

**NPDES PERMIT NO. TX0092827
STATEMENT OF BASIS**

FOR THE DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
(NPDES) PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES

I. APPLICANT:

U.S. Department of Energy
Strategic Petroleum Reserve
Big Hill Oil Storage
24784 Big Hill Road
Winnie, TX 77665

II. ISSUING OFFICE:

U.S. Environmental Protection Agency
Region 6
1445 Ross Avenue
Dallas, Texas 75202-2733

III. PREPARED BY:

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IV. DATE PREPARED:

July 11, 2008

V. PERMIT ACTION:

The Environmental Protection Agency (EPA) has made a tentative determination, after consultation with the Railroad Commission of Texas (RRC), to issue a permit to the applicant for the activities described.

40 CFR CITATIONS: Unless otherwise stated, citations to 40 CFR refer to promulgated regulations listed at Title 40, Code of Federal Regulations, revised as of July 03, 2008.

FINAL DETERMINATION: The public notice describes the procedures for the formulation of final determinations.

VI. PROPOSED CHANGES FROM PREVIOUS PERMIT

1. Testing frequency for all stormwater discharges (outfalls 003, 005, 006, 007 & 008) have been reduced from monthly testing to quarterly testing based on good compliance history and for consistency with the Texas Rail Road Commission permit.
2. Stormwater Pollution Prevention Plan requirements have been included in the proposed permit.

VII. APPLICANT ACTIVITY

Under the Standard Industrial Classification (SIC) Code 5171, Petroleum Bulk Stations and Terminals, the applicant stores and maintains, in ready access, crude oil reserves to be used in the event of national energy crisis.

The Strategic Petroleum Reserve (SPR) stores crude oil in caverns leached deep underground into naturally occurring salt (dome) formations. The facility is currently filled to capacity and is being maintained in a stand-by or operational readiness mode, ready for drawdown. The operational readiness mode requires continual maintenance of systems and equipment and results in the routine discharges of treated site.

VIII. DISCHARGE LOCATION

As described in the application, the facility is located 9 miles south east of Winnie in Jefferson County, Winnie, Texas.

The effluent from the crude oil reserves facility is discharged as follows:

Outfall Reference Number	Discharge Coordinates Latitude Deg° Min' Sec'' Longitude Deg° Min' Sec''	Type of Discharge	Discharge Volume MGD	Receiving Water	Water Body Segment
001	29° 33' 56" N 094° 11' 52" W	Brine diffuser for saltwater from cavern depressuring, through pipeline to offshore	0.668	Gulf of Mexico (approx. 5 miles offshore)	N/A*
002	29° 40' 59" N 094° 11' 42" W	Hydroclone Blowdown & filter backwash (inactive)	0.36 Estimated	Intracoastal waterway	0702
003	29° 44' 51" N 094° 14' 18" W	Retained stormwater from 14 cavern pads	0.061 Estimated	Spindletop Marsh	Unclassified
004	29° 44' 45" N 094° 14' 15" W	Sewage treatment plant	0.00104	Spindletop Marsh	Unclassified
005	29° 44' 57" N 094° 14' 15" W	Stormwater from the site power substation sump	0.0005 Estimated	Spindletop Marsh	Unclassified
006	29° 44' 57" N	Stormwater from surge tank	0.005	Spindletop Marsh	Unclassified

Outfall Reference Number	Discharge Coordinates Latitude Deg° Min' Sec'' Longitude Deg° Min' Sec''	Type of Discharge	Discharge Volume MGD	Receiving Water	Water Body Segment
	094° 14' 27'' W	secondary containment	Estimated		U
007	29° 44' 56'' N 094° 14' 23'' W	Stormwater from meter prover & crude oil meter skid through fire foam retention pond	0.00065 Estimated	Spindletop Marsh	Unclassified
008	29° 40' 59'' N 094° 11' 42'' W	Stormwater from transformer sumps & located at the RWIS**	0.0005 Estimated	Intracoastal waterway	0702
009	29° 40' 59'' N 094° 11' 44'' W	Recirculated ambient water from the intracoastal canal	0.156 Estimated	Intracoastal waterway	0702

* Outside the jurisdictional waters of the state of Texas. Discharge is 5 miles offshore, which is more than the 3 miles limit

**RWIS means Raw Water Intake Structure

IX. STREAM STANDARDS

The general criteria and numerical criteria which make up the stream standards are provided in the 2000 EPA-approved Texas Water Quality Standards, Texas Administrative Code (TAC), 30 TAC Sections 307.1 - 307.10.

The Intracoastal Waterway Tidal of the Neches-Trinity Coastal Basin in Segment No. 0702 is identified by the Texas Commission on Environmental Quality (TCEQ) as a water body with the following designated uses:

- Contact Recreation
- High Aquatic Life

The unclassified Spindletop Marsh is located south of the main site and is not yet classified by TCEQ.

Gulf of Mexico Segment 2501 is identified by the Texas Commission on Environmental Quality (TCEQ) as a water body with the following designated uses:

- Contact Recreation
- Exceptional Aquatic Life
- Oyster Waters

X. DISCHARGE DESCRIPTION

The facility described in the application consists of the Big Hill oil storage facility located near Winnie, Jefferson County, Texas. The facility stores and maintains, in ready access, crude oil reserves in the event of a national energy crisis as part of the Strategic Petroleum Reserve (SPR). The site disposes of brine, salt-containing stormwater and once-through non-contact cooling

water into the Gulf of Mexico via a brine diffuser. The majority of the discharge results from the displacement by crude oil fills and cavern creep. The onsite portions of the brine disposal system consist of an anhydrite pond, which flows into an oil/brine separation pond, which discharges into a Brine Storage Pond prior to pumping offshore (approximately 5 miles offshore) in the Gulf of Mexico. In addition, a low volume of brine is also discharged as needed to bleed off underground pressure as a result of "cavern creep." The receiving water for outfall 001 is the Gulf of Mexico.

