Biological Assessment

Fractionator #2 Project

Mont Belvieu, Texas

Prepared for:
Lone Star NGL Mont Belvieu, L.P.

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E.S. Executive Summary

Lone Star NGL Mont Belvieu, L.P. (Lone Star) is proposing to construct a fractionator facility with associated ancillary buildings and equipment (Project) in Chambers County, Texas (Figure 1). Construction within this area will consist of clearing the necessary areas of vegetation, stripping most of the organics, establishing a minimum site grade to facilitate drainage using any excess soils and additional imported material, constructing foundations, installing equipment, constructing roadways, and sowing grass seed in non-process areas. The Project site includes two tracts – the fractionator facility would be constructed on the larger tract to the north, and smaller area to the south would have existing vegetation replaced with gravel to be used for parking or staging (Figure 2). The total area of the two tracts is approximately 81 acres. The proposed fractionator Project will connect to an existing Lone Star fractionator facility, located adjacent to it, as shown in Figure 2. Roads will be constructed within the fractionator facility footprint, and access to the site will be via existing roads. Stormwater and process water discharges will be made to an existing drainage ditch, which flows into a tributary of Cedar Bayou. The location of the outfall at the tributary to Cedar Bayou is shown in Figure 2.

The Clean Air Act requires that an air pollution permit be issued prior to construction of the Project. A Standard Permit has been issued from the Texas Commission on Environmental Quality. The proposed Project will also require a Prevention of Significant Deterioration (PSD) permit for greenhouse gas (GHG) emissions from the U.S. Environmental Protection Agency (EPA). Lone Star has retained the services of URS Corporation (URS) to prepare a Biological Assessment (BA) for the Project to assess the potential impacts to federally-protected species and/or their potential habitat and to provide an evaluation of the Project's likelihood to jeopardize the continued existence of listed species.

This BA is a complete evaluation of the potential impacts the proposed Project may have on federally-protected species and/or their potential habitat. Federally-protected species considered in this BA include: piping plover, brown pelican, green sea turtle, hawksbill sea turtle, Kemp's ridley sea turtle, leatherback sea turtle, loggerhead sea turtle, and bald and golden eagles. This BA includes a pedestrian protected species habitat evaluation of the Action Area (photos included in Appendix A), and an evaluation of potential environmental impacts based on air quality modeling results, construction information, and National Pollutant Discharge Elimination System (NPDES) information provided by Lone Star.

Lone Star completed detailed pollutant emission calculations for the Project in accordance with the Air Permit Amendment Application requirements. Specifically, the emission calculations and dispersion modeling indicate that the proposed Project would not yield any air pollutant levels greater than the significant impact level (SIL). Therefore, the source impacts are considered insignificant.

The Action Area is therefore defined as all areas that would be directly impacted by construction, comprised of the two areas totaling 81 acres shown in Figure 2. The Action Area also includes three air emission points within the existing adjacent fractionator that would be modified, a pipeline from the proposed Project to an existing flare within the existing fractionator facility, and the existing flare which will be an air emission point. Plant community types within the Action Area include pine-yaupon forest, Chinese tallow forest, mowed uplands, and wetlands.

Bald eagles have the potential to occur in the vicinity of the Project; however, there is no preferred nesting or foraging habitat within the Action Area. No take of bald eagles is anticipated. The brown pelican, piping plover, and Sprague's pipit do not have suitable habitat within the Action Area, and are not expected to occur in the vicinity of the Project. The green sea turtle, hawksbill sea turtle, Kemp's ridley sea turtle, leatherback sea turtle, loggerhead sea turtle, and smalltooth sawfish are marine species and would not occur in the vicinity of the Project; these species are also not expected to be impacted indirectly, or through impacts to water quality. The Louisiana black bear, red wolf, and golden eagle are not found in the vicinity of the Action Area, and would not be impacted by the Project. The Action Area does not include any essential fish habitat or designated critical habitat for federally-listed threatened or endangered species, and the Texas Natural Diversity Database includes no elements of occurrence for any rare, threatened, or endangered species. Indirect effects resulting from emissions, such as acidification and eutrophication, are unlikely to occur; therefore, protected species and their habitats will not likely be impacted.

Based on the information gathered for this BA, URS biologists recommend the following determinations:

Protected Species	**Reason for Evaluation**	**Determination of Effect**
Piping Plover	Listed by the US Fish and Wildlife Service (USFWS) as Threatened in Chambers County	No effect
Brown Pelican	Listed by USFWS as Delisted Due to Recovery	No effect
Green Sea Turtle	Listed by USFWS as Threatened in Chambers County	No effect
Hawksbill Sea Turtle	Listed by USFWS as Endangered in Chambers County	No effect
Kemp's Ridley Sea Turtle	Listed by USFWS as Endangered in Chambers County	No effect
Leatherback Sea Turtle	Listed by USFWS as Endangered in Chambers County	No effect
Loggerhead Sea Turtle	Listed by USFWS as Threatened in Chambers County	No effect
Sprague's Pipit	Listed by Texas Parks and Wildlife Department (TPWD) as a Candidate species in Chambers County	No effect
Smalltooth Sawfish	Listed by TPWD as Endangered in Chambers County	No effect
Louisiana Black Bear	Listed by TPWD as Threatened in Chambers County	No effect
Red Wolf	Listed by TPWD as Endangered in Chambers County	No effect
Bald and Golden Eagles	Protected from taking by the Bald and Golden Eagle Protection Act	No take anticipated

1.0 Introduction

Lone Star NGL Mont Belvieu, L.P. (Lone Star) is proposing to construct a fractionator facility with associated ancillary buildings and equipment (Project) in Chambers County, Texas (Figure 1). The Clean Air Act requires that an air pollution permit be issued prior to construction of the Project. A Standard Permit (Number 93813) has been issued from the Texas Commission on Environmental Quality (TCEQ). The proposed Project will also require a Prevention of Significant Deterioration (PSD) permit for greenhouse gas (GHG) emissions from the United States Environmental Protection Agency (EPA). This permit also includes modifications to an existing, adjacent fractionator facility, and these modified emission points are also included in the proposed Project, as shown in Figure 2. Lone Star has retained the services of URS Corporation (URS) to prepare a Biological Assessment (BA) for the Project to assess the potential impacts to federally-protected species and/or their potential habitat and to provide an evaluation of the Project's likelihood to jeopardize the continued existence of listed species.

1.1 Project Description

1.1.1 Facility Location and Description

The Lone Star proposed Project is located west of Mont Belvieu, TX, south of FM 1942, and northeast of Cedar Bayou (Figure 1). The Project site encompasses a total of approximately 81 acres located between industrial facilities, brine ponds, railroad tracks, a leveed canal, maintained pipeline corridors, and FM 1942. The Project site consists of two tracts, adjacent to an existing Lone Star fractionator facility, as shown in Figure 2 (United States Army Corps of Engineers [USACE] permit SWG-2010-00876). The proposed fractionator Project will connect to the existing Lone Star fractionator facility, including additional parking and staging areas to facilitate construction. All facilities related to the proposed Project will be entirely within the Action Area as defined in Section 5.1, and shown in Figure 2. The Project will utilize existing water lines, utility lines, project offices, and other facilities that were previously constructed for the existing fractionator.

The site is located on the Mont Belvieu United States Geological Survey (USGS) Quad, at 29.8521° north latitude, 94.9110° west longitude. The Project will operate under TCEQ Regulated Entity Number 106018260 and Customer Number 603194101.

Offsite mitigation will be required for wetland impacts at the Project site as part of the USACE permit under Section 404 of the Clean Water Act. Potential impacts to federally-protected species resulting from the establishment of this offsite mitigation has been evaluated by the USACE in consultation with the United States Fish and Wildlife Service (USFWS), and are not included in this BA.

1.1.2 Project Purpose

Natural Gas Liquids (NGL) are removed from natural gas streams in processing plants located generally near the gas producing wellhead. These NGLs are transported via pipeline to Lone Star for storage and ultimate distribution to customers. The proposed fractionator facility will separate these NGLs into saleable products for the petrochemical and energy industry. Products produced from natural gas liquids are ethane, propane, butane and a gasoline blend stock. The need for a fractionator is based on

the volume of new NGL product destined to Mont Belvieu from the various natural gas shale production areas. The fractionation of these NGLs and the resulting need for additional storage and distribution capabilities necessitates expanding receipt, storage, and delivery capabilities.

The additional production capacity of natural gas in Texas and surrounding states results in an increase in associated NGL production. The increase of such production can only be accommodated by increased natural gas processing facilities, such as the Project. If this Project is not built, this additional natural gas production will be curtailed and will not satisfy the needs of the marketplace. The location of this Project is ideal because of its close proximity to existing infrastructure in the NGL hub of the United States.

1.1.3 Construction Information

Construction within this area will consist of clearing the necessary areas of vegetation, stripping most of the organics, establishing a minimum site grade to facilitate drainage using any excess soils and additional imported material, constructing foundations, installing equipment, constructing roadways, and sowing grass seed in non-process areas. The fractionator facility will be filled with a mixture of sand for general fill and clay suitable for structural support. Roads will be constructed within the fractionator facility footprint, and access to the site will be via existing roads. Stormwater and process water discharges will be made to an existing drainage ditch, which flows into a tributary of Cedar Bayou.

The fractionator facility would be constructed on the larger northern tract, and the smaller southern tract would have existing vegetation replaced with gravel to be used for parking or staging (Figure 2). Construction would begin upon receipt of the necessary permits, and is expected to require 14 months.

Construction Equipment Required

Equipment required to complete the fractionator construction activities is listed in Table 1.

Table 1 - Construction equipment required.

Equipment	Units
PRECISION TOOLS	
Optalign Alignment System	20
A-Lign Bracket	32
0" to 12" Micrometer Set (Outside)	8
Optical Level (K&E)	8
Precision Scales for K&E Level	8
MISC EQUIPMENT	
Radio Repeater	10
Kronos Timekeeping System	10
Kronos Clock	20
Workstation (Printshack)	150
4 x 1000 watt light towers	288
Air Blower	60
Drill Bit Sharpener	10
Mosquito Fogger	8
Torque Multipler, 4-1	6

Equipment	Units
POWER TOOLS	
Saw, Air	40
Drill	49
Hammer Drill, Air, Roto	52
Impact, Air	120
Impact Wrench - #5 SPLINE	14
TEST EQUIPMENT	
Label Marker, Brady TLS2200	18
Dead Weight Tester, Single Column	20
15 KV Megohmeter	10
Insulation / Resistance Tester (1000V Megger)	18
Ground Resistance Tester	10
Phase Tester, Dual	10
Temperature Calibrator	17
Multi-Function Pressure Calibrator (1091)	17
Calibrator, Pressure Module. 0-5000 PSI	10

Equipment	Units
Torque Wrench, 1"	6
Monitor, Organic Vapor	20
LIFTING AND HOISTING	
Knuckle Boom	11
Manlift	75
40' Knuckle Boom Lift	18
Skip Pan 4' X 8'	36
Hydraulic Crane	133
Hardwood Timber Crane Mats	850
Spreader Bar	30
Scissor Lift	100
Crawler Crane	38
Forklift	35
FABRICATING WELDING	
Dearman Clamp	32
535 Threading Machine, 1/8 - 2"	66
141 Geared Threader, 2.5 - 4"	10
Welder	285
Beveling Machine	47
Reforming Clamps	29
EARTHMOVING	
Loader	59
Roller	55
Motor Grader (CAT120) - 125HP, 12' blade	13
Compactor	33
Trencher	18
Motorized Rode on Sweeper	12
ROTARY MIXER	3
Excavator	40
Dozer	16
AIR COMPRESSORS & DRYERS	
Diesel	92
1600 CFM Air Dryer	10
Aftercooler - Separator	10
Air Compressor, Electric, Portable, Oilfree	10
CONCRETE & MASONRY	
Concrete Bucket - 1 YD	14
Troweling Machine	12
Concrete Vibrator	50
Mortar Mixer - 6 Cu. Ft.	16
Rebar Cutter, Elec. 3/4" Capacity	12
Rebar Bender, Elec. 1" Capacity	11
Concrete Saw	10

Equipment	Units
Process Calibrator, Multi-Function, (Altek 820)	15
Thermocouple Calbrator, Multiple (1065-MTC)	16
Thickness Gauge	9
Vibration Meter	9
Hart Communicator	16
Honeywell Communicator	16
Voltage Testing Flute Meter	15
BENDERS / CRIMPERS / CABLE PULLING	
Bender	113
Crimper	15
Cable Puller Set (Greenlee 6003)	7
Fishing System, Vacuum/Blower (Greenlee 690)	6
Sheave Radius Cable	16
Hog Head	14
CHAIN HOIST (FALLS) W/ LOAD LIMITER	
Chain Hoist (Falls) w/Load Limiter	700
SURVEYING EQUIPMENT	
Auto Level	28
Transit - Electronic	14
Total Survey Station	28
Total Survey Station, Data Collector	25
PUMPS	
2" Double Diaphragm (Air)	47
Trash (Gas)	168
Hydrostatic Test Pump	66
GENERATORS	0
Portable - 5-6KW	72
Diesel - 15KW	14
HYDRAULIC EQUIPMENT	
Ram, Hydraulic	72
VEHICLES & TRAILERS	
Pickup 1/2 Ton Single Cab	26
Van - 8 Passenger	10
Stakebed - 1 Ton	27
Fuel / Lube Truck, Large	7
Water Truck 2000 Gal.	9
40' Float (highway use)	68
48' Float (Non highway use)	7
Haul Truck	21
Bus, Passenger	176
Farm Tractor	23
Brush Hog	10
Farm Trailer	49
Utility Vehicle (Gator or Mule)	100

1.1.4 Operation

Gas processing plants that produce NGL require fractionation trains to produce liquid product which meet sales specifications. A fractionator generally consists of a series of trayed columns which separate the NGL into the products which are purity ethane, propane, butanes, and natural gasoline. The feed to each column is introduced to the middle of the column. Heat is introduced to the reboiler located at the bottom of the column. The reboiler vaporizes a portion of the feed to produce stripping vapors inside the column. The vapor rises through the column contacting the down-flowing liquid. The vapor leaving the top of the column enters the condenser where heat is removed by the cooling medium. Liquid is returned to the column as reflux to limit the loss of heavy components overhead. Thus the liquid leaving the lower part of the column will have the highest boiling point whereas the hydrocarbon leaving the top of the column either as vapor or liquid has the lowest boiling point. In this way the fractionator separates the natural gas liquids into saleable products.

The heat medium is a low vapor pressure heating medium and cooling will be provided using cooling water tower technology. All process equipment will be electric motor driven as needed.

The feedstock and products of the facility will be stored in nearby salt dome caverns. The feedstock and products will be transported by existing pipelines to and from the facility. No new pipelines are anticipated to be required for the Project. The facility will not have feedstock/product storage vessels the facility will only have capacity for in-process materials.

Water Use

Raw water would be supplied to the fractionator facility by the Coastal Water Authority (CWA), and potable water would be supplied by the City of Mont Belvieu. The CWA is a conservation and reclamation district located in Harris, Chambers, and Liberty counties. The CWA provides untreated surface water to the cities of Houston, Baytown, and Deer Park for municipal purposes. The CWA also provides untreated surface water to approximately 100 industries and a few agricultural customers. Water from the CWA will be provided to the Project through an existing fresh water lift station located within the Action Area (Figure 2). Estimated water use provided by Lone Star is shown in Table 2.

Table 2 - Estimated Water Usage for Fractionator #2.

