



THE WCM GROUP, INC.

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October 19, 2018

Ms. Sara Wissmann  
NOAA National Marine Fisheries Service  
1315 East-West Highway Rm. 13752  
Silver Spring, MD 20910

UPS NUMBER  
1Z07479R0197516094

REFERENCE: Revisions to Barney M. Davis Incidental Take Permit Application  
Barney M. Davis, LP  
Barney M. Davis Power Station  
Corpus Christi, Nueces County, Texas

Dear Ms. Wissmann,

On behalf of Barney M. Davis, LP, The WCM Group Inc., is submitting the attached revised Incidental Take Permit Application and Conservation Plan to address questions/comments identified during the permit review process, as identified in your July 26, 2018 e-mail and subsequent phone discussions.

Please do not hesitate to contact me with any questions or comments.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Hailey Cofty', with a small flourish at the end.

Hailey Cofty  
Senior Environmental Scientist  
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HJC/llb

ENCLOSURE

cc: C. Garcia-Rios, Talen  
BMD.180.45.10

**INCIDENTAL TAKE PERMIT APPLICATION AND CONSERVATION PLAN**

**INCIDENTAL TAKE PERMIT APPLICATION  
AND  
CONSERVATION PLAN**

**Prepared For  
BARNEY M. DAVIS, LP  
BARNEY M. DAVIS POWER STATION  
CORPUS CHRISTI, TEXAS**

**PREPARED BY  
THE WCM GROUP, INC.  
Humble, Texas**

**May 2016  
Revised: October 2016  
Revised: January 2017  
Revised: January 2018  
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Revised: October 2018**

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## **ATTACHMENTS**

- A - MANAGEMENT OF SEA TURTLES AT THE INTAKE CANAL
- B - EMAIL CORRESPONDENCE REGARDING TURTLE COLLECTION PROCEDURES BETWEEN C. GARCIA-RIOS (TALEN EHS) AND L. GUILLEN (NATIONAL PARK SERVICE, DIVISION OF SEA TURTLE SCIENCE AND RECOVERY)

## **FIGURES**

- 1 - FACILITY LOCATION MAP
- 2 - FACILITY LAYOUT
- 3 - CWIS DIAGRAM

## 1.0 INTRODUCTION

### 1.1 PURPOSE

The Endangered Species Act of 1973 (ESA) was established to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species, and to take such steps as may be appropriate to achieve the purposes of the Act.

Section 9 of the ESA prohibits the take of any endangered species within the United States or the territorial sea of the United States. The ESA defines take “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” Exceptions to the prohibitions listed in Section 9 of the Act are included in Section 10 of the Act. Section 10(a) includes allowable circumstances for permitting that include:

- (A) Any act otherwise prohibited by Section 9 for scientific purposes or to enhance the propagation or survival of the affected species, including, but not limited to, acts necessary for the establishment and maintenance of experimental populations pursuant subsection (j); or
- (B) Any taking otherwise prohibited by section 9(a)(1)(B) if such taking is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.

A Conservation Plan must be submitted to the Secretary at the time of application in order for a permitting exception to be granted.

### 1.2 DESCRIPTION OF SPECIFIED ACTIVITY

Barney M. Davis, LP owns Barney M. Davis Power Station (the facility), a natural gas-fired electric power generating facility. The facility is located in Nueces County, Texas on the south side of the City of Corpus Christi, at 4301 Waldron Road (See Figure 1). The plant has approximately 1,992 acres of land between the Laguna Madre and Oso Creek. The facility is comprised of two natural gas-fired combustion turbines (Units 3 & 4), two Heat Recovery Steam Generators (HRSGs), one steam turbine (Unit 2), one gas-fired boiler driving a Westinghouse steam turbine (Unit 1), Continuous Emission Monitoring (CEM) Buildings, multiple warehouses, the main building (housing administrative offices, control room, and laboratory), switch gear house, Resource Center (conference room), emergency generator building, and two chillers. Electric generation occurs year-round, with outage periods as necessary. The facility is applying for an Incidental Take Permit in accordance with rules established under Section 10(a)(1)(B) of the Endangered Species Act of 1973. The facility is requesting the permit be issued for a duration of 10 years.

Up to 540 million gallons per day (MGD) of water are drawn from the Laguna Madre to be used for non-contact cooling at the facility. This water travels down a 0.75-mile long cooling water intake canal (See Figure 1). Cooling water passes through the bulkhead where dead and dying seagrass fragments, referred to as “wrack,” are removed. The water for each unit then passes through a traveling-trash rack composed of 0.5-inch steel bars on 3.5-inch centers, a concrete receiving area (bay) that is 13 feet wide, traveling-water screens, and then to sumps for the cooling water pumps. Passavant fine-mesh, center-flow screens are operated continuously to reduce the numbers of entrained organisms. The current screens are constructed with 1 x 2 mm rectangular nylon mesh to reduce clogging with a calculated maximum through-screen velocity of 1.15 ft/sec. As the screens rotate, high-pressure wash water flushes the back side of each panel at the top of the vertical cycle into an overhead trough which carries the impinged organisms and debris to a peripheral fish handling device. The screen-wash water goes to a sluiceway which empties into a concrete sump and from there is pumped directly into the facility’s cooling pond via pipeline. A diagram of the cooling water intake structure (CWIS) is included as Figure 3.

According to the article “Frigid Waters, Frozen Sea turtles” on the National Oceanic and Atmospheric Administration’s (NOAA) website, sea turtles can be “rendered immobile by cold weather due to a phenomenon known as “cold-stunning.” Because sea turtles are cold-blooded animals, they assume the temperature of their surroundings: They are hot when their environment is hot and cold when their environment is cold. When sea turtles are exposed to frigid water temperatures (about 50 degrees F) over a period of several days, their circulatory systems can slow to the point that they become cold-stunned and unable to swim or function properly.”

The phenomenon of “cold-stunning” appears to occur to sea turtles in the waters around the facility’s intake, the Laguna Madre. During cooler months, sea turtles in the Laguna Madre may become “cold-stunned” and therefore unable to swim. Once the sea turtles are cold-stunned, they float into the facility’s intake canal, toward the facility. The flow velocity in the intake canal is unknown; however, an impingement and entrainment study conducted at the facility from March 2006 - February 2007 found that the average hourly intake flow was not correlated with total impingement, fish, or shellfish impingement. It is not believed that the velocity of the canal affects the number of turtles found in the canal.

Water temperatures in the Laguna Madre and the Barney M. Davis intake canal were compared to determine if water temperatures in the intake canal were a contributing factor to the cold stunning of sea turtles. The tables below illustrate that the temperature in each body of water is substantially similar; therefore, it does not appear that the water temperature in the facility’s intake canal is directly related to the cold stunning of the sea turtles.

2016 Average Monthly Temperature (°F) BMD Intake Canal and Laguna Madre												
	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
BMD	58	66	72	73	*	88	88	87	87	81	74	62
LM	62	69	72	77	80	**	**	**	**	80	73	63

2017 Maximum Monthly Temperature (°F) BMD Intake Canal and Laguna Madre												
	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
BMD	62	69	72	77	80	86	87	83	84	78	72	60
LM	62	70	73	78	81	87	88	88	85	78	73	61

\* Temperature data not available - facility was off-line.

\*\* Temperature data not available on the NOAA Tides and Currents website.

Barney M. Davis, LP is proposing to remove (i.e., take) the cold stunned sea turtles from the facility intake canal and carry out the procedure in Attachment A. This take is incidental to an otherwise lawful activity, and is eligible for consideration of an incidental take permit, as stated in Section 10(a)(1)(B).

## 2.0 DESCRIPTION OF LISTED SPECIES POTENTIALLY IMPACTED BY THE ACTIVITY

### 2.1 AFFECTED THREATENED AND ENDANGERED SPECIES

The following table identifies the affected threatened and endangered sea turtle species that are known to occur in waters surrounding the facility. Although there are five species listed as threatened or endangered, only two of these species are known to be in the vicinity of the facility. The two species found in the vicinity of the site are in bold in the table below. This Conservation Plan will be reviewed and updated with current species as necessary.

<b>Affected Threatened and Endangered Sea turtle Species - Nueces County, Texas</b>		
<b>Species Name</b>	<b>Scientific Name</b>	<b>Status</b>
<b>Green Sea turtle</b>	<i>Chelonia mydas</i>	Threatened
<b>Kemp's Ridley Sea turtle</b>	<i>Lepidochelys kempii</i>	Endangered
Hawksbill Sea turtle	<i>Eretmochelys imbricata</i>	Endangered
Leatherback Sea turtle	<i>Dermochelys coriacea</i>	Endangered
Loggerhead Sea turtle	<i>Caretta caretta</i>	Threatened

### 2.2 GEOGRAPHICAL DISTRIBUTION

#### **Green Sea Turtle**

Listed under the ESA on July 28, 1978. In May 2016, the NMFS and USFWS issued the final rule to list 11 distinct population segments (DPSs) of the green sea turtle under the Endangered Species Act (ESA). This rule supersedes the 1978 final listing rule for green turtles.

- 8 “Distinct Population Segments” (DPSs) - Threatened
  - Central North Pacific DPS, East Indian - West Pacific DPS, East Pacific DPS, North Atlantic DPS (critical habitat designated), North Indian DPS, South Atlantic DPS, Southwest Indian DPS, Southwest Pacific DPS
- 3 DPSs -Endangered
  - Central South Pacific DPS, Central West Pacific DPS, Mediterranean DPS

#### **Kemp's Ridley Sea Turtle**

Listed under the Endangered Species Conservation Act of 1970 on December 2, 1970, and subsequently under the ESA of 1973.

- ESA Endangered
  - Throughout its range (In the Atlantic Ocean and the Gulf of Mexico, ranging from Massachusetts to Texas, and Mexico)

### **Hawksbill Sea Turtle**

*Listed under the ESA in 1970.*

- ESA Endangered
  - Throughout its range (Found throughout the world)

### **Leatherback Sea Turtle**

*Listed under the ESA in 1970.*

- ESA Endangered
  - Throughout its range (Found throughout the world)

### **Loggerhead Sea Turtle**

*Listed under the ESA as threatened throughout its range on July 28, 1978. In September 2011, National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service listed 9 distinct population segments under the ESA.*

- 5 DPSs - Endangered
  - South Pacific Ocean DPS, Northeast Atlantic Ocean DPS, Mediterranean Sea DPS, North Indian Ocean DPS, North Pacific Ocean DPS
- 4 DPSs - Threatened
  - Southwest Indian Ocean DPS, Northwest Atlantic Ocean DPS, South Atlantic Ocean DPS, Southeast Indo-Pacific Ocean DPS

## **2.3 CRITICAL HABITAT**

This section details the critical habitats, if listed, of the affected threatened or endangered species potentially affected by the activities at Barney M. Davis Power Station. The Endangered Species Act Amendments of 1978 define the term "critical habitat" as follows:

- (i) the specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the provisions of section 4 of this Act, on which are found those physical or biological features;
  - (I) essential to the conservation of the species; and
  - (II) which may require special management consideration or protection; and
- (ii) specific areas outside the geographical area occupied by the species at the time it is listed in accordance with the provisions of section 4 of this Act, upon a determination by the Secretary that such areas are essential for the conservation of the species.

### **Green Sea Turtle**

- Green sea turtles are primarily restricted to tropical and subtropical waters. In U.S. Atlantic and Gulf of Mexico waters, green sea turtles are found from Massachusetts to Texas and in the U.S. Virgin Islands and Puerto Rico. Caribbean populations of green sea turtles have diminished significantly from historical levels, primarily due to the directed sea turtle fishery that existed prior to their listing under the ESA. Additionally, researchers have documented that habitat loss is a primary factor

slowing the recovery of the species throughout its range. Degradation of seagrass beds has slowed recovery of green sea turtles in the Caribbean due to reduced carrying capacity of seagrass meadows (Williams, 1988). Therefore, the extent of habitat required for foraging green sea turtles is likely to be increasing due to the reduced productivity of remaining seagrass beds.

