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Plum EVA

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1.0 PURPOSE OF AND NEED FOR ACTION

BNP Petroleum Corporation (BNP) proposes to directionally drill for nonfederally owned oil and gas resources underlying Padre Island National Seashore (park).

~~external~~ On September 6, 2002, BNP submitted an application to the National Park Service (NPS) describing how it proposes to directionally drill the well. The NPS reviewed and determined the application to be substantially complete on September 20, 2002; and began preparing the environmental assessment.

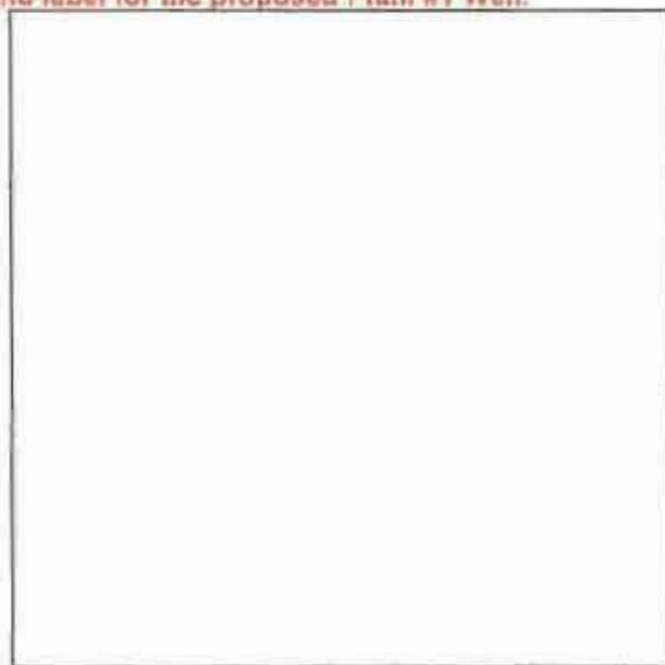
The proposed well would be drilled from a surface location in State Tract 211 within the Laguna Madre, which is owned by the State of Texas, and managed by the Texas General Land Office. The well would be directionally drilled a lateral distance of 10,414.6 feet to reach a bottom hole location beneath the park, to a true vertical depth of approximately 15,000 feet, and a measured depth of approximately 19,700 feet. BNP expects to drill and complete the well between February 15 to June 15, 2003, subject to permit approvals, weather, and site conditions. Project information is included in BNP's application to the NPS. Figure 1 is a region/vicinity map.

The purpose of this environmental assessment is to analyze the potential environmental effects of the directional drilling proposal, and to provide a decision-making framework for the NPS to grant a regulatory exemption from certain requirements under its Nonfederal Oil and Gas Rights Regulations (36 CFR 9B), including the plan of operations and performance bond requirements. In July 2002, the NPS released its revised directional drilling application procedures as Chapter 5 of the Operator's Handbook for Nonfederal Oil and Gas Development in Units of the National Park System (July 2002) and posted the handbook on the NPS website at: <http://www2.nature.nps.gov/grd/minerals/index.htm>. The revised procedures reflect that in the 1978 regulations the NPS only exercised its regulatory authority with respect to oil and gas operations occurring within park boundaries.

Under §9.32(e), prospective operators may apply for an exemption from the requirements of the regulations if they use directional drilling techniques to reach their nonfederal oil and gas rights in a park from a surface location outside a park. The NPS may approve such an application if it finds that the portion of the operations occurring within the boundary of the park will not pose a significant threat of damage to park resources. Under the 9B regulations which were promulgated in 1978, the NPS's authority, and hence ability to require mitigation measures, over such directional drilling operations is limited to those aspects of the operation actually occurring inside a park unit, i.e., the subsurface drilling and/or extraction of the oil or gas beneath the unit. Mitigation measures necessary to ensure the protection of park resources and values from the wellbore crossing beneath and producing oil and gas underlying the Unit are described in this environmental assessment as NPS requirements (termed "conditions of approval") for which the NPS has regulatory authority to enforce. These mitigation measures focus on well

Figure 1, Region/Vicinity map depicting the location of Padre Island National Seashore in relation to the Gulf of Mexico and Laguna Madre
Arlene – suggest modifying the map in the L/LS EA to provide more specific info relevant to the Plum proposal

- 1) label the GOM and Laguna Madre
- 2) focus in more on the coast and cut off the area west of Kingville,
- 3) label Baffin Bay, and
- 4) put a point and label for the proposed Plum #1 Well.



casing, cementing, and plugging. Likewise, the NPS's ability to monitor and inspect directional drilling operations is limited to the downhole operations.

Pursuant to the National Environmental Policy Act of 1969 (NEPA), this environmental assessment discloses the presence of important resources within the entire analysis area, both within and outside the park, and describes potential impacts associated with all actions connected to the wellbore crossing beneath and producing oil and gas underlying the park. Connected actions occurring outside the boundary of the park include the dredging of a 60 wide x 9,000 foot long x 7 foot deep access channel to a drilling basin approximately 200 by 435 feet long, disposal of approximately 89,392 cubic yards of dredged material to create a spoil island that would be vegetated in areas to provide suitable habitat for a variety of bird species, and drilling and completion or plugging of the Plum #1 Well.

The NPS does not have 36 CFR 9B regulatory oversight over activities outside park boundaries. Where this environmental assessment describes the potential for

indirect adverse impacts on park resources and values resulting from actions outside the park but connected to the wellbore crossing through and producing oil and gas from beneath the park, the NPS worked closely with BNP to identify and apply mitigation measures that would avoid or minimize these impacts. BNP has agreed to apply the mitigation measures listed in this EA either as a regulatory requirement under other state and federal permitting, or where denoted, as a cooperative gesture with the objective of avoiding or minimizing the potential for indirect impacts on the resources and values of Padre Island National Seashore from surface operations located outside the park. In the event that there are adverse impacts on the park as a result of BNP's operations outside of the park, provisions under the Park System Resource Protection Act (1966), Oil Pollution Act, and other applicable laws would apply.

The NPS also recognizes its environmental stewardship role under NEPA and various national environmental statutes to encourage the application of mitigation measures to avoid or minimize impacts associated with directional drilling proposals on important resources located outside the park.

In addition to receiving NPS approval for this directional drilling operation, BNP will also receive a drilling and production permit from the Railroad Commission of Texas, and a Section 404 of the Clean Water Act permit from the U.S. Army Corps of Engineers. Texas Coastal Zone consistency certification is required. Due to the NPS's limited regulatory authority over such directional drilling operations, the NPS will step-up its collaborative efforts with directional drilling operators, like BNP, and with other state and federal permitting entities to ensure that the resources and values of Padre Island National Seashore are protected.

This environmental assessment only analyzes potential impacts associated with the directional drilling proposal so that the NPS can decide on the applicability of the 36 CFR 9.32(e) exemption. Should the well be successful and placed into production, and BNP proposes to construct and operate production facilities within the park, BNP would be required to submit a Plan of Operations pursuant to 36 CFR 9.36 for NPS evaluation and approval prior to utilizing park lands. Therefore, this analysis and NPS decisions based on this analysis has no bearing on future permitting decisions by the NPS for production operations related to this well.

The analysis area for this EA extends 2,000 feet from the proposed surface well site (ARLENE – MAY NEED TO EXTEND TO ENCOMPASS THE PARK'S WIND TIDAL FLAT – ALSO A LARGER ANALYSIS AREA RECOGNIZES THAT IN A WATER ENVIRONMENT, THE TRANSPORT OF ANY RELEASED SUBSTANCES COULD TRAVEL GREATER DISTANCES THAN IN A TERRESTRIAL ENVIRONMENT)

within State Tract 211; and the park's surface and subsurface that could be potentially affected by the wellbore crossing through to a bottomhole location beneath the park. The analysis area for evaluating cumulative impacts on park resources and values includes the entire park; and for nonfederal oil and gas includes the nation's

domestic energy supply. In addition, this EA provides a description and qualitative assessment of potential impacts within the project area located outside the park, and is based on available information submitted by BNP in its application to NPS and its Section 404 Clean Water Act permit application to the U.S. Army Corps of Engineers, ~~and Jasper County.~~

1.1 Objectives in Taking Action

The three objectives in taking action are:

- to provide BNP, as holder of nonfederal oil and gas mineral rights, reasonable access for exploration and development;
- to avoid or minimize impacts on park resources and values, visitor use and experience, and human health and safety; and
- to insure the park is left unimpaired for the enjoyment of future generations.

1.2 Special Mandates and Direction

The NPS evaluates project-specific proposals for oil and gas exploration, production and transportation on a case-by-case basis by applying a variety of current legal and policy requirements prior to issuing a permit under the general regulatory framework of NPS Nonfederal Oil and Gas Rights Regulations (36 CFR 9B). The following discussion is a summary of the basic management direction NPS follows for permitting nonfederal oil and gas operations that require access on, across, or through lands administered by the National Park Service.

1.2.1 NPS Organic Act and General Authorities Act

The NPS Organic Act (16 U.S.C. § 1, et seq.) provides the fundamental management direction for all units of the National Park System. Section 1 of the Organic Act states, in pertinent part, that the NPS shall:

"...promote and regulate the use of the Federal areas known as national parks, monuments, and reservations...by such means and measures as conform to the fundamental purpose of said parks, monuments and reservations, which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." 16 U.S.C. § 1.

The National Park System General Authorities Act, (16 U.S.C. § 1a-1 et seq.) affirms that while all national park system units remain "distinct in character," they are "united through their interrelated purposes and resources into one national park system as cumulative expressions of a single national heritage." The act makes it clear that the NPS Organic Act and other protective mandates apply equally to all

units of the system. Further amendments to the Organic Act state that "[t]he authorization of activities shall be construed and the protection, management, and administration of these areas shall be conducted in light of the high public value and integrity of the National Park System and shall not be exercised in derogation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided by Congress." 16 U.S.C. § 1a-1.

Current laws and policies require the analysis of potential effects to determine whether or not actions would impair park resources. "While Congress has given the Service the management discretion to allow certain impacts within parks, that discretion is limited by the statutory requirement (enforceable by the federal courts) that the Park Service must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise." 2001 Management Policies, § 1.4.4.

"The impairment that is prohibited by the Organic Act and the General Authorities Act is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values. Whether an impact meets this definition depends on the particular resources and values that would be affected; the severity, duration, and timing of the impact; the direct and indirect effects of the impact; and the cumulative effects of the impact in question and other impacts." 2001 Management Policies, § 1.4.5.

1.2.2 NPS Nonfederal Oil and Gas Regulations, 36 CFR 9B

The authority to manage and protect federal property arises from the Property Clause of the United States Constitution. The Property Clause provides that "Congress shall have Power to dispose of and make all needful Rules and Regulations respecting the Territory or other Property belonging to the United States . . ." U.S. Const. Art. IV, ¶ 3, cl. 2.

In 1916, Congress exercised its power under the Property Clause and passed the NPS Organic Act, 16 U.S.C. § 1 et seq. Section 3 of the Organic Act authorizes the Secretary of the Interior to "make and publish such rules and regulations as he may deem necessary or proper for the use of the parks..." 16 U.S.C. § 3.