Utility	Normal Usage (Gallons per Minute [GPM])	Maximum Usage (GPM)	Source	Users
Process Water	550	700	CWA water to a clarifier.	WSAC Makeup, Utility/Sample Stations
Demineralized water	5.3	6.7	Potable water to a reverse osmosis unit.	Amine Unit
Fire Water	3,000 (Emergency use only)	9,000 (Emergency use only)	CWA water to a clarifier.	Fire suppression system
Potable Water	68.7	130.3	Potable water	Safety shower and eye stations, control room

Noise Levels

The Project is located within an industrial area and there are no Noise Sensitive Areas within one mile of the site. The noise produced by the proposed Project, both during construction and operations would be similar to the pre-existing conditions on adjacent properties. However, a noise study will be conducted following construction to assess the noise level of the pumps associated with the fractionator. This is a requirement of the Occupational Health and Safety Administration (OSHA) to determine locations within the facility where hearing protection will be required. No noise impacts are anticipated outside of the Action Area.

1.2 Regulation of Air Quality and Emissions Controls

1.2.1 Regulation of Air Quality

Lone Star has amended the Standard Permit received from the TCEQ for the adjacent fractionator facility to account for emissions from the new fractionator facility. The Clean Air Act requires air quality standards be maintained to protect public health and the environment. These standards are the National Ambient Air Quality Standards (NAAQS) and are regulated by the EPA. Ambient air is the air to which the general public has access, as opposed to air within the boundaries of an industrial facility. The NAAQS are concentration limits of pollutants in ambient air within specific averaging time. The averaging time is the time period over which the air pollutant concentrations must be met to comply with the standard.

The EPA sets NAAQS for six principal air pollutants, also referred to as criteria air pollutants. These six criteria air pollutants are nitrogen dioxide (NO_2), ozone (O_3), sulfur dioxide (SO_2), particulate matter (PM), carbon monoxide (CO), and lead (Pb). The NAAQS are classified into two categories: primary and secondary standards. Primary standards are set to protect public health, including "sensitive" populations. Secondary standards are set to protect public welfare, including the environment. CO does not have an established secondary NAAQS. A geographic area whose ambient air concentration for a criteria pollutant is equal to or less than the primary standard is an attainment area. A geographic area with an ambient air concentration greater than the primary standard is a nonattainment area. A geographic area will have a separate designation for each criteria pollutant.

The Clean Air Act also requires the EPA to establish regulations to prevent significant deterioration of air quality in attainment areas. The EPA established PSD Increments to satisfy this requirement. A PSD Increment is a measure of the maximum allowable increase in ambient air concentrations of a criteria pollutant from a baseline concentration after a specified baseline date. A significant impact level (SIL) is a concentration that represents a level below which any impact is considered *de minimis*, or insignificant. The SIL is a measurable limit above which a source may cause or contribute to a violation of a PSD Increment for a criteria pollutant. Before a PSD permit can be issued, the applicant must demonstrate that the proposed emissions from a Project will not cause or contribute to a violation of a NAAQS or to an increase above a PSD Increment for each pollutant emitted in significant amounts by the Project.

1.2.2 Emission Controls

Per 30 TAC §116.111(a)(2)(c), new or modified facilities must utilize Best Available Control Technology (BACT), with consideration given to the technical practicability and economic reasonableness of reducing or eliminating the emissions from the facility.

Lone Star will utilize BACT to control emissions from the Project and thus minimize impacts to the surrounding environment to the maximum extent practicable. Lone Star will incorporate elements and control strategies of BACT and Lowest Achievable Emissions Rate (LAER) to achieve the necessary reductions for the facility to not require Nonattainment New Source Review (NNSR) for any criteria pollutant. Emission controls include:

- Selective Catalytic Reduction (SCR) on the heaters
- 28LAER LDAR [leak detection and repair] program for fugitive leaks
- Thermal oxidizer for vent VOC control

1.3 Regulation of Wastewater

Outfall 001 from the site will discharge non-process cooling tower blowdown water. Outfall 002 will discharge stormwater from the site. Lone Star will treat and discharge wastes from the Project site under a National Pollutant Discharge Elimination System (NPDES) Permit, which has been determined to be administratively complete, and is currently on public notice (NPDES Application No. TX0140082). Both outfalls discharge at the same location into an unnamed ditch that flows into a non-tidal and tidal tributary of Cedar Bayou (Figure 2 and Appendix A); thence to the Cedar Bayou Tidal segment of the Trinity-San Jacinto Coastal Basin.

The Project will include an indirect discharge (through a ditch and tributary) to the Cedar Bayou Tidal (Segment ID: 0901), which is on the Section 303(d) state list of impaired streams. It does not have a defined total maximum daily load (TMDL) limitation as of the 2010 Texas Integrated Report. The water body is listed as impaired because it does not meet applicable water quality standards for bacteria, dioxin, and polychlorinated biphenyl (PCB) in edible tissues.

The Project will discharge non-process cooling water from wet air surface cooling towers into a retention pond located on-site. Water will intermittently be released from the retention ponds on an as-needed basis. It is anticipated that these releases will occur at least once per week. The proposed Project is a new facility; therefore, no wastewater monitoring data are available. The concentrations of pollutants at the outfall are expected to be within limits set in the wastewater discharge permit, and the waste discharge will be subject to effluent limitations, monitoring requirements, and other conditions as described in the permit. The expected concentrations of pollutants and characteristics of the effluent at the outfall are shown in Table 3. These expected values were developed for the NPDES permit application by a subcontractor (Weston Solutions), and since it is a new facility, they are based on professional judgment and information from similar facilities (Appendix B).

Table 3 – Expected effluent characteristics.

Pollutant or parameter	Maximum Daily Value	Average Daily Value
Discharge Flow	160 GPM	130 GPM
Biochemical Oxygen Demand	15 mg/L	15 mg/L
Total Suspended Solids	100 mg/L	30 mg/L
Oil and Grease	20 mg/L	15 mg/L
Chemical Oxygen Demand	150 mg/L	150 mg/L
pH Range	6-9	6-9
Fecal Coliform	Not expected	Not expected
Total Residual Chlorine	Not expected	Not expected
Ammonia	Not expected	Not expected

Although the non-process cooling water will initially contain 0.5-1.0 mg/L of chlorine as it reaches the detention pond, exposure to sunlight and the atmosphere within the pond will reduce the concentration to approximately 0.0 mg/L, as shown in Table 3. The detention pond has been designed to hold the process water for over 5 days to ensure reduced chlorine.

Lone Star will comply with the conditions of the EPA Industrial Wastewater Permit for effluent characteristics and self-monitoring requirements. The fractionator facility will have an Oil and Hazardous Materials Spill Prevention, Control, and Countermeasures Plan and a Storm Water Pollution Prevention Plan in place and the facility employees will be trained to implement these plans. These plans will be utilized during construction, operations, and maintenance of the facility. Best Management Practices will be utilized in accordance with Section 401 of the Clean Water Act, Chapter 279 of the Texas Water Code, and as prescribed in the Lone Star Storm Water Pollution Prevention Plan.

1.4 Purpose of the BA

The Clean Air Act requires that an air pollution permit be issued prior to construction of the Project. The proposed Project will require a PSD permit for GHG emissions from the EPA. The purpose of the PSD program is to 1) protect public health and welfare; 2) preserve, protect, and enhance the air quality in national parks, national wilderness areas, national monuments, national seashores, and other areas of special national or regional natural, recreational, scenic, or historic value; 3) insure that economic growth will occur in a manner consistent with the preservation of existing clean air resources; and 4) assure that any decision to permit increased air pollution in any area to which this section applies is made only after careful evaluation of all the consequences of such a decision and after adequate procedural opportunities for informed public participation in the decision making process.

This BA is a thorough evaluation of the potential impacts the proposed Project may have on federally-protected species and/or their potential habitat. The Action Area is described in Section 5.1 and shown in Figure 2. Protected species evaluated in this document include federally-listed threatened, endangered, and candidate species, and bald and golden eagles. There are no species with designated essential fish habitat (EFH) within or near the Action Area, so there are no potential impacts to EFH.

The purpose of this BA is to research, evaluate, analyze, and document the potential for direct and indirect effects, interdependent and interrelated actions, and cumulative effects on federally-protected species as a result of the proposed Project. Specifically, the BA considers potential impacts from construction activities and from the additional air emissions and wastewater that will result from the Project. This BA includes a pedestrian protected species habitat evaluation of the Action Area, and an evaluation of potential environmental impacts based on air quality modeling results, construction information, operation information, and NPDES information provided by Lone Star.

The conclusion of this BA will include a recommended determination of effect on federally-protected species and their habitat. Three possible determinations offered by the USFWS for the purpose of Biological Assessments and Evaluations are described below.

1. No effect – A "no effect" determination means that there are absolutely no effects from the proposed action, positive or negative, to listed species. A "no effect" determination does not include effects that are insignificant (small in size), discountable (extremely unlikely to occur), or beneficial.

2. May affect, not likely to adversely affect – A "may affect, not likely to adversely affect" determination may be reached for a proposed action where all effects are beneficial, insignificant, or discountable. Beneficial effects have contemporaneous positive effects without any adverse effects to the species or habitat (i.e., there cannot be a "balancing," where the benefits of the proposed action would be expected to outweigh the adverse effects – see below). Insignificant effects relate to the size of the effects and should not reach the scale where take occurs. Discountable effects are those that are extremely unlikely to occur.

3. May affect, likely to adversely affect - A "may affect, likely to adversely affect" determination means that all adverse effects cannot be avoided. A combination of beneficial and adverse effects is still "likely to adversely affect" even if the net effect is neutral or positive.

With regard to bald or golden eagles, a recommended determination of the potential for "take" will be made, as described in Section 2.2.3.

2.0 Existing Conditions

2.1 General Environmental Information

This section provides applicable environmental characteristics for the general region in which the Project is located. The Action Area for the Project is described in Section 5.1.

2.1.1 General Region Information

According to the United States Department of Agriculture (USDA) Major Land Resource Area nomenclature, the proposed Project site is located within the Gulf Coast Prairies and Marshes eco-region of Texas which is in the Gulf Coastal Plain physiographic province of North America (USDA 2012). The area in which the Project is located is typical for the Gulf Coast Prairies and Marshes eco-region. The USDA (2012) describes this region as bordering the Gulf Coast within the state of Texas, and characterized by nearly level plains that have low local relief and are dissected by rivers and streams that flow toward the Gulf of Mexico. This area was originally a natural grass prairie with hardwood trees along the rivers and streams. Little bluestem, Indiangrass, switchgrass, and big bluestem are the dominant species. A few groves of live oak dot the landscape. Some of the major wildlife species in this area are whitetailed deer, raccoon, possum, rabbit, fox, coyote, squirrel, armadillo, nutria, quail, and mourning dove. Migratory waterfowl, such as ducks and geese, and neotropical migratory songbirds winter in this area. The species of fish in the area include bass, channel catfish, and bream. Most of this area is in farms. Rice, soybeans, grain sorghum, cotton, corn, and hay are the chief crops. About two-fifths of the area is rangeland or pasture. The forested areas, consisting chiefly of hardwoods, border the rivers and streams that cross the MLRA. Urban development is rapidly expanding onto agricultural land throughout the area.

2.1.2 Air Quality

Mont Belvieu, Texas is in a nonattainment area for ozone, and the proposed Project will require a PSD permit for GHG emissions from the EPA. An eight-county Houston-Galveston-Brazoria (HGB) area including Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller counties was designated nonattainment and classified marginal under the 2008 eight-hour ozone standard, effective July 20, 2012 (Federal Register 2012). The HGB area includes the same eight counties that were designated nonattainment under the 1997 eight-hour ozone standard. The attainment deadline for the HGB marginal nonattainment area is December 31, 2015 (TCEQ 2012a).

2.1.3 Land Use

Because of the abundant water resources, the rich soils, and the proximity to the coast, most of the native coastal prairie has been developed for commercial, industrial, or residential use; or is now planted pastureland for beef cattle grazing or cropland for rice, sugarcane, forage, and grain crops. Much of the Mont Belvieu area is currently industrial development. The area has significant infrastructure related to storage, transportation, and processing of NGL and other hydrocarbons.

National Oceanic and Atmospheric Administration (NOAA) land cover data indicate that the Project would impact primarily palustrine forested wetlands, forested uplands, and scrub-shrub uplands. The majority of the land in the vicinity of the Action Area is developed or disturbed, with agriculture

(pasture/hay and cultivated) common in areas to the west of the site (Figure 3). Land to the east of the Action Area is primarily in industrial land use. Areas of woody wetlands are identified to the west and south of the Action Area along Cedar Bayou (Fry et al. 2006).

2.1.4 Climate

According to the Natural Resource Conservation Service (NRCS) climate station in Port Arthur, the mean annual precipitation in the region is 59.88 inches (NRCS 2012). The mean annual growing season is 250 days. In winter, the average temperature is 54°F and average daily minimum temperature is 44°F. In summer, the average temperature is 82°F and the average daily maximum temperature is 91°F. Prevailing winds are from the south with an average speed of 11.8 miles per hour. Average humidity is 72 percent with a higher average humidity at night of 91 percent.

2.1.5 Topography

The Action Area can be found on the Mont Belvieu, Texas USGS 7.5-minute quadrangle (1992), which indicates that the elevation of the Action Area ranges from approximately 40 to 41 feet above sea level. The Action Area is relatively flat; elevations are generally highest on the eastern portion of the Action Area and decrease to the west. Oil field roads and oil wells are shown in the vicinity of the Action Area and brine and other containment ponds from nearby facilities are located to the east and west of the Action Area (Figure 4).

Approximately 1.3 acres of the Action Area is located within the 100-year floodplain, according to the FEMA Flood Insurance Rate Map (FEMA FIRM) Community Panel No. 4801220005A, effective August 16, 1982 (Figure 5; FEMA 2012). The portion that is within the floodplain is near the western edge of the southern tract, which will be used for parking or staging. No structures will be built within the 100-year floodplain.

2.1.6 Geology

The specific geologic formation found in the area is the Beaumont Formation from the Cenozoic Era. The geologic units found within and surrounding the Action Area are Beaumont Formation, areas predominantly clay (Qbc; USGS 2012). The following is the description of the geologic unit provided by the USGS:

> Beaumont Formation, areas predominantly clay is described as light- to dark-gray and bluish- to greenish-gray clay and silt, intermixed and interbedded; contains beds and lenses of fine sand, decayed organic matter, and many buried organic-rich, oxidized soil zones that contain calcareous and ferruginous nodules. Very light gray to very light yellow-gray sediment cemented by calcium carbonate present in varied forms, veins, laminar zones, burrows, root casts, and nodules. Locally, small gypsum crystals present. Includes plastic and compressible clay and mud deposited in flood basins, coastal lakes, and former stream channels on a deltaic plain. Disconformably overlies Lissie Formation. Thickness 5-10 meters (m) along north edge of outcrop; thickens southward in subsurface to more than 100 m.

2.1.7 Soils

According to the USDA - Natural Resources Conservation Service (NRCS) County Soil Survey, the Action Area contains soils in the Beaumont clay (Be), Morey silt loam (Mo), and Oil waste (OW) series (USDA-NRCS 2011). The majority of the Action Area is mapped as the Beaumont clay series. The southwest portion of the Action Area is mapped as Morey silt loam and oil waste (USDA 1976).

Beaumont clay is reported to have a hydric soil classification of 2B3, which is defined as "soils that are poorly drained or very poorly drained and have a water table at a depth of 1.0 foot or less during the growing season if saturated hydraulically conductivity is less than 6.0 inch per hour in any layer within a depth of 20 inches."

Oil waste soil is land on which oily wastes have accumulated, including slush pits and adjacent areas affected by oil waste. These soils have a high percentage of fill material, including gravel and shell.

Morey silt loam is classified as somewhat poorly drained; having a depth to water table of approximately 18 to 30 inches; and partially hydric.

The USDA-NRCS soil units mapped within and surrounding the Action Area are listed and described below in Table 4 (USDA 2009). Some aspects of the oil waste map unit are not classified.