The natal beaches of Culebra's juvenile green sea turtles have not yet been identified. After emerging from nests on natal beaches, post-hatchlings may move into offshore convergence zones for an undetermined length of time (Carr, 1986). Upon reaching approximately 25 to 35 cm carapace length, juvenile green sea turtles enter benthic feeding grounds in relatively shallow, protected waters (Collazo et al., 1992).

The importance of the Culebra archipelago as green sea turtle developmental habitat has been well documented. Researchers have established that Culebra coastal waters support juvenile and sub adult green sea turtle populations and have confirmed the presence of a small population of adults (Collazo et al., 1992). These findings, together with information obtained from studies conducted in the U.S. Virgin Islands, have reaffirmed the importance of developmental habitats throughout the eastern portion of the Puerto Rican Bank (Collazo et al., 1992). Additionally, the coral reefs and other topographic features within these waters provide green sea turtles with shelter during interforaging periods that serve as refuge from predators.

Culebra seagrasses provide foraging habitat for many valuable species. In addition to green sea turtles, the commercially important queen conch (*Strombus gigas*) and coral reef bony fishes (*Class Osteichthyes*), such as parrotfish (*Sparisoma spp.*), grunts (*Haemulon spp.*), porgies or sea breams (*Archosargus rhomboidalis*), and others, utilize this important habitat. Culebra's seagrass beds also provide habitat for the endangered West Indian manatee (*Trichechus manatus*) and several species of cartilaginous fishes (*Class Chondrichthyes*). Additionally, seagrass beds beneficially modify the physical, chemical, and geological properties of coastal areas. They provide nutrients, primary energy, and habitats that help sustain coastal fisheries resources while enhancing biological diversity and wildlife (Vicente and Tallevast, 1992).

The waters surrounding Mona Island also support a small green sea turtle population, which possibly is surviving only because of Mona's remoteness and the full-time presence of Puerto Rico Department of Natural and Environmental Resources fisheries/wildlife enforcement personnel. Limited green sea turtle nesting still occurs on Mona Island.

Waters surrounding Puerto Rican island of Culebra from the mean high water line seaward to three nautical miles (5.6 km) are designated critical habitat for the green sea turtle. These waters include Culebra's outlying Keys including Cayo Norte, Cayo Ballena, Cayos Geniquí, Isla Culebrita, Arrecife Culebrita, Cayo de Luis Peña, Las Hermanas, El Mono, Cayo Lobo, Cayo Lobito, Cayo Botijuela, Alcarraza, Los Gemelos, and Piedra Steven.

### **Kemp's Ridley Sea Turtle**

- No critical habitat has been designated for this species. However, long-term habitat protection of two of the primary nesting beaches is maintained in Mexico (Rancho Nuevo, Tepehuajes) as federal, state, municipal, or private natural protected areas under a similar legally protective designation or mechanism. Long-term habitat protection of the nesting beach at Playa Dos, through establishment as a natural protected area or similar legally protective designation or mechanism would be initiated.

### **Hawksbill Sea Turtle**

- The hawksbill sea turtle occurs in tropical and subtropical waters of the Atlantic, Pacific, and Indian Oceans. The species is widely distributed in the Caribbean Sea and western Atlantic Ocean. Within the United States, hawksbills are most common in Puerto Rico and its associated islands, the U.S. Virgin Islands, and Florida.

International commerce in hawksbill shell, or "bekko," is considered the most significant factor endangering hawksbill sea turtle populations around the world. Despite international trade protections under CITES, illegal trade in hawksbill shell continues. The illegal take of hawksbills at sea has not yet been fully quantified, but it is a continuing and serious problem.

Juvenile hawksbills are thought to lead a pelagic existence before recruiting to benthic feeding grounds at a size of approximately 25 cm straight carapace length (Meylan and Carr, 1982). Additionally, the ledges and caves of the reef provide shelter for resting and refuge from predators.

Mona and Monito Islands are uninhabited natural reserves managed by the Puerto Rico Department of Natural and Environmental Resources. The coral reefs of Mona and Monito Islands are among the few known remaining locations in the Caribbean where hawksbill sea turtles occur with considerable density (Diez and van Dam, 1996). Researchers have shown that the large juvenile population of hawksbill sea turtles around Mona and Monito are long-term residents, exhibiting strong site fidelity for periods of at least several years (Diez, 1996). Recent genetic studies indicate that this resident population comprises individuals from multiple nesting populations in the Wider Caribbean. This data indicates that the

conservation of the juvenile population of hawksbill sea turtles at Mona can contribute to sustaining healthy nesting populations throughout the Caribbean Region (Bowen et al., 1996). Additionally, data on hawksbill sea turtle diet composition and foraging behavior suggest that this high-density hawksbill population may play a significant role in maintaining sponge species diversity in the nearshore benthic communities of Mona and Monito Islands (van Dam and Diez, 1997).

Hawksbills utilize both low- and high energy nesting beaches in tropical oceans of the world. Both insular and mainland nesting sites are known. Hawksbills will nest on small pocket beaches and, because of their small body size and great agility, can traverse fringing reefs that limit access to other species.

Nesting within the southeastern United States occurs principally in Puerto Rico and in the U.S. Virgin Islands, with the most important sites being Mona Island in Puerto Rico and Buck Island Reef National Monument in the U.S. Virgin Islands. Mona Island supports the largest population of nesting hawksbill sea turtles in the U.S. Caribbean. Considerable nesting also occurs on the beaches of Culebra, Vieques, and mainland Puerto Rico, as well as St. Croix, St. John, and St. Thomas.

The coastal waters of Culebra also provide habitat for hawksbill sea turtles. Hawksbill sea turtles forage extensively on the nearby reefs and use Culebra's coastal waters to access nesting beaches.

### **Leatherback Sea Turtle**

- The leatherback sea turtle has been listed as endangered since 1970 (35 FR 19320). Although the leatherback spends most of its life in waters of 150 feet depth or greater, it comes ashore to nest and lay eggs.

Courtship and mating are believed to occur in waters adjacent to nesting beaches just prior to the time of egg laying. Accordingly, the survival and recovery of the leatherback depends on the maintenance of suitable and undisturbed nesting beaches and protection of waters adjacent to those beaches.

During the early summer of 1977 the U.S. Fish and Wildlife Service (FWS) identified a nesting aggregation of leatherback sea turtles occurring at the western end of the island of St. Croix, U.S. Virgin Islands. Personnel of the FWS, NMFS, U.S. Coast Guard, and Government of the Virgin Islands conducted observation on St. Croix during the month of June. In excess of 70 leatherback nests were discovered on the 0.8 mile by 0.1 mile strip of Sandy Point Beach during these observations. This area constitutes a major beach under U.S. jurisdiction used for nesting by the endangered leather-back. The FWS designated Sandy Point Beach

on St. Croix as critical habitat for the leatherback sea turtle on September 26, 1978 (43 FR 43688).

Pursuant to an agreement between the FWS and the NMFS, the FWS has jurisdiction over sea turtles on the land and the NMFS over sea turtles in the marine environment. These regulations designate as critical habitat an area of the marine environment adjacent to a nesting beach previously designated as critical habitat by the FWS.

Since the area designated as critical habitat is used by the leatherback for courting and mating activities and provides an access to and from an important nesting beach, the NMFS believes the area is essential for the conservation of the leatherback sea turtle and requires special management protection. As such, these waters qualify for designation as critical habitat under the Endangered Species Act, as amended.

The coastal waters of Culebra also provide habitat for leatherback sea turtles. Leatherbacks use Culebra's coastal waters to access nesting beaches. Culebra and St. Croix beaches have the greatest density of leatherback nests within U.S. waters.

### **Loggerhead Sea Turtle**

- Approximately 1,102 kilometers (km) (685 miles (mi)) of loggerhead sea turtle nesting beaches are designated as critical habitat in the States of North Carolina, South Carolina, Georgia, Florida, Alabama, and Mississippi. These beaches account for 45 percent of an estimated 2,464 km (1,531 mi) of coastal beach shoreline and approximately 84 percent of the documented nesting (numbers of nests) within these six States. The critical habitat is located in Brunswick, Carteret, New Hanover, Onslow, and Pender Counties, North Carolina; Beaufort, Charleston, Colleton, and Georgetown Counties, South Carolina; Camden, Chatham, Liberty and McIntosh Counties, Georgia; Bay Brevard, Broward, Charlotte, Collier, Duval, Escambia, Flagler, Franklin, Gulf, Indian River, Lee, Manatee, Martin, Monroe, Palm Beach, Sarasota, St. Johns, St. Lucie, and Volusia Counties, Florida; Baldwin County, Alabama, and Jackson County, Mississippi.
- The NMFS has identified, as published in Volume 79, Number 132 of the Federal Register, a critical habitat to include *Sargassum* for loggerhead turtles, described as “developmental and foraging habitat for young loggerheads where surface waters form accumulations of floating material, especially *Sargassum*.” As stated in the Federal Register, satellite imagery data from 2002-2008 was evaluated and found high concentrations of *Sargassum* in the northwest Gulf of Mexico from March to June. *Sargassum* then spreads eastward into the central and eastern Gulf of Mexico, and then into the Atlantic starting in about July. Observations from

2003 to 2007 suggest that *Sargassum* has a lifespan of approximately 1 year or less, and that the northwest Gulf of Mexico is a major nursery area (Gower and King 2011). High resolution imagery from 2010 suggested that *Sargassum* was more abundant and widespread in the western Gulf of Mexico compared to the central and eastern Gulf of Mexico, with the latter areas having smaller and more dispersed patches of *Sargassum* (Hardy et al. 2011). Further, NMFS has collected *Sargassum* on Gulf of Mexico ichthyoplankton surveys since 2002.

## **2.4 HABITAT REQUIREMENTS**

### **Green Sea Turtle**

- Green sea turtles are generally found in fairly shallow waters (except when migrating) inside reefs, bays, and inlets. The sea turtles are attracted to lagoons and shoals with an abundance of marine grass and algae. Open beaches with a sloping platform and minimal disturbance are required for nesting. Green sea turtles apparently have a strong nesting site fidelity and often make long distance migrations between feeding grounds and nesting beaches. Hatchlings have been observed to seek refuge and food in *Sargassum* rafts. Hatchlings leave the beach and apparently move into convergence in the open ocean; when they reach a carapace length of approximately 20 to 25 cm, they leave the pelagic habitat and enter benthic feeding grounds.

### **Kemp's Ridley Sea Turtle**

- Kemp's Ridley sea turtles occur in the Atlantic Ocean and the Gulf of Mexico. The females come ashore only to lay eggs. Nesting of the Kemp's Ridley is essentially limited to the beaches of the western Gulf of Mexico, primarily in Tamaulipas, Mexico. Nesting also occurs regularly in Texas and infrequently in a few other U.S. states. Juvenile neritic Kemp's Ridleys occupy shallow coastal waters in the northern Gulf of Mexico. Adult Kemp's Ridleys occur primarily in the Gulf of Mexico, but are occasionally found on the U.S. Atlantic coasts. Nearshore waters of 37 m or less provide the primary marine habitat.

### **Hawksbill Sea Turtle**

- Hawksbills use different habitats at different stages of their life cycle. Research and gut-content analysis suggest that post-hatchling hawksbills occupy the pelagic environment, taking shelter in weedlines that accumulate at convergence zones.

Coral reefs are widely recognized as the resident foraging habitat of juveniles, sub adults, and adults. Hawksbills depend on coral reefs for food and shelter; therefore, the condition of reefs directly affects the hawksbill's well-being. Destruction of coral reefs due to deteriorating water quality and vessel anchoring, striking, or grounding is a growing problem. This habitat association is directly related to the species' highly specific diet of sponges (Meylan, 1988). Gut content

analysis conducted on hawksbills collected from the Caribbean suggests that a few types of sponges make up the major component of their diet, despite the prevalence of other sponges on the coral reefs where hawksbills are found (Meylan, 1984). Vicente (1993) observed similar feeding habits in hawksbills foraging specifically in Puerto Rico.

