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Natural Resources Division
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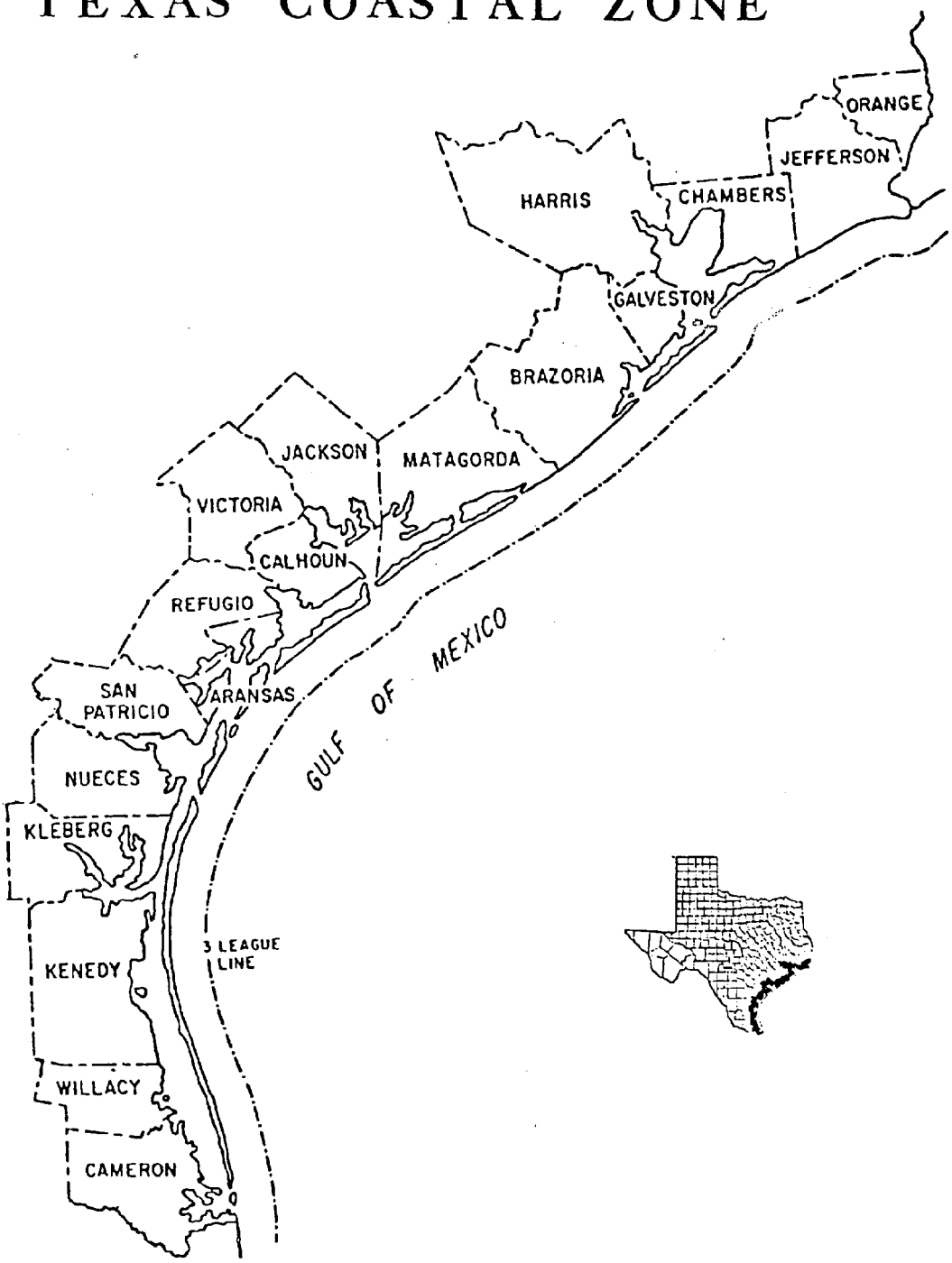

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TEXAS COASTAL PROGRAM ABBREVIATIONS

A-95 Review - Clearinghouse for agency review of federally-assisted projects.

APA - Administrative Procedure Act

APC - Areas of Particular Concern

API - American Petroleum Institute

APTRA - Administrative Procedures and Texas Register Act of 1978

BEG - Bureau of Economic Geology

BLM - Bureau of Land Management, U.S. Department of Interior

BPO - Governor's Budget and Planning Office

CATPOOL - Texas Catastrophe Property Insurance Association

CEIF - Coastal Energy Impact Funds

CEIP - Coastal Energy Impact Program (Federal program)

CEQ - Council on Environmental Quality (Federal council)

CFR - Code of Federal Regulations

COE - U.S. Army Corps of Engineers

CPLMA - Texas Coastal Public Lands Management Act of 1973

CZMA - Federal Coastal Zone Management Act of 1972

DDES - (Governor's) Division of Disaster Emergency Services

DEIS - Draft Environmental Impact Statement

DOE - U.S. Department of Energy

DOI - U.S. Department of the Interior - USDI

DOT - U.S. Department of Transportation

DPS - Department of Public Safety

EIA - Environmental Impact Assessment

EPA - U.S. Environmental Protection Agency (Federal agency)

FCMA - Fishery Conservation and Management Act

FEIS - Final Environmental Impact Statement

FERC - Federal Energy Regulatory Commission

FHA - Federal Highway Administration

FIA - Federal Insurance Administration

FWS, USFWS - U.S. Fish and Wildlife Service, U.S. Department of the Interior

FY - Fiscal Year

GLO - General Land Office

HCRS - Heritage Conservation Recreation Service, U.S. Department of the Interior

HUD - U.S. Department of Housing and Urban Development

ICNRE - Governor's Interagency Council on Natural Resources and the Environment

LWCF - Land and Water Conservation Fund (Federal fund)

LNG - Liquefied Natural Gas

LORAN - Long range navigation

MARAD - U.S. Maritime Administration

MMC - Marine Mammal Commission

MOU - Memorandum/Memoranda of Understanding

NASA - National Aeronautics and Space Administration

NEPA - National Environmental Policy Act

NMFS - National Marine Fisheries Service, U.S. Department of Commerce

NOAA - National Oceanic and Atmospheric Administration, U.S. Department of Commerce)

NPDES - National Pollutant Discharge Elimination System

NPS - National Park Service

NRC - Nuclear Regulatory Commission

OCS - Outer Continental Shelf

OCSLA - Outer Continental Shelf Lands Act

OCZM - Office of Coastal Zone Management, NOAA; U.S. Department of Commerce

OMB - Office of Management and Budget

PSD - Prevention of Significant Deterioration

PUC - Public Utility Commission

RRC (TRC) Railroad Commission of Texas

SCR - Senate Concurrent Resolution

SDHPT - State Department of Highways and Public Transportation

SEA - State/EPA Agreement

Sec. 208 - Section 208 of Federal Water Pollution Control Act Amendments of 1972 (33 U.S.C.A. sec. 1288)

Sec. 306 - Section 306 of the Federal Coastal Zone Management Act of 1972 as amended

Sec. 308 - Section 308 of the Federal Coastal Zone Management Act of 1972 as amended.

Sec. 401 - Section 401 of the Federal Water Pollution Control Act Amendments of 1972 (33 U.S.C.A. sec. 1341)

Sec. 404 - Section 404 of the Federal Water Pollution Control Act Amendments of 1972 (33 U.S.C.A. sec. 1344)

SIP - State Implementation Plan

SLB - School Land Board

SMSA - Standard Metropolitan Statistical Area

STRPC - Southeast Texas Regional Planning Commission

SWCD - Soil and Water Conservation Districts

TAC - Texas Antiquities Committee

TACB - Texas Air Control Board

TACS - Texas Annotated Civil Statutes

TCMC - Texas Coastal Marine Council

TCP - Texas Coastal Program

TDH - Texas Department of Health

TDPA - Texas Deepwater Port Authority

TDWR - Texas Department of Water Resources

TEC - Texas Employment Commission

TENRAC - Texas Energy and Natural Resources Advisory Council

TEX. NAT. RES. CODE - Texas Natural Resources Code

TIC - Texas Industrial Commission

TORP - Texas Outdoor Recreation Plan

TPWC - Texas Parks and Wildlife Commission

TPWD - Texas Parks and Wildlife Department

TRC - (RRC) Texas Railroad Commission

TSA - Texas Shrimp Association

USCA - United States Code Annotated

USDI - U.S. Department of the Interior

USFWS (FWS) - U.S. Fish and Wildlife Service

USGS - United States Geological Survey

V.A.C.S. - Vernon's Annotated Civil Statutes

VLCC - Very Large Crude Carrier

V.T.C.A. - Vernon's Texas Code Annotated

WPCA - Water Pollution Control Act of 1976

INTRODUCTION

A. BACKGROUND OF COASTAL RESOURCE MANAGEMENT IN TEXAS

The Texas coast extends 373 miles along the Gulf of Mexico from Louisiana to the border of Mexico. The shoreline continues 2,500 miles along islands, peninsulas, marshes, bays and estuaries.

A wealth of natural resources is found in the Texas coastal area, including minerals, fresh-water bays, estuaries, fish, wildlife, beaches and fertile agricultural land. Nearby areas contain important and valuable minerals, particularly oil and gas, which help make Texas the leading mineral-producing state in the nation.

The State of Texas was actively engaged in the protection of its coastal resources long before the federal government and many other coastal states ventured into the area of coastal management. Multiple use of coastal resources is so important in the Texas philosophical framework that the State Constitution provides for equal recognition of both the conservation and the development of natural resources. As early as the 1880's, the legislature began regulating fisheries and oyster resources in the coastal area. Realizing the importance of commercially valuable sand, shell and gravel in the coastal area, the legislature brought these non-renewable resources under state protection in 1911 and provided for their management. Mineral interests in submerged lands were also viewed as valuable non-renewable resources and have been managed since 1913.

Beginning in 1959, with the enactment of the Texas Open Beaches Act, Texas initiated a farsighted policy of managing and protecting its beaches for general public use and of supervising its submerged lands for multiple uses that were water-dependent or water-related. Ten years later the Governor's Interagency Council on Natural Resources and the Environment initiated a comprehensive Coastal Natural Resources Management Program to identify and assess coastal resources and issues.

The Texas commitment to management of its coastal resources is exemplified by the fact that Texas moved forward on all recommendations of the Interagency Council on Natural Resources and the Environment. The Council suggested converting sales of state-owned submerged lands to leasing arrangements for transferring submerged lands to navigation districts. It addressed the problem of structures on spoil disposal islands and recommended placement of lease discretion with the School Land Board. The legislature responded with revisions to the Texas Water Code. The Interagency Council's Coastal Resources Management Program suggested modification of beach-related statutes, and, subsequently, numerous changes were made to these laws. When freshwater inflows to estuary systems were identified as a matter needing further study, the legislature mandated the studies that are currently underway. The Texas Legislature also created the Harris-Galveston Coastal Subsidence District to handle the problem of subsidence and attendant groundwater management.

The Texas Legislature responded to the problems identified by the Interagency Council, as well as to enactment of the Federal Coastal Zone Management Act, by enacting the Texas Coastal Public Lands Management Act of 1973. (TEX. NAT. RES. CODE, Sec. 33.001-.176) This Act not only reemphasized the importance of protecting the surface estate in coastal public land, but provided direction for developing a continuing coastal management program that incorporated elements of the federal Coastal Zone Management Act. The state received its first federal matching funds in 1974 and development of the Texas program continued as a joint undertaking of the state's natural resource agencies.

During the 65th Session of the Texas Legislature (1977), the Texas Coastal Management Program offered a package of several bills and resolutions for consideration. The four bills, all of which were enacted, addressed the coordination process through the Natural Resources Council Act (V.A.C.S. art. 4413(48), now repealed) and the Coastal Coordination Act (TEX. NAT. RES. CODE, sec. 33.201-.204); the interest of Texas in assuming the regulation of coastal wetlands, now administered by the U.S. Army Corps of Engineers (V.A.C.S. art. 5415 e-4); and certification procedures for ultimate acquisition of those private coastal wetlands certified as most essential to public interest (TEX. NAT. RES. CODE, sec. 33.231-.238). The state also has analyzed various methods of assessing impacts of activities in the

coastal zone. As a result of legislative interim beach studies and the reports of the Interagency Council, Texas added new management programs that continue to provide for the identification and protection of critical dunes along the coast. In addition, the state now requires regulation of business facilities on Texas beaches and assists local governments in efforts to clean and maintain the public beaches.

In 1979, the 66th Session of the Texas Legislature combined the functions of the Natural Resources Council, created by the previous legislature in 1977, and the state's energy management responsibilities into one state entity, the Texas Energy and Natural Resources Advisory Council (TENRAC) (V.A.C.S., art. 4413(47c)). This reorganization has improved the state's coordination capabilities for coastal resources management. Responsibility for development of the Texas Coastal Program was given to TENRAC in January of 1980. TENRAC plays a major role in coordinating and recommending direction for the necessary activities of the other state agencies involved in management of coastal resources. The role of TENRAC in the coastal management process is further discussed in Chapter IV.

B. FEDERAL COASTAL ZONE MANAGEMENT ACT

In response to a growing awareness of stress on the nation's coastal resources, Congress passed the Coastal Zone Management Act (CZMA). This act was signed into law by the President in 1972 (P.L. 92-583) and amended in 1976 (P.L. 94-370) to give it additional responsibilities. The Act and the 1976 amendments affirm a national interest in the effective protection and development of the coastal zone by providing assistance and encouragement to coastal states in developing and implementing national programs for managing their coastal areas.

Broad guidelines and the basic requirements of the CZMA provide the necessary direction to states for developing coastal management programs. These guidelines and requirements for program development and approval are contained in 15 CFR Part 923, as revised and published March 28, 1979, in the Federal Register. In summary, the requirements for program approval are that the state develop a management program that:

1. Identifies and evaluates those coastal resources recognized in the CZMA that require management or protection by the state.

2. Re-examines existing policies or develops new policies to manage these resources. These policies must be specific, comprehensive and enforceable, and must provide an adequate degree of predictability as to how coastal resources will be managed.

3. Determines specific uses and specific geographic areas that are to be subject to the management program, based on the nature of identified coastal concerns. Uses and areas to be subject to management should be based on resource capability and suitability analyses, socioeconomic considerations and public preferences.

4. Identifies the inland and seaward areas subject to the management program.

5. Provides for the consideration of the national interest in planning for the siting of facilities that meet more than local requirements.

6. Includes sufficient legal authorities and organizational arrangements to implement the program and to insure conformance to it.

In arriving at these substantive aspects of the management program, states are obliged to follow an open process which involves providing information to, and considering the interests of, the general public, special interest groups, local government, and regional, state, interstate and federal agencies.

Section 305(c) of the CZMA authorizes a maximum of four annual grants to develop a coastal management program. After developing a management program, the state may submit it to the Secretary of Commerce for approval pursuant to Section 306 of the CZMA. If approved, the state is then eligible for an annual grant under Section 306 to implement its management program. If a program has deficiencies which need to be remedied or has not received approval by the time Section 305 program development grants have expired, a state may be eligible for preliminary approval and additional funding under Section 305(d). Texas was awarded a Section 305(d) grant on September 30, 1979.

It is anticipated that Texas will gain Section 306 approval of its program and enter the implementation phase in Spring 1981. Section 306 approval qualifies Texas for federal matching funds for use in implementing and administering the coastal management program. In addition, Section 307 of the CZMA stipulates that federal agency actions shall shall be consistent, to the maximum extent practicable, with approved state management programs. Section 307 further provides for mediation by the Secretary of Commerce when a serious disagreement arises between a federal agency and a coastal state with respect to a federal consistency issue.

Section 308 of the CZMA contains several provisions for grants and loans to coastal states to enable them to plan for response to onshore impacts resulting from coastal energy activities. To be eligible for assistance under Section 308, coastal states must be receiving 305 or 306 grants, or, in the Secretary's view, be developing a management program consistent with the policies and objectives contained in Section 303 of the CZMA. The history of CEIP funding in Texas is summarized in Table I.

TABLE 1. CEIP FUNDING IN TEXAS.

		1977	1978	1979	1980
1.	Planning Activities - 308(c)(1)	$193,231	$223,361	*	$178,000
2.	OCS Participation Grants - 308(c)(2)	--	--	--	208,000**
3.	Environmental/Recreational Loss Grants- 308(d)(4)	55,622	141,000		
				1,709,000+	3,747,000+
4.	Formula Grants - 308(b)(4)(B)	993,554	2,413,833		
5.	Loan assistance for Public services/ facilities	4,078,296	10,293,437	***	***

* Re-programmed into 1980 funds.
** 1980 is first year available.
*** $72,000,000 was recalled nationally; funds were recently cut by Congressional rescission order; $38,000,000 in state appropriations pending.
\+ Funding for environmental/recreational and formula grants were combined for allocation purposes in Texas.

For a complete listing of projects funded to date by CEIP in Texas, see Appendix G. This program is administered by the Governor's Budget and Planning Office.

It must be emphasized that the CZMA establishes a national program which encourages voluntary state participation. In exchange for federal financial support mnagement program, federal consistency authority, and Coastal Energy Impact Program (CEIP) assistance, states are called on to exercise their legal authority to develop and implement coastal management programs. In recognition of the voluntary nature of the CZMA, the state may voluntarily withdraw from the program at any time it is determined by the Governor that it is no longer in the best interest of the state to participate. The consequences of such action would be a loss of Section 306 program implementation funds, cessation of Section 307 federal consistency authority, and the termination of Section 308 CEIP assistance.

Similarly, Section 306 approval and financial assistance under the CZMA neither enhances nor limits the discretion of the state legislature or regulatory agencies to pursue new and possibly contrary initiatives. The TCP as described in this document represents a body of state law; as with other state law the Texas Legislature is not prohibited from repealing or modifying such law, or passing conflicting and superseding legislation. CZMA approval of the TCP does not alter state legislative authority, however, legislative initiatives which are inconsistent with the provisions of the CZMA would lead to the termination of federal support for the TCP. Similarly, if permissible under state law, state agencies are free to promulgate regulations which are contrary to the TCP subject to the same risk that such action may lead to withdrawal of federal support.

The Texas Coastal Program's landward boundary is that of the first tier of coastal counties. This will clearly identify the number of communities that can qualify for federal Coastal Energy Impact Program funds. The coastal area boundary will provide focus for the state's coastal planning and coordination activities and emphasize the coastal policies that agencies already must follow in their regulatory and other functions under existing law. The boundary also puts the federal government on notice of where its actions must be consistent with Texas coastal policies.

C. PROGRAM DEVELOPMENT AND TASKS

During the development stage of the Texas Coastal Program, the State of Texas has continued to improve its existing coastal management capabilities. The Program improves the coastal management process without developing a new regulatory program or "superagency" for regulating coastal activities; instead, it outlines existing state policies and performance standards pursuant to the guidelines of the CZMA. The more than a dozen independent state agencies involved in resource management possess ample authority to manage coastal resources. The Program consists of all existing state statutes, regulations, management policies, and constitutional provisions which relate to the management of Texas coastal resources. Development of a formal coastal program is an additional step taken to clarify and improve the existing relationships between state and federal governmental entities.

As part of program development, TENRAC has also refined procedures whereby the state will consider the national interest in the siting of facilities during program implementation. These procedures are discussed in the section on "National Interest" page V-19. When the Texas program is approved under Section 306 of the CZMA, applicants for federal permits and licenses, federal assistance programs, OCS activities, and direct federal activities/development projects will be required to certify that a proposed project is consistent with the Coastal Program. For more details see "Federal Consistency," page IV-4.

State and federal coordination is inherent in the management of certain wetlands activities through the Corps of Engineers 404 permitting process. A series of draft Memoranda of Understanding have been developed to clearly delineate the procedures to be used by state agencies in granting Section 401 Certification to an activity requiring permits from the Corps of Engineers under Section 404 of the Federal Clean Water Act. Proposed rules for adoption by the Texas Department of Water Resources and the Railroad Commission contain specific standards to be used by RRC for evaluating drill permits and by TDWR when granting certification. Four Memoranda between state agencies and the two sets of draft proposed rules are discussed more fully in Chapter III, page III-33, and are found in Appendix A.

In addition to the Memoranda of Understanding and general program development, a number of specific work tasks are being performed as part of the Texas Coastal Program. Many of these tasks are being done by the Natural Resources Division of the TENRAC staff, while other tasks are being performed by designated state agencies.

Following is a brief summary of some of the major work tasks and a discussion of their status.

1. State-Federal Permitting Coordination. The Natural Resources Division has drafted a single permit application to be used for 401/404 Corps of Engineers permits. Appropriate state and federal agencies are currently reviewing the application form and offering comments. (A copy of the draft is included in this document as Appendix E.) Discussion is also underway regarding the feasibility of a scoping session with applicants before making application, to aid predictability and reduce delays in the permitting process.

2. Fisheries Management Task Group. The Natural Resources Division will be meeting with state and federal agencies and colleges involved in fisheries management, mariculture and stock enhancement programs to identify common objectives and offer support and recommendations to each other in their efforts.

3. Critical Dunes. Procedures have been developed for the designation of critical dunes (see Appendix G) and critical dune areas will soon be identified in Nueces and Galveston Counties by the General Land Office. The designation allows for counties to set up dune protection lines for critical dune areas. A complete description of these areas will be prepared for inclusion in the draft Environmental Impact Statement for this Program.

4. Wetlands Analysis. Those wetlands most essential to the public interest are being certified by the General Land Office. Analysis of wetlands functions will provide methodology for certification.

5. Beach Access. The Natural Resources Division will meet soon with appropriate state agencies and interested parties to determine what recommendations should be made to implement S.C.R. 45, which encourages the State Department

of Highways and Public Transportation to emphasize construction of off-beach parking areas. The issues of parking, vehicular traffic, and beach access will be discussed and reviewed.

6. Port and Waterway Planning. The Natural Resources Division will form a Task Group to identify issues and problems of Texas ports, including disposal of dredged material and port safety.

7. Freshwater Inflow Studies. The Texas Department of Water Resources is nearing completion on a series of studies analyzing freshwater inflow needs and demands in Texas major bays and estuarine systems. Final reports will be completed in fiscal year 1980.

8. Coastal Public Lands. The General Land Office is conducting a review of policies and procedures used in the management of coastal public lands. The GLO/School Land Board have developed a set of proposed rules for (1) SLB leases on state-owned land and flats (2) GLO permits for geophysical and other surveys, and (3) SLB rules for state-owned lands in the coastal area. (See Appendix B for detailed information and a copy of these rules.)

9. Model Flood Relocation Plan. As part of program development, the Texas A&M University Seagrant Program is preparing model evacuation routes and relocation plans for residents of Galveston Island. A preliminary response plan will be prepared by December.

All work tasks will be coordinated through the Natural Resources Division to ensure they are consistent with the goals, objectives and policies of the Texas Coastal Program. Coastal issues will continually be identified in an effort to achieve a balanced, coherent, comprehensive Texas Coastal Program for the benefit of the citizens of the state.

D. BENEFITS OF THE PROGRAM

Numerous benefits will accrue to Texas as a result of program approval under Section 306 of the CZMA. Some of the more significant of these can be summarized as follows:

1. The program provides for a coordinated approach by those concerned in addressing the state's major coastal issues and needs. This coordinated approach will provide the basis for unified policies, methods and processes in arriving at land and water decisions of more than local significance.

2. The unification of policies, methods and processes will, in turn, facilitate the orderly processing of requests for various licenses and permits, thus enhancing the economic growth of the coastal region while assuring necessary consideration of ecological and environmental concerns.

3. Federal approval also will bring into effect the Federal Consistency provisions of the CZMA that require most federal actions, including federal projects, licenses, permits and various assistance programs, to be consistent with the Texas Coastal Program.

4. The improved coastal management process will qualify the Texas Program for approval by the Department of Commerce under Section 306 of the CZMA. An approved program will provide for federal grants for program administration, technical assistance, and other projects provided for in Section 306.

5. In addition, coastal communities impacted by coastal energy facilities will continue to be eligible to participate under Section 308 of the CZMA. The Coastal Energy Impact Program is a federal loan, loan guarantee, and grant program to cover the costs of planning for impacts of these facilities, and resulting public facilities and services. Also included is recovery of environmental losses and damages sustained by the siting of a coastal energy facility. (See Table on page 6.)

6. Finally, the state's coastal mangement process affirms Texas' commitment to sound natural resource management and its intent to participate in the discussion of future directions of federal legislative initiatives.

E. OVERVIEW OF HEARING DRAFT

Texas manages its coastal resources by application of statutory policy statements and agency regulations and guidelines. The principal policy statements are presented in Chapter I. In compliance with federal regulations, this chapter also contains the list of uses and activities subject to management under the Texas Coastal Program, and the authority under which such activities are managed.

In Chapter II, the four major areas of resource management of concern to the TCP are discussed: bays and estuaries, shorefront areas, coastal hazards, and coastal development. The coastal issues from these general categories provide the focus for TCP coastal resource management efforts.

The authorities and policies which provide the basis for management in the Texas Coastal Program are thoroughly discussed in Chapter III. Using the broad outline of four areas, as discussed in Chapter II, regulatory authorities are described for each use and activity subject to management.

Chapter IV describes Program implementation and coordination. The role of TENRAC as the lead agency for program implementation is described in detail. Federal consistency provisions and procedures are fully outlined in this chapter.

Technical requirements, pursuant to regulations of OCZM, are found in Chapter V. They include descriptions of the coastal boundary; the national interest; and methods of public participation and consultation with federal agencies, as each relates to the program. Also discussed are special management areas, uses of regional benefit, and special planning requirements in energy facility siting, shorefront access, and erosion control.

Appendix A contains the proposed series of Memoranda of Understanding and draft rules providing a coordinated mechanism for issuance of Section 401 state certification. These apply to activities on privately-owned coastal saltwater wetlands and submerged lands not under the jurisdiction of the GLO/SLB, and which require a Corps of Engineers' Section 404 permit. Appendix B contains draft proposed rules of

GLO/SLB for the management of coastal public lands pursuant to the Coastal Public Lands Management Act. The specific existing standards and requirements used by agencies to regulate coastal activities are contained in Appendix C. Appendices D and E contain drafts of forms for consistency review (D) and for joint permit applications (E). A complete listing of existing and potential facilities on the Texas Coast is found in Appendix F. Appendix G contains a chart of CEIP-funded projects in Texas coastal communities.

F. PROGRAM COMPLETION PROCESS

The State of Texas has prepared this Hearing Draft of the Texas Coastal Program to describe what has been done and is being done to manage the Texas Gulf Coast and its natural resources. It is appropriate that this should be done during 1980, the Year of the Coast. This document describes in a comprehensive manner the existing state coastal management and several proposed mechanisms to improve these policies and programs. Over 1,300 copies of this Hearing Draft have been distributed to all individuals on the Natural Resources Division mailing list, representing a wide array of coastal interests.

Pursuant to the rules and regulations of the federal Coastal Zone Management Act, four public hearings will be held on this document. Comments are invited on all elements of the Program. A written copy of an oral statement or a written statement may be submitted, before, or soon after, the meeting to William Nikolis, Natural Resources Division of the Texas Energy and Natural Resources Advisory Council; 200 East 18th Street, Suite 513; Austin, Texas 78711. Comments will be accepted until November 10.