Outfall 002 is available for the discharge of filter backwash from the Hydroclone Blowdown system located in the Raw Water Intake Structure (RWIS). The outfall is inactive and has not been used since its construction, may be utilized if raw water conditions require its use in a future date. The source intake and effluent outfalls (002 and 009) are both located in the Intracoastal Waterway.

Stormwater discharges from 14 total similar cavern pads located within the main site is directed through piping to a designated, manifolded, oil/water separators, then to ditches, exiting through sluice gates and culverts to offsite ditches and eventually to Spindletop Marsh from outfall 003. All cavern pads drain ultimately to Spindletop Marsh.

Sanitary waste water is treated in a package plant, then discharged through outfall 004 to spindletop marsh. Prior to discharge, the effluent is piped to a large former stock pond that may overflow to a ditch and passes through a culvert then to Spindletop Marsh to the south via ditches. The receiving water is Spindletop Marsh.

Stormwater from the power substation sump is discharged at Outfall 005; stormwater from surge tank area is discharged at Outfall 006; stormwater from meter prover and crude oil meter skid is discharged at Outfall 007; stormwater from transformer pad located at Raw Water Intake Structure is discharged at Outfall 008. The receiving water for Outfalls 005, 006, 007 is Spindletop Marsh, while the receiving water for outfall 008 is the Intracoastal waterway. The recirculated raw water at the Raw Water Intake Structure is discharged at Outfall 009. The receiving water for outfall 009 is the Intracoastal Waterway.

XI. SOLID WASTE PRACTICES

Sludge from the sanitary sewage treatment and from the oil/water separator is shipped off-site by Johnnie on the Spot Company of Nederland, Texas to the Port Acres Treatment Plant in Port Arthur, Texas. No other solid wastes are produced by the process for other disposal.

XII. TENTATIVE DETERMINATION

The Environmental Protection Agency (EPA) has made a tentative determination, after consultation with the Railroad Commission of Texas (RRC), to re-issue a permit to the applicant for the activities described.

XIII. DRAFT PERMIT RATIONALE

The proposed effluent limitations for those pollutants proposed to be limited are based on regulations promulgated at 40 CFR 122.44. The draft permit limits are based on either technology-based effluent limits pursuant to 40 CFR 122.44(a), on best professional judgment (BPJ) in the absence of guidelines, and/or requirements pursuant to 40 CFR 122.44(d), whichever are more stringent.

A. REASON FOR PERMIT ISSUANCE

An NPDES Application for a Permit to Discharge (Form 1 & 2C) was received on April 28, 2008, and was deemed administratively complete on June 18, 2008.

B. OPERATION AND REPORTING

The permittee must submit Discharge Monitoring Report's (DMR's) quarterly, beginning on the effective date of the permit, lasting through the expiration date of the permit or termination of the permit, to report on all limitations and monitoring requirements in the permit.

C. TECHNOLOGY-BASED EFFLUENT LIMITATIONS/CONDITIONS

Regulations promulgated at 40 CFR 122.44 (a) require technology-based effluent limitations to be placed in NPDES permits based on effluent limitations guidelines (ELG's) where applicable, on BPJ in the absence of guidelines, or on a combination of the two. Limitations on maximum and minimum pH are in accordance with the Best Available Technology Economically Achievable for this industry, and is a function of the Texas Administrative Code (TAC), Title 30, Chapter 307, Environmental Quality: Texas Commission on Environmental Quality, Texas Surface Water Quality Standards. Limitations for Oil & Grease, Total Dissolved Solids (TDS), Total Suspended Solids (TSS), and Biochemical Oxygen Demand (BOD₅) are proposed in the permit and are expressed in terms of concentration. The proposed limitations for Oil & Grease is 15 mg/l maximum, BOD₅ & TSS are each 45 mg/l maximum, 20 mg/l average, and a pH range of 6.0 to 9.0 standard units. The draft permit will not propose mass limits since the flow is variable and intermittent. Concentration limits will be protective of the stream uses. These limitations are based on the Best Professional Judgment of the permit writer and are consistent with the RRCT discharge permit No. UHS-006. However, BOD₅ and TSS limitations are consistent with the limitations for a secondary treatment facility.

D. WATER QUALITY SCREENING

1. General Comments

The Clean Water Act in Section 301 (b) requires that effluent limitations for point sources include any limitations necessary to meet water quality standards. Federal regulations found at 40 CFR 122.44(d) state that if a discharge poses the reasonable potential to cause an in-stream excursion above a water quality criterion, the permit must contain an effluent limit for that

pollutant. If the discharge poses the reasonable potential to cause an in-stream violation of narrative standards, the permit must contain prohibitions to protect that standard. Additionally, the Texas Surface Water Quality Standards (TWQS) found at 30 TAC Chapter 307 states that "surface waters will not be toxic to man from ingestion of water, consumption of aquatic organisms, or contact with the skin, or to terrestrial or aquatic life." The methodology outlined in the "Procedures to implement the Texas Surface Water Quality Standards" (IP) is designed to ensure compliance with 30 TAC Chapter 307. Specifically, the methodology is designed to ensure that no source will be allowed to discharge any wastewater which: (1) results in instream aquatic toxicity; (2) causes a violation of an applicable narrative or numerical state water quality standard; (3) results in the endangerment of a drinking water supply; or (4) results in aquatic bioaccumulation which threatens human health.

The IP document is not a state water quality standard, but rather, a non-binding, non-regulatory guidance document. See IP at page 2 stating that "this is a guidance document and should not be interpreted as a replacement to the rules. The Texas Surface Water Quality Standards (WQS) may be found in 30 Texas Administrative Code (TAC) Sections (§§) 307.1-10."). EPA does not consider the IP to be a new or revised water quality standard and has never approved it as such. EPA did comment on and conditionally "approve" the IP as part of the Continuing Planning Process (CPP) required under 40 CFR §130.5(c) and the Memorandum of Agreement between TCEQ and EPA, but this does not constitute approval of the IP as a water quality standard under CWA section 303(c). Therefore, EPA is not bound by the IP in establishing limits in this permit – but rather, must ensure that the limits are consistent with the EPA-approved state WQS. However, EPA has made an effort, where we believe the IP procedures are consistent with all applicable State and Federal regulations, to use those procedures.

State Water Standards do not apply to outfall 001 because the discharge occurs in federal waters, Gulf of Mexico. Effluent limitations and/or conditions in the draft permit, however, must comply with Ocean Discharge Criteria at 40 CFR Part 125 Subpart M. For outfalls that discharge to intracoastal waters which may affect state waters, a review of the application and updated information revealed that almost all priority pollutants were believed absent. In addition, Big Hill Strategic Petroleum reserve is a minor facility with intermittent discharges in all of its outfalls. Since this is a minor facility with intermittent discharge, water quality based effluents limits are not included in the permit.

2. Reasonable Potential

EPA develops draft permits to comply with State WQS, and for consistency, attempts to follow the IP where appropriate. However, EPA is bound by the State's WQS, not State guidance, including the IP, in determining permit decisions. EPA performs its own technical and legal review for permit issuance, to assure compliance with all applicable State and Federal requirements, including State WQS, and makes its determination based on that review.

Waste load allocations (WLA's) are calculated using estimated effluent dilutions, criteria outlined in the TWQS, and partitioning coefficients for metals (when appropriate and designated in the implementation procedures). The WLA is the end-of-pipe effluent concentrations that can

be discharged and still meet instream criteria after mixing with the receiving stream. From the WLA, a long term average (LTA) is calculated, for both chronic and acute toxicity, using a log normal probability distribution, a given coefficient of variation (0.6), and either a 90th or a 99th percentile confidence level. The 90th percentile confidence level is for discharges to rivers, freshwater streams and narrow tidal rivers with upstream flow data, and the 99th percentile confidence level is for the remainder of cases. For facilities that discharge into receiving streams that have human health standards, a separate LTA will be calculated. The implementation procedures for determining the human health LTA use a 99th percentile confidence level, along with a given coefficient of variation (0.6). The lowest of the calculated LTA; acute, chronic and/or human health, is used to calculate the daily average and daily maximum permit limits.

Procedures found in the IP for determining significant potential are to compare the reported analytical data either from the DMR history and/or the application information, against percentages of the calculated daily average water quality-based effluent limitation. The more stringent of the calculated water quality based effluent limitations are compared against analytical data included with the permit application.

Procedures found in the IP require review of the immediate receiving stream and effected downstream receiving waters. Further, if the discharge reaches a perennial stream or an intermittent stream with perennial pools within three-miles, chronic toxicity criteria apply at that confluence.

3. Reasonable Potential-Calculations

a. pH

The limitation of pH for Outfalls 001, 002, 003, 004, 005, 006, 007 and 008 shall be limited to the range 6.0 to 9.0 su's.

b. Narrative Limitations

Narrative protection for aesthetic standards will propose that surface waters shall be maintained so that oil, grease, or related residue will not produce a visible film 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.

E. WHOLE EFFLUENT TOXICITY LIMITATIONS

Biomonitoring requirement is continued in the proposed permit. Biomonitoring of the effluent is, therefore, required as a condition of this permit to assess potential toxicity. The facility had requested that the frequency of WET testing for the two species be changed to an annual requirement based on process stability, current Region 6 General Permit for offshore discharges of produced water which requires annual WET testing, chemical additives not being used in the process, and the salt water discharge from a mining process associated with transportation related business is not in the same category of "produced water" associated with exploration and

production. As with other facilities of this type, quarterly testing is required with a reduction option if there is no lethal or sublethal toxicity during the first year. Accordingly, this permit requires that discharge to outfall 001 be monitored by a 7-day chronic toxicity test, with quarterly monitoring according to the provisions indicated in Parts I and II of the proposed permit.

The CORMIX model result is continued in the proposed permit. The model results calculate a 2.385% CDF at the edge of the 100-meter regulatory mixing zone edge. Based on the latest model, the CDF to be used for biomonitoring shall be 2.5%. The rounding to 2.5% is to simplify the results for biomonitoring. The dilution series for the biomonitoring test is established using a minimum of five effluent dilutions in addition to the CDF. These additional effluent concentrations, and the CDF, based on a 0.75 series, are 1.0%, 1.5%, 2.0%, 2.5%, and 3.0%. A jet velocity of greater than or equal to 30 fps permit limit is continued in the proposed permit.

The permittee had requested that the approval to use corrosion inhibitors in the raw water during Presidential drawdown be removed. EPA notes that this request is granted in this renewal and will however, not have any effect on those permit conditions proposed to be continued in the proposed permit.

F. FINAL EFFLUENT LIMITATIONS

See the draft permit for limitations.

G. MONITORING FREQUENCY

Regulations require permits to establish monitoring requirements to yield data representative of the monitored activity, 40 CFR 122.48(b) and to assure compliance with permit limitations, 40 CFR 122.44(i)(1). The monitoring frequencies are based on BPJ, taking into account the nature of the discharge.