Table 4 – USDA NRCS Soil Units

NRCS Map Unit Symbol	NRCS Map Unit Name	USDA Classification				NRCS Hydric Soil
		Depth	Drainage	Permeability	Landform	
Be	Bernard-Edna complex	Deep	Somewhat poorly drained	Very slow	Depressions on flats	Partially hydric
Mo	Morey silt loam	Deep	Poorly drained	Slow	Meander scrolls	Partially hydric
OW	Oil waste	Not classified	Not classified	Not classified	Not classified	Not Hydric

2.1.8 Water Resources

The Action Area drains to the west towards a channelized perennial stream that is a tributary of Cedar Bayou, which flows into Galveston Bay. The Action Area is approximately 15 river-miles from Galveston Bay in the North Galveston Bay watershed (Hydrologic Unit Code 12040203; EPA 2012).

USFWS National Wetlands Inventory map indicates the presence of palustrine forested wetlands (PFO) and palustrine scrub/shrub wetlands (PSS) within the Action Area, as shown in Figure 6 (USFWS 2012a). A wetland delineation of the Action Area also identified PFO and PSS wetlands (Figure 8).

The Texas Parks and Wildlife Department (TPWD) do not identify any designated Ecologically Unique River and Stream Segments in the vicinity of the Project. The nearest designated Ecologically Unique

River and Stream Segment is Old River, approximately 3.5 miles northeast of the Action Area (TPWD 2012a).

The segment of Cedar Bayou near the Action Area is listed on the most recently completed (2008) Texas Water Quality Inventory and 303(d) List of impaired waterbodies for impaired macrobenthic community; and is listed as category 5c - additional data and information will be collected before a total maximum daily load (TMDL) is scheduled. This segment of Cedar Bayou is not listed on the Draft 2010 Texas 303(d) List (February 5, 2010). The downstream (tidal) segment of Cedar Bayou which indirectly receives wastewater and stormwater from the Project (see Section 1.3) is listed on both the 2008 and Draft 2010 Texas 303(d) Lists for bacteria, dioxin in edible tissue, and polychlorinated biphenyls (PCBs) in edible tissue (TCEQ 2011).

2.1.9 Vegetation

Historically, the native plant community of the region was Coastal Prairie, which is a tallgrass prairie with scattered trees. Most of the native coastal prairie has been converted to pastureland, cropland, or residential, urban, commercial, and industrial development. The Action Area has been heavily developed. The National Land Cover Database (NLCD) classifies the Action Area as primarily palustrine forested wetlands, forested uplands, and scrub-shrub uplands (Multi-Resolution Land Chracteristics Consortium 2012).

2.2 Protected Species

2.2.1 Threatened or Endangered Species List

The USFWS and the NOAA - National Marine Fisheries Service (NOAA-NMFS) regulate the Endangered Species Act (ESA) of 1973. “The purpose of the ESA is to protect and recover imperiled species and the ecosystems on which they depend.” Imperiled species specifically include those listed by the USFWS as threatened or endangered. Candidate species are those “the FWS has enough information to warrant proposing them for listing but is precluded from doing so by higher listing priorities.” Candidate species are not specifically protected by the ESA, but will be included for the purposes of this BA.

Section 9 of the ESA prohibits the “take” of threatened and endangered species. "Take" is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." “Harm” is defined as “an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering.”

The USFWS lists the following threatened or endangered species within Chambers County (USFWS 2012b): piping plover (*Charadrius melodus*), green sea turtle (*Chelonia mydas*), hawksbill sea turtle (*Eretmochelys imbricate*), Kemp’s ridley sea turtle (*Lepidochelys kempii*), leatherback sea turtle (*Dermochelys coriacea*), and loggerhead sea turtle (*Caretta caretta*). The brown pelican (*Pelecanus occidentalis*) is on the USFWS list, classified as delisted due to recovery. The TPWD lists an additional three species with federal threatened or endangered species status in Chambers County (TPWD 2012b):, smalltooth sawfish (*Pristis pectinata*), Louisiana black bear (*Ursus americanus luteolus*), and red wolf

(*Canis rufus*). TPWD also lists the Sprague's pipit (*Anthus spragueii*) in Chambers County as a candidate species.

2.2.2 Threatened or Endangered Species Descriptions

Piping Plover

The piping plover is a small shorebird, about 7 1/4 inches long with a 15 inch wingspan. Distinguishing characteristics include sandy-colored feathers with grayish-brown crowns and backs, white foreheads, and dark bands across their crowns. Dark, but incomplete, rings encircle their necks. These little birds have yellow-orange legs, black bands across their foreheads from eye to eye, and black rings around the base of their necks. They are small, stocky, sandy-colored birds that resemble sandpipers, with short, stubby bills. Piping plovers nest in shallow depressions scraped into beach and lakeshore sand about 1 by 2.5 inches.

There are just over 5,000 known pairs of breeding piping plovers. Texas is the wintering home for 35 percent of the known population of piping plovers. They begin arriving in late July or early August, and will remain for up to nine months. The piping plover's diet includes marine worms, beetles, spiders, crustaceans, mollusks and other small marine animals. Their typical life span is less than five years, but on occasion, up to 14 years.

The USFWS lists the piping plover as threatened. Piping plovers live on sandy beaches and lakeshores. These shorebirds migrate through the Great Lakes along the river systems through the Bahamas and West Indies. They are currently found along the Atlantic Coast from Canada to North Carolina and along the shorelines of Lakes Michigan and Superior. Gulf Coast beaches from Florida to Mexico and Atlantic coast beaches from Florida to North Carolina provide winter homes for plovers.

Brown Pelican

The brown pelican has an 18-inch long bill and large throat pouch. Its head is white in front and dark brown behind, extending down the neck and back. During the breeding season, the white plumage turns a vibrant yellowish-gold color. Silver-gray feathers cover the rest of the pelican's body. The brown pelican weighs about 9 pounds and has a 6-foot wingspan.

When feeding, pelicans soar in the air looking for fish near the surface of the water. When a fish is spotted, the pelican goes into a dive, plunging 30 to 60 feet bill-first into the water. The impact of hitting the water would kill an ordinary bird, but the pelican is equipped with air sacs just beneath the skin to cushion the blow.

The loose skin on the underside of the bill extends to form a scoop net with a capacity of 2.5 gallons. The pelican drains the water from its pouch and tosses its head back to swallow the fish. Their diet consists of menhaden and mullet fish. They lay 2 to 4 white eggs during breeding season, and live up to 30 years or more. Young pelicans are fed for about 9 weeks. During this time, each nestling will eat about 150 pounds of fish.

Brown pelican populations have recovered sufficiently to be delisted from the Federal Endangered Species List, and their current status is "Delisted due to Recovery". Brown pelicans nest on small,

isolated coastal islands where they are safe from predators such as raccoons and coyotes. Brown pelicans are found along the Atlantic and Gulf of Mexico coasts.

Green Sea Turtle (Chelonia mydas)

The green sea turtle can grow to 4 feet in length and reported weights vary from 350-850 pounds. The carapace is smooth and keelless, and the color varies with shades of black, gray, green, brown, and yellow. Adults are herbivorous. Hatchlings are omnivorous.

Green sea turtles occupy three ecosystems according to lifestage: terrestrial zone, neritic zone, and oceanic zone. The terrestrial zone is occupied briefly during nesting and hatching activities. Hatchlings move out to the oceanic zone until their carapace reaches approximately 20-25 centimeters in length. Juveniles and adults primarily occupy benthic feeding grounds in shallow, protected waters. Preferred feeding grounds include pastures of seagrasses and/or algae.

Green sea turtles have a worldwide distribution in tropical and subtropical waters. The nesting season in the southeastern US is June through September. Nesting is nocturnal and occurs in 2, 3, or 4-year intervals. Females nest an average of 5 times per season at 14 day intervals. Hatchlings typically emerge at night. Approximately 200 to 1,100 females are estimated to nest on US beaches. Nesting occurs on high energy oceanic beaches, primarily on islands with minimal disturbance. Green turtles return to the same nesting site and are known to travel long distances between foraging areas and nesting beaches.

Breeding populations of green sea turtles in Florida and on the Pacific coast of Mexico are federally listed as endangered; all other populations, including those on the Texas coast, are listed as threatened by the USFWS (NMFS 1991) Green sea turtles have been observed within Galveston Bay. These sea turtle species utilize the area for seasonal foraging (Galveston Bay Estuary Program [GBEP] 2004).

Hawksbill Sea Turtle (Eretmochelys imbricate)

The hawksbill sea turtle is a small to medium-sized marine turtle with a reddish-brown carapace. The head is relatively small with a distinctive hawk-like beak. The adult hawksbill is commonly 2.5 feet in length and weighs between 95 to 165 pounds.

Hawksbill hatchlings live in a pelagic environment, specifically in the weedlines that accumulate at convergence zones. Juveniles will return to a coastal environment when their carapace reaches approximately 20-25 centimeters in length. Juveniles and adults will spend most of their time in their primary foraging habitat, coral reefs. The hawksbill feeds primarily on sponges.

Hawksbill turtle nesting occurs sometime between April and November. Nesting is nocturnal and occurs every 2 to 3 years, 4 to 5 times per season, approximately every 14 days. Preferred nesting habitat includes low and high energy beaches in tropical oceans. Nesting habitat is often shared with green sea turtles. Hawksbills can traverse beaches limited to other species of sea turtles with their ability to traverse fringe reefs. Hawksbills have a tolerance for a variety of nesting substrates and often build their nests under vegetation.

The USFWS lists the hawksbill sea turtle as endangered. The hawksbill is found in tropical and subtropical waters of the Atlantic, Pacific, and Indian Oceans. Hawksbills are typically associated with rocky areas and coral reefs in water less than 65 feet. Mexico is now considered the most important region for hawksbills in the Caribbean yielding 3,000 to 4,500 nests/year. The Hawksbill is an occasional visitor to the Texas coast (NMFS 1993). Hawksbill sea turtles' favored habitat is coral reefs and they are not known to occur within Galveston Bay (GBEP 2004).

Kemp's Ridley Sea Turtle (Lepidochelys kempii)

The Kemp's ridley sea turtle is considered the smallest sea turtle, with an olive-gray carapace and a triangular shaped head and a hooked beak. Adults can grow to about 2 feet in length and weigh up to 100 pounds. This turtle is a shallow water benthic feeder with a diet consisting primarily of shrimp, jellyfish, snails, sea stars, and swimming crabs.

Kemp's ridleys, similar to loggerhead sea turtles, occupy three ecosystems according to lifestage: terrestrial zone, neritic zone, and oceanic zone. The terrestrial zone is occupied briefly during nesting and hatching activities. Hatchlings move out to the oceanic zone for an average of 2 years. Juveniles and adults primarily occupy the neritic zone (nearshore marine environment).

Most nesting occurs on the eastern coast of Mexico, however a small number consistently nest at Padre Island National Seashore in Texas and various other locations along the Gulf and lower Atlantic coasts. Nesting occurs from May to July during daylight hours. Large numbers of females emerge for a synchronized nesting event referred to as "arribada". Arribadas are thought to be caused by female pheromone release, offshore winds, and/or lunar cycles. Females nest up to 4 times per season at intervals of 10 to 28 days. The preferred nesting beaches are adjacent to extensive swamps or large bodies of open water.

The Kemp's ridley sea turtle is listed as endangered by the USFWS. The Kemp's ridley turtles range includes the Gulf coasts of Mexico and the US, and the Atlantic coast of North America as far north as Nova Scotia and Newfoundland (NMFS 2010). Kemp's ridley sea turtles have been observed within Galveston Bay; they are known to utilize the area for seasonal foraging (GBEP 2004).

Leatherback Sea Turtle (Dermochelys coriacea)

The leatherback sea turtle is the largest sea turtle. The adult leatherback can get up to 8 feet in length and up to 2000 pounds. The turtle lacks a "normal" turtle shell and is covered by firm, rubbery skin that is approximately 4 inches thick. Coloration is predominantly black with varying degrees of pale spotting; including a notable pink spot on the dorsal surface of the head in adults. Their diet is primarily jellyfish and salp, but it is also known to feed on sea urchins, squid, crustaceans, tunicates, fish, blue-green algae, and floating seaweed.

Leatherbacks are highly migratory and the most pelagic of all sea turtles. Females prefer high energy, sandy beaches with vegetation immediately upslope and a beach sloped sufficiently so the crawl to dry sand is not too far. Preferred beaches have deep, unobstructed oceanic access on continental shorelines.

In the United States, nesting occurs from March to July. Females nest on average 6 times per season at 10 day intervals. Most leatherbacks return to their nesting beaches at 2 to 3- year intervals.

Distribution is worldwide in tropical and temperate waters of the Atlantic, Pacific, and Indian Oceans. The leatherback is also found in small numbers as far north as British Columbia, Newfoundland, and the British Isles and as far south as Australia and Argentina. The leatherback has a small presence in the US with most nesting occurring on the Florida east coast, Sandy Point, US Virgin Islands, and Puerto Rico (NMFS 1992).

The leatherback sea turtle is listed as endangered by the USFWS. Leatherback sea turtles are most commonly found in deep water habitats and are not known to nest in Galveston Bay (USFWS 2012c). Leatherback sea turtles would not be expected to utilize habitat in the vicinity of the Project.

Loggerhead Sea Turtle (Caretta caretta)

The loggerhead sea turtle is a reddish-brown marine turtle characterized by a large head with blunt jaws. Adults can be up to 500 pounds and 4 feet in length. Adult loggerheads feed on jellyfish, floating egg clusters, flying fishes, mollusks, crustaceans, and other marine animals.

Loggerheads occupy three ecosystems according to lifestage: terrestrial zone, neritic zone, and oceanic zone. The terrestrial zone is occupied briefly during nesting and hatching activities. Hatchlings move out to the oceanic zone until their carapace reaches approximately 40-60 centimeters in length. Juveniles and adults primarily occupy the neritic zone (nearshore marine environment).

The nesting season in the US is May through August. Nesting occurs every 2 to 3 years and is mostly nocturnal. Females can nest up to 5 times per season at intervals of approximately 14 days. Hatchling emergence is mostly nocturnal. Loggerheads nest on oceanic beaches between the high tide line and dune fronts and occasionally on estuarine shorelines with suitable sand. Females prefer narrow, steeply sloped, coarse-grained beaches.

The loggerhead sea turtle is listed as threatened by the USFWS. Distribution of the loggerhead includes the temperate and tropical regions of the Atlantic, Pacific, and Indian Oceans. Although the majority (~80%) of the US nesting activity occurs in south Florida, loggerheads nest along the Gulf and Atlantic coastlines from Texas to Virginia. Loggerheads are considered an occasional visitor to Texas (NMFS 2008). Loggerhead sea turtles have been observed within Galveston Bay. These sea turtles utilize the area for seasonal foraging (GBEP 2004).

Sprague's Pipit (Anthus spragueii)

Sprague's Pipit is a small bird endemic to North American grasslands. The species has cryptic plumage with buffy brown underparts and a broad blackish streaking, yellow to pale brown legs, and a dark upper mandible that contrasts with a pale lower mandible. This species is insectivorous but occasionally consumes seeds during migration and through the winter.

Sprague's pipit prefers well-drained areas of open grasslands with native grasses reaching intermediate height and thickness. Grasslands are required for wintering and breeding grounds. The species is

strongly tied to the native upland prairie and is locally common in coastal grasslands, uncommon to rare further west; it is sensitive to patch size and avoids edges. Sprague's pipits require relatively large patches of prairie for nesting (estimated at between 170-776 acres) and they avoid non-prairie features in the landscape (USFWS 2010).

Sprague's pipits breed in the native prairie of the Great Plains including southern portions of Canada. Males are territorial and have the longest flight display of all avian species lasting up to 3 hours. Monogamous pair bonds are made from late April to mid-May. Nests are made from dried grasses. Females typically produce 5 eggs which fledge in approximately 25 days.