Public Hearings Schedule:

Austin	Room 100E John H. Reagan Bldg.	Tuesday, October 28
Corpus Christi	Council of Governments 2910 Leopard Street	Wednesday, October 29
Houston	City Council Chambers 901 Bagby; 2nd Floor	Thursday, October 30
Beaumont	Jefferson County Courthouse 1149 Pearl Street	Friday, October 31

Revisions will be made on the draft based on all public comments received. The program will then be submitted to the Governor for review and approval. The Governor, if he so decides, shall forward the management program to OCZM with a transmittal letter documenting that he (1) has reviewed and approved the program as state policy; (2) has designated a single state agency to receive and administer implementation grants; (3) attests that the state has the authorities necessary to implement the management program; and (4) attests that the state is organized to implement the program (15 CFR 923.48).

The management program submitted will be incorporated into the draft Environmental Impact Statement prepared by OCZM and published in early 1981. Based on subsequent comments received on the DEIS, final revisions will be made. It is anticipated that a final Environmental Impact Statement will be published and distributed beginning in Spring 1981. The program then will be formally approved by the Assistant Administrator of Coastal Zone Management in NOAA and plan implementation will begin.

PLAN COMPLETION TIMETABLE	
State Hearing Draft Completed	September 3, 1980
State Hearing Draft Distributed	September 24, 1980
Public Hearings	October 28-31, 1980
Draft EIS Published	January 1981
Public Hearings (to be held by OCZM)	February 1981
Final EIS Published	May 1981

CHAPTER I

ORGANIZATION FOR MANAGEMENT OF TEXAS COASTAL RESOURCES

The traditional approach in Texas has been to delegate coastal management responsibilities to a number of agencies that oversee the conservation and development of particular resources. Because of the complexity of the current organizational structure for coastal management, an overview of the Texas management system is presented below to state the existing state goals and objectives for coastal management, to clarify the responsibilties of state agencies that implement these legislative mandates, and to describe the uses and activities subject to management techniques of the Texas Coastal Program.

A. GOALS AND OBJECTIVES

The Texas Coastal Program has compiled 15 succinct statements of state goals and objectives for coastal resources management. The statements are drawn and condensed from numerous statutes in which the Texas Legislature has expressed state policies, goals and objectives for the protection and utilization of the state's coastal resources. The Program explains the specificity and comprehensiveness inherent in these policies by illustrating how the state agency regulations and guidelines implement these policies. The Texas Coastal Program is based on management goals as outlined here and is firmly established within statutory authority.

Any conflict between the policies as expressed in the text of the Program and the underlying authority would be resolved in favor of the basic document of law. In like manner, any conflict between regulations paraphrased as standards in other parts of this Program and the regulations as promulgated by the agencies would be resolved in favor of the regulation.

The policy level goals and objectives of the Texas Coastal Program are:

AIR	to safeguard the air resources of the state's coastal area consistent with the protection of the health, general welfare, and physical property of the people, including aesthetic enjoyment of the air resources and the maintenance of adequate visibility. (TEX. REV. CIV. STAT. ANN. art. 4477-5, sec. 1.02)
WATER RESOURCES	to promote the conservation and beneficial use of the state's coastal waters; to protect, maintain, and where feasible, improve the quality of the state's coastal waters and to provide reasonable methods for preventing or mitigating pollution arising from discharges of waste or accidental spills consistent with the public health and enjoyment; to promote the protection of terrestrial and aquatic life, the operation of industry, and the economic development of the state. (TEX. REV. CIV. STAT. ANN. art. 4413(47c); TEX. WATER CODE, secs. 1.003, 26.003, and 26.262; TEX. REV. CIV. STAT. ANN. art. 4477-7 (Solid Waste Act); TEX. CONST. art. XVI, sec. 59)
WETLANDS	to promote the conservation, protection, and wise management of the coastal wetlands of Texas through measures that prevent or mitigate effects of pollution, avoid unreasonable destruction of wetlands, provide for acquisition of critical coastal wetlands, and protect vested rights in land and ensure the orderly use of littoral property consistent with the public policy of this state. (TEX. NAT. RES. CODE, sec. 33.001 and 33.231; TEX. WATER CODE, Chap. 26)

DUNES	to encourage wise management of the state's critical coastal dunes, which have protective functions and productive potential, and, to the extent allowed by law, to discourage removal of dunes and dune vegetation and to restrict vehicular traffic that may damage dunes and dune vegetation. (TEX. NAT. RES. CODE, Chapter 63)
MINERAL AND ENERGY RESOURCES	to promote the conservation, development and wise management of the state's coastal mineral and energy resources in a manner that will insofar as practicable prevent the pollution of water, destruction of marine life, obstruction of navigation, and waste of mineral resources. (TEX. NAT. RES. CODE, secs. 32.062, 52.032 and 85.202)
WILDLIFE RESOURCES	to use reasonable methods to provide for the conservation and management of fish, shellfish, and wildlife resources and their habitat; to maintain the proper ecological environment of the bays and estuaries of Texas and the health of related marine resources; to prevent depletion and waste of wildlife resources; to prevent pollution of water and destruction of marine life; to encourage fisheries management; and to regulate the taking of all fish, wildlife, and marl, sand, gravel, shell, or mudshell. (TEX. WATER CODE, secs. 1.003 and 26.003; TEX. NAT. RES. CODE, sec. 33.001; TEX. REV. CIV. STAT. ANN. art. 5415e-2; TEX. PARKS & WILDLIFE CODE, sec. 61.002)
CULTURAL AND HISTORICAL RESOURCES	to locate and protect coastal cultural, historical, and archaeological resources. (TEX. NAT. RES. CODE, sec. 191.002)

ECONOMIC AND SOCIAL RESOURCES	to recognize, protect and promote the economic and social vitality of coastal communities and the industries located therein through proper resource management, acknowledging that the coastal citizenry, communities and industries are valuable state resources; and to ensure social and economic needs are met in an environmentally compatible manner. (TEX. CONST. art. XVI, sec. 59; TEX. WATER CODE, secs. 1.003 and 26.003; TEX. REV. CIV. STAT. ANN. art. 5415e-2)
RECREATION AND SHOREFRONT ACCESS	to promote the state's coastal recreation resources, including parks, preserves, seashores and beach areas; and to ensure that the public, individually and collectively, shall have the free and reasonably unrestricted right of access to the state-owned beaches bordering on the seaward shore of the Gulf of Mexico and to the larger area extending from the line of mean low tide to the line of vegetation bordering on the Gulf of Mexico, where the public has acquired a right of use or easement by prescription, dedication, or continuous right. (TEX. NAT. RES. CODE, secs. 61.011 and 61.013)
COASTAL HAZARDS	to promote the welfare and safety of coastal citizens by authorizing measures that prevent or mitigate damage, injury, and loss of life and property resulting from coastal hazards, including natural or man-made catastrophes, such as hurricanes, flooding, erosion, and subsidence. (TEX. REV. CIV. STAT. ANN. art. 6889-7)
NAVIGATION	to recognize, promote, and protect the public interest in navigation, transportation and commerce. (TEX. CONST. art. XVI, sec. 59; TEX. WATER CODE, secs. 1.003 and 19.001; TEX. NAT. RES. CODE, secs. 33.001 and 141.002, TEX. REV. CIV. STAT. ANN. art. 5415e-2)

ENERGY FACILITIES	to encourage and accommodate installations and facilities related to exploration, development and production of energy resources; including offshore oil and gas, geothermal energy, and alternative sources of energy; in conformance with applicable state and federal laws. (TEX. WATER CODE, secs. 19.001 and 26.262; TEX. NAT. RES. CODE, secs. 52.072 and 141.002)
COASTAL INDUSTRIAL, COMMERCIAL, RESIDENTIAL, AND OCS-RELATED DEVELOPMENT	to promote and encourage the development and protection of Texas business, industry, agriculture, and commerce, and to require all development in the coastal area to conform with existing applicable state laws and requirements governing natural resources policies, particularly air and water quality policies. (TEX. REV. CIV. STAT. ANN. arts. 4413(47c) and 6144e, sec. 4)
COASTAL MANAGEMENT PROCESS	to improve the effectiveness and efficiency of the use of public funds and public facilities within the designated boundaries of the coastal zone through continual review of coastal problems, programs, and potential solutions; to make the management processes adequately visible, accessible, and accountable to the citizens of Texas; and to coordinate all state natural resource policies, programs, and activities, refine state permitting processes, and require the state to balance the economic, social, and environmental consequences of its natural resource decisions. (TEX. REV. CIV. STAT. ANN. arts. 4413(47c) and Natural Resources Code, sec. 33.202)
RELATIONS WITH FEDERAL AGENCIES	to promote coordination of state and local governmental programs with those of federal agencies and neighboring states to further the goals of the Coastal Program and to minimize duplication of efforts, conflicting actions, and regulatory permit processing delays. (TEX. REV. CIV. STAT. ANN. art. 5415e-4, sec. 2); TEX. NAT. RES. CODE, sec. 33.201)

B. RESPONSIBILITIES OF STATE AGENCIES

The current regulatory system for management of coastal resources and problems in Texas has evolved from a long historical process in which the legislature statutorily distributed authority for resources management among a number of agencies. The present coastal management system relies heavily upon the management capabilities of state resource agencies, the Office of the Attorney General, and the Texas Energy and Natural Resources Advisory Council. Coastal resources are regulated through agency guidelines and standards for uses and activities occurring on the Texas coast.

The major existing state institutional mechanisms for coastal resources planning and management in Texas are:

1. Texas Air Control Board
2. Texas Antiquities Committee
3. General Land Office and the School Land Board
4. Texas Department of Health
5. Texas Parks and Wildlife Department
6. Texas Railroad Commission
7. Texas Department of Water Resources
8. State Department of Highways and Public Transportation
9. Department of Public Safety
10. Texas Coastal and Marine Council
11. Budget and Planning Office
12. Bureau of Economic Geology
13. Office of the Attorney General
14. Texas Energy and Natural Resources Advisory Council

1. Texas Air Control Board

Under the Texas Clean Air Act, the Texas Air Control Board is responsible for safeguarding the air resources of the state. A permit must be obtained from the Board for the construction and operation of any facility that emits air pollutants. Construction permits are issued after a review of facility plans and specifications and must be obtained prior to beginning construction. Operating permits are issued after a review of actual operating conditions and must be applied for within 60 days after operations begin, unless an extension is granted by the Board. Both types of

permits are issued on the basis of performance standards contained in Board rules and after consultation with local pollution control agencies. The Environmental Protection Agency (EPA) has retained administration of the Prevention of Significant Deterioration (PSD) regulations. New sources that are subject to PSD permits must obtain such permits from the EPA.

2. Texas Antiquities Committee

The Texas Antiquities Committee, created by the Texas Antiquities Code (TEX. NAT. RES. CODE, sec. 191.022), is responsible for preserving and protecting the state's historical and archaeological resources. The Committee carries out this responsibility by requiring permits for activities involving salvage or study of state archaeological landmarks.

Archaeological landmarks include historical sites and artifacts of interest such as sunken ships, buried treasures, and art works. The Committee issues eight types of permits covering virtually every aspect of historical and archaeological investigation, including reconnaissance, testing, excavation and destruction. Antiquities Committee permits are particularly important in the coastal area, where there are many archaeological sites, including sunken ships and prehistoric habitation sites.

Permits may be required from the Committee prior to construction, dredging, or filling for navigational improvements if there is reason to believe that historical and archaeological sites are located on the submerged lands. The Committee reviews applications to the U. S. Corps of Engineers for permits, under Section 404 of the federal Clean Water Act and Section 10 of the 1899 Rivers and Harbors Act, to conduct dredging or filling operations in navigable waters or wetlands.

The Committee relies heavily on information from permit applicants for data regarding archaeological sites. Rules and regulations established by the Committee outline detailed specifications for investigators and require comprehensive reporting of survey results.

An extensive set of historical maps of the Gulf of Mexico and the Texas shoreline, dating back to the 1800's, are available for public review from the Antiquities Committee.

3. General Land Office and School Land Board

The General Land Office, in conjunction with the School Land Board, manages the state's public free school lands, which include the coastal public lands. Under the Coastal Public Lands Management Act of 1973 (TEX. NAT. RES. CODE, sec. 33.001 et seq.), the School Land Board has jurisdiction to regulate the use of most of the coastal submerged lands and all state-owned land or islands in coastal areas. (For definitions of "coastal public lands" and "coastal submerged lands," see page III-32.) The Board may grant: leases to certain groups and governmental bodies for public purposes; leases for the purpose of mineral exploration and development; easements to littoral owners; channel easements to surface or mineral interest holders; and permits for limited use of previously unauthorized structures. The School Land Board recently published new proposed rules for state-owned lands in coastal areas and leases on state-owned land. (See Appendix B.) Since some submerged coastal lands have been patented to cities, counties and navigation districts, the jurisdiction of the SLB over these coastal submerged lands may be limited. Current litigation involving the nature of the interest conveyed to navigation districts under certain patents will determine if there are limitations on the SLB jurisdiction. The SLB also leases state lands for geothermal resources development and participate in management responsibilities with the Texas Railroad Commission.

The Commissioner of the General Land Office issues permits for geological, geophysical, and other investigations within the tidewater limits of the state. The General Land Office has published amendments to agency rules regarding such surveys and investigations. (See Appendix B.) The Commissioner may also grant easements or leases for rights-of-way across state lands for pipelines and other transmission lines. In addition, he is responsible for designation of critical dune areas, certification of critical wetlands and for accepting nominations for estuarine sanctuaries.

A draft Memorandum of Understanding developed between the Texas Department of Water Resources and the GLO/SLB outlines a mechanism whereby the GLO/SLB may comment to TDWR on water quality certifications granted under Section 401 of the federal Clean Water Act. Because GLO/SLB has mechanisms for managing public lands, these comments will relate only to activities on lands of mixed ownership, part of which is state-owned, and to activities on privately-owned coastal

saltwater wetlands with a direct and significant impact on state-owned lands. (See Appendix A-4.) TDWR has developed draft proposed rules to solidify the MOU into an enforceable mechanism, and to set out performance standards for water quality certification of activities proposed on these lands. (See Appendix A-6.)

The Commissioner of the General Land Office serves as Chairman of the School Land Board. The Governor and the Attorney General each appoint one remaining member to the Board. The General Land Office provides the School Land Board with administrative staff.

4. Texas Department of Health

The Texas Department of Health administers many programs to protect and promote public health. Among those programs that have a significant impact on the coastal area are the regulation of municipal solid waste, shellfish sanitation, licensing of drinking-water and wastewater plant operators, and approval of plans and specifications for public drinking-water and sewage disposal systems.

The Texas Department of Health provides uniform standards for the management of municipal solid waste programs to safeguard the health, safety, and physical properties of the people. It issues permits for processing and disposal facilities and maintains surveillance and enforcement activities under its jurisdiction. Counties that have chosen to exercise licensing authority over municipal solid waste disposal must conform to Department requirements. Industrial solid waste is regulated by the Texas Department of Water Resources, but the Department of Health is responsible for any mixed municipal and industrial disposal facilities. The general responsibility of the Department in this area is based on the Solid Waste Disposal Act (V.A.C.S., art. 4477-7) and the County Solid Waste Control Act (V.A.C.S., art. 4477-8).

A draft Memorandum of Understanding between TDWR and the Texas Department of Health outlines a procedural mechanism by which TDH may comment to TDWR on public health aspects of matters relating to water quality. (See Appendix A-3.) These comments will apply to water quality certification of dredge and fill activities under sections 401 and 404 of the federal Clean Water Act. Draft proposed rules developed by TDWR will solidify this existing mechanism into an enforceable process on non-public coastal saltwater

wetlands and submerged lands not under the jurisdiction of the GLO/SLB (Appendix C-6).

The Shellfish Sanitation Control Division of the Texas Department of Health Resources regulates the processing of shellfish on the basis of performance standards contained in Department rules. Construction or modification of shellfish processing plants requires Department certification. The Department also may close polluted areas to shellfish harvesting, given particular types or amounts of pollutants.

5. Texas Parks and Wildlife Department

The Texas Parks and Wildlife Department provides and operates the state parks system and wildlife refuges. The Department also enforces fish and game regulations throughout the state and provides for licensing of hunting and sport fishing. Of the many licenses and permits issued by the Parks and Wildlife Department, commercial fish and shrimping licenses and dredging permits are the most important in the coastal area.

A permit must be obtained from the Department for the disturbance or dredging of sand, shell, or marl in public waters. Public waters are defined as all the salt and fresh waters under the jurisdiction or ownership of the State of Texas, all lands underlying such water area, and all lands subject to jurisdiction of the Parks and Wildlife Commission underlying the beds of navigable streams. Conditions for issuance vary, but the Department relies heavily on the professional judgment of its staff, which includes biologists located in field offices.

Parks and Wildlife Department has authority to acquire land, water, and interests in land and water for outdoor recreation areas and facilities. The Department may receive gifts of state park sites and acquire historic sites.

The Department has the authority to enforce compliance with water quality standards in the state when a violation of those standards affects aquatic life or wildlife. The Department currently makes comments directly to the Corps of Engineers, under the federal Fish and Wildlife Coordination Act, for permit applications which involve Department concerns. The TPWD is also involved in a draft Memorandum of Understanding with the Texas Department of Water Resources which provides for the TPWD to make comments to the TDWR concerning state certification of Corps of Engineers dredge and fill permits under Section 404 of the federal Clean

Water Act. This agreement is limited to non-public coastal saltwater wetlands and any submerged lands not under the jurisdiction of the General Land Office/School Land Board. (See Appendix A-2.) Draft proposed rules by the TDWR would solidify this process into an enforceable mechanism (see Appendix A-6).

6. Texas Railroad Commission

Although originally created to regulate railroads, the Texas Railroad Commission currently has responsibilities in many other areas. The Commission administers rate regulations applied to express companies, trucks and buses. It has extensive authority in the oil and gas industry, including the regulation of intrastate natural gas pipelines and the issuance of drill permits for oil and gas wells.

To prevent waste of petroleum resources, the Commission sets production rates for oil and gas. In addition, it exerts extensive control in pollution prevention and abatement through regulations governing well casing, cementing, well abandonment, saltwater disposal, inspections and reporting procedures. The Commission also regulates exploration and development of geothermal resources.

Issuance of the drilling permits obligates compliance with performance standards in RRC rules. Proposed amendments to these rules provide additional standards for activities in wetlands. (See Appendix A-5.) A draft Memorandum of Understanding between TDWR and RRC will make the drilling permit a prerequisite for TDWR Certification of dredge and fill activities under Section 401 of the Clean Water Act. The agreement is limited to privately-owned coastal saltwater wetlands and submerged lands not under the jurisdiction of the GLO/SLB (Appendix A-1).

Another responsibility of the Railroad Commission regards surface mining and reclamation in Texas. The Commission issues permits for the surface mining of coal, lignite, uranium, and uranium ore, and ensures that the mined land is restored according to the reclamation standard promulgated under the Surface Mining and Reclamation Act (TEX. NAT. RES. CODE, sec. 131.001 et seq.).

7. Texas Department of Water Resources

The Texas Department of Water Resources has the primary responsibility in the state for water administration includ-

ing: processing and issuance of permits or all types including water use, waste discharge, weather modification, levee, and solid waste; inspection and enforcement of permit provisions; hazardous waste disposal; planning (both water resources development and water quality protection); cooperation and coordination with the federal agencies in management, planning, and water project implementation; administration of the Federal Construction Grants Program for sewage treatment facilities; environmental analysis; and administration of the Water Development Fund.

A function of the Department is regulation of the disposal of industrial solid waste under the Solid Waste Disposal Act. TDWR shares responsibility with the Department of Health in regulating liquid and solid wastes.

Other Department functions include examination and approval of planned or current domestic or industrial sewage disposal systems in order to ensure that the discharge from these facilities will not adversely affect the state's water resources. The agency issues waste control orders and certifies National Pollutant Discharge Elimination System (NPDES) permits, which are required by the Environmental Protection Agency prior to the disposal of waste into water courses. The Department issues permits for surface water use and for the disposal of industrial solid waste, and requires registration of all disposal sites for that waste. TDWR also certifies dredge and fill projects, under Section 401 of the Federal Clean Water Act, which are required for permit approval by the Corps of Engineers under Section 404 of the Act. The TDWR has drafted a series of Memoranda of Understanding with every other agency which may be involved in water quality matters, to coordinate the review process for certification of coastal activities. The Memoranda provide for consideration of comments from RRC, TPWD, TDH and GLO/SLB in 401 Certification decision-making. These agreements are limited to privately-owned coastal saltwater wetlands and submerged lands not under the jurisdiction of the GLO/SLB. TDWR has developed draft proposed rules solidifying these agreements and setting out performance standards in dredge and fill activities on the coast. See Appendix A for these agreements.

The Department's program includes development and maintenance of a comprehensive statewide water plan to meet the water supply needs of each area of Texas. The water development plan has a 50-year forseeable future planning horizon and takes into account the climate, the surface water hydrology, ground water hydrology, and water rights of each area of the state.

8. State Department of Highways and Public Transportation

While the Federal Highway Administration serves as the principal road-builder of the federal government, the State Department of Highways and Public Transportation is the major state agency for road construction and planning. The Department constructs and maintains interstate highways, U.S.- and state-numbered highways, and farm-to-market roads. The Department administers funds for the construction and improvement of state highways and of Texas roads that are not part of the state highway system. It also administers federal funds for mass transit and may plan, purchase, construct, lease and contract for public transportation systems in the state.

The Department of Highways and Public Transportation also has important responsibilities in the marine transportation field. One of its functions is to maintain bridges and ferries. It also serves as the state sponsor of the Gulf Intracoastal Waterway and can acquire easements and rights-of-way from the GLO/SLB for channel expansion, relocation, or alteration.

9. Department of Public Safety

In the management of coastal hazards, the Department of Public Safety is particularly concerned with timely initiation and efficient execution of the evacuation process in the event of a hurricane. The Department is responsible for keeping the highways open and for providing the public with the latest information on recommended escape-routes.

Although the Department is not a permitting agency for natural resource use, it has an important place in the overall management of coastal development by providing both land and marine access to coastal areas and ensuring that evacuation routes are adequate in the event of a disaster.

10. Texas Coastal and Marine Council

The Texas Coastal and Marine Council is an advisory body to the legislature on coastal issues such as hurricane awareness, emergency evacuation, natural hazards and artificial reef construction. In addition, the Council is instrumental in providing information to the public on these and other coastal-related issues.

11. Budget and Planning Office

Aside from their function regarding budget preparation and recommendation, the Governor's Office of Budget and Planning is responsible for administration of state review and comment procedures in accordance with OMB Circular A-95 and state law. This process is an integral part of the procedural aspects of federal consistency determinations (see "Federal Consistency," page IV-4).

A major function of the Budget and Planning Office is administration of the Coastal Energy Impact Program (CEIP), providing funding assistance under Section 308 of the CZMA. The office is also responsible for administration of state assistance to the five regional councils of government in the coastal region.

12. Bureau of Economic Geology

The Bureau of Economic Geology (BEG) of The University of Texas, has responsibility for much of the mapping of coastal resources, e.g. energy, minerals, land, geology, and biology. The Bureau also monitors erosion along the Texas Gulf Coast. The Environmental Geologic Atlas of the Texas Coastal Zone, published by the BEG, provides a thorough, comprehensive data base for Texas coastal resources.

Additionally, the Bureau provides state representation to the Outer Continental Shelf National Policy Board and the Outer Continental Shelf Regional Technical Working Group.

13. Office of the Attorney General

The Texas Attorney General's Office is not a regulatory agency, but it has an important role in resources management because it is the state's enforcement agency for the Open Beaches Act (TEX. NAT. RES. CODE, sec. 61.011), and other coastal legislation. The Office protects the public's right of beach access and can bring suit on behalf of other state agencies to enforce compliance with state laws.

14. Texas Energy and Natural Resources Advisory Council

While not a regulatory agency, the Texas Energy and Natural Resources Advisory Council (TENRAC) plays a major role in the continued development of the Texas Coastal Program by coordinating and recommending direction for the

necessary activities of the other state agencies involved in management of coastal resources. TENRAC is currently administering federal financial assistance provided under Section 305(d) of the Coastal Zone Management Act. Although administration of funding under the Coastal Energy Impact Program (CEIP), established by Section 308 of the Act, is in the Governor's Office of Budget and Planning, TENRAC reviews these applications.

It is anticipated that TENRAC will also serve as lead agency for the implementation under Section 306 of the Act once the Texas Coastal Program has been approved. (For details, see Chapter IV, page 1.) In this capacity, TENRAC will provide a clearing-house for information, administer grants under Section 306, assist in the coordination of state and local governmental activities, and monitor and evaluate the management of coastal resources.

C. USES AND ACTIVITIES SUBJECT TO STATE AGENCY MANAGEMENT

The Texas Coastal Program is structured to manage the conservation and use of coastal resources through management of the resources themselves. Different state agencies have been assigned particular areas of management responsibility, depending upon the nature of the resource to be managed. The agencies charged with managing coastal resources must review proposed activities under the policies that it is legally authorized to consider and must, as they do today, evaluate whether the impacts of a proposed project will be consistent with relevant coastal policies. Agencies may conduct impact assessments to determine whether the anticipated impacts will be consistent with the specific agency guidelines and regulations that implement the coastal policies. To aid in assessing the anticipated impacts of regulated activities on coastal resources, the agencies may request and review an environmental assessment prepared by the applicant.

The Federal Coastal Zone Management Act of 1972 requires that the state identify those land and water uses that will be subject to the terms of the management program (15 CFR 923.11). The current Texas Coastal Program established by existing state law regulates the following uses and activities:

- Water appropriation and supply
- Discharges into water
- Sewage facilities
- Industrial and municipal solid waste
- Oil, gas and geothermal resource activities
- Geophysical and other surveys
- Sand and gravel washing
- Mineral leasing
- Pollution in oil and gas operation
- Hazardous substances and oil spills
- Construction and activity on coastal public lands
- Dredge disposal
- Removal of commercial marl, sand, and gravel, shell and mudshell
- Discharge of dredge and fill material
- Wetlands acquisition
- Activities in the Gulf Intracoastal Waterway
- Commercial and sport fishing

- Beach access and recreation
- Mobile beach businesses
- Beach cleaning and maintenance
- Dune protection
- Activities in state-owned dune areas
- Floodplain construction
- Construction of mobile homes
- Groundwater extraction
- Erosion control
- Easements on state land
- Surface mining
- Air emissions
- Cultural resources

The Act further requires that each state identify the means by which it proposes to exert control over the land and water uses identified above (15 CFR 923.41). There are three methods by which state agencies will manage uses in the coastal zone in accordance with state coastal policies:

- state regulatory authority, through permit and certification systems;

- state acquisition and management of coastal resources; and

- state spending.

In each of these areas where state authority is exercised, the agencies may consider the environmental, economic, and social impacts of proposed actions to assure achievement of a proper balance among competing interests. State regulatory authority over activities in the coastal area is primarily exercised through permit, licensing and certification systems. Another form of regulatory authority is the promulgation of specific standards and requirements. Activities on state-owned coastal lands require additional types of permits, leases, easements, and other forms of permission from the General Land Office/School Land Board or Parks and Wildlife Department. Future acquisitions of coastal wetlands or parks and wildlife management areas will also be subject to existing state management mechanisms. In addition, decisions made regarding expenditures of public funds affect the management of coastal resources. Careful balancing is needed when decisions are made to use public funds to construct such things as sewage treatment plants and roads. Adequate consideration must be given to the ability of the coast to absorb potential development.

Activities and uses requiring permits, licenses, or other approvals in the coastal zone are summarized in the list below. Related performance standards in Appendix C are arranged in accordance with this list.