The permittee had requested that Outfalls 003 through 008, i.e. all stormwater discharges be tested annually based on the long compliance history, current trend towards limiting this type of discharges, current EPA's multi-sector general permit coverage maintained for this site's non-process stormwaters associated with industrial coverage, maintenance of a current storm water pollution prevention plan (SWPPP), and facility's continued enrollment in the EPA's performance Track Program.

A review of the Discharge Monitoring Results reveals that three of the four non compliances during the last permit cycle were of retained stormwater discharges. The permittee is commended on achieving an overall annual site compliance rate of about 99.936% based upon the number of test measurements made and reported against limitations on the DMRs. However, EPA believes that quarterly monitoring of stormwater discharges is more representative of the discharges from this facility and is also consistent with the Railroad commission permit. As a result monthly monitoring frequency is changed to quarterly testing frequency.

For ALL other outfalls, monitoring frequency established in the current permit is continued in the proposed permit

In addition, the permittee is commended on completing five years of successful WET testing. However, monitoring frequency reduction will not be granted during this permit renewal phase. The permittee may apply for a testing frequency reduction upon the successful completion of the first four consecutive quarters of testing for one or both test species, with no lethal or sub-lethal effects demonstrated at or below the critical dilution.

XIV. IMPAIRED WATER - 303(d) LIST AND TMDL

The Intracoastal Waterway Tidal in Segment No. 0702 of the Neches-Trinity Coastal Basin is listed on the Texas 2006 Clean Water Act Section 303(d) List (June 27, 2007) for toxicity in ambient sediment & impaired fish community in Taylor Bayou; and toxicity in ambient water in both headwaters at the Port Arthur Canal and Alligator Bayou in Jefferson County. The discharges do not occur in this region and no other regions downstream of the discharges are listed in Segment No. 0702.

XV. ANTIDEGRADATION

The Texas Commission on Environmental Quality, Texas Surface Water Quality Standards, Antidegradation, Title 30, Part 1, Chapter 307, Rule §307.5 sets forth the requirements to protect designated uses through implementation of the State WQS. The limitations and monitoring requirements set forth in the proposed permit are developed from the State WQS and are protective of those designated uses. Furthermore, the policy sets forth the intent to protect the existing quality of those waters, whose quality exceeds their designated use. The permit requirements are protective of the assimilative capacity of the receiving waters, which is protective of the designated uses of that water. There are no increases of pollutants being discharged to the receiving waters authorized in the proposed permit.

XVI. ANTIBACKSLIDING

The proposed permit is consistent with the requirements and exemption to meet Antibacksliding provisions of the Clean Water Act, Section 402(o) and 40 CFR Part 122.44(i)(B), which state in part that interim or final effluent limitations must be as stringent as those in the previous permit, unless information is available which was not available at the time of permit issuance.

XVII. ENDANGERED SPECIES

The Environmental Protection Agency has evaluated the potential effects of this permit upon listed or proposed endangered or threatened species. Using available tools, primarily the U.S. Fish and Wildlife Service web page, Endangered Species List, EPA Region 6 has determined that discharges proposed to be authorized by the proposed permit may effect but not likely to adversely effect the Green sea turtle (*Chelonia mydas*); Hawksbill sea turtle(*Eretmochelys imbricata*); Kemp's ridley sea turtle(*Lepidochelys kempii*); Leatherback sea turtle(*Dermochelys*

coriacea); Loggerhead sea turtle(*Caretta caretta*); piping Plover(*Charadrius melodus*); and West Indian manatee(*Trichechus manatus*).

SPECIES FOUND IN JEFFERSON COUNTY

Six species in Jefferson County are listed as Endangered or Threatened, according to the most recent listing on the U.S. Fish and Wildlife Service web page for the Southwest Region Ecological Services office at <http://www.fws.gov/southwest/es/EndangeredSpecies/lists/>. The piping Plover is avian and is threatened. The green sea turtle and the loggerhead sea turtle are both listed as Threatened. The other species are the hawksbill sea turtle, Kemp's ridley sea turtle, and leatherback sea turtle are listed as Endangered.

Five marine mammals, five turtles, two fish and two invertebrates are listed as endangered or threatened in the Gulf of Mexico according to the National Marine Fisheries Service website at <http://sero.nmfs.noaa.gov/pr/pdf/Gulf%20of%20Mexico.pdf>. The marine mammals are Blue whale, Finback whale, Humpback whale, Sei whale and Sperm whale. All the turtles found in the Jefferson County are also in the Gulf of Mexico. The threatened fish in the Gulf of Mexico is the Gulf Sturgeon and Smalltooth sawfish. Since the last permit issuance, Right whale has been dropped while two threatened invertebrates and a fish were added to list. These species are Smalltooth sawfish, Elkhorn coral and Staghorn coral invertebrates. Information obtained from NMFS reveals that the Smalltooth sawfish, Elkhorn and Staghorn coral species are not present in the area covered under this permit. Since their range is outside the scope of this permit, no further discussion of the species is included in this Biological Evaluation.

Description of Federally Listed Threatened and Endangered Species

Available information from the U.S. Southwest Region Ecological Services web page presents the occurrence of the listed threatened and endangered species in Jefferson County as follows:

GREEN SEA TURTLE (*Chelonia mydas*)

Sea turtles are graceful saltwater reptiles, well adapted to life in their marine world. With streamlined bodies and flipper-like limbs, they are graceful swimmers able to navigate across the oceans. When they are active, sea turtles must swim to the ocean surface to breathe every few minutes. When they are resting, they can remain underwater for much longer periods of time. Although sea turtles live most of their lives in the ocean, adult females must return to land in order to lay their eggs. Sea turtles often travel long distances from their feeding grounds to their nesting beaches. Human threats include: oil spills, live bottom smothering with sediments and drilling fluids, dredging, coastal development, agricultural and industrial pollution, seagrass bed degradation, shrimp trawling and other fisheries, boat collisions, under water explosions, ingestion of marine debris, entanglement in marine debris, and poaching.