Hawksbills are known to inhabit mangrove-fringed bays and estuaries, particularly along the eastern shore of continents where coral reefs are absent. In Texas, juvenile hawksbills are associated with stone jetties (Hildebrand 1987, Amos 1989).

### **Leatherback Sea Turtle**

- Adult leatherbacks are highly migratory and believed to be the most pelagic of all sea turtles. Habitat requirements for juvenile and post-hatchling leatherbacks, however, are virtually unknown.

The coastal waters of Culebra provide habitat for leatherbacks. Leatherbacks use Culebra's coastal waters to access nesting beaches. Culebra and St. Croix beaches have the greatest density of leatherback nests within U.S. waters. Thompson (1984) reported a significant negative correlation between leatherbacks and water temperature in the spring, fall, and winter, suggesting that the species is not dependent upon warm temperatures and is likely to be associated with cooler, perhaps more productive waters. Summarizing incidental catch and interview data (1897-1980), as well as at-sea observations recorded during shore to Gulf Stream summer transects, Lee and Palmer (1981) also concluded that (at least off North Carolina) leatherbacks were rarely seen in the Gulf Stream and were most often seen in waters <500 fathoms in depth.

### **Loggerhead Sea Turtle**

- Loggerheads live in three basic ecosystems: terrestrial zone (the nesting beach where both egg laying and embryonic development and hatching occur), neritic zone (the nearshore marine environment where water depths do not exceed 200 meters), and the oceanic zone (the vast open ocean environment where water depths are greater than 200 meters).

Juvenile stage loggerheads in the North Atlantic commonly inhabit continental shelf waters from Cape Cod Bay, Massachusetts, south through Florida, the Bahamas, Cuba, and the Gulf of Mexico. Estuarine waters, including areas such as Long Island Sound, Delaware Bay, Chesapeake Bay, Pamlico and Core Sounds, the large open sounds of South Carolina and Georgia, Mosquito and Indian River Lagoons, Biscayne Bay, Florida Bay, and numerous embayments fringing the Gulf of Mexico, comprise important inshore habitat (Musick and Limpus, 1997; Spotila et al., 1997; Hopkins-Murphy et al., 2003).

Loggerheads appear to prefer relatively narrow, steeply sloped, coarse-grained beaches for nesting. Post-hatchling loggerheads inhabit areas where surface waters converge to form local downwellings (Witherington, 2002). These areas are characterized by linear accumulations of floating material, especially *Sargassum*, and are common between the Gulf Stream and the southeast U.S. coast, and between the Loop Current and the Florida coast in the Gulf of Mexico.

Non-nesting adult loggerheads in the neritic zone differ from the juvenile stage in that relatively enclosed, shallow water estuarine habitats with limited ocean access are less frequently used. Shallow water habitats with large expanses of open ocean access provide year-round resident foraging areas for significant numbers of male and female adult loggerheads.

## **2.5 FEEDING HABITATS**

### **Green Sea Turtle**

- Seagrasses are the principal dietary component of juvenile and adult green sea turtles throughout the Wider Caribbean region (Bjorndal, 1995). The seagrass beds of Culebra consist primarily of sea turtle grass (*Thalassia testudinum*). While seagrasses are distributed throughout temperate and tropical latitudes, sea turtle grass beds are a tropical phenomenon. In the Caribbean, sea turtle grass beds consist primarily of sea turtle grass, but may include other species of seagrass, such as manatee grass (*Syringodium filiforme*), shoal grass (*Halodule wrightii*), and sea vine (*Halophila decipiens*), as well as several species of algae including green algae of the genera *Halimeda*, *Caulerpa*, and *Udotea*.

Most common foraging habitats are pastures of seagrasses and/or algae, but small green turtles can be found over coral reefs, worm reefs, and rocky bottoms. Some feeding ground only support certain size classes of green turtles; the turtles move among foraging areas (called developmental feeding grounds) as they grow. Coral reefs or rocky outcrops near feeding pastures are often used as resting areas, both at night and during the day.

### **Kemp's Ridley Sea Turtle**

- Kemp's Ridley sea turtles are considered to be carnivorous, feeding primarily on decapod crustaceans. Juvenile Kemp's Ridleys spend on average two (2) years in the oceanic zone, when they decrease their swimming activity and become passive migrants in the oceanic currents. During this time the juvenile turtles presumably live and feed among floating algal communities. It is suggested that the distribution of foraging Kemp's Ridleys is related to the distribution and availability of all the major crab species that are consumed. Studies have also shown that their diets include various items such as mollusks, natural and synthetic

debris, sea horses, and tunicates. Use of the *Sargassum* community has been suggested as an epipelagic developmental habitat. At approximately two (2) years of age, they recruit to the neritic zone (settling into nearshore areas within the Gulf of Mexico and the Northwest Atlantic) and forage on benthic fauna, such as crabs.

### **Hawksbill Sea Turtle**

- *Sargassum* and weedlines make up the habitat and food sources for post-hatchling Hawksbills. Coral reefs, like those found in the waters surrounding Mona and Monito Islands, are widely recognized as the primary foraging habitat of juvenile, sub adult, and adult hawksbill sea turtles. Specific foraging areas have not yet been identified for the hawksbill.

### **Leatherback Sea Turtle**

- Food habits of leatherbacks are known primarily from the stomach samples of slaughtered animals (Brongersma, 1969, Hartoz, 1980, Hartog and Van Nierop, 1984). Leatherbacks feed on pelagic medusa (jellyfish), siphonophores, and salpae in temperate and boreal latitudes (e.g., Bleakney, 1965; Brongersma, 1969; Duron, 1978; Eisenberg and Frazier, 1983; Musick, 1988). Keith and Musick note that “many” leatherbacks are observed off the mouth of Chesapeake Bay, “presumably feeding on the abundant jellyfish [there].”

Foraging has most often been observed at the surface, but Hartog (1980) speculated that foraging may occur at depth after finding nematocysts from deep water siphonophores in leatherback stomach samples.

### **Loggerhead Sea Turtle**

- Juvenile loggerheads in the oceanic zone are primarily carnivorous, although they do ingest some vegetation (Bjorndal, 1997). Juvenile loggerheads consume primarily coelenterates (e.g. sea jellies, hydroids) and salps, but also ingest a range of organisms including the pelagic snail *Janthina* spp., barnacles (*Lepas* spp.), and crabs. Once juveniles transition from the oceanic to the neritic zone, they feed on a wide variety of organisms including benthic invertebrates, primarily mollusks and crabs. In south Texas, sea pens were the most common prey. Adult loggerheads feed on a wide variety of organisms inhabiting the neritic zone. Analysis of gut contents of larger (presumably older) individuals showed more mollusks than smaller, younger turtles. Limited studies of adult loggerheads indicate that mollusks and benthic crabs make up their primary diet, similar to the more thoroughly studied neritic juvenile stage (Youngkin, 2001).

## 2.6 REPRODUCTIVE STRATEGY

### Green Sea Turtle

- The nesting season varies with the locality. In the Southeastern U.S., it is roughly June through September. Nesting occurs nocturnally at 2, 3, or 4-year intervals. Only occasionally do females produce clutches in successive years. A female may lay as many as nine clutches within a nesting season (overall average is about 3.3 nests per season) at about 13-day intervals. Clutch size varies from 75 to 200 eggs. Mating occurs in the water off the nesting beaches. Incubation ranges from about 45 to 75 days, depending on incubation temperatures. Hatchlings generally emerge at night. Temperature dependent sex determination has been demonstrated for green sea turtles, with eggs incubated below a pivotal temperature (temperature varies among populations) producing male turtles and eggs incubated above the pivotal temperature producing primarily females. Age at sexual maturity is believed to be 20 to 50 years.

### Kemp's Ridley Sea Turtle

- After hatching, males spend their entire lives in the water while the female comes ashore only to nest. A female will lay eggs during the day and may return to the same nesting beach the next year. Females reach sexual maturity in 10-15 years. A female may lay as many as 120 eggs in a nest, and may nest up to 3 times during the nesting season. Eggs hatch in 45-58 days and the hatchlings return to the sea. The hatchlings swim offshore into deeper ocean water where they feed and grow until returning at a larger size to nearshore coastal habitats. Kemp's Ridley sea turtles usually nest on the Gulf Coast beaches of Mexico and Texas from April to July primarily during daylight hours. Nesting often occurs in synchronized emergences termed *arribadas* or *arribazones*, which may be triggered by high wind speeds, especially north winds, and changes in barometric pressure. Survival rates for all life stages except eggs to hatchlings are difficult to estimate due to the wide range of migration habits of the species.

### Hawksbill Sea Turtle

- Hawksbill sea turtles have a 6-month nesting season, longer than that of any other sea turtles. Most nests are made from July to October. Courtship and mating apparently begin somewhat earlier, and may occur either along the migratory route or off the nesting beach. Nesting is primarily during the nighttime. Hawksbills nest an average of 4.5 times per season (Corliss et al. 1989, Van Dam and Sarti 1990) at approximately 14 day intervals and as many as 12 clutches may be produced by a single female in one season (Melucci et al. 1992). Clutch size is approximately 140 eggs and hatchling success at nesting beaches in the U.S. is approximately 80 percent (Van Darn Sarti 1990, Hills 1990). Recoveries of tagged adult hawksbills suggest that some populations or groups within a population undertake reproductive migrations (Meylan 1982, 1984a, Bjomdal et al. 1985).

### **Leatherback Sea Turtle**

- Nesting grounds of leatherbacks are distributed circumglobally (Sternberg, 1981), with the Pacific coast of Mexico supporting the world's largest known concentration of nesting leatherbacks. Nesting begins as early as late February or March for leatherbacks. Data gathered at Sandy Point NWR and Isla Culebra found that females arrive at the nesting beach asynchronously, renest an average of every 9-10 days, deposit 5-7 nests annually, and remigrate predominantly at 2-3 year intervals. Courtship and mating are believed to occur in waters adjacent to nesting beaches just prior to the time of egg laying. The survival and recovery of the leatherback depends on the maintenance of suitable and undisturbed nesting beaches and protection of waters adjacent to those beaches. Due to a proclivity for nesting in high energy and thus frequently unpredictable environments, it is not uncommon that large numbers of eggs are lost to erosion (Bacon, 1970; Pritchard, 1971; Hughes, 1974; Mrosovsky, 1983; Eckert, 1987). The majority of females return to the same nesting beach throughout the season, however some females are known to nest on separate beaches >100 km apart within a season. Virtually nothing is known of the pelagic distribution of hatchling or juvenile leatherback turtles.

### **Loggerhead Sea Turtle**

- In the U.S., loggerheads nest from Texas to Virginia. Nesting begins in late April and lasts through early September. The clutch size of loggerheads ranges from approximately 100-126 eggs with a 42-75 day incubation duration. Loggerheads nest on average 3-5.5 times per season with a 45-70% nest productivity rate. The remigration interval is approximately 2.5-3.7 years. Loggerheads nest on ocean beaches and occasionally on estuarine shorelines with suitable sand. Nests are typically laid between the high tide line and the dune front.

## **2.7 STATE/PROVINCE CONSERVATION STATUS**

### **Green Sea Turtle**

- S3: Vulnerable

### **Kemp's Ridley Sea Turtle**

- S3: Vulnerable

### **Hawksbill Sea Turtle**

- S2: Imperiled

### **Leatherback Sea Turtle**

- S1: Critically Imperiled

### **Loggerhead Sea Turtle**

- S4: Apparently Secure

Conservation Status obtained from NatureServe Explorer.

## **3.0 CONSERVATION PLAN**

This Conservation Plan is comprised of two sections. The first section describes the likely impact of continued facility operations on sea turtles. The second section describes the measures the facility will implement to minimize take.

### **3.1 ANTICIPATED IMPACT OF THE ACTIVITY ON SEA TURTLES**

#### **3.1.1. Impacted Species**

Based on the distribution and habitat requirements of the threatened and endangered sea turtle species in the vicinity of the facility, the Green and Kemp's Ridley sea turtles are most likely to be affected by the facility's cooling water intake canal. The likelihood of the presence of hawksbill, loggerhead, and leatherback sea turtles in the vicinity of the facility is low. To date, the facility has not encountered any hawksbill, loggerhead, or leatherback sea turtles in the intake canal.

#### **3.1.2. Types of Impacts**

The facility monitors the intake canal and bulkhead in an effort to intercept sea turtles prior to their contact with the traveling trash racks. When a sea turtle is located during business hours, the sea turtle is collected by Texas Parks and Wildlife Department (TPWD) and held at their nearby facility (CCA Marine Development Center) located within the facility property (4301 Waldron Road) until the United States Fish and Wildlife Service (USFWS) collects the sea turtle(s) for tagging and rehabilitation at the Animal Rehabilitation Keep (ARK) prior to release in the Gulf. If TPWD is unable to collect the turtle, they will instruct facility personnel to collect the animal. A telescopic pole with a net attached will be utilized to collect the turtle. The turtle will then be placed in an open-top container to be measured and documented prior to being transferred to a secure area inside and placed in a dry plastic pool to await collection by TPWD. If a turtle is located after hours, trained facility personnel will collect the animal utilizing the same procedure identified above. This collection is considered a "harassment" of the sea turtles, however, no physical harm is expected from this collection activity. These procedures were developed in accordance with communications between the National Park Service, Division of Sea Turtle Science and Recovery, Padre Island National Seashore and Talen EHS. A copy of the email correspondence verifying this procedure is provided in Attachment B.

Typically, turtles are located in the intake canal and/or bulkhead prior to reaching the traveling-trash racks; however, it is possible that a sea turtle may become impinged on the travelling-trash rack. Due to the arrangement and operations of the intake structure, impingement of turtles may be lethal. The historical take data includes turtles that were located in the intake canal and/or bulkhead, as well as any turtles that may have been impinged on the trash racks. Records specifying the location of the turtles are unavailable for historic takes. However, discussions with facility personnel indicate that the majority

of turtles have been and continue to be located in the intake canal and bulkhead prior to entering other components of the intake structure. The facility has implemented recordkeeping procedures to document takes of sea turtles including the location of the take. The recovery of turtles will follow the procedure identified in Attachment A. A description of the facility's CWIS (Figure 3) and its operation are below:

Cooling water passes through the bulkhead where dead and dying seagrass fragments, referred to as "wrack," are removed. The water for each unit then passes through a traveling-trash rack composed of 0.5-inch steel bars on 3.5-inch centers, a concrete receiving area (bay) that is 13 feet wide, traveling-water screens, and then to sumps for the cooling water pumps. Passavant fine-mesh, center-flow screens are operated continuously to reduce the numbers of entrained organisms. The current screens are constructed with 1 x 2 mm rectangular nylon mesh to reduce clogging with a calculated maximum through-screen velocity of 1.15 ft/sec. As the screens rotate, high-pressure wash water flushes the back side of each panel at the top of the vertical cycle into an overhead trough which carries the impinged organisms and debris to a peripheral fish handling device. The screen-wash water goes to a sluiceway which empties into a concrete sump and from there is pumped directly into the facility's cooling pond via pipeline.

Although the facility has been in operation since 1974, the presence of sea turtles in the intake canal has only occurred during the past ten (10) years. Operational changes have been made over the past ten (10) years; however, none of the changes would lead to an increased presence of turtles in the intake canal. Historically, records identifying the number or species of turtles taken have not been maintained. Official procedures for managing the take of turtles were not established until the preparation of this Conservation Plan; however, the facility has had unofficial procedures in place and has coordinated with Texas Parks and Wildlife to assist with the collection of turtles. With the increase in frequency and quantity of turtles located in the intake canal each year, the facility has implemented procedures to monitor and record takes and has applied for an Incidental Take Permit (12/23/2015). A copy of the facility's procedures regarding the management of sea turtles in the intake canal can be found in Attachment A of this document.

### **3.1.3. Anticipated Impact of the Activity on Habitat**

Significant habitat modification or degradation which kills or injures sea turtles is not expected to be caused by the collection activity. Barney M. Davis Power Station is an existing facility that has been in operation since 1974. There are no planned construction activities or operational changes that would affect the habitat in the vicinity of the facility.

### 3.1.4. Anticipated Take

Anticipated take is estimated on an annual basis, with the take occurring during the colder, winter months (December - March). Historical take of sea turtles and the requested rolling 3-year take of turtles, by species, is as follows:

Historical Take of Sea Turtles at Barney M. Davis				
Year	Species	Alive	Dead	Total
2017	Green	5	0	5
2016	Green	12	1	13
2015	Green	6	1	7
2014	Green	67	6	73
	Kemp's Ridley	1	0	1
2013	Green	70	13	83
2012	Green	8	2	10
2010	Green	5	0	5
2009	Green	1	0	1

\*\* Data provided by the Texas Sea Turtle Salvage and Stranding Network, Barney M. Davis Facility Records, and Padre Island National Seashore Division of Sea Turtle Science and Recovery.

Note: The requested take numbers are calculated by multiplying the highest number of takes over the last five (5) years by three (3), per recommendation of NOAA staff.

- The requested rolling 3-year take of Green Sea turtles is two hundred ten (210) live, thirty-nine (39) dead.
- The requested rolling 3-year take of Kemp's Ridley Sea turtles is three (3) live, zero (0) dead.
- No take of Hawksbill, Leatherback, or Loggerhead sea turtles is expected.

Typically, turtles are located in the intake canal and/or bulkhead prior to reaching the traveling-trash racks; however, it is possible that a sea turtle may become impinged on the travelling-trash rack. Due to the arrangement and operations of the intake structure, impingement of turtles may be lethal. The historical take data above includes turtles that were located in the intake canal and/or bulkhead, as well as any turtles that may have been impinged on the trash racks. Records specifying the location of the turtles are unavailable for historic takes. However, discussions with facility personnel indicate that the majority of turtles have been and continue to be located at the intake canal and bulkhead prior to entering other components of the intake structure. The facility has implemented recordkeeping procedures to document takes of sea turtles including the location of the take. The recovery of turtles will follow the procedure identified in Attachment A.

Life stages of the turtles anticipated to be affected by the take is currently unknown but will be monitored and recorded by facility staff. Attachment A of this document, "Management

of Sea turtles at the Intake Canal,” provides a tracking mechanism for the facility and a means to identify the life stage and species of each turtle. Copies of these records will be maintained on-site for ten (10) years, on a rolling basis.

### **3.2 MONITORING AND MITIGATION OF ANTICIPATED TAKES**

The facility utilizes a 0.75-mile cooling water intake canal leading to the CWIS from the Laguna Madre (See Figure 1). Facility personnel will visually monitor from the area immediately surrounding the cribhouse, which includes the bulkhead, trash racks, and intake canal on a seasonal schedule. From December 1<sup>st</sup> through March 31<sup>st</sup>, monitoring will be conducted a minimum of four (4) times per twelve (12) hour shift, spaced at approximately three (3) hour intervals. From April 1<sup>st</sup> through November 30<sup>th</sup>, monitoring will be conducted one (1) time per shift, or once approximately every twelve (12) hours. Visual monitoring will last for approximately fifteen (15) minutes during each monitoring event. The frequency and length of each monitoring event provides sufficient opportunity to identify turtles in the intake canal and bulkhead prior to the turtles reaching the traveling-trash racks. Monitoring will only be conducted from the crib house due to safety concerns at the facility (i.e. lighting, guardrails, and safe walking surfaces are not available for the entire length of the intake canal).

Facility personnel responsible for monitoring the intake canal will be trained upon hire, and again annually, in the proper procedures required for the collection of turtles. This training will include proper recordkeeping procedures, as well as turtle identification training, in order to maintain accurate facility records. This training is to be conducted by the National Park Service, Division of Sea Turtle Science and Recovery, Padre Island National Seashore (Sea Turtle Stranding and Salvage Network). Training records will be maintained on-site for review and/or inspection. Photos of potentially affected species are included in Attachment A “Management of Sea Turtles at the Intake Canal” to assist personnel with species identification. The collection report, included in Attachment A, also requires facility personnel to obtain the length of the turtle(s) collected to assist in estimating the age of the turtle(s) collected. Official procedures for monitoring and mitigation activities at the facility are located in Attachment A of this document, “Management of Sea turtles at the Intake Canal.” Copies of these records will be maintained on-site for ten (10) years, on a rolling basis.

### **3.3 FUNDING**

Barney M. Davis Power Station is an existing facility that has been in operation since 1974. Monitoring and mitigation activities outlined in Attachment A are currently being conducted at the facility by employees trained on this procedure and/or employees of the Texas Parks and Wildlife Department. Texas Parks and Wildlife Department operates a fish hatchery on facility property and will continue to assist with mitigation efforts. Barney M. Davis Power Station is an existing facility and there are no construction activities planned, nor

additional funding. Continued monitoring related to the take of sea turtles will be ongoing and funding provided through the facility's annual operating budget.

### **3.4 ENFORCEMENT**

The National Marine Fisheries Services, Marine Mammal and Sea Turtle Division will oversee the facility's permit and ensure the facility is in compliance with all applicable requirements found in the Endangered Species Act of 1973. Facility employees responsible for monitoring the intake canal will receive appropriate training upon hire, and refresher training annually, to ensure the conditions of the permit are met. Employees will complete the attached "Management of Sea turtles at the Intake Canal" form and completed forms will be maintained on-site for ten (10) years, on a rolling basis.

### **3.5 ALTERNATIVES CONSIDERED**

The facility has considered the following alternative actions to address the take at the facility:

- **Seasonal outages of the facility during winter months when the incidence of take is higher.**

This alternative is not feasible for the facility due to the nature of operations and the year-round need for the facility to supply electricity to the power grid. The facility generates electricity that is used to power residences, small businesses, and large businesses in Texas through the ERCOT grid. ERCOT manages the flow of electricity from approximately 75,000 MW of installed capacity to 24 million Texas customers, representing 90% of the state's electric load. Barney M. Davis Power Station is a key electric generating facility in the ERCOT-South subregion because of its ability to start up quickly and respond to load variability and meet energy demands. Based on the principle of supply and demand, a reduction in the availability of electricity generated by the facility could lead to a negative economic impact on areas receiving power from the facility due to a shortage in availability of electricity. If sufficient power is not generated, not only could prices of electricity increase, but businesses in need of power could also lose revenue due to power shortages. Additionally, the wages of employees of affected businesses could be negatively impacted due to loss of work. Seasonal outages would also greatly affect facility personnel. Barney M. Davis Power Station employs twenty-eight (28) full time staff members, adding another economic hardship to this alternative.

- **No action taken**

The alternative to take no action to mitigate take at the facility was considered as part of the preparation of the facility's Conservation Plan. Due to the nature of the take occurring, if no action was taken to identify and collect turtles in the intake canal, there would be a 100% mortality rate for the turtles. With this approach,

facility personnel would not make any efforts to identify and collect the turtles located in the intake canal prior to reaching the CWIS. This option is not preferred, as implementing procedures to locate and collect turtles can greatly reduce the likelihood of turtles becoming caught in the CWIS.

- **Additional monitoring equipment located prior to the CWIS.**

The addition of electronic monitoring equipment prior to the CWIS was reviewed as an option to reduce potential impingement of turtles. Due to the variability in the size of turtles and other debris that migrates up the intake canal to the CWIS, this technology is not feasible. The equipment would not be able to differentiate between turtles and other debris and would result in excessive man-hours verifying alarm notifications to identify the trigger.

- **Physical barriers at the entrance of intake canal**

Installation of physical barriers at the entrance of the intake canal on the Laguna Madre was evaluated as part of the preparation of the facility's Conservation Plan. Due to the volume of water moving through the intake canal and other debris that migrates into the intake canal this is not currently a viable option.

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**ATTACHMENT A**  
**MANAGEMENT OF SEA TURTLES**  
**AT THE INTAKE CANAL**

<b>Barney M Davis LP</b>		<b>Management of Sea Turtles Entering the Intake Canal</b>	
Number: <b>BD-ENVR-001</b>		Subject: <b>Environmental Policy</b>	
Approved for use by: <b>Gary Clark</b>	Current Issue: <b>Rev 0</b>	Original Issue Date: <b>15 Dec 2015</b>	Last Revision Date: <b>16 Oct 2018</b>
Prepared by: CAMS and Talen Energy Generation, LLC for Barney Davis			

Document Revision History

<b>DATE OR REVIEW</b>	<b>REVISION #</b>	<b>DESCRIPTION OF CHANGES / COMMENTS</b>
12/15/15	0	Initial Issuance of Procedure.
05/06/16	1	Revisions to procedure based on feedback received from NOAA. Species identification and further collection instructions have been included.
08/20/18	2	Update Recordkeeping Form.
10-16-18	3	Revisions to procedure based on feedback received from NOAA and reformatting to ensure the procedure is clear & concise.

***All revisions must be approved by the appropriate corporate contacts for the facility***

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**ATTACHMENTS**

- 1. Sea Turtle Discovery & Notification Log**
- 2. Sea Turtle Picture Information Sheet**
- 3. Routine Crib House Inspection Log – Cooler Months**
- 4. Routine Crib House Inspection Log – Warmer Months**
- 5. Key Contact Information**
- 6. Misc. Information and Guidance Documents**

## 1. REFERENCES

### 1.1 *Incidental Take Permit*

1.1.1 *Permit to be added once permit is issued;*

1.1.2 Incidental Take Permit Under Section 10(a) (1) (B) of the Endangered Species Act of 1973 (ESA)

### 1.2 *National Oceanic and Atmospheric Administration (NOAA)*

## 2. PURPOSE

The purpose of this procedure is to outline the requirements to comply with the management of sea turtles that enter the Facility's intake canal. This take is incidental as considered by the Incidental Take Permit Under Section 10(a) (1) (B) of the Endangered Species Act of 1973 (ESA).

## 3. SCOPE

This Program establishes the guidelines to assist with ensuring that Sea Turtles of the Atlantic and Gulf of Mexico which enter into the Barney M Davis LP ("Barney Davis") Intake Canal are being observed, reported, handled as required, properly identified, and/or documented correctly.

## 4. DEFINITIONS

- 4.1 **Cold-Stunned** - refers to the hypothermic reaction that occurs when sea turtles are exposed to prolonged cold water temperatures. Initial symptoms include a decreased heart rate, decreased circulation, and lethargy, followed by shock, pneumonia and possibly death.
- 4.2 **Cooler Months** – refers to the period of time each year beginning on December 1<sup>st</sup> and lasting until March 31<sup>st</sup>.
- 4.3 **Cribhouse** – the structure at the end of the intake canal which is closest to the facility and includes the following structures: portion of the intake canal which is visible from the intake structure itself, the bulkhead, the trash racks, the platforms/walking surfaces, the conveyor belt, and the dump truck
- 4.4 **Facility** – Barney M Davis LP ("Barney Davis")
- 4.5 **Intake Canal** – the permitted canal which extends from the cut into the Laguna Madre to the Cribhouse.
- 4.6 **Site EHS Representative** – the individual(s) who is(are) assigned by Site Management to perform environmental, health, & safety functions for the Facility.
- 4.7 **Site Employee** - Individual who works at the site under the direct supervision of Site Management.
- 4.8 **Site Management** – The plant/site manager and the management/supervisory team.
- 4.9 **Program** – Management of Sea Turtles Entering the Intake Canal
- 4.10 **Warmer Months** - refers to the period of time each year beginning on April 1<sup>st</sup> and lasting until November 30<sup>th</sup>.

## 5. RESPONSIBILITIES

- 5.1 *Site Management* shall be responsible for;
  - 5.1.1 The implementation and enforcement of this Program at the site.
  - 5.1.2 Monitoring compliance with this Program by employees and contractors working on site.
  - 5.1.3 Ensuring that the activities outlined in this Program are being performed, documented, and records are being maintained.
  - 5.1.4 Ensuring employees are made aware of and have been trained on the requirements of this Program.
- 5.2 *Site Environmental, Health & Safety Representative shall be responsible for;*
  - 5.2.1 Gathering the documentation which is outlined in this Program and maintaining it in a manner which is suitable for both internal and external review.
- 5.3 *Site Employees shall be responsible for;*
  - 5.3.1 Ensuring that they ask questions if there is any uncertainty surrounding this Program or the requirements placed upon the Facility.
  - 5.3.2 Ensuring that they are performing their work in compliance with this Program.
  - 5.3.3 Ensuring that the required inspections and subsequent documentation is being filled out and placed in the correct location(s).
  - 5.3.4 Ensuring that information needed to comply with this procedure is properly documented and made available upon request.
  - 5.3.5 Participating in annual training and performing work duties in accordance with the training.

## 6. ROUTINE INSPECTIONS

- 6.1 Intervals
  - 6.1.1 Cooler Months
    - 6.1.1.1 The Cribhouse **shall be** inspected by a Site Employee four (4) times per 12 hour shift.
  - 6.1.2 Warmer Months
    - 6.1.2.1 The Cribhouse **shall be** inspected by a Site Employee one (1) time per 12 hour shift.
- 6.2 Routine Inspection Process
  - 6.2.1 The Site Employee performing the inspection **shall:**
    - 6.2.1.1.1 First, document who is performing the inspection, the atmospheric conditions at the time of the inspection, and the date and time in which the inspection commenced.
    - 6.2.1.1.2 Secondly, visually inspect the bulkhead, the trash racks, the conveyor belt, and the dump truck to ensure a turtle is not located in these areas.

- 6.2.1.1.3 Next, move to a location in which they can clearly see the Intake Canal.

***NOTE:** During inspections performed after sunset, the area of the Intake Canal which is visible will be much less than the area which is visible in the daylight.*

- 6.2.1.1.4 Lastly, document the time in which the inspection was completed.
- 6.2.1.1.5 These inspections **shall be** spaced out by approximately 3 hour intervals;
- 6.2.1.1.6 The inspections **shall be** documented via **Attachment 3**
- 6.2.1.1.7 During each routine inspection, the visual monitoring **shall last** 15 minutes.

***NOTE:** Visual monitoring from the Cribhouse provides Site Employees with the opportunity to identify turtles in the Intake Canal prior to them reaching other components of the Cribhouse. Visually monitoring the Intake Canal for a period of 15 minutes provides sufficient time for the majority of turtles to surface, be seen, notifications be made, and an attempt to be removed prior to reaching other components of the Cribhouse; however, at times turtles may be underwater, unable to be located, and/or not be removed prior to reaching other components of the Cribhouse.*

### **6.3** Turtle Discovery - Notifications

- 6.3.1** If during the course of the routine inspection a turtle is discovered, the Site Employee performing the inspection **shall**:

- 6.3.1.1.1 Immediately notify the control room operator (CRO).
- 6.3.1.1.2 Wait for further guidance from the CRO.

- 6.3.2** The CRO **shall**:

- 6.3.2.1.1 Immediately contact Texas Parks & Wildlife Hatchery (“TPWH”) and request that TPWH send someone to remove the turtle.
- 6.3.2.1.2 Initiate a Sea Turtle Discovery & Notification Log (**Attachment 1**).
- 6.3.2.1.3 Ensure that the TPWH clearly states the action to be taken next.

***NOTE:** If the TPWH is unable to rescue the turtle in a timely manner and instructs facility personnel to rescue the turtle, the CRO **shall** instruct another Site Employee to head to the Cribhouse to assist with rescuing the turtle. The Site Employees are to rescue the turtle if they can do so in a manner which does not jeopardize their personal safety.*

- 6.3.2.1.4 Instruct another Site Employee to head to the Cribhouse to assist with the rescuing of the turtle.

- 6.3.2.1.5 Instruct the Site Employee who reported the turtle's presence, once help arrives, to rescue the turtle if they can do so in a manner which does not jeopardize their personal safety.
- 6.3.2.1.6 In the event that no one is reached at the TPWH, call the Padre Island NS Division of Sea Turtle Science & Recovery to see if someone from their organization could come out to pick up the turtle.
- 6.3.2.1.7 Next, if no one is reached at the Padre Island NS Division of Sea Turtle Science & Recovery phone number, call the 24/7 on-call emergency phone for the National Park Service and they will arrange for someone to come out to pick up the turtle.

### 6.3.3 Turtle Discovery – Rescue

#### 6.3.3.1 Texas Parks & Wildlife Hatchery ("TPWH") responds:

- 6.3.3.1.1 TPWH arrives onsite, reports to the control room, and signs into the Facility.
- 6.3.3.1.2 The CRO **shall** brief TPWH on the requirements of the Facility's safety procedure for working near or around water.
- 6.3.3.1.3 The CRO **shall** have a Site Employee escort TPWH to the Cribhouse and turn them over to the Site Employee who reported the turtle.
- 6.3.3.1.4 The Site Employee who reported the presence of the turtle **shall** ensure that all required PPE & equipment is available/in-place and being utilized by all parties.
- 6.3.3.1.5 The Site Employee who reported the presence of the turtle **shall** provide assistance to TPWH in rescuing the turtle as requested.

***NOTE:** The Site Employee **shall** ensure that they can rescue the turtle in a manner which does not jeopardize their personal safety. Additionally, the Site Employee should do everything possible not to touch the turtle with his hands and to limit the agitation of the turtle.*

- 6.3.3.1.6 TPWH and the Site Employee **shall** place the turtle in a dry open-topped container located in a shaded area to be measured, identified, and held until Texas Parks and Wildlife can come collect the animal.

***Note:** Photo(s) of the rescued turtle shall be taken by a Site Employee once the turtle is placed in a dry open-topped container located in a shaded area. The photo(s) shall be documented via the Sea Turtle Picture Information Sheet provided in **Attachment 2**.*

6.3.3.1.7 TPWH **shall** identify the species of sea turtle which was rescued.

**6.3.3.2** Site Employees Respond:

6.3.3.2.1 The CRO **shall** have a second Site Employee report to the Cribhouse to assist the Site Employee who reported the turtle.

6.3.3.2.2 The Site Employees **shall** ensure that all required PPE & equipment is available/in-place and being utilized by all parties.

6.3.3.2.3 The Site Employees **shall** work together to rescue the turtle.

*NOTE: The Site Employees **shall** ensure that they can rescue the turtle in a manner which does not jeopardize their personal safety. Additionally, the Site Employees should do everything possible not to touch the turtle with their hands and to limit the agitation of the turtle.*

6.3.3.2.4 The Site Employees **shall** place the turtle in a dry open-topped container to be measured, identified, and held until Texas Parks and Wildlife can come collect the animal.

*Note: Photo(s) of the rescued turtle shall be taken by a Site Employee once the turtle is placed in a dry open-topped container located in a shaded area. The photo(s) shall be documented via the Sea Turtle Picture Information Sheet provided in **Attachment 2**.*

6.3.3.2.5 The Site Employees **shall** attempt to correctly identify the species of sea turtle which was rescued.

*Note: Information needed to help with the identification of the rescued turtle can be found in **Attachment 6**.*

**6.3.4** Turtle Discovery – Transport Off-Site

**6.3.4.1** Texas Parks & Wildlife Hatchery (“TPWH”) Rescue:

6.3.4.1.1 The CRO and/or the Site Employee(s) involved with the rescue effort **shall** confirm that TPWH has made arrangements for the turtle to be removed from the Facility.

6.3.4.1.2 The CRO and/or the Site Employee(s) involved with the rescue effort **shall** get an estimated time of arrival for when the turtle will be transported off-site.

6.3.4.1.3 The CRO **shall** notify security of the turtle transport.

*Note: The CRO shall call the Padre Island NS Division of Sea Turtle Science & Recovery, contact information listed in Attachment 5, if no one arrives to the Facility by the estimated time of arrival.*

**6.3.4.2** Site Employees Rescue:

6.3.4.2.1 The CRO **shall** confirm that TPWH has made arrangements for the turtle to be removed from the Facility and get an estimated time of arrival for the turtle transport.

*Note: The CRO shall call the Padre Island NS Division of Sea Turtle Science & Recovery, contact information listed in Attachment 5, if the TPWH states they have not made arrangements and/or they can't be reached to make arrangements for the turtle to be transported from the Facility.*

6.3.4.2.2 The CRO **shall** notify security of the turtle transport.

*Note: The CRO shall call the Padre Island NS Division of Sea Turtle Science & Recovery, contact information listed in Attachment 5, if no one arrives to the Facility by the estimated time of arrival.*

**7. RECORDKEEPING**

**7.1** The Facility shall ensure that the following documentation is being maintained in an organized manner:

- 7.1.1** Sea Turtle Discovery & Notification Log
- 7.1.2** Sea Turtle Picture Information Sheet
- 7.1.3** Routine Crib House Inspection Log – Cooler Months
- 7.1.4** Routine Crib House Inspection Log – Warmer Months

**7.2** The Facility shall maintain all documentation required by this Program for a 10 year (rolling) period.

**8. TRAINING**

**8.1** Training shall be provided to employees per the following:

- 8.1.1** Before a Site Employee is assigned duties which are covered under this Program;
- 8.1.2** Whenever there is a change to this Program;
- 8.1.3** Whenever Site Management believes that a deviation from the requirements of this Program and/or inadequacies in employee's knowledge or use of this Program exists; and
- 8.1.4** Annually just prior to the Cooler Months, to ensure that all site employees understand the requirements of the Program.

**8.2** A record of all training sessions shall be maintained and shall certify that the training required above has been completed.

**8.2.1** This record may be in the form of an

8.2.1.1.1 Initial qualification card, which has been signed off on, or

8.2.1.1.2 A training log which contains the Site Employee's name, the Site Employee's signature, the signature of the trainer, and the date of the training.

# **Attachment 1**

## Sea Turtle Discovery & Notification Log

# Barney Davis

## Sea Turtle Discovery & Notification Log

### Initial Discovery

<b><u>Date:</u></b>	<b><u>Time:</u></b>	<b><u>Location (mark location):</u></b>
		<input type="checkbox"/> Intake Canal, List the approximate distance from Trash Rack _____ ft  <input type="checkbox"/> Bulkhead  <input type="checkbox"/> Trash Rack Check one of the following: <input type="checkbox"/> <b><u>On</u></b> or <input type="checkbox"/> <b><u>Against</u></b>  <input type="checkbox"/> Conveyor Belt  <input type="checkbox"/> Dump Truck  <input type="checkbox"/> Debris Pit

### Initial Notification

<b>Site Employee Making Call to TPWD:</b>	<b>TPWH or USFW Employee Whom Took the Report:</b>
<b><u>Name:</u></b>	
<b><u>Time:</u></b>	

### **Action to be Taken:**

- TPWH will respond and capture the turtle.
- TPWH has instructed the facility  
to contact US Fish & Wildlife.
- TPWH did not respond.
- USFW stranding pager was called.
- Other (*Please specify*):

**Continue Onto Next Page/Back of Form**

**Barney Davis**  
**Sea Turtle Discovery & Notification Log**

**Turtle Rescue**

**Individual(s) Rescuing Turtle:**

**Turtle Identification**

**Individual(s) Making the Identification:**

**Species of Turtle** (*mark correct species*):

- Green Sea Turtle
- Loggerhead Turtle
- Kemp's Ridley Sea Turtle
- Unknown

**Approximate size of the turtle:** \_\_\_\_\_

**Turtle Transport**

**Whom Arranged for Transportation Off-Site:**

- TPWH
- Barney Davis

**Agency/Group Contacted:**

\_\_\_\_\_  
**Estimated Time of Arrival:** \_\_\_\_\_  am  pm

**CRO/Final Sign Off**

**Name:**

**Date & Time:**

**Signature:**

# **Attachment 2**

## **Sea Turtle Picture Information Sheet**

**Barney Davis**  
**Sea Turtle Picture Information Sheet**

**Attach Photo Here**

**PHOTO NUMBER:**

\_\_\_\_\_ of \_\_\_\_\_

**DATE TAKEN:**

**TIME TAKEN:**

**LOCATION:**

**PHOTOGRAPHER:**

**NOTES, DIMENSIONS, ETC:**

**ADD ADDITIONAL SHEETS AS NECESSARY**

# **Attachment 3**

## **Routine Crib House Inspection Log Cooler Months**

**Barney Davis**  
**Routine Crib House Inspection Log - Cooler Months**  
*(December 1st and lasting until March 31st)*

**DATE:**

Insp #	Start Time	End Time	Visibility Impairment(s)	# of Turtles Observed	Inspector Initial
1	<input type="checkbox"/> am <input type="checkbox"/> pm	<input type="checkbox"/> am <input type="checkbox"/> pm	<input type="checkbox"/> None <input type="checkbox"/> Precipitation <input type="checkbox"/> Fog/Haze <input type="checkbox"/> Night/Dark		
2	<input type="checkbox"/> am <input type="checkbox"/> pm	<input type="checkbox"/> am <input type="checkbox"/> pm	<input type="checkbox"/> None <input type="checkbox"/> Precipitation <input type="checkbox"/> Fog/Haze <input type="checkbox"/> Night/Dark		
3	<input type="checkbox"/> am <input type="checkbox"/> pm	<input type="checkbox"/> am <input type="checkbox"/> pm	<input type="checkbox"/> None <input type="checkbox"/> Precipitation <input type="checkbox"/> Fog/Haze <input type="checkbox"/> Night/Dark		
4	<input type="checkbox"/> am <input type="checkbox"/> pm	<input type="checkbox"/> am <input type="checkbox"/> pm	<input type="checkbox"/> None <input type="checkbox"/> Precipitation <input type="checkbox"/> Fog/Haze <input type="checkbox"/> Night/Dark		
5	<input type="checkbox"/> am <input type="checkbox"/> pm	<input type="checkbox"/> am <input type="checkbox"/> pm	<input type="checkbox"/> None <input type="checkbox"/> Precipitation <input type="checkbox"/> Fog/Haze <input type="checkbox"/> Night/Dark		
6	<input type="checkbox"/> am <input type="checkbox"/> pm	<input type="checkbox"/> am <input type="checkbox"/> pm	<input type="checkbox"/> None <input type="checkbox"/> Precipitation <input type="checkbox"/> Fog/Haze <input type="checkbox"/> Night/Dark		
7	<input type="checkbox"/> am <input type="checkbox"/> pm	<input type="checkbox"/> am <input type="checkbox"/> pm	<input type="checkbox"/> None <input type="checkbox"/> Precipitation <input type="checkbox"/> Fog/Haze <input type="checkbox"/> Night/Dark		
8	<input type="checkbox"/> am <input type="checkbox"/> pm	<input type="checkbox"/> am <input type="checkbox"/> pm	<input type="checkbox"/> None <input type="checkbox"/> Precipitation <input type="checkbox"/> Fog/Haze <input type="checkbox"/> Night/Dark		

***If a turtle(s) is observed in the intake canal and/or the Cribhouse, ensure that the steps listed within the procedure are followed.***

# Attachment 4

## Routine Crib House Inspection Log Warmer Months

**Barney Davis**  
**Routine Crib House Inspection Log - Warmer Months**  
*(April 1st and lasting until November 30<sup>th</sup>)*

Date	Insp #	Start Time	End Time	Visibility Impairment(s)	# of Turtles Observed	Inspector Initial
	1	<input type="checkbox"/> am <input type="checkbox"/> pm	<input type="checkbox"/> am <input type="checkbox"/> pm	<input type="checkbox"/> None <input type="checkbox"/> Precipitation <input type="checkbox"/> Fog/Haze <input type="checkbox"/> Night/Dark		
	2	<input type="checkbox"/> am <input type="checkbox"/> pm	<input type="checkbox"/> am <input type="checkbox"/> pm	<input type="checkbox"/> None <input type="checkbox"/> Precipitation <input type="checkbox"/> Fog/Haze <input type="checkbox"/> Night/Dark		
	1	<input type="checkbox"/> am <input type="checkbox"/> pm	<input type="checkbox"/> am <input type="checkbox"/> pm	<input type="checkbox"/> None <input type="checkbox"/> Precipitation <input type="checkbox"/> Fog/Haze <input type="checkbox"/> Night/Dark		
	2	<input type="checkbox"/> am <input type="checkbox"/> pm	<input type="checkbox"/> am <input type="checkbox"/> pm	<input type="checkbox"/> None <input type="checkbox"/> Precipitation <input type="checkbox"/> Fog/Haze <input type="checkbox"/> Night/Dark		
	1	<input type="checkbox"/> am <input type="checkbox"/> pm	<input type="checkbox"/> am <input type="checkbox"/> pm	<input type="checkbox"/> None <input type="checkbox"/> Precipitation <input type="checkbox"/> Fog/Haze <input type="checkbox"/> Night/Dark		
	2	<input type="checkbox"/> am <input type="checkbox"/> pm	<input type="checkbox"/> am <input type="checkbox"/> pm	<input type="checkbox"/> None <input type="checkbox"/> Precipitation <input type="checkbox"/> Fog/Haze <input type="checkbox"/> Night/Dark		
	1	<input type="checkbox"/> am <input type="checkbox"/> pm	<input type="checkbox"/> am <input type="checkbox"/> pm	<input type="checkbox"/> None <input type="checkbox"/> Precipitation <input type="checkbox"/> Fog/Haze <input type="checkbox"/> Night/Dark		
	2	<input type="checkbox"/> am <input type="checkbox"/> pm	<input type="checkbox"/> am <input type="checkbox"/> pm	<input type="checkbox"/> None <input type="checkbox"/> Precipitation <input type="checkbox"/> Fog/Haze <input type="checkbox"/> Night/Dark		

***If a turtle(s) is observed in the intake canal and/or the Cribhouse, ensure that the steps listed within the procedure are followed.***

# Attachment 5

## Key Contact Information

## Barney Davis

### Sea Turtle Reporting Key Contacts

Group/Agency	Role	Primary	Misc.
Barney M Davis Control Room	Report, Document	(361) 939-5056	Site Employee
Texas Parks & Wildlife Hatchery	Collect & Hold	(361) 939-7784	
US Fish & Wildlife	Document, Tag, & Release	(361) 876-8462	
US Fish & Wildlife	After Hours Stranding Pager	(361) 876-8462	<b><u>PAGER</u></b> Someone On-Call 24/7
Padre Island NS Division of Sea Turtle Science & Recovery	Transport Off-Site & Rehabilitate	(361) 949-8173 Ext 266	

# Attachment 6

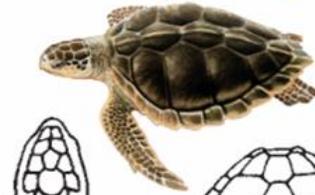
## Misc. Information & Guidance Documents



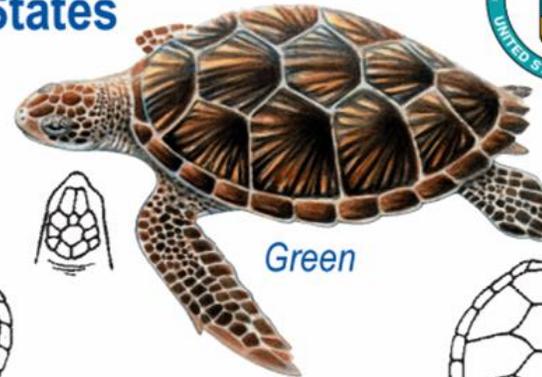
## Sea Turtles of the Atlantic and Gulf Coasts of the United States



Hawksbill



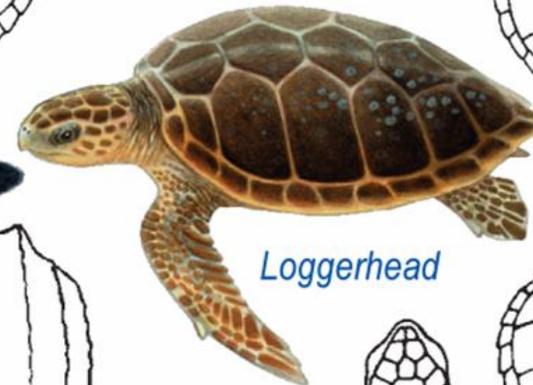
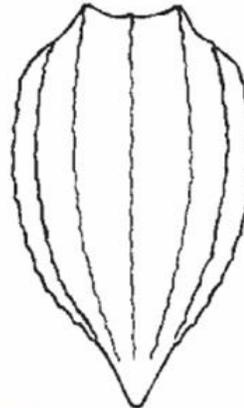
Kemp's ridley



Green



Leatherback



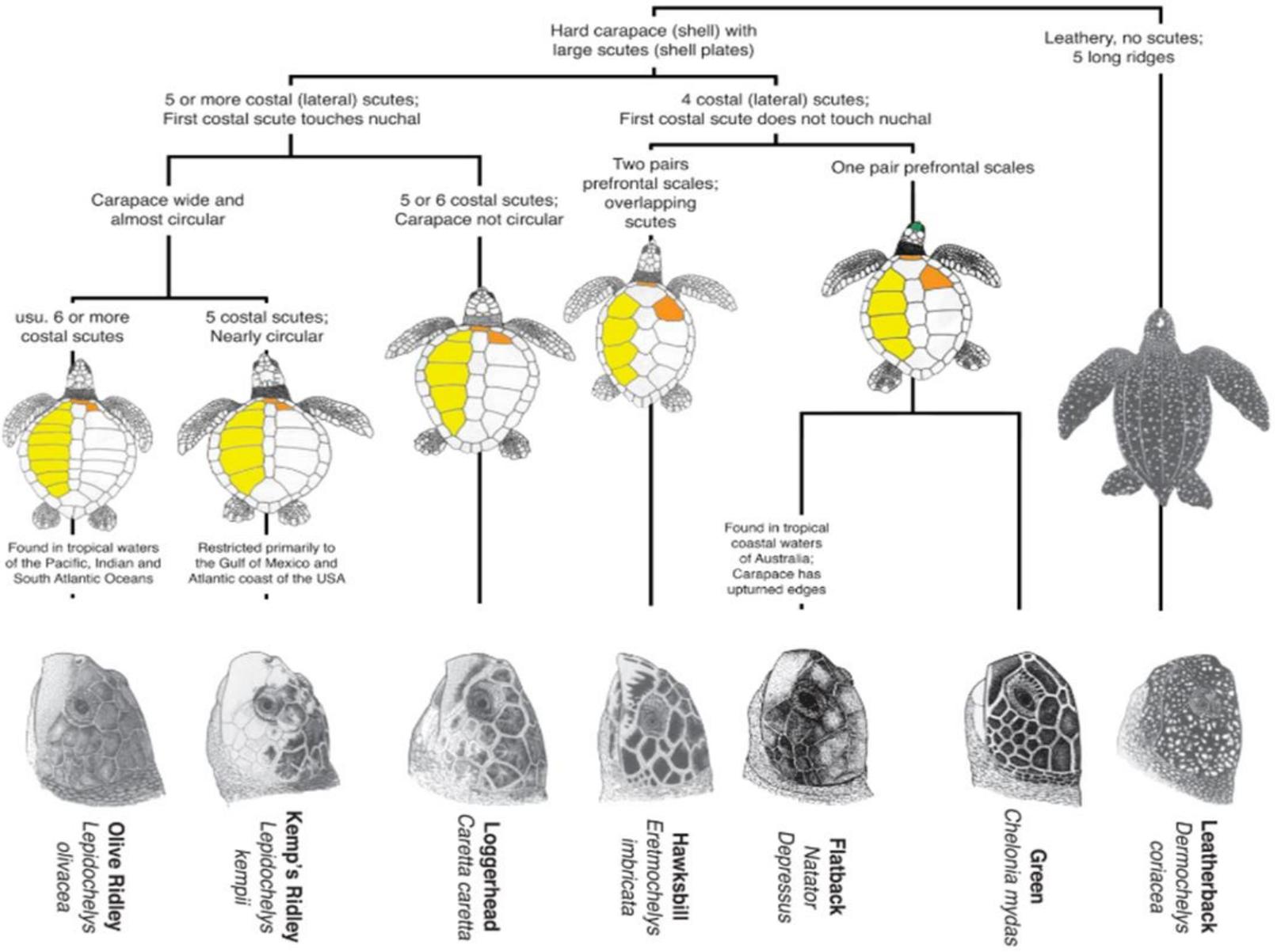
Loggerhead



NOAA Fisheries Service Galveston Laboratory  
4700 Avenue U, Galveston, TX 77551  
(409) 766-3500

<http://www.galvestonlab.sefsc.noaa.gov/>  
To report a nesting or stranded sea turtle,  
please call 1-866-TURTLE-5

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## Sea Turtles of the Atlantic and Gulf Coasts of the United States

### Green

*Chelonia mydas*

- body oval-shaped
- head small and round
- color variable, usually dark with light striations
- uncommon

### Hawksbill

*Eretmochelys imbricata*

- body heart-shaped, or elongate with tapering behind
- head small, narrow with pronounced sharp beak
- color brownish with variable light markings
- uncommon

### Leatherback

*Dermochelys coriacea*

- body elongate
- head medium sized and rounded
- color black
- uncommon

### Kemp's ridley

*Lepidochelys kempii*

- body disc-shaped
- head fairly large
- color grey to olive green
- very rare

### Loggerhead

*Caretta caretta*

- body heart-shaped, or slightly elongate with tapering at end
- head very large and triangular
- color reddish brown
- very common

**ATTACHMENT B**  
**EMAIL CORRESPONDENCE REGARDING TURTLE COLLECTION**  
**PROCEDURES BETWEEN C. GARCIA-RIOS (TALEN EHS) AND L.**  
**GUILLEN (NATIONAL PARK SERVICE, DIVISION OF SEA TURTLE**  
**SCIENCE AND RECOVERY)**

## Hailey Cofty

---

**From:** Garcia-Rios, Cecilia <[cgarciarrios@topazpowergroup.com](mailto:cgarciarrios@topazpowergroup.com)>  
**Sent:** Thursday, April 7, 2016 2:24 PM  
**To:** Alison Davis; Hailey Cofty  
**Subject:** FW: Barney Davis Power Plant Turtles



**Cecilia Garcia-Rios** • Environmental Director Jade Operations  
Topaz Power Group • (956) 763-3510 [cgarciarrios@topazpowergroup.com](mailto:cgarciarrios@topazpowergroup.com)  
Barney Davis Energy Center • Laredo Energy Center • Nueces Bay Energy Center

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---

**From:** Guillen, Lucia [mailto:[lucia\\_guillen@nps.gov](mailto:lucia_guillen@nps.gov)]  
**Sent:** Wednesday, December 09, 2015 2:48 PM  
**To:** Garcia-Rios, Cecilia  
**Cc:** Cynthia Rubio  
**Subject:** Re: Barney Davis Power Plant Turtles

Ms. Rios,

I verified with the T.P.W.D Hatchery and they will go and pick up any turtles that you get. Just call Rodney or Ruben at 939-7784 to get them. If you cannot contact their staff or if it is after hours please put the animal in a box or container without water place it in a secure area inside and call our stranding pager 361-876-8462 anytime. We will make arrangements to pick up the animal as soon as possible.

Thank you,

On Wed, Dec 9, 2015 at 10:15 AM, Garcia-Rios, Cecilia <[cgarciarrios@topazpowergroup.com](mailto:cgarciarrios@topazpowergroup.com)> wrote:

Got it. thanks.



**Cecilia Garcia-Rios** • Environmental Director Jade Operations  
Topaz Power Group • (956) 763-3510 [cgarciarrios@topazpowergroup.com](mailto:cgarciarrios@topazpowergroup.com)  
Barney Davis Energy Center • Laredo Energy Center • Nueces Bay Energy Center

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---

**From:** Guillen, Lucia [mailto:[lucia\\_guillen@nps.gov](mailto:lucia_guillen@nps.gov)]  
**Sent:** Wednesday, December 09, 2015 10:12 AM  
**To:** Garcia-Rios, Cecilia  
**Subject:** Barney Davis Power Plant Turtles

Test email.

--

\*\*\*\*\*

Lucia Guillen

Biological Science Technician

Division of Sea Turtle Science and Recovery

Padre Island National Seashore

National Park Service

<http://www.nps.gov/pais/>

LIKE US on FACEBOOK at

[www.facebook.com/nps.pais.seaturtles](http://www.facebook.com/nps.pais.seaturtles)

Address for mail:

Padre Island National Seashore

P.O. Box 181300

Corpus Christi, TX 78480-1300

Address for express mail services:

Padre Island National Seashore

Ranger Station

20301 Park Road 22

Corpus Christi, TX 78418

Phone: (361) 949-8173 ext. 258

Fax: (361) 949-9134

E-mail: [lucia\\_guillen@nps.gov](mailto:lucia_guillen@nps.gov)

\*\*\*\*\*

--

\*\*\*\*\*

Lucia Guillen  
Biological Science Technician  
Division of Sea Turtle Science and Recovery  
Padre Island National Seashore  
National Park Service  
<http://www.nps.gov/pais/>  
LIKE US on FACEBOOK at  
[www.facebook.com/nps.pais.seaturtles](http://www.facebook.com/nps.pais.seaturtles)

Address for mail:  
Padre Island National Seashore  
P.O. Box 181300  
Corpus Christi, TX 78480-1300

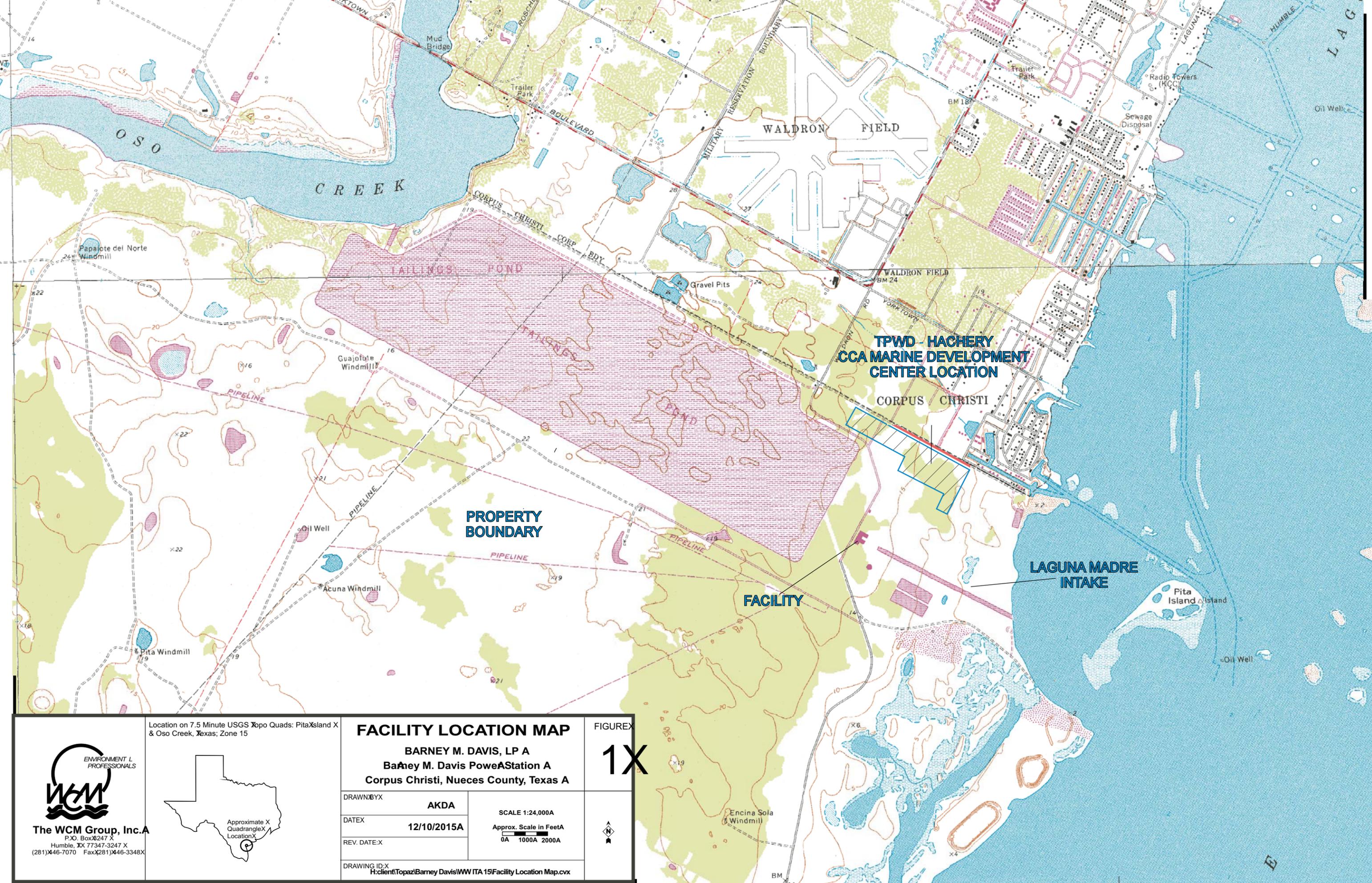
Address for express mail services:  
Padre Island National Seashore  
Ranger Station

20301 Park Road 22  
Corpus Christi, TX 78418

Phone: (361) 949-8173 ext. 258  
Fax: (361) 949-9134  
E-mail: [lucia\\_guillen@nps.gov](mailto:lucia_guillen@nps.gov)

\*\*\*\*\*

**FIGURE 1**  
**FACILITY LOCATION**



Location on 7.5 Minute USGS Topo Quads: Pita Island X & Oso Creek, Texas; Zone 15

### FACILITY LOCATION MAP

FIGURE

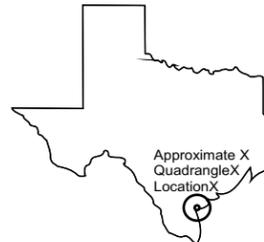
**BARNEY M. DAVIS, LP A**  
**Barney M. Davis Power Station A**  
**Corpus Christi, Nueces County, Texas A**

# 1X

DRAWN BY: X	AKDA	SCALE 1:24,000A Approx. Scale in Feet A 0A 1000A 2000A
DATE: X	12/10/2015A	
REV. DATE: X		
DRAWING ID: X H:\client\Topaz\Barney Davis\WW ITA 15\Facility Location Map.cvx		

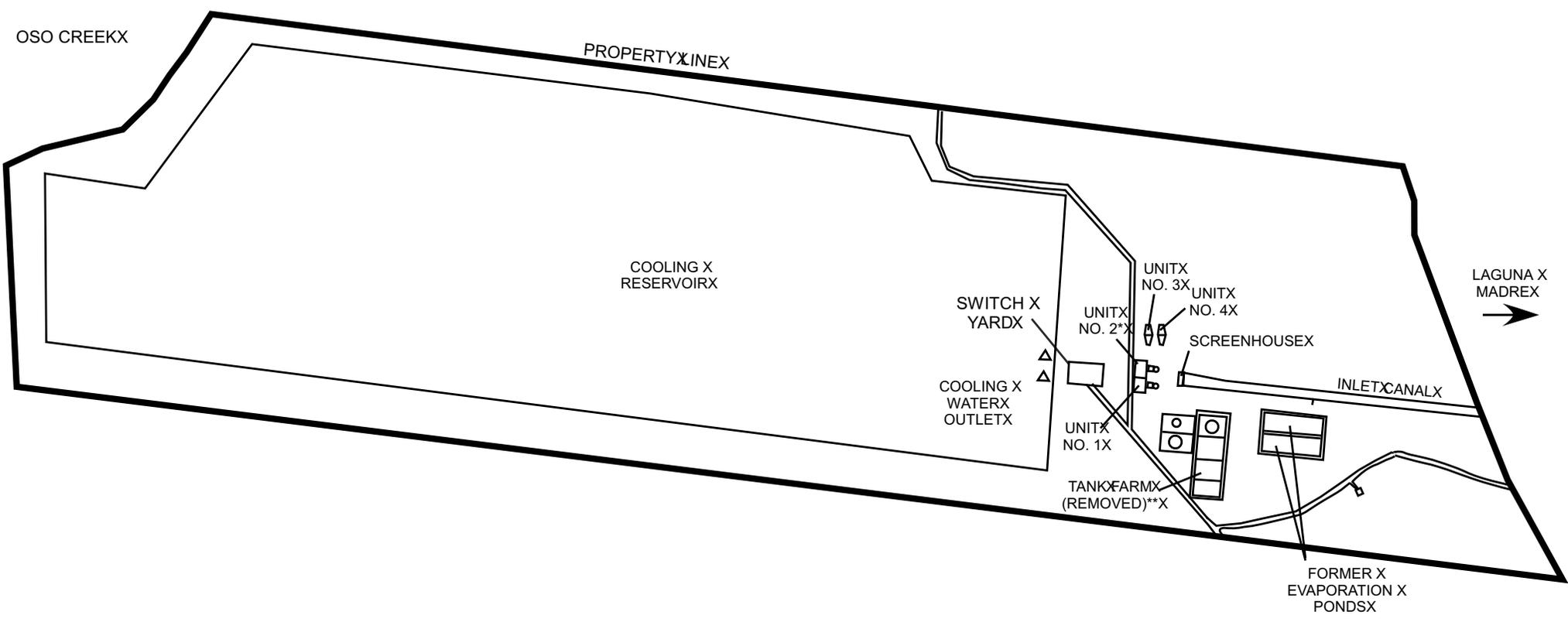


**The WCM Group, Inc. A**  
 P.O. Box 8247 X  
 Humble, TX 77347-3247 X  
 (281) 446-7070 Fax (281) 446-3348 X



Approximate X  
 Quadrangle X  
 Location X

**FIGURE 2**  
**FACILITY LAYOUT**



**ENVIRONMENTAL PROFESSIONALS**

**WCM**

**The WCM Group, Inc.**  
 P. O. Box 247  
 Humble, TX 77347-3247  
 (281) 446-7070 Fax (281) 446-3348

Location on 7.5 Minute USGS Topo Quads: Pita Island & Oso Creek NE, Texas; Zone 15

Approximate Quadrangle Location

<b>FACILITY LAYOUT MAP</b>	
<b>BARNEY M. DAVIS, LP</b>	
<b>Barney M. Davis Power Station</b>	
<b>Corpus Christi, Nueces County, Texas</b>	
DRAWN BY:	LLBY
DATE:	10/13/2006
REV. DATE:	12/14/2015
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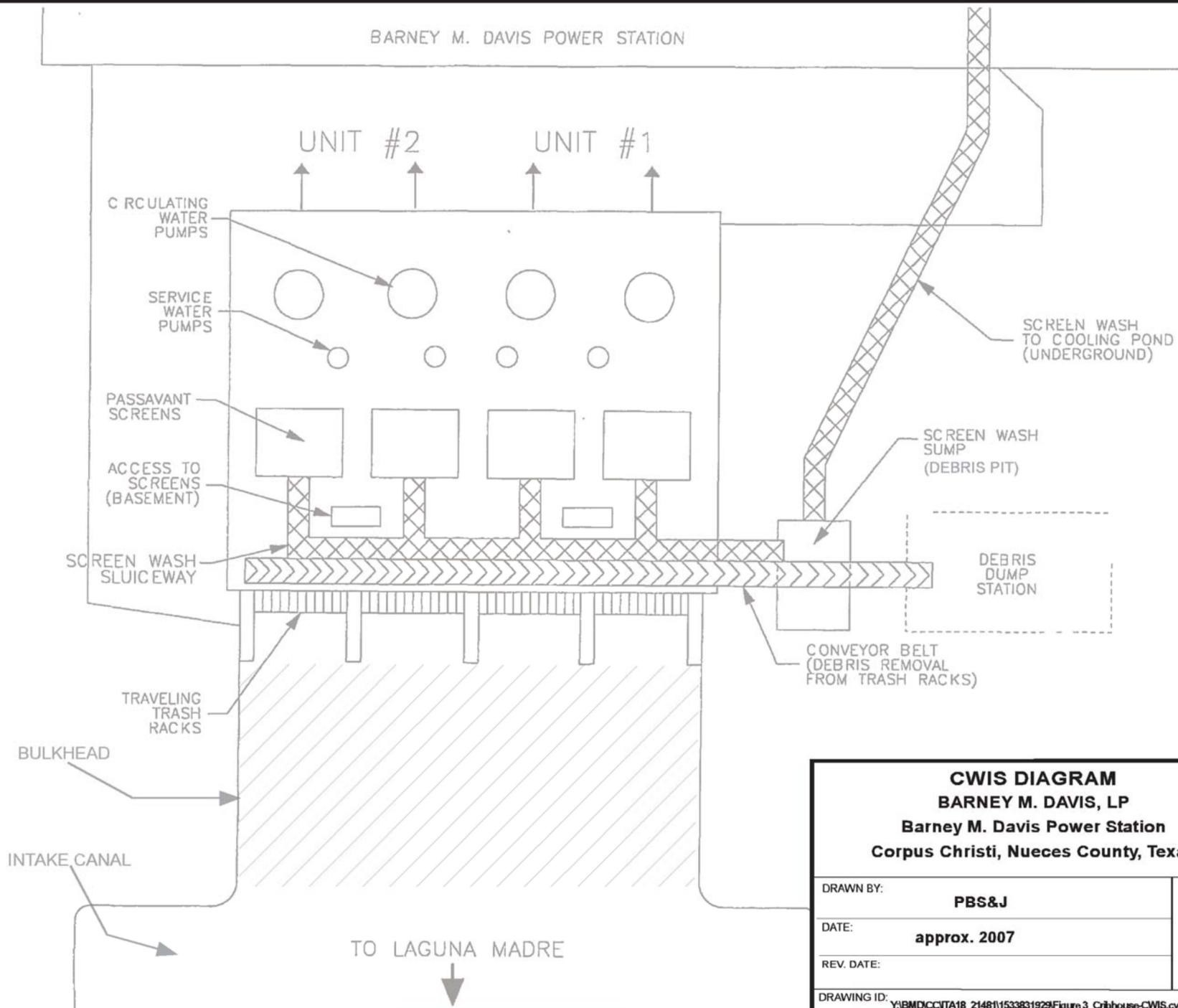
FIGURE

2

Not to Scale

**FIGURE 3**  
**CWIS DIAGRAM**

BARNEY M. DAVIS POWER STATION



**CWIS DIAGRAM**  
**BARNEY M. DAVIS, LP**  
 Barney M. Davis Power Station  
 Corpus Christi, Nueces County, Texas

DRAWN BY:	<b>PBS&amp;J</b>	<b>FIGURE</b> <b>3</b>
DATE:	<b>approx. 2007</b>	
REV. DATE:		
DRAWING ID: Y:\BMD\CC\ITA18_21481\1533831929\Figure_3_Cribhouse-CWIS.cvx		