The Sprague's pipit suffers from loss of prairies as a consequence of cultivation, overgrazing, and invasion of exotic plant species. It is also parasitized by Brown-headed cowbirds (*Molothrus ater*).The pipit winters in Texas, Oklahoma, Arkansas, Louisiana, Mississippi, Arizona, and northern Mexico from mid-September to early April. The Sprague's pipit is listed as a candidate species, USFWS describes its status as warranting protection from the ESA, but is precluded by the need to address higher priority listing actions.

Smalltooth Sawfish (Pristis pectinata)

The smalltooth sawfish can grow to 20 feet in length. The long, flat snout lined with pairs of teeth is a defining characteristic. Smalltooth sawfish feed primarily on fish and occasionally on crustaceans.

The smalltooth sawfish typically inhabits sheltered bays and shallow banks of estuaries (NOAA 2011). Lagoons, bays, mangroves, and shallow reefs are suitable habitat types. Habitat can include a wide range of salinity, temperature, and depth. Juveniles are found in muddy or sandy bottoms near the shoreline. The smalltooth sawfish reaches maturity after approximately 10 years. Females are ovoviviparous and produce litters of 17 pups.

The smalltooth sawfish is federally listed as endangered due to habitat conversion and bycatch. It is extirpated from large areas of its range. The historical distribution in the United States extended along the shores from Texas to New York (NOAA 2011).

Louisiana Black Bear (Ursus americanus luteolus)

The Louisiana black bear can reach 7 feet in height. Typically, males can weigh up to 400 pounds, and females weigh up to 200 pounds. They have long black hair and a short tail. Their muzzle is yellowish-brown with an occasional white patch on the lower throat and chest. They have a distinguishable long, narrow cranium and proportionally large molar teeth. Juveniles and adults are omnivorous.

Louisiana black bears occupy high-quality, productive bottomland forests. Important habitat characteristics include escape cover, travel corridors, den sites, and minimal human disturbance. During the winter, hollow trees, brush piles, and ground nests are utilized as den sites.

Females reach sexual maturity around 3-5 years. Louisiana black bears give birth to 1-3 cubs in winter. Cubs have their first emergence from the den in spring, and they den with the mother through their first winter.

Louisiana black bears are federally listed as threatened and have been extirpated throughout much of their range. Louisiana river basins are designated critical habitat. Human encroachment, habitat fragmentation, and hunting have contributed to the population decline.

Red Wolf (Canis rufus)

The red wolf can reach 65 inches in length including the tail. Coloration is typically brown with some buff coloration. The tail is black-tipped. This species can weigh between 45-80 pounds and are primarily carnivorous.

The red wolf occupies wetlands, pine forests, upland shrubs, and crop lands. Wooded areas are required for denning and pup rearing. Hunting corridors extend along edge interface habitat. A pack consists of 7 animals with an alpha pair. A specific home range is actively defended.

The red wolf becomes sexually mature after 2 years. Breeding season occurs from January to March. An alpha female will normally produce a litter size of 5 pups once a year. First emergence from the den occurs when the pups are at least 4 weeks old and begin to hunt after 12 weeks. Hybridization has occurred with coyote (*Canis latrans*).

The red wolf is federally listed as endangered and has been extirpated from the historical range in the south central Texas area extending to Florida, and north to south central Maine. The current range extends from North Carolina to Tennessee and along the south eastern states. Predator control, habitat fragmentation, and loss of habitat have critically suppressed populations of red wolves.

2.2.3 Other Protected Species and Habitat

Designated Critical Habitat

The nearest critical habitat designated by the USFWS is on the Bolivar Peninsula and Galveston Island, approximately 30 miles south-southeast of the Action Area. These shoreline areas are designated critical habitat for piping plovers (USFWS 2012d).

Bald and Golden Eagles

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (BGEPA) of 1940, which is regulated by the USFWS. The BGEPA prohibits the following: ‘‘take, possess, sell, purchase, barter, offer to sell, purchase, or barter, transport, export or import, at any time or any manner, any Bald Eagle (or Golden Eagle), alive or dead, or any part, nest, or egg thereof.’’ “Take” is defined as ‘‘pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, or molest or disturb.’’ ‘‘Disturb’’ is defined as: ‘‘to agitate or bother a Bald or Golden Eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.’’

Bald eagles are known to occur in quiet coastal areas, rivers, or lakeshores with large, tall trees. Man-made reservoirs provide excellent habitat. Bald eagles are opportunistic predators feeding primarily on fish, but also eat a variety of waterfowl and other birds, small mammals, and turtles. Carrion is also common in the diet, particularly in younger birds.

Male bald eagles generally measure 3 feet from head to tail, weigh 7 to 10 pounds, and have a wingspan of 6 to 7 feet. Females are larger, some reaching 14 pounds, with a wingspan of up to 8 feet. Adults have a white head, neck, and tail, and a large yellow bill. Bald eagles are believed to live up to 30 years or more in the wild. The typical bald eagle nest is constructed of large sticks, with softer materials such as leaves, grass, and Spanish moss used as nest lining. Nests are typically used for a number of years, with the birds adding nest material every year. Bald eagle nests are often very large, measuring up to 6 feet in width and weighing hundreds of pounds. Eagles often have one or more alternative nests within their territories. Young eagles can fly in 11 to 12 weeks, but the parents continue to feed them for 4 to 6 more weeks while they learn to hunt. In Texas, bald eagles nest from October to July.

Since 1981, the TPWD has conducted extensive aerial surveys to monitor bald eagle nesting activity. The 2003 survey identified 117 active nests, which fledged at least 144 young. This compares with only 7 known nest sites in 1971. Midwinter bald eagle counts coordinated by TPWD and conducted by birding enthusiasts throughout the state reported 325 eagles in 2002. From 1986-1989, midwinter counts averaged less than 15 bald eagles per survey site. Since 1990, the average number of eagles per survey site has increased to 18. Bald eagle populations have increased to the extent that they have been delisted from the Federal Endangered Species List.

Golden eagles (*Aquila chrysaetos*) are found mostly in the western half of the U.S., they are rare in eastern states, and their range does not include the Texas Gulf coast (The Cornell Lab of Ornithology 2012). Golden eagles do not have the potential to occur within the Action Area.

2.2.4 Texas Natural Diversity Database Results

A records review of the Texas Natural Diversity Database (TNDD) was completed for the proposed Project site and surrounding areas by the TPWD on June 18, 2012. No elements of occurrence (EO) are located within the Action Area, which means that TNDD has no records of any observations of state or federally-listed species in the vicinity of the Action Area. The EO closest to the Action Area is located approximately 2.5 miles west of the Action Area and represents an observation of threeflower broomweed (*Thurovia triflora*) last observed in 1897. No additional federally-protected species are recorded within the vicinity of the Action Area. EO data are demonstrated in Figure 7.

2.2.5 Protected Species Evaluated

Protected species evaluated in this document include federally-listed threatened, endangered, and candidate species as well as bald and golden eagles. Table 5 summarizes all the species considered in this BA.

Table 5 – Federally Protected Species Evaluated in the BA

Protected Species- Common Name	**Classification- Reason for Evaluation**
Piping Plover	Listed by USFWS as Threatened in Chambers County.
Brown Pelican	Listed by USFWS as Delisted Due to Recovery in Chambers County.
Green Sea Turtle	Listed by USFWS as Threatened in Chambers County.

Protected Species- Common Name	Classification- Reason for Evaluation
Hawksbill Sea Turtle	Listed by USFWS as Endangered in Chambers County.
Kemp's Ridley Sea Turtle	Listed by USFWS as Endangered in Chambers County.
Leatherback Sea Turtle	Listed by USFWS as Endangered in Chambers County.
Loggerhead Sea Turtle	Listed by USFWS as Threatened in Chambers County.
Sprague's Pipit	Listed by TPWD as a Candidate species in Chambers County
Smalltooth Sawfish	Listed by TPWD as Endangered in Chambers County
Louisiana Black Bear	Listed by TPWD as Threatened in Chambers County
Red Wolf	Listed by TPWD as Endangered in Chambers County
Bald and Golden Eagles	Protected from taking by BGEPA.

3.0 Protected Species Habitat Evaluation and Analysis

URS completed a protected species habitat evaluation on June 13, 2012 to determine if habitat within the Action Area was likely to support any of the federally-protected species potentially occurring in Chambers County. The Action Area is described in Section 5.1 and shown in Figure 2. The habitats observed are described below and photographs are provided in Appendix A.

3.1 Habitats Observed

Plant community types within the Action Area include pine-yaupon forest, Chinese tallow forest, mowed uplands, and wetlands. One PSS wetland is present to the southwest of the Action Area, but this area will be avoided during construction and operation of the facility, so no impacts to this habitat are anticipated. A significant portion of these habitats have historically been constructed, manipulated, or otherwise impacted by industrial activities. A portion of the Action Area has previously been cleared for construction of the adjacent Lone Star fractionator, these areas are in industrial use and do not provide suitable habitat, and are not included in this evaluation. Plant community types observed within the Action Area are described below.

Pine-Yaupon Forest - This classification is an assemblage of woody plants greater than 20 feet tall, dominated by loblolly pine (*Pinus taeda*) and hackberry (*Celtis laevigata*). The understory is dominated by yaupon holly (*Ilex vomitoria*). Additional species observed within this plant community include: Chinese tallow (*Triadica sebifera*), red maple (*Acer rubrum*), goldenrod (*Solidago canadensis* and *S. sempervirens*) and southern dewberry (*Rubus trivialis*). Pine-yaupon forest is found within upland areas on the northern portion of the Action Area. The quality of this habitat is moderate, it has significant cover of invasive species, is not a mature plant community, and is within a fragmented and modified landscape.

Chinese Tallow Forest - This classification is an assemblage of woody plants greater than 20 feet tall, dominated by Chinese tallow, red maple, hackberry, and green ash (*Fraxinus pennsylvanica*). The understory is dominated by Chinese tallow, yaupon holly, and false willow (*Baccharis halimifolia*). Chinese tallow forest communities were found throughout the Action Area. Portions of the northern tract of the Action Area contained Pine-Yaupon/Chinese Tallow transitional communities, which had more characteristics of Chinese tallow forest. Additional species observed within this plant community include: goldenrod, southern dewberry, peppervine (*Ampelopsis arborea*), Cherokee sedge (*Carex cherokeensis*), Alabama supplejack (*Berchemia scandens*), and dwarf palmetto (*Sabal minor*). This plant community is moderate to low quality and appears to be an early successional forest that is dominated by invasive species.

Mowed Uplands - The southern portion of the northern tract, and all of the southern tract of the Action Area are maintained free of woody vegetation by mowing. These areas are dominated by grasses and other herbaceous upland species. Species observed in these areas include: bahiagrass (*Paspalum notatum*), Vasey's grass (*Paspalum urvellei*), goldenrod, annual ragweed (*Ambrosia artemisiifolia*), St. Augustine grass (*Stenotaphrum secundatum*), and Johnsongrass (*Sorghum halepense*). The quality of this habitat ranges from low to moderate because of frequent and significant disturbance.

Wetlands - Wetlands were classified using the Cowardin classification system (Cowardin, et al. 1979). According to this classification system, PFO and PSS wetlands were identified (Figure 8). PFO wetlands are defined as those wetlands dominated by woody vegetation greater than 20 feet tall. This type of wetland community was found in the northern portion of the Action Area. These wetlands were commonly dominated by green ash and Chinese tallow with other trees and shrubs and typically contain less than 5 percent herbaceous vegetation. The quality of this habitat ranges from low to moderate. The PSS wetland had many standing dead trees, with manmade berms to the south and east and maintained corridors to the north and west. Impacts to the PSS wetland will be avoided during construction and operation of the facility.

4.0 Air Quality Assessment

The air quality analysis to demonstrate compliance with NAAQS, and PSD Increments was performed using EPA SCREEN 3 Dispersion Model. If the estimated concentration for a given pollutant and averaging period is less than the EPA-specified SIL, the Project is determined to have no significant impact on ambient air quality and no further analysis is required for that pollutant and averaging period. If the SIL is predicted to be exceeded for a given pollutant, further evaluation of the Project emissions combined with existing emission sources in the area is required to estimate total ambient concentrations. The evaluation must demonstrate that the total concentration, including an appropriate background, does not exceed the applicable NAAQS and PSD Increment.

4.1 Estimated Total Annual Emission Rate Overview

Lone Star completed detailed pollutant emission calculations for the Project in accordance with the Air Permit Amendment Application requirements. Estimated emission rates and descriptions of emission calculation methods can be found in Lone Star's TCEQ Standard Permit (Number 93813). The proposed Project involves adding a second fractionation train to the existing (currently under construction) Lone Star plant located adjacent to the Action Area (Figure 2). This proposed Project is considered a minor modification to the existing minor source under Houston-Galveston-Brazoria (HGB) "severe" ozone NNSR rules because the proposed emission rate increases from proposed Project of NO_X and VOC are each less than 25 tons per year (tpy). The proposed Project will make the combined Mont Belvieu gas plant a major source under the HGB NNSR rules for future expansion projects because sitewide potential-to-emit emissions of NO_X and VOC will be greater than the major source threshold of 25 tpy for each pollutant. A summary, provided by Lone Star, of the total estimated annual combined emission for PSD pollutants that were modeled for demonstration of NAAQS and to define the Action Area are provided in Table 6.

Table 6 - Emission Point Summary

Emission Point Name	Air Pollutant Name	Air Pollutant Emission Rate (Tons per year)
Thermal Oxidizer 1	CO	7.02
	NO_X	4.85
	PM	0.66
	SO_2	14.97
New Oil Heater 1	CO	44.43
	NO_X	11.83
	PM	8.81
	SO_2	0.78
Regenerator Heater 1	CO	7.57
	NO_X	2.01
	PM	1.50
	SO_2	0.13

Emission Point Name	Air Pollutant Name	Air Pollutant Emission Rate (Tons per year)
Thermal Oxidizer 2	CO	7.02
	NO_X	4.85
	PM	0.66
	SO_2	14.97
New Oil Heater 2	CO	44.43
	NO_X	11.83
	PM	8.81
	SO_2	0.78
Regenerator Heater 2	CO	7.57
	NO_X	2.01
	PM	1.50
	SO_2	0.13
Flare	CO	0.35
	NO_X	0.17
	SO_2	1.25
Total	**CO**	**118.39**
Total	**NO_X**	**37.55**
Total	**PM**	**21.94**
Total	**SO_2**	**33.01**

4.2 Pollutant Estimated Concentrations

Emissions from the proposed Project were modeled using EPA's SCREEN3 dispersion modeling software. SCREEN3 is a very conservative screening tool provided by EPA as a preliminary tool to assess impacts from pollutant emissions. AERMOD can be used if a more definitive estimate is required. SCREEN3 provides a maximum 1-hour concentration that can be used to estimate other averaging periods in the procedures set forth in *Screening Procedures for Estimating the Air Quality Impact of Stationary Sources Revised*, EPA 454/R-92-019, October 1992.

The maximum concentrations from each source were summed to provide a conservative estimate maximum impact beyond the site. The results of the modeling are provided in Table 7 along with the correlated averaging times associated with both the primary and secondary NAAQ Standards. Lead was not modeled as there are no lead emissions anticipated from this facility.