1. Water Quality

- Water appropriation and supply. Use of state water must be authorized by the Texas Department of Water Resources. The use must be beneficial and, among other things, the Department must assess the effects on the bays and estuaries of any application (TEX. WATER CODE, §§ 11.121, 11.124, 11.134, and 11.147)

- Discharges into water. The Texas Department of Water Resources must issue a permit for the discharge of waste into state waters, including discharges from commercial swine production operations, and meat processing operations (TEX. WATER CODE, secs. 5.131, 5.132 and 26.027).

- Sewage facilities. The Texas Department of Health and the Department of Water Resources share responsibility in regulating liquid wastes (TEX. REV. CIV. STAT. ANN. art. 4477-1 sec. 5(a)).

- Industrial and municipal solid waste. Industrial solid waste sites must be permitted by the Texas Department of Water Resources. Municipal solid waste sites must be approved by the Texas Department of Health. (TEX. REV. CIV. STAT. ANN. art. 4477-7).

- Oil, gas and geothermal resource activities. Oil, gas and geothermal wells require Railroad Commission permits prior to drilling operations. A permit is also required from Railroad Commission to drill or convert existing wells into waste disposal wells. All wells on state-owned lands must receive a lease from the School Land Board and abide by their regulations for operation (TEX. NAT. RES. CODE §§ 85.202(a)(8), 86.042(8), 141.071(2) and (for School Land Board) TEX. NAT. RES. CODE, sec. 52.011 and 141.073).

- Geophysical and other surveys. All geophysical, geological and other surveys and investigations within tidewater areas must be the subject of permits from the General Land Office (TEX. NAT. RES. CODE secs. 31.101-.108).

- Sand and gravel washing. The Department of Water Resources regulates sand and gravel washing operations by rule to protect water quality from such discharges (TEXAS WATER CODE, secs. 5.131 and 5.132).

- Mineral leasing. Extraction of oil, gas and geothermal resources on state-owned land requires a lease from the GLO/SLB (TEX. NAT. RES. CODE, sec. 52.011 and 141.073).

- Pollution in oil and gas operations. The Texas Railroad Commission requires that oil, gas and geothermal operations be conducted so that there is no pollution of the public waters or damage to aquatic life (TEX. NAT. RES. CODE 91.101).

- Hazardous substances and oil spills. To prevent a spill or discharge of oil and other hazardous substances into coastal waters, the state requires accordance with conditions and guidelines set forth in the Oil and Hazardous Substances Contingency Plan (TEX. WATER CODE 26.261 et seq., 26.039).

2. Wetlands and Submerged Lands Management

- Construction and activity on coastal public lands. Right-of-way easements, leases, and permits for structures and other uses of coastal public lands must be obtained from the GLO/SLB (TEX. NAT. RES. CODE, sec. 33.101).

- Dredge spoil. The TPWD comments on 404 permits regarding deposition of dredge spoils, and seeks mitigation of fish and wildlife resources damaged as a result of construction and development projects or man-made pollution (TEX. PARKS AND WILDLIFE CODE 11.011, 11.033, and 12.001).

- Removal of commercial marl, sand, and gravel, shell and mudshell. A permit must be obtained from TPWD for removal of marl, sand and gravel, shell and mudshell (TEX. PARKS AND WILDLIFE CODE, Chapter 86.)

- Discharge of dredge and fill material. Discharges of dredged or fill material into navigable waters and wetlands must be issued a certification of compliance with state water quality law under Section 401 of the Federal Clean Water Act. The Department of Water Resources, the Railroad Commission, the Parks and Wildlife Department, the Department of Health, and the General Land Office/ School Land Board have developed a series of Memoranda of Understanding for cooperation in the certification of these activities in privately-owned wetlands and submerged lands not under the jurisdiction of the GLO/SLB. These Memoranda are included as Appendix A (TEX. WATER CODE, Chapter 26 and TEX. NAT. RES. CODE, sec. 91.101).

- Wetlands acquisition. The General Land Office will certify the TPWD those coastal wetlands most essential to the public interest, for eventual acquisition and management by Parks and Wildlife (TEX. NAT. RES. CODE, sec. 33.231 et seq.).

- Activities in the Gulf Intracoastal Waterway. The Gulf Intracoastal Waterway shall be maintained, operated and approved so as to prevent waste. The State Department of Highways and Public Transportation is the designated agency for non-federal sponsorship of the waterway (V.A.C.S. art. 5415e-2).

3. Fisheries

- Commercial and sport fishing. Commercial and sport fishing licenses are required from the Texas Parks and Wildlife Department (TEX. PARKS AND WILDLIFE CODE, secs. 47.001-.055, 66.201-.213, 77.001-.099 and other provisions).

4. Shorefront Access

- Beach access and recreation. The State Attorney General has the power under the Open Beaches Act to bring suit to protect the public's right of access to Texas beaches (TEX. NAT. RES. CODE, sec. 61.011).

- Mobile beach businesses. Mobile beach businesses located outside of local city jurisdiction must be permitted by the Texas Parks and Wildlife Department. (TEX. NAT. RES. CODE, secs. 61.161-.177).

- Beach cleaning and maintenance. Coastal counties and local governments have been given the responsibility for cleaning and maintaining beaches, and for regulating traffic and animals on the beach. Funds are available from the TPWD for a portion of beach cleaning costs (TEX. NAT. RES. CODE, sec. 61.061-.083).

5. Dune Protection

- Dune protection. Uses and activities affecting dune areas designated as critical by the General Land Office may require permits, easements, leases or rights-of-way from the GLO (TEX. NAT. RES. CODE, sec. 63.001, *et seq.*).

6. Hurricanes/Hazards

- Floodplain construction. State agencies must evaluate alternative locations when proposing state-owned developments in flodplains, and must consider flood hazard guidelines for developments in floodplains (Exec. Order D.B. No. 34-A (Dec. 16, 1977) and V.A.C.S., art. 6889-7).

- Construction of mobile homes. The Texas Department of Labor and Standards has adopted standards and requirements ensuring that mobile homes can withstand winds of hurricane force (TEX. REV. CIV. STAT. ANN. art. 5221f).

7. Subsidence

- Groundwater extraction. The Harris-Galveston Coastal Subsidence District issues permits for groundwater withdrawal in Harris and Galveston Counties (1975 Tex. Gen. Laws, Chapter 284).

8. Erosion

- Erosion control. Activities and uses that contribute to erosion on state-owned lands must be approved by the SLB prior to initiation of the project (TEX. NAT. RES. CODE, 32.062).

9. Offshore Development

- Rights-of-way across state-owned lands. Rights-of-way across state-owned submerged lands or state park and wildlife areas for such structures as pipelines and other transmission lines must be obtained from the GLO/SLB or TPWD. (TEX. NAT. RES. CODE, secs. 33.101-.134, 34.051, and 51.291).

10. Facility Siting and Air Quality Management

- Surface mining and reclamation. The Railroad Commission issues permits for surface mining (coal, lignite, uranium, or uranium ore) and applicant must submit for approval detailed description of proposed reclamation procedures (TEX. NAT. RES. CODE, Chapter 131).

- Air quality control. Facilities causing air emissions must receive both construction and operating permits from the Texas Air Control Board. (TEX. REV. CIV. STAT. ANN. art. 4477-5).

11. Historical and Cultural Resources

- Disturbance of cultural resources. Texas Antiquities Committee requires a survey permit and underwater cultural resources survey before offshore development activity begins (TEX. NAT. RES. CODE, sec. 191.093).

Any leases, easements, permits or other approvals granted under all these authorities will comply with the applicable performance standards of the Texas Coastal Program, as listed specifically in Appendix C.

SUMMARY

Texas manages its coastal resources by application of 15 policy statements of goals and objectives established by existing law. Agency regulations and guidelines provide the actual standards and criteria for implementation of these goals and objectives. These criteria--used by the state in decisions on permit, easement and lease applications, on state and federal spending, and on consistency certifications--are discussed further in Chapter III, and listed in Appendix C.

State agencies play a central role in the regulation and/or planning of coastal resource use. Their permits involve virtually every coastal activity from fishing to the construction of petrochemical plants. Moreover, most of these agencies participate in the state's A-95 review process. Permitting and review procedures followed within the agencies vary widely.

Texas agencies manage the impacts of activities and uses that affect coastal resources by assessing those impacts in advance and by applying their regulations as performance standards to assure a proposed activity will comply with agency regulations. A major focus of the Texas Coastal Program is to outline the current system for regulation, management, and planning, and to improve coordination among the agencies and programs affecting the Texas coastal area.

CHAPTER II

RESOURCE ISSUES

In its development of coastal issues, the Texas Coastal Program identified the state's major goals in its coastal area: to encourage multiple use of natural resources and to establish and attain standards for environmental quality. State agencies, through their permitting authorities and their roles as trustees of coastal resources, have sufficient authority and policy to fulfill these goals. Generally, state agencies control the adverse environmental, social, and economic impacts of coastal activities through performance standards, rather than through strict regulations of the activities themselves. The Program has identified, however, some areas in which Texas can improve its permit process and its policy coordination and evaluation.

The Texas Coastal Program has designated four major policy areas having special significance for the Texas coast. These are bays and estuaries; shorefront areas; coastal hazards; and coastal development. Identification of major coastal issues is based on a balanced approach to coastal resource management, including concern for coastal resources, for the livability of the coast, and for economic activities dependent on coastal waters.

The issues addressed by the Program are:

A. BAYS AND ESTUARIES
   1. Water Supply and Water Quality Management
   2. Wetlands and Submerged Lands Management
   3. Fisheries Management

B. SHOREFRONT AREAS
   1. Shorefront Access
   2. Dune Protection

C. COASTAL HAZARDS
   1. Hurricanes
   2. Subsidence
   3. Erosion

D. COASTAL DEVELOPMENT

1. Development of Offshore Submerged Lands
2. Facility Siting and Air Quality Management
3. Ports and Navigation

A. BAYS AND ESTUARIES

The Texas bays and estuaries are valuable public resources that support populations of fish, birds, and other organisms. They contain important archeological and historic sites and are scenic and recreational assets. In addition, the bays and estuaries attract and support commerce and industry. Management of bays and estuaries and their resources requires the balancing of many competing interests.

1. Water Supply and Water Quality Management

Six major concerns of water quality management are: supply and appropriation, freshwater inflows, point source discharges, nonpoint source discharge, solid waste, and hazardous waste.

Water quality and appropriation must be managed to ensure that sufficient water supplies are available to coastal citizenry and industry. Natural climatic events, including hurricanes and droughts, must be considered in resource management efforts.

Maintenance of a sufficient quantity and quality of freshwater inflows to Texas bays and estuaries is important to the productivity of these areas and of near-shore portions of the Gulf of Mexico. Proper management of freshwater inflows requires careful consideration of the following: the value of inflows in diluting the saline tidal waters and transporting nutrients and sediments to promote estuarine productivity and maintain marsh environments; the need for seasonal inundation of marshes and periodic flushing of the bays by freshwater inflows to remove pollutants, parasites, bacteria, and viruses harmful to the estuarine ecosystem; the importance of water, sediment, and biota exchange between bays and estuaries and the nearshore Gulf environment; and the ability of bay and estuarine organisms to withstand fluctuations in the quantity and quality of freshwater inflows.

Another concern for water quality management is the effect of point source discharges from industrial and sewage treatment plants. The impact on coastal waters and wetlands as a result of these discharges can present a hazard to human health and the natural productivity of the region.

Texas has implemented policies to regulate industrial and waste treatment plant discharges. A related concern of the Texas Program is to ensure continued improvement in the overall quality of water in bays and estuaries while providing for the needs of coastal industry and communities.

Nonpoint sources also contribute to pollution of the bays and estuaries. Septic tanks, construction runoff, agricultural runoff and plant site runoff can reduce the general water quality of the coastal region. When these sources threaten water quality, the state has adequate authority to prevent pollution. In addition, Section 208 plans have been developed, pursuant to the federal Clean Water Act, to handle water quality problems in designated regions. These plans provide water quality standards intended to reduce the potential hazard to human health and natural productivity of these regions.

Disposal of solid wastes can adversely affect water quality and produce undesirable aesthetic effects. The Texas Program supports continued enforcement of solid waste policies that avoid degradation of the water quality of the bays and estuaries and plan for municipal and industrial solid waste disposal.

The final issue relating to water quality management is the impact of hazardous wastes on bays and estuaries. Serious pollution incidents may occur if the integrity of storage facilities is breached by natural corrosion, weathering, hurricanes or other natural hazards. Another concern is the potential for pollution from oil, gas, and geothermal resource activities; including drilling, plugging of wells; and producing, transporting, or disposal activities. Regulations and enforcement by the Texas Railroad Commission and the School Land Board, together with industry's continued cooperation, have been extremely successful in the management of this resource issue.

2. Wetlands and Submerged Lands Management

Balancing the protection of coastal wetlands with the needs of navigation and industry is one of the most important Texas coastal issues. Commercial needs must be met in a manner that avoids or minimizes alteration of coastal wetlands. The Texas Coastal Program recognizes several issues and problems concerning wetlands and dredge-and-fill activities.

- Coastal wetlands, both public and privately-owned are among the most valuable areas of the estuarine ecosystem. Marsh production is a major source of organic material supporting the entire estuarine food web in coastal areas of the Gulf of Mexico. Marshes serve as nurseries for many important estuarine-dependent species and provide food and cover for a variety of crustaceans, waterfowl, and mammals, including several endangered species. These marshes also serve as buffers, by protecting crops on adjacent lands, and aid in erosion control by absorbing potentially destructive wave energy.

- Management of dredge and fill activities and wetlands must accommodate new technology and techniques. Proper placement of dredged materials can create new marsh areas and emergent spoil islands can provide rookery sites. Man-made canals may offer an economically feasible means for siting industries inland of wetlands areas while providing access to barge navigation.

- Accommodation of the needs of Texas navigation has always been a special problem because the state's bays are very shallow. Both construction and maintenance channel dredging and the placement of dredged material in accessible areas are essential to maintain the economic stability of coastal communities dependent on navigation capabilities.

- The impact on coastal wetlands by initial dredging, maintenance dredging, and dredged material disposal is likely to increase without adequate management plans. Because dredging and filling are generally the activities most harmful to coastal wetlands, controls on dredging and placement of spoil and fill material are the major means of protecting wetlands. Attention must be given to dredge and fill activities that may change bay circulation patterns, erosion rates, salinity levels, sediment distribution, heavy metal concentrations, and the migration of various aquatic organisms.

3. Fisheries Management

Commercial and recreational fisheries are major industries on the Texas coast. The value of the commercial catch in 1979 was $172.3 million, and the revenue from tourist activity generated by recreational fishing was probably even greater. Over 90 percent of the commercial and 70 percent of the recreational catch are dependent on wetlands and estuaries. The protection of this habitat and prevention of overharvesting are primary concerns of fisheries management. The Texas Parks and Wildlife Department has the policy and authority, particularly through their licensing and quota regulations, to address these management concerns in Texas' bays and estuaries.

B. SHOREFRONT AREAS

Because millions of coastal and inland residents use the Texas shorefront for recreation, shorefront access and dune protection are of great importance. A potential for conflict exists between the principles of environmental protection and public access to shorefront areas. The main concern of the Texas Program is to guarantee the right of free public access and to prevent undue human disturbance of valuable natural features.

1. Shorefront Access

The Texas Open Beaches Act establishes a presumption of the public's right to free and unrestricted ingress and egress to state-owned beaches bordering on the seaward shore of the Gulf of Mexico, and to areas extending to the line of vegetation bordering the Gulf where the public has acquired a right of use or easement (TEX. NAT. RES. CODE, sec. 61.011 *et seq.*). The Act does not apply to beaches on islands or peninsulas currently inaccessible by a public road or ferry, such as San Jose Island, Matagorda Island, and Matagorda Peninsula west of the Colorado River Channel. The Act also does not apply to beaches on the bay shoreline. Enforcement is the responsibility of the Attorney General of Texas and county and district attorneys.

The publicly-owned beach includes the "wet beach," owned by the State of Texas, landward to the line of mean high tide or mean higher high tide. The publicly owned beach also includes portions of the "dry beach" along the Gulf of Mexico shoreline. It is the responsibility of state or local governments to protect the public right to the publicly-owned beach, and any public easements over privately-owned beach areas as well.

Physical accessibility to the shoreline is a problem that has partially been solved. About 46 percent of the Texas Gulf shoreline is easily accessible, according to the criteria developed by the Parks and Wildlife Department for the Texas Outdoor Recreation Plan, 1975. Segments of the remaining shoreline are classified as accessible-with-difficulty or inaccessible and reached only by lengthy walks, four-wheel-drive vehicles, or boats. Public shorefront areas that are now inaccessible or accessible only with difficulty can be made accessible through the construction of additional access roads.

The rapidly growing population of the coastal area, coupled with increasing use of the coast by tourists from other states, generates most of the problems and issues relating to shorefront access. The major problem appears to be congestion of beaches on Galveston, Mustang, and Padre Islands, and in the Surfside area.

Another issue is the vehicular traffic on the beach. Vehicles driven across dunes can uproot stabilizing vegetation and contribute to dune breakdown. Vehicles also pose critical safety problems when driven onto beach areas. The area of Texas beaches open to vehicular traffic has been reduced in recent years and vehicular restrictions limit the available free public access to and use of the beaches. Where local restrictions force beach users to park a long way from the beach or where off-beach facilities are supported by user fees, alternative access needs to be provided to prevent reduction in the free and unrestricted access guaranteed by the Open Beaches Act. Traffic regulations should be concentrated upon the most congested areas, taking into account seasonal use patterns. Local governments should avoid unreasonable fees.

Public access to the bay and Gulf waters is another important issue. Accessibility is provided by boat ramps, shorefront parks, bay shore areas, and a variety of marinas and other facilities. Texas bays are connected by the Gulf Intracoastal Waterway and its tributaries, providing safe daytime navigation for small boats and barges. According to the Texas Outdoor Recreation Plan, 1975, additional public boat ramps are needed to prevent congestion of bay waters.

2. Dune Protection

Dune protection is a major concern of the Texas Program. Coastal dunes provide storm protection; slow erosion; prevent the filling of lagoons, which are valuable spawning areas and wildlife habitats; and afford aesthetic pleasure (see Appendix C-5).

Dune protection is necessary when human activities threaten or destroy valuable existing dunes or when such activities discourage the formation of new dunes. The most obvious damage to dunes occurs in the removal of sand for fill material and the removal of entire dunes to level an area for construction, which is prevalent near major popula-

tion centers. Also heaviest near these centers are pedestrian and vehicular traffic, which uproot vegetation and break down the dunes. Overgrazing and burning destroy dune vegetation, making the dunes vulnerable to wind and wave erosion. Dunes on barrier islands fronting small, scattered beach communities are less likely to require protection than those near major population centers because they are less subject to pressures of human use.

Beaches and dunes migrate as the shoreline currents, winds and waves undermine their stability. Storms can annihilate whole sections of a barrier island. Residents of barrier islands, as well as tourists and day visitors, need to receive up-to-date information regarding potential hazards (hurricanes, seasonal flooding, etc.) and emergency evacuation procedures. Awareness and preparedness programs are discussed further in the next section on Coastal Hazards.

Barrier islands generally contain vegetated dunes, providing stabilization and swampy terraces extending lagoonward from the beach (Figure II-1). Barrier islands are recognized as a land resource that is less stable and more prone to erosion and other hazard risks than most areas. These islands protect the lagoons and mainland by absorbing and dissipating storms and tides generated by the Gulf. Construction and development on the islands should avoid, as much as possible, any ill effect on the value of the islands as natural storm buffers. Recreational opportunities are greatest on the beach areas of barrier islands. The Texas Program recognizes the vital need for balancing multiple uses of barrier islands. In general, barrier islands should be protected and preserved as natural stabilizing forces and for public recreation.

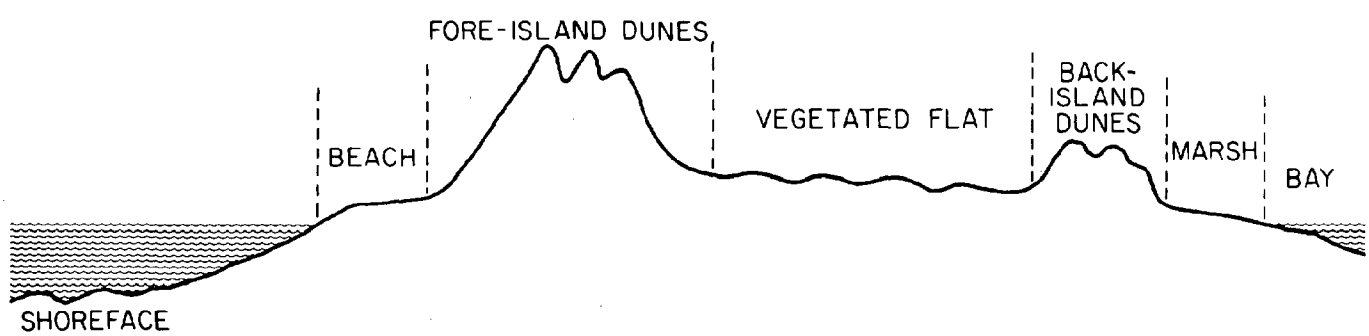


Figure II - 1. Barrier Island Profile.

C. COASTAL HAZARDS

Three major physical hazards exist along the Texas coast: hurricanes, subsidence, and erosion. Since hurricanes and long-term natural erosion are unavoidable, management of these natural disasters is restricted to preparedness and minimization of damage. The Governor's Division of Disaster Emergency Services is charged with the coordination of the efforts of all appropriate state and local units of government in the accomplishment of this task.

1. Hurricanes

Hurricanes strike the Texas coast at average intervals of once every 2.5 years. The Texas coast is particularly subject to hurricane flooding and storm wave damage because of its low elevation; and the area vulnerable to flooding is increasing because of high erosion rates and subsidence (Table II-1).

Hurricanes hitting the Texas coast can have catastrophic effects. High-velocity currents that erode channels on the barrier islands are highly destructive to nearby buildings. Hurricane winds are also capable of causing extensive structural damage. For example, property losses sustained from Celia in 1970 totaled $467 million.

The threat these storms pose to life and property has become increasingly serious in recent years because of the rapid growth in the coastal population, especially in the low-lying areas most vulnerable to storm damage. Many new coastal residents lack experience in preparing for and coping with hurricanes. Forecasting, prediction, and disaster services are relatively sophisticated, and residents in the vicinity of a predicted hurricane landfall generally have sufficient time to evacuate the area, although there may be problems in total evacuation of some coastal areas.

2. Subsidence

The major concerns regarding subsidence are the regulation of groundwater or petroleum withdrawals to reduce susceptibility to subsidence and thereby lessen the dangers of periodic flooding, and the provision of alternative surface water supplies to replace groundwater supplies.

Significant subsidence (greater than one or two feet) now affects a large area of the upper Texas coastal plain centered in the Greater Houston region (Figure II-2). In the Houston area, 470,000 acre-feet of groundwater a year is pumped to supply homes, industry, and agriculture. In addition, less significant subsidence has been documented in six oil and gas fields in Harris County and has been suspected in others in Harris and Galveston Counties.

The most obvious consequence of land subsidence in low-lying coastal areas is the increased vulnerability of land and structures to inundation by bay and Gulf waters, and to coastal flooding due to hurricane surge. Severe subsidence in the Houston area also has caused aggravated displacement along existing fault lines, contributing to structural damage to buildings and roads.

Number of hurricane landfalls, 1900-1972	27
Area (square miles) of salt-water flooding, Hurricanes *Carla* and *Beulah*	3,164
Area (square miles) of fresh-water flooding, Hurricane *Beulah*	2,187
Area (square miles) of fresh-water flooding by hurricane rainfall (floodplains), northern part of Coastal Zone only	2,073
Area (square miles) below elevation of 20 feet (MSL): subject to salt-water flooding by tidal surge	5,787
Number of active or potential hurricane washover channels	137
Number of miles of Gulf beach erosion: greater than 10 feet per year (long term)	47
Number of miles of Gulf beach erosion: from 5 to 10 feet per year (long term)	50
Number of miles of Gulf beach erosion: from 0 to 5 feet per year (long term)	104
Number of miles of bay and lagoon shoreline erosion	408
Area (square miles) of land subsidence: greater than 5 feet	227
Area (square miles) of land subsidence: from 1 to 5 feet	1,080
Area (square miles) of land subsidence: from 0.2 to 1 foot	5,422
Number of miles of known active surface faults	96
Number of miles of Gulf shoreline	367
Number of miles of bay-lagoon shoreline	1,100
Area (square miles) of bays and lagoons	2,075
Area (square miles) of land in map area	18,000

Table II-1. Statistical information for the area covered by the Natural Hazards Maps. (From Natural Hazards of the Texas Coast, Bureau of Economic Geology, 1974.)

THE STATE OF TEXAS

TEXAS COASTAL PROGRAM

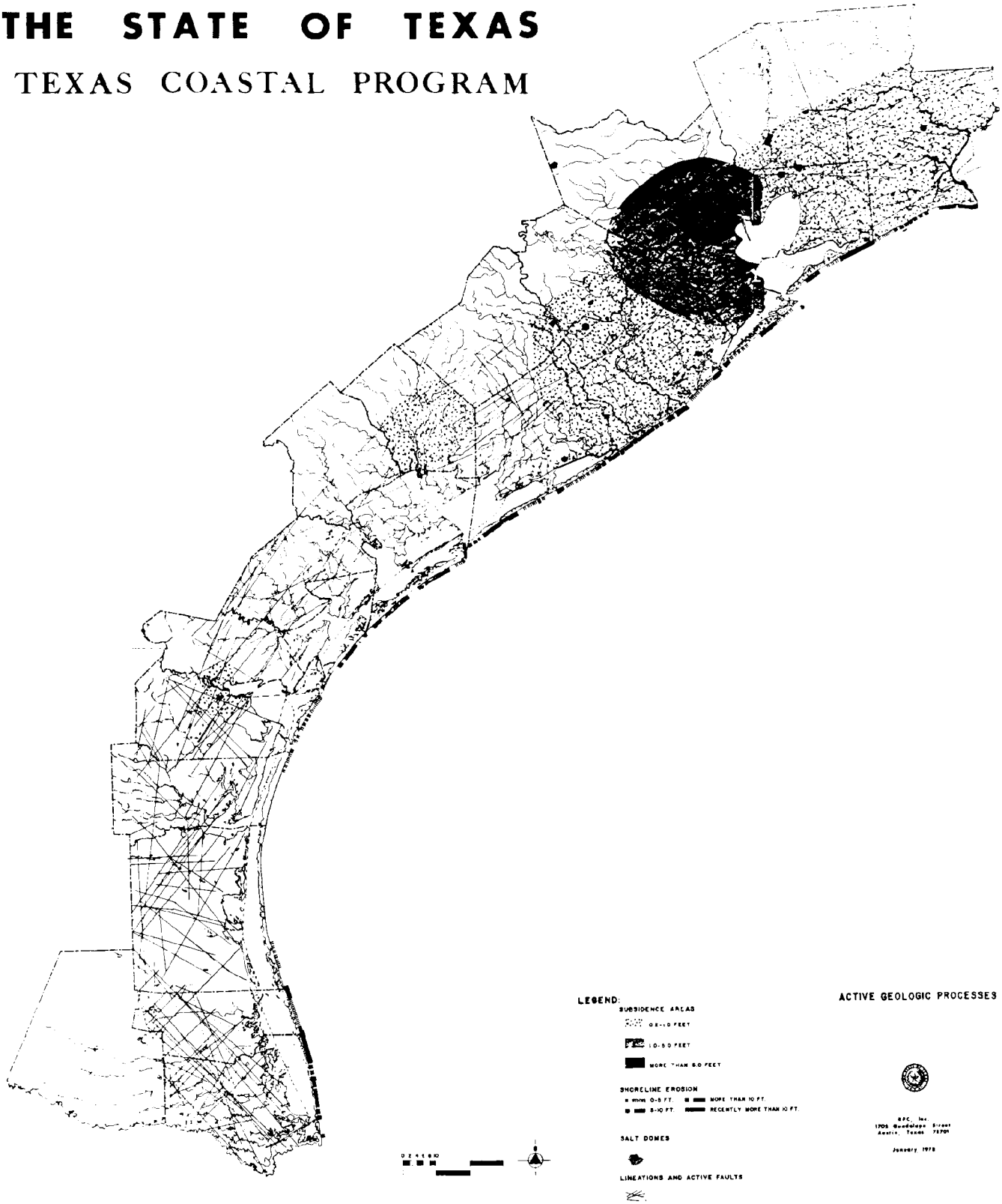


Figure II-2

ACTIVE GEOLOGIC PROCESSES.

Besides imposing economic losses, subsidence also endangers human life. Highways in subsiding areas may be flooded sooner than adjacent lands as storms or hurricanes approach, and this could prematurely close emergency escape routes, trapping residents in low-lying areas.

Both the rate of land subsidence and the area of impact increased dramatically in the past two decades. However, because of existing management programs in Galveston and Harris Counties, the trend toward increased subsidence rates has been reversed.

This reversal was accomplished by the provision of surface water supplies from Lake Houston, Lake Conroe, and Lake Livingston to partially alleviate the rate of groundwater withdrawal. The present allocation of water usage in the Houston-Galveston area is 60 percent groundwater and 40 percent surface water, with the long-term goal being to reverse the percentages by the year 2000. This ratio would provide for aquifer replenishment and also for a substantial decrease in the rate of subsidence.

3. Erosion

Major concerns regarding erosion are increased susceptibility to property damage from storm and hurricane flooding, and loss of dunes and public beach areas.

Erosion will continue to be a long-term trend for much of the Gulf shoreline and natural reversal is not likely to occur. The continued effects of interrupted and decreased sediment supply, a small relative rise in sea level, and hurricanes are practically insurmountable problems on the Gulf coast, despite construction of large structures, such as seawalls, breakwaters, and groins, intended to mitigate their impacts.

The Gulf beach is a dynamic system composed of submerged sand bars located immediately offshore, the intertidal beach, and the higher back-beach area. Wave and wind action causes a constant exchange of sand between the offshore bars, the beach, and the back-beach dunes (if any are present). Present transport patterns carry sand away from the upper and lower coast to a point near the middle of Padre Island. There is a deficit of sand available to replace that transported. Texas rivers cannot provide sufficient sediment because the climate is drier now than in

the geologic past, and because sediment is trapped by existing dams. The Mississippi River was once an important source of sediment for Texas beaches from the Sabine River to Galveston Island. This source stopped when the Mississippi shifted to the east side of its delta, where it is maintained by the U.S. Army Corps of Engineers.

Long-term erosion has subjected 13 percent of the Texas Gulf shoreline to severe erosion and shoreline retreat and 42 percent to moderate long-term erosion and shoreline retreat. Continuing erosion along the Gulf coast intensifies vulnerability to storm waves and hurricane flooding, and results in the gradual attrition of recreational public beach areas.

Beach segments experiencing severe erosion occur in the following areas: Brazos Island and South Padre Island; the beach between San Luis Pass and Brown Cedar Cut; and the mainland Gulf shore from Sabine Pass to Rollover Pass. Bolivar and Matagorda Peninsulas are eroding because they are attached to the downdrift side of sand-deficient deltaic headlands. Of the 1100 miles of bay and estuarine shoreline in Texas, 37 percent is undergoing varying rates of shoreline erosion. Generally, these rates appear to be lower, and more localized, than on the Gulf shoreline. Hence, erosion control structures might attain some measure of success.

Construction and development may aggravate erosion. For example, jetties interrupt the littoral drift of sand by trapping sand on the updrift side of the jetties, thereby removing sand downdrift and increasing local erosion problems. Dredging of sand also disturbs the sand budget of the shoreline system. Dams constructed on the Rio Grande, Colorado, and Brazos Rivers have the same effect; nevertheless, their contribution to management of water supplies or to control of upland flooding must be weighed against their unfavorable shoreline effects.

Large shoreline structures aggravate shoreline erosion, destroying beaches and dunes in front and immediately downdrift of the structure. Structural methods including seawalls, breakwaters, and groins, are used to control erosion of upland areas and not erosion of beaches. These structures are costly to construct and counter-productive in decreasing downdrift erosion. Loss of beach in front of

smaller seawalls protecting individual condominiums and other high-rise structures can be expected. In addition, the slow, but steady, decrease in distance between the beach and beach homes and other developments increases their vulnerability to damage by storm waves and hurricane flooding.

A technique of slowing erosion that does not aggravate local or shoreline downdrift erosion is beach restoration or "nourishment." This short-term solution is usually attempted only where the beach itself is an important asset to the community and benefits outweigh the costs of bringing in sand from other areas.

D. COASTAL DEVELOPMENT

Texas coastal lands and adjacent waters have experienced intensive economic development, much of it due to oil and gas production accompanied by construction of extensive refining and petrochemical facilities. The Texas coast also offers excellent port and navigation facilities necessary for the transportation of energy-related and agricultural commodities. Expansion of coastal economic development is anticipated and requires effective state management to balance this development with environmental concerns.

1. Development of Offshore Submerged Lands

Recent events indicate that leasing activities on all federal Outer Continental Shelf (OCS) lands will accelerate, and interest in the Gulf of Mexico OCS and the Texas Gulf of Mexico will continue to grow. Figure II-3 depicts the boundaries of Texas offshore submerged lands and federal OCS lands. Increased activity on offshore submerged lands has created a concern about onshore or nearshore impacts of these activities on Texas communities and coastal areas (Table II-2). While activities conducted on the federal OCS lands are generally outside of state jurisdiction, the state may review and comment on OCS exploration and development plans submitted to the federal government, in accordance with the OCS Lands Act Amendments of 1978 (43 U.S.C.A. 1331 *et seq.*). Consistency determinations on OCS activity will be made in accordance with consistency provisions of Section 307 (of the CZMA). For further details, see "Federal Consistency," in Chapter IV.

For several reasons, offshore oil development is not as great an issue in Texas as it is in other states. Texas has the capacity to absorb future OCS development. Because OCS-related facilities tend to locate near existing developed areas with transportation and production capabilities, current land use patterns are not likely to be disturbed by rapid new construction of numerous major OCS-related facilities.

Although pipelines to transport oil and gas from federal offshore areas to onshore refineries may affect the hydrology of state-owned bays and marshes and create a need for additional dredged material disposal sites, the state has adequate authority to manage potential effects from increased pipeline activity. Multiple use of existing pipeline corridors can reduce the need for dredging new rights-of-way.

TABLE II - 2

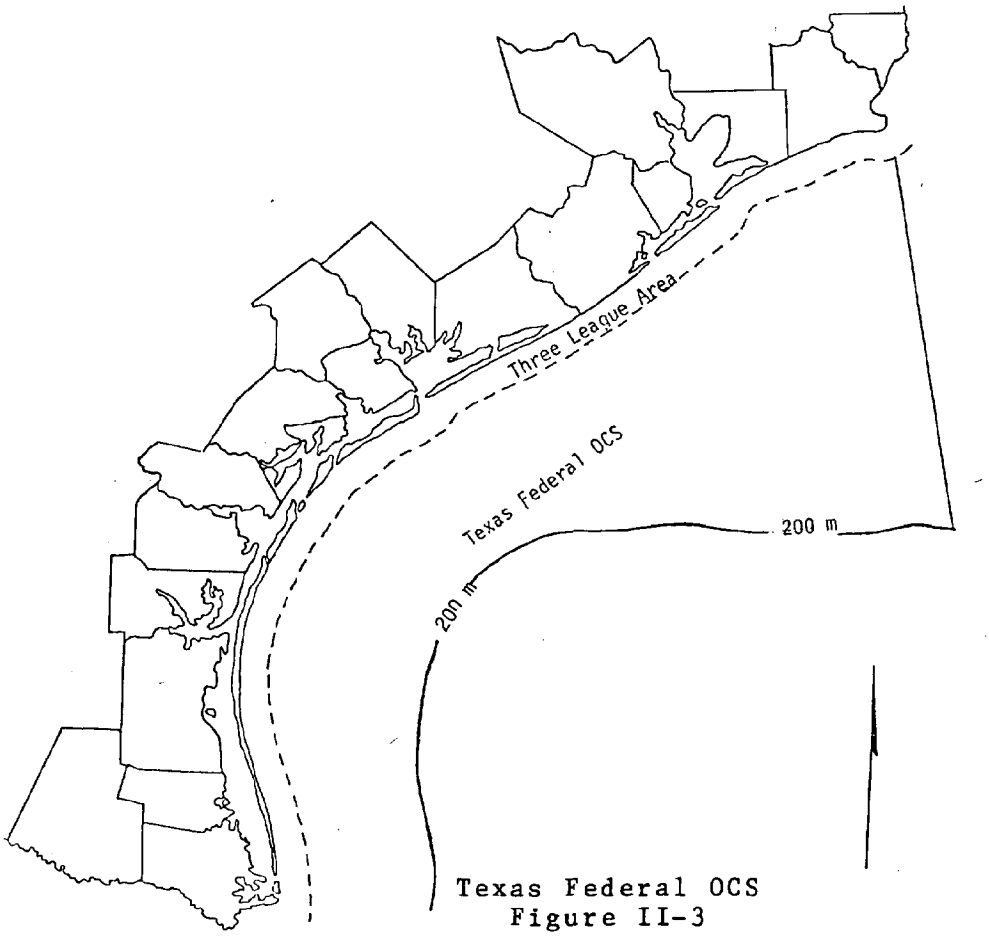
OCS DEVELOPMENT: SUPPORT FACILITIES AND ASSOCIATED IMPACTS

Phase	Major Support Facilities	Major Onshore Impacts/Issues Environmental	Social
I. Exploration	Supply bases	Use of existing allweather harbors and facilities but potential for conflict with existing users (e.g., fishermen)	Minimal impact on labor/housing markets but potential for diversion of labor from traditional maritime occupations
		May prove temporary if no commercial discoveries are made in immediate offshore area.	
II. Development	Supply and service bases for offshore rigs	Strain of existing harbor space and facilities; probable need for harbor expansion including land reclamation and dredging (e.g., Aberdeen, Peterhead)	Expansion of engineering, transportation, communications, supply handling and storage, and administrative services; severe impact on local housing and labor markets
	Production platform construction	Locational restrictions (sheltered, deepwater site) may restrict range of choice. Potential for conflict in areas of high amenity value due to noise, visual intrusion, etc.	Severe impact particularly in remote, rural areas due to high but fluctuating labor requirements. Work camps and other forms of temporary accomodation as well as character of work force may create social strains
	Pipe-laying	Minimized through careful route selection to avoid sensitive ecosystems; multiple landfalls may be avoided by means of coordination and joint-user schemes	Minimal and temporary
	Terminal and storage facilities (including tank farms, oil/gas separation, etc.)	Varies according to product characteristics and circumstances (e.g., oil requires no immediate treatment as gas does.) Potential for conflict if located in area of high amenity value or where land is already designated for alternative use (agriculture, forestry); risk of marine pollution greatest when surface transport and transshipment of oil occur	Dependent upon scale of facilities; severest impact during construction
III. Operation	Platform Maintenance	Threat of marine pollution associated with day-to-day rig operation and surface transport of oil; "blow-outs;" tanker collisions represent lower probability but higher stress incidents	Minimal
	Processing (refinery; LNG, ethylene processing and cracker plants; petrochemicals)	Dependent upon scale but may include visual intrusion, air and water pollution, noise; safety issues; conflict with existing land use, etc. Constraints on siting may arise due to preexisting location of landfalls, storage, and other primary facilities	Dependent upon scale of facilities but severest during construction

Source: Ian R. Manners, Planning for North Sea Oil: The U.K. Experience, Policy Study No. 6. Center for Energy Studies, University of Texas at Austin, 1978, p. 87.

OCS development can result in marginal increases of air and water contaminants; intensification of commercial, industrial, and residential land use developments; short-term disturbance of submerged grasses and water quality and effects on fisheries; and brine discharges into state waters. Both federal and state agencies, however, have considerable experience in implementing long-standing policies that prevent or mitigate environmental effects from OCS-related activities.

Another issue is the fiscal burden placed on local governments that cannot tax OCS equipment or resources but must accommodate increased needs for onshore governmental services. Approval of the Texas Program will continue state eligibility for funding under the Coastal Energy Impact Program, and assist local coastal communities in meeting fiscal burdens related to OCS development.



Texas Federal OCS
Figure II-3

2. Facility Siting and Air Quality Management

Due to a favorable economic, political, and regulatory climate, areas of the Texas coast have experienced and will continue to experience economic growth. The state's basic approach to industrial and energy facility siting and commercial and residential development is to encourage siting along the Texas coast, yet regulate adverse impacts through the permitting process. As a result, the responsibility for initiating the siting process begins in the private sector where initial criteria for selecting a site narrows the potential location to one or two sites. These criteria include cost-effective access to resources, markets, labor, and transportation; social and physical characteristics of the locale; and the regulatory climate of a site. State agencies can deny permits, grant permits, grant permits with conditions, or advise applicants when the Environmental Protection Agency requires analysis of alternative sites.

Most concerns regarding facility siting are directed toward potential social, environmental, and economic impacts. In response, Texas has in operation a well-developed regulatory system that requires all proposed new development to meet established environmental standards, such as those of air and water quality. Facilities for development of mineral and energy resources must promote the conservation and beneficial use of these resources and ensure the safety of humans and other living resources. Facility siting must also accommodate protection and preservation of historical and cultural resources, and consider economic and social impacts on the proposed location. A major concern of the Program is to encourage prevention or mitigation of adverse impacts that may arise from coastal development.

A major issue in the discussion of coastal development is protection of air quality. Air emissions from industrial facilities must not cause significant deterioration of existing ambient air quality in the area or impair public health. It is important that air emissions of significant air contaminants be constantly monitored.

In Harris and Nueces Counties, special considerations are made to ensure that total emissions from existing and proposed facilities remain sufficiently less than that allowed under the State Implementation Plan, implementing EPA guidelines of air quality control. The Texas Air Control Board is the state agency responsible for management of air quality.

3. Ports and Navigation

The protection and promotion of ports and navigation are major concerns of the Texas Program and require balancing of several issues.

Increased importation of foreign crude oil to the United States has been accompanied by expanded use of "very large crude carriers" (VLCCs) which require deepwater ports for offloading of cargo. The advent of the supertanker makes the development of offshore facilities or the expansion of Texas ports imperative if they are to remain competitive. The offshore alternative (deepwater ports with pipelines or lightering facilities) provides economic and environmental benefits, but immediate beneficial use of an offshore port is generally limited to facilitating importation of crude oil. The legislature has provided for creation of a self-supported public offshore port, the Texas Deepwater Port Authority, in the absence of private initiatives for such a port. Proposed ports in several areas are the result of this initiative.

Another alternative, onshore deepwater ports, provides the additional advantage of promoting commerce in dry bulk cargoes such as grain or coal. Such a facility has been proposed by private industry in the Freeport area. The state has traditionally encouraged development of onshore deepwater ports through the conservation and development article of the Constitution (TEX. CONST. art. XVI, section 59).

Issues regarding development of deepwater ports and navigational expansion are the effects of dredging channels and harbors to an adequate depth, dredged material disposal, increased turbidity, effects on benthic organisms, fishery disturbance, wetlands protection, and disruption of wildlife habitat.

Poorly-planned placement of dredged material may cover biologically productive areas, increase the turbidity of the water to a level harmful to marine organisms, or resuspend pollutants in the water. It is increasingly difficult to find economically feasible locations for dredged material placement, and the need for additional sites will grow rapidly as current disposal sites are filled. In order for the coastal area to maintain its economic well-being, navigation and access to bays must be preserved.

Other matters requiring consideration are the adequacy of existing facilities to handle refinery and petrochemical needs and to accommodate dry bulk cargoes, oil spill hazards, maneuverability problems, port congestion, potential air pollution problems, and the need for additional pipelines. The state is concerned with balancing promotion of navigation with preservation of coastal wetlands and other natural resources, and evaluates each development or expansion on a case-by-case basis, ensuring that all factors are weighed in agency decisions regarding proposed navigation projects.

SUMMARY

The state's major goal in the coastal area is to encourage use of the natural resource while maintaining the environmental quality of the coast. In accordance with this goal, the Texas Coastal Program identifies four areas of significance: management of bays and estuaries, shorefront areas, coastal hazards, and coastal development.

Texas bays and estuaries are important wildlife habitats and are also valuable as recreational areas. Water quality and wetlands must be protected, yet the needs of navigation and industry, including commercial and recreational fisheries, must be considered. Shorefront areas are important recreational areas and provide access to bay and Gulf waters. Dune protection, a major concern of the program, must be continued in the face of increasing public use of beach area.

Hurricanes, subsidence and erosion are the three major hazards on the Texas coast. Preparedness and minimization of damage can be accomplished through coordination of state and local efforts. Economic development on the coast is expected to continue at a rapid pace, and requires effective state management--achievable through improved policy coordination and evaluation.

The Program sets forth state policies, established and implemented by existing law and agency regulations, on each of these major resource issues.

CHAPTER III

MANAGEMENT OF TEXAS COASTAL RESOURCES

The policies formulated by the Texas Legislature and the delegation of management authority to various state agencies provide the basic framework for the current Texas Program. In order to implement legislative mandates for coastal resources management, the Texas agencies have issued rules, regulations, and guidelines for various activities in the coastal area and uses of coastal resources described in this chapter. Specific performance standards and agency regulations are found in Appendix C. The general areas of resources issues addressed are:

A. MANAGEMENT OF BAYS AND ESTUARIES
   1. Water Supply and Water Quality Management
   2. Wetlands and Submerged Lands Management
   3. Fisheries Management

B. MANAGEMENT OF SHOREFRONT AREAS
   1. Shorefront Access
   2. Dune Protection

C. MANAGEMENT OF COASTAL HAZARDS
   1. Hurricanes
   2. Subsidence
   3. Erosion

D. MANAGEMENT OF COASTAL DEVELOPMENT
   1. Development of Offshore Submerged Lands
   2. Facility Siting and Air Quality Management
   3. Ports and Navigation

Uses and activities in the coastal area subject to management under the Texas Coastal Program were listed in Chapter I, and discussed more fully in this chapter. Table III-1 clearly states each use and activity, the authority under which the use or activity is managed, the agency which manages them, and the Appendix where the specific standards or regulations are found.

USES AND ACTIVITIES SUBJECT TO MANAGEMENT

Table III - 1

USE OR ACTIVITY SUBJECT TO MANAGEMENT	METHOD OF REGULATION	AGENCY	STATUTORY AUTHORITY	REGULATION	APPENDIX PAGE NO.
1. Water Appropriation and Supply	Water Appropriation Permit	TDWR	Texas Water Code 11.121, 11.124, 11.134, 11.147	TDWR 156.02.35.001	C-1-2
2. Discharges in Water Point Source	Permit	TDWR	Texas Water Code Chapter 26	Texas Water Quality Standards	C-1-3
Non-Point Source	Permit	TDWR	Texas Water Code 5.131, 5.132	TDWR Rule 156.25.01.004, 156.25.25.001	C-1-13
Commercial Swine	Rules and/Permit (IA)*	TDWR	Texas Water Code 5.131, 5.132	TDWR Rule 156.24.05.003-.011	C-1-9
Meat Processing	Rules and Permit	TDWR	Texas Water Code 5.131, 5.132	TDWR Rule 156.24.10.003-.005	C-1-11, 12
3. Sewage facilities	"Orders for Control" Permits (IA)	TDWR/TDH	Tx. Rev. Civ. Stat. Ann. Art. 4477-1 Sec. 5(a)	TDH Construction Standards	C-1-6
4. Industrial and Municipal Solid Waste	Permit	TDWR/TDH	Tx. Ind. Solid Waste Act Tx. Rev. Civ. Stat. Ann. Art. 4477-7	TDWR 156.22.001.002 and Industrial Solid Waste Management Technical Guides TDH 301.82.01.005 and Municipal Solid Waste Management Regulations	C-1-14 C-1-17
5. Oil, Gas, and Geothermal Resource Activity	Rules and Permits	RRC/SLB	Texas Natural Resource Code 85.202(a)(8), 86.042(8), 141.071(2), Tx. Water Code 27.031	RRC Rules 051.02.02.046, 051.02.02.005-.015; SLB 135.16.03.004-.009	C-1-19
6. Geophysical and Other Surveys	Permit	GLO	Tex. Nat. Res. Code 31.101-.108	GLO 126.16.01.005, .007-.008, .011	C-1-20
7. Sand Gravel Washing	Rules and/Permit (IA)	TDWR	Texas Water Code Sec. 5.131, 5.132	TDWR Rule 156.24.15.003-.006	C-1-8
8. Mineral Leasing	Leases and Management Guidelines	SLB	Tex. Nat. Res. Code 34.051, 52.011, 141.073	SLB Rule 135.16.03.004, .006-.007, .009	C-1-23
9. Pollution in Oil and Gas Operations	Rules and/Permit (IA)	RRC	Tex. Nat. Res. Code Sec. 91.101	RRC Rule 051.02.02.008	C-1-20
10. Hazardous Substance and Oil Spills	Contingency Plan/ Notification	TDWR	Texas Water Code 26.261, et seq. and 26.039	Contingency Plan	C-1-26
11. Construction and Activity on Coastal Public Land	Easements	SLB	Tex. Nat. Res. Code Chapter 33	SLB Rule 135.18.01.003	C-2-1
12. Dredge Spoil	Rule and Policies	TPWD	P&W Code 11.011, 11.033, 12.001	TPWD Rules 127.30.01.001, 127.30.11.001, 127.30.13.001	C-2-3
13. Removal of Commercial Marl, Sand, Gravel, Shell and Mudshell	Permit	TPWD	P&W Code Chapter 86	TPWD Rules 127.30.04.002, .005-.006	C-2-7
14. Discharge of Dredge and Fill Materials	Memorandum of Understanding	TDWR/RRC/ TDH/GLO	Texas Water Code Chapter 26 Tex. Nat. Res. Code Section 91.101	To Be Adopted	Appendix A
15. Wetlands Acquisition	Certification	GLO/TPWD	Tex. Nat. Res. Code Sec. 33.231, et seq.	GLO 126.30.04.002	C-2-9
16. Activities on the Gulf Intracoastal Waterway	Sponsorship	SDHPT	V.A.C.S. Art. 5415e-2	(Statute) V.A.C.S. Art. 5415e-2	C-2-10
17. Commercial and Sport Fishing	Permits/Licenses	TPWD	P&W Code Sec. 61.201 and Chapters 43, 47, 51, 66, 76-78, 81	By reference only	C-3-1
18. Beach Access and Recreation	Rules	AG; GLO/SLB	Tex. Nat. Res. Code sec.61.011-.024	SLB Rule 135.18.01.003 (and the Code)	C-4-2
19. Mobile Beach Business	Permit	TPWD	Tex. Nat. Res. Code 61.161-.177	TPWD Rules 127.20.04.001-.004	C-4-3
20. Beach Cleaning and Maintenance	Rules	TPWD	Tex. Nat. Res. Code 61.061-.083	TPWD Rules 127.50.04.006-.014	C-4-4
21. Dune Protection	Regulations and/Permit (IA)	GLO	Tex. Nat. Res. Code 63.001, et seq.	GLO Rules 126.30.03.004, 126.16.01.005	C-5-1
22. Floodplain Construction	Flood Hazard Guidelines	Exec. Order/ GLO	Exec. Order DB No. 34-A and V.A.C.S. art. 6889-7	TDWR Guidelines, TDWR Rule 156.10.10.001(a), And Federal Regulations	C-6-1
23. Construction of Mobile Homes	Standards and Requirements	TDLS	Tx. Rev. Civ. Stat. Ann. Art. 5221f	TDLS Standards	C-6-3
24. Groundwater Extraction	Permit (IA)	Hou-Gal CSD	64th Leg. Acts, Ch. 284	HGCSD Rule 7.1-7.20, TDWR Ind. Solid Waste Management Guides	C-7-1
25. Erosion Control	Regulations	GLO/SLB	Tex. Nat. Res. Code 32.062, Ch. 33, 63	SLB Rule 135.18.01.003; GLO 126.30.03.004	C-8-1
26. Easements on State Land	Rights-of-Way, Easements	GLO/SLB	Tex. Nat. Res. Code sec. 33.101-.134, 34.051	GLO Rule 126.18.02.002 and 51.291	C-9-1
27. Surface Mining	Permit	RRC	Tex. Nat. Res. Code Ch. 131	RRC Rule 051.07.03.002, .109, .304	C-10-1
28. Air Emissions	Const. and Op. Permits	TACB	Tx. Rev. Civ. Stat. Ann. Art. 4477-5	TACB Rule 131.08.00.001, et seq.	C-1-3
29. Cultural Resource	Permit	TAC	Tex. Nat. Res. Code Ch. 191	TAC Rule 355.01.00.005-.007	C-11-1

* (IA) If Applicable

A. MANAGEMENT OF BAYS AND ESTUARIES

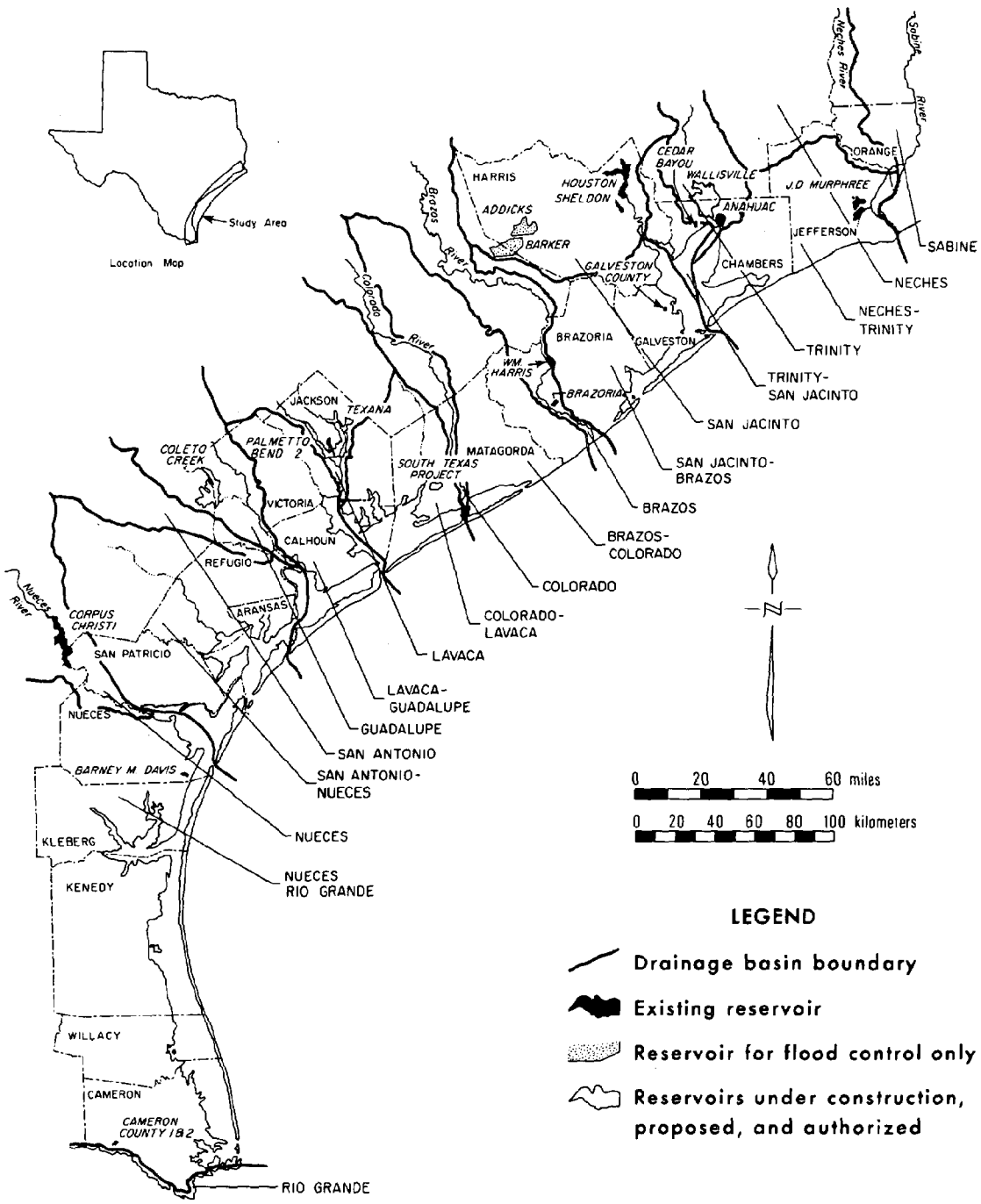
Bay and estuarine systems are among the most productive of all natural resource systems. Critical factors in maintaining bay and estuarine productivity include water supply and water quality management, wetlands and submerged lands management, and fisheries management.

This section will discuss, by topic, the state's existing mechanisms for managing bays and estuaries and the standards applied for each management area. These standards are contained in agency rules and regulations. Detailed standards are found in Appendix C of this document.

1. Water Supply and Water Quality Management

Activities affecting the water quality of bays and estuaries include water diversion, industrial and sewage treatment facilities, nonpoint discharges, and industrial and municipal solid-waste disposal facilities. The principal agencies that exercise regulatory power over those activities are the Texas Department of Water Resources, the General Land Office and School Land Board, the Texas Department of Health, the Texas Parks and Wildlife Department, and the Texas Railroad Commission through regulatory and management policies and through water quality certification under section 401 (see Appendix A, Memoranda of Understanding). The Texas Department of Water Resources has been designated as the primary authority in the state on water resources matters. The Department has jurisdiction over water supply and quality, and requires compliance with applicable performance standards. (See Appendix C-1.)

The Texas Department of Water Resources develops and manages water resources to ensure that sufficient water will be available at a reasonable cost to further the economic development of the state. The Planning and Development Division of TDWR, with the support of other divisions, analyzes current water use, updates water resources planning data, conducts special planning studies, and documents planning methodology. The Department is responsible for making projections of water requirements to meet forseeable needs for the next 50 years, and makes projections of available ground and surface water supplies to meet needs in the river and coastal basins of the state (see Figure III-1). Water resource development needs and alternatives are evalu-



SURFACE WATER RESOURCES OF TEXAS COASTAL AREA

FIGURE III-1

Map from Texas Department of Water Resources

ated with respect to time of need, quantity of water supply, flood protection, and estimated costs.

To aid in evaluation of development needs, the Department maintains current statistics on water use for municipal, industrial, and irrigation purposes; computes the potential effects of water conservation and management practices on water resource availability; conducts studies of the economic value of water used for all purposes; and projects economic activity to determine the feasibility of proposed projects applying for financial assistance from the Texas Water Development Fund.

River authorities are also involved in water supply and distribution, and these political subdivisions of the state supply technical assistance to local governments in water resource development, flood control, and water supply conservation. There are 20 river authorities in the state established by the legislature, ten of which have authority on the coast. Each river authority legislation specifies the manner in which the governing boards are chosen. Some are appointed by the governor with state senate confirmation, some are elected from the districts, some are appointed by the governing bodies of member cities, or some are appointed by the Water Development Board. Their activities are financed through service fees, state and federal grants, and revenue bonds backed by fees from particular enterprises. Those authorities with an impact on the coast are listed in Table III-2.

TABLE III-2
Coastal River Authorities

1. Angelina-Neches River Authority (formerly Neches River Conservation District)
2. Brazos River Authority
3. Lower Colorado River Authority
4. Guadalupe-Blanco River Authority
5. Lower Neches Valley Authority
6. Sabine River Authority of Texas
7. San Jacinto River Authority
8. Trinity River Authority
9. Lavaca-Navidad River Authority
10. Nueces River Authority

As discussed later in this chapter, the Department of Water Resources has conducted bay and estuary studies of freshwater inflow needs. They are also conducting studies of salinity problems and salinity alleviation measures, and of the potential of desalting and wastewater reclamation and reuse as a means of meeting water supply needs. A major responsibility of the Department involves ongoing study of the relationship between energy development and water resources in the state. The Department also maintains and catalogs meteorological data to provide advice and assistance to the Department of Public Safety's Division of Disaster Emergency Services during weather-related emergencies. (See page III-58.)

Hydrologic data of all areas of the state are developed and revised for water planning and water rights permitting purposes. The Department maintains current data on the status and costs of federal and state-local water projects; provides technical support for Texas' Compact Commissioners in the administration of interstate compacts; and coordinates with federal agencies, other state agencies and adjacent states in water resource planning and development programs.

a. Water Supply and Appropriation

A permit from TDWR is required for any appropriation of state water and the commencement of construction of any work designed for the taking, storage or diversion of state water. The Texas Water Code, sec. 11.021, defines state water as "(a) The water of the ordinary flow, underflow, and tides of every flowing river, natural stream, and lake, and of every bay or arm of the Gulf of Mexico, and the storm water, floodwater, and rainwater of every river, natural stream, canyon, ravine, depression, and watershed in the state is the property of the state. (b) Water which is imported from any source outside the boundaries of the state for use in the state and which is transported through the beds and banks of any navigable stream within the state or by utilizing any facilities owned or operated by the state is the property of the state."

Decisions on appropriation of water are made on a case-by-case basis. Each application for a permit to appropriate water is given a public hearing, in accordance with the official rules of the Department, as established by Texas administrative procedures legislation. The applicant

and all other parties present evidence to the Texas Water Commission, including evidence of the potential effects of the permit upon bays and estuaries. The Department and other state agencies such as the Texas Parks and Wildlife Department and the General Land Office are afforded the opportunity to present evidence. The Commission considers the testimony that is presented at the public hearing on each such application.

For any new permit to appropriate water, the Department of Water Resources staff conducts a detailed review and evaluation of each application. This review and evaluation is used by the executive director of the Department in presenting testimony to the Texas Water Commission concerning each application. Staff review is directed at the statutory prerequisites that the Commission is required to consider in arriving at its decision to grant or deny each application. Specifically:

- the application must conform in form and content to the appropriate requirements of the Texas Water Code;
- unappropriated water must be available in the source of supply;
- the proposed appropriation must contemplate the application of water to a beneficial use;
- existing water rights must not be impaired;
- the proposed appropriation may not be detrimental to the public welfare; and
- the application must assess the effect on bays and estuaries.

Detailed analysis of the availability of water for appropriation is conducted through the technique of simulation of the specific watershed or river basin assuming a repetition of an appropriate historic hydrologic sequence, which will include the most severe drought on record. The simulation model used accounts for all factors affecting the flow in all parts of the watershed and has the capability of "assuming" all water rights of record are being exercised to their full extent up to the limits of available water. This simulation model also provides data necessary for establishing special conditions or limitations under which a permit could possibly be issued without impairing existing water rights, particularly in a water-short area. Changes in the hydrologic regime, or regimen of inflows to a bay or estuary that could result from full use of water under the

proposed appropriation, are determined from application of the river basin simulation models and can be evaluated to determine the effects of appropriation of state water on a bay or estuary.

For several years, the Department has been considering freshwater inflow needs in water appropriations that can affect the estuaries, and has included special conditions where necessary. For example, the Choke Canyon Dam permit issued in 1976 requires the permittees to provide "not less than 151,000 acre-feet of water per annum for the estuaries upon completion of filling," released in "such quantities and in accordance with such operational procedures as may be ordered by the Commission." The Palmetto Bend Reservoir permit granted in 1972 provided that the Texas Water Commission could order release of state water stored in the reservoir for research purposes in the Lavaca-Matagorda Bay and Estuary System. The Commission in its findings of fact and conclusions of law on the Coleto Creek Reservoir found that the appropriation will have no adverse effect upon the bays and estuaries.

Future water supply and freshwater inflow needs have been addressed in the Texas Water Plan (1968). The Texas Water Plan calls for the construction of the Coastal Canal by 2020, which would supply water for municipal, industrial, and irrigation use and for the preservation and enhancement of the bays, estuaries, and wildlife refuges in the coastal area of the state between the Sabine River and the Lower Rio Grande Valley. The Plan also includes provisions for reservoirs and conveyance systems required to supply future supplemental water needs of Houston and other metropolitan areas.

For proposed actions and permits, the Texas Department of Water Resources, considers evidence of environmental, social and economic impacts, and determines whether they are detrimental to public interest or welfare (Texas Water Code, sec. 5.132). The Executive Director, after initial review of an application, must notify the applicant as to whether or not environmental, social and economic impacts evidence must be offered for processing the application. If a proposed project being reviewed by the Department has been the subject of a federal environmental impact statement, the applicant is required to file that statement with the Department, and a separate environmental assessment is not required.

If a federal environmental impact statement is not prepared, then any assessment prepared for the Department must demonstrate that a logical process was used, that all reasonable alternatives were considered, and that the assessment supports decisions made in planning the project. The assessment must describe and evaluate potential environmental, social and economic changes (TDWR Rule 156.01.05.001 -006). Examples of significant adverse impacts stated in the regulations are those that:

- disrupt historical or archaeological sites;
- affect natural, cultural, or scenic resources;
- disrupt established communities or their development plans;
- result in deterioration of air or water quality, or flood protection;
- endanger vital species of plant and animal life, or habitat; or,
- contribute to a series of related projects that involve individually minor but collectively significant adverse impacts.

Examples of significant beneficial impacts stated in the regulations are those that:

- attain a wide range of beneficial uses of the total environment;
- encourage sound economic growth;
- encourage efficient use of natural resources, or encourage recovery or other beneficial uses of waste products;
- encourage a rational balance between population densities and resource availability;
- enhance soil, forest, and coastal zone conservation measures and productivity;

- foster greater economy in the design, construction, operation, use, and maintenance of vital public works; or

- protect or enhance streams, bays, estuaries, and wetlands.

These assessments should also describe anticipated effects on long-term regional development plans, deterioration or enhancement of air, land, water or scenic quality, cost impacts on local taxing entities, and effects on energy conservation and development (TDWR Rule 156.01.10.001-.003).

b. Freshwater Inflows to Bays and Estuaries

An estuary is defined as a semi-enclosed coastal body of water that has a free connection with the open sea and within which seawater is measurably diluted with freshwater derived from land drainage. A primary factor distinguishing an estuary from a strictly marine environment is the input of freshwater, which is necessary to provide the desirable salinity gradients and maintain fishery harvests. Climatic events varying from drought to hurricanes are the most important influence on freshwater inflows, but man's activities can also impact this area. Organisms can withstand substantial fluctuations in the quantity and quality of freshwater inflows; however, there are distinctive conditions in each estuarine system that reflect long-term adaptations to differing nutrient and sediment balances. Among such distinctive characterizations are bay size, salinity, number and size of contributing marshes, extent of submerged seagrass communities, and species diversity--all of which respond differently to fluctuating inflow conditions. In addition, seasonal timing of freshwater inflows can be extremely important since inflows during critical periods, such as the spring and fall of each year, are of greater benefit than constant inflow.

TABLE III -3.

[redacted]MARY [redacted]EXAS [redacted]RTMEN[redacted] WATE[redacted]OURC[redacted]ESHW[redacted]INFL[redacted]UDIES[redacted]

ESTUARY	SABINE-NECHES	TRINITY-SAN JACINTO	LAVACA-TRES PALACIOS	GUADALUPE	MISSION-ARANSAS	NUECES	LAGUNA MADRE
Average Inflow 1941-1976	13.0 million acre feet	9.8 million acre feet	2.9 million acre feet	2.27 million acre feet	386 thousand acre feet	682 thousand acre feet	not yet complete
Flood Events (Median # to maintain historical frequency)	3	3	3	3	-	2	
Inflow required to maintain salinity	5.69 million acre feet	3.17 million acre feet	-	-	-	-	
Alternative I	Not possible to estimate in this area	-	0.35 million acre feet	1.24 million acre feet	15.4 thousand acre feet	356 thousand acre feet	
Alternative II		3.19 million acre feet	0.61 million acre feet	1.62 million acre feet	19.4 thousand acre feet	397 thousand acre feet	
Alternative III		3.18 million acre feet	0.614 million acre feet	Volume equal to annual 1941-76 limit	386 thousand acre feet	604 thousand acre feet	
% of 1941-76 annual inflow needed for:							
Alternative I.	-	88	57	69	18	62	
II.	-	106	99.9	90	23	69	
III.	-	100	100	101	51	92	
Comments	A change in this area to more saline would probably increase species diversity and productivity in the absence of toxic substances and if existing marsh habitats are maintained.	Additional inflow, it is believed, would increase shrimp harvest. Massive wastewater discharges from Houston-Galveston area are deteriorating the estuarine water quality.	Diking of river banks on Colorado delta prevents inundation from that basin. Believe additional inflow would increase shellfish harvest.	One of the most hydraulically complex marsh areas on the Texas coast. Additional inflow would likely increase shrimp harvest.	Deltas are of limited extent, not significant enough to warrant extensive analysis.	Additional inflow might increase finfish harvest.	No major river basins drain into the Laguna-Madre, it only gets inflow from adjacent ungaged drainage areas. Ranks number 1 on the Texas coast in annual finfish harvest. Rio Grande indirectly provides some fresh water.

These multiple variables make it difficult to determine precisely the freshwater inflow needs of each Texas estuarine system. Nevertheless, such determinations are necessary to balance competition between beneficial inland and coastal uses of Texas' water resources, and to avoid long-term degradation of valuable living resources that naturally renew their high production. To ensure the health and production of its estuarine systems, Texas must determine the freshwater inflow needs (quantity, quality, and timing) of each estuarine system necessary to maintain the associated level of biological productivity determined to be appropriate for each such estuarine system. These inflow needs are complex and ultimately may be expressed in multi-year cycles.

Existing state law provides for "the maintenance of a proper ecological environment of the bays and estuaries of Texas and the health of related living resources." (TEX. WATER CODE sec. 1.003(6) (Vernon Supp. 1978).) To effect this policy, the 64th Legislature in 1975 mandated the Texas Department of Water Resources to "carry out comprehensive studies of the effects of freshwater inflows upon the bays and estuaries of Texas, which studies shall include the development of methods of providing and maintaining the ecological environment thereof suitable to their living marine resources." (TEX. WATER CODE, sec. 16.058 (Vernon Supp. 1978).)

The Texas Department of Water Resources has completed studies on six of the seven major Texas estuaries: Sabine-Neches (December 1979), Trinity-San Jacinto (December 1979), Lavaca-Tres Palacios (September 1979), Guadalupe (October 1979), Nueces and Mission-Aransas (November 1979). (See Table III-3.) Studies of the Laguna-Madre area are not complete because it is distinctly different from the others, requiring development of new study models, to be completed before October 1981. The Laguna-Madre connection with the sea is not free and seawater may be concentrated to hypersaline conditions rather than diluted.

The results of the freshwater inflow studies have been reviewed by all appropriate state and federal agencies, public interest groups, organizations and interested individuals, and were submitted to the Texas Legislature. The Department modified the reports, after considering the comments received, to the extent practicable. They will be printed and distributed to interested agencies and individuals, and the information in them will be used in the

decision-making process for the appropriation and use of state waters.

The Department's investigation concluded that freshwater inflows to Texas estuaries are primarily ungaged rainfall runoff from neighboring coastal areas and the gaged flow of rivers and streams that empty into estuaries. Soil moisture data and runoff coefficients developed from field surveys are used to measure runoff, and direct precipitation on estuarine surfaces is assumed to be an average of the daily recorded precipitation recorded at weather stations near bays. The net quantity of freshwater inflows is equal to gaged inflows, plus return flows entering downstream of gages, plus direct precipitation on the surface of the estuary, less evaporation.

The studies of the Texas Department of Water Resources delineated three possible alternative estuarine objectives:

Alternative I: Subsistence -- minimum monthly inflows needed for nutrient transport, habitat maintenance and salinity control.

Alternative II: Fisheries Harvest Maintenance -- the least annual inflow to satisfy Alternative I and also support annual commercial fisheries harvests at levels no less than average annual catches from 1962-1976.

Alternative III: Fisheries Harvest Enhancement -- amount that would satisfy Alternative I and increase, to maximum extent possible, the harvest of a specific commercial fisheries harvest component, not to exceed mean annual historic inflow from 1941-76.

Estimates of commercial harvests under the three alternatives generally exceeded recorded harvests, indicating that harvests could be improved with the proper seasonal distribution of available freshwater inflows. Those in April-June were most beneficial for fisheries productivity. It is generally believed that a constant rate of inflow would be detrimental to estuarine organisms, therefore estimates of inflow needs should reflect seasonal needs as well as long-term estuarine tendencies. Inflows must be

relatively free of toxic materials and contain sufficient nutrient materials to ensure continued reproduction and growth of estuarine organisms.

Following is a brief summary of the major procedures and findings of the freshwater inflow studies that have been completed.

(1) Freshwater Inflow Needs

Key indicators used to indirectly examine relationships between freshwater inflow estuarine productivity are: marsh inundation, salinity, and historical commercial fishery harvests.

(2) Influence of Freshwater Inflows from Texas on Offshore Shrimp Harvests

Offshore fisheries harvests in the Gulf yield more pounds annually than inshore (estuarine) landings. Shrimp harvests increase with increases in fishing effort and the spring (April-June) inflow, and decrease with increasing winter and summer inflows (January-March and July-August respectively). Other seasonal inflows do not significantly relate to harvests, except autumn (September-October), which is predicted to decrease brown and pink shrimp harvest with increased inflow.

(3) Interpretation of Estimated Freshwater Inflow Needs

Texas estuaries are dynamic and have historically received a wide range of freshwater inflows, from drought to hurricane years. The long-term central tendency could be viewed as a desired average or median. Freshwater inflow needs could best be considered as equal to those measured historically. In this case, the frequency of very low inflows should be no less than what occured over the historical period.

(4) Techniques for Meeting Inflow Needs

Inflow is provided from both gaged and ungaged sources. Inflow from runoff and direct precipitation will probably continue at historical levels except when major water diversion or storage takes place. Inflow from major river basins will alter significantly in some areas due to man's activities.

(5) Freshwater Inflow Management

Decisions about granting permits to divert freshwater for beneficial uses under Texas Statutes are made through public hearing procedures (discussed in detail in section a), in accordance with state administrative procedures. The Texas Water Commission considers each application in light of existing water rights and potential effects upon the bays and estuaries. Since each case is unique, each permit requires individual consideration.

(6) Water Rights Allocation

All future water rights requests could be assessed on the basis of their additional impact on inflow to estuaries, as provided for in the Texas Water Code.

(7) Operation of Upstream Reservoirs in Contributing Basins

Storage and release of surface water for estuarine purposes is a potential source of fresh water for Texas estuaries and is an option available to the Texas Water Commission as it considers applications for permits to use surface water.

(8) Elimination of Water Pollutants

Wastewater discharge and streamflow water quality standards of state and federal agencies have had an impact on reducing pollutants entering estuarine waters. The presence of toxins in Texas estuaries will continue in the forseeable future as those previously deposited in sediment become re-suspended by strong currents caused by heavy storms.

(9) Land Management

The uses of water shed areas are of particular importance to the contribution of nutrient materials from the land ares surrounding Texas estuaries since significant amounts come from direct run-off. Overgrazing of marsh grasses and diversions of drainage patterns can result in a reduction of nutrient material. Therefore, land use is an important consideration in bay and estuarine management.

Table III-3 outlines the estimates for freshwater inflow needs developed from the results of these studies. The results indicate that freshwater inflow needs are related to seasonal cycles rather than total annual quantities. These studies have produced analytical techniques such as inflow-response equations and computerized simulation models that can be used in the Department's water management decisions.

Upon completion of the Laguna-Madre study and the Sabine-Neches and Nueces Delta models, additional data will be available for the Department to comprehensively evaluate water appropriation permits and their potential impacts on the bays and estuaries. The Department will use this information in establishing policies or standards which will protect freshwater inflows into the bay and estuarine systems. The past practice of the Department to consider freshwater inflows in water appropriation permits will continue, and the evaluation process will be improved by the information produced in the current inflow studies. Permits may be denied, approved, or approved with conditions which reflect the freshwater inflow needs of the state's bays and estuaries.

c. Point Source Discharges

The Texas Department of Water Resources, under Chapter 26, sec. 26.027, of the Texas Water Code, regulates discharges from point sources into water in the state. Point source discharges shall be defined as discernible, confined and discrete conveyance from which pollutants or wastes are or may be discharged into or adjacent to any water in the state. The Department specifically regulates industrial and sewage treatment plant discharges as point sources and, in evaluating such discharges, evaluates the quality of the receiving water and the discharges.

The Department establishes ambient water quality standards for all streams in the state, as well as for the coastal waters of the state. In establishing its standards for regulation of discharges, the Department has provided that, where waters are classified for propagation of fish and wildlife, it must assess the physical and chemical parameters as well as the biological community of the waters. In shellfish areas in the bays, specific criteria have been established by reference to the U.S. Public Health Service

Manual on Shellfish. Specific standards are also established for contact and non-contact recreation waters. Propagation of fish and non-contact recreation are desirable water uses identified for all tidal waters of the state, and contact recreation has been identified as desirable for almost all coastal waters.

The general standards for point source discharges, found in detail in Appendix C-1, require that substances from point sources not impart unpalatable flavor in food-fish including shellfish, that surface waters be maintained to avoid sediment layers that would adversely affect benthic biota, that surface waters be maintained free of solids that would result in unnecessary dredging cost, that surface waters be maintained in an aesthetically attractive condition, and that there be no substantial change from ambient conditions due to waste discharges. The surface waters also must be maintained so as to not be toxic to man, fish and wildlife and other terrestrial and aquatic life. Generally, where toxic materials are of concern, bioassay techniques will be used for predicting impacts. The standards recognize that maintenance of proper salinity gradients within estuarine waters is very important to the continuation of balanced and desirable populations of estuarine dependent marine life, recognizing that the dominant force in determining salinity gradients is weather, which cannot be controlled by man. Nonetheless, the standards specifically require that evaluation of salinity gradients "shall not be precluded" because of the absence of established standards.

The Department has also issued numerical criteria applicable to specific surface waters designated in the standards. For each designated segment of a coastal or river basin, the Department establishes acceptable levels or parameters for chloride, sulfate, total dissolved solids, dissolved oxygen, pH ranges, fecal coliforms, and temperature. These standards are subject to revisions reflecting changes in conditions or technology. Efforts are being made to obtain state responsibility for implementing the requirements of the National Pollutant Discharge Elimination System (33 U.S.C.A. 1342(b)), as well as delegation for responsibility under the Resource Conservation and Recovery Act of 1976.

d. Nonpoint Source Discharges

While the extent of the need for a program to control nonpoint sources of water pollution has not yet been established, state agencies have adequate authority to effect a control program should such a need be demonstrated. Agencies are authorized to impose a variety of regulations that could reduce causes of nonpoint pollution such as erosion, sedimentation, and agricultural and urban run-off. The primary agencies with authority for nonpoint source discharges are Department of Water Resources and Texas Soil and Water Conservation Board (Executive Order D.B. No. 39, July 17, 1978; Texas Register, Vol. 3, No. 56, August 1, 1978).

The Parks and Wildlife Department conducts a pollution surveillance program in which department chemists investigate fish kills and population incidents. Chapters 1 and 12 of the Parks and Wildlife Code and provisions of the Water Code authorize enforcement against water pollution.

A variety of mechanisms including subdivision controls, building codes, and private sewage facilities controls are available for use in a nonpoint source control program. The State of Texas, furthermore, prohibits by law any discharge of defined waste into the waters of the state. Waste subject to the jurisdiction of the Department of Water Resources is defined to include sewage waste, industrial waste, municipal waste, recreational waste, and agricultural waste. Although the Department may not require a permit for the discharge of other wastes, such discharges into or adjacent to any water in the state which causes, continues to cause, or will cause pollution of any water, would violate Chapter 26 of the Water Code and be subject to enforcement action by the Department.

The Texas Water Code, sec. 26.031, directs the Texas Department of Water Resources to consult with the Commissioner of Health for recommendations concerning the impact on public health of the use of private sewage facilities before adopting regulations controlling or prohibiting the installation or use of such facilities in a given area. The Department of Health has issued standards for construction and design of private sewage facilities, defined as facilities that serve only an individual household, multiple-unit residential structure or commercial establishment within a designated area, and whose operation and maintenance is the sole responsibility of the householder or owner of the establishment's facilities. Such facilities provide for the

disposal of treated wastewater by subsoil absorption, evaporation or evapotranspiration, which are not subject to the issuance of wastewater discharge orders by the Texas Department of Water Resources. Whenever it appears that private sewage facilities, including septic tanks, are causing or may cause pollution, or injure public health, the Texas Department of Water Resources is authorized to hold a public hearing in the area to determine whether an order should be entered controlling or prohibiting the installation or further use of such facilities (Texas Water Code sec. 26.031). The Department may enter an order to limit or prohibit the number and kind of such facilities, require modification or improvements to existing facilities, and provide for gradual and systematic reduction of the number or kinds of such facilities.

The Texas Department of Water Resources is also authorized to regulate any runoff water or rainwater runoff from agricultural lands if it causes pollution. The Department also regulates any substances that result from any process of industry, trade or business.

Authority to regulate private sewage facilities is generally shared by a number of entities that have been delegated specific authority. River authorities or water districts may assist in water pollution control enforcement procedures through regulations issued by the Texas Department of Water Resources to control or prohibit the use of private sewage facilities in an area. The Department may delegate these special districts as the licensing authority to develop procedures concerning administration, inspection, issuance of licenses and enforcement of TDWR regulations.

Nonpoint source pollution is the subject of plans developed by the state pursuant to Section 208 of the Federal Water Pollution Control Act Amendments of 1972. Five areawide planning areas lie within the coastal area: Beaumont/Port Arthur, Houston, Corpus Christi, Victoria, and the Lower Rio Grande Valley. The 208 Plans must be certified by the governor and approved by EPA. These designated areas, which have substantial water quality control problems, may require increased stringency in effluent control. Areawide 208 Plans will affect the content of permits issued by the EPA and the Department of Water Resources in these designated areas. The designated 208 planning areas have completed and submitted their respective plans. Each has been

certified by the governor and has received conditional approval by the EPA. Water quality standards for these areas have been promulgated by TDWR and are expected to receive approval by the end of 1980. If designated local 208 planning areas fail to complete the areawide plans, the Texas Department of Water Resources will assume that responsibility. The Department is also responsible for developing, at the state level, nonpoint source pollution control plans for areas outside the boundaries of designated 208 areas.

Soil and Water Conservation Districts have experience concerning nonpoint source control problems and solutions. The Districts have been most actively involved in disseminating information and technical assistance concerning soil erosion prevention and run-off abatement techniques. This expertise is of particular importance in 208 implementation. Programs have traditionally been conducted on a voluntary basis.

On a county level, Section 26.032 of the Texas Water Code empowers the commissioners court of any county to adopt a septic tank control order controlling or prohibiting the installation or use of septic tanks in any area under the county's jurisdiction. The Texas Department of Water Resources must grant its approval of the adopted county order prior to its becoming effective. The order includes construction standards promulgated by counties, which may be adjusted to local conditions so long as they do not fall below the standards of the Texas Department of Health. The adjustments must also be reasonable and, if technical in nature, based on sound engineering principles.

Licensing systems for private sewage facilities now exist in the coastal counties of Jefferson, Chambers, Harris, Galveston, Victoria, Calhoun, Aransas, San Patricio, and Cameron. The licensing authority for each county can vary from the county commissioners court itself to a designated county health officer or county official. Local health officials are required by the Texas Sanitation and Health Protection Law (V.A.C.S. art. 4477-1), to aid the State Board of Health in the enforcement of its rules, regulations, requirements and ordinances and in the enforcement of all sanitation laws within the jurisdiction of the local officials.

e. Solid Waste

Texas has two major programs to regulate solid waste disposal in conformance with state water quality policies. The Texas Department of Health issues permits for municipal solid-waste disposal facilities; the Department of Water Resources has responsibility for regulating industrial solid-waste disposal facilities (TEX. REV. CIV. STAT. ANN., art. 4477-7). Both agencies are currently developing a statewide plan, authorized by the Texas Solid Waste Disposal Act, for managing solid waste disposal. Processing and disposal facilities for municipal solid waste must comply with the construction and operating regulations issued by the Department of Health, and facilities for industrial solid waste must meet the requirements of the technical guidelines issued by the Texas Department of Water Resources.

The Texas Solid Waste Disposal Act defines "solid waste" as any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility, and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations and from community activities. The term does not include (1) solid or dissolved material in domestic sewage, or solid or dissolved material in irrigation return flows, or industrial discharges subject to regulation by permit issued pursuant to the Texas Water Quality Act (TEX. WATER CODE, Chap. 26); (2) soil, dirt, rock, sand and other natural or man-made inert solid materials used to fill land, if the object of the fill is to make the land suitable for the construction of surface improvement; or (3) waste materials that result from activities associated with the exploration, development, or production of oil or gas that are subject to control by the Texas Railroad Commission.

Municipal solid waste means solid waste resulting from or incidental to municipal, community, commercial, and recreational activities, including garbage, rubbish, ashes, street cleanings, dead animals, abandoned automobiles, and all other solid waste other than industrial solid waste. Industrial solid waste consists of solid waste resulting from or incidental to any process of industry in manufacturing, or mining or agricultural operations.

Each agency has the duty to seek the accomplishment of the purposes of Solid Waste Disposal Act through the control

of all aspects of the collection, handling, storage, processing, and disposal of the solid waste over which it has jurisdiction. The agencies have the powers and duties specifically authorized by the Act and all other powers necessary or convenient to carry out their responsibilities.

In assessing the possible adverse impact that land disposal of certain types or classes of industrial solid waste might have, the Texas Department of Water Resources has defined the following general waste classification system (TDWR Rule 156.22.01.001): "Class III - Inert and essentially insoluble industrial solid waste, usually including, but not limited to, materials such as rock, brick, glass, dirt, certain plastics, rubber, etc., that are not readily decomposable. Class II - Any industrial solid waste or combination of industrial solid wastes which cannot be described as Class I or Class III as defined in this regulation. Class I - Any industrial solid waste or mixture of industrial solid wastes which because of its concentration, or physical or chemical characteristics, is toxic, corrosive, flammable, a strong sensitizer or irritant, a generator of sudden pressure by decomposition, heat or other means and may pose a substantial present or potential danger to human health or the environment when improperly treated, stored, transported or disposed of or otherwise managed; including hazardous industrial waste."

Both the Department of Water Resources and the Department of Health in their respective jurisdictions, require a permit for onsite disposal of hazardous waste and offsite disposal of industrial solid waste if the disposal site lies outside a 50 mile radius of the generator or if the removal of the solid waste is performed by another party. Onsite disposal of non-hazardous solid waste does not require a permit.

Under provisions of the federal Resource Conservation and Recovery Act of 1976 (42 U.S.C.A. 6929), the state of Texas is seeking approval of its solid-waste management plan and authorization to conduct a state hazardous-waste management program in lieu of the federal program outlined in the Act. In order to attain this approval, a State of Texas/ Environmental Protection Agency Agreement (SEA) has been prepared through the cooperative effort of the Texas Department of Water Resources, the Texas Department of Health, the Texas Department of Agriculture, and the Railroad Commission of Texas as a mechanism to coordinate response to health and

environmental problems relating to solid and hazardous waste, water supply, and water pollution control. The Texas Department of Water Resources is the designated lead planning agency in this effort. The SEA draft agreement has been distributed to the public along with the appendices containing the narrative of the plan. Public hearings are scheduled for August 1980 with final approval expected by October 1980.

f. Oil Spills and Accidental Discharges of Hazardous Materials

Water quality is also affected by oil spills or accidental discharges of hazardous materials. The Texas Railroad Commission is responsible for regulating activities in the exploration, development and production of oil, gas and geothermal resources; control and disposition of waste resulting from these activities; and the abatement and prevention of pollution of surface and subsurface waters resulting from these activities. The discharge of these wastes requires a permit from the Railroad Commission and must meet the water quality standards established by the Texas Water Development Board.

The Department of Water Resources is responsible for implementation of the state's Oil and Hazardous Substances Spill Contingency Plan. The Plan provides procedures for a coordinated response to spills or accidental discharges of oil or other hazardous materials into Texas waters, and outlines methods by which such spills and accidental discharges will be reported to state agencies having regulatory responsibility over the activities and/or facilities involved in spills or accidental discharges. Special guidelines for a spill prevention and control plan are also included (found in detail in Appendix C-1). Implementation of these special guidelines may be required for individual companies under specific Department orders.

2. Management of Wetlands and Submerged Lands

Uses and activities affecting water quality in bays and estuaries also affect wetlands and submerged lands. Balancing the protection of these lands with the needs of navigation is one of the state's most important coastal issues. There are approximately 412,000 acres of coastal wetlands in Texas, with an estimated 13 to 16 percent owned by the state or federal government, and the remainder in private ownership. The authority that exists in state agencies to manage the uses and activities occurring in wetlands is discussed below. Specific performance standards and policies are found in Appendix C-2. Standards and procedures for management of privately-owned wetlands and submerged lands not under the jurisdiction of the GLO/SLB are achieved through state water quality certification. For details, see Appendix A, "Proposed Memoranda of Understanding."

a. Existing Authority

In Texas, management of bays and estuaries is currently achieved through three mechanisms: (1) the issuance of permits, certifications, easements, leases, registrations or required approvals, (2) the acquisition of critical wetland areas, and (3) direct enforcement of state law through the judicial system. These mechanisms exist within several natural resource agencies, namely the Texas Department of Water Resources, Railroad Commission, Texas Parks and Wildlife Department, General Land Office and School Land Board, Texas Department of Health, and the Texas Antiquities Committee.

These agencies review proposed activities from the perspectives of water quality, fish and wildlife values, land management, public health, and historic and cultural values. The TDWR, RRC, GLO, SLB, TPWD, and TAC each have their own certification, permit, leases, easement, registration or other approval that may be reqired to undertake the project. These are summarized below:

- Section 401 Water Quality Certification. The TDWR currently issues a certification under Section 401 of the federal Clean Water Act of 1977 and Chapter 26 of the Texas Water Code. This certification ensures that the water quality standards of the state will not be violated by the proposed activity. This certification is required for all

activities in navigable waters regardless of ownership. Conditions appended by TDWR to 401 certification are fully enforceable by the Corps because issuance of the federally administered 404 permit cannot occur unless the applicant has received a 401 certification from the state (see Appendix C-2, page C-2-10, for "Conditions currently used for 401 Certification"). The RRC also provides 401 certification for activities associated with the exploration, development and production of oil, gas, and geothermal resources. Currently, the issuance of two certifications may be required for a complex project involving both agencies.

- Drilling Permit of the Railroad Commission. The RRC drilling permit, pursuant to Title III of the Natural Resources Code, is required where an oil or gas well drilling activity is proposed. Because the Railroad Commission is mandated under Chapter 26 of the Texas Water Code to enforce the state's water quality standards in such activities, the Commission requires compliance with performance standards under current rules in addition to this permit. See Appendix C-1, page C-1-19, "Oil, Gas and Geothermal Resource Activities" for regulations and standards used by RRC when reviewing projects.

- Lease or Easement from GLO/SLB. The General Land Office and School Land Board grant easements or leases on state owned land after an environmental assessment, pursuant to Chapters 31, 33, 51, 52, 53, 61, and 141 of the Natural Resource Code. These Authorities are discussed in detail in Section b below.

- Permit for Dredging Marl, Sand, Gravel, Shell or Mudshell. The Texas Parks and Wildlife Department is mandated under Chapter 86 of the Parks and Wildlife Code to manage, control and protect marl and sand of commercial value and all gravel, shell and mudshell located within the tidewaters and on islands within the limits of the state. Under this chapter "no person may disturb or take marl, sand, gravel or mudshell under the management and protection of the Parks and Wildlife Commission, or operate in or disturb any oyster bed or fishing

water for any purpose other than necessary or incidental to navigation or dredging under state or federal authority without first having acquired from the commission a permit authorizing the activity." However, this chapter does not require the holder of an oil and gas lease executed by the state to obtain a permit from the commission to exercise any right granted under the lease or other laws of the state (sec. 86.019). The Department has established rules for shell dredging operations and specific considerations for issuance or denial of such permits under varying circumstances (see Appendix C-2, page C-2-6).

Closing of Waters to Shellfish Harvesting. The Texas Department of Health administers a Shellfish Sanitation Control Program under the authority of Sec. 76 of the Parks and Wildlife Code, and controls harvest of oysters and shellfish for human consumption, in the interest of public health.

Permits Regarding Protection of Historic Values. Texas Antiquities Committee may require permits prior to construction, dredging or filling for navigational improvements, if there is reason to believe that historical and archaeological sites are located on the submerged lands. The Committee reviews applications to the U.S. Corps of Engineers for permits, under Section 404 of the federal Clean Water Act and Section 10 of the 1899 Rivers and Harbors Act, to conduct dredging or filling operations in navigable waters or wetlands. The Committee relies heavily on information from permit applicants for data regardig archaeological sites. Rules and regulations established by the Committee outline detailed specifications for investigations, and require comprehensive reporting of survey results. (See Appendix C-11.)

Acquisition of Coastal Wetlands. In 1979, the 66th Texas Legislature adopted the Coastal Wetlands Acquisition Act (TEX. NAT. RES. CODE, sec. 33.231, et seq.), which declared that state policy is to protect those coastal wetlands which are "most essential to the public interest by acquiring fee and lesser interests in the coastal wet-

land and managing it in a manner that will preserve and protect the productivity and integrity of the land as coastal wetland." Under the Act, the General Land Office has authority to: (1) certify to the Texas Parks and Wildlife Department that coastal wetland most essential to the public interest, assign priorities for acquisition of interests in the coastal wetland, and revoke certification when it is in the public interest to do so; and (2) publicize the importance of coastal wetland to the public interest in general, and of designated coastal wetland in particular.

The General Land Office is currently developing procedures for the identification of critical wetlands based on wetlands permanence, function, the degree to which the area is threatened by destruction, alteration, or damaged, and the importance to the public interest. These procedures will supplement existing GLO rule 126.30.04.002 which outlines the general designation procedures (see Appendix C-2, page C-2-9).

The Parks and Wildlife Department has authority under the Act to acquire, by purchase or condemnation, fee and lesser interest in the surface estate, and to manage those coastal wetlands certified by the General Land Office to be most essential to the public interest. The Parks and Wildlife Commission will seek funds from the 67th Legislature to acquire a portion of the specific wetlands designated by the General Land Office.

In addition to the directly enforceable certification, permits, and approvals outlined above, the protection of fish and wildlife values is supplemented by state and federal agency consideration of comments provided by the Texas Parks and Wildlife Department. The Department routinely comments to the General Land Office regarding lease tract restrictions, and, under TPWD rule 127.30.23.001, to the U.S. Army Corps of Engineers on applications for Section 404 permits. The Parks and Wildlife Department has existing rules regarding dredged spoil, mitigation, shell dredging and the dredging of marl, sand and gravel (see Appendix C-2, pages C-2-3 through C-2-9), any of which may be used as the basis for comments. The Corps of Engineers regulations provide that "great weight" be given to wildlife values in permitting decisions (33 CFR 320.4(c)).

Furthermore, the Parks and Wildlife Department is mandated under Chapter 26 of the Texas Water Code to "enforce the provisions of this chapter to the extent that any violation affects aquatic life and wildlife." Although this statute does not provide TPWD with regulatory authority, they are authorized to file suit should aquatic life be threatened by water pollution (TPWD rule 127.20.01.004). The Department also regulates the taking, possession, transportation, exportation, processing, selling, or shipping of endangered species (TPWD rule 127.30.09.001-.006), regulates oyster transplantation and leasing (TPWD rules 127.30.19.001-.003 and 127.30.20.001-.002), and participates in the Texas Colonial Waterbird Census which locates and maps nesting sites.

Finally, the Department of Highways and Public Transportation is the non-federal sponsor of the Gulf Intracoastal Waterway, which is the most substantial continuously-maintained navigation project on the Gulf coast. The State Highway and Public Transportation Commission is mandated by the Texas Coastal Waterway Act of 1975 (V.A.C.S art 5415e-2, sec. 3(e)) to prevent waste of both publicly and privately owned natural resources, prevent or minimize adverse impacts on the environment, and to maintain and enhance wildlife and fisheries. The Commission is further mandated to acquire by gift, purchase, or condemnation property or easements necessary to fulfill its responsibility of maintaining waterborne transportation, which includes acquiring dredged material disposal sites (see Appendix C-2). The Commission, however, does not have authority to condemn submerged lands that are under the jurisdiction of the School Land Board.

b. Management of State-Owned Coastal Lands

The management of state-owned coastal lands is shared primarily by two state agencies: the General Land Office and the School Land Board.

The General Land Office was established in 1876 to dispose of and record titles to the state's lands. This agency is headed by the Land Commissioner, a statewide elected official. In 1939, the School Land Board was statutorily established to share in the management of the public free school lands with the GLO. The Commissioner of the Land Office serves as chairman of the SLB, and the Governor and the Attorney General each appoint another member of the Board.

The staff of the GLO serves as the administrative and technical staff of the SLB. Table III-4 outlines the general activities for which the GLO and SLB are responsible.

TABLE III-4. GENERAL LAND OFFICE/SCHOOL LAND BOARD ACTIVITIES

	Activity	Authority	Agency	Rule(s)*
1.	Coastal Easements to Littoral Owners	TEX. NAT. RES. CODE, Ch. 33	SLB	135.18.01.003
2.	Coastal Leases for Public Purposes	TEX. NAT. RES. CODE, Ch. 33	SLB	135.18.01.002
3.	Limited Continuous Use Permits	TEX. NAT. RES. CODE, Ch. 33	SLB	135.18.01.004
4.	Channel Easements	TEX. NAT. RES. CODE, Ch. 33	SLB	135.18.01.005
5.	Registration of Piers	TEX. NAT. RES. CODE, Ch. 33	GLO	135.18.01.003 and 135.18.01.005
6.	Navigation District Leases and Subleases	TEX. WATER CODE, Ch. 61	SLB	135.18.02.001-.004
7.	Oil and Gas Leases	TEX. NAT. RES. CODE, Ch. 52	SLB	135.16.01.001-.003 and 135.16.03.001-.0016
8.	Geothermal Leases	TEX. NAT. RES. CODE, Ch. 141	SLB	135.16.01.001-.003 and 135.16.03.001-.0016
9.	Mineral Leases (other than Oil and Gas)	TEX. NAT. RES. CODE, Ch. 53	SLB	135.16.01.001-.003 and 135.16.03.001-.016
10.	Rights-of-Way over Public Lands (Misc. Easements)	TEX. NAT. RES. CODE, Ch. 51	GLO	126.18.02.001-.006
11.	Geophysical Surveys	TEX. NAT. RES. CODE, Ch. 31	GLO	126.16.01.001-.012
12.	Prospecting Permits	TEX. NAT. RES. CODE, Ch. 53	GLO	126.18.03.001-.006

*The GLO and SLB have recently (August 1 and August 5, 1980) published proposed rules for public review in the Texas Register which may supersede these existing rules if adopted.

(1) Oil, Gas and Mineral Lease Sales

All land set apart for the Permanent Free School Fund and several asylum funds by the Constitution and the statutes of the state, and the mineral estate in riverbeds and channels, and the mineral estate within tidewater limits including islands, lakes, bays and the bed of the sea, belonging to the state, are subject to control and disposition by the SLB (TEX. NAT. RES. CODE, Chapters 52 and 53). Written request that designated tracts of state land be offered for lease for oil, gas and other minerals may be submitted to the Commissioner at any time (SLB Rule 135.16 .01.001-.003). After such nominations are approved by the SLB, the SLB accepts bids for the tract and may lease the land to the successful bidder. All activities on a leased tract are subject to any city, county, state or federal regulation or requirement when applicable (SLB Rule 135.16 .03.002).

GLO has prepared a "Notice for Bids" booklet which contains lists and maps of all state tracts of land. Included in these lists are environmental codes that provide potential lessees with advance notice of restrictions that may be placed on the use of state tracts. To fulfill the responsibility of preserving the natural resources of the surface estate, these environmental codes are offered as guidelines, and are subject to negotiation with the Land Office.

(2) Permits and Leases for Geothermal Activities

State and federal institutions, organizations, or groups may apply to SLB for permits to conduct exploratory or experimental research on geothermal energy and related potential resources on Public Free School Lands other than wildlife refuges and recreational lands. By direction of the commissioner, SLB may also lease these lands for the production of geothermal energy and related resources (TEX. NAT. RES. CODE, Ch. 141; SLB Rules 135.16.01.001-.003 and 135.16.03.001-.006).

(3) Leasing of State Lands to Navigation Districts

A navigation district that wishes to use the surface estate of state lands covered totally or partially by the water or any of the bays or other arms of the sea must apply to the SLB for a lease. A district may lease state lands only for uses reasonably related to navigation, which in-

clude marine commerce and immediately related activities. (SLB Rules 135.18.02.001-.004; TEX. WATER CODE ANN. secs. 66.116, 61.117 (1972), as amended, (Supp. 1976)).

(4) Grants of Interest in Coastal Public Lands

The Coastal Public Lands Management Act of 1973 (CPLMA) (TEX. NAT. RES. CODE, sec. 33.001, et seq.) declares that "the surface estate in the coastal public land of this state constitutes an important and valuable asset dedicated to the permanent school fund and to all the people of Texas, and it is declared the policy of this state that the estate be managed pursuant to the policies stated ..." in the Act.

Other policies of the Act provide that:

- The natural resources of the surface estate in coastal public lands shall be preserved. These resources include the natural aesthetic values of those areas and the value of the areas in their natural state for the protection and nature of all types of marine life and wildlife.

- Uses that the public at large may enjoy and in which the public at large may participate shall take priority over those uses that are limited to fewer individuals.

- The public interest in navigation in the intra-coastal water shall be protected.

- Unauthorized use of the coastal public land shall be prevented.

- Utilization and development of the surface estate in the coastal public land shall not be allowed unless the public interest as expressed by this chapter is not significantly impaired by it.

- The surface estate in coastal public land shall not be alienated except by the granting of leaseholds and lesser interests and by exchanges of coastal public lands for littoral property as provided herein.

- Vested rights in land shall be protected subject to the paramount authority of the state in the

exercise of police powers to regulate the exercise of these rights, and the orderly use of littoral property in a manner consistent with the public policy of this state shall not be impaired.

"Coastal public land" is defined as all or any portion of state-owned submerged land, the water overlying that land, and all state-owned islands or portions of islands in the coastal area. "Submerged land" is defined as any land extending from the boundary between the land of the state and the littoral owners seaward to the low water mark on any saltwater lake, bay, inlet estuary or inland water within the tidewater limits, and any land lying beneath the body of water. Included in the coastal public lands are wetlands within the tidewater limits.

Under the CPLMA, the School Land Board administers state-owned lands or islands in coastal areas. The board has authority to grant:

- coastal leases for public purposes (Rule 135.18.01.002);
- easements to littoral owners (Rule 135.18.01.003);
- channel easements to holders of surface or mineral interests (Rule 135.18.02.001-.004); and
- permits for limited use of previously unauthorized structures (Rule 135.18.01.004).

The School Land Board has recently (August 1, 1980) published proposed rules for public review in the Texas Register. These rules provide performance standards for activities on state-owned lands and wetlands in the coastal area. Proposed rules are found in Appendix B of this document.

(5) Rights-of-Way Over Public Lands

The Commissioner may execute grants for easements for rights-of-way across public lands (other than University lands) for improvements such as telephone, telegraph, electric transmission, and power lines; oil, gas, sulfur, electric and other pipelines; and irrigation canals, laterals, and water pipelines granted by the state. Easements may also be granted for electric substations, tank farms, loading racks, and pumping stations (GLO Rules 126.18.02.001-.006; TEX. NAT. RES. CODE. ANN., Chapter 51).

(6) Permits for Surveys and Other Investigations in Areas Within Tidewater Limits

The Commissioner may issue permits for geological, geophysical, and other surveys and investigations of areas within the tidewater limits of the state. A person having a valid oil and gas lease from the state, or having the permission of the owner of such lease, may conduct surveys and investigations without obtaining a permit, but that person must conform to the rules and regulations promulgated by the GLO (GlO Rules 126.16.01.001-.012; TEX. NAT. RES. CODE ANN., Chapter 31). The GLO is proposing amendments to rules regarding geophysical exploration activities in coastal public waters, published in the Texas Register, August 5, 1980. The proposed amendments are found in Appendix B.

(7) Prospect Permits

GLO has promulgated rules under Chapter 53, TEX. NAT. RES. CODE ANN., for obtaining prospect permits. A person may file an application to prospect on any tract of state land. Each tract applied for must contain no more than 640 acres with a 10 percent tolerance for tracts, sections and surveys containing more than that amount. Prospecting may be conducted for all minerals other than oil, gas, lignite, coal, sulfur, salt, potash, shell, sand, and gravel on state lands, except Relinquishment Act Lands described in section 52.171, TEX. NAT. RES. CODE ANN. Minerals for which prospecting may be conducted on Relinquishment Act Lands include all but oil, gas, coal, lignite, sulfur, potash, salt, sand, shell, gravel, and uranium, thorium, and other fissionable materials (Rule 126.18.03.001).

A person holding a valid prospect permit may apply for a mining lease for an area covered by the permit. This lease would cover the same minerals as the proposed permit (Rule 126.18.03.002).

c. Proposed Memoranda of Understanding and Rules for the Management of Privately-Owned Wetlands

The principal existing gap in state coastal resources management is the lack of a clearly enforceable mechanism for adequate management of privately-owned coastal saltwater

wetlands and submerged lands not under the jurisdiction of the General Land Office/School Land Board (GLO/SLB). These areas are an extremely important part of the coastal ecosystem. These wetland areas, which comprise 85 percent of the state's coastal wetlands, provide habitat to numerous species of commercial and recreational value, provide a key link in the aquatic food chain, and provide for the assimilation of nutrients. Although several state agencies currently provide comments to the U.S. Army Corps of Engineers for consideration in permit decisions regarding uses proposed for such areas, the state does not have a readily enforceable means of reviewing such actions.

The state possesses authority, under Chapter 26 of the Texas Water Code, to review proposed activities in wetlands and submerged lands which will cause an adverse impact on those lands. The state also has authority under Section 401 of the federal Clean Water Act of 1977, as amended, to certify for compliance with state law federal permit applications filed with the Corps of Engineers under Section 404 of the Act.

In an effort to develop a comprehensive program for state coastal resources management, a series of four draft Memoranda of Understanding (MOU) and two sets of proposed rules have been drafted among various state agencies involved in the 401/404 permitting process. The purpose of these MOU and rules is to provide an enforceable and accountable state mechanism for the management of privately-owned wetlands and submerged land not under the jurisdiction of the GLO/SLB. These Memoranda and rules are contained in full in Appendices A-1 through A-6 of this document. The draft Memoranda of Understanding provide a description of the process that state agencies will use in reviewing activities subject to the MOU, and are between the following state agencies:

- Texas Department of Water Resources and Railroad Commission (Appendix A-1)

- Texas Department of Water Resources and Parks and Wildlife Department (Appendix A-2)

- Texas Department of Water Resources and Texas Department of Health (Appendix A-3)

- Texas Department of Water Resources and General Land Office/School Land Board (Appendix A-4)

Appendices A-5 and A-6 contain draft standards and criteria developed by the Railroad Commission and the Department of Water Resources, respectively, which are proposed to be used by each agency in their review of activities subject to the Section 401 certification process.

Subsequent to modifications made as a result of hearings on this document, it is intended that all of the MOU and rules be adopted as state policy. State agencies will use the formal adoption process set forth in the Texas Administrative Procedures and Texas Register Act to adopt the rules (V.A.C.S. art. 6252-13).

The draft MOU and rules do not institute land use controls on privately-owned wetlands; rather, they manage wetland activities through a performance standard approach which seeks to balance the need for future development and the need to minimize the loss of wetlands. The MOU provide for improved coordination between state natural resources agencies and increased protection of privately-owned wetlands based on water quality aspects as provided for in Chapter 26. They do not increase delay in the overall review of projects, nor do they add a new layer of bureaucracy to state government. They do not require that additional permits, certifications, or approvals be issued, and thereby allowing only minimal increases in governmental paperwork and expense. The remainder of this section will outline the historical development and the major points of each of the MOU.

(1) Historical Development of the MOU

The concept of a Memorandum of Understanding to be used as the mechanism for adequate management of privately-owned wetlands and submerged lands was conceived by Governor Clements' Task Force on the Texas Coastal Program, created in the spring of 1979. The original MOU was conceived as a single draft proposal which would be adopted as rules by state agencies. Although the proposed MOU was only a recommendation, the concept sufficiently satisfied requirements under the CZMA for the purposes of Section 305(d) preliminary approval, which was received in 1979. The original draft of the MOU, which was included in the Texas Coastal Program draft of June 1979, proposed the following state and federal agencies as signators:

- Texas Department of Water Resources;
- Railroad Commission of Texas;
- Texas Parks and Wildlife Department;
- U.S. Fish and Wildlife Services;
- National Marine Fisheries Service; and
- U.S. Army Corps of Engineers.

The 1979 draft MOU included a rather unique "automatic certification" concept. This concept envisioned that specific standards and criteria for a limited set of activities to be based on the illustrative standards included in the draft could be developed such that, if a proposed project met all the applicable standards for a proposed activity, the activity would receive "automatic certification" by the state. It was also envisioned that the major federal agencies involved in the Section 404 permit process would be a party to the MOU, including the development of the standards and criteria. It was further intended that, if the project met the standards and criteria included in the MOU and received "automatic certification" from the state, the Corps of Engineers would then automatically issue the 404 permit, absent a navigational objection. Similarly, it was anticipated that the U.S. Fish and Wildlife Service and the National Marine Fisheries Service would agree not to oppose a project which met these standards. Although these agencies were not consulted as to feasibility of such an approach, this type of permitting process was thought to be feasible because of the direct inclusion of the three federal agencies in the development of and as signatory agencies to the MOU.

The present series of Memoranda does not include federal agencies and does not reflect the concept of "automatic certification." After several formal meetings of the Texas Coastal Program/MOU Task Force and other lengthy discussions, the federal and state agencies involved were unable to reach agreement on the standards which would serve as the basis for certification. Federal agencies also raised the question of whether they could adequately uphold their statutory mandates to review individual projects within the automatic certification framework of the MOU.

The second major provision of the draft MOU of 1979 required the Texas Department of Water Resources (TDWR) and the Railroad Commission of Texas (RRC) to "mandatorily append" conditions to the 401 certification as established by the Texas Parks and Wildlife Department (TWPD). This

concept envisioned that the TDWR and RRC be required to attach conditions on 401 certifications forwarded them by TPW when such conditions were based on specific standards and criteria which were to be developed by TPWD and included in the MOU. These conditions were to address water quality aspects of aquatic life and wildlife protection. This TPWD role was based on an interpretation of the Water Code which indicated that TPWD had such authority under state law. However, this provision was subsequently deleted from the present series of MOUs because the legality and enforceability of this mechanism were questionable. Specifically, it was determined that TPWD's authority under the Water Code was limited to seeking judicial enforcement of the Water Code to the extent that violations affect aquatic life and wildlife.

The 1979 draft MOU also applied to all coastal saltwater wetlands regardless of whether state- or privately-owned. All of the draft MOU and rules included in Appendix A are limited in their jurisdiction to the issuance of 401 certifications under the federal Clean Water Act of 1977, on permit applications filed under Section 404 of that Act for dredge and fill discharge activities on privately-owned coastal saltwater wetlands and submerged lands not under the jurisdiction of the GLO/SLB. Included within the scope of the MOU and rules are activities proposed for submerged lands and wetlands patented by the state to authorized Navigation Districts and other public entities if not subject to GLO/SLB jurisdiction. The decision to limit the geographic scope of the MOU and rules was based on the need to eliminate overlap between the policies contained in existing and proposed rules of the GLO/SLB and those contained in the draft RRC and TDWR rules contained in Appendices A-5 and A-6, respectively.

Retained from the draft MOU of June, 1979 is the concept of providing for state agencies involved in water quality or water pollution control to make comments to the TDWR which may, at TDWR's discretion, be appended to 401 certification. Accordingly, the proposed MOU and rules provide for the consideration of comments from the RRC, TPWD, TDH and the GLO/SLB during 401 certification process.

Finally, the original concept of the single MOU has been revised into four separate agreements and two sets of rules to reflect the specific and distinct provisions as they apply to each affected state agency. This will sim-

plify the formal adoption process that each agency will use to formally adopt the final Memoranda and rules.

(2) MOU between the TDWR and the RRC (Appendix A-1)

This MOU sets forth the procedures that TDWR and RRC will use to review activities requiring 401 certification referenced in this MOU. Integral to the goal of adequately managing privately-owned coastal saltwater wetlands are the draft proposed rules for drill sites and for other activities, located in Appendices A-5 and A-6, respectively, which provide standards under which drill permits and 401 certifications are to be reviewed. The rules also contain provision for TDWR to consider and append RRC comments to the 401 certification. Under the terms of this MOU, the TDWR will issue the 401 certification in all cases, and will be responsible for applying the standards and criteria contained in Appendix A-6. Where a drilling activity is proposed, a RRC drilling permit and a determination that the activity is consistent with the standards of Appendix A-5 must be provided to the TDWR prior to issuance of a 401 certification. The TDWR must append to the 401 certification any conditions the RRC has included on the drilling permit.

This process will simplify the existing Section 401 certification process by having TDWR handle all certification actions rather than the present situation whereby a project involving an oil and gas activity requires a certification from the RRC, and all associated roads or channels to the drill sites require an additional 401 certification from the TDWR. The proposed rules which are referenced, and the process outlined in the MOU provide the applicant with a greater degree of certainty and predictability when applying for a 401 certification.

(3) MOU between the TDWR and the TPWD (Appendix A-2)

This MOU provides for the TPWD, as the state fish and wildlife agency, to comment to the TDWR concerning the effects of proposed activities on aquatic life and wildlife. The TDWR, at its discretion, may append such comments to the 401 certification in the form of conditions. Only those conditions appended by the TDWR are enforceable. The TPWD, however, may request TDWR to forward all comments, even those which are not appended, to the Corps of Engineers along with the 401 certification. This comment procedure is provided for in the draft proposed rules by the TDWR (see

Appendix A-6). Such non-appended comments do not constitute formal state policy as provided by the Section 401 certification process established under Chapter 26 of the Texas Water Code.

The proposed MOU clearly states that the agreement in no way limits the TPWD's authority to comment directly to the Corps under the Federal Fish and Wildlife Coordination Act. However, the MOU does give the TPWD input into the decision-making process at the state level and the TPWD is encouraged to make use of that process.

(4) MOU Between the TDWR and the TDH (Appendix A-3)

By this MOU, the TDH may comment to the TDWR concerning the health aspects of matters relating to water quality. The TDWR, at its discretion, may append such comments to the 401 certification in the form of conditions and only those coditions appended by the TDWR are enforceable. This commenting procedure is also provided for in the draft proposed rules by the TDWR (see Appendix A-6).

(5) MOU Between the TDWR and the GLO/SLB (Appendix A-4)

In recognition of the responsibilities and duties the GLO/SLB have to manage coastal public resources, this MOU sets out an agreement by which the GLO/SLB may comment to the TDWR concerning activities which (1) are proposed on land of mixed ownership, part of which is state-owned land, or (2) are proposed on privately-owned coastal saltwater wetlands but would have a direct and significant impact on state-owned lands. Comments will be considered and may be appended as conditions upon the 401 certification by the TDWR at its discretion. This comment procedure is also provided for in the draft proposed rules by the TDWR (see Appendix A-6).

3. Fisheries Management

The importance of bays and estuaries to the fish and shellfish populations that support the Texas fisheries has been emphasized in an earlier section. Uses and activities that impact fisheries and fishery habitat include those uses and activities affecting water quality and wetlands described earlier. Protection of these areas and management of the water quality are essential elements of fisheries management in Texas to prevent depletion of the resource through activities such as overharvesting and activities that destroy fisheries habitat. The Texas Parks and Wildlife Department is the designated agency for state fisheries management.

Basic authority for fisheries management is the Uniform Wildlife Regulatory Act, codified as Chapter 61 of the Parks & Wildlife Code. The Act was designed to prevent waste and depletion of wildlife resources and authorizes the Texas Parks and Wildlife Commission to regulate the taking of wildlife, including marine animals, fish, and other aquatic life. Chapters 47 and 66 of the Code not only prohibit fishing without a license in saltwater areas of the state, but also regulate the means, methods, times, locations, size and numbers for the taking of fish. No person may catch a fish, marine animal or other aquatic life at any time or in any place without the appropriate license from TPWD. Specific standards for uses and activities affecting fisheries are found in Appendix C-3.

a. Licensing and Special Conservation Laws

Licensing procedures and special designation of species can be used to provide additional management and conservation. The Parks and Wildlife Commission recently voted to ban the use of monofilament net in commercial finfisheries operational on the Texas coast. This action received concurrence by 30 county commissioners courts along the coast. The Commission also asked that a list of species to be designated as "game" fish be developed by the Department. The concept of a red drum quota limiting the number of pounds taken from each bay system has also been given attention by the department.

Harris, Jackson and Victoria counties are non-regulatory counties with respect to saltwater fishing regulations, and some TPWD regulations do not apply there. However, only

a small amount of saltwater fishing occurs in these counties.

Most important commercial and regulatory species are covered by special conservation laws. The Texas Shrimp Conservation Act (PARKS AND WILDLIFE CODE, sec. 77.001 et seq.) and the Red Drum Conservation Act (PARKS AND WILDLIFE CODE, secs. 61.064-.065), for example, provide special conditions and limitations to prevent depletions of these resources. Despite the imposition of a $50 license fee and a yearly quota on red drum, TPWD statistics indicate the population is on a decline. Regular stocking with fingerlings has begun to have a beneficial impact on the population, but if the decline continues, commercial and sport harvests will inevitably suffer. The special conservation laws dealing with selected species apply to the exempted counties.

b. Planning and Programs

The Texas Parks and Wildlife Commission reviews and amends coastal fisheries regulations yearly. The Legislature also, during each biennial session, may enact new laws to enhance the state's fisheries resources. Coordination between the Commission and the Legislature is necessary to ensure adherence to the long range objectives and priorities of the Department.

The Texas Parks and Wildlife Code directs the Department to conduct scientific investigations and studies of supply, economic value, environments, breeding habits, sex ratios and other factors that influence the supply of marine life. (Sections 11.033, 61.051, 61.061, and 77.004). The Council has Advisory Panels for each similar group of fish, as well as Scientific and Statistical Committees made up of experts on the technical aspects of these fish.

Technical data is essential for effective fisheries management. As seen with red drum, population trends and changes in abundance determine the direction of Department policy. Harvest data from sport and commercial fishermen, as well as tagging of certain species; notably red drum, black drum, spotted seatrout, and southern flounder; determine these statistics. The Gulf Coast Conservation Association pays rewards for the return of tags. The sport harvest is monitored by survey on piers, jetties and charter boats. These interviews obtain estimates of seasonal har-

vest, average length and weight of the species, species composition of the catch, catch per unit of effort, angling pressure in man hours, Texas county or state of angler origin, proportion of successful fishing parties, and catchability of different bait types.

Commercial harvest data is obtained by monitoring the monthly and annual purchases of commercial fish houses, recorded through products reports and sales transaction tickets. Commercial fish houses and commercial fishermen have been surveyed in every major bay system except Sabine Lake since September 1976.

In 1980-81, monitoring of weekend boat-users will continue as will commercial fish house surveys. Catch per effort, catch composition by species, and other harvest data will be collected from sport fishers. The individual sales tickets required under the Red Drum Conservation Act will continue to be used to determine population trends.

Other programs will be extended into 1980-81. In a continued effort to prevent netting of immature shrimp, Parks and Wildlife will conduct a study to determine whether larger trawl mesh sizes will allow escape of smaller shrimp with minimal loss of larger shrimp. Samples of the species will be collected with marsh nets, bay seines, and trawls to monitor trends in abundance, movement and growth, and to determine the size distribution in commercial fishing grounds.

Bottom longline samples will be used to determine the kinds and amounts of finfish available in various depth zones. This data can be used to assess and evaluate the commercial and sport potential of finfish stocks as well as the availability of under-utilized species.

Long-term trends of Texas' oyster resource will be studied in the next year. The onset, distribution, growth and survival of the 1979 oyster spat set will be used to estimate the quantity available for the 1980 harvest. Oyster leases are supervised by the TPWD, as is surveillance of shell dredging to prevent damage to fish and wildlife habitat. Over 800 acres of Galveston Bay will be spread with clean shell to maximize the surface area available for spat attachment. Any damage to oyster beds from natural causes, such as flooding, are rehabilitated by the Department's Coastal Fisheries Branch.

Blue crab resources are monitored for trends in population abundance and to develop predictive capabilities. Recreational harvest data on blue crabs also is collected.

c. Inter-Gulf Cooperation

The Gulf of Mexico Fishery Management Council, established under the Fishery Conservation and Management Act (FCMA) of 1976, is responsible for fisheries outside the state's waters, from approximately 10.3 to 200 miles off the Texas coast. (See Figure III-2.) Concern over the decline in numbers of some fish species prompted the enactment of the FCMA. Because many of these species are dependent on estuaries, state action or negligence could adversely affect their populations. The Council can therefore pre-empt state authority if it feels the state is not adequately protecting fishery resources.

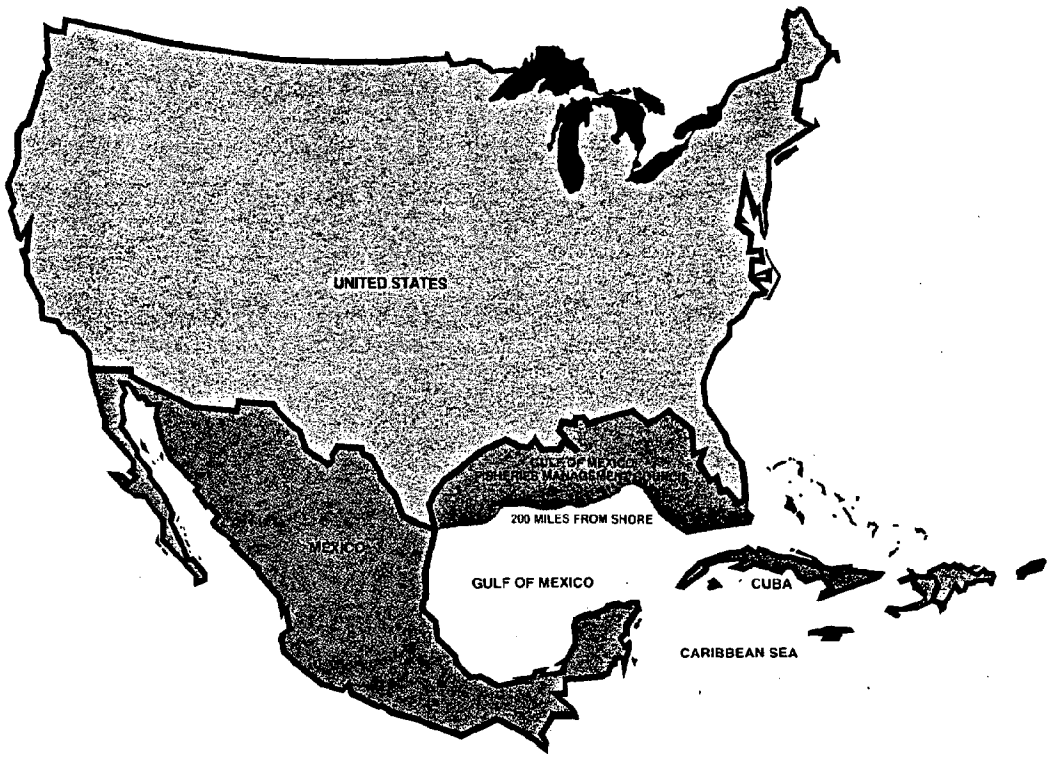


Figure III-2

The Council is developing fishery management plans for mackerel, snapper, grouper, groundfish, coral, billfish, spiny lobster, sharks, and coastal herring. A plan for stone crabs, which are found primarily in Florida, is currently in effect, and a Shrimp Plan has been submitted to the Secretary of Commerce for approval. TPWD has cooperated with the Council in preparing and reviewing these plans.

This cooperation is evident in the Shrimp Plan's "Texas Option;" the only change the plan makes in existing policies on shrimp management in Texas. This extends to the 200 mile limit a TPWD temporary closing-of-waters policy. Each year, when studies indicate young shrimp are moving from bays and estuaries out to Gulf waters, the Department closes the state waters to shrimping for 45 days. This assures that the young shrimp will reach open Gulf waters to grow, mature and reproduce, resulting in a better catch for the shrimpers. The Option will simultaneously close waters to 200 miles. Parks and Wildlife and the Texas Shrimp Association (TSA) believe this will result in an even more lucrative shrimping season. Some Louisiana shrimpers fear that during those 45 days, Texas shrimpers would move into Louisiana and place a burden on that state's resources. A poll by TSA indicates this would not occur.

Part of the problem of declining numbers was caused by heavy fishing pressure from foreign fleets. As a result of the FCMA, foreign fleets can now fish in the waters under the Council's jurisdiction only if a surplus of a species exists. The Council has declared that no surplus exists on shrimp and mackerel, eliminating foreign fishing for these species.

The Council has authority to impose regulations that may indirectly affect the fishing industry in state waters. For example, it may impose time or catch limitations for certain species, or it may restrict the number of vessels permitted to fish in federal waters. The Council may also incorporate state laws into its management plans. Since control of estuarine habitat is beyond the Council's jurisdiction, the Council must confer with the states regarding its conclusions on habitat preservation. In 1977, the 65th Legislature authorized the Texas Parks and Wildlife Department to regulate marine resources where necessary to comply with the Fishery Conservation and Management Act.

d. Mariculture and Stock Enhancement Programs

The State of Texas has been and currently is engaged in efforts to enhance the living resources of Texas coastal ecosystems. The Texas Parks and Wildlife Department, in cooperation with the University of Texas Marine Science Institute, has successfully induced spawning of red drum under laboratory conditions and has reared juveniles that were used to restock several Texas estuaries. The Department currently maintains a Marine Fisheries Research Station at Palacios, Texas, and shares a facility at Port Aransas with the University of Texas Marine Sciences Institute and National Marine Fisheries Services, where much of the Department's mariculture activity is carried out. The Department also is engaged in research on the mariculture applications of other species in Texas.

A comprehensive Texas Aquaculture Plan is developing as a cooperative effort between various state and federal agencies, academic institutions, and private sector interests. The objectives of this plan are to examine the potential and the present status of aquaculture in Texas and to point up the needs for research, incentives, and legislative and state government action. The benefits to the state from a comprehensive aquaculture program are many. The technology could easily be transferred to the private sector once the economic feasibility of mariculture is established, thus supplementing the economy of the coastal zone and the state. Furthermore, the technology of induced spawning and enhanced juvenile survivability could be used to further supplement the natural stocks of living resources, thus increasing the recreational and commercial value of Texas estuaries and helping to mitigate the effects of habitat loss and overfishing.

The organisms presently showing the most promise for mariculture applications are red drum; *Sciaenops ocellata*; certain bivalves, notably the oyster *Crassostrea virginica* and the clam *Mercenaria mercenaria*; and shrimp. Certain shrimp, notably Macrobrancium, also show promise in freshwater aquaculture applications.

Research must continue if the level of technology necessary for full implementation of an aquaculture plan for Texas is to be achieved. The scope of this research is broad and includes: (1) the delineation of environmental factors that induce spawning in captivity, (2) the investi-

gation of growth and aging techniques, (3) an assessment of the technical capability for commercial culture of certain marine organisms, and (4) an evaluation of natural stock enhancement procedures and their impact on coastal fishery resources. Facilities in Texas that are currently involved in this research include the Port Aransas Marine Laboratory of the University of Texas, the Texas A&M Moody College research facility in Galveston, and the Texas Parks and Wildlife Department field stations located at Rockport and Seabrook.

Implementation of the Texas Coastal Program will make available funds that may be used to undertake some of this research and to undertake a feasibility study for a large scale saltwater fish hatchery, which has been proposed by the Texas Parks and Wildlife Department.

e. Fisheries Management Research Coordination

The Texas Coastal Program, during the planning phase, is focusing on the need for improved coordination between fisheries managers, fisheries researchers, and sources of research funding. In order to meet this need, TENRAC is contacting key individuals, agencies and institutions and will form a working group to undertake the task of improving coordination and addressing some of the major problems of fisheries management research.

It is anticipated that the working group will:

- Identify ongoing programs/projects of the state.
- Assess the problems, needs and priorities of state fisheries management and research entities.
- Identify sources of funding to meet the needs and priorities.
- Identify sources of long-range (10-20 year) funding to provide comparable fisheries data, acquired over reasonable time periods, in order to identify significant trends in demographic variables of resource populations.
- Examine the need for special research programs and delineate areas of particularly valuable pioneering research (e.g. applications of sublethal effects technology).
- Examine mechanisms by which the needs of fisheries managers can be more readily communicated to researchers in the academic sector.
- Develop a schedule for the accomplishment of the identified goals.

B. MANAGEMENT OF SHOREFRONT AREAS

Access to shorefront areas and dune protection are two major issues for shorefront management. Because of the Texas Open Beaches Act and the availability of public parks, recreational access is presently adequate. The state's role is to ensure that local government restriction of vehicles on beaches, and the construction of fences, barricades and buildings, do not violate the Open Beaches Act guarantee of free and unrestricted access. The state's recognition of the importance of dunes is reflected in the Dune Protection Act which mandates the designation of dunes critical for the protection of public land. This designation process is a task of the General Land Office.

1. Shorefront Access

The state has a number of management tools to ensure adequate shorefront access. The Texas Open Beaches Act establishes a presumption of free and unrestricted ingress and egress to state-owned beaches bordering on the seaward shore of the Gulf of Mexico, or to areas extending to the line of vegetation bordering the Gulf, where the public has acquired a right of use or easement. The term "beach" as used in this section is technically defined in Chapter V, page 45. The state generally has a good regional distribution of free and easily-accessible public shorefront. State authorities are empowered to acquire additional park lands, and access roads are built as expansion is needed. Where local governments now restrict vehicular traffic, alternative means of access must be considered in future planning.

The Texas agencies that regulate uses and activities affecting or using the Texas shorefront are the Texas Parks and Wildlife Department and the School Land Board. Local coastal governments also may impose conditions or restrictions in the interest of public safety, but they may not restrict shorefront access.

The Office of the Attorney General is charged with the enforcement of the Texas Open Beaches Act (TEX. NAT. RES. CODE, sec. 61.011) and protection of the right of public access to the beach. Therefore, the Texas Attorney General is responsible for insuring that if public access is limited by restriction of vehicles from beach areas, adequate alternative access is provided. The Office of the Attorney

General does not have any administrative authority, such as the issuance of permits, and, therefore, enforcement of the Open Beaches Act is through the initiation of a lawsuit. In addition, the Attorney General's responsibility under the Act is to ensure that buildings or fences do not obstruct public easement or prohibit access to the public beach. Again, lawsuits are the means of enforcement.

Numerous suits and agreed judgments subsequent to the Act have established the public right expressed in the Open Beaches Act. The Attorney General, and the county and district attorneys, have enforced the Act vigorously. The Office of the Attorney General responds to reports from local government officials, and from other state agencies, who advise of possible encroachments on the public easement. A case-by-case review is made of requests for determination of the location of the public easement and investigates public reports of possible encroachments on the public easement. The Attorney General takes the position that signs, posts, fences and buildings can constitute obstructions to the public beaches. Therefore, he investigates upon request or report new structures intended for or being constructed on or near the beach to determine whether they might constitute an obstruction. It is important to note that the public easement changes location with natural erosion or accretion in the beach areas.

Uses of the state's beaches and shorefront areas include:

- Swimming
- Boating
- Picnicking
- Fishing
- Beach combing
- Surfing
- Temporary camping
- Licensed mobile beach businesses

Examples of activities or construction that may be allowed by the Open Beaches Act on a case-by-case review are:

- Placement of signs
- Placement of lights
- Restricted parking

Examples of activities or construction not allowed under the Open Beaches Act are:

- Houses
- Commercial establishments
- Other buildings
- Permanent camping
- Bulkheads and other improvements
- Fences or barricades
- Signs restricting or prohibiting public use

Certain uses and activities affecting access to beaches require permits, licenses, or easements from the appropriate state agency.

The criteria and assumptions (NAT. RES. CODE, sec. 61.001-.014) used by the Attorney General's Office for enforcement of the Texas Open Beaches Act include:

- The public easement extends inland from the water edge to the stable vegetation line, where the vegetation extends continuously inland. This is normally found at the base of the stable dunes.

- The Attorney General will seek to enjoin the construction of or to remove any obstructions Gulfward of that line.

- Local governments may restrict vehicular traffic on the beaches, prohibit certain activities in certain areas of the beach, set speed limits, and establish other necessary regulations. They may not unreasonably deny the public its right of free and unrestricted access to the beach.

- Where vehicles are banned from the beach adequate provision must be made for alternative beach access.

- Suit will be brought where there is creation of private beaches, or unreasonable denial of access to the beach, or obstruction of a beach area.

Nueces County is actively enforcing set-back lines to protect the public beach from encroachment by private uses. Much of Galveston Island has been subject to litigation under the Act and the beaches on that island have been established as public beaches. The City of Galveston continues to be very active in ensuring the rights of the public. The most intense development pressure affecting Texas beaches is at South Padre Island. In response to the need for more definite policy, the Texas Attorney General has prepared a map which depicts construction set-back lines. The Attorney General has agreed to follow the guidelines established with and by that map until changes in the shoreline dictate a change in the maps or until he is forced to abandon the agreement by litigation.

The Texas Parks and Wildlife Department, under statutory mandate, has established a licensing procedure for licensing of mobile businesses on the beach. No permanent locations are permitted. The Department also has responsibility for the cleaning and maintenance of public beaches, while the state provides financial assistance to local governments for beach cleaning. Specific standards for managing beach access and beach cleaning and maintenance are found in Appendix C-4.

During the 66th Legislature, the Senate passed a resolution (SCR No. 46) that requested the State Department of Highways and Public Transportation to "emphasize the construction of free beach accessways, free beach-user parking areas, and a system of public signs, either by assisting local governments or by acting directly." In conjunction with the Coastal Program, TENRAC will assist in coordinating the efforts of the Department of Highways and Public Transportation, Parks and Wildlife Department, other state agencies and local governments to achieve the goals of this resolution. Through meetings and planning sessions, issues and potential conflicts will be identified. TENRAC will prepare any necessary recommendations for the state legislature or state and federal agencies to ensure beach access and to implement the resolution.

2. Dune Protection

A dune area is any emergent area adjacent to the waters of the open Gulf of Mexico in which dunes are found, or in which dunes may be established by proper management of the area. The Dune Protection Act, TEX. NAT. RES. CODE,

sections 63.001-.181, authorizes counties north of the Mansfield Ship Channel, which have within their boundaries a barrier island or peninsula, to establish dune protection lines within 1,000 feet of mean high tide. According to the provisions of the Act, once a dune line has been established by the county commissioners court, a permit is required from that court before dunes or vegetation seaward of that line may be disturbed. Activities and uses that may disturb dunes or dune vegetation include geophysical and other surveys; construction; pipelines; vehicular and pedestrian traffic; road construction and construction of bulkheads and seawalls; dredging and deposition of dredged materials; and jetties, groins, piers and similar structures. No permit will be issued for use of recreational vehicles, as defined in the Act, seaward of this line.

The Act allows the Commissioner, in his role as trustee of public lands, to appeal to a district court any decision of the county commissioners court that he determines to be a violation of the Act. The appeal would be brought by the Attorney General's Office, but the determination of whether to appeal is made by the Land Commissioner. The General Land Office Rules for critical dune areas (Appendix C-5) assign criteria by which these areas can be identified, and outline management guidelines for activities in critical dune areas. These guidelines are used in General Land Office assessment of permit applications forwarded from the county commissioners courts.

Nueces and parts of Galveston County are currently using dune protection lines to regulate activity on vegetated dune areas. As a part of the Texas Coastal Program, the General Land Office will carry out the formal designation of critical dune areas in these counties pursuant to the provisions of the Dune Act (TEX. NAT. RES. CODE §63.001, et seq.), using a detailed designation procedure.

The General Land Office has developed procedures for the designation of dune areas critical to the protection of state-owned lands. A dune committee made up of individuals from state and local governmental agencies, universities, and businesses will assist in revising maps, identifying critical dunes, and determining the appropriate lateral and landward extent of critical dune areas by 1980. The dune committee will establish a criticality index for each given dune area, based on assigned values for various dune functions. (See Table III-5.) To assist in the determination

of critical dune areas, "value/function graphs" will be prepared from committee input for the following functions: dune type, continuity and height; position of dunes with respect to other environments; extent of development; vegetative cover; and erosion rates. A criticality threshold, the index above which an area becomes critical, will then be established. A map of those areas with an index greater than or equal to the threshold will be prepared. These will be the designated critical dune areas. It is anticipated that the designation of critical dune areas along the Texas coast will encourage coastal counties to establish dune protection lines if they have not done so previously. The GLO has the authority to review and comment once a county establishes this line. Any application for permit to disturb dunes or dune vegetation in designated critical areas is sent to the Commissioner of the GLO for comment.

A mechanism exists for conducting voluntary dune vegetation programs in coastal areas. Local Soil and Water Conservation Districts have the authority to engage in various conservation activities, including provision of equipment and biological plant materials to land occupants (TEX. REV. CIV. STAT. ANN. art. 165a-4, sec. 7 (Vernon 1969). These districts are working to develop and carry out comprehensive conservation plans with coastal landowners and provide technical assistance to local, state, and federal agencies. District dune protection projects include sand dune protection work at Sea Rim State Park by District No. 432 in Jefferson County. The Waters-Davis Soil and Water Conservation District cooperated with individuals to install barriers to limit vehicular traffic, and to revegetate dunes to protect the beach area. In Matagorda County, District No. 316, one landowner cooperator planted salt cedar cuttings to stabilize dunes on the Peninsula. In the San Patricio County District, dune stabilization has been accomplished with grasses and woody plants. They assisted the Corps of Engineers in establishing a plant-materials nursery site, and are working with the General Land Office to study revegetation methods on dredge spoil islands. Some districts, including those in Chambers, Jackson and Calhoun Counties, have few sand dunes and minimal development pressure. The King Ranch area of Kleberg and Kenedy Counties is not a part of any Soil and Water Conservation District, but actively maintains its own conservation work. In Nueces-Wells-Kleberg Soil and Water Conservation District No. 311, most dunes are either federal, state, or development property.

There are over 400,000 acres of barrier islands, spits and peninsulas off the Texas coast. Much of the acreage of barrier islands in Texas is state- or federally-owned. The largest federally-owned area on Texas barrier islands is the Padre Island National Seashore, which extends from northern Kleberg County southward to the end of Willacy County.

TABLE III-5.

Dune Functions and Suitability

Environment	Land Use C	PR	AR	D1	D2	T
Forebeach	+	+	x	x	x	x
Backbeach	+	+	0	x	x	x
Coppice mounds	+	0	x	x	x	x
Hummocky foredunes (discontinuous)	+	0	x	x	x	x
First foredune ridge	+	x	x	0	x	x
Swale between dune ridges	+	0	0	0	0	0
Second foredune ridge	+	0	x	+	0	x
Back dune ramp	+	+	0	+	+	0
Vegetated barrier flat	+	+	+	+	+	+

C - Conservation and Preservation: represents areas that should not be developed because of hazards that affect both life and property as well as dangerously interfere with the natural processes active on the island.

PR - Passive Recreation: represents activities requiring low levels of exertion and/or minor impact on the natural systems; for example, walking, bathing, and nature observation.

AR - Active Recreation: represents activities requiring moderate to high levels of exertion and/or a greater intensity of developed facilities; for example, golf courses and tennis courts.

D1 - Development Density 1: represents low density development and a low number of people per unit area. This includes well spaced single family houses.

D2 - Development Density 2: moderate to high density development and a high number of people per unit area; for example, institutional developments (village facilities, churches, and schools) as well as residential developments (condominimums and apartment complexes).

T - Traffic; paths of extensive pedestrian and vehicular transportation.

+ - Suitable

0 - Possible problems

x - Undesirable

(from Morton et al., 1977)

C. MANAGEMENT OF COASTAL HAZARDS

The Texas Gulf Coast is subjected to a number of natural hazards, primarily (1) hurricanes and resultant flooding and wind damage; (2) subsidence, especially in the heavily industrialized Houston-Galveston area.

Hurricanes present the most significant problem in terms of potential loss of life and property, particularly in heavily populated, low-lying areas. Hurricanes and long-term natural erosion are unavoidable, but action can be taken to minimize damage.

Subsidence and many types of erosion are caused by human activities and are therefore subject to management. Management of coastal hazards in Texas is accomplished by extensive cooperation between all levels of government, including federal, state, city, county and special district units, and fully utilizes private cooperation in the effort to minimize and mitigate damage.

1. Hurricanes

Uses subject to hurricane and flood hazards include all development or construction located in hurricane and flood hazard areas. Uses and activities in these areas require approvals from the appropriate state and local agencies prior to initiation of any project. State agencies must consider flood hazards when evaluating plans, projects and requests for loans or grants for land use planning. Standards for these uses and activities are contained in agency rules, regulations, and guidelines. Specific standards for uses and activities subject to hurricane and flood hazards, and hurricane-resistance standards for mobile homes, are found in Appendix C-6.

a. General

A hurricane is a storm of tropical origin with a cyclonic wind circulation of 74 miles per hour or higher. The cyclonic atmospheric system is characterized by decreasing barometric pressure toward the center and by surface winds. The principal features of a hurricane are (1) the eye, surrounded by convective clouds; (2) low-level cyclonic winds; (3) upper-level anticyclonic winds; and (4) a vertical circulation system in which air flows into the eye at

low levels, flowing upward within the convective clouds, outward in the upper levels, and downward in the outer parts of the storm (Figure III-3).

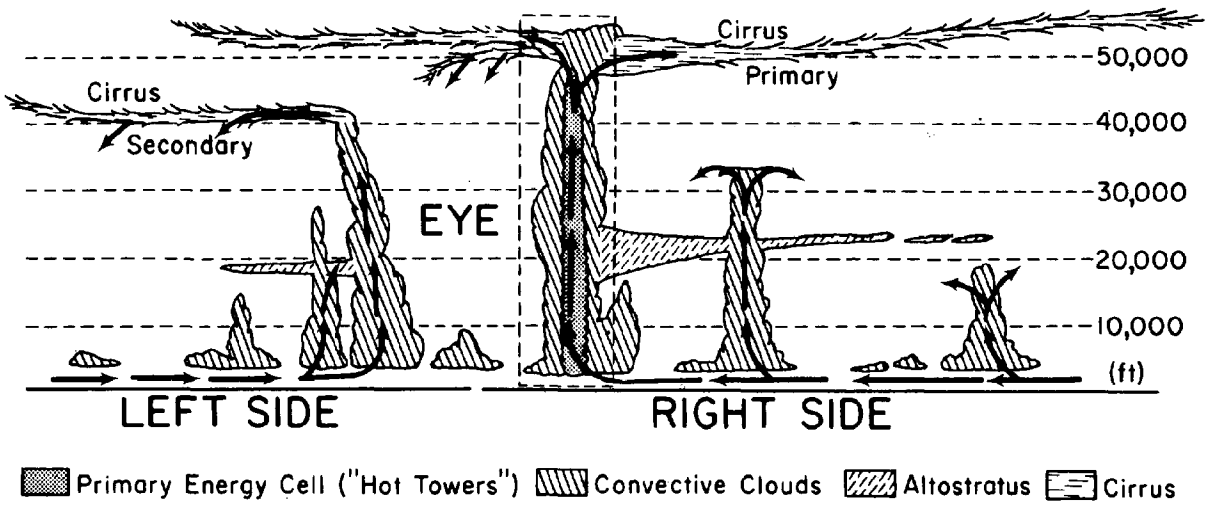
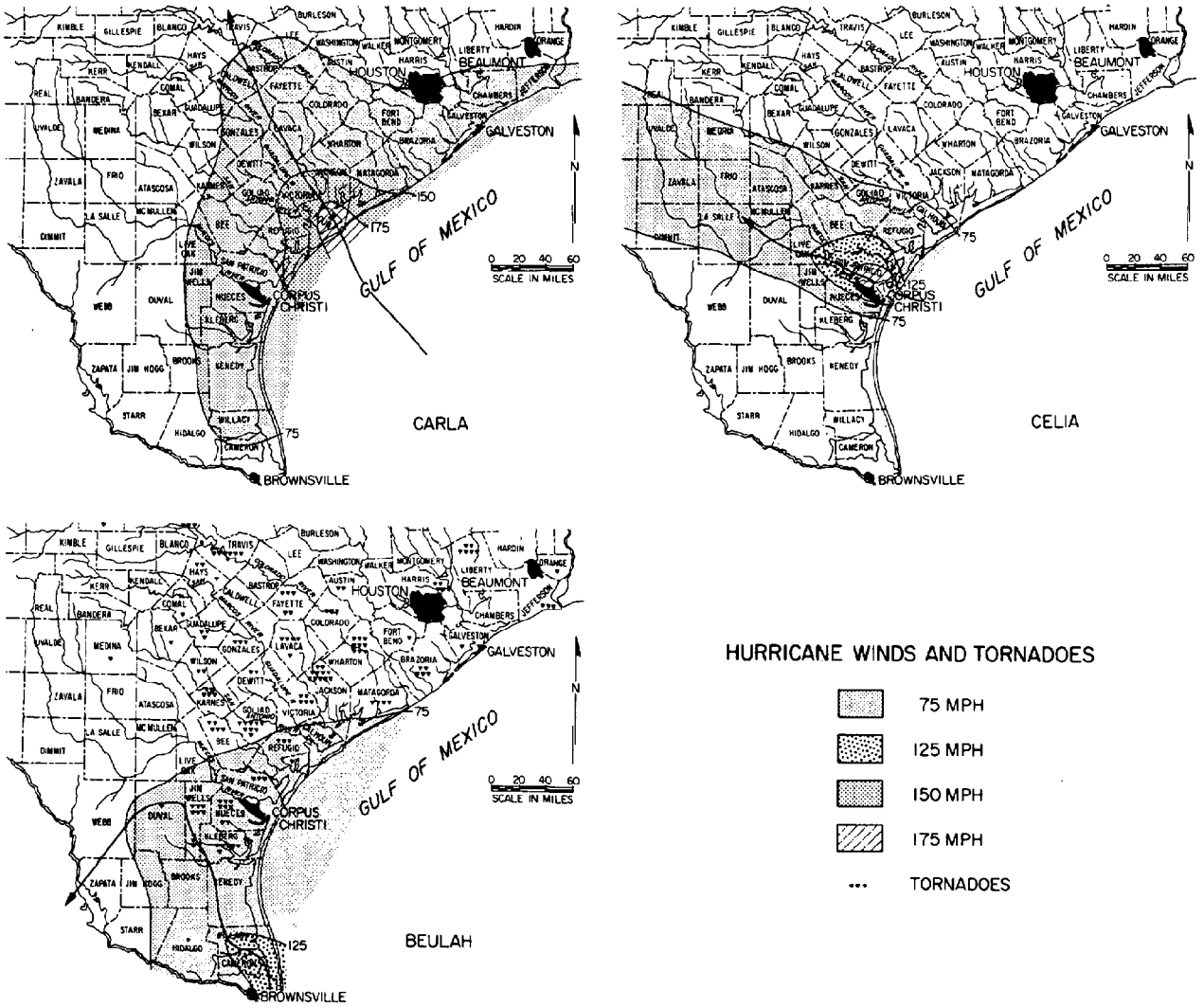


Figure III-3.
Principle Features of a Hurricane



The track of the eyes of Hurricanes *Carla*, *Beulah*, and *Celia*, and the area covered by hurricane-level winds, Texas Coastal Zone. Based on data from Cooperman and Sumner (1961), Orton and Condon (1970), Orton (1970), and U. S. Army Corps of Engineers (1968). After Texas Coastal and Marine Council (1974).

Figure III-4

When a storm begins its landward approach, an initial three or four foot rise in the water level of the bays and Gulf can affect several hundred miles of shoreline, flooding beaches and threatening to inundate roads over washover channels. Storm surge--the rapid rise in water level as the hurricane crosses the shoreline--reaches levels as high as 22 feet above mean sea level. Rainfall flooding, which occurs before, during, and after hurricane passage, compounds the damage caused by storm surge flooding. High-velocity currents that erode channels through low areas in the fore-dunes or that re-scour existing washover channels on the barrier islands are highly destructive to nearby buildings. A total of 137 washover channel sites on the Texas coast have been identified by the Bureau of Economic Geology (Brown et al, 1974).

Most hurricane damage is caused by flooding and storm waves, but hurricane winds are also highly destructive. The area affected by storm winds may range from 15 to 300 miles in width. Wind velocities of 100 to 135 mph are common. Severe storms have wind velocities of up to 160 mph, and the most violent hurricanes have winds of 200 mph or greater. Tornadoes with winds of 260 to 300 mph may occur along with the hurricane.

Conditions for the development of hurricanes that may landfall on the Texas Coast generally exist from June through September, with the most frequent occurrence in June. The three most devastating hurricanes in recent history have been Carla (1961), Beulah (1967), and Celia (1970) (Figure III-4).

b. Hurricane Awareness Program

The Hurricane Awareness Program is a cooperative effort of the Texas Coastal and Marine Council, the Texas Catastrophe Property Insurance Association, and the Governor's Division of Disaster Emergency Services, to inform coastal residents of potential natural hazards and the means of coping with them to reduce loss of life and property. The program was initiated to answer a demand for simple information on hurricanes for coastal residents, particularly new residents and those too young to have experienced a hurricane.

The Hurricane Awareness Program is a well-conceived and effective means for increasing public awareness of hurricane

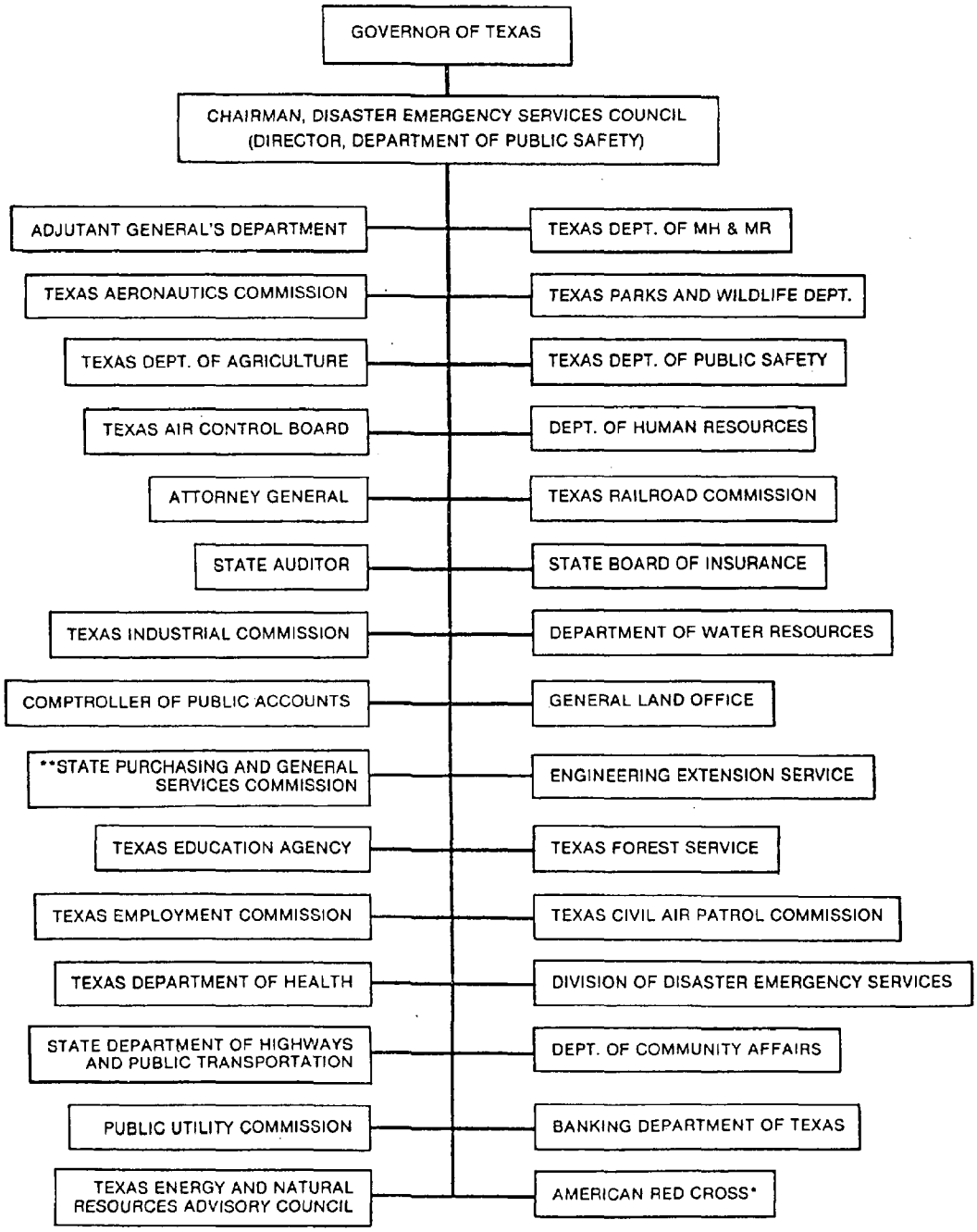
dangers and survival techniques. In 1976, approximately 950,000 hurricane flooding maps with survival checklists, including 50,000 printed in Spanish, were distributed throughout the coast. Since then, the program has been expanded to include additional audio-visual and multi-media materials. In 1977, the National Weather Service awarded its public service award to the Hurricane Awareness Program for enhancing federal, state, and local preparedness efforts, and for serving as an excellent model for other coastal areas in the nation threatened by hurricanes. The success of the program has increased the desirability of continued support for expansion of the program. Continued funding of such a program, which greatly reduces the costs incurred as a result of a hurricane, is in the economic interest of the private, state, and federal sectors. The Division of Disaster Emergency Services, therefore, has made the state's participation in the program part of its standard responsibilities in disaster preparedness.

c. Preparedness

The Texas Disaster Plan, based on the Texas Disaster Act of 1975, TEX. REV. CIV. STAT. ANN. art. 6889-7 (Vernon Supp. 1978), is a statewide plan for disaster preparedness and recovery and provides for evacuation of coastal residents, the maintenance and monitoring of evacuation routes, restoration of essential services after a disaster, and relief efforts. The Plan outlines the state organization for emergency activities and assigns responsibility for a comprehensive program of emergency preparedness. In addition, it delineates the general procedures for operations during emergencies and for recovery and rehabilitation. Although the plan is comprehensive, coastal counties have developed supplementary local programs to maximize preparation for hurricanes, tornadoes, and flooding.

Under the Texas Disaster Act of 1975, the governor is empowered in certain defined situations to issue executive orders, proclamations, and regulations, which have the force of law. The governor has delegated most of his emergency powers to the Governor's Division of Disaster Emergency Services, which administers the Plan. The director of the Texas Department of Public Safety is the director of the Division, which networks and coordinates existing state agencies in the implementation of their various emergency responsibilities. (Figure III-5).

DISASTER EMERGENCY SERVICES COUNCIL



AUTHORITY: EXECUTIVE ORDER WPC-11, August 15, 1979

*NON STATE AGENCY

**FORMERLY BOARD OF CONTROL

Figure III-5

Every political subdivision in the state is under the jurisdiction of the Division during a disaster. Each county must have a disaster agency or be part of an interjurisdictional (multi-county) agency. A few municipalities have their own disaster agencies, but most are part of a county or interjurisdictional agency. Every county and municipality must have a disaster plan that includes ways of dealing with local disasters and ways of cooperating with and helping neighboring areas in the event of an emergency. The Division provides technical assistance to political subdivisions when they prepare their plans: Copies of each completed plan are kept by the Emergency Division's Operating Center, which controls and coordinates the state disaster activities.

The State Department of Highways and Public Transportation (SDHPT) and the Department of Public Safety (DPS) rely on the early-warning system of the Division to ensure timely initiation and efficient execution of the evacuation process. The SDHPT is responsible for keeping the highways open and, together with the DPS, for providing the public with the latest information on recommended escape routes. The Department also maintains radio communications with the local Emergency Operating Center and undertakes other emergency transportation functions. The Department of Public Safety uses its personnel to ensure that order is maintained and that help is available whenever necessary. Wardens of the Parks and Wildlife Department, as state peace officers, assist where they are needed.

The 20-Year State Highway Plan of the SDHPT identifies areas needing improved or new highways for additional access, safety, or economic benefits. Highway access to coastal areas requires careful balancing, because while sufficient evacuation routes are needed, new highways may also encourage development. The present 20-Year Plan proposes a number of highway improvements in coastal areas, considering route capacity and continuity for potential emergency evacuation.

d. Prevention

The Texas Disaster Act is not concerned solely with disaster-reaction mechanisms, it addresses disaster prevention as well. Under the Disaster Act, state agencies are directed to study various disaster-related matters to identify means of reducing or avoiding associated dangers.

Relevant state agencies are specifically required to work with the Disaster Division to monitor land use and construction practices and to identify areas that are susceptible to severe faulting, subsidence, or flooding. As part of its ongoing responsibility to maintain highways, the Department of Highways and Public Transportation monitors road use and considers evacuation needs when planning highway changes. The Department uses a computer-assisted analysis of such factors as daily use, seasonal use, emergency use, road conditions, road elevations, and cost of repair to determine the types of improvements needed in the coastal area.

If studies by the Division of Disaster Emergency Services verify that, in accordance with the guidelines of the Disaster Plan, a "disaster of catastrophic proportions" is developing because of either existing land use or building practices within an area, the Division may recommend appropriate changes. The governor, after public hearings, may in turn suggest agency or legislative actions to remedy the dangerous situation. Furthermore, he may suspend existing standards or controls, if he finds them inadequate, and substitute new ones, which shall remain in effect until acted upon by a concurrent resolution of the legislature. The governor's action is subject to judicial review but is not subject to temporary stay pending legislation.

The Division monitors coastal development to determine where hazards might be developing and cooperates fully to assist local governments in hazards planning. The Division trains newly-elected officials in hazards awareness and assists officials in defining hazards for the individual locality. Although local officials usually contact the Division for assistance, the absence of a local request does not preclude the Division from acting on its own initiative to provide disaster planning for individual cases, where such planning or information on hazards is lacking.

e. Toxic Substances

In addition to the dangers hurricanes pose to life and property, hurricane floodwater may release toxic substances, which endanger both natural systems and human health. The Texas Water Code, Section 26.261-.268, authorizes the Texas Department of Water Resources to enact rules and develop plans aimed at the prevention of and reaction to discharges or spills of oil and hazardous substances.

The Department has issued the State of Texas Oil and Hazardous Substances Spill Contingency Plan, which requires parties responsible for the storage or disposal of hazardous polluting substances to make every effort to provide for spill prevention. Failure to do so may be deemed as negligence and be subject to legal action. The Plan contains suggested guidelines for spill-prevention and control. These guidelines are found in Appendix C-1 of this document. Implementation of these guidelines is not generally mandatory, although it may be required for individual companies under specific Department orders. Among other things, the guidelines call for integrity testing of storage tanks located above ground, provision of a secondary means of containment around tanks, and for location of piles of solid materials such that flood conditions will not dissolve or wash materials into the waterways.

The Department of Water Resources also issues technical guidelines for industrial solid waste disposal facilities, to be used in conjunction with and as a part of the Industrial Solid Waste and Hazardous Waste Management Plan, that describe adequate methods for prevention of accidental discharges in the event of a hurricane. For on-site storage, disposal, or processing of "hazardous wastes" as defined by the U.S. Environmental Protection Agency, conformity to these guidelines or to equally effective procedures is a condition of Department permitting.

Two of the most important guidelines that give special attention to the problem of hurricane flooding are those dealing with landfills, ponds and lagoons. For non-hazardous waste disposal sites, it is necessary in many cases to construct surface water diversion structures to prevent inundation of the site area and to direct rainfall runoff. These diversion structures may be of many different designs or types including, but not limited to, dikes, berms, ditches, contour plowing.

Sites accepting hazardous or Class I wastes and located at elevations above the 50-year floodwater elevation, must employ diversion structures capable of diverting all of the rainfall from a 24-hour, 25-year storm. Sites accepting hazardous or Class I wastes and located below the 50-year floodwater elevation should provide surface water diversion dikes, with a minimum height equal to two (2) feet above the 50-year floodwater elevation, around the perimeter of the disposal site. To prevent seepage or leaching of the wastes

from the pond or landfill, the most toxic wastes must be tested chemically to ensure that they do not have any detrimental effect on the materials used in surrounding barriers.

When submitting information on flood protection and floodplain elevations, land subsidence must be taken into consideration. Where land subsidence is known to occur, the expected extent of the floodplain must be considered at all sites by employing the United States Geological Survey 5-year subsidence projection.

In addition to state authorities, federal regulations discourage placement of toxic materials in areas most susceptible to the effects of hurricanes. The National Flood Insurance Act, 42 U.S.C. Secs. 4001-4128 (1976) and Federal Emergency Management Agency, 44 CFR 60.22(c) (18), 1979, require communities to consider the prohibition in floodways or coastal high hazard areas of facilities that manufacture hazardous substances. Also, the Environmental Protection Agency has formulated standards with respect to storage, disposal, and treatment of hazardous materials, under subtitle C of the Resource Conservation and Recovery Act. 42 U.S.C. secs. 6901-6987 (1976). These standards concern maintenance of records on hazardous material; techniques for storage, disposal, and treatment; and requirements on the location and design of storage, disposal, or treatment facilities. These standards have been incorporated into the State/EPA agreement and are reflected in state permitting procedures.

f. Construction Standards

The National Flood Insurance Act, 42 U.S.C. secs. 4001-4128 (1976), is the primary mechanism for regulating construction in areas prone to hurricane flooding. The Act makes available flood insurance in areas where private flood insurance is not offered. To reduce the likelihood of flood damage claims against the policies, the Federal Emergency Management Agency requires state and local communities participating in the program to adhere to certain minimal land-use specifications and building regulations for new construction and "substantial improvements." In addition, federally-regulated lending institutions making loans in flood-prone areas are required to give written notice of flood hazards to applicants for real estate loans. Thus, the requirements for zoning and building regulations in participating communities, combined with the risk of losing

disaster relief in flood hazard areas if communities do not participate, provide for regulation of floodplain building in such areas. Specific standards are contained in Appendix C-6.

To enable Texas counties to participate in the program, the Texas legislature has authorized cities and counties to pass those ordinances necessary for compliance (TEX. WATER CODE ANN. sec. 16.315 (Vernon Supp. 1978)). To date, all but one coastal county (Kenedy) and practically all coastal cities in Texas have attained eligibility for the program. The experience in cities such as Corpus Christi has been that the National Flood Insurance Program has been effective in minimizing the probability of flood damage.

The Mobile Homes Standards Act, TEX. REV. CIV. STAT. ANN. art. 5221f (Vernon Supp. 1978), strengthened earlier statutes dealing with mobile home standards for hurricane-prone coastal areas. The Texas Department of Labor and Standards is authorized to adopt standards for mobile homes installed within the first two tiers of coastal counties, such that they will withstand winds of hurricane force velocity. The Department may delegate inspection and enforcement powers to local units of government to insure compliance with the standards. The Act also makes it unlawful to manufacture or sell mobile homes within the state unless their design has been approved by the U.S. Department of Housing and Urban Development. Texas standards, which are based upon those of the American National Standards Institute, are to comