment **April 2014**

Figure 3: National Wetlands Inventory



This map is intended for planning purposes only. All map data should be considered preliminary. All boundaries and designations are subject to confirmation.

3 1.5 0 3 Miles

1:190,080 1 in = 3 miles

Piping Plover Occurrence (TPWD 2013)

Industrial Park Boundary

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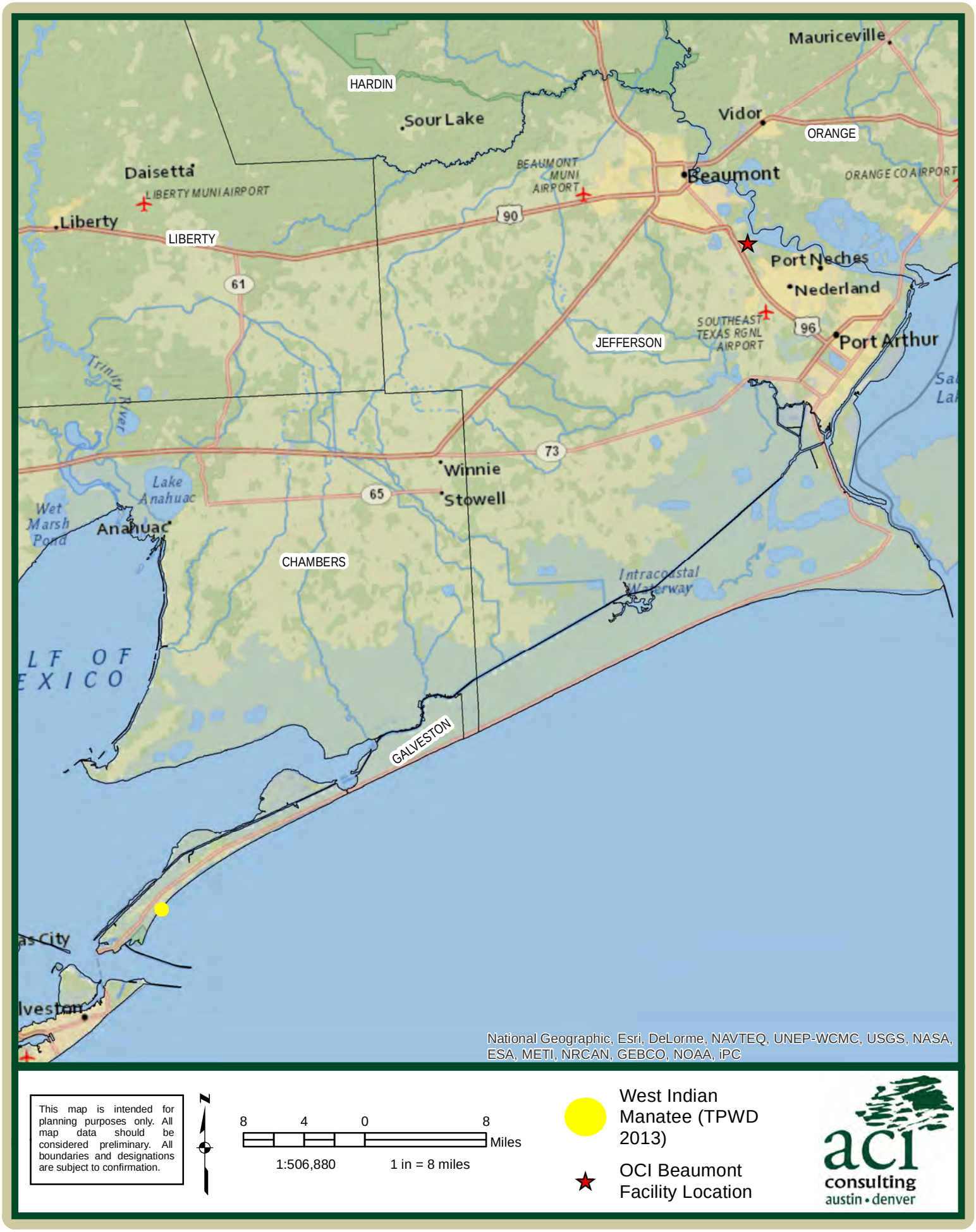
OCI Beaumont LLC Facility Biological Assessment **April 2014**

Figure 4: Piping Plove Occurrences

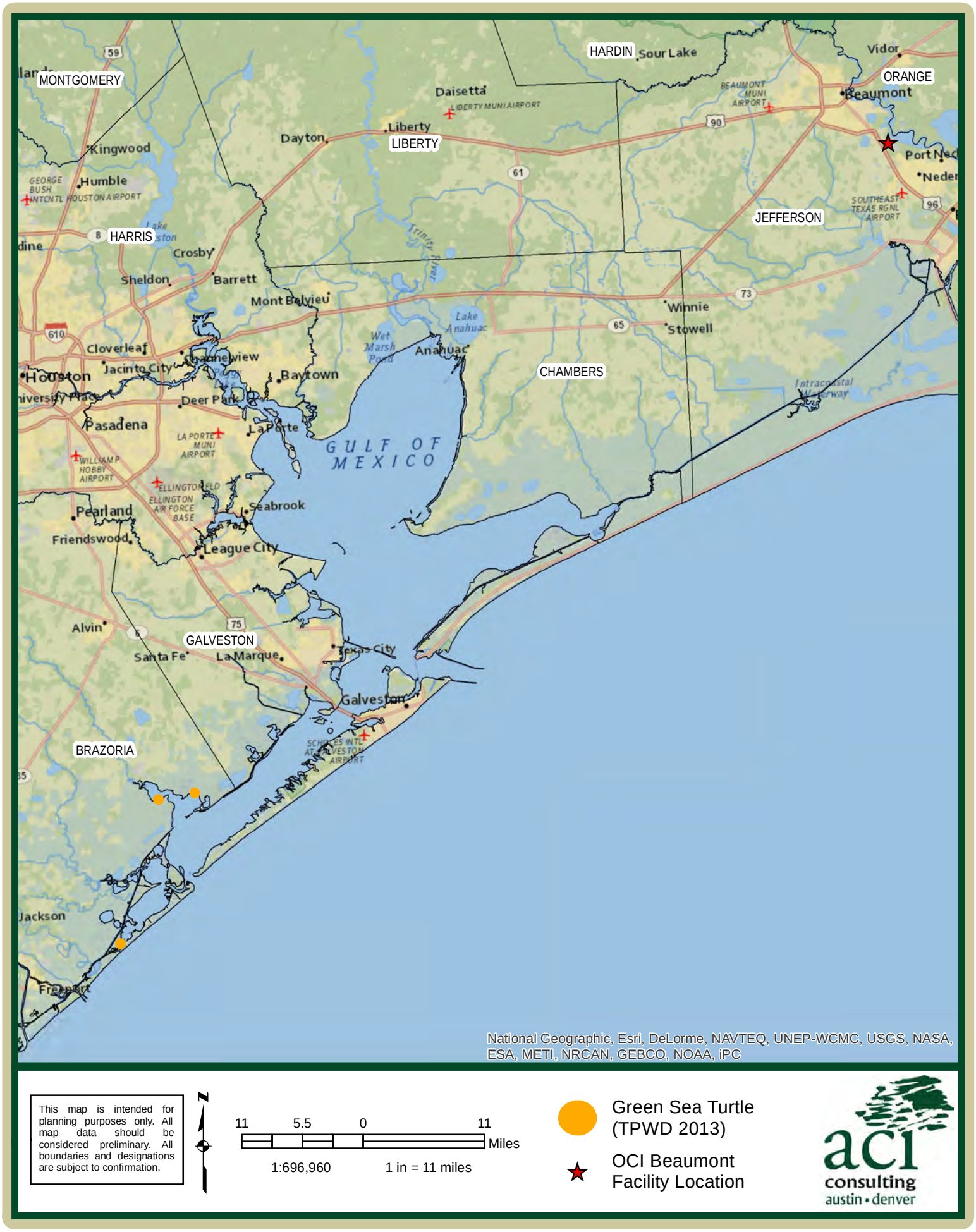


OCI Beaumont LLC Facility Biological Assessment **April 2014**

Figure 5: West Indian Manatee Occurrences

OCI Beaumont LLC Facility Biological Assessment **April 2014**

Figure 6: Black Bear Occurrences



This map is intended for planning purposes only. All map data should be considered preliminary. All boundaries and designations are subject to confirmation.

N

11 5.5 0 11 Miles

1:696,960 1 in = 11 miles

Green Sea Turtle (TPWD 2013)

OCI Beaumont Facility Location

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OCI Beaumont LLC Facility Biological Assessment **April 2014**

Figure 7: Green Sea Turtle Occurrences

This map is intended for planning purposes only. All map data should be considered preliminary. All boundaries and designations are subject to confirmation.

