



United States Department of the Interior
NATIONAL PARK SERVICE

Padre Island National Seashore
P.O. Box 181300
20301 Park Road
22
Corpus Christi, Texas 78418

IN REPLY REFER TO:

3025 / H2215

March 5, 2002

Debra Beene
Archeology Division, Texas Historical Commission
P.O. Box 12276
Austin, Texas 78711

Reference: No H

Dear Ms. Beene:

In accordance with §106 of the National Historic Preservation Act of 1966, amended, and the Council regulations, 36 CFR Part 800, we seek your review and comment on a proposed undertaking involving the placement of an 136,603 square foot pad, well(s) drilling site, and associated facilities approximately 900 feet west of the Gulf of Mexico, 12.5 miles south on the Gulf beach past Park Road 22, Padre Island National Seashore. The undertaking includes the following elements:

1. Construction of a 790 foot long x 16ft. wide access road.
2. Development of a well pad measuring 360 ft. x 321 ft. x 262 ft. x 415 ft.
3. Excavation of a two cellars, one measuring 8ft. deep x 8ft. wide, the other measuring 6 ft. deep x 6 ft. wide.

Please refer to the enclosed Scope of Work, site plan, maps and our Assessment of Effect for further details of the undertaking. All of the work will be done to meet the Secretary of the Interior's Standards for Rehabilitation. The project area was extensively surveyed in 1998 (Rickless) with negative results. A report of the most recent site survey, conducted by William E. Moore and James E. Warren, is attached.

The National Park Service has determined that this project will have *No Adverse Effect* on cultural properties within or adjacent to the project area. We hope that you can concur with this determination and for your convenience have provided, "I Concur" and "Date" blocks below.

We are enclosing the Assessment of Effect, Scope-of-Work, location map and the Cultural Resources Survey to assist you in your review of this project.

If you have further questions please contact Arlene Wimer, Environmental Protection Specialist, at 361-949-8173 x 224.

Sincerely,



Jock Whitworth
Superintendent
Padre Island National Seashore

Enclosures

I Concur: _____

Date: _____

NPS

Final

A
Cultural Resources Survey
of the
Proposed Lemon/Lemon Seed No. 1 Drilling Pad,
Access Road and Flowline Route
Padre Island National Seashore
Kenedy County
Texas

by
William E. Moore and James E. Warren

Prepared for
Belair Environmental, Inc.
Rockport, Texas

Report No. 560

December 2001

Principal Investigator
William E. Moore

NPS DOCUMENT # 508

Assessment of Effect

Alternative B, Proposal (Preferred Alternative) Plan of Operations as Submitted

Under Alternative B, Proposed Action, the NPS would approve BNP's Plan of Operations, to drill and produce the Lemon/Lemon Seed Unit.

Location of the Well. The surface location of well No. 1-000S is located 150,320 feet from the north line and 1082.1 feet from the east line (Boyles Meander Line) of the Juan Jose and Nicolas Balli Survey, Abstract-10, Kenedy County, Texas. The No. 1-1008S location is approximately fifty feet south of Well No. 1-10002 at 150,372 feet from the north line and 1094.7 feet from the east line of the referenced survey. This drill site is approximately 12.5 miles south of the end of Park Road 22 and approximately 19.5 miles east-southeast of Rivera Beach, across Baffin Bay and the Laguna Madre.

The global positioning system (GPS) measurements based on Texas State Plane Coordinate System of 1927, Texas South Zone, for the surface and bottom-hole locations of the two proposed well of the Lemon/Lemon Seed Unit are:

Lemon/Lemon Seed Unit No. 1-1000S

Surface location:	X = 2,370,294.68 E Y = 573,000.58 N
Bottom-hole location:	X = 2,378,765.40 E Y = 571,625.86 N
True Vertical Depth (TD)	15,000 feet
Measured Vertical Depth (MVD)	19,000 feet
Surface Offset Distance	8,579 feet

Lemon/Lemon Seed Unit No. 1-1008S

Surface location:	X = 2,370,273.32 E Y = 572,955.37N
Bottom-hole location	X = 2,372,210.02 E Y = 569,791.88 N
True Vertical Depth (TD)	9,200 feet
Measured Vertical Depth (MVD)	10,500 feet
Surface Offset Distance	3,709 feet

Access: All vehicles used during construction, drilling, and production operations would enter the park via Park Road 22 and then proceed approximately 12.5 miles along the Gulf Beach to the proposed access road through the dunes (Figure 2). The well site would be located approximately 900 feet west of the Gulf beach. The proposed roadway would result in the filling and leveling of 790 linear feet (21,800 square feet).

Of the 790 linear feet, approximately 640 linear feet (12,800 square feet) are hummocky uplands and approximately 150 linear feet (9000 square feet) are barrier foredunes. Conventional road and foundation construction techniques would be used to construct the access road. The dune pass would be oriented southeast to north-west and built at an elevation high enough to prevent "water funneling" through the dunes during

extremely high tides, but low enough to allow for long industrial sized vehicles to travel without complications.

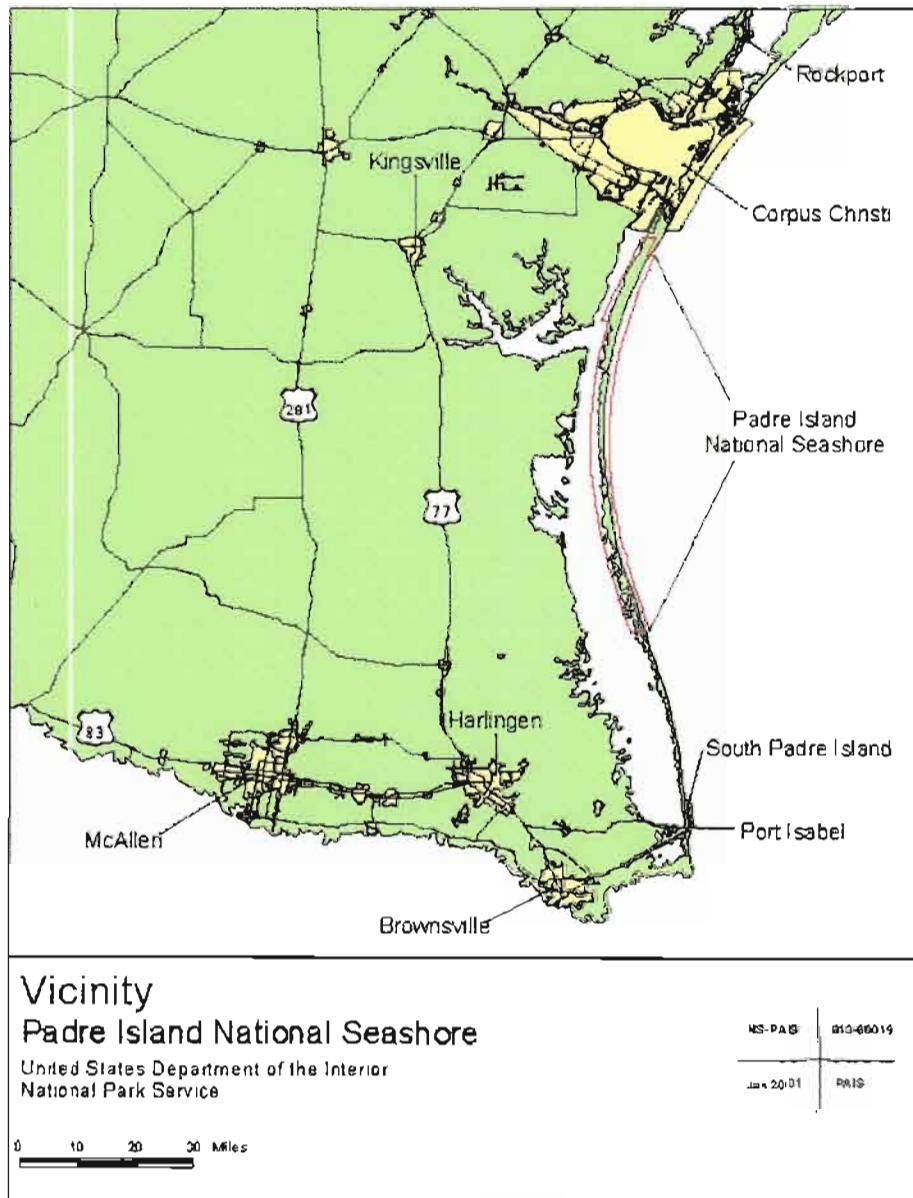


Figure 1: Region/Vicinity map. Depicts the location of Padre Island National Seashore in relation to the Gulf of Mexico coastline.

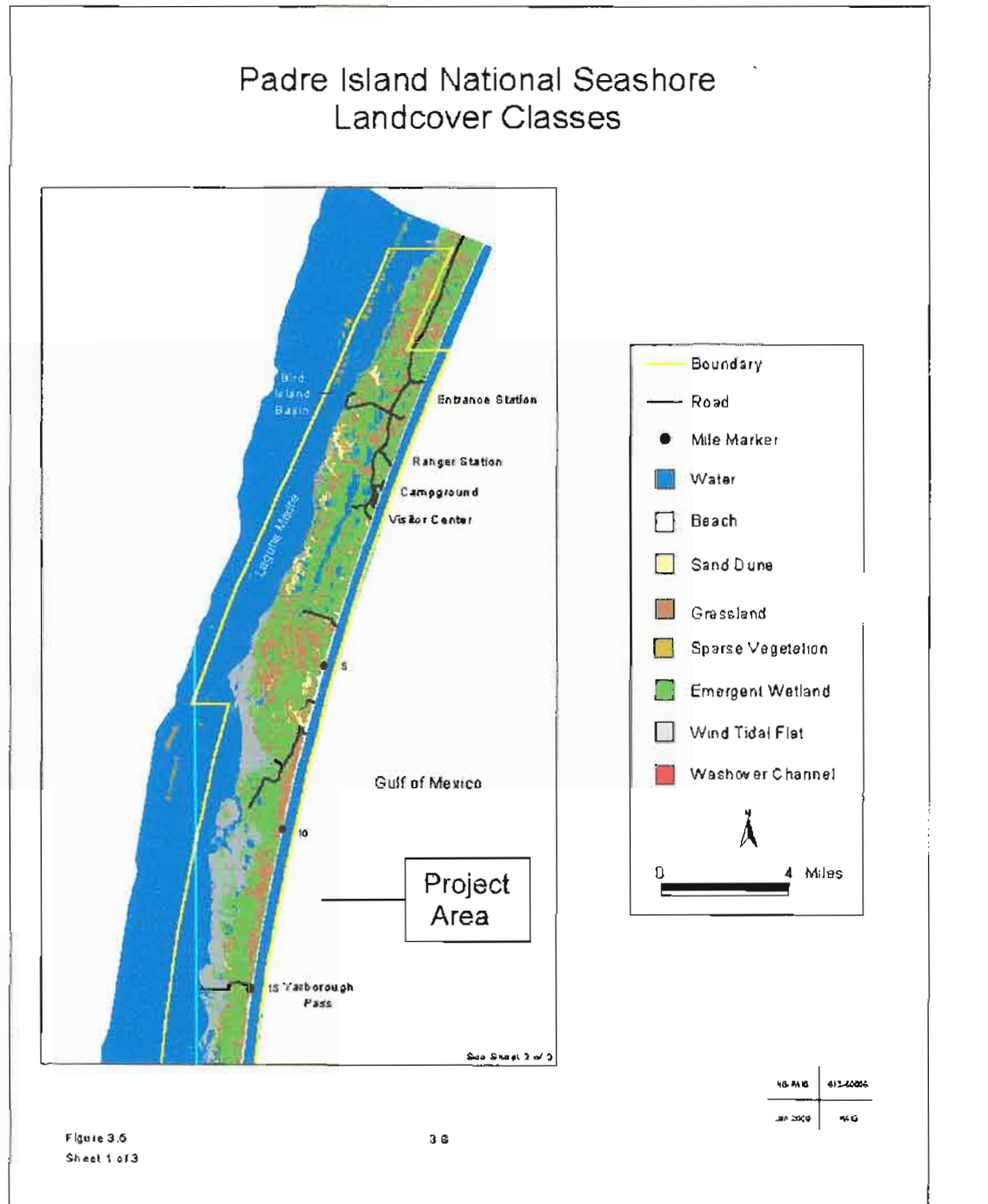
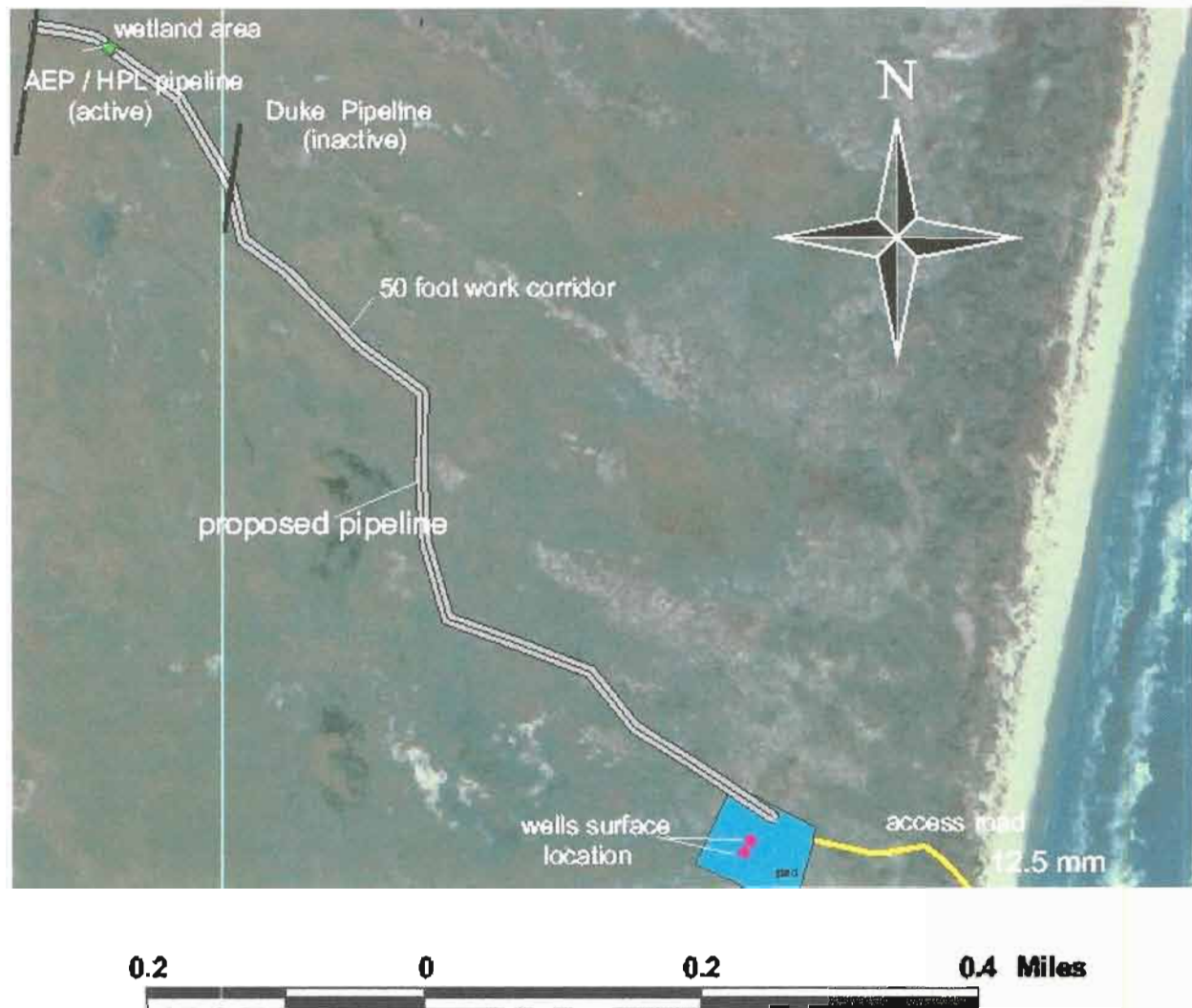


Figure 2: General location of the proposed Lemon/Lemon Seed Unit in relation to Padre Island National Seashore boundaries.



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Figure 3: Proposed location of the Lemon/Lemon Seed Units, 12.5 mile marker on Padre Island National Seashore. Depicts location of access road, pad/production site, proposed pipeline, and wetland area.



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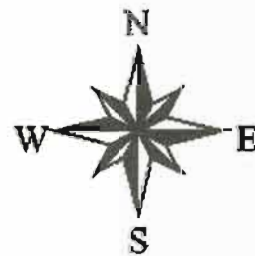
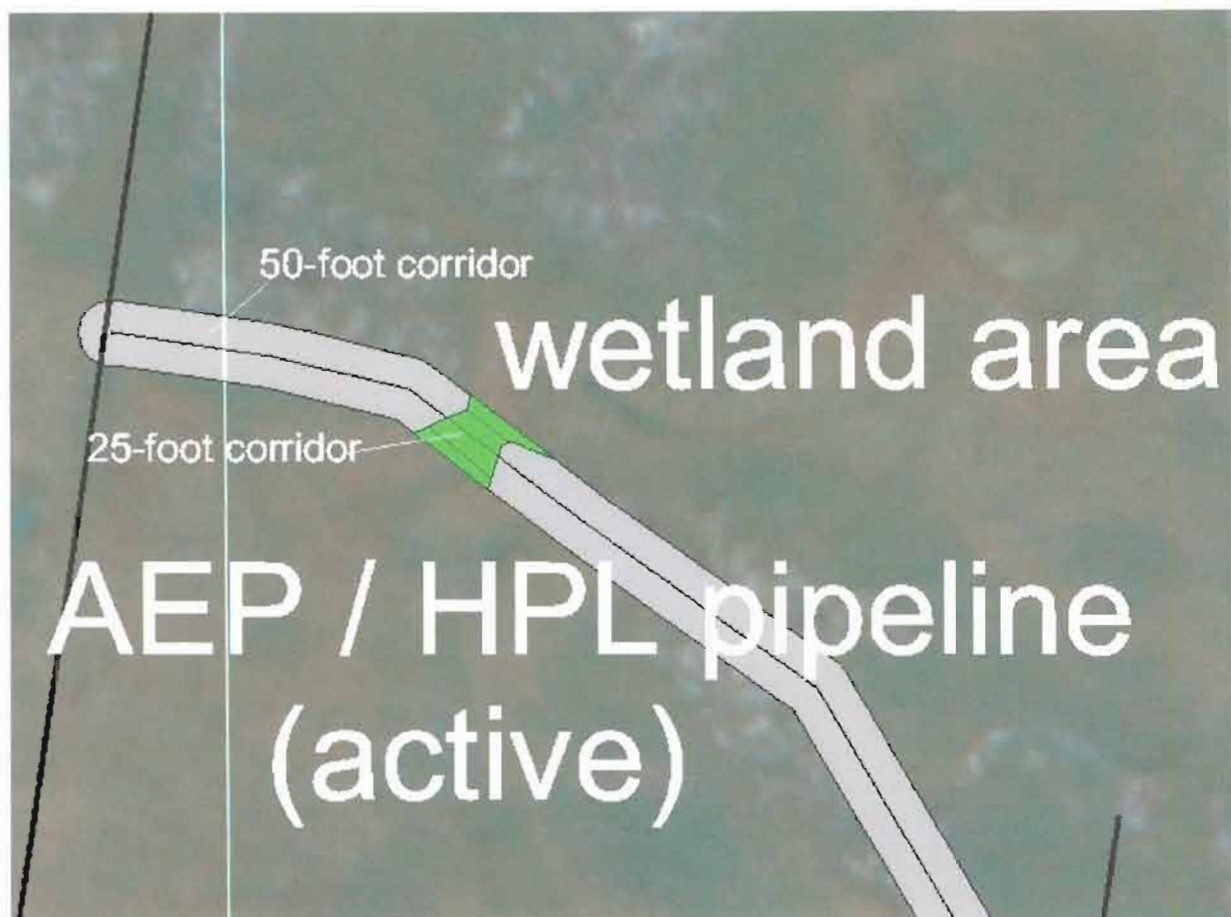