Table 7a – Maximum Predicted Concentrations

	Total Impacts ($\mu g/m^3$)			
	NO_X	**SO_2**	**CO**	**PM**
Site Modeling Impact Totals	6.3	9	14.28	1.92
1-Hour	6.3	9	14.28	
3- Hour		8.1		
8- Hour			10	

	Total Impacts (µg/m^3)			
	NO_X	**SO_2**	**CO**	**PM**
24- Hour		3.6		0.77
Annual	0.5	0.72		0.15

Table 7b. NAAQS (both primary and secondary) SIL

	NO_X	**SO_2**	**CO**	**PM_{10}**	**$PM_{2.5}$**
1- Hour	10	10	2000		
3- Hour		25			
8- Hour			500		
24- Hour		5		5	1.2
Annual	1	1			0.3

* Note: Ratio Techniques per EPA guidance documents for various NAAQS Periods: 1-Hour = modeling results; 3-Hour = modeling results x 0.9; 8-Hour = modeling results x 0.7; 24-Hour = modeling results x 0.4; Annual = modeling results x 0.08

The SIL is a level set by the EPA, below which modeled source impacts would be considered insignificant. The maximum calculated concentration value is the maximum ground level concentration predicted for each pollutant and averaging period resulting from this Project. If a maximum calculated concentration value is less than the SIL, the modeled source impacts are considered insignificant and are not considered to cause or contribute to a violation of a NAAQS or PSD Increment for that pollutant and averaging period. If a highest modeled concentration is greater than the SIL, additional analysis is required to demonstrate that the Project would not cause or contribute to a violation of the NAAQS or PSD Increment for that pollutant and averaging period.

All of the Project maximum calculated concentration values are less than the SIL, for both primary and secondary standards, in each category. Therefore, the source impacts are considered insignificant. Due to this predicted lack of significant impact, the source impacts are not expected to impact any federally-protected species. All air emissions will be generated from equipment located in the larger northern Action Area tract shown in Figure 2. The smaller southern tract of the Action Area is a parking and staging area that is not an emission generating source (Figure 2). Due to this predicted lack of significant impact, the source impacts are not expected to impact any federally-protected species.

5.0 Potential Effects of the Proposed Action

This section presents the results of the analysis of potential impacts to federally-protected species as a result of the proposed Project. This analysis is based on total emissions and concentration calculation data provided by Lone Star, field survey and background review data collected by URS, and literature review and research of potential effects of known pollutants on flora and fauna. The following impact sources are included in the analysis:

- Air Quality;
- Water Quality;
- Noise Pollution;
- Infrastructure-Related Disturbance;
- Human-Related Disturbance; and
- Federally-Protected Species and Habitat Effects.

5.1 Action Area

The emission calculations did not indicate any pollutant levels greater than the SIL, so an Action Area based on potential air quality impacts could not be defined beyond the geographic extent of the Project site itself. The Action Area is based on areas that would be directly impacted by construction, comprised of two areas totaling 81 acres shown in Figure 2. The Action Area also includes three air emission points within the existing adjacent fractionator that would be modified, a pipeline from the proposed Project to an existing flare within the existing fractionator facility, and the existing flare which will be an air emission point (Figure 2). This Action Area includes the entire Project site, including the southern tract that would be used for parking and staging. Plant community types within the Action Area include pine-yaupon forest, Chinese tallow forest, mowed uplands, and wetlands. The potential for each federally-protected species to occur in the Action Area is described in Section 5.7.1.

5.2 Potential Air Quality Effects

According to EPA's "A Screening Procedure for the Impacts of Air Pollution Sources on Plants, Soils, and Animals" (Smith and Levenson 1980), the data presented in Table 7 (Section 4.2) indicate the level, at or above which airborne pollutant concentrations are known to cause significant impacts on flora and fauna. Concentrations at, or in excess of, any of the screening concentrations would indicate that the source emission may have adverse impacts on plants or animals. Pollutant concentrations predicted to be less than or equal to the SILs are expected to have no significant impact on flora and fauna. None of the modeled pollutant concentrations would exceed the SILs; therefore, no significant direct impacts to species are anticipated from air pollution.

According to a publication focused on the effects of air pollution on biodiversity (Dudley and Stolton 1996), in general, air pollution has a greater impact on lower life forms than higher life forms. Lower life forms that would likely be the first to be impacted would include lichens, bryophytes, fungi, and soft-bodied aquatic invertebrates. Impacts to adult higher life forms are typically the result of secondary impacts to the food chain and reproduction, with the exception of extreme exposure. Potential secondary impacts include acidification, changes in food or nutrient supply, or changes to biodiversity

and competition. In general, plant communities are less adaptable to changes in air pollution than animals. Animals typically have the ability to migrate away from unfavorable conditions. Lower order animals, such as amphibians and fish, are known to be impacted by acidification as a result of the subsequent release of metals into water.

5.2.1 Nitrogen

The Nature Conservancy and the Institute of Ecosystem Studies have published two documents that describe the known effects of airborne nitrogen and other airborne pollutants on various ecosystems in the eastern US (Lovett and Tear 2007, Lovett and Tear 2008). Airborne nitrogen dioxide is known to be converted into acid particles or acid precipitation. Both forms are deposited onto soils, vegetation, and surface waters.

The potential effects of airborne nitrogen dioxide on terrestrial ecosystems are generally long-term effects as opposed to short-term effects. Many soils are buffered against acid inputs and biodiversity changes are not immediately evident for vegetation species with a longer lifespan. The deposition of nitrogen can result in nitrate leaching, which can cause acidification of soils and surface waters as well as the release of aluminum, calcium, and magnesium (Lovett and Tear 2007). Arthropods with high-calcium needs are some of the animals inhabiting the soil that can be impacted by soil acidification. The release of aluminum into soil water from nitrate leaching can harm plant roots. The leaching of aluminum into surface waters can be toxic to aquatic plants, fish, and other aquatic organisms (Lovett and Tear 2008). The accumulation of nitrogen can impact plant species competition, thereby impacting plant species composition. Nitrogen accumulation can also lead to nitrogen saturation, which impacts microorganisms, plant production, and nitrogen cycling (Lovett and Tear 2007). Additional potential terrestrial ecosystem effects include reduced forest productivity and increased vulnerability to pests and pathogens (Lovett and Tear 2008).

The potential effects of airborne nitrogen dioxide on aquatic ecosystems include acidification and eutrophication. The effects of acidification on water quality, whether introduced by direct acid deposition or leaching from adjacent terrestrial ecosystems, include increased acidity, reduced acid neutralization capacity, hypoxia, and mobilization of aluminum (Lovett and Tear 2007). Stream and lake acidification can be chronic or episodic and both can be damaging. In general, larger aquatic ecosystems have a greater buffering capacity than smaller systems. Increased acidity can reduce dissolved organic carbon and increase light penetration and visibility through the water column. Increased light penetration can result in increased macrophyte and algal growth. Increased visibility can alter the predator-prey balance. Eutrophication is the over enrichment of nutrients into an aquatic system, which can result in excess algal growth. The decomposition of the excess algae can result in a decrease in dissolved oxygen, which can be harmful to fish and other aquatic organisms. Increased nitrogen in wetlands often results in increased plant growth (Lovett and Tear 2008). Potential impacts to federally-listed species are discussed in Section 5.7.

5.2.2 Particulate Matter

Particulate matter (PM) is not a single pollutant, but a heterogeneous mixture of particles differing in size, origin, and chemical composition. Since vegetation and other ecosystem components are affected

more by particulate chemistry than size fraction, exposure to a given mass concentration of airborne PM may lead to widely differing plant or ecosystem responses, depending on the particular mix of deposited particles. Though the chemical constitution of individual particles can be strongly correlated with size, the relationship between particle size and particle composition can also be quite complex, making it difficult in most cases to use particle size as a surrogate for chemistry. PM size classes do not necessarily have specific differential relevance for vegetation or ecosystem effects (Whitby, 1978; EPA, 1996). Nitrates and sulfates are the PM constituents of greatest and most widespread environmental significance. Other components of PM, such as dust, trace metals, and organics can at high levels affect plants and other organisms. Particulate nitrates and sulfates, either individually, in combination, and/or as contributors to total reactive nitrogen deposition and total deposition of acidifying compounds, can affect sensitive ecosystem components and essential ecological attributes, which in turn, affect overall ecosystem structure and function (EPA 2005).

PM levels in the U.S. "have the potential to alter ecosystem structure and function in ways that may reduce their ability to meet societal needs" (EPA 2005). Currently, however, fundamental areas of uncertainty preclude establishing predictable relationships between ambient concentrations of PM and associated ecosystem effects. One source of uncertainty hampering the characterization of such relationships is the extreme complexity and variability that exist in estimating particle deposition rates. Since it is difficult to predict the rate of PM deposition, and thus, the PM contribution to total deposition at a given site, it is difficult to predict the ambient concentration of PM that would likely lead to the observed adverse effects within any particular ecosystem (EPA 2005).

The following effects have been linked with chronic additions of reactive nitrogen (a component of PM) and its accumulation in ecosystems:

- Productivity increases in forests and grasslands, followed by decreases in productivity and possible decreases in biodiversity in many natural habitats wherever atmospheric reactive nitrogen deposition increases significantly and critical thresholds are exceeded;
- Acidification and loss of biodiversity in lakes and streams in many regions, especially in conjunction with sulfate deposition; and
- Eutrophication, hypoxia, loss of biodiversity, and habitat degradation in coastal ecosystems (EPA 2005).

The U.S. EPA Criteria Document provides a comprehensive review of PM toxicity (EPA 2004). Potential direct air-to-leaf effects of PM on vegetation to some extent depend upon particle size and composition, although well-defined dose-response curves observed for gaseous phytotoxins (e.g., ozone and sulfur dioxide) have not generally been observed for PM. A notable exception has been adverse effects on foliation observed in the vicinity of cement production facilities, for which particulate emissions are highly caustic. There are no federally-listed plant species with the potential to occur in Chambers County, based on lists provided by USFWS and TPWD.

5.3 Potential Water Quality Effects

5.3.1 Wastewater

Wastewater that is generated on site will be discharged subject to effluent limitations set in a NPDES Permit, which is currently under review by EPA. The wastewater outfall discharges into a drainage ditch, which flows into a tributary of Cedar Bayou (Figure 2); thence into Cedar Bayou Tidal Segment 0901.

The concentration of chlorine is expected to be reduced prior to discharge through the use of detention ponds. After breakdown in the detention ponds, the chlorine concentrations will be approximately 0.00 mg/L, which would not exceed permit levels or be expected to cause a change in pH levels or adversely impact any other water quality criteria or aquatic species. The EPA National Recommended Water Quality Criteria for acute impacts is 0.01 mg/L and the chronic freshwater criterion is 0.02 mg/L (EPA 2012).

Concentrations of the other two regulated items in the NPDES permit do not have specified National Recommended Water Quality Criteria (total suspended solids [TSS] and oil and grease). High levels of TSS could potentially block sunlight from submerged vegetation, lower dissolved oxygen levels, increase temperature, and increase concentrations of bacteria within the affected water body. High levels of oil and grease can cause lethal effects to aquatic life and has the potential to accumulate in masses when cooled in water.

A Houston-Galveston Area Council (HGAC) surface water monitoring station (Station 11117) is located on Cedar Bayou less than one mile downstream from the point at which the effluent would enter the Bayou, after flowing through a ditch and an unnamed tributary as described above. The HGAC Basin Summary Report (HGAC 2011) indicates that during the period of sampling (October 2007 to April 2010), the maximum TSS concentration was 336 mg/L and the mean value was 61 mg/L. These values are greater than the predicted effluent concentrations of a maximum of 100 mg/L and average daily value of 30 mg/L. Therefore, no impacts from TSS are anticipated at Cedar Bayou.

Concentrations of oil and grease are not monitored in Cedar Bayou. The USFWS's Biological Opinion for Recommended Water Quality for Federally Listed Species in Texas (USFWS 2006) does not establish a criteria for petroleum hydrocarbons such as oil and grease, but states that the Texas Surface Water Quality Standards requires that "surface waters must be maintained such that oil, grease, or related residue cannot produce a visible film of oil or globules of grease on the surface or coat the banks or bottoms of the watercourse; or cause toxicity to man, aquatic life, or terrestrial life." The NPDES permit for the Project states that the effluent will meet the above standard. Therefore, no impacts from oil and grease are anticipated.

EPA Region 6 issued a Statement of Basis for NPDES Permit No. TX0140082 for the proposed Project on July 23, 2012. The determination of this document regarding endangered species is:

> EPA is unaware, at this time, of any service concerns regarding this discharge and believes the limitations proposed in this permit are adequate to protect the listed species for Chambers County.

Based on information described above, EPA Region 6 has determined that discharges proposed to be authorized by the proposed permit will have no effect on the listed species in Chambers County.

The standard reopener clause in the permit will allow EPA to reopen the permit and impose additional limitations if it is determined that changes in species or knowledge of the discharge would require different permit conditions.

As discussed in Section 5.7, federally-protected species are not expected to occur within or near the Action Area, including the drainage ditch and tributary of Cedar Bayou that receive wastewater from the Project. No other pollutants will be added to the clean water supplied to the fractionator from the CWA. Therefore, the outfall from the Project site is not anticipated to affect plant, fish, or wildlife species.

Lone Star will comply with the conditions of the EPA Industrial Wastewater Permit for effluent characteristics and self-monitoring requirements. An Oil and Hazardous Materials Spill Prevention, Control, and Countermeasures Plan and a Storm Water Pollution Prevention Plan will be utilized during construction, operations, and maintenance of the facility. During construction, Best Management Practices will be utilized in accordance with Section 401 of the Clean Water Act Chapter 279 of the Texas Water Code and as prescribed in the Lone Star Storm Water Pollution Prevention Plan.

5.3.2 Surface Water

Raw water is supplied to the Project by the CWA, and potable water is supplied by the City of Mont Belvieu. Lone Star estimated the volume of water required by the facility in Section 1.1.4. The CWA is designed to provide water to industrial facilities in the area; therefore, no impacts are anticipated from this water use. Canals were constructed to transport the water used by the CWA that are hydrologically separated from adjacent habitat. Water levels in the canals are maintained by CWA, and use of water would have no impact to any potential habitat they could provide. The only surface waters present on the site are drainage features along existing roads. The facility drainage system would replace the function of the existing drainage features. Potential impacts to wetlands from construction of the Project would be mitigated as part of the USACE Individual Permit under Section 404 of the Clean Water Act (Figure 8; Permit number SWG-2010-00876).

The potential for airborne NO_2 to directly alter the pH of surface waters was also considered. Given the low concentration of airborne pollutant and a lack of nearby surface waters, it is reasonable to assume the emission resulting from the Project will not affect surface water pH. Any potential pH impact would be a rare and short-term event. Potential direct and short-term effects, resulting from the NO_2 source emission, are not expected. Therefore, the protected species and their habitats with the potential to occur within the vicinity of the Action Area will not likely be directly impacted by the proposed Project.

Based on the background research described above in Section 5.2, the potential effects on aquatic habitats from NO_2 emissions include indirect, long-term effects, such as acidification or eutrophication. Acidification can be caused by direct acid deposition or leaching from adjacent terrestrial systems. Eutrophication is caused by the over enrichment of nutrients, such as nitrogen, into a system. Based on evidence provided above, acidification, resulting from deposition or leaching, is not likely to occur as a

result of the proposed Project. If acidification is not likely to occur as a result of the proposed Project, it is reasonable to assume the subsequent eutrophication will not occur.

PM can also provide reactive nitrogen to the ecosystem, which would have impacts similar to NO_2, as described above. Alterations to pH of surface water, acidification, and eutrophication as a result of PM emissions would be expected to be similar to the effects of NO_2, as described above. The low concentration of PM and lack of nearby surface water would not be expected to cause changes in pH or eutrophication that would adversely impact protected species and their habitats.

Since it has been determined that the potential indirect effects are unlikely to occur as a result of the proposed Project, any protected species and their habitats will not likely be indirectly impacted by the proposed Project.