N

2 1 0 2 Miles

1:126,720 1 in = 2 miles

Kemp's Ridley Sea Turtle (TPWD 2013)

OCI Beaumont Facility Location

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Figure 8: Kemp's Ridley Sea Turtle Occurrences

Appendix B:

Site Photographs

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OCI Beaumont Facility - Jefferson County, Texas

Photo #
1

Direction
West

Location
OCI Beaumont Facility
Jefferson County

Description
Future location of the debottlenecking construction area

Photo #
2

Direction
Northwest

Location
OCI Beaumont Facility
Jefferson County

Description
Future location of the debottlenecking construction area

Photo #
3

Direction
Southwest

Location
OCI Beaumont Facility
Jefferson County

Description
Future location of the debottlenecking construction area

Appendix C:

Wolf Environmental Air Dispersion Modeling Report

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OCI Beaumont LLC

Texas Commission on Environmental Quality
Air Permit No. 901 Amendment Application

Debottlenecking Project - Modeling Results

TCEQ Account No. JE-0343-H
CN603806860 RN102559291

Prepared for:

OCI Beaumont LLC
5470 North Twin City Hwy.
Nederland, TX 77627

Prepared by:

PO BOX 1483
FRIENDSWOOD, TX. 77549

September 30, 2013

Introduction

Wolf Environmental LLC (WE) has performed refined air dispersion modeling in support of the OCI Beaumont LLC (OCI) Permit #901 debottlenecking amendment application submitted to the Texas Commission on Environmental Quality (TCEQ) in December 2012. The permit amendment application is a PSD application for carbon monoxide (CO) and VOC (Ozone). All other pollutants are minor with respect to PSD and state-only requirements will apply to those pollutants. The air quality analysis (AQA) consists of the following analyses: State NAAQS (NO_2, SO_2, PM_{10}, $PM_{2.5}$), State Property Line Analysis (SO_2), State Effects (ammonia and methanol), and PSD Ambient Ozone Impacts Analysis (VOC). In addition, a Growth Analysis, Soil and Vegetation Analysis, and a Class II Visibility Impairment Analysis is included in this analysis. Per the approved modeling protocol submitted in May 2013, no modeling was performed for CO since there are only annual emission increases with a large decrease in short term (lb/hr) emissions. In addition, since the overall magnitude of the hourly decrease for the project is so large, short term impacts for CO are expected to improve as a result of the project. Additionally, since the NAAQS standards are short term (1-hour and 8-hour) and since there is no PSD increment, no evaluation for CO was performed. Additional discussion for each of the pollutants addressed in the AQA provided in the following section of this AQA. The AQA was performed in accordance with TCEQ "Air Quality Modeling Guidelines" (RG-25, February 1999), published guidance documents and memos, and guidance from the staff of TCEQ. The results of the AQA demonstrate that the project will not cause or contribute to a condition of air pollution.

Model Selection and Modeling Techniques

NAAQS, PSD, State Property Line, and State Effects Analyses

The AQA utilized AERMOD (Version 12345). Regulatory default options and "No Urban Area" settings were utilized. Based on a simplified Auer analysis utilizing aerial photography, it appears that greater than 70% of the surrounding land (within 3 kilometers) can be considered rural. This determination is consistent with a recent AQA for the same site. No significant changes in the land use in the vicinity of the site have occurred since the last AQA. Pollutant-specific discussions are as follows:

NO_2 (1-hour NAAQS)

The AQA addressed the 1-hour standard since there is only a net increase in the hourly emission rate for NOx. The annual net project emission rate is decreasing significantly; therefore, demonstration of the annual NAAQS is not required. Per EPA memo "Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO_2 National Ambient Air Quality Standard", dated March 11, 2011 (2011 EPA memo), the represented emission rate for NOx emissions for each source was reduced by the default ambient NO_2/NOx ratio of 0.8 in order to demonstrate compliance with the 1-hour NAAQS standard. The emission rates that were modeled fall into several categories as follows: new, relocated, modified with no change in location, and

maintenance/startup/shutdown (MSS) sources. For relocated sources (STK41), the after-project emission rate will occur through a single stack. The current configuration for STK41 is through eight separate stacks. Emissions rates for STK41 were modeled at the after-project potential to emit. Since STK41 is being relocated, the pre-project potential to emit was modeled as negative emission rates through the eight stacks (STK41OLD1 to STK41OLD8). For modified sources with no change in location (326, 45, FL321), the modeled emission rate is the net change in the potential to emit (i.e. after-project minus pre-project emissions). For MSS sources with new or increased emissions (FL42, STK41M), emissions are intermittent and infrequent. From the 2011 EPA memo, "compliance demonstrations for the 1-hour NO_2 NAAQS should be based on emission scenarios that can logically be assumed to be relatively continuous or which occur frequently enough to contribute significantly to the annual distribution of the daily maximum 1-hour concentrations". One of the approaches to model the intermittent emissions in the 2011 EPA memo is to model an average hourly rate instead of modeling the maximum hourly rate; where, the average rate is obtained by multiplying the maximum hourly rate by the ratio of the number of hours of operation to the potential annual hours per year. The worst-case MSS emissions for FL42 are represented to occur for 8 hours per year during startup operations and the MSS emissions for STK41M are represented to occur for 172 hours per year. The average hourly emission rates for these two sources is calculated as follows:

FL42

$$653.34\ \frac{lb\ NOx}{hr} \times \frac{8}{8760} = 0.59666 \frac{lb\ NOx}{hr}$$

This emission rate was further reduced by 20% to obtain the average hourly NO_2 emission rate of 0.47733 lb NO_2/hr (MSS emissions). Since MSS can occur simultaneously with normal emissions, the MSS and project normal emissions were added together and modeled. The modeled average hourly emission rate is 0.6574 lb NO_2 / hr.

STK41M

$$279.49\ \frac{lb\ NOx}{hr} \times \frac{172}{8760} = 5.4877 \frac{lb\ NOx}{hr}$$

This emission rate was further reduced by 20% to obtain the average hourly NO_2 emission rate. The average hourly emission rate is 4.39 lb NO_2 / hr. Since the average hourly emission rate for STK41M is less than the maximum hourly emission rate for STK41, the maximum hourly emission rate for STK41 was modeled instead of the calculated average hourly emission rate (the emissions for STK41 are worst-case based on this analysis).

There was one source (45M) that will have a large decrease in hourly emissions due to MSS activities. For this source, the negative hourly emission rate was not modeled; therefore, the modeling results are considered a conservative result. The results of the NO_2 modeling show that the project impact is well below the Significant Impact Level (SIL) of 7.5 ug/m^3. The results are provided below and in table of results near the end of the modeling report.

Pollutant	Results (ug/m_3)
NO_2	0.02599 (1-hr)

SO_2 (1-hour NAAQS, 3-hour NAAQS, 24-hour NAAQS, and Annual NAAQS)

The AQA addressed all NAAQS averaging times as required since the EPA has not yet finalized the 1-hour designations in Texas. Additionally, results were compared to the state property line standard of 817 ug/m^3. The emission rates that were modeled fall into several categories as follows: relocated, modified with no change in location, and new sources. For relocated sources (STK41), the after-project emission rate will occur through a single stack. The current configuration for STK41 is through eight separate stacks. Emissions rates for STK41 were modeled at the after-project potential to emit. Since STK41 is being relocated, the pre-project potential to emit was modeled as negative emission rates through the eight stacks (STK41OLD1 to STK41OLD8). For modified sources with no change in location (326), the modeled emission rate is the net change in the potential to emit (i.e. after-project minus pre-project emissions). For new sources (FL42), the new potential to emit was modeled. The results of the SO_2 modeling show that the project impact is well below the SIL for of 7.8, 25, 5, and 1 ug/m^3 for the 1-hour, 3-hour, 24-hour, and annual NAAQS standards respectively. In addition, the maximum ground level concentration is well below the TCEQ state property line standard of 817 ug/m^3. The results are provided below and in table of results near the end of the modeling report.

Pollutant	Results (ug/m_3)
SO_2	0.11307 (1-hr), 0.08176 (3-hr), 0.0058 (24-hr), -0.00055 (Annual)

PM_{10} (24-hour NAAQS)

The AQA addressed the 24-hour NAAQS as required. The only sources in which PM_{10} is changing is the reformer stacks (STK41). Since the PM_{10} and $PM_{2.5}$ emission rates are the same and the SIL for the $PM_{2.5}$ 24-hour standard is less than the SIL for the PM_{10} 24-hour standard, compliance with the PM_{10} 24-hour standard is demonstrated by demonstrating compliance with the $PM_{2.5}$ 24-hour standard. The results of the $PM_{2.5}$ modeling show that the off-site impact of $PM_{2.5}$ (24-hour basis) is below the $PM_{2.5}$ SIL of 1.2 ug/m^3; therefore, the off-site impact is below the SIL of 5.0 ug/m^3 for PM_{10}. Additional discussion for $PM_{2.5}$ is provided below.

$PM_{2.5}$ (24-hour NAAQS and Annual NAAQS)

The AQA addressed the 24-hour and Annual NAAQS as required. The only sources in which $PM_{2.5}$ is changing is the reformer stacks (STK41). For relocated sources (STK41), the after-project emission rate will occur through a single stack. The current configuration for STK41 is through eight separate stacks. Emissions rates for STK41 were modeled at the after-project potential to emit. Since STK41 is being relocated, the pre-project potential to emit was modeled as negative emission rates through the eight stacks (STK41OLD1 to STK41OLD8). As outlined in EPA's memo "Draft Guidance for $PM_{2.5}$ Permit Modeling", dated 03/04/2013, the analysis will only include analysis of direct $PM_{2.5}$ Emissions (Case 2) since the project emissions of $PM_{2.5}$ exceed 10 tpy and emissions of NOx and/or SO_2 do not exceed 40 tons per year.

The modeling indicates that the predicted off-site concentration associated with the project will be less than the recently remanded SIL values of 1.2 ug/m^3 and 0.3 ug/m^3 for the 24-hour and annual SIL respectively. Although the SIL was recently remanded, the EPA does not interpret this to preclude the use of SIL's entirely as outlined in the recently published by EPA memo "Circuit Court Decision on $PM_{2.5}$ Significant Levels and Significant Monitoring Concentration Questions and Answers", dated 03/04/2013. In Question #3, the EPA provides clarification as to when the SIL's use in permitting may be considered. Specifically, "The $PM_{2.5}$ SIL values in the EPA's regulations may continue to be used in some circumstances if permitting authorities take care to consider background concentrations prior to using these SIL values in particular ways". Furthermore, "If the preconstruction monitoring data shows that the difference between the $PM_{2.5}$ NAAQS and the monitored $PM_{2.5}$ background concentrations in the area is greater than the EPA's $PM_{2.5}$ SIL value, then the EPA believes that it would be sufficient in most cases for permitting authorities to conclude that the proposed source with a $PM_{2.5}$ impact would not cause or contribute to a violation of the $PM_{2.5}$ NAAQS and to forego a more comprehensive cumulative modeling analysis for $PM_{2.5}$". Applying this analysis using nearby representative monitor data, the difference between the NAAQS standards and the monitored background concentration exceeds the recently remanded SIL values and the predicted off-site concentration associated with the project is below the SIL values, therefore a more comprehensive cumulative modeling analysis is not required. The calculations to demonstrate the above stated analysis is as follows:

- Background Concentration: 23.22 ug/m^3 (24-hour) and 10.07 ug/m^3 (Annual)
- Model Results: 0.04328 ug/m^3 (24-hour) and -0.00167 ug/m^3 (Annual)
- NAAQS Standards – 35 ug/m^3 (24-hour) and 12 ug/m^3 (Annual)

24-hour SIL Demonstration

NAAQS Standard – Background = 35 – 23.22 = 11.78 ug/m^3

Since the difference between the NAAQS standard and the pre-construction monitored background concentration is greater than the EPA's $PM_{2.5}$ SIL value of 1.2 ug/$m^3$and since the predicted off-site impact of $PM_{2.5}$ for the project is less than SIL, the off-site impact of $PM_{2.5}$ will not cause or contribute to a violation of the $PM_{2.5}$ NAAQS and a more comprehensive cumulative modeling analysis for $PM_{2.5}$ is not required.

Annual SIL Demonstration

NAAQS Standard – Background = 12 – 10.07 = 1.93 ug/m^3

Since the difference between the NAAQS standard and the pre-construction monitored background concentration is greater than the EPA's $PM_{2.5}$ SIL value of 0.3 ug/m^3 and since the predicted off-site impact of $PM_{2.5}$ for the project is less than SIL, the off-site impact of $PM_{2.5}$ will not cause or contribute to a violation of the $PM_{2.5}$ NAAQS and a more comprehensive cumulative modeling analysis for $PM_{2.5}$ is not required. The results are provided below and in table of results near the end of the modeling report.

Pollutant	Results (ug/m_3)
$PM_{2.5}$	0.04328 (24-hr), -0.00167 (Annual)

Ammonia – NH3 (State Effects)

Refined modeling for ammonia was conducted to meet the requirements of the MERA Step 8 as required. The analysis follows the steps provided in Section 3.7 of AQMG RG25. The emission rates that were modeled fall into several categories as follows: new sources and modified with no change in location. For new sources (STK41), the after-project emission rate will occur through a single stack. For modified sources with no change in location (FL321 and AFUG322), the modeled emission rate is the net change in the potential to emit (i.e. after-project minus pre-project emissions). The results of the modeling predict an off-site concentration of 38.91 ug/m^3 (attributable to normal production), which was utilized in the MERA analysis. It should be noted that the stack height was raised from 120 feet to 130 feet for the ammonia modeling in order to demonstrate MERA compliance prior to conducting site-wide modeling for ammonia. The MERA analysis for ammonia shows that ammonia demonstrates MERA compliance in Step 10. The MERA analysis is detailed in a separate document submitted concurrently along with this modeling report. The results are provided below and in table of results near the end of the modeling report.

Pollutant	Results (ug/m_3)
NH_3 (Production)	38.91 (1-hr)

Methanol - MeOH (State Effects)

Refined modeling for methanol was conducted to meet the requirements of the MERA Step 8 as required. The analysis follows the steps provided in Section 3.7 of AQMG RG25. The emission rates that were modeled fall into several categories as follows: new sources and modified with no change in location. There is one new source that has emissions from normal operations (FL42) and from MSS (FL42M). For this source, the modeled emissions are the potential to emit. For modified sources with no change in location (45, 45M, 35, MET-FUG247, and 326), the modeled emission rate is the net change (positive and negative) in the potential to emit (i.e. after-project minus pre-project emissions). The results of the modeling predict an off-site concentration of 54.41 ug/m^3 (attributable to normal production) and 1.87 ug/m^3 (attributable to MSS operations), which were utilized in the MERA analysis. It should be noted that ID# 45M was modeled with a large project decrease in hourly emissions. When this large decrease was grouped with ID# FL42M, the maximum GLC was located at the Western edge of the receptor grid. In an effort to determine the maximum GLC for this group, additional receptors were placed on the Western side of the receptor grid extending out an additional 5 kilometers with the same results. Neglecting the large negative project emissions from ID# 45M, the maximum GLC is 1.87 ug/m^3 near the property line. Due to this apparent anomaly, the contribution from ID# 45M is not considered in the results, which is conservative, The MERA analysis for methanol shows that methanol demonstrates MERA compliance in Step 9A. The MERA analysis is detailed in a separate document submitted concurrently along with this modeling report. The results are provided below and in table of results near the end of the modeling report.

Pollutant	Results (ug/m_3)
MeOH (Production)	54.41 (1-hr)
MeOH (MSS)	1.87 (1-hr)

Ozone Ambient Impact Analysis

In order to perform the Ozone Ambient Impact Analysis, emission sources that are new or modified have been evaluated to determine whether the new or modified sources are VOC dominated or NOx dominated. Per AQMG RG25, an emission source is VOC dominant if the ratio of VOC to NOx emissions are approximately 2.1 of above. The analysis consists of summing the emission rates of VOC and NOx (hourly basis) for each of the emission sources on a pre and post project basis. The ratio of VOC to NOx for the pre and post project summations are calculated in order to determine whether the project is VOC dominated or NOx dominated. The results of this analysis show that the project is NOx dominated since the post-project VOC/NOx ratio remains approximately the same as the pre-project VOC/NOx ratio. In addition, the post-project VOC/NOx ratio is much less than 2.1. The following table provides the results of the analysis

Analysis of Project VOC/NOx Ratio

	Post Project				Pre Project		
	VOC (lb/hr)	NOx (lb/hr)	VOC/NOx Ratio		VOC (lb/hr)	NOx (lb/hr)	VOC/NOx Ratio
STK41	14.64	27.14	0.539		11.33	210.00	0.054
STK41M	14.64	271.45	0.054		0	0	-
45	0.01	0.06	0.167		0.10	0.04	2.500
45M	99.77	258.82	0.385		166.80	588.00	0.283673
FL42	4.22	0.23	18.348		0	0	-
FL321	0.10	0.89	0.112		0.10	0.80	0.125
326	0.01	2.19	0.005		0.01	2.20	0.005
35	37.65	0	-		92.70	0	-
35M	82.66	0	-		82.66	0	-
METVRS46	0.00	0	-		0.50	0	-
METFUG247	1.23	0	-		1.00	0	-
AFUG322	0	0	-		0	0	-
	254.93	560.78	**0.455**		355.20	801.04	**0.443**

Per comments on the proposed modeling protocol, OCI has utilized the screening procedure from the EPA comments "Summit Texas Clean Energy, Ector County, Texas - Prevention of Significant Deterioration (PSD) Permit No. PSDTX1218", dated Nov. 19, 2010 (Robinson comments). Specifically, OCI has utilized the screening method discussed in comment 5 by estimating the potential impact on ozone levels based on the NO_2 modeling results. As stated in the Robinson comments, it takes time for NOx to react to generate ozone; therefore, an evaluation of the predicted concentrations of NOx at a distance of 5-10 km is appropriate. The predicted NO_2 concentration at a distance of approximately 10 km from the site is approximately 0.002 ug/m^3 (0.001 ppb). Assuming that 3 ozone molecules are formed for every NO_2 molecule and using a maximum yield of 90%, the conservative estimated impact of ozone formation is approximately 0.003 ppb on a 1-hour basis. In addition, it is a conservative assumption that this ozone increase would occur for every hour in an 8-hour period. Adding these results to the 3-year background concentration for the Beaumont-Downtown monitor (75 ppb), it can be concluded that the proposed project will not cause or contribute to a condition of a violation of the 8-hour standard of 76 ppb. Additional discussion of the background concentration for ozone is discussed in more detail later in the section of this report related to background concentrations.

PSD Additional Impacts Analyses

Growth Analysis

The project will not result in additional population or other growth (industrial or commercial). The project is expected to result in approximately 1 permanent job.

Soils and Vegetation Analysis

The results of the modeling indicate that the area of impact for NAAQS pollutants is limited to the site property. The results indicate that the off-site impact for all NAAQS pollutants is less than the SIL; therefore, no adverse effects on soil and vegetation are expected.

Class II Visibility Impairment Analysis

The project will not affect visibility in the area. The site complies with the applicable visibility and opacity requirements in 30 TAC Chapter 111.

Meteorological Data: The meteorological dataset utilized in the air quality analysis was obtained from the TCEQ. The meteorological data is the approved dataset created in 2012 for Jefferson County with data from 2008. Additional meteorological dataset model setup information is as follows:

- Surface Station and ID: Beaumont (Station 12917)
- Upper Air Station and ID: Lake Charles, LA (Station 3937)
- Meteorological Dataset: 2008
- Anemometer Height: Default (10.06 meters)
- Surface roughness length from AERSURFACE (Version 13016) is 0.348; therefore, the medium roughness meteorological dataset was used in the AQA. The AERSURFACE files for the project are included in the electronic files.

Receptor Grid:

The site is located within a larger industrial park (Beaumont Works) that has a single property designation between OCI, Lucite International, Inc., and DuPont. The AQA utilize the single site property boundary as the basis for receptor placement. A tight grid (25 meter spacing) was placed along the property line extending out 100 meters from the property line. Additionally, a fine grid (50 meter spacing) extends out an additional 1 kilometer, a medium fine grid (100 meter spacing) extends out an additional 2 kilometers, and a course grid (500 meter spacing) extends out an additional 7 kilometers. This grid design is larger than the originally proposed grid to accommodate the ozone analysis. The modeling results demonstrate that the receptor grid design was of sufficient density and spacial coverage to capture maximum ground-level concentrations associated with the air quality analysis.

Building Wake Effects:

Buildings and structures at the site that potentially affect downwash have been included in the AQA. Potential downwash was calculated using BPIP-Prime (Version 04274). The building and tank parameters are included in the following tables.

Building / Structure Parameters

Bldg ID	Base Elevation (ft)	Bldg Height (ft)	Number of Corners	Corner 1 Easting (m)	Corner 1 Northing (m)	Corner 2 Easting (m)	Corner 2 Northing (m)	Corner 3 Easting (m)	Corner 3 Northing (m)
B13	20.1115	15	4	400019	3321113	400045	3321139	400030	3321155
B18	20.0459	10	5	400051	3321067	400063	3321080	400063	3321080
B3	20.0459	32	4	400112	3321175	400134	3321152	400126	3321143
B4	20.0787	49	4	400159	3320990	400107	3321042	400121	3321055
B14	20.1115	25	6	400177	3320968	400190	3320981	400215	3320956
B15	20.1115	21	8	400222	3320930	400241	3320948	400264	3320925
B16	20.1444	25	8	400252	3320899	400263	3320910	400271	3320902
B17	17.3228	15	4	400373	3321076	400388	3321061	400378	3321050

Building / Structure Parameters (Cont'd)

Bldg ID	Corner 4 Easting (m)	Corner 4 Northing (m)	Corner 5 Easting (m)	Corner 5 Northing (m)	Corner 6 Easting (m)	Corner 6 Northing (m)	Corner 7 Easting (m)	Corner 7 Northing (m)	Corner 8 Easting (m)	Corner 8 Northing (m)
B13	400003.8	3321129								
B18	400067.8	3321075	400055	3321062						
B3	400103.2	3321165								
B4	400171.9	3321004								
B14	400213.4	3320953	400216	3320949	400207	3320939				
B15	400245.8	3320908	400244	3320910	400241	3320906	400223	3320923	400227	3320925
B16	400267.8	3320900	400278	3320890	400274	3320887	400264	3320896	400259	3320891
B17	400362.6	3321065								

Storage Tank parameters

Tank ID	Base Elevation (ft)	UTM Easting (m)	UTM Northing (m)	Tank Height (ft)	Tank Diameter (ft)
T1	20.0787	400067	3321104	40	57
T2	20.0459	400089.4	3321126	40	48
T3A	16.1745	400283.2	3321351	40	180
T3B	16.0433	400215.8	3321420	40	180
T4	19.6194	400243.1	3321034	23	10
T5	19.6522	400245.8	3321031	23	10
T6	19.6522	400248.4	3321028	23	10
T7	19.7178	400255	3321022	23	10
T8	19.7178	400257.9	3321019	23	10
T9	19.7507	400261	3321016	23	10
T10	19.9475	400243.7	3321010	23	10
T11	19.9803	400246.4	3321007	23	10
T12A	19.9803	400249.1	3321005	23	10
T12B	19.8819	400240	3321018	50	12
T12C	20.21	400276.2	3320880	15	30
T13	20.21	400282.6	3320874	15	30
T14	20.1772	400268.2	3320881	25	15
TK320	5.1837	400905.3	3321487	106	109

Modeling Emission Inventory

The AQA consists of flares, point sources, and fugitive equipment. Source specific discussions are as follows:

Flares

In order to model the flare emissions, the flares were treated as a point source and modeled with the following parameters:

- represented emission rate;
- Effective stack velocity = 20 meters per second;
- Effective stack temperature = 1273 Kelvin;
- Actual stack height; and
- Effective stack diameter = Calculated (see table below)

In order to calculate the effective stack diameters, the following equation will be used:

$$D = \sqrt{(q_n \times 10^{-6})}$$

Where: $q_n = q\left(1 - 0.048\sqrt{MW}\right)$

q = gross heat release, cal/sec

q_n = net heat release in cal/sec

MW = weighted (by volume) average molecular weight of the compound being flared.

The following tables provide the information utilized to calculate the effective diameters and the modeled parameters for each of the flares:

Effective Flare Diameter Calculation Parameters

EPN	Btu/lb	lb/min	MW (lb/ lb-mol)	q (cal/sec)	qn (cal/sec)	Calc Flare Dia (m)	Calc Flare Dia (ft)
326	22978.55	607.00	17.84	58581517	46704721	6.834	22.422
321	8336.01	7.43	2.295112	260250	241325	0.491	1.612
FL42	8882.35	4.31	27.8371	160938	120180	0.347	1.137
FL42M	5819.41	20147.33	17.68913	492431841	393019418	19.825	65.042
45	20437	0.32	16.74	27181	21843	0.148	0.485
45M	20101.01	3347.92	5.770954	282645276	250053592	15.813	51.880

Flare Modeled Stack Parameters

Source ID	Source Desc.	UTM E (m)	UTM N (m)	Base Elev (ft)	Stack Ht (ft)	Temp (K)	Stk Exit Velocity (m/sec)	Stack Dia (ft)
45	Methanol Plant Flare	400297	3320970	19.88	217	1273	20	0.485
45M	Methanol Plant Flare Mnt	400297	3320970	19.88	217	1273	20	51.88
FL42	Reformer Flare MSS	400288	3320960	20.08	152	1273	20	1.137
FL321	Ammonia Plant Flare	400280	3320876	20.21	200	1273	20	1.612
326	Marine Vapor Control System Flare	400861	3321468	5.45	125	1273	20	22.422

Flare Modeled Emission Rates

Source ID	Source Desc.	NH3 (lb/hr)	MeOH (lb/hr)	NO2 (lb/hr)	SO2 (lb/hr)
45	Methanol Plant Flare			0.016	
45M	Methanol Plant Flare MSS		-132.78		
FL42	Reformer Flare		3.84	0.6574	0.0794
FL42M	Reformer Flare MSS		17.04		
FL321	Ammonia Plant Flare	0.29		0.072	
326	Marine Vapor Control System Flare		6.33	-0.008	-0.0799

Point Sources

Point Sources were modeled using the represented emission rate, actual release height, diameter, and velocity. The following tables provide the modeled source parameters for each of the modeled point sources:

Point Source Modeled Parameters

Source ID	Source Desc.	UTM E (m)	UTM N (m)	Base Elev (ft)	Stack Ht (ft)	Temp (Deg F)	Stk Exit Velocity (ft/sec)	Stack Dia (ft)
STK4OLD1	Current Reformer Stack 1	400303	3320891	20.24	120	400	25.8	8
STK41OLD2	Current Reformer Stack 2	400307	3320896	20.24	120	400	25.8	8
STK41OLD3	Current Reformer Stack 3	400322	3320909	20.21	120	400	25.8	8
STK41OLD4	Current Reformer Stack 4	400326	3320914	20.18	120	400	25.8	8
STK41OLD5	Current Reformer Stack 5	400294	3320899	20.24	120	400	25.8	8
STK41OLD6	Current Reformer Stack 6	400299	3320904	20.24	120	400	25.8	8
STK41OLD7	Current Reformer Stack 7	400312	3320918	20.18	120	400	25.8	8
STK41OLD8	Current Reformer Stack 8	400317	3320922	20.14	120	400	25.8	8
STK41	Future SCR Stack	400353	3320899	19.88	120*	375	82.15	16

* Note - The SCR stack was modeled at a height of 120 feet for all pollutants except ammonia. For ammonia, the stack height was modeled at 130 feet. The modeling was not redone at 120 feet for the other pollutants as compliance was already demonstrated and raising the stack height would only reduce the GLCs for the other pollutants. This approach is conservative.

Point Source Modeled Emission Rates

Source ID	Source Desc.	NH3 (lb/hr)	NO2 (lb/hr)	SO2 (lb/hr)	PM2.5 (lb/hr)
STK4OLD1	Current Reformer Stack 1		-21	-0.176	-2.5288
STK41OLD2	Current Reformer Stack 2		-21	-0.176	-2.5288
STK41OLD3	Current Reformer Stack 3		-21	-0.176	-2.5288
STK41OLD4	Current Reformer Stack 4		-21	-0.176	-2.5288
STK41OLD5	Current Reformer Stack 5		-21	-0.176	-2.5288
STK41OLD6	Current Reformer Stack 6		-21	-0.176	-2.5288
STK41OLD7	Current Reformer Stack 7		-21	-0.176	-2.5288
STK41OLD8	Current Reformer Stack 8		-21	-0.176	-2.5288
STK41	Future SCR Stack	23.27	24.488	1.4656	22.623

Fugitive Emission Sources

Fugitive sources of emissions (pumps / valves / flanges, etc.) were modeled as volume sources since dispersion in three dimensions is expected with little to no plume rise. These type of sources were modeled in the State Effects analysis of ammonia and methanol. The volume sources are characterized as being a square

volume with 1 meter sides. The release height was assumed to occur at 10 feet of elevation in the center of the volume. The location of the fugitive equipment sources will be centered in the areas where ammonia and methanol production occurs. The actual fugitive equipment is present throughout the plant with emissions of varying rates and heights.

In order to determine the horizontal sigma dimensions, a single volume will be modeled. The horizontal dimension of the volume will be divided by 4.3. Since these sources are elevated above the ground and are not on or near a building, the vertical sigma dimension will be determined by dividing the vertical dimension of the volume by 4.3.

Source parameters and emission rates for the fugitive equipment is included in the following table.

Volume Source Modeled Parameters

Source ID	Source Desc.	UTM E (m)	UTM N (m)	Base Elev (ft)	Release Height (ft)	Init Horiz Dim (ft)	Init Vert Dim (ft)	NH3 (lb/hr)
AFUG322	Ammonia Plant Fugitive Equipment	400260.8	3321005	20.20997	10	0.7631	0.7631	0.13
METFUG247	Methanol Plant Fugitive Equipment	400181	3320979	20.20997	10	0.7631	0.7631	0.23

Nearby Sources

Nearby sources were not included in the AQA since the results for all of the modeled pollutants were less than the significant level for each of the averaging periods.

Background Concentration

NO_2

Background concentrations for NO_2 were not needed for the AQA since the off-site impact for NO_2 was less than the SIL.

$PM_{2.5}$

Background concentrations for $PM_{2.5}$ were not needed for the AQA since the off-site impact for $PM_{2.5}$ was less than the SIL.

Ozone

The background concentration for ozone was obtained from the TCEQ web site at the following url: http://www.tceq.texas.gov/cgi-bin/compliance/monops/8hr_attainment.pl This url lists the current monitoring compliance of the 8-hour ozone standard for all of the monitors in each area. For the Beaumont / Port Arthur area, the monitor data for 2010, 2011, and 2012 were queried for the 3-year 8-hour ozone compliance data. Of all of the monitors in the area, only the Beaumont-Downtown monitor (EPA ID – 482450009) is located Northeastward from the site. Since the prevailing wind direction for the site is from the South to Southeast, the Beaumont-Downtown monitor is the only downwind monitor that is nearby. In addition, the Beaumont-Downtown monitor is near multiple large industrial sites and is located downwind from the Port Arthur industrial facilities. Considering this rationale versus the location and distance of the other monitors in the area, the Beaumont-Downtown monitor was chosen as the most representative monitor for consideration of background concentration for ozone.

Modeling Results

Modeling results for each of the modeled pollutants is provided in the following table. Electronic modeling files have been provided with this modeling report.

Pollutant	Results (ug/m_3)
NO_2	0.02599 (1-hr)
SO_2	0.11307 (1-hr), 0.08176 (3-hr), 0.0058 (24-hr), -0.00055 (Annual)
$PM_{2.5}$	0.04328 (24-hr), -0.00167 (Annual)
NH_3 (Production)	38.91 (1-hr)
MeOH (Production)	54.41 (1-hr)
MeOH (MSS)	1.87 (1-hr)

Area Map / Plot Plan / Single Property Designation

An area map and plot plan was submitted with the initial permit amendment application. The area map and plot plan as well as the single property designation have been included with this modeling report in Appendices B and C.

Modeling Input / Output Files and Related Items

Modeling input and output files associated with the AQA will be provided on CD upon completion. In addition, an updated Table 1(a) has been included in Appendix A. The only change to the Table 1(a) from the September 2013 permit application update is the stack height for the reformer stack (STK41).

Appendix A
Table 1(a)

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Table 1(a) Emission Point Summary

Date: September 2013	**Permit No.: 901**	**Regulated Entity No.: 102559291**
Area Name: OCI Beaumont LLC		**Customer Reference No.: 603806860**

Review of applications and issuance of permits will be expedited by supplying all necessary information requested on this Table.

AIR CONTAMINANT DATA					
Emission Point			**Component or Air Contaminant Name**	**Air Contaminant Emission Rate**	
(A) EPN	**(B) FIN**	**(C) Name**		**(A) Pound Per Hour**	**(B) TPY**
STK-41	RFM41	Reforming Furnaces and Prereformer Fired Heater	NOx	30.36	132.98
			CO	255.46	559.46
			SO_2	1.47	6.42
			NH_3	23.27	67.94
			$PM/PM_{10}/PM_{2.5}$	22.63	99.09
			VOC	16.38	71.71
STK-41M	RFM41M	Reforming Furnaces and Prereformer Fired Heater (MSS)	NOx	279.49	19.37
			CO	255.46	10.98
			SO_2	1.47	0.13
			$PM/PM_{10}/PM_{2.5}$	22.63	1.95
			VOC	16.38	1.41

35	TFX-33	Methanol East Shore Tank	VOC	37.65	39.81
	TFX-34	Methanol West Shore Tank			
MET-FUG247	MET/FUG247	Methanol Plant Fugitives	VOC	1.23	5.40
AFUG322	AFUG322	Ammonia Plant Fugitives	NH_3	0.33	1.46
MET-STK44	MET-STK44	Carbon Dioxide Stripper Vent	CO	19.10	2.30
			NH_3	8.30	0.50
326	MVCSFLR	Marine Vapor Control System Flare	NOx	2.19	2.32
			CO	18.70	19.63
			VOC	8.62	2.74
			SO_2	0.02	0.02
			$PM/PM_{10}/PM_{2.5}$	0.01	0.01
45	FLARE	Methanol Plant Flare (Pilot Gas)	NOx	0.06	0.28
			CO	0.27	1.16
			VOC	0.01	0.02
			SO_2	0.01	0.01
45	FLARE	Methanol Plant Flare (Maintenance)	NOx	258.82	1.72
			CO	2219.15	14.78
			VOC	99.77	0.48
FL42	FL42	Reformer Flare	NOx	0.23	0.54
			CO	1.48	2.63
			SO_2	0.01	0.01
			VOC	4.22	3.70
FL42M	FL42M	Reformer Flare (Maintenance)	NOx	653.34	3.61
			CO	4253.54	30.91
			VOC	86.68	0.42

FL321	AMMFLARE	Ammonia Plant Flare	NOx	0.90	3.94
			CO	1.85	8.09
			VOC	0.10	0.40
			SO_2	0.01	0.01
			NH_3	2.59	11.34
MEOHEQCLR	MEOHEQCLR	Methanol Plant Equipment Degassing	VOC	23.24	1.18
			H_2S	0.01	0.01

EPN = Emission Point Number
FIN = Facility Identification Number

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Table 1(a) Emission Point Summary

Date: September 2013	**Permit No.: 901**	**Regulated Entity No.: 102559291**
Area Name: OCI Beaumont LLC		**Customer Reference No.: 603806860**

Review of applications and issuance of permits will be expedited by supplying all necessary information requested on this Table.

AIR CONTAMINANT DATA						**EMISSION POINT DISCHARGE PARAMETERS**								
1. Emission Point			**4. UTM Coordinates of Emission Point**			**Source**								
						5. Building Height (Ft.)	**6. Height Above Ground (Ft.)**	**7. Stack Exit Data**			**8. Fugitives**			
(A) EPN	**(B) FIN**	**(C) NAME**	**Zone**	**East (Meters)**	**North (Meters)**			**(A) Diameter (Ft.)**	**(B) Velocity (FPS)**	**(C) Temperature (°F)**	**(A) Length (Ft.)**	**(B) Width (Ft.)**	**(C) Axis Degrees**
STK-41	RFM41	Reforming Furnaces and Prereformer Fired Heater	15	400353	3320899		130	16	82.15	379			
STK-41M	RFM41M	Reforming Furnaces and Prereformer Fired Heater (MSS)	15	400353	3320899		130	16	82.15	379			
35	TFX-33	Methanol East Shore Tank	15	400254	3321388		55	1	39.3	111			

	TFX-34	Methanol West Shore Tank	15	400254	3321388		55	1	39.3	111			
MET-FUG247	MET/FUG247	Methanol Plant Fugitives	15	400181	3320979		10				600	300	45E
AFUG322	AFUG322	Ammonia Plant Fugitives	15	400289	3320999						300	100	45E
MET-STK44	MET-STK44	Carbon Dioxide Stripper Vent	15	400197	3320915	85		0.83	69.3	267			
326	MVCSFLR	Marine Vapor Control System Flare	15	400861	3321468	125		0.83	12	~1800			
45	FLARE	Methanol Plant Flare	15	400297	3320970	217		2	200	~1800			
FL42	FL42	Reformer MSS Flare	15	400288	3320960		152	3.5	116	~1800			
FL321	AMMFLARE	Reformer MSS Flare	15	400280	3320876		200	3.5	108.3	~1800			
MEOHEQCLR	MEOHEQCLR	Methanol Plant	15	400181	3321084						600	300	45

EPN = Emission Point Number FIN = Facility Identification Number

Appendix B
Single Site Property Designation

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

PETITION OF E.I. DUPONT DE NEMOURS AND COMPANY, TNRCC ACCOUNT NO. JE-0033-C, BEAUMONT METHANOL LIMITED PARTNERSHIP, TNRCC ACCOUNT NO. JE-0343-H, DUPONT DOW ELASTOMERS L.L.C., TNRCC ACCOUNT NO. JE-0693-A, and ICI ACRYLICS INC., TNRCC ACCOUNT NO. JE-0425-E, FOR DESIGNATION OF A SINGLE PROPERTY	§	BEFORE THE TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

DOCKET NO. 1999-0971-AIR-E

FINDING OF FACT, CONCLUSIONS OF LAW, AND ORDER REGARDING DESIGNATION OF BEAUMONT SITE AS SINGLE PROPERTY

On October 27, 1999, came to be considered by the Texas Natural Resource Conservation Commission (the "Commission" or "TNRCC") the Petition of E.I. du Pont de Nemours and Company ("DuPont"), Beaumont Methanol Limited Partnership ("BMLP"), DuPont Dow Elastomers L.L.C. ("DDE") and ICI Acrylics Inc. ("ICI"), to have the property located at Highway 347, Beaumont, Jefferson County, Texas denoted in Exhibit C ("the Beaumont Site"), designated as a single property for purposes of demonstrating compliance with TNRCC regulations and the control of air emissions. Based on representations in the Petition, dated July 17, 1998, the Commission finds as follows:

1. The properties that are the subject of this Petition, which are more fully depicted in the maps attached as Exhibits A and C, are contiguous except for intervening internal roads, railroads, and rights-of-way, which are part of the property;

2. The property that is the subject of this Petition is not separated by any public right-of-way;

3. The Beaumont Site, depicted on Exhibit C, had been controlled solely by DuPont, but the areas marked BMLP, DDE and ICI on Exhibit A have been placed under the control of BMLP, DDE and ICI pursuant to lease agreements between DuPont and each Petitioner, creating new internal ownership and operational boundaries; and

4. The Petition includes all information required by 30 T.A.C. § 101.2(b)(3), including (a) a general description of the manner in which the control of emissions and demonstration of compliance with TNRCC regulations will be administered and controlled; (b) a

designation of the parties accepting responsibility for off-property impacts; (c) an executed written agreement between the property holders, in which they consent to a single property designation and detail the mechanisms of control; (d) a USGS-based map indicating geographical features, the individual and proposed combined property boundaries, and present land uses.

Based on these findings, the Commission concludes, as a matter of law,

1. That the Commission's decision concerning the substance of this Petition is governed by 30 T.A.C. § 101.2(b);

2. That the Petitioners have demonstrated that their petition satisfies the requirements of 30 T.A.C. § 101.2(b); and

3. That Section 382.023(a) of the Texas Clean Air Act ("the Act") authorizes the Commission to issue orders and make determinations as necessary to carry out the purposes of the Act, including an order granting a petition pursuant to 30 T.A.C. § 101.2(b).

It is, therefore, ORDERED as follows:

1. The Petition of DuPont, BMLP, DDE and ICI dated July 17, 1998 is GRANTED.

2. For purposes of evaluating whether emissions from facilities owned and/or operated by DuPont, BMLP, DDE and ICI at the Beaumont Site will cause or contribute to exceedances of any ambient air quality standards or guideline concentrations, the TNRCC shall consider only those concentrations projected or measured beyond the single outer property line of the Beaumont Site as denoted on Exhibit C. Further, the Commission shall not consider the property of DuPont, BMLP, DDE or ICI within the single, outer property line denoted on Exhibit C as an off-property receptor of the other.

3. This Order does not constitute a determination that the Beaumont Site is a single property for any other purpose under state or federal law nor does it affect Petitioners' responsibilities under, or obligations to comply with any applicable federal air quality statutes and rules, including, but not limited to Parts C (Prevention of Significant Deterioration) and D (Nonattainment) of Title I, and Operating Permits pursuant to Title V, of the Federal Clean Air Act, as amended.

4. This Order does not relieve DuPont, BMLP, DDE or ICI from meeting the requirements of Tex. Health & Safety Code Section 382.0518(b).

5. DuPont, BMLP, DDE and ICI shall each be responsible under the Act and the

rules, orders, and permits issued by the TNRCC pursuant to the Act for controlling emissions from its own facilities.

6. If any Petitioner applies to the TNRCC for a change in emissions of an air contaminant that is or will be emitted from more than one Petitioners' facilities, the Executive Director may require modeling of all sources for that air contaminant within the designated single property boundary. If such a requirement is imposed, the non-applicant Petitioner(s) must provide, in a timely manner, the available information necessary for the applicant Petitioner(s) to conduct the required modeling.

7. Upon becoming aware of any changes affecting the accuracy of the Findings of Fact set forth in this Order, DuPont, BMLP, DDE and ICI are each responsible for ensuring that the TNRCC Executive Director is notified in writing of such changes. Upon determining that the facts no longer support this Order, the TNRCC Executive Director or any Petitioner shall petition the Commission for modification or termination of this Order.

8. This Order is binding upon DuPont, BMLP, DDE and ICI and their successors and assigns as to the subject properties, unless and until amended or rescinded by further order of the Commission. Each Petitioner shall provide notice of this Order to any successor-in-interest prior to transfer of ownership of all or part of that Petitioner's facilities affected by this Order and within ten days of any such transfer provide the appropriate TNRCC Regional Office with written confirmation that such notice has been given. This Single Property Designation Order is not applicable to subsequent divisions of the interests in the real property that is the subject of the Order, unless authorized by the Commission or as provided by TNRCC Rules.

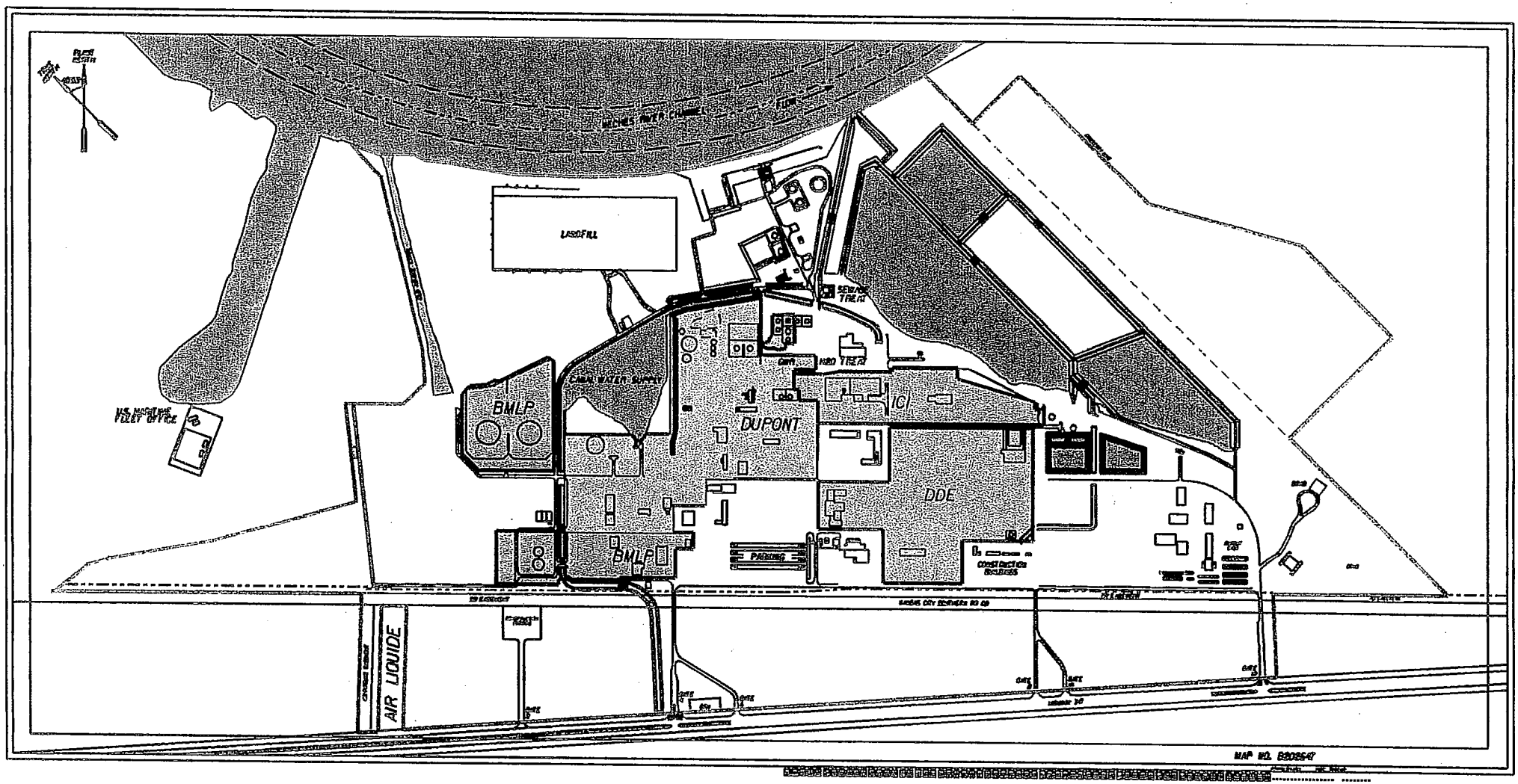
9. If DuPont, BMLP, DDE or ICI transfers the ownership or operational control of a source of emissions, the transferor Petitioner must provide documentation to the Executive Director regarding (a) a list of the transferor's current emission sources and the associated Emission Point Numbers (EPNs), and (b) a list of emission sources and the associated EPNs proposed to be transferred.

10. The Chief Clerk shall provide a copy of this Order to the Petitioners.

11. This Order will become effective on the date that the Order is mailed by the Chief Clerk to the Petitioners.

APPROVED AND ENTERED by the Commission on November 1, 1999.

Robert J. Huston
Chairman



E.I. du Pont

BEAUMONT WORKS INDUSTRIAL PARK

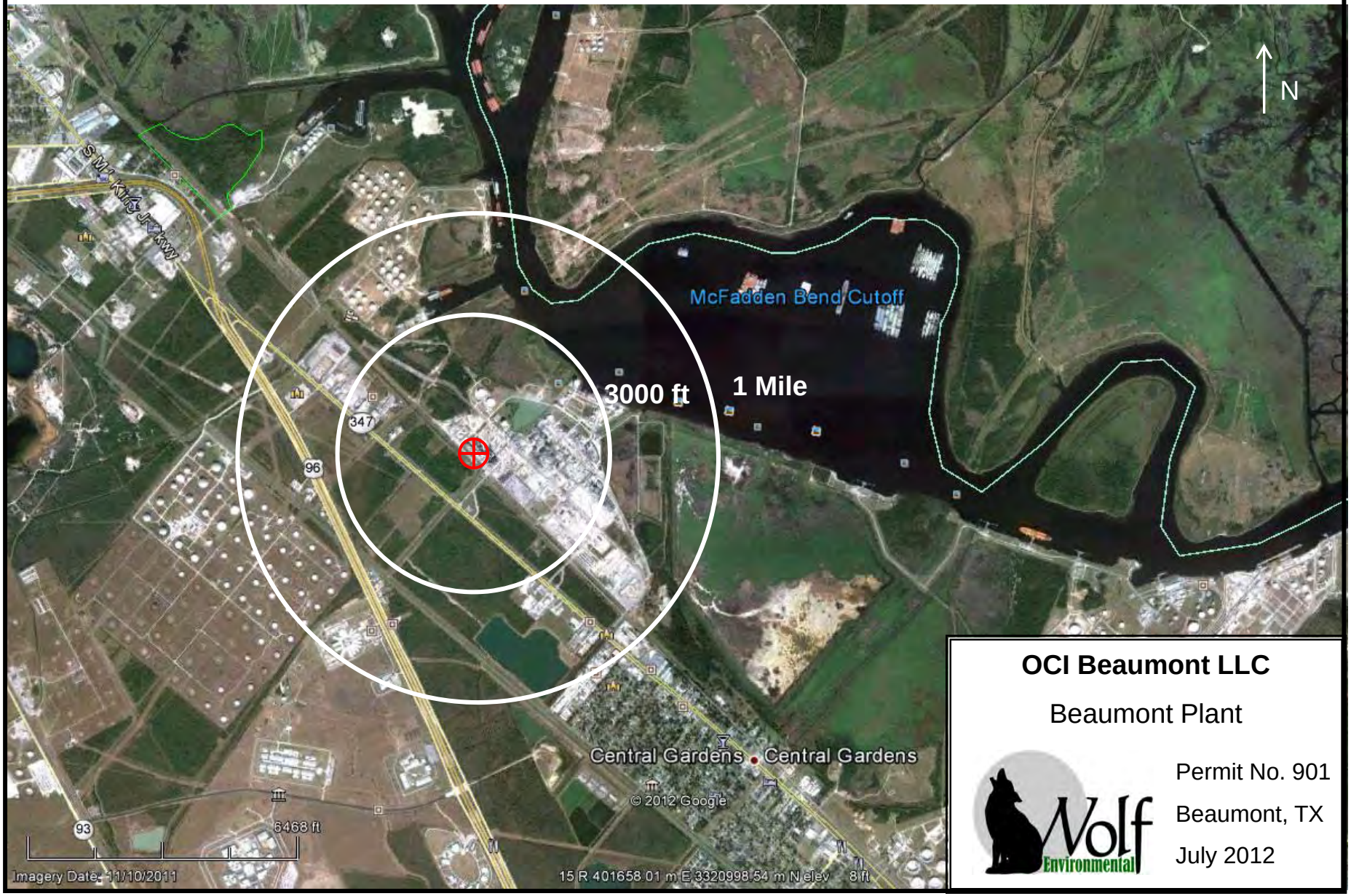
(SINGLE SITE PETITION MAP)

EXHIBIT "A"

Appendix C
Area Map and Plot Plan

OCI Beaumont LLC
Site Area Map

30° 0’ 55.84” N
94° 2’ 5.79” W



OCI Beaumont LLC

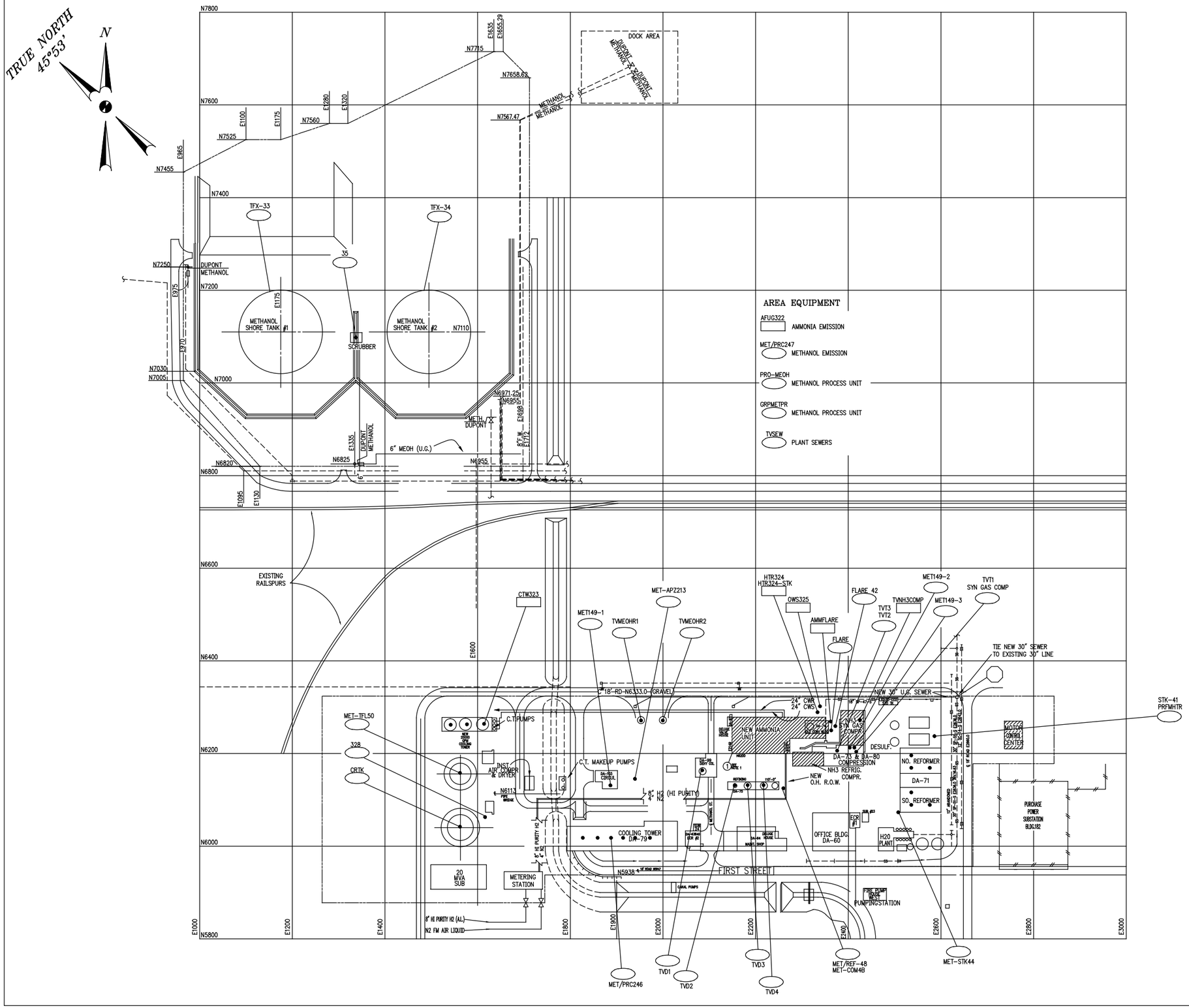
Beaumont Plant

Wolf Environmental

Permit No. 901

Beaumont, TX

July 2012



AREA EQUIPMENT

AFUG322 — AMMONIA EMISSION

MET/PRC247 — METHANOL EMISSION

PRO-MEOH — METHANOL PROCESS UNIT

GRPMETPR — METHANOL PROCESS UNIT

TVSEW — PLANT SEWERS

NOTES

AMMONIA EMISSION

METHANOL EMISSION

1. UTM COORDINATE
   N 3320804.1
   E 400241.1

   PLANT COORDINATE
   N 6200
   E 2149

REFERENCE DRAWINGS

NO.	REVISIONS	DATE	BY	CH'D.	APP'D.
1	PSD APP	12/05/12	CP	DP	DP
EST. NO.		JOB NO.			

OCI BEAUMONT

BEAUMONT METHANOL AND AMMONIA PLANTS
EMISSION POINTS

DRAWN: K. WALDRUP | SCALE: 1"=100'

DWG. NO. 700318 | REV. 1

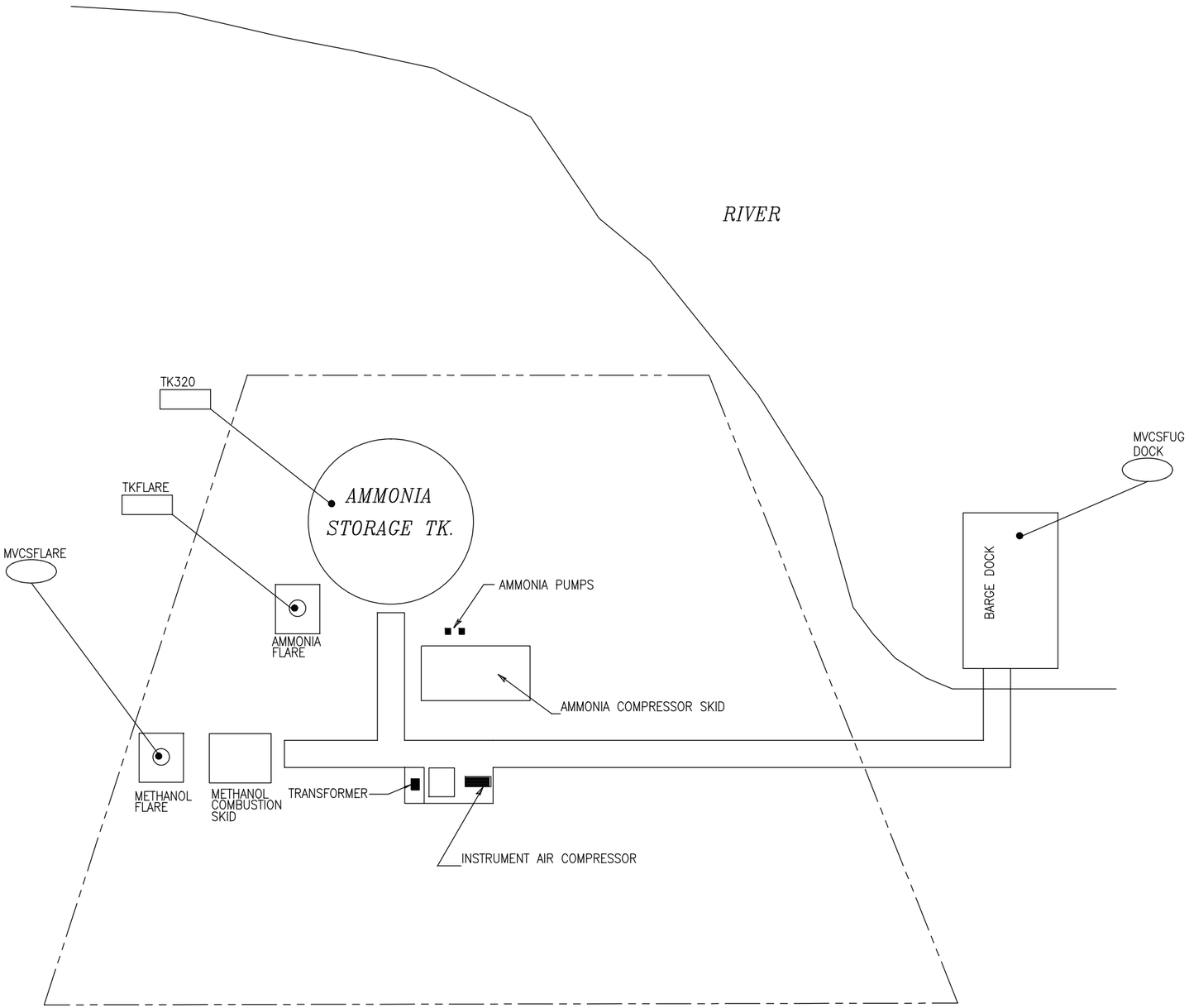
FILE: 700318 PLOT DATE: 12-05-12

N

FUGITIVE EMMISIONS

AMMONIA EMISSION

METHANOL EMISSION



NOTES

REFERENCE DRAWINGS

NO.	REVISIONS	DATE	BY	CH'D.	APP'D.
0	AS-BUILT	12/05/12	CP	DP	DP

EST. NO. | JOB NO.

OCI BEAUMONT

BEAUMONT METHANOL AND AMMONIA PLANTS
EMISSION POINTS

DRAWN: CP | SCALE: NONE

DWG. NO. 700319 | REV. 0

FILE: 700319 PLOT DATE: 12-05-12

DISTRIBUTION

Texas Commission on Environmental Quality
Debottlenecking Project
Permit No. 901
TCEQ Account No. JE-0343-H
OCI Beaumont LLC

September 30, 2013

Copy 1: OCI Beaumont LLC
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Nederland, TX 77627

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TCEQ - Austin
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Austin, TX 78753

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Dallas, TX 75202

Copy 5: Wolf Environmental LLC
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