Figure 4: Surface and bottom hole locations of Lemon/Lemon Seed Units, wells No. 1-1000S and No. 1-1008S.



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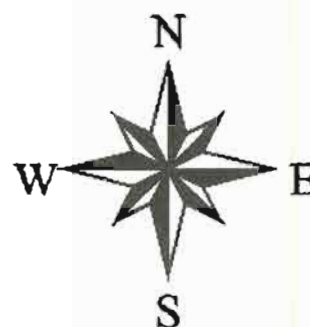
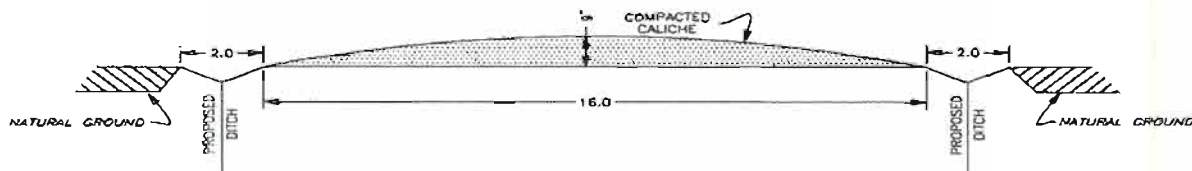


Figure 5: Close-up of wetland area with the 25-foot work corridor marked.



Survey markers of the proposed access road, foredune terminus.

Surface Location and Well Pad: BNP's proposed drill site was selected because it would avoid adverse impacts to wetlands, tidal flats, dunes, and other sensitive resource areas. Conventional foundation construction techniques would be used to construct the 136,603-foot (3.6 acres) polygon shaped drill site. One bulldozer and one maintainer would be used first to level the roadbed and drilling pad. After leveling, a lease crew would cover the pad with a 20 mm thick polyethylene protective liner. Eight to ten dump trucks would be used to place caliche on the road and pad. The caliche would be spread with a bulldozer and leveled with a maintainer. A compactor and a water truck would be used to compact the caliche and water the road and pad. A 3-foot high berm would be constructed around the perimeter of the pad area for containment. Caliche berms would also be constructed around the diesel tanks for containment.



Typical Road Cross Section

All equipment, machinery, and living quarters would be placed within the 136,603 square foot pad area. This pad will be utilized for both wells, and may also be used for additional drilling in the future. Should the well be productive, all production equipment would be placed within the pad area. If a production facility were constructed, the remaining pad area would be reduced to a rectangle with the approximate dimensions of 340 feet x 210 feet x 320 feet x 210 feet, or 69,300 square feet. In the previously developed 67,303 square-foot area the ground would be reclaimed to original condition.