Pursuant to section 3 of the NPS Organic Act and individual park statutes, the Secretary of the Interior promulgated regulations at 36 CFR Part 9, Subpart B ("9B regulations") in 1979. The 9B regulations apply to operations that require access on or through federally owned or controlled lands or waters in connection with nonfederally owned oil and gas in all National Park System units. The 9B regulations address use of directional drilling techniques in section 9.32(e).

The 9B regulations and other regulatory requirements assist park managers in managing oil and gas activities so they may be conducted in a manner consistent with the NPS mandate to protect park resources and values unimpaired for future generations. The application and implementation of these regulations on the ground must be assessed parkwide for each site specific oil and gas activity to determine if these activities have the potential to impair park resources and values.

1.2.3 Padre Island National Seashore Enabling Act, Public Law 93-439

Congress authorized the establishment of Padre Island National Seashore on September 28, 1962 (16 U.S.C. § 459d, *et seq.*), "In order to save and preserve, for purposes of public recreation, benefit, and inspiration, a portion of the diminishing seashore of the United States that remains undeveloped..."

At the time of the park's establishment, surface estate owned by the State of Texas was conveyed to the U.S. Government, while those surface rights held by private landowners were acquired by the federal government through condemnation. All subsurface mineral interests underlying the park were retained by private owners. Those underlying the submerged lands under the Laguna Madre and Gulf of Mexico were retained by the State of Texas and are administered by the Texas General Land Office. Thus, the federal government does not own any of the subsurface oil and gas rights in the park. However, Congress directed in the park's enabling act that nonfederal oil and gas development be regulated to protect the park from any actions, including oil and gas operations, that may adversely impact or impair park resources or values.

One of the rights associated with mineral interests is that of reasonable access to explore for and develop the mineral interest. If the mineral interest holder chooses to exercise its right to explore for or develop its mineral interest, NPS must consider granting some form of access in the park unless NPS determines that the exercise of the mineral rights would be detrimental to the purposes and objectives of the Preserve. If such a determination is made, NPS can seek to acquire the nonfederal mineral interest.

1.3 Scoping

Scoping is an early and open process to determine the breadth of environmental issues and alternatives to be addressed in an environmental assessment. Park staff conducted both internal scoping with appropriate National Park Service staff and external scoping with interested and affected groups and agencies.

Internal scoping was conducted by the park, Intermountain Region, and Geologic Resources Division staff. This interdisciplinary process defined the purpose and need, identified potential actions to address the need, determined what the likely

issues and impact topics would be, and identified the relationship, if any, of the proposed action to other planning efforts at the park ~~monument~~.

The park used its recently completed Oil and Gas Management Plan and Environmental Impact Statement (March 2000) to identify resources and values of concern, and develop mitigation measures. The O&GMP provides guidance for managing existing and anticipated nonfederal oil and gas operations over the next 15 to 20 years.

Currently, two other planning efforts are underway, which include a General Management Plan to update the park's 1983 GMP, and a Personal Watercraft Plan (PWC). The GMP would provide guidance for the park's overall management during the next 15- to 20-years; while the PWC addresses if and how personal watercraft could be permitted within the park.

Early in the planning and development of the application by BNP, NPS met with BNP to identify resources, values, and other concerns that could be potentially impacted by drilling the directional well. In addition, early input from other federal, state and local agencies was sought. Agencies contacted include the ~~State Historic Preservation Office~~ ~~Texas Historical Commission~~, U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, and Texas Parks and Wildlife Department. Scoping was conducted through meetings, telephone conversations, conference calls, written comments, and on-site observations and assessments.

Impact topics are the resources of concern that could be affected by the range of alternatives. Specific impact topics were developed to ensure that alternatives were compared on the basis of the most relevant topics. The following impact topics were identified on the basis of federal laws, regulations, orders, and National Park Service *Management Policies, 2001*, and from input by the State Historic Preservation Office. A brief rationale for the selection of each impact topic is given below, as well as the rationale for dismissing specific topics from further consideration.

1.3.1 Issues and Impact Topics Evaluated

Based on scoping, the NPS identified the following park resources, values, and other concerns for evaluation in this EA:

- nonfederal oil and gas development
- dark night sky
- ~~water quality and seagrass beds~~
- ~~state-protected green sea turtles~~
- adjacent landowners and resources

~~ARLENE – I HIGHLIGHTED THE TWO THAT MAY DROP OUT BUT ONLY IF FWS/TPWD/COE REQUIRE SUCH MITIGATION THAT YOU CAN SUPPORT "NO EFFECT" WITHIN THE PARK – BECAUSE THESE ARE SUCH IMPORTANT~~

RESOURCES FOR THE PARK AND GREEN SEA TURTLES DO OCCUPY THE HABITAT IT MIGHT BE ADVISABLE TO GO WITH A MAY AFFECT BUT NOT ADVERSELY AFFECT – SEE WHAT PAT CLEMENTS AND LOYAL MEHRHOFF SAY

Based on the above list of park resources, values, and other concerns, issue statements were developed to define problems (or benefits) pertaining to the proposal to drill and produce the well (see Table 1). The issue statements describe a cause and effect relationship between an activity and a resource/value or concern. The issue statements were used in developing and evaluating alternatives.

Table 1. Issue Statements

Impact Topic	Issue Statement
Nonfederal Oil and Gas Development	• Compared to operating on non-NPS lands, the NPS permitting process, regulatory requirements, and operating stipulations could increase costs to directionally drill from a surface location outside the park to a bottom hold beneath the park. These costs could reduce income to mineral owners (or mineral interest holders) and operators, and influence an owner's or operator's decision to defer, modify, or undertake certain operations. • Directional drilling operations are higher-risk drilling operations compared to vertical drilling. Overall, extended operating time and drilling problems can increase in directional drilling operations.
Dark Night Sky	• Lights on the drilling rig could introduce artificial light to the dark night sky.
Water Quality and Seagrass Beds	•
State-Protected Green Sea Turtles	•
Adjacent Landowners and Resources	• Impacts on adjacent landowners from the development of nonfederal oil and gas could be beneficial (e.g., dredging and maintenance of access channels could provide access) and/or adverse (e.g., operations could pose a threat to human health and safety and property). • Siting and drilling the proposed well, and dredging and maintaining access channels could result in adverse impacts. Mitigation measures designed to protect park resources and values, however, are also likely to lessen impacts to State of Texas property interests. • Leaks and spills of combustible fuels, drilling muds, and contaminating or hazardous substances from a variety of oil and gas operations sources such as boats and drilling equipment, along access channels and from the drilling platform, could degrade water quality so as to not be useable to support fish and wildlife, recreational uses, or human health and safety. • There may be no practicable alternative to siting the proposed drilling platform and access channels within the Laguna Madre. The proposed operations could increase flood hazards that could harm life and property and reduce beneficial floodplain values. • The proposed drilling platform and access channels are surrounded by seagrass beds. The dredging of access channels and placement of spoil, and potential for leaks and spills, could cause the loss of seagrass beds, disrupt sediment, and alter the beneficial functions and values of the wetlands community. • Construction and maintenance of access channels and placement of spoil could reduce fin-fish productivity in the Laguna Madre.

	• A spill or release of oil, saltwater, or other contaminants could have adverse impacts to productivity for many years, which could reduce fishery resources and recreational uses. • Increased noise from diesel engines on drilling rigs could degrade natural soundscapes.
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1.3.2 Issues and Impact Topics Eliminated from Further Analysis

The following impact topics were eliminated from further analysis for the reasons described.

Environmental Justice

According to the Environmental Protection Agency, environmental justice is the fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations and policies. Fair treatment means that no group of people, including a racial, ethnic, or socioeconomic group, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies.

Presidential Executive Order 12898, "General Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," requires all federal agencies to incorporate environmental justice into their missions by identifying and addressing the disproportionately high and/or adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. The proposed project is located on managed timberlands, within a rural setting. The project area does not include minority or low-income communities; therefore, environmental justice was considered but dismissed as an impact topic in this EA.

Air Quality

The use of large gasoline and diesel engines used to power boats, barges and other water vessels, and the drill rig, pumps, and auxiliary equipment to dredge the access channel and create the spoil island over a 60-day period, and drill the Plum #1 well over approximately 100 days, would increase emissions of particulate matter, nitrogen oxides, carbon monoxide, carbon dioxide, and sulfur dioxide.

According to the Texas Natural Resources Conservation Commission, Kenedy County **ARLENE – under tab III of the application, BNP says "Kleberg County" but the project is in Kenedy County – is this their error?** Is an attainment area of regulated pollutants. Although emission that would be released from the drilling rig and vessels would be elevated during the proposed operations, prevailing woutheast winds from March through September, and north-northeasterly winds from October

through February, any air emissions are likely to dissipate and result in no impact on the park's air quality. Therefore, air quality was considered but dismissed as an impact topic in this EA.

Natural Soundscapes

Dredging of the access channel and creation of the spoil island over a 60-day period, and drilling of the Plum #1 well over approximately 100 days, would introduce elevated noise levels, localized in the area of proposed work. The Final Oil and Gas Management Plan/Environmental Impact Statement (February 2000) for the park describes how elevated noise from drilling could be 90 dBA on the drill floor but would approach background levels at approximately 1500 feet from the source. Because the proposed Plum #1 would be sited approximately 2,347 feet from the western boundary of the park, there should be no impacts on the park's natural soundscapes from the proposal; therefore, natural soundscapes is dismissed as an impact topic in this EA.

Geology

Surface subsidence induced by the production of fluids is not a concern in the park. The known zones of production are deep with only moderate porosity, and there is a long history of production in the area without evidence of subsidence occurring; therefore, geology was considered but dismissed as an impact topic in this EA.

Prime and Unique Farmlands, and Soils

As a result of a substantial decrease in the amount of open farmland, Congress enacted the Farmland Protection Policy Act (Public Law 97-98). In August 1980, the Council on Environmental Quality directed federal agencies to assess effects of their action on prime or unique farmlands through consultation with the Natural Resources Conservation Service (NRCS).

The proposed drill site and approximately 0.3 mile of access road to the drill site are situated on a forested ridgetop, roughly 20 miles downstream from B.A. Steinhagen Lake. On this segment of road, soils (Spurger-Molville association) are nearly level (0-2 percent slope) and consist of a thin lens of loam overlying finer subsurface clay. Overall, the terrain between the Neches River and the proposed production facility site consists of a series of undulating ridges and swales; the drill site and 0.3-mile road segment are part of an elevated landform.

Approximately 25 percent of the proposed oil and gas "footprint" crosses prime farmland soils. Most of the prime farmland soils are scattered throughout the project area, but clayey and loamy soils of the bottomlands comprise approximately 75 percent of the project area. Clayey and loamy soils of the bottomlands are mapped as Estes series (ridges) and Angelina series (swales) in Hardin County and Spurger-

Mollville association and Urbo and Mantachie soils in Jasper County. See Figure 4 in Appendix A for project area soils.

On NRCS Form AD-1006, the NPS documented acreage in prime, unique, statewide or locally important farmland soils to be directly converted to the proposed project. The NRCS has not completed its determination nor identified appropriate mitigation measures, if needed. Although only 25 percent (less than 0.3 acre) of the proposed project would directly impact prime farmland soils, as defined by the U.S. Department of Agriculture, the NPS assumed all soils were locally important farmland soils suited to producing fiber (wood). However, this information is presented only to disclose potential direct impacts to soils occurring outside the Preserve; therefore, prime and unique farmlands was considered but dismissed as an impact topic in this EA.

Water Quantity, Floodplains and Wetlands other than Seagrass Beds

Insert rationale for dismissing

Vegetation, Fish and Wildlife, and State and Federally-Protected Species other than Green Sea Turtles

Because the well would be directionally drilled from a surface location 342 feet outside the Jack Gore Baygall Unit of the Preserve, there would be no direct impacts on these Preserve resources. Further, as a result of mitigation measures that would be applied, the potential for release and transport of oil or gas, brine water, and other contaminating or hazardous substances would be highly unlikely; therefore, NPS anticipates no indirect adverse impacts on these Preserve resources. Therefore, these topics have been dismissed as impact topics in this EA. The Preserve consulted with the U.S. Fish and Wildlife Service on April 9, 2002. The concurrence of "no effect" is pending this document.

ARLENE SHOULD FISHERY RESOURCES INSIDE THE PARK BE AN ISSUE IF WATER QUALITY AND SEAGRASS BEDS DON'T GET DISMISSED – I CAN SEE WHERE THE PARK'S TERRESTRIAL WILDLIFE CAN BE DISMISSED – YOU WILL NEED TO INCLUDE ENOUGH DISCUSSION TO EXPLAIN HOW THE OTHER PARK T/E CAN BE DISMISSED FROM FURTHER EVALUATION – PARTICULARLY THE PIPING PLOVER THAT UTILIZE THE WIND TIDAL FLATS FOR HABITAT

Cultural Resources

There are no historic structures, ethnographic resources, or cultural landscapes within or near the project area. During project scoping, research was conducted to determine the extent and continuing adequacy of archeological surveys that had been performed in the project area. A walk-across reconnaissance level archeological survey was conducted for a 3-D seismic survey under contract by

Seismic Exchange in 1999. Archeological data, however, was lacking in some areas for this proposal. Therefore, Davis contracted with 3D/International, Inc. for further archeological surveys within the footprint of the proposed wellpad, along the access road/flowline corridor, and production facility (2002). The State Historic Preservation Office reviewed the Cultural Resource Survey and concluded "No Historic Properties Affected/Project May Proceed" on February 11, 2002.

The slightly elevated ridge upon which Davis Bros. proposes to site the wellpad extends westward into the Preserve. Due to its slightly higher elevation from the surrounding 100-year floodplain, this localized area of the Preserve has moderate to high probability for discovery of archeological materials. The Park Service, however, did not request Davis to contract an archeological survey of this area because as a result of the application of mitigation measures by Davis, there should be no effect on archeological materials in this area. For these reasons, cultural resources has been dropped as an impact topic in this EA. The Preserve corresponded with the State Historic Preservation Office on April, 5, 2002. The "No Historic Properties Affected/Project May Proceed" determination for Preserve cultural resources is pending this document.

Visitor Use and Experience

The primary visitor uses that occur in the park are insert a summary – number of park visitors, park developments and visitor use concentrated in top 10 miles of park around developments including BIB, Malaquite, and Yarborough Pass Boat Dock, seasonal uses

The proposed drill site and associated access channel are located approximately 2,347 feet from the western boundary of the park. In relation to the proposed drill site, developed visitor use areas in the park along the Laguna Madre shoreline are located 14.5 miles north at Bird Island Basin, or 3 miles southeast of Yarborough Pass Boat Dock. Park visitors using the boat docking facilities at either Bird Island Basin or Yarborough Pass Boat Dock generally leave the park to go to fishing spots in the Laguna Madre. The proposed project may cause an occasional conflict with recreational boat use along the Intracoastal Waterway when the drilling barge and other large equipment is utilizing the waterway to access into and out of the drilling basin; however, no conflicts with park visitor within the park's boundaries are anticipated. The proposed project would not result in elevated noise levels adversely affecting the park's natural soundscapes, but lights the drilling operation may introduce artificial light on the park's dark night sky during the approximately 100-day drilling of the Plum #1 well; however, visitor use developments in the park are located a sufficient distance that this short-term impact on the park's dark night sky is not anticipated to impact visitor use and experience.

Because the proposed Plum #1 Well is located approximately 2,347 feet from the park's western boundary, and 3 to 14.5 miles from the park's primary visitor use developments along the Laguna Madre shoreline, it is likely that very few visitors will

be close enough to notice the drilling operation and, therefore, visitor use and experience was considered but dismissed as an impact topic in this EA.

2.0 ALTERNATIVES

The EA describes and evaluates the potential impacts of two alternatives: the no-action or "No Drill" alternative and BNP's proposal to drill and produce the Plum #1 Well from waters outside the park. Alternative locations that were considered but dismissed from further analysis are then described. This section concludes with three summary tables comparing the two alternatives.

2.1 Alternative A, No-Action

As required by CEQ regulations at 40 CFR §1502.14(d), analysis of No-Action provides the baseline or benchmark from which to compare the effects of permitting the proposed activity to proceed. Under the no-action alternative, the Plum #1 Well would not be directionally drilled under the park.

2.2 Alternative B, Proposed Action

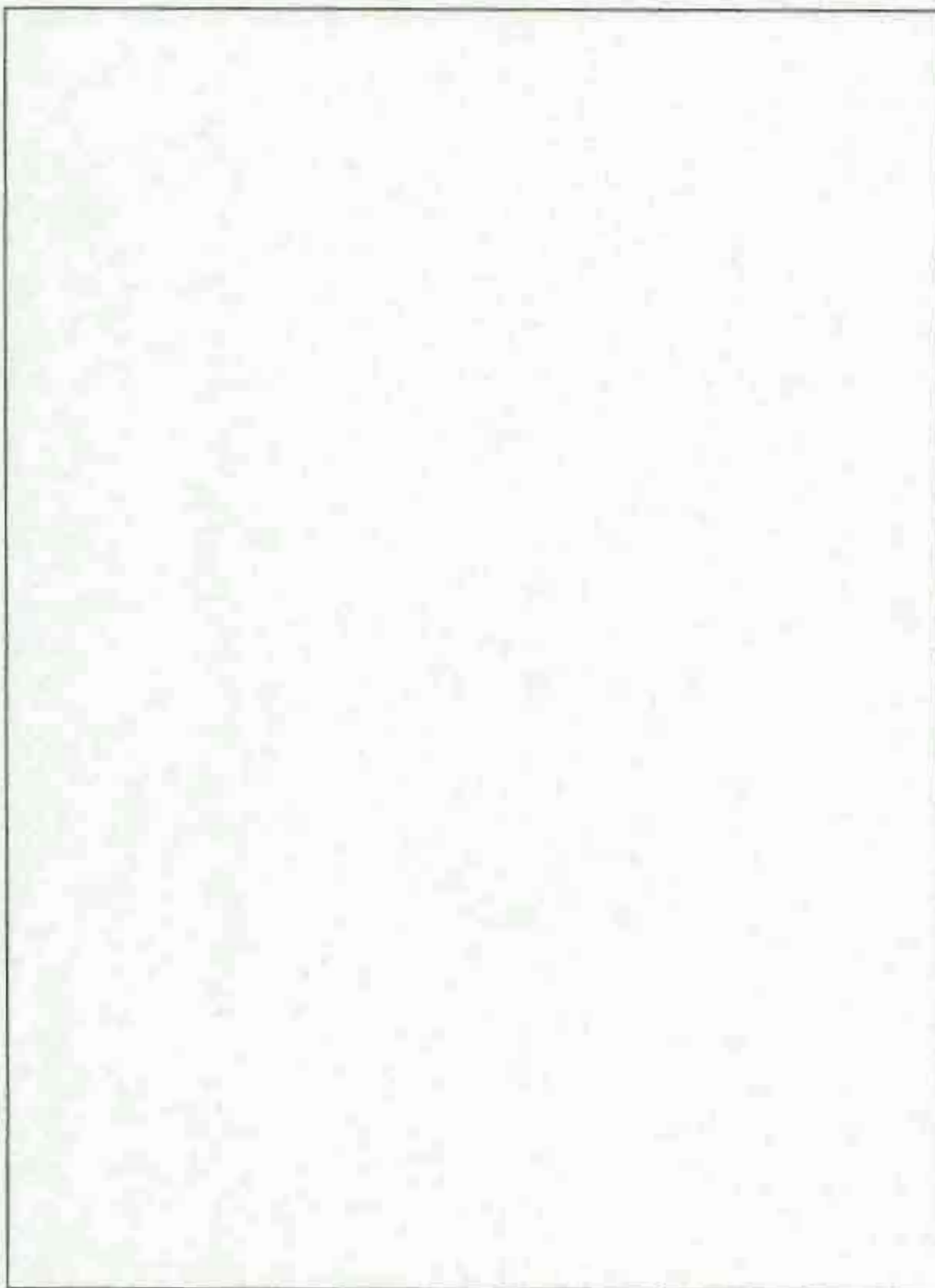
Under Alternative B, BNP would directionally drill the Plum #1 Well from a surface location within Laguna Madre State Tract 211 which is located approximately 2,347 feet from the western boundary of the park, to reach a bottomhole location beneath the park. Project information is included in BNP's application to the NPS. **The Texas Plane Coordinate System measurements (Central Zone, NAD 27 datum) for the surface and bottom-hole locations are as follows (see Error! Reference source not found. – Arlene this is suppose to say Figure 2):**

ARLENE IS BNP'S USE OF NORTHERLY AND EASTERLY COORDINATES FOLLOWING THIS SYSTEM?

Surface location:	N: 593120.50	E: 2359277.00
Bottom hole location below the park:	N: 595781.00	E: 2369346.00
True Vertical Depth:	approximately 15,000 feet	
Measured Depth:	19,700 feet	
Surface Offset Distance:	10,414.6 feet	

See Figure 2 for a map depicting the proposed well's surface and bottomhole locations.

Figure 2. Plum #1 surface and bottomhole locations (Plat of Project excerpted from part II of BNP's application).



2.2.2 Dredging of an Access Channel and Drilling Basin, and Disposal of Spoil

Access to the project wellsite would be via navigational channels through Laguna Madre waters which are managed by the Texas General Land Office. No vehicles or equipment would cross the park. See Figure 3.

To access the well site, BNP proposes to hydraulically dredge a channel approximately 12, 110 feet long, with a bottom width of 60 feet, and depth of approximately -7 MLT. The channel would extend northeasterly from the Intracoastal Waterway in State Tract 216, then turn and continue northeasterly through State Tract 214, ending in State Tract 211 at the proposed drilling location for the Plum #1. BNP proposes at a future date to drill a second well, the Peach #1, from the Plum #1 drilling basin. An irregularly shaped drilling basin would be dredged, with maximum dimensions 435 feet long by 210 feet wide. The approximately 89,382 cubic yards of dredged material from the channel and basin would be pumped into an armored, leveed site, and then disposed of at a proposed location east of the dredged channel to create a 14-acre beneficial-use spoil island which would be vegetated to create nesting habitat for a variety of bird species. Four three-pile clusters will be temporarily located along the access channel to provide two mooring locations during project construction and will be removed within 60 days after completion of the drilling operation if the well is a dryhole or within 60 days after construction of the production facilities if the well is productive. Two additional clusters will be permanently located in the basin to provide mooring. This phase of the project is anticipated to take 60 days, with vegetation of the spoil island potentially taking several years or more to establish.

Figure 3. Proposed Channel, Beneficial Use Island, Basin and Work Area (excerpted from BNP's Section 404 Permit to the COE).

2.2.3 Drilling Platform

The proposed drilling of the Plum #1 would take approximately 100 days and be done from a drilling barge???? ARLENE I DIDN'T FIND MUCH OF A DESCRIPTION OF THE TYPE OF EQUIPMENT PROPOSED FOR USE TO DRILL THE WELL – ARE THEY USING A SHALLOW DRAFT BARGE? THAT WOULD MINIMIZE THE AMOUNT OF DREDGING THAT MAY BE REQUIRED – IF SO INCLUDE THAT AS A MITIGATION MEASURE IN THE TABLE

2.2.4 Reclamation Plan

Should the well be a dryhole, or at the time production ceases, BNP would plug and abandon the well in accordance with State of Texas and Onshore Order No. 2, Section G requirements. Railroad Commission of Texas requirements adequately address protecting the freshwater aquifer.

BNP would reclaim its area of operations as set forth in its Texas General Land Office oil and gas lease and U.S. Army Corps of Engineers Section 404 Individual permit.

2.2.5 Mitigation Measures

Table 2, below, lists the mitigation measures included in BNP's application to the NPS. BNP has incorporated these mitigation measures as a regulatory requirement under other state and federal permits. Mitigation measure #6 is not required by other state and federal permits, but is included by BNP as a cooperative gesture with the objective of avoiding or minimizing the potential for indirect impacts on the park's dark night sky resource from surface operations located outside the park.

Table 2. Mitigation Measures under Proposed Action (Alternative B)

No.	Mitigation Measures under Proposed Action (Alternative B)
1	The access channel and drilling basin has been sited so as to avoid direct impacts to seagrass beds; and indirect impacts would be reduced by siting these operations at least 500 feet away from any seagrasses.
2	A zero discharge drilling system would be used during drilling to prevent the escape of drilling products. In accordance with EPA NPDES General Permits TXG330000 and TXG290000 there will be no discharge of produced water, drilling muds, drill cuttings, and other fluids associated with the drilling process into the waters of the Laguna Madre. All such liquids will be contained and hauled to a designated terminal for proper disposal.
3	BNP proposes to use an environmentally safe synthetic oil based mud to drill the well.
4	The potential for spills would be substantially minimized through the implementation of a Spill Prevention Control and Countermeasure Plan. Specific measures include: • Have a minimum of 500 feet of 18-inch boom and 200 absorbent pads onsite during drilling operations; • Have at least one employee on board at all times during drilling who is trained in boom deployment and spill responses; • Have sufficient oil spill boom anchored across the keyway to contain unanticipated upsets. The boomed keyway will be checked on a daily basis and changed as needed; • Conduct all hydrocarbon operation, including diesel fuel, motor oil and lubricants during daylight hours.
5	A hurricane awareness and evacuation plan will also be in place for the operation.
6	The rig will be equipped to the extent practical and safe with shielded and/or directed lighting.
7	If the well is determined to be a dry hole, the well will be plugged according to Texas Railroad Commission rules and regulations.

ARLENE – WOULD YOU CONSIDER THE CREATION OF A BENEFICIAL USE ISLAND AS MITIGATION? IF SO, INCLUDE IT IN THE MITIGATION MEASURES

TABLE. WOULD THE ISLAND RESULT IN A BENEFICIAL OR ADVERSE IMPACT TO THE PARK'S BIRDS BY CREATING A "BRIDGING" SPOIL ISLAND FOR MIGRATION. IF SO, WE MAY WANT TO RECONSIDER HOW TO ADDRESS T/E OR WILDLIFE IN THE TOPICS TO BE EVALUATE.

Mitigation Measures Required by NPS

The Regional Director has authority under the NPS's Nonfederal Oil and Gas Rights Regulations (36 CFR 9B) to apply mitigation measures to protect park resources resulting from downhole drilling, casing, cementing, and completion activities.

- **Well Casing and Cementing.** BNP included in its application to the NPS mitigation measures to avoid or minimize impacts to freshwater aquifers with its proposed casing, cementing, and plugging programs. BNP proposes to utilize well control equipment (ie: BOPs, PVT, hydraulic choke, trip tank, mudlogger, etc) will be in place to monitor "kick" indicators and for control of any well control event. This equipment will be maintained and tested on a regular basis. Further, impacts to freshwater aquifers would be minimized with proposed casing, cementing, and plugging programs.

The information provided by BNP did not discuss a casing pressure test or casing shoe integrity test. These tests provide assurance that fresh water aquifers have been successfully isolated and that well control can be maintained while drilling to depth. The casing pressure test is required under Texas Statewide Rule 13(b)(1)(D) and Department of the Interior Onshore Order No. 2, Section III. B.h. The casing shoe integrity test is required under Onshore Order No. 2, Section III. B.i. Though BNP likely plans to conduct the tests, the NPS is attaching the following condition of approval to avoid any misunderstanding about the need to conduct them:

"Prior to drilling out the surface casing, BNP ~~Brothers~~ meets the requirements of Texas Statewide Rule 13(b)(1)(D) and Department of Interior Onshore Order No. 2, Section III. B.h. by pressure testing the 9-5/8 inch surface casing to a minimum of 1500 psi for 30 minutes. After drilling between 10 and 20 feet of new formation, Davis ~~Brothers~~ will test the casing shoe to a minimum of the mud weight equivalent anticipated to control formation pressures at total depth."

If found to be a commercial well, the subsequent production casing would also add another layer of protection for the fresh water zones.

2) Well Plugging. BNP proposes to plug and abandon the well in accordance with State of Texas requirements. Well plugging must also meet NPS requirements that are based on Onshore Order No. 2, Section G. For purposes of freshwater aquifer protection, Texas requirements meet NPS standards in this instance. However, the

Park Service is applying the following condition of approval to avoid any future misunderstandings:

"Well plugging must meet National Park Service requirements based on Onshore Order No. 2 Section G as well as State of Texas requirements. For aquifer protection, Texas requirements meet NPS standards for the Plum #1 well. Should the Railroad Commission of Texas grant any variances to the plugging requirements of Statewide Rule No. 14, BNP ~~Brothers~~ must obtain concurrence from the National Park Service that the variance still provides for the protection of freshwater aquifers."

3) Superintendent's Access. Periodic monitoring of the site is important to ensure that BNP's operations are conducted as proposed. Therefore, the Park Service is applying the following condition of approval:

"The Superintendent of Padre Island National Seashore, or his representative, shall have reasonable access to the site as is necessary to properly monitor and insure compliance with the conditions of this exemption under the provisions of 36 CFR §9.32(e)."

ARLENE – SPLITTING THE MITIGATION MEASURES LIKE THIS DISTINGUISHES BETWEEN THOSE THAT BNP INCLUDED IN THE NPS APPLICATION BUT WERE REQUIRED BY OTHER STATE/FEDERAL ENTITIES UNDER OTHER PERMITS, THOSE THAT NPS HAS REGULATORY AUTHORITY TO REQUIRE AND ENFORCE WITH MONITORING OR REVIEWING OF REPORTS PROVIDED BY BNP, AND THOSE THAT BNP APPLIED AS A COOPERATIVE GESTURE BY BNP TO AVOID OR MINIMIZE INDIRECT IMPACTS ON PARK RESOURCES.

The conditions listed below are necessary to ensure the protection of park resources from the subsurface directional drilling and production activities beneath the park and to maintain appropriate documentation on oil and gas operations conducted beneath the park. The third condition underscores standard industry practice to regain lost circulation as soon as possible if such an event occurs while drilling the surface hole in the park.

1. BNP agrees to contact the park at least five (5) days prior to spudding the well to allow the NPS time to plan and schedule a site visit by a qualified NPS employee for the purpose of witnessing drilling of the surface hole from the point it enters the park through completion of the surface casing shoe test.
2. In addition to the placement of centralizers on the surface casing shoe joint and on every other casing collar to the surface, BNP shall place centralizers on every collar from 100 feet above and to 100 feet below the protection depth and isolation depth of superior water quality as defined by the Texas Natural Resource

Conservation Commission to help ensure adequate pipe standoff for achieving a good cement job.

BNP agrees to verify to the Superintendent the accomplishment of the above specified downhole activity by providing the following information:

- A copy of Texas Natural Resource Conservation Commission Form TNRCC-0051, Depth of Usable-Quality Groundwater to be protected.
 - A copy of approved Railroad Commission of Texas Form W-1, Application for Permit to Drill, Deepen, Plug Back, or Re-Enter.
 - Daily drilling reports from the day drilling reaches a measured depth of XXXX feet, which is the calculated depth that the drill bit will enter the park, to the day of the surface casing shoe test. Drilling reports will consist of copies of the original International Association of Drilling Contractors (IADC) Daily Drilling Report forms or equivalent.
 - A copy of Railroad Commission of Texas Form W-15, Cementing Report as submitted to the State.
3. BNP will promptly remedy moderate to severe lost circulation problems that occur below the depth where drilling enters the park until such time that surface casing is cemented in place.

In the event that there are adverse impacts on the park as a result of BNP's operations outside of the park, provisions under the Park System Resource Protection Act (1991), Oil Pollution Act, and other applicable laws would apply.

2.2.7 Alternatives Considered but Dismissed from Further Analysis

BNP considered two alternative locations the proposed project. For the reasons described below, these alternatives were dismissed from further analysis.

Drill the Plum #1 from a Surface Location Within Padre Island National Seashore

In this alternative, the drilling site would be located directly over the target within the park. This location would require construction of an access road off of the Gulf beach, and possibly a new cut through the foredunes. Emergent wetlands behind the park's primary foredunes would likely be directly affected, resulting in a loss of wetlands functions and values for the access road and well pad. For operations proposed within the park, the NPS would require the operator to prepare a plan of operations that addresses not only the construction of the access road and wellpad, and drilling of the well, but also the associated production of the well, should it be placed in production, in addition to the eventual reclamation of the operations area. Because of the greater potential for effects to park resources, this alternative was dismissed.

Directional Drilling from a Surface Location within Padre Island National Seashore

A variety of options under this alternative scenario were considered, but regardless of the surface locations up to **xxxx feet** lateral offset from the bottomhole target, there would still be greater potential effects to park resources compared to the proposal to directional drilling from outside the park. For these reasons, this alternative was dismissed.

2.3 Environmentally Preferred Alternative

Section 101 of the National Environmental Policy Act states that "...it is the continuing responsibility of the Federal Government to...

- (1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
- (2) assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings;
- (3) attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences;
- (4) preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity, and variety of individual choice;
- (5) achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities; and
- (6) enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources" [42 U.S.C. §4321 et seq. §101 (b)].

Given the policy set forth in this Act, the environmentally preferred alternative is the no-action alternative (Alternative A). The no-action alternative would meet criteria 1 through 4 and 6 under Section 101(b) of the Act. Further, the no-action alternative would provide the greatest protection of area and park resources and values.

By contrast, the proposed action (Alternative B) would meet criteria 1, 2, 4, and 5; and would have greater impacts on the environment. Although mitigating measures would reduce impacts to Preserve resources and values, there would still be effects, and therefore this alternative would not meet the nation's environmental policy goals as well as the no-action alternative.

2.4 National Park Service Preferred Alternative

The environmentally preferable alternative is the Alternative A because it surpasses Alternative B in realizing the full range of national environmental policy goals as

stated in §101 of NEPA. However, because the enabling legislation of Big Thicket National Preserve respects the exercise of oil and gas rights, the environmentally preferred alternative was not selected as the NPS preferred alternative. The NPS preferred alternative is the proposed action (Alternative B). The NPS believes this alternative would fulfill its mandates and direction, giving due consideration to environmental, economic, technical, and other factors.

2.5 Summary of Alternatives

The following tables assess the extent to which each alternative meets objectives in taking action, summarize actions of each alternatives, and summarize impacts of each alternative (see Table 3, Table 4, and Table 5, respectively).

Table 3. Extent that Proposed Action Meets Objectives

Objectives	Does no-action (Alternative A) meet objective?	Does proposed action (Alternative B) meet objective?
Provide Davis, as holder of nonfederal oil and gas mineral rights, reasonable access for exploration and development	No The well would not be permitted to be drilled, precluding BNP Petroleum Corporation reasonable access to develop its nonfederal oil and gas mineral interests.	Yes The well would be drilled (and produced) with the application of mitigation measures to meet other objectives.
Prevent or minimize damage to the human environment and other resource values <u>Use the exact text from the list of objectives in the purpose/need section</u>	Yes Without drilling the well, there would be no impacts.	Yes Mitigation measures would avoid or minimize impacts.
Insure the Preserve is left unimpaired for the enjoyment of future generations	Yes Without drilling the well, there would be no potential for park resources and values to be impaired.	Yes Mitigation measures would result in no impairment of Preserve resources and values.

Table 4. Summary of Actions

ARLENE – SHOULD WE WAIT TO REVISE THIS TABLE UNTIL WE GET A CLARIFICATION FROM FWS/COE/BNP ABOUT WHAT THE HECK IS GOING ON, WILL BE REQUIRED, AND BNP GIVES US ONE SET OF NUMBERS THAT DON'T CONTRADICT WITH THEIR COE PERMIT?

Actions	Alternative A, No-Action	Alternative B, Proposed Action
Dredging of an Access Channel and Drilling Basin, and Creation of a Beneficial Use Spoil Island with the Dredged Material	No access channel or drilling basin would be required.	Access to the project wellpad and production facility would be through lands owned by Temple-Inland. Davis would improve the road to support heavy equipment by importing fill material and anchoring six-inch board mats covered with additional fill material. If the well is not produced, the fill material would be removed and the road returned to its original contour.
Drilling	No drilling would occur.	Approximately 0.6 acre of managed forests would be cut to accommodate the drilling operation on a 120-foot by 235-foot area, and that area would be filled and covered with anchored six-inch board mats. Berms would be constructed around the perimeter of the wellpad. All equipment and machinery would be placed on the pad. Simple water-gel mud and a containerized mud system would be used during drilling. If the well is produced, the board mat foundation would be replaced with crushed rock and the wellpad would be reduced in size to an 80-foot by 100-foot area.
Reclamation Plan	No reclamation plan would be needed.	The well would be plugged and abandoned in accordance with State of Texas and Onshore Order No. 2, Section G requirements.

Table 5. Summary of Impacts **COME BACK AFTER WE'VE WRITTEN ENVIRONMENTAL CONSEQUENCES**

Impact Topic	No-action Alternative (Alternative A)	Proposed Alternative (Alternative B)
Nonfederal Oil and Gas	Under Alternative A, No Action, the well would not be drilled or	Under Alternative B, Proposed Action, the well would be drilled, and if

Impact Topic	No-action Alternative (Alternative A)	Proposed Alternative (Alternative B)
Development	developed, resulting in a no impact on domestic energy supplies, and a moderate to major adverse impact on Davis due to uncertainty about future exploration and development.	developed, would result in a negligible beneficial impact on domestic energy supplies, and a minor adverse impact on Davis due to costs and time invested in preparing an application.
Air Quality	Under Alternative A, No Action, the well would not be drilled, resulting in no impact on air quality. Cumulative adverse impacts on air quality in the Unit are expected to be minor to moderate. There would be no impairment of Preserve resources or values.	Under Alternative B, Proposed Action, maintenance of the access road, construction and maintenance of the wellpad and production pad, and flowline; drilling and production of the well would result in localized, short- to long-term, negligible to minor, adverse impacts on air quality in the Unit. Cumulative impacts on air quality would range from minor to moderate adverse impacts in the Unit, but remain within state and federal standards. There would be no impairment of Preserve resources or values.
Natural Soundscapes	Under Alternative A, No Action, the well would not be drilled, and there would be no impact on natural soundscapes. However, continuing recreational uses and park maintenance activities within the Unit, in addition to Temple-Inland timber-harvesting operations adjacent to the Unit, and the potential for future nonfederal oil and gas exploration and development operations occurring both within and adjacent to the Unit, would result in localized, short- to long-term, negligible to minor adverse impacts on natural soundscapes. There would be no impairment of Preserve resources or values.	Under Alternative B, Proposed Action, construction and maintenance activities along the existing access road, wellpad and production pad, and flowlines; and drilling and production of the well would result in localized, short- to long-term, negligible to minor, adverse impacts on the Unit's natural soundscapes. Cumulative impacts would be similar to those described under No Action; with short- to long-term, minor to moderate, adverse impacts on the park's natural soundscapes localized around park and oil and gas developments, and visitor use areas. There would be no impairment of Preserve resources or values.
Water Resources, Floodplains, and Wetlands	Under Alternative A, No Action, there would be no impact on water resources, floodplains, and wetlands in the Unit. Cumulative impacts on these resources in the Unit would continue and range from negligible to moderate adverse impacts, over the short- and long-term. There would be no impairment of Preserve resources or values.	Under Alternative B, Proposed Action, adverse impacts on the Unit's water resources, floodplains, and wetlands would be negligible ~~to minor~~ over the long-term. Cumulative impacts on these resources in the Unit would continue and range from negligible to moderate adverse impacts, over the short- and long-term. There would be no impairment of Preserve resources or values.
Adjacent Landowners	In the project area, there would be no direct, indirect, or cumulative impact to Temple-Inland property from drilling or production of the well.	The proposed operation could adversely affect human health, the renewability and productivity of Temple-Inland forestlands, and other

Impact Topic	No-action Alternative (Alternative A)	Proposed Alternative (Alternative B)
		forest amenities. In the project area, there would be direct, indirect, and cumulative adverse impacts to Temple-Inland property from drilling or production of the well.
Lightscares	Under Alternative A, No Action, the well would not be drilled, and there would be no impact on lightscares. However, continued urbanization of Southeast Texas, and the potential for future nonfederal oil and gas exploration and development operations occurring both within and adjacent to the Unit, would result in localized, short- and long-term, minor, adverse impacts on lightscares. There would be no impairment of Preserve resources or values.	Under Alternative B, Proposed Action, construction and maintenance activities along the existing access road, wellpad and production pad, and flowlines; and drilling and production of the well would result in localized, short-term, minor adverse impacts on the Unit's lightscares. Cumulative impacts would be similar to those described under No Action; with short- and long-term, minor, adverse impacts on the Unit's lightscares localized around future oil and gas developments. There would be no impairment of Preserve resources or values.

3.0 ENVIRONMENTAL CONSEQUENCES

3.1 Methodology for Assessing Impacts

Potential impacts are described in terms of type (are the effects beneficial or adverse?), context (are the effects site-specific, local, or even regional?), duration (are the effects short-term, lasting less than three years, or long-term, lasting more than three years?), and intensity (are the effects negligible, minor, moderate, or major, or would the effects constitute impairment of the monument's resources and values?).

In addition, National Park Service's *Management Policies, 2001* (2000) require analysis of potential effects to determine whether or not actions would impair park resources. The fundamental purpose of the National Park System, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve park resources and values. National Park Service managers must always seek ways to avoid, or to minimize to the greatest degree practicable, adversely impacting park resources and values. However, the laws do give the National Park Service the management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment of the affected resources and values. Although Congress has given the National Park Service the management discretion to allow certain impacts within parks, that discretion is limited by the statutory requirement that the National Park Service must leave park resources and values unimpaired, unless a particular law directly and specifically

provides otherwise. The prohibited impairment is an impact that, in the professional judgment of the responsible National Park Service manager, would harm the integrity of park resources or values. An impact to any park resource or value may constitute an impairment, but an impact would be more likely to constitute an impairment to the extent that it has a major or severe adverse effect upon a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park; or
- identified as a goal in the park's general management plan or other relevant NPS planning documents.

Impairment may result from National Park Service activities in managing the park, visitor activities, or activities undertaken by concessioners, contractors, and others operating in the park. A determination on impairment is made in the *Environmental Consequences* section for Preserve resources only.

The context or analysis boundary for each topic primarily includes the project site and project area. Unless context clearly indicates otherwise, the terms project site and project area have the following meanings:

project site(s) – those lands on which operations are to be carried out (i.e., the drill site; access road to drill site; pipeline corridor; and production facility site); and

project area – those lands and waters within one-half mile of the drill site plus project sites;

Unit – that portion of the project area inside the boundaries of the Jack Gore Baygall Unit.

For purposes of analyzing potential impacts in this environmental assessment, the thresholds of change for the intensity of an impact are defined as follows:

Negligible: the impact is at the lowest levels of detection – barely perceptible and not measurable.

Minor: the impact is slight, but detectable. ~~Delete this text – particularly because cultural resources was dismissed early on.~~ For archeological resources, the impact affects an archeological site(s) with little data potential and no significant ties to a living community's cultural identity. Such archeological resources would be considered ineligible for listing in the National Register of Historic Places. The impact would not affect the character

other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR 1508.7). Cumulative impacts are considered for both the no-action and preferred alternatives and were determined by combining the impacts of the proposal with other past, present, and reasonably foreseeable future actions.

3.2 Impacts on Nonfederal Oil and Gas Development

3.2.1 Affected Environment

Within the Jack Gore Baygall Unit, 33 wells have been drilled from 1954 to 1997. Today, surface disturbances remain on 130 acres (1.2 percent of the Unit) from 33 well pads, one production pad, access roads, and six transpark oil and gas pipelines (Radian Corporation, 1984). Currently, three wells and five transpark oil and gas pipelines remain active.

A three-dimensional (3-D) seismic survey covering almost the entire Jack Gore Baygall/Neches Bottom Unit and part of the Lower Neches River Corridor Unit (300 square miles in parts of Newton, Jasper, and Hardin Counties) was conducted during 1998-1999 (see Figure 1).

In 2000, the NPS prepared a reasonably foreseeable development (RFD) scenario to project future oil and gas development based on an assessment by the U.S. Geological Survey of remaining hydrocarbons beneath Big Thicket National Preserve (DOI 2000). The RFD provides a reasonable assumption of future development of nonfederal oil and gas for park planning purposes and to provide a basis to measure potential environmental impacts. The RFD projects that initially 3-D seismic surveys would be conducted throughout the entire Preserve and would be used to delineate oil and gas drilling prospects. It was assumed that approximately 29 additional wells would be drilled over the next 15-20 years to produce the estimated 1.21 million barrels of oil, 70.11 billion cubic feet natural gas, and 1.02 million barrels natural gas liquids from Tertiary and Upper Cretaceous-age reservoirs underlying the Preserve. Of the projected 29 exploratory wells, 19 wells are anticipated to be commercially successful. The NPS acknowledges that the RFD is based solely on available production data and that fewer or more wells could be drilled.

3.2.2 Impacts of Alternative A, No Action, on Nonfederal Oil and Gas Development

Under Alternative A, No Action, the well would not be drilled. The impact on the domestic energy supply would depend on whether the exploratory well would have discovered hydrocarbons that were producible. If so, not drilling and producing the well would result in a no impact on domestic energy supplies. There could be

moderate to major adverse impact on Davis due to lost revenues invested in collecting data, preparing an application, and not being permitted to develop its private mineral interests at this location.

Figure 1. Seismic exploration in Jack Gore Baygali/Neches Bottom Unit.

Cumulative Impacts of Alternative A, No Action, on Nonfederal Oil and Gas Development

Under Alternative A, No Action, the result of one exploratory well not taking place out of the 29 anticipated under the NPS RFD scenario would result in a minor adverse impact on nonfederal oil and gas development within the Preserve. However, if not drilling the well could affect Davis's decisions to proceed with additional exploration and development, there could be a moderate to major adverse impact on Davis.

Conclusion

Under Alternative A, No Action, the well would not be drilled or developed, resulting in a no impact on domestic energy supplies, and a moderate to major adverse impact on Davis due to uncertainty about future exploration and development.

3.2.3 Impacts of Alternative B, Proposed Action, on Nonfederal Oil and Gas Development

Under Alternative B, Proposed Action, the well would be drilled, and if hydrocarbons are discovered and produced, would result in a negligible beneficial impact on domestic energy supplies. If a commercial field is discovered, the financial impacts on Davis and the associated mineral owners could range from minor to moderate beneficial impacts, depending on the quality of the discovery. Costs and time Davis has invested with preparing an application result in a minor adverse impact.

Cumulative Impacts to Nonfederal Oil and Gas Development

Under Alternative B, Proposed Action, if the proposed well is not produced, the cumulative impact on nonfederal oil and gas development would be similar to cumulative impacts under the no-action alternative. Should additional exploration and development wells anticipated under the NPS RFD scenario be drilled, production of petroleum resources underlying the Preserve would increase available petroleum products to the domestic energy supplies, resulting in a minor beneficial

impact. Davis's investment in preparing an application would be a minor adverse impact.

Conclusion

Under Alternative B, Proposed Action, the well would be drilled, and if developed, would result in a negligible beneficial impact on domestic energy supplies, and a minor adverse impact on Davis due to costs and time invested in preparing an application.

3.3 Impacts on Air Quality

3.3.1 Affected Environment

Big Thicket National Preserve is designated as Class II airshed by the State of Texas, as authorized by the Prevention of Significant Deterioration provisions of the Clean Air Act. As such, the Preserve's air quality is protected by allowing limited increases over baseline concentrations of sulfur dioxide, nitrogen oxides, and particulate matter (DOI 2000).

Air quality in the Jack Gore Baygall Unit is influenced by the Beaumont/Port Arthur/Orange and Houston/Galveston airsheds. Industrialization and urbanization in these airsheds are major sources of emissions that contribute to air quality in Liberty, Hardin, Jefferson and Orange Counties.

The primary pollutants transported by the Beaumont/Port Arthur/Orange airshed are volatile organic compounds (VOCs) and nitrates of oxygen (NO_x). Other air pollutants that could affect the Unit and public health include carbon monoxide (CO), sulfur dioxide (SO_2), and particulate matter.

Under the Preserve's fire management program, planned ignitions or controlled burning is used to maintain the natural environment and manage hazardous fuels in high-risk areas. Airborne particulates (particulate matter) are the primary pollutant of forest fires (Komarek, 1970) and can affect visibility and public health. However, no ignitions are planned for the Unit because it does not support fire-dependent vegetation. Similarly, the flammability of vegetation types in the Unit and project area is low. Recreational uses within this area of the Jack Gore Baygall Unit are concentrated towards motorized boating along the Neches River. There are no visitor use developments in this area of the Unit.

3.3.2 Impacts of Alternative A, No-Action, on Air Quality

Under Alternative A, No Action, the well would not be drilled, resulting no impact on air quality.

Cumulative Impacts of Alternative A, No Action, on Air Quality

Over the next five years, deadlines and plans established by the Texas Natural Resource Conservation Commission should reduce air pollutants from industrial sources in the Beaumont/Port Arthur/Orange area. Emissions from motor vehicles are expected to increase with population growth in Southeast Texas. Additional air quality impacts throughout the Unit would be caused by the use of vehicles for forest management on Temple-Inland lands, recreational motor-boating activities on the Neches River, and prescribed fire activities conducted by the Preserve. Future oil and gas operations projected under the NPS RFD scenario would contribute to air quality impacts, but it is anticipated that as some operations are undertaken others would be abandoned and reclaimed. The cumulative impact on air quality in the Unit would range from minor to moderate adverse impacts, but remain within state and federal standards.

Conclusion

Under Alternative A, No Action, the well would not be drilled, resulting in no impact on air quality. Cumulative adverse impacts on air quality in the Unit are expected to be minor to moderate.

Because there would be no major adverse impacts to a resource or values whose conservation is: (1) necessary to fulfill specific purposes identified in the establishing legislation of Big Thicket National Preserve; (2) key to the natural or cultural integrity of the Preserve; or (3) identified as a goal in the Preserve's general management plan or other relevant National Park Service planning documents, there would be no impairment of Preserve resources or values.

3.3.3 Impacts of Alternative B, Proposed Action, on Air Quality

Under Alternative B, Proposed Action, import of fill material and maintenance work along the access road, wellpad, and production facilities; and laying of the flowlines along the existing access road corridor, would result in localized and short-term, negligible increased emissions of particulate matter from ground-disturbing activities, importing and compacting fill materials, and vehicle exhaust. Emissions of particulate matter, nitrogen oxides, carbon monoxide, carbon dioxide, and sulfur dioxide would be greatest during the short-term drilling and workover operations due to increased use of vehicles and large gasoline and diesel engines used to power the drill rig, pumps, and auxiliary equipment. Prevailing winds from the southeast and Gulf of Mexico would carry some pollutants into the Unit. These emissions during the drilling phase of operations would result in localized and short-term, negligible to minor adverse impacts on air quality in the Unit.

If the well is produced, air quality impacts during the long-term production phase of operations, for 20 years or longer, would be similar to those during drilling but at reduced levels, resulting in localized and long-term, negligible adverse impacts on air quality in the Unit.

Cumulative Impacts of Alternative B, Proposed Action, on Air Quality

Under Alternative B, Proposed Action, cumulative impacts would be similar to those described under No Action, with minor to moderate adverse impacts in the Unit, but remain within state and federal standards.

Conclusion

Under Alternative B, Proposed Action, maintenance of the access road, construction and maintenance of the wellpad and production pad, and flowline; drilling and production of the well would result in localized, short- to long-term, negligible to minor, adverse impacts on air quality in the Unit. Cumulative impacts on air quality would range from minor to moderate adverse impacts in the Unit, but remain within state and federal standards.

Because there would be no major adverse impacts to a resource or values whose conservation is: (1) necessary to fulfill specific purposes identified in the establishing legislation of Big Thicket National Preserve; (2) key to the natural or cultural integrity of the Preserve; or (3) identified as a goal in the Preserve's general management plan or other relevant National Park Service planning documents, there would be no impairment of Preserve resources or values.

3.4 Impacts on Natural Soundscapes

3.4.1 Affected Environment

Part of the Preserve's resources include the sounds associated with its natural resources, often referred to as "natural soundscapes." Natural soundscapes include the naturally occurring sounds of winds aloft in the trees, calling birds, as well as the quiet associated with still nights. As with all Preserve resources, natural soundscapes are also part of the visitor experience.

During 1998, ambient sounds were monitored and recorded at various locations in the Preserve. Background sound levels in most of the Preserve are due to wind aloft in the trees (Foch, 1999). Sound levels recorded in the Unit are approximately 40 decibels. Measurements recorded at 10 other locations throughout the Preserve range from 35 to 41 decibels.

Sounds in the Jack Gore Baygall Unit are almost all natural sounds, with the exception of occasional motorized boats traveling down the Neches River. Within the analysis area, sounds are also contributed by the occasional vehicle using the existing access road and timber harvesting activities nearby.

3.4.2 Impacts of Alternative A, No-Action, on Natural Soundscapes

Under Alternative A, No Action, the well would not be drilled, resulting in no impact on natural soundscapes.

Cumulative Impacts of Alternative A, No-Action, on Natural Soundscapes

Under Alternative A, No Action, the well would not be drilled, but continuing recreational use by primary motorized boats along the Neches River would contribute to cumulative impacts on natural soundscapes. Other sources would include continuing vehicle use for forest management by Temple-Inland on the existing access road and occasional timber harvesting activities adjacent to the Unit; future oil and gas exploration and development projected under the NPS RFD scenario either inside or adjacent to the Unit boundary, and park maintenance operations. Cumulative impacts are expected to be localized within 1,500 feet of the source and short-term, ranging from negligible to minor, adverse impacts on the Unit's natural soundscapes.

Conclusion

Under Alternative A, No Action, the well would not be drilled, and there would be no impact on natural soundscapes. However, continuing recreational uses and park maintenance activities within the Unit, in addition to Temple-Inland timber-harvesting operations adjacent to the Unit, and the potential for future nonfederal oil and gas exploration and development operations occurring both within and adjacent to the Unit, would result in localized, short- to long-term, negligible to minor adverse impacts on natural soundscapes.

Because there would be no major adverse impacts to a resource or values whose conservation is: (1) necessary to fulfill specific purposes identified in the establishing legislation of Big Thicket National Preserve; (2) key to the natural or cultural integrity of the Preserve; or (3) identified as a goal in the Preserve's general management plan or other relevant National Park Service planning documents, there would be no impairment of Preserve resources or values.

3.4.3 Impacts of Alternative B, Proposed Action, on Natural Soundscapes

Under Alternative B, Proposed Action, maintenance of the access road, construction and maintenance activities at the wellpad and production pad, and laying of the flowlines, would result in elevated noise within 1,500 feet of the proposed activities.

Noise levels would be elevated the highest during drilling and workovers, and increased heavy truck traffic to and from the drill site. On the drill rig floor, sound levels would be approximately 80 to 90 decibels. At approximately 800 feet from the drilling rig, within the Neches River corridor, sound levels would be approximately 60 decibels (USDI, 1994). Noise levels would attenuate or weaken with increasing

distance from the source(s). The increased noise levels during drilling and workover would result in a minor impact to the Unit's natural soundscapes, localized within 1,500 feet from the wellpad, confined to the short-term (60 to 90-day) drilling phase of operations, or during workovers (days).

Cumulative Impacts of Alternative B, Proposed Action, on Natural Soundscapes

Under Alternative B, Proposed Action, cumulative impacts would be similar to those described under No Action, resulting in localized, short- to long-term, negligible to minor, adverse impacts on the Unit's natural soundscapes.

Conclusion

Under Alternative B, Proposed Action, construction and maintenance activities along the existing access road, wellpad and production pad, and flowlines; and drilling and production of the well would result in localized, short- to long-term, negligible to minor, adverse impacts on the Unit's natural soundscapes. Cumulative impacts would be similar to those described under No Action; with short- to long-term, minor to moderate, adverse impacts on the park's natural soundscapes localized around park and oil and gas developments, and visitor use areas.

Because there would be no major adverse impacts to a resource or values whose conservation is: (1) necessary to fulfill specific purposes identified in the establishing legislation of Big Thicket National Preserve; (2) key to the natural or cultural integrity of the Preserve; or (3) identified as a goal in the Preserve's general management plan or other relevant National Park Service planning documents, there would be no impairment of Preserve resources or values.

3.5 Impacts on Water Resources, Floodplains, and Wetlands

3.5.1 Affected Environment

The project area includes Segment 0602, one of six segments of the Neches River Basin, and most of the project area lies within regulatory (100-year) floodplain of the Neches River (see Figure 2). This segment is 88 miles long and extends from a point 7.0 miles upstream of Interstate Highway 10 in Jefferson and Orange Counties to Town Bluff Dam at B.A. Steinhagen Reservoir in Jasper and Tyler Counties. Designated uses for Segment 0602 are contact recreation, high quality aquatic habitat, and public water supply. The Lower Neches Valley Authority's ("LNVA") data collection and analyses, utilizing improved techniques and Texas Clean Rivers Program ("CRP") minimum analytical levels for metals, nutrients, fecal coliform and field parameters, affirms good quality water for segment 0602 and its designated uses (LNVA, 1999).

Both B.A. Steinhagen Reservoir, approximately 20 miles upstream from the proposed drill site, and Sam Rayburn Reservoir have changed the flow

characteristics of the Neches River. Such changes in the overall amount and timing of stream flows may directly affect stream channel morphology (structure or form), rate of meandering or migration, sedimentation, water quality, and the amount and type of aquatic habitat. These changes may also indirectly affect the growth, availability, and regeneration of vegetation along riparian corridors. According to Hall (1996), changes in species composition and distribution of floodplain forest communities in the Jack Gore Baygall Unit are mainly attributed to the reservoirs. Other changes to water flow are the result of urban development and road and bridge construction in the Neches River watershed.

Within the 100-year floodplain, most of the project area consists of forested wetlands. These wetlands are referred to as riparian wetlands, bottomland hardwood forests, and floodplain forests. In the project area, wetlands and "other waters of the United States" were documented by Blanton and Associates, Inc.,

Figure 2. Flood Hazard Boundary Map, Jasper County, Texas.

during December 2001, through February 2002. The project area includes high-value wetlands.

The proposed drill site and approximately 0.3 mile of access road to the drill site are situated on a forested ridgetop, roughly 20 miles downstream from B.A. Steinhagen Reservoir. In addition, these project sites and part of the proposed pipeline route may be within or in close proximity to the floodway. The floodway may be up to 1,000 feet wide on each side of the Neches River (Joe Blackmon, pers. comm.).

During the fall of 1998 and winter of 1999, Moore Archeological Consulting, Inc. ("Moore"), conducted cultural resource surveys on proposed seismic lines in the Jack Gore Baygall Unit. Moore et al. (1999) noted extensive flooding on seismic lines throughout the field investigation; some shovel tests were not possible due to flood conditions. Davis has also described flooding in the project area (see Appendix B).

According to the Texas Natural Resource Conservation Commission (see TNRCC form in application to NPS), usable-quality groundwater occurs from land surface to a depth of 2,100 feet at the proposed well location. TNRCC estimates the Chicot aquifer occurs from land surface to a depth of 1,100 feet and contains water of superior quality. The Chicot aquifer is the uppermost aquifer underlying Segment 0602.

Project Area

3.5.2 Impact of Alternative A, No-Action, on Water Resources, Floodplains, and Wetlands

Under Alternative A, No Action, water resources (surface and subsurface), floodplains, and wetlands would not be impacted by construction of the drill site, drilling, and subsequent oil and gas production from the well.

Cumulative Impacts of Alternative A, No-Action, on Water Resources, Floodplains, and Wetlands

The cumulative impact or effect on water resources, floodplains, and wetlands is a function of land uses, other human influences, and natural processes. As described in section 3.5.1 above, land uses (primarily forest management and oil and gas in the project area), regulated stream flow, and natural processes are expected to continue over the short-term and long-term and range from negligible to moderate in intensity. Cumulative impacts to water resources, floodplains, and wetlands in the Jack Gore Baygall Unit include modification of natural floodplain forests, modification of stream flow regimes (hydrologic modification), sediment modification, and effects from natural events and processes such as hurricanes, tropical storms, and flooding. No additional sources of cumulative impacts are expected in the reasonably foreseeable future.

Conclusion

Under Alternative A, No Action, there would be no impact on water resources, floodplains, and wetlands in the Unit. Cumulative impacts on these resources in the Unit would continue and range from negligible to moderate adverse impacts, over the short- and long-term.

Because there would be no major adverse impacts to a resource or values whose conservation is: (1) necessary to fulfill specific purposes identified in the establishing legislation of Big Thicket National Preserve; (2) key to the natural or cultural integrity of the Preserve; or (3) identified as a goal in the Preserve's general management plan or other relevant National Park Service planning documents, there would be no impairment of Preserve resources or values.

3.5.3 Impact of Alternative B, Proposed Action, on Water Resources, Floodplains, and Wetlands

The proposed project could impact water resources, floodplains, and wetlands if the well blows out or becomes "wild" and fluids are not contained, or a spill event occurs and oil or other contaminating substances are not contained on the drill site ~~and~~ reach water resources (surface or subsurface), floodplains, or wetlands. Davis' proposed operating practices, as described in its application to the NPS, would

reduce or minimize the potential for direct or indirect impacts to these resources in the project area and Unit.

~~In the project area, the~~ The potential for impact to water resources, floodplains, and wetlands in the Unit was evaluated based on the potential for a portion of a discharge of oil or other contaminating substances to impact the Unit (see Appendix C). ~~Based on discharge volumes from 2-inch and 4-inch pipelines in the project area, impacts to water resources, floodplains, and wetlands would range from negligible to minor in the Unit. With the application of mitigation measures, including burial of the flowline at least 3 feet deep, (insert others), the probability for a release from the flowline is very low. And, EE~~ even though spill response is impractical beyond the drill site and access road, ~~the~~ the probability of occurrence of a spill event would be low and therefore would result in long-term, negligible ~~to minor~~ adverse impact on water resources, floodplains, and wetlands in the Unit.

Cumulative Impacts of Alternative B, Proposed Action, on Water Resources, Floodplains, and Wetlands

If the well is not produced, cumulative impacts to water resources, floodplains, and wetlands would be similar to cumulative impacts under the no-action alternative.

If the well is produced, the potential cumulative impacts of Alternative B, Proposed Action, on water resources, floodplains, and wetlands are related to the possibility of increased oil and gas exploration and development in the project area and vicinity. This would include drilling one or more wells until the lease is developed. Overall, the adverse impact of this alternative on water resources, floodplains, and wetlands in the Unit would be negligible to minor over the short-term and long-term.

Conclusion

Under Alternative B, Proposed Action, adverse impacts on the Unit's water resources, floodplains, and wetlands would be negligible ~~to minor~~ over the long-term. Cumulative impacts on these resources in the Unit would continue and range from negligible to moderate adverse impacts, over the short- and long-term.

Because there would be no major adverse impacts to a resource or values whose conservation is: (1) necessary to fulfill specific purposes identified in the establishing legislation of Big Thicket National Preserve; (2) key to the natural or cultural integrity of the Preserve; or (3) identified as a goal in the Preserve's general management plan or other relevant National Park Service planning documents, there would be no impairment of Preserve resources or values.

3.6 Impacts on Adjacent Landowners and Resources

3.6.1 Affected Environment

Using LANDSAT Thematic Mapper TM imagery taken February 10, 1991, Hall and Harcombe (1997) selected 20 land use classes to analyze the region between the Neches and Trinity Rivers, north of Beaumont, and south of B. A. Steinhagen Reservoir. These data show that approximately 50 percent of the acreage of the study region consists of slope forests, upland forests, and clearcut cover classes; bottomland forests or wetland hardwood classes account for nearly 20 percent of the acreage; and developed, urbanized, pasture and clearcut cover classes comprise approximately 25 percent of the acreage. These data are also consistent with the Lower Neches Valley Authority's (LNVA) characterization of land use in the Lower Neches River Basin.

Of land uses immediately adjacent to the Preserve, commercial and private forestry account for approximately 95 percent of the land area (Harcombe and Callaway, 1997). For units of the Preserve along the Neches River, commercial timber and commercial timber with oil account for approximately 90 percent of land uses within a one-mile buffer from the center of the Neches River (Hall and Harcombe, 1997). As described in section 3.5.1, the project area is part of this acreage and is managed by Temple-Inland Forest Products Corporation.

Temple-Inland manages its forest land base in accordance with Temple-Inland Inc. Perpetual Forestry Guidelines, adopted August 1995. Perpetual Forestry means "Forestry practices shall be designed to maintain forestlands as a multiple resource asset. Fiber production, wildlife, plant life, water quality, air quality, and aesthetics shall all be considered in making management decisions. The productivity of the forestlands will not be compromised in a way that reduces the future ability of these lands to produce fiber and other forest amenities." (Temple-Inland Inc., 1998).

Since September 2001, Temple-Inland has expressed its concerns to the Preserve about the proposed project on its lands. Temple's concerns were expressed to the Preserve in the field, in correspondence, and other communication (see Appendix D). Because Davis' oil and gas leases are entirely within the boundaries of the Preserve, Temple-Inland believes Davis should use Preserve surface to explore for and develop its mineral interest. Other concerns expressed are described under the impacts of Alternative B.

The project area is within a well-managed forest. In well-managed forests, plant and animal species are retained, soils and riparian areas are protected, and a functioning ecosystem remains intact over the long term. Temple-Inland, as adjacent landowner, received the EPA's 1997 Region 6 Nonpoint Source Pollution Environmental Excellence Award for Watershed Protection. EPA presented this award to Temple for their role in monitoring the effectiveness of Best Management Practices for forestry on company's forestlands.

In summary, resources outside the Preserve that might be affected are listed below:

- air quality
- natural soundscapes

- water resources, floodplains, and wetlands
- threatened and endangered species and their habitat
- geology and soils
- fish and wildlife
- vegetation
- timberland productivity

3.6.2 Impact of Alternative A, No-Action, on Adjacent Landowners and Resources

Under the no-action alternative, the No. 1 Vastar-Johnson Well would not be drilled into nonfederal oil and gas from a surface location on Temple-Inland property. Temple-Inland forestlands would not be affected by construction of the drill site, drilling, and subsequent production of the well.

Cumulative Impacts of Alternative A, No-Action on Adjacent Landowners and Resources

The proposed well would not be drilled from a surface location on Temple-Inland property. There would be no cumulative impacts to Temple-Inland property from drilling or production of the well.

Conclusion

In the project area, there would be no direct, indirect, or cumulative impact to Temple-Inland property from drilling or production of the well.

3.6.3 Impact of Alternative B, Proposed Action, on Adjacent Landowners and Resources

Under this alternative, the proposed well would be drilled and produced from Temple-Inland lands. The existing access road would be utilized to drill the well and to construct both pipelines and production facility. The proposed oil and gas sites would convert approximately 3.5 acres of Temple-Inland lands to oil and gas operations until the well is plugged and abandoned and site(s) is reclaimed.

Temple-Inland shared its concerns to the Preserve about the proposed project on its lands. The following is a summary of those concerns:

- Drilling and production operations could adversely impact floodplain and wetlands functions and values if impacts are not mitigated;
- Conducting drilling and production operations in the 100-year floodplain poses added risk to life, property, and floodplain values;

- Drilling and production operations could cause damage or injury to fish and wildlife via direct contact with contaminants or indirectly via pathways from contaminated areas;
- Construction and maintenance of access to and from the well site and production facilities (pipelines, storage tanks, and other production equipment) could negatively affect surface uses and productivity of forestlands;
- Construction and maintenance of pipelines and other production equipment could negatively affect surface uses and productivity of forestlands; and
- A spill or release of oil, saltwater, or other contaminants could impair soil productivity for many years.

Cumulative Impacts of Alternative B, Proposed Action on Adjacent Landowners and Resources

If the well is produced, Davis would probably drill one or more wells until the lease is fully developed. Additional wells in the project area or vicinity would probably utilize surface owner's existing roads and common pipeline and production facilities, to the extent feasible. Potential cumulative impacts on Temple-Inland lands in the project area would be similar to the direct and indirect impacts described above.

Conclusion

The proposed operation could adversely affect human health, the renewability and productivity of Temple-Inland forestlands, and other forest amenities. In the project area, there would be direct, indirect, and cumulative adverse impacts to Temple-Inland property from drilling or production of the well.

3.7 Impacts on Lightscapes

3.7.1 Affected Environment

Thirty years ago, people viewed the night sky, in all its' glory, from most residential areas. Now the sky is fading away behind a screen of wasted artificial light. In many parts of Southeast Texas, only the moon and brighter planets are visible in the nighttime environment (David Deming, pers. comm.). However, the night sky in the Jack Gore Baygall Unit is better than most areas in Southeast Texas because there light sources within the Neches River floodplain. The spectacular view of the night sky that our ancestors had on clear nights no longer exists (International Dark Sky Association 1996). Sky glow is light pollution that brightens the night sky for all of us, including amateur astronomers and professional astronomy.

Artificial lighting could disrupt the night sky, which might influence visitor use such as star gazing and camping. In addition, artificial lighting could disrupt physiological process of living organisms such as migrating birds, crepuscular and nocturnal insects and wildlife, and organisms requiring periods of darkness.

3.7.2 Impacts of Alternative A, No-Action, on Lightscapes

Under Alternative A, No Action, the well would not be drilled, resulting in no impact on Lightscapes.

Cumulative Impacts of Alternative A, No-Action, on Lightscapes

Under Alternative A, No Action, the well would not be drilled, but continued urbanization of Southeast Texas would contribute to cumulative impacts on lightscapes. Another source of cumulative impacts would include future oil and gas exploration and development projected under the NPS RFD scenario either inside or adjacent to the Unit boundary. Cumulative impacts are expected to be long-term within and adjacent to cities; and expected to be localized around future oil and gas operations, resulting short-term, minor, adverse impacts on the Unit's lightscapes.

Conclusion

Under Alternative A, No Action, the well would not be drilled, and there would be no impact on lightscapes. However, continued urbanization of Southeast Texas, and the potential for future nonfederal oil and gas exploration and development operations occurring both within and adjacent to the Unit, would result in localized, short- and long-term, minor, adverse impacts on lightscapes.

Because there would be no major adverse impacts to a resource or values whose conservation is: (1) necessary to fulfill specific purposes identified in the establishing legislation of Big Thicket National Preserve; (2) key to the natural or cultural integrity of the Preserve; or (3) identified as a goal in the Preserve's general management plan or other relevant National Park Service planning documents, there would be no impairment of Preserve resources or values.

3.7.3 Impacts of Alternative B, Proposed Action, on Lightscapes

Under Alternative B, Proposed Action, maintenance of the access road, construction and maintenance activities at the wellpad and production pad, and laying of the flowlines, drilling the well, would require light sources for night-time operations, particularly while drilling the well. Typically, drilling of the well is a 24-hour a day operation, which requires lighting the drilling site during nighttime operations for worker safety. The proposed drilling operation is expected to occur over a 60 to 90-days period.

The outdoor light during the drilling would result in a minor adverse impact to the Unit's lightscapes, localized within 1,000 feet from the wellpad, confined to the short-term (60 to 90-day) drilling phase of operations.

Cumulative Impacts of Alternative B, Proposed Action, on Lightscapes

Under Alternative B, Proposed Action, cumulative impacts would be similar to those described under No Action, resulting in localized, short- and long-term, minor adverse impacts on the Unit's lightscapes.

Conclusion

Under Alternative B, Proposed Action, construction and maintenance activities along the existing access road, wellpad and production pad, and flowlines; and drilling and production of the well would result in localized, short-term, minor adverse impacts on the Unit's lightscapes. Cumulative impacts would be similar to those described under No Action; with short- and long-term, minor, adverse impacts on the Unit's lightscapes localized around future oil and gas developments.

Because there would be no major adverse impacts to a resource or values whose conservation is: (1) necessary to fulfill specific purposes identified in the establishing legislation of Big Thicket National Preserve; (2) key to the natural or cultural integrity of the Preserve; or (3) identified as a goal in the Preserve's general management plan or other relevant National Park Service planning documents, there would be no impairment of Preserve resources or values.

4.0 CONSULTATION AND COORDINATION

A notice of availability of the Application and Environmental Assessment will be published in two local newspapers: the *Hardin County News*, and *Jasper News-Boy*. The 14-day public review and comment period will begin on April 19, 2002.

Following the 14-day public review period, NPS will consider written comments received. Additional mitigation measures resulting from the public involvement process may result in additional measures being applied as conditions of approval. If necessary, additional mitigation measures will be identified in the decision document. Copies of the decision document will be sent to those who comment on the application and Environmental Assessment during the public review period, or to those who request a copy.

4.1 Individuals and Agencies Consulted

Persons and agencies contacted for information, or that assisted in identifying important issues, developing alternatives, or analyzing impacts are listed below:

BNP Petroleum Corporation, Corpus Christi, Texas

Scott Taylor, Vice President
Bowen W. Waters, Vice President, Engineering

Texas General Land Office, Austin, Texas
Insert name

Texas State Historic Preservation Office, Austin, Texas
Debra Beene, Archeologist

Texas Parks and Wildlife Department
Enter name and title and city/state

U.S. Army Corps of Engineers, Galveston, Texas
Fred Anthamatten, Assistant Chief, Branch Office
Bruce Bennett, Unit Leader

Fish and Wildlife Service, Corpus Christi, Texas
Pat Clements, (insert title)

National Park Service
Intermountain Region, Denver, Colorado
Chris Turk, Regional Environmental Coordinator
Intermountain Region, Santa Fe, New Mexico
Linda Dansby, Regional Minerals Coordinator
Geologic Resources Division, Denver, Colorado
Carol McCoy, Chief, Regulatory/Policy Branch
Edward Kassman, Regulatory/Policy Specialist
Jim Woods, Chief, Minerals Operations Branch
Lisa Norby, Geologist
Pat O'Dell, Petroleum Engineer
Water Resources Division, Fort Collins, Colorado
Joel Wagner, Servicewide Wetlands Specialist
Gary Smillie, Servicewide Floodplains Specialist

BRMD
Loyal Mehrhoff
Peter Dratch

4.2 List of Document Recipients

During the public review and comment period, a copy of BNP's Application and the Environmental Assessment will be sent to each of the following individuals, agencies, organizations, and businesses:

Congressional Delegation
Senator Phil Gramm, Texas

Senator Kay Bailey Hutchinson, Texas
Honorable (insert)

Federal

Fred Anthamatten, U.S. Army Corps of Engineers, Galveston, Texas
Pat Clements, U.S. Fish and Wildlife Service, Corpus Christi, Texas
Linda Dansby, National Park Service, Santa Fe, New Mexico
Chris Turk, National Park Service, Denver, Colorado

State

Debra Beene, Texas Historical Commission, Austin, Texas
(insert name), Texas Parks and Wildlife Department, (insert city), Texas
(insert name), Texas General Land Office, Austin, Texas

Organizations

Scott Taylor, BNP Petroleum Corporation, Corpus Christi, Texas
Bowen Waters, BNP Petroleum Corporation, Corpus Christi, Texas
Pat Suter, Sierra Club, Corpus Christi, Texas
(insert name) Audubon Society, Corpus Christi, Texas
Caroline Davy-Altheide, President, Dunn-McCampbell Royalty Interest Group, Inc.

4.3 List of Preparers

Arlene Wimer, Environmental Protection Specialist, Padre Island National Seashore
Linda Dansby, Regional Minerals Coordinator, Intermountain Region, Santa Fe, NM

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Add PAISO&GMP

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Call Number: SWR-PAIS / Padre Island National Seashore Library Box 48: Laguna Madre-Marine Vegetation
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Call Number: SWR-PAIS / Padre Island National Seashore Library Box 47a: Laguna Madre-Ecology, Waters, Canal
Notes: Works included are by R. Zimmerman, Craig A. McMahan, C. McMillan, Frank Moseley, Ned P. Smith, Donald R. Moore, Harold Humm, Richard McCamant, Ronald C. Circe.

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phytoplankton/ seagrasses/ photosynthesis/ red drum (*Sciaenops ocellatus*)/ zooplankton/ spotted seatrout (*Cynoscion nebulosus*)/ Padre Island National Seashore, TX
Call Number: SWR-PAIS / Padre Island National Seashore Library Box 61: Oil Spill-IXTOC I-Studies, Maps.
Notes: Final report submitted to the Environmental Protection Agency. Sixteen authors took part: P.L. Parker, R.S. Scalan, J.K. Winters, D.C. Boatwright, W.M. Pulichy, C.R. Arnold, S. Rabalais, N. Wohlschag, Wen Yuh Lee, Alan Morris, R.W. Flint, N. Rabalais, M. Poff, Rick Kulke, J. Younk.

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