As described in Section 2.1.8, the segment of Cedar Bayou near the Action Area is listed on the most recently completed (2008) Texas Water Quality Inventory and 303(d) List of impaired waterbodies for impaired macrobenthic community. The downstream (tidal) segment of Cedar Bayou is listed on both the 2008 and Draft 2010 Texas 303(d) Lists for bacteria, dioxin in edible tissue, and PCBs in edible tissue (TCEQ 2011). As described in Section 5.3.1, wastewater from the Project would not be expected to exceed any National Recommended Water Quality Criteria, and total suspended solids are expected to have lower concentrations in the effluent than baseline conditions in Cedar Bayou; therefore, no significant impact to the macrobenthic community of the nearby segment of Cedar Bayou or bacteria in the downstream segment is anticipated. The wastewater is also not expected to contain dioxin or PCBs.

5.4 Noise Effects

The adjacent properties to the Action Area are existing industrial facilities. The noise produced by the proposed Project would be similar to the pre-existing conditions on adjacent properties. A noise survey will be conducted following construction to determine areas where hearing protection will be required per OSHA regulations. No noise effects to wildlife are expected as a result of construction or operations of the Project.

5.5 Infrastructure-Related Effects

The proposed Project would involve clearing the approximately 81-acre site of vegetation, stripping most of the organics, establishing a minimum site grade to facilitate drainage using any excess soils and additional imported material, constructing foundations, installing equipment, constructing roadways, and sowing grass seed in non-process areas. These activities would permanently remove any existing habitat within the Action Area. The potential for federally-protected species to occur within the Action Area is discussed in Section 5.7.

5.6 Human Activity Effects

The Project would substantially increase the level of human activity within the Action Area. This increased activity would be due to the construction of the Project described in Section 5.5. The adjacent properties to the proposed Project are existing industrial facilities which have similar levels of human activity. Access to the Project site would be from FM 1942, which serves the adjacent existing industrial

facilities, so utilization would be similar to existing conditions. No effects to threatened and endangered species are expected as a result of the increase in human activity associated with the Project.

5.7 Potential Impacts to Federally-Protected Species

ESA consultations with USFWS and TPWD were conducted by the USACE as part of the Section 404 of the Clean Water Act permitting process (USACE permit SWG-2010-00876). No potential impacts to federally-listed threatened or endangered species were identified during this consultation, and the Section 404 of the Clean Water Act permit has been issued for the Project.

Calculations of pollutant emissions provided by Lone Star indicate that no significant levels of any criteria pollutant will be produced by the Project. Indirect effects resulting from emissions, such as acidification and eutrophication, are also therefore unlikely to occur. Protected species and their habitats will not likely be impacted.

As described in Section 5.3.1 wastewater is not expected to exceed EPA National Recommended Water Quality Criteria, total suspended solids are expected to have lower concentrations in the effluent than baseline conditions in Cedar Bayou, and oil and grease will comply with Texas Surface Water Quality Standards. No other pollutants will be added to the water supplied to the fractionator from the CWA. Therefore, the outfall from the Project site is not anticipated to directly or indirectly affect any federally-protected species or their habitat.

5.7.1 Federally-Listed Species

Brown Pelican and Piping Plover

Brown pelican habitat includes coastal areas and small isolated coastal islands. Piping plovers live on sandy beaches and lakeshores. The Action Area is approximately 10 miles from the Galveston Bay estuary and 30 miles from the Gulf of Mexico. No preferred habitat for either species occurs within or in the vicinity of the Action Area.

URS has not found any published studies or other information suggesting any direct or indirect effect of GHG emissions on the brown pelican or piping plover. There is no evidence that emissions from the Project's operations would have any direct or indirect effects on these species.

Due to the lack of suitable habitat in the vicinity of the Action Area and lack of evidence for impacts from air and water pollution that would be produced by the Project, the proposed action will have no effect on the brown pelican and piping plover.

Sea Turtles

Sea turtles require marine habitat. No habitat with the potential to support any of the five federally-listed sea turtle species (green, hawksbill, loggerhead, leatherback, and Kemp's ridley sea turtles) exists in or near the Action Area.

URS has not found any published studies or other information suggesting any direct or indirect effect of GHG emissions on sea turtles. There is no evidence that emissions from the Project's operations would have any direct or indirect effects on these species.

Due to the lack of suitable habitat in the vicinity of the Action Area and lack of evidence for impacts from air and water pollution that would be produced by the Project, the proposed action will have no effect on sea turtles.

Sprague's Pipit

Sprague's pipit requires habitat that includes large areas of native grassland prairies estimated at between 170-776 acres without buildings for breeding and wintering grounds (USFWS 2010). The developed industrial land use, forested areas, and regularly mowed maintained grassland in the vicinity of the Action Area does not provide suitable habitat for the Sprague's pipit. The areas of maintained grasses in the Action Area do not meet the size requirements for the bird's habitat, and are located near trees and buildings. There is no designated critical habitat for the Sprague's pipit located within or near the Action area, and the TNDD does not report any occurrences of the species near the Action Area.

URS has not found any published studies or other information suggesting any direct or indirect effect of GHG emissions on the Sprague's pipit. There is no evidence that emissions from the Project's operations would have any direct or indirect effects on these species.

Due to the lack of suitable habitat in the vicinity of the Action Area and lack of evidence for impacts from air and water pollution that would be produced by the Project, the proposed action will have no effect on the Sprague's pipit.

Smalltooth Sawfish

Smalltooth sawfish occupy shallow coastal water close to sandy or muddy bottoms and adults are thought to be migratory. The shallow portion of the Upper Galveston Bay could be used as sawfish habitat, although the Texas Parks and Wildlife Department has not documented the species in bay samples since 1984.

The Texas Natural Diversity Database (TNDD) does not identify any observations of smalltooth sawfish in the vicinity of the Action Area and no designated critical habitat is located within or near the Action Area. It is highly likely that the smalltooth sawfish does not occur within the Action Area or downstream of the site in Galveston Bay.

URS has not found any published studies or other information suggesting any direct or indirect effect of GHG emissions on the smalltooth sawfish. There is no evidence that emissions from the Project's operations would have any direct or indirect effects on these species.

Due to the likelihood that the species does not occur in the vicinity of the Action Area and lack of evidence for impacts from air and water pollution that would be produced by the Project, the proposed action will have no effect on the smalltooth sawfish.

Louisiana Black Bear

Preferred habitat of the Louisiana black bear includes large intact bottomland hardwood forests near brackish or freshwater marshes with long corridors. The Action Area does not include suitable habitat for this species as the only forests in the Action Area are identified as Pine-Yaupon and Chinese Tallow forests. These forests are small fragmented areas in an industrial landscape.

The species has been extirpated from the vicinity of the Project, and occurrence, even incidentally, is unlikely due to lack of suitable habitat. The TNDD does not identify any observations of Louisiana black bears in the vicinity of the Action Area, and no designated critical habitat is located the vicinity of the Action Area; therefore, the proposed action will have no effect on Louisiana black bears.

Red Wolf

Red wolves occupy a variety of habitats including wetlands, pine forests, upland shrub-scrub, and cropland, and they thrive in environments with high prey and low human populations. The Action Area and vicinity are developed industrial areas, rendering them unsuitable for this species. The TNDD does not identify any observations of red wolves in the vicinity of the Action Area and no designated critical habitat is located within or near the Action Area. The red wolf is extirpated from the region. Based on the lack of suitable habitat and extirpation from the region, the proposed action will have no effect on the red wolf.

5.7.2 Bald and Golden Eagles

Neither of these species, nor potentially suitable habitat for these species, was observed within the Action Area during field surveys. Bald eagles use tall trees in close proximity to large bodies of water for nesting and roosting. Aside from manmade brine ponds (which do not provide potential food sources and would not be used by bald eagles), there are no large, open bodies of water in the vicinity of the Project. The nearest large waterbody is Cedar Bayou, approximately 1.2 miles to the southwest. The forested portions of the Action Area are potential nesting habitats for bald eagles. However, these forested areas would be considered low quality nesting habitat, since they do not have tall mature trees that are favored for nest sites.

URS has not found any published studies or other information suggesting any direct or indirect effect of GHG emissions on the bald eagle or golden eagle. There is no evidence that emissions from the Project's operations would have any direct or indirect effects on these species.

No sources have been found to indicate bald or golden eagles have been observed in the Action Area. Golden eagles do not occur along the Texas Gulf Coast. The TNDD does not identify any observations of bald or golden eagles in the vicinity of the Action Area. Bald or golden eagles are highly unlikely to occur within the Action Area for this Project.

Bald or golden eagles will not be directly impacted by construction activities associated with the Project, noise pollution, or human disturbance. No information indicates that GHG emissions would directly or indirectly impact these species. Therefore, bald or golden eagles would not likely be impacted by indirect effects resulting from the Project. The take of bald or golden eagles is not anticipated as a result of this Project.

6.0 Conclusions

This section is a summary of URS's recommended determination of effect for all federally-protected species, a description of any interdependent and interrelated actions, and a description of any anticipated cumulative effects resulting from the proposed Project.

Bald eagles have the potential to occur in the vicinity of the Project; however, there is no preferred nesting or foraging habitat within the Action Area. No take of bald eagles is anticipated. The brown pelican, piping plover, and Sprague's pipit do not have suitable habitat within the Action Area, and are unlikely to occur in the vicinity of the Project. The green sea turtle, hawksbill sea turtle, Kemp's ridley sea turtle, leatherback sea turtle, loggerhead sea turtle, and smalltooth sawfish are marine species and would not occur in the vicinity of the Project; these species are also not expected to be impacted indirectly, or through impacts to water quality. The Louisiana black bear, red wolf, and golden eagle are not found in the vicinity of the Action Area, and would not be impacted by the Project. The Action Area does not include any essential fish habitat or designated critical habitat for federally-listed threatened or endangered species, and the Texas Natural Diversity Database includes no elements of occurrence for any rare, threatened, or endangered species. Indirect effects resulting from emissions, such as acidification and eutrophication, are unlikely to occur; therefore, protected species and their habitats will not likely be impacted.

6.1 Determination of Effect

The recommended determinations of effect for all federally-protected species with the potential to occur within habitat located within the Action Area are summarized in Table 8.

Table 8 – Recommended determination of effect

Protected Species	Recommended Determination of Effect
Piping Plover	No effect
Brown Pelican	No effect
Green Sea Turtle	No effect
Hawksbill Sea Turtle	No effect
Kemp's Ridley Sea Turtle	No effect
Leatherback Sea Turtle	No effect
Loggerhead Sea Turtle	No effect
Sprague's Pipit	No effect
Smalltooth Sawfish	No effect
Louisiana Black Bear	No effect
Red Wolf	No effect
Bald and Golden Eagles	No take anticipated

6.2 Interdependent and Interrelated Actions

A Lone Star fractionator is located adjacent to the Action Area (Figure 2). Construction of the existing fractionator reduced the total wetland functions of wildlife habitat, water quality improvement, and

floodwater storage capacity within the Project watershed. However, the wetlands present at the site are previously disturbed and not high quality. These wetland impacts are permitted under Section 404 of the Clean Water Act, and offsite compensatory mitigation for the lost functions has been provided. No impacts to threatened and endangered species were identified during ESA consultation with USFWS.

6.3 Cumulative Effects

Three brine ponds are proposed to be constructed by Lone Star approximately 0.75 mile west of the Project, in an adjacent sub-basin, which would fill three palustrine forested wetlands, and three other water features (USACE permit SWG-2010-00877). The Brine Ponds Project is located in a neighboring sub-basin of the larger Cedar Bayou watershed, and would reduce the total wetland functions provided by wetlands in the Cedar Bayou watershed. Compensation for these impacts will be provided based on an approved Mitigation Plan.

The Luce Bayou Interbasin Transfer Project would convey approximately 500 million gallons of water per day from the Trinity River Basin (located east of the Project basin) to Lake Houston (located west of the Project basin). This project would not be expected to impact the Cedar Bayou Watershed, since it would consist of a transfer of water from adjacent watersheds, but would not influence the hydrology of the Cedar Bayou Watershed.

The Cedar Bayou Navigation Channel Improvement Project would extend the authorized Cedar Bayou Navigation Channel by approximately 8 miles, to a point approximately 7 miles downstream of the Action Area. The Final Environmental Impact Statement was issued for the Cedar Bayou Navigation Channel Improvement Project in 2005, but it has not been constructed. This Navigation Channel Improvement Project would not be expected to impact the Project sub-basin because it is located downstream; however, it would impact Cedar Bayou. Mitigation for the proposed impacts to Cedar Bayou from the navigation channel improvement project include preservation of existing habitats through a conservation easement, restoration of Ijams Lake to a marsh habitat, and creation of a wildlife habitat conservation island. The mitigation areas proposed for the Cedar Bayou Navigation Channel Improvement Project are located near Cedar Bayou, downstream of the proposed Fractionator Project.

Based on past trends in development in the vicinity of the Project and current demand for additional capacity of hydrocarbon storage and related facilities near Mont Belvieu, industrial development in the area is expected to continue in the future. Any new proposed developments may have the potential to impact federally-protected species. This development is also expected to result in the installation of additional utility lines in the area. Additional utility lines could lead to further habitat fragmentation; however, existing corridors are often used. Any potential future projects in the Project area that would significantly impact jurisdictional wetlands and other waters of the United States would require an approved Mitigation Plan, which would provide compensation for the impacts to aquatic resources. Present and potential future development within the watershed would place stresses on the aquatic resources within the watershed. These stresses would be expected to be similar in nature to those caused by previous development within the watershed, which has created the existing fragmented and modified landscape in the vicinity of the proposed Project. The condition of the aquatic resources and

threatened and endangered species habitat would not be expected to change significantly from their current state as a result of potential future projects and compensatory mitigation.

6.4 Conservation Measures

It is Lone Star's and URS's opinion that the construction of the proposed Project will likely have no significant direct or indirect adverse impact on federally-protected species or their habitat.

Lone Star plans to utilize the BACT to control emissions and thus minimize impacts to the surrounding environment to the maximum extent practicable. The proposed emissions of each pollutant subject to PSD review are consistent with both the TCEQ BACT guidance and the most stringent limit in the RBLC and are considered to be the top level of control available for the facility.