This isolated area remains virtually untainted by artificial light sources. Drilling the well, however, requires work around-the-clock. Therefore, artificial lighting must be brought

in to facilitate work during the night in a safe work environment. BNP would strive to maintain a balance between human safety, preservation of the park's night sky, and reduction of impacts to wildlife. To the extent possible, artificial lighting would be directionally focused on the work site, and light bulbs would be recessed inside concave shields to avoid unnecessary glare.

Use of Water for Drilling: BNP proposes to drill temporary water well on the well pad to deliver the approximately 1,302,000 gallons of water needed to drill the wells. BNP would provide a means for metering water volume at PAIS request. The water well would be drilled into the Goliad formation, between 1,400 feet and 1,700 feet. Providing this well has sufficient volume, BNP would not have to purchase water from the park. Assuming BNP drills a usable water source well for the Lemon/Lemon Seed Unit wells, communication between the water well and well #1008S in the event of a high-pressure gas kick is possible and would be a concern. Below is a comparison of the kick tolerances for surface casing setting depths of 1,750 feet and 2,230 feet. This is based on a formation pressure of 5200 psi (equivalent mud weight of 11.0 ppg) at a true vertical depth of 9,300 feet.

Depth	Fracture Gradient, ppg	Kick Tolerance, ppg	Kick Tolerance, psi
1,750 ft.	12.8	1.8	164
2,230 ft.	13.0	2.0	232

The increased separation between the casing shoe and the total depth of the water well would reduce the risk of communication with the water well. The surface casing would be set at 2,200 feet. Once the wells have been drilled and placed in production, the water well would be plugged.

The potential for a successful drilling of a water source well at the location has yet to be determined. Previously, Sun Oil plugged their Dunn-McCampbell #1A well to a water source well with perforations in the Goliad sand from 1,530 feet to 1,560 feet. No information regarding fresh water production rates has been found. The Laguna Madre well #1 near Yarbrough Pass was also used as a water source well according to TNRCC, but no information regarding its production is available. If drilling a water source well were successful at the Dunn-Murdock

No. 1 location at Yarbrough Pass, a similar well would be drilled at the Lemon/Lemon Seed location. If a water source well cannot be made, the water used for drilling would have to be obtained from the fire hydrant at the south end of Park Road 22. A check valve and water meter would be installed at the hydrant. Padre Island National Seashore would be paid for the water at the end of the drilling operation. The water would be hauled by transport to the location. At 1,300 bbls per load, this would require approximately 155 loads of water hauled during the course of drilling Well No.1-1000S and approximately 85 loads while drilling Well No.1-1008S.

BNP plans to file an application with the Texas Railroad Commission (TRRC) for a minor permit for annular disposal of drilling mud for both Well No.1-1000S and No. 1-1008S using the annulus of Well No.1-1000S. Should the TRRC deny the application, or if injection were prevented for some mechanical reason (i.e., excessive injection pressure, failure of casing integrity, etc.), BNP would be required to haul the excess

liquids by transport out of the park to an approved disposal site. The estimated volumes of liquids are 9,000 bbls for Well No. 1-1000S and 3,000 bbls for Well No. 1-1008S. At an average of 100 bbls per load due to weight restrictions, this equals 120 loads hauled from the site while drilling the two wells.

Production Facility: Should BNP's proposed well prove to be productive, the production facilities would be placed on the existing well pad. The pad size would be reduced to 340 ft. x 320 ft. x 210 ft., approximately half the original size. By placing the production facility on the same pad as the well, no additional impacts to previously undisturbed habitats would occur. Production could continue for up to twenty years.