HAWKSBILL SEA TURTLE (*Eretmochelys imbricata*)

The hawksbill is a small to medium-sized sea turtle averaging approximately 2.8 feet in curved carapace length with a weight of approximately 176 pounds. Hawksbills reenter coastal waters when they reach approximately 20-25 cm carapace length. Coral reefs are widely recognized as

the resident foraging habitat of juveniles, subadults and adults. This habitat association is undoubtedly related to their diet of sponges, which need solid substrate for attachment. The ledges and caves of the reef provide shelter for resting both during the day and night. Hawksbills are also found around rocky outcrops and high energy shoals, which are also optimum sites for sponge growth. Hawksbills are also 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. 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 by other species. They exhibit a wide tolerance for nesting substrate type. Nests are typically placed under vegetation. Threats to this species include: poaching, oil spills, vessel anchoring and groundings, artificial lighting at nesting sites, mechanical beach cleaning, increased human presence, beach vehicular driving, entanglement at sea, ingestion of marine debris, commercial and recreational fisheries, water craft collisions, sedimentation and siltation, and agricultural and industrial pollution.

KEMP'S RIDLEY SEA TURTLE (*Lepidochelys kempii*)

The Kemp's ridley sea turtles are the smallest of all extant sea turtles. Adult Kemp's ridleys' shells are almost as wide as long. Neonatal Kemp's ridleys feed on the available sargassum and associated infauna or other epipelagic species found in the Gulf of Mexico. In post-pelagic stages, the ridley is largely a crab-eater, with a preference for portunid crabs. Age at sexual maturity is not known, but is believed to be approximately 7-15 years, although other estimates of age at maturity range as high as 35 years. The major nesting beach for Kemp's ridleys is on the northeastern coast of Mexico. This location is near Rancho Nuevo in southern Tamaulipas. The species occurs mainly in coastal areas of the Gulf of Mexico and the northwestern Atlantic Ocean. Hunting of both turtles and eggs contributed to the decline of this species. Existing threats include: development and human encroachment of nesting beaches, erosion of beaches, vehicular traffic on beaches, fisheries, oil spills, floating debris, dredging, and explosive removal of old oil and gas platforms.

LEATHERBACK SEA TURTLE (*Dermochelys coriacea*)

The leatherback is the largest living turtle, and is so distinctive as to be placed in a separate taxonomic family, Dermochelyidae. The carapace is distinguished by a rubber-like texture, about 4 cm thick, and made primarily of tough, oil-saturated connective tissue. No sharp angle is formed between the carapace and the plastron, resulting in the animal being somewhat barrel-shaped. The front flippers are proportionally longer than in any other sea turtle. Nesting occurs from February - July with sites located from Georgia to the U.S. Virgin Islands. During the summer, leatherbacks tend to be found along the east coast of the U.S. from the Gulf of Maine south to the middle of Florida.

Leatherbacks become entangled in longlines, fish traps, buoy anchor lines and other ropes and cables. This can lead to serious injuries and/or death by drowning. Leatherback turtles eat a wide variety of marine debris such as plastic bags, plastic and styrofoam pieces, tar balls, balloons and plastic pellets. Effects of consumption include interference in metabolism or gut function, even at low levels of ingestion, as well as absorption of toxic byproducts. Leatherbacks are vulnerable

to boat collisions and strikes, particularly when in waters near shore. Marine turtles are at risk when encountering an oil spill. Respiration, skin, blood chemistry and salt gland functions are affected.

LOGGERHEAD SEA TURTLE (*Caretta caretta*)

Loggerheads are the most abundant species in U.S. coastal waters, and are often captured incidental to shrimp trawling. Shrimping is thought to have played a significant role in the population declines observed for the loggerhead. Maturity is reached at between 16-40 years. Mating takes place in late March-early June, and eggs are laid throughout the summer. Loggerheads are circumglobal, inhabiting continental shelves, bays, estuaries, and lagoons in temperate, subtropical, and tropical waters. In the United States, killing of nesting loggerheads is infrequent. However, in a number of areas, egg poaching is common. Erosion of nesting beaches can result in loss of nesting habitat. Loggerhead turtles eat a wide variety of marine debris such as plastic bags, plastic and styrofoam pieces, tar balls, balloons and raw plastic pellets. Effects of consumption include interference in metabolism or gut function, even at low levels of ingestion, as well as absorption of toxic byproducts. Turtles are taken by gillnet fisheries in the Atlantic and Gulf of Mexico. Several thousand vessels are involved in hook and line fishing for various coastal species. Sea turtles are at risk when encountering an oil spill. Respiration, skin, blood chemistry and salt gland functions are affected. Pesticides, heavy metals and PCB's have been detected in turtles and eggs, but the effect on them is unknown. Turtles have been caught in saltwater intake systems of coastal power plants. The mortality rate is estimated at 2%. Underwater explosions can kill or injure turtles, and may destroy or damage habitat. The effects of offshore lights are not known. They may attract hatchlings and interfere with proper offshore orientation, increasing the risk from predators. Turtles get caught in discarded fishing gear. The number affected is unknown, but potentially significant.

PIPING PLOVER (*Charadrius melodus*)

A small plover has wings approximately 117 mm; tail 51 mm; weight 46-64 g (average 55 g); length averages about 17-18 cm. Inland birds have more complete breast band than Atlantic coast birds. The nonbreeding plovers lose the dark bands. In Laguna Madre, Texas, non-breeding home ranges were larger in winter than in fall or spring. The breeding season begins when the adults reach the breeding grounds in mid- to late-April or in mid-May in northern parts of the range. The adult males arrive earliest, select beach habitats, and defend established territories against other males. When adult females arrive at the breeding grounds several weeks later, the males conduct elaborate courtship rituals including aerial displays of circles and figure eights, whistling song, posturing with spread tail and wings, and rapid drumming of feet. The plovers defend territory during breeding season and at some winter sites. Nesting territory may or may not contain the foraging area. Home range during the breeding season generally is confined to the vicinity of the nest. Plovers are usually found in sandy beaches, especially where scattered grass tufts are present, and sparsely vegetated shores and islands of shallow lakes, ponds, rivers, and impoundments.

Food consists of worms, fly larvae, beetles, crustaceans, mollusks, and other invertebrates. The plovers prefer open shoreline areas, and vegetated beaches are avoided. It also eats various small invertebrates. It obtains food from surface of substrate, or occasionally probes into sand or mud.

Strong threats related primarily to human activity; disturbance by humans, predation, and development pressure are pervasive threats along the Atlantic coast.

SPECIES FOUND IN THE GULF OF MEXICO

BLUE WHALE (*Balaenoptera musculus*)

The blue whale is the largest of the whales and, in the North Atlantic, can grow to 89 feet in length and weigh nearly 300,000 pounds. Krill is the main food of this species. They range from the subtropics to Baffin Bay and the Greenland Sea, but are rarely seen in continental shelf waters along the eastern coast of the United States. Blue whales have been known to occasionally stray into the Gulf of Mexico. The historic decline in this species is thought to be the result of hunting, which has since ceased. On-going human impacts include: collisions with ships, disturbance by vessels, entrapment and entanglement in fishing gear, acoustic and chemical pollution, and military operations.

FINBACK WHALE (*Balaenoptera physalus*)

The finback whale is the second largest whale species, growing to more than 75 feet in length and 150,000 pounds. This species is found throughout the North Atlantic from the Gulf of Mexico northward to the edges of the polar ice cap and tend to occur over the continental shelf and slope in greater than 650 feet of water. Fin whales are thought to migrate seasonally and feed in more northerly latitudes while fasting in southerly latitudes. Their diet consists of krill, capelin, herring, and sand lance. Like the other endangered whale species, the reason for decline of the finback whale is historic hunting. Existing human impacts include: collisions with ships, disturbance of vessels, entrapment and entanglement in fishing gear, habitat degradation, and military operations. Presently, hunting in the North Atlantic only occurs in Greenland. Under the International Whaling Commission's aboriginal subsistent whaling authorization 20 are allowed to be taken each year.

HUMPBACK WHALE (*Megaptera novaeangliae*)

The humpback whale grows in length up to 59 feet and can weigh up to 97,000 pounds. Diet of the humpback whale consists of krill, other large zooplankton, and small schooling fish. This species is known to occur in all ocean basins worldwide and it generally inhabits areas over the continental shelves, their slopes, and near some oceanic islands. Humpback whales are migratory, summering in higher latitudes (35 to 65 degrees) and wintering in tropical or temperate latitudes (10 to 23 degrees). Feeding is thought to mainly occur in the more productive summer range. They are not thought to normally inhabit the Gulf of Mexico. The only known observations in the Gulf were off the Cuban coast in 1918 and Tampa Bay in 1962 and 1989. Historic hunting led to the decline of the species. Existing causes of human impact are: entrapment and entanglement in fishing gear, collisions with ships, and acoustic disturbance from ships, and aircraft.

Sei Whale (*Balaenoptera borealis*)

In the western North Atlantic, sei whales are known to occur from western Greenland to the southeastern United States. Like other whales, they tend to spend the summer in the northern

latitudes and winter farther south. They tend to prefer deep water and can be found over the continental slope, basins between banks, and submarine canyons. Sei whales do not normally enter semi-enclosed waters such as the Gulf of Mexico or the Gulf of Saint Lawrence. However, there are recorded strandings along the northern coast of the Gulf of Mexico. Their preferred food consists of calanoid copepods and krill. Major human impacts to the species include: collisions with ships, disturbance from vessels, entrapment and entanglement in fishing gear, and military operations.

Sperm whale (*Physeter macrocephalus*)

The sperm whale is the largest of the toothed whales average 62 feet in length and can weigh as much as 120,000 pounds. They feed on a large deep water squid and a variety of fish. This species occurs throughout most of the oceans from the tropics to the polar ice caps. Sperm whales generally occupy deep waters and are rarely seen over the continental shelf. Like the other whale species, historic hunting resulted in their decline. Existing human impacts are: entrapment and entanglement in fishing gear, collisions with ships, and acoustic disturbance from ships, and aircraft.

Gulf Sturgeon (*Acipenser oxyrinchus desotoi*)

The gulf sturgeon, an anadromous fish, is found in riverine environments during the summer months and migrates to warmer water in estuaries and the near shore Gulf of Mexico during winter. Adult Gulf sturgeon usually spends approximately three quarters of the year in rivers and one quarter (cooler months) in estuaries or Gulf of Mexico waters. Younger Gulf sturgeon does not tend to migrate to open waters of the Gulf, but remain in riverine and estuarine environments. The fish has a sub-cylindrical body and a snout extending from the lower surface of the head which is blade-like in shape. Adult Gulf sturgeon generally grows to 227 centimeters in length. This sub-species is a bottom feeder tending to consume amphipods, crustaceans, oligochaetes, polychaetes and chironomid and ceratopogonid larvae. They have been found to eat during the three to four months they are in the marine environment and fast the remainder of the year while in the freshwater environment. Commercial fishing and habitat destruction are the main causes for the decline of this species. Means of habitat destruction include construction of dams which interfere with migration, dredging, and decreased ground water flows.

The mammals are usually found near shores, bays, lagoons, river mouth/tidal rivers and shallow water. Shallow coastal waters, estuaries, bays, rivers, and lakes; throughout most of the range, appears to prefer rivers and estuaries to marine habitats.

The mammal is primarily dependent upon submerging, emerging, and floating vegetation; diet varies according to plant availability; may opportunistically eat other foods (e.g., acorns in early winter in Florida, fishes caught in gill nets in Jamaica).

It is threatened by high mortality often associated with human activity (especially collisions with boats in Florida), in conjunction with low reproductive rate and habitat loss. It is vulnerable to catastrophic mortality when gathered in large numbers at winter

aggregation sites in Florida. Some die when caught in water control structures. Hunting is responsible for the decline throughout much of the range. Low tolerance of human disturbance in calving areas, but moderately tolerant of swimmers in wintering sites. It has potential as weed/plant consumer in clogged waterways; benefits from some human disturbances, such as thermal pollution.

Potential Effects of Discharges Authorized by this Permit Renewal

Turtles

Many of the threats to listed threatened or endangered turtle species are related to activities in coastal areas and will not be affected by the proposed discharges. Those threats include: poaching of turtles and eggs, development and human encroachment of nesting beaches, erosion of beaches, vehicular traffic on beaches, beach armoring, artificial lighting, mechanical beach cleaning, marina and dock development, coastal development, increased human presence, dredging, non-native vegetation, seagrass bed degradation, and agricultural pollution. Other threats which may occur in the area covered under the proposed permit, which are not related to the proposed discharges are: entanglement at sea, commercial and recreational fisheries, and shrimp trawling. The discharges proposed to be authorized by the permit renewal will not affect those threats to threatened or endangered turtle species.

Threats to turtle species which could be related to Petroleum Bulk Stations and Terminals in the area covered under the proposed permit include: oil spill during brine discharge, industrial pollution, and boat collisions. Of those potential threats, only oil spill during brine discharge is directly relevant to the proposed discharges. The proposed renewal contains controls to limit the quantity of pollutants which are discharged and prevent toxic effects in the receiving waters. The proposed permit has limits for Oil & Grease, Total Suspended Solids, Total Dissolved Solids, Biochemical Oxygen Demand, flow and pH. The proposed permit is written to include limitations and monitoring requirements on those parameters as a continuation of the conditions in the current permit.

Whales

The reason for decline in numbers of most of the whale species is historic hunting. Hunting has ceased in the Gulf of Mexico and North Atlantic with the exception of a small amount of subsistence hunting for fin whales near Greenland.

The existing threats to the endangered or threatened whale species include: entrapment or entanglement in fishing gear, collision with ships, habitat destruction such as dredging or sewer discharges, disturbance by vessels, acoustic and chemical pollution, military operations, and acoustic disturbance from ships, and aircraft. Reissuance of the proposed permit will have no effect on the threats of entrapment or entanglement in fishing gear or military operations. Authorization of the proposed discharges will not increase or decrease the potential effects of entanglement or entrapment in fishing gear or military operations. The other threats, which include: collision with ships, acoustic disturbance, habitat destruction, disturbance by vessels, and chemical pollution, can be indirectly associated with Bulk Petroleum Storage and Terminals.

Chemical pollution is noted by the recovery plan for the blue whale as a threat to that species. It is not listed in the recovery plans for other whale species as a threat to those species. Although the discharges which are proposed to be authorized will contain pollutants, sufficient controls will be required to protect the environment and mitigate potential effects on listed threatened or endangered whales.

The threat to listed whale species from collision with or disturbance from vessels is indirectly related to the proposed authorization of the discharges.

Habitat destruction is a potential threat to several of the listed threatened or endangered whale species. The proposed permit will not affect the habitat of the listed threatened or endangered species.

Fish

Discharges proposed to be authorized by this permit renewal will not affect the main human induced threats to the Gulf sturgeon of habitat destruction or commercial fishing. Causes of habitat degradation are: construction of dams which interfere with migration, ground water usage which diminish the natural flow to rivers, and dredging. Those factors occur in inland waters and not in the area of the Gulf of Mexico covered under this permit. Commercial fishing is also not expected to change as a result of the discharges proposed to be authorized by this permit renewal.

Adult sturgeon may occasionally occur, during the winter months. However, those discharges are highly intermittent and short term in nature. The proposed permit contains requirements for discharges to limit potential toxic effects to aquatic species, including the Gulf sturgeon.

Determination

The permit renewal reflected here does not change the nature or volume of the pollutants from the current condition. EPA is unaware, at this time, of any service concerns regarding this discharge and believes that the change in compliance period will have no effect on listed species and designated critical habitat. The permit has retained the limitations and conditions of the expiring permit. EPA believes these limitations are adequate to protect the listed species for Jefferson County and the Gulf of Mexico.

Based on information described above, EPA Region 6 has determined that discharges proposed to be authorized by this permit renewal may effect but are not likely to adversely effect the Gulf sturgeon (*Acipenser oxyrinchus desotoi*), blue whale (*Balaenoptera musculus*), finback whale (*Balaenoptera physalus*), sei whale (*Balaenoptera borealis*) humpback whale (*Megaptera novaeangliae*) and sperm whale (*Physeter macrocephalus*), Kemps ridley turtle (*Lepidochelys kempii*), loggerhead turtle (*Caretta caretta*), leatherback turtle (*Dermochelys coriacea*), hawksbill turtle (*Eretmochelys imbricata*), green turtle (*Chelonia mydas*) and piping plover (*Charadrius melodus*), nor is the proposed action likely to result in destruction or adverse modification of designated critical habitat.

In accordance with 50 CFR 402, EPA shall meet its obligation to ensure its actions are not likely to jeopardize the continued existence of any listed species or will result in the destruction or adverse modification of critical habitat. EPA will consult on this determination with the National Marine Fisheries Service and Fish and Wildlife Service and will not proceed with final issuance of this permit prior to fulfilling its obligations under the Endangered Species Act.

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.

XVIII. OCEAN DISCHARGE CRITERIA EVALUATION (40 CFR PART 125)

The permittee had previously prepared an Ocean Discharge Criteria document (see *Ocean Discharge Criteria Document for Big Hill Salt Dome, Jefferson County, Texas, December, 1982*) and addressed each of the ten factors considered in the determination of unreasonable degradation of marine environment. These factors include: (1) Potential for bioaccumulation or persistence of the pollutants to be discharged; (2) The potential transport of such pollutants by biological, physical or chemical processes; (3) The composition and vulnerability of the biological communities which may be exposed to such pollutants including the presence of unique species or communities of species, the presence of species identified as endangered or threatened pursuant to the Endangered Species Act or the presence of those species critical to the structure or function of the ecosystem such as those important for the food chain; (4) The importance of the receiving water area to the surrounding biological community, including the presence of spawning sites, nursery/forage areas, migratory pathways or areas necessary for other functions or critical states in the life cycle of an organism; (5) The existence of special aquatic sites including but not limited to marine sanctuaries and refuges, parks, national and historic monuments, national seashores, wilderness areas and coral reefs; (6) The potential impacts on human health through direct and indirect pathways; (7) Existing or potential recreational and commercial fishing, including fin fishing and shell fishing; (8) Any applicable requirements of an approved Coastal Zone Management Plan; (9) Such other factors relating to the effects of the discharge as may be appropriate, and (10) marine water quality criteria developed pursuant to Section 304 (a)(1).

Since the proposed permit contains limitations which will protect water quality and in general reduce the discharge of toxic pollutants to the marine environment, the Region finds that discharges proposed to be authorized by the permit will not cause unreasonable degradation of the marine environment. In addition, based on the Ocean Discharge Criteria document as well as the results of the latest DMR, Big Hill brine discharge, operating in compliance with the permit, will not cause unreasonable degradation of the marine environment. However, the permit shall be modified or revoked at any time if, on the basis of any new data, the director determines that continued discharges may cause unreasonable degradation of the marine environment.

XIX. MAGNUSON-STEVENSON FISHERIES CONSERVATION & MANAGEMENT ACT

The Magnuson-Stevens Fisheries Conservation and Management Act require federal agencies proposing to authorize actions that may adversely affect essential fish habitat to consult with National Marine Fisheries Service (NMFS). The entire Gulf of Mexico has been designated Essential Fish Habitat. EPA has determined that this permit issuance will not adversely affect essential fish habitat. The Agency will seek concurrence from NMFS before the final permit is issued.

XX. COASTAL ZONE MANAGEMENT ACT

EPA has determined that the activities which are proposed to be authorized by this permit reissuance are consistent with the local and state Coastal Zone Management Plans. The proposed permit and consistency determination was made by EPA.

The proposed permit limits are consistent with the TCEQ's Water Quality Management Plan for Segment No. 702 (Intracoastal Waterway) and 2501 (Gulf of Mexico).

XXI. MONITORING FREQUENCY REDUCTION

Monitoring frequency reduction was considered. Copies of the Discharge Monitoring Report (DMR) reviewed indicated that this facility has had about four total non compliances during the last permit cycle. As a result the monitoring established in the previous permits for conventional and non conventional pollutants remains the same. However, the EPA has reduced the monitoring frequency for all stormwater discharges (outfalls 003, 005, 006, 007 & 008) from monthly testing to quarterly testing for consistency with the Railroad commission permit. The biomonitoring frequency reverts to quarterly testing during this permit renewal phase.

XXII. CERTIFICATION

The permit is in the process of certification by the Railroad Commission of Texas following regulations promulgated at 40 CFR 124.53. A draft permit and draft public notice will be sent to the District Engineer, Corps of Engineers; to the Regional Director of the U.S. Fish and Wildlife Service and to the National Marine Fisheries Service prior to the publication of that notice.

XXIII. ADMINISTRATIVE RECORD

The following information was used to develop the proposed permit:

A. APPLICATION

NPDES Application for Permit to Discharge, Form 1 & 2C, dated April 22, 2008.

B. REFERENCES

The State of Texas Water Quality Inventory, 13th Edition, Publication No. SFR-50, Texas Commission on Environmental Quality, December 1996.

"Implementation of the Texas Commission on Environmental Quality Standards via Permitting," Texas Commission on Environmental Quality, August 1995.

Texas Surface Water Quality Standards, 30 TAC Sections 307.1 - 307.10 (21 TexReg 9765, April 30, 1997).

<http://www.nmfs.noaa.gov/pr/species/fish/smalltoothsawfish.htm>

NatureServe explorer website at

<http://www.natureserve.org/explorer/servlet/NatureServe?searchName=Pristis+pectinata>

www.nmfs.noaa.gov/.../staghorncoral_keysnms.jpg

<http://www.nmfs.noaa.gov/pr/species/invertebrates/elkhorncoral.htm>

C. 40 CFR CITATIONS

Sections 122, 124, 125, 133, and 136

NPDES Permit TX0074012, issued on 9/26/03, effective November 1, 2003, modified December 21, 2004, and expires October 31, 2008.

D. MISCELLANEOUS CORRESPONDENCE

E-mails from Thomas Westbrook, at DynMcDermott Petroleum, contractor to Bryan Mound Strategic Petroleum Reserve, to Maria Okpala, EPA, 6/11/08, 6/18/08, 6/30/08, 7/8/08, & 7/9/08 Bryan Mound Topographic maps, copies of Discharge Monitoring Results and other additional facility information.