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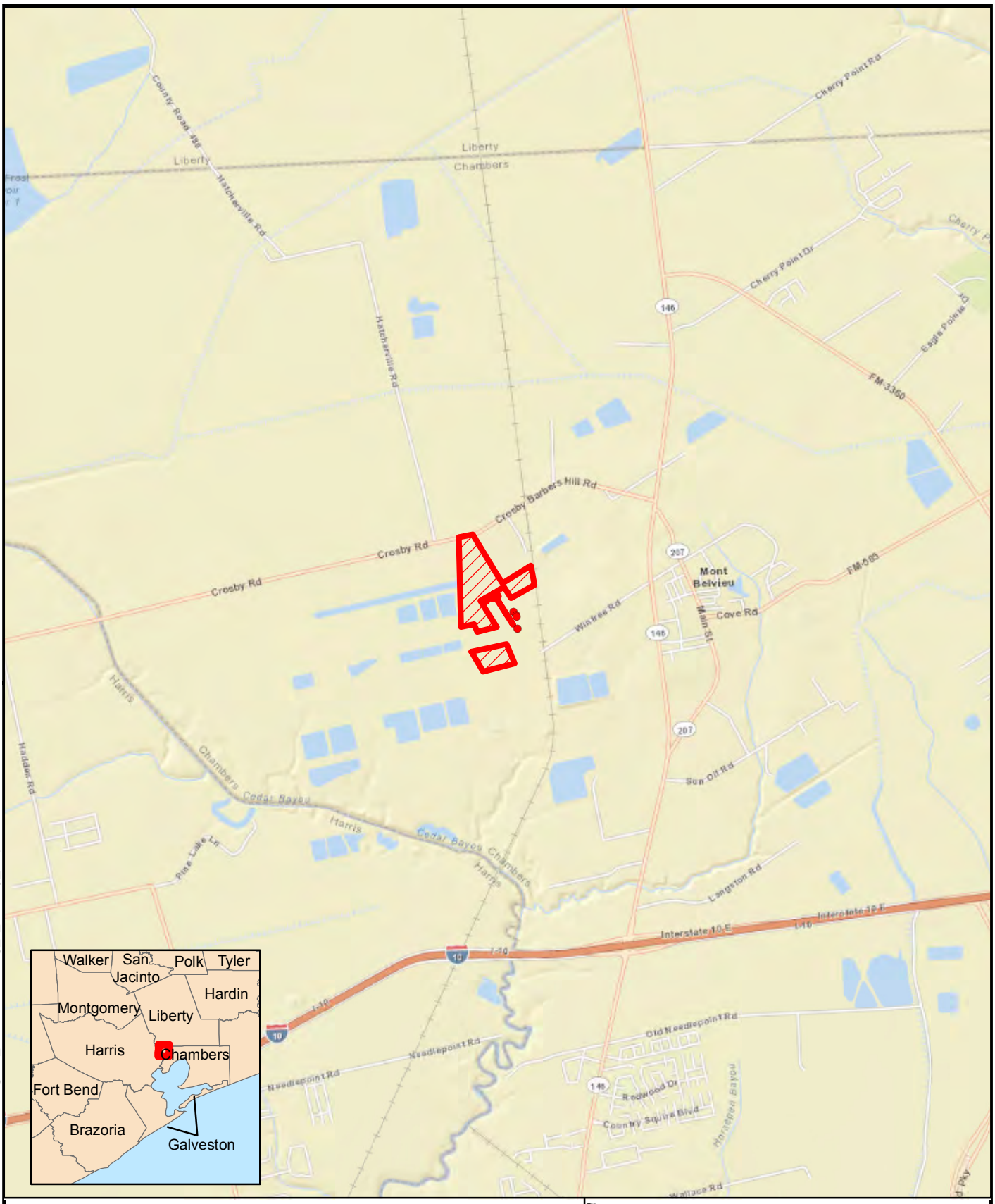
Figures



Legend

Project Site

N

0 2,000 4,000 Feet

Title:	**Vicinity Map**
Project:	**Biological Assessment Fractionator #2 Project Mont Belvieu, Texas**
Client:	**Lone Star NGL Mont Belvieu, L.P.**
Drawn by: **AM** / Date: **06/2012** / Project No.: **25014412**	**Figure 1**

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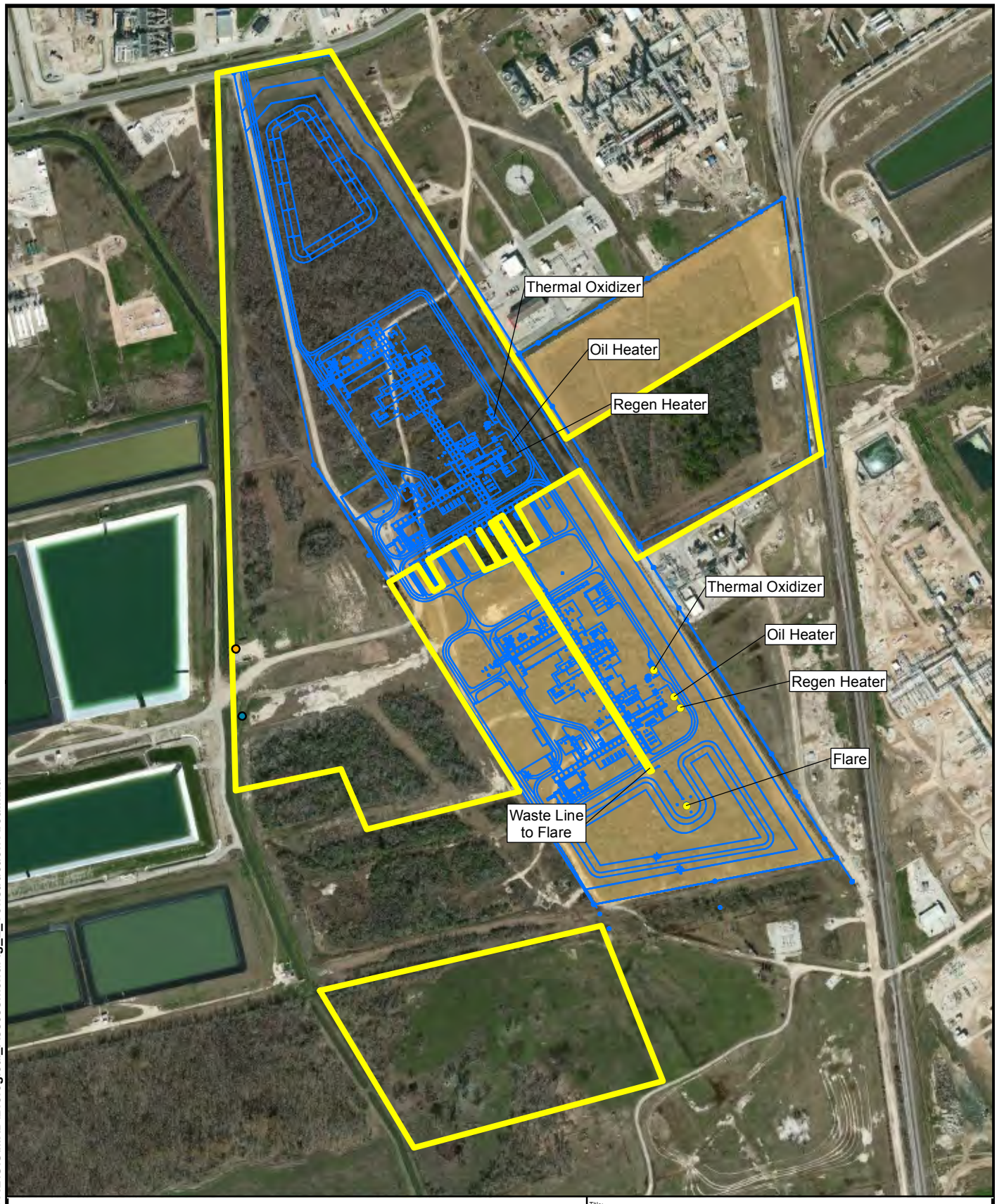

URS

- Existing CWA fresh water lift station
- Stormwater and Process Water Outfall
- Action Area
- Plot Plan
- Existing Fractionator 1

N

0 250 500 Feet

Title: **Site Layout Map**

Project: **Biological Assessment Fractionator #2 Project Mont Belvieu, Texas**

Client: **Lone Star NGL Mont Belvieu, L.P.**

Drawn by:	Date:	Project No.:	
NH	08/2012	25014412	Figure 2

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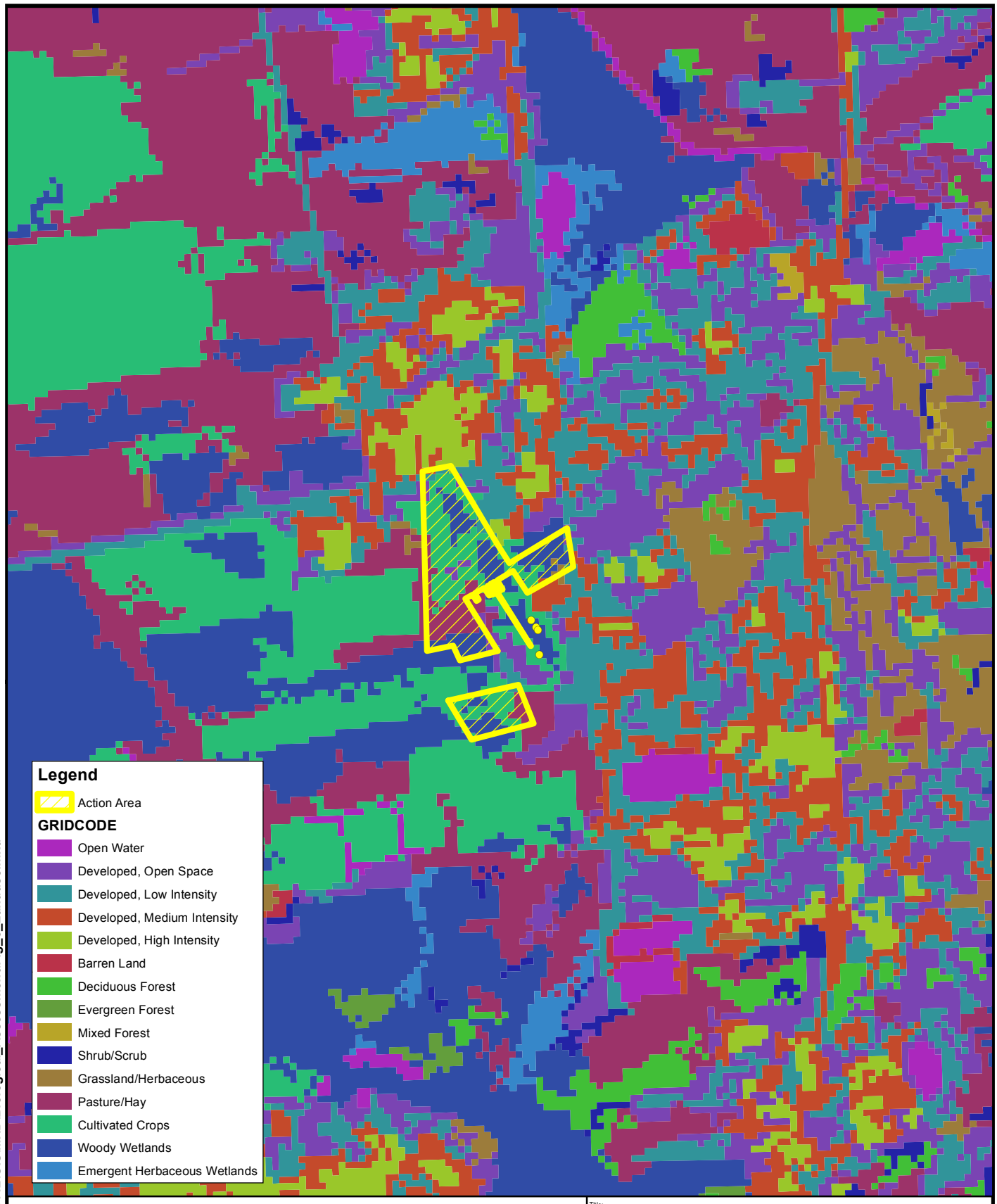

URS

N

0 1,000 2,000 Feet

Title: **Land Use Map**

Project: **Biological Assessment Fractionator #2 Project Mont Belvieu, Texas**

Client: **Lone Star NGL Mont Belvieu, L.P.**

Drawn by:	Date:	Project No.:	
AM	06/2012	25014412	Figure 3

Path: K:\ENG\WTR\25014412\GIS\MXD\Biological_Assessment\Fig_3_Landuse.mxd

Legend

Action Area

N

0 1,000 2,000 Feet

Title: **Topographic Map**			
Project: **Biological Assessment Fractionator #2 Project Mont Belvieu, Texas**			
Client: **Lone Star NGL Mont Belvieu, L.P.**			
Drawn by: **AM**	Date: **06/2012**	Project No.: **25014412**	**Figure 4**

Path: K:\ENG\WTR\25014412\GIS\MXD\Biological_Assessment\Fig_4_Topo.mxd

URS

Legend

- Action Area
- 100-Year Floodplain

N

0 1,000 2,000 Feet

Title:	**FEMA Floodplain Map**
Project:	**Biological Assessment Fractionator #2 Project Mont Belvieu, Texas**
Client:	**Lone Star NGL Mont Belvieu, L.P.**

Drawn by:	Date:	Project No.:	
AM	**8/15/2012**	**25014412**	**Figure 5**

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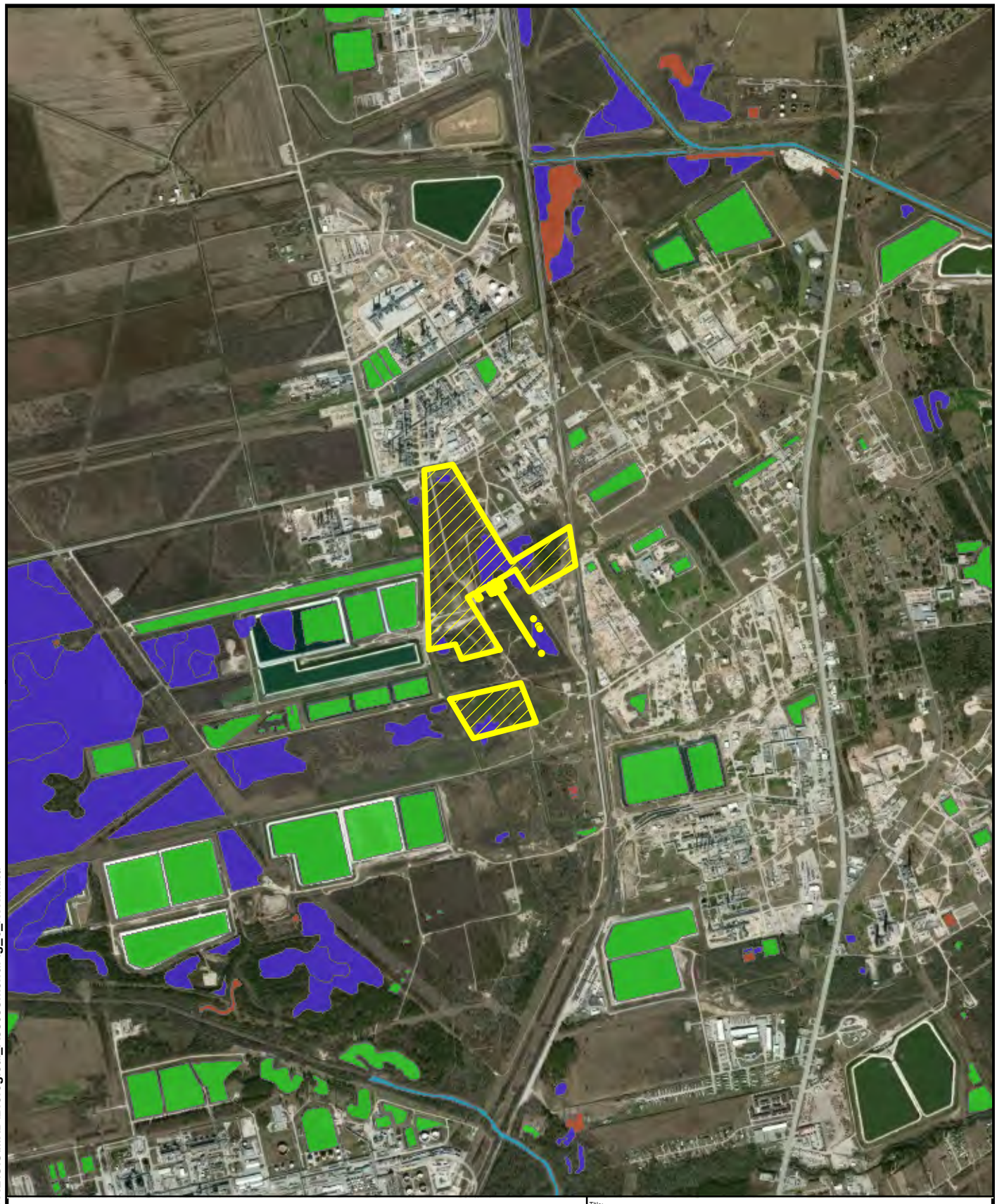


Legend

- Action Area
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine

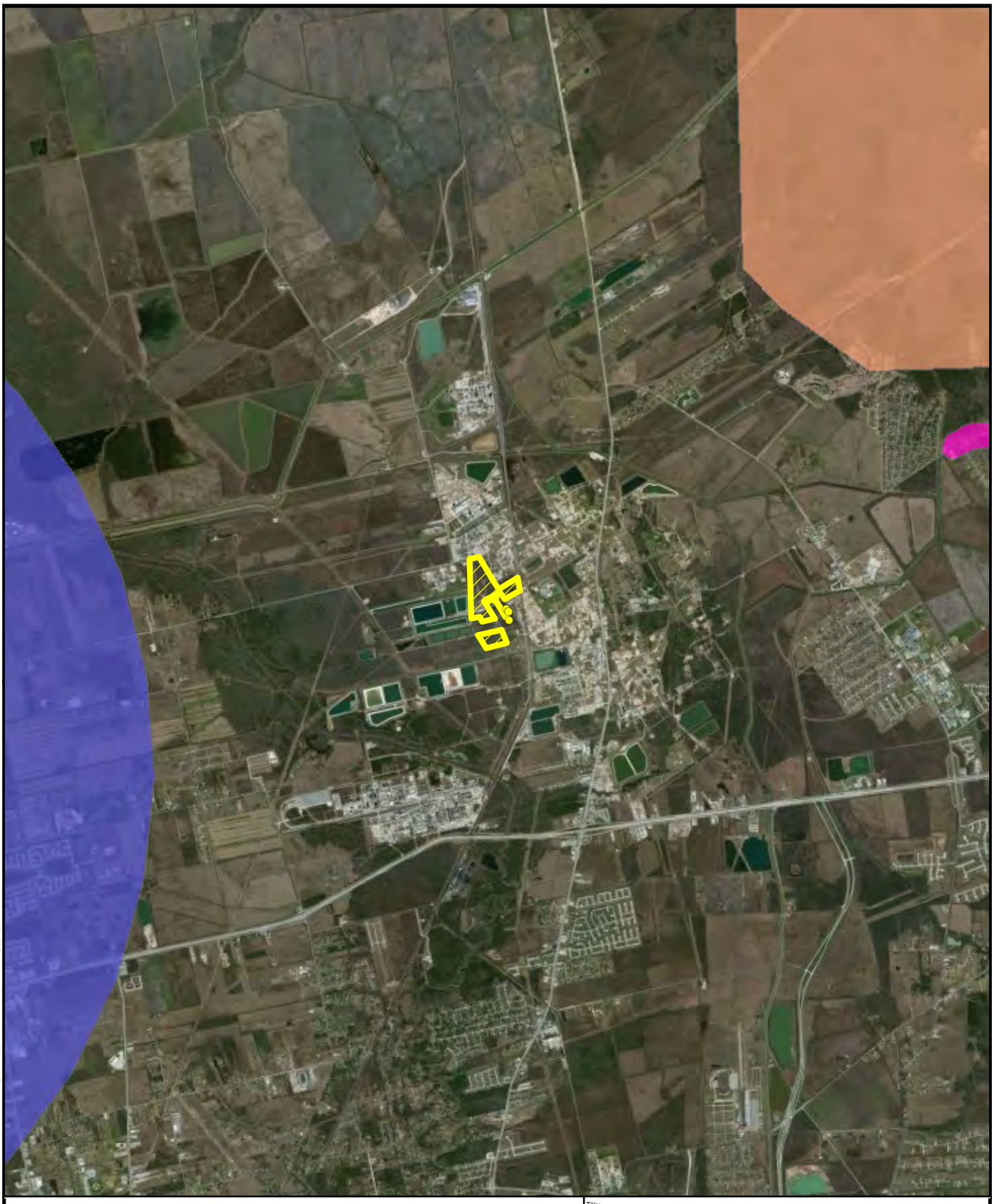
URS

N

0 1,000 2,000 Feet

Path: K:\ENG\WTR\25014412\GIS\MXD\Biological_Assessment\Fig_6_NWI.mxd

Title:	**National Wetlands Inventory Map**
Project:	**Biological Assessment Fractionator #2 Project Mont Belvieu, Texas**
Client:	**Lone Star NGL Mont Belvieu, L.P.**
Drawn by: **AM** / Date: **06/2012** / Project No.: **25014412**	**Figure 6**



URS

Legend

- Action Area
- Texas windmill-grass
- Water Oak-willow Oak Series
- Threeflower broomweed

N

0 0.5 1 Miles

Title: **Texas Natural Diversity Database Map**

Project: **Biological Assessment Fractionator #2 Project Mont Belvieu, Texas**

Client: **Lone Star NGL Mont Belvieu, L.P.**

Drawn by:	Date:	Project No.:	
AM	8/15/2012	25014882	Figure 7

Path: K:\ENG\WTR\25014412\GIS\MXD\Biological_Assessment\Fig_7_TXDD.mxd

URS

Legend

Wetlands

Action Area

N

0 500 1,000 Feet

Title: **Delineated Wetland Map**

Project: **Biological Assessment Fractionator #2 Project Mont Belvieu, Texas**

Client: **Lone Star NGL Mont Belvieu, L.P.**

Drawn by:	Date:	Project No.:	
AM	06/2012	25014412	Figure 8

Path: K:\ENG\WTR\25014412\GIS\MXD\Biological_Assessment\Fig_8_Wetlands.mxd

Appendix A

Site Photographs

URS

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Lone Star NGL Mont Belvieu, LP	Fractionator # 2	25014274

Date	
9/20/2011	

Direction Photo Taken:
North

Description:
Pine-Yaupon Forest

Date	Photo No.
9/20/2011	

Direction Photo Taken:
North

Description:
Pine Yaupon Forest

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Lone Star NGL Mont Belvieu, LP	Fractionator # 2	25014274

Date	Photo No.
9/20/2011	

Direction Photo Taken:
West

Description:
Chinese Tallow Forest

Date	Photo No.
9/20/2011	

Direction Photo Taken:
North

Description:
Chinese Tallow Forest

URS

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Lone Star NGL Mont Belvieu, LP	Fractionator # 2	25014274

Date 9/20/2011

Direction Photo Taken: North

Description: Wetland

Date	Photo No.
9/20/2011	

Direction Photo Taken: North

Description: Wetland

URS

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Lone Star NGL Mont Belvieu, LP	Fractionator # 2	25014274

Date	
9/20/2011	

Direction Photo Taken:
North

Description:
Mowed Upland

Date	Photo No.
9/20/2011	

Direction Photo Taken:
North

Description:

Looking upstream within the drainage ditch that would receive the outfall from the Project. The outfall would be located in front of the culverts in the photo.

PHOTOGRAPHIC LOG

Client Name:	Site Location:	Project No.
Lone Star NGL Mont Belvieu, LP	Fractionator # 2	25014274

Date
9/20/2011

Direction Photo Taken:

South

Description:

Facing downstream in the drainage ditch, downstream of the location of the outfall.

Date	Photo No.
9/20/2011	

Direction Photo Taken:

West

Description:

Facing downstream within the swale where the outfall will be located, the drainage ditch that would receive the outfall is in the background.

Appendix B

NPDES Response to Request for Information

Weston Solutions, Inc.
5599 San Felipe, Suite 700
Houston, Texas 77056
713-985-6600 • Fax 713-985-6703
www.westonsolutions.com

11 July 2012

Ms. Maria Okpala
U.S. Environmental Protection Agency, Region 6
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

RE: Lone Star NGL Mont Belvieu, L.P.
NPDES Application No. TX0140082
Request for information

Dear Ms. Okpala:

On behalf of Lone Star NGL Mont Belvieu L.P. (Lone Star), Weston Solutions, Inc. (WESTON®) is submitting this letter and the attached information, in response to your request for further information, in order to process Lone Star's NPDES application.

1. Need Estimates of the facility's effluent characteristics including metals.

The facility's estimated effluent characteristics, including metals, can be found in Attachment A. All estimates were based on professional judgment and information from similar facilities.

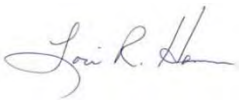
2. State whether the discharge is intermittent or continuous.

The facility will discharge non-process cooling water from wet air surface cooling towers into a retention pond located on-site. Water will intermittently be released from the retention ponds on an as needed basis. It is anticipated that these releases will occur at least once per week.

3. Has the facility consulted and cleared with the historic preservation office?

A request was sent to the Texas Historical Commission (THC) for historical preservation clearance on 27 June 2012. According to the THC office this request will be reviewed by 28 July 2012. The tracking number for the request is 201211224. A copy of this request and the supporting aerial photograph documentation is included in Attachment B.

Sincerely,
WESTON SOLUTIONS, INC.



Lori Hamm
Project Manager

Enclosures: Attachment A
Attachment B
cc: Cindy Pate Lone Star NGL Mont Belvieu, L.P.

ATTACHMENT A

Pollutant or Parameter	Maximum Daily Value	Average Daily Value
Biochemical Oxygen Demand	15 mg/L	15 mg/L
Total Suspended Solids	100 mg/L	30 mg/L
Oil and Grease	20 mg/L	15 mg/L
Chemical Oxygen Demand	150 mg/L	150 mg/L
pH Range	6-9	6-9
Fecal Coliform	Not expected	Not expected
Total Residual Chlorine	Not expected	Not expected
Ammonia	Not expected	Not expected

TEXTOX MENU #1 - INTERMITTENT STREAM

The water quality-based effluent limitations demonstrated below are calculated using:

Table 1, 2000 Texas Surface Water Quality Standards (30 TAC 307) for Freshwater Aquatic Life
Table 3, 2000 Texas Surface Water Quality Standards for Human Health
Procedures to Implement the Texas Surface Water Quality Standards, Texas Commission on Environmental Quality, January 2003

TPDES Permit No:
Permittee Name: Lone Star NGL
Outfall No: 001 and 002
Prepared By: Vanessa Trevino
Date: 7/3/2012

DISCHARGE INFORMATION:

Intermittent Receiving Waterbody: Cedar Bayou
Segment No: 0901
TSS (mg/L): 18
pH (Standard Units): 7.4
Hardness (mg/L as $CaCO_3$): 930
Chloride (mg/L):
Effluent Flow for Aquatic Life (MGD):
Critical Low Flow [7Q2] (cfs):
Acute Effluent % for Aquatic Life: 100

CALCULATE TOTAL/DISSOLVED RATIO:

Stream/River Metal	*Intercept (b)*	*Slope (m)*	*Partitioning Coefficient (Kpo)*	*Dissolved Fraction (Cd/Ct)*		*Water Effects Ratio (WER)*	
Aluminum	N/A	N/A	N/A	1.00	Assumed	1	Assumed
Arsenic	5.68	-0.73	58029.80	0.49		1	Assumed
Cadmium	6.6	-1.13	151894.51	0.27		1	Assumed
Chromium (Total)	6.52	-0.93	225214.62	0.20		1	Assumed
Chromium (+3)	6.52	-0.93	225214.62	0.20		1	Assumed
Chromium (+6)	N/A	N/A	N/A	1.00	Assumed	1	Assumed
Copper	6.02	-0.74	123338.41	0.31		1	Assumed
Lead	6.45	-0.8	279114.24	0.17		1	Assumed
Mercury	N/A	N/A	N/A	1.00	Assumed	1	Assumed
Nickel	5.69	-0.57	94296.30	0.37		1	Assumed
Selenium	N/A	N/A	N/A	1.00	Assumed	1	Assumed
Silver	6.38	-1.03	122199.47	0.31		1	Assumed
Zinc	6.1	-0.7	166459.75	0.25		1	Assumed

AQUATIC LIFE
CALCULATE DAILY AVERAGE AND DAILY MAXIMUM EFFLUENT LIMITATIONS

Parameter	*Acute Standard (ug/L)*	*WLAa*	*LTAa*	*Daily Avg. (ug/L)*	*Daily Max. (ug/L)*
Aldrin	3	3.00	1.72	2.53	5.35
Aluminum	991	991.00	567.84	834.73	1765.99
Arsenic	360	736.03	421.75	619.97	1311.63
Cadmium	405.580	1514.48	867.79	1275.66	2698.84
Carbaryl	2	2.00	1.15	1.68	3.56
Chlordane	2.4	2.40	1.38	2.02	4.28
Chlorpyrifos	0.083	0.08	0.05	0.07	0.15
Chromium (+3)	3408.42	17225.67	9870.31	14509.35	30696.66
Chromium (+6)	15.7	15.70	9.00	13.22	27.98
Copper	150.639	485.07	277.95	408.58	864.41
Cyanide	45.78	45.78	26.23	38.56	81.58
4,4'-DDT	1.1	1.10	0.63	0.93	1.96
Dementon	N/A	N/A	N/A	N/A	N/A
Dicofol	59.3	59.30	33.98	49.95	105.67
Dieldrin	2.5	2.50	1.43	2.11	4.46
Diuron	210	210.00	120.33	176.89	374.23
Endosulfan I (alpha)	0.22	0.22	0.13	0.19	0.39
Endosulfan II (beta)	0.22	0.22	0.13	0.19	0.39
Endosulfan sulfate	0.22	0.22	0.13	0.19	0.39
Endrin	0.18	0.18	0.10	0.15	0.32
Guthion	N/A	N/A	N/A	N/A	N/A
Heptachlor	0.52	0.52	0.30	0.44	0.93
Hexachlorocyclohexane (Lindane)	2	2.00	1.15	1.68	3.56
Lead	1240.825	7474.80	4283.06	6296.10	13320.32
Malathion	N/A	N/A	N/A	N/A	N/A
Mercury	2.4	2.40	1.38	2.02	4.28
Methoxychlor	N/A	N/A	N/A	N/A	N/A
Mirex	N/A	N/A	N/A	N/A	N/A
Nickel	9337.223	25185.60	14431.35	21214.09	44881.50
Parathion (ethyl)	0.065	0.07	0.04	0.05	0.12
Pentachlorophenol	13.5583148	13.56	7.77	11.42	24.16
Phenanthrene	30	30.00	17.19	25.27	53.46
Polychlorinated Biphenyls (PCBs)	2	2.00	1.15	1.68	3.56
Selenium	20	20.00	11.46	16.85	35.64
Silver, (free ion)	0.8	2.59	1.48	2.18	4.62
Toxaphene	0.78	0.78	0.45	0.66	1.39
Tributlytin (TBT)	0.13	0.13	0.07	0.11	0.23
2,4,5 Trichlorophenol	136	136.00	77.93	114.55	242.36
Zinc	757.184	3025.92	1733.85	2548.76	5392.27

CALCULATE 70% AND 85% OF DAILY AVERAGE EFFLUENT LIMITATIONS

Parameter	*70%*	*85%*
Aldrin	1.769	2.148
Aluminum	584.310	709.520
Arsenic	433.978	526.973
Cadmium	892.960	1084.309
Carbaryl	1.179	1.432
Chlordane	1.415	1.718
Chlorpyrifos	0.049	0.059
Chromium (+3)	10156.55	12332.95
Chromium (+6)	9.257	11.241
Copper	286.007	347.294
Cyanide	26.993	32.777
4,4'-DDT	0.649	0.788
Dementon	N/A	N/A
Dicofol	34.964	42.457
Dieldrin	1.474	1.790
Diuron	123.820	150.352
Endosulfan I (alpha)	0.130	0.158
Endosulfan II (beta)	0.130	0.158
Endosulfan sulfate	0.130	0.158
Endrin	0.106	0.129
Guthion	N/A	N/A
Heptachlor	0.307	0.372
Hexachlorocyclohexane (Lindane)	1.179	1.432
Lead	4407.270	5351.685
Malathion	N/A	N/A
Mercury	1.415	1.718
Methoxychlor	N/A	N/A
Mirex	N/A	N/A
Nickel	14849.86	18031.97
Parathion (ethyl)	0.038	0.047
Pentachlrophenol	7.994	9.707
Phenanthrene	17.689	21.479
Polychlorinated Biphenyls (PCBs)	1.179	1.432
Selenium	11.792	14.319
Silver, (free ion)	1.527	1.854
Toxaphene	0.460	0.558
Tributlytin (TBT)	0.077	0.093
2,4,5 Trichlorophenol	80.188	97.371
Zinc	1784.131	2166.445