Pipeline: There are two pipelines in the area of proposed operations (Figure 2). Duke Energy operates an inactive ten (10) inch pipeline approximately 2,400 feet west of the proposed wellsite. AEP (formerly Enron/HPL) operates and maintains an active twelve (12) inch pipeline that lies approximately 3,300 feet west of the proposed wellsite. The pipelines extend north and south on the island for several miles from the location. BNP plans to tie into either of these existing pipelines. The construction of BNP's proposed tie-in pipeline route would briefly impact approximately 3280 linear feet for the Duke pipeline, or 4300 feet for the AEP pipeline of hummocky uplands. Prior to the tie-in point for the AEP pipeline, the route crosses an emergent wetland. Utilizing the 50 feet construction corridor, 2,765 square feet (0.0636 acres) of emergent wetland would be impacted. The stipulation of a 25 feet construction corridor in wetlands reduces the impacts to 1,382.5 square feet (0.032 acres).

The new line, ranging from a minimum of three (3) to a maximum of (10) inches, is contingent on the production rates obtained during the testing phase of the well. A ditch of approximately 24 inches wide and 42 inches deep would be dug from the well pad to the tie-in point. The procedure used to tie-in the pipeline is a "hot tap". This method allows pipelines that are in service to be connected without the contents being released. A 15-foot by 15-foot (225 square foot) excavation will be required to make the tie-in. Any ground water that seeps into the excavation will be pumped out using PVC well points and diaphragm pumps. The liquids would be diverted and filtered through a silt screen and hay bales before being released on to the surrounding area. Any contaminated liquids or soils would be removed and hauled to an approved disposal site.

Reclamation Plan: As soon as all drilling operations cease, BNP would remove all foreign materials brought in for construction, drilling, and production operations from the park. This includes any contamination that might have occurred.

The pad and road areas would be re-contoured as near as possible to the original contour. The re-contoured ground would be fertilized at 40 pounds per acre of 40/30/0 fertilizer, the area ripped to 18 inches, and mulched with native hay containing seeds from the previously existing vegetation. During annual monitoring efforts, undesirable species would be controlled either by herbicide application or hand/tool removal, as approved by the NPS. Restored areas would be monitored annually until 70 percent coverage of targeted species is achieved. An annual report would be submitted to the park documenting restoration activities and results. Monitoring would cease after 70 percent of the original vegetative coverage of two target species, seacoast bluestem

(*Schizachyrium scoparium*, var. *littoralis*) and gulfdune paspalum (*Paspalum monostachyum*), was achieved or after the site had been approved by the park Superintendent.

In order to reduce the impacts to park resources and values, the mitigating measures described in Table 3 would be applied to the oil and gas operations. BNP and its contractor, BEI, sought the views and advice of personnel of Padre Island National Seashore, COE, and other experts. BNP and BEI also relied on the recommendations of the park's Final Oil and Gas Management Plan/Environmental Impact Statement (DOI 2000) for operating standards and other information. As a result of these and other efforts, BNP has agreed to apply all mitigation measures outlined in Table 3. The location of each mitigation measure in the Plan of Operations is included for ease of reference.

Cultural Resources Assessment

During project scoping, a literature review was conducted to determine the extent and continuing adequacy of archeological surveys that had been performed in the analysis area. An archeological survey conducted for a 3-D seismic operation in 1999 over the northern one-half of Padre Island NS, and the original Archeological Assessment of Padre Island NS (Scurlock, Lynn and Ray, 1974), were reviewed. Archeological data for the project site showed no known sites, but recent specific area coverage was lacking for some areas. Therefore, BNP consulted to perform further archeological surveys of the entire project area. William Moore and James Warren were used to survey for archeological resources in the area of the proposed project. The survey was conducted between November 27 and December 6, 2001. No historic structures or other archeological resources, ethnographic concerns, or cultural landscapes were found within or near the operations area. The NPS concludes that the project, as proposed, does not have the potential to adversely affect cultural properties known to occur on Padre Island NS.

The Moore/Warren 2001 survey is submitted to the State Historic Preservation Office (SHPO) for review and approval. Receipt of the SHPO written conformation of "no adverse effect" will be documented for use in the NPS Environmental Assessment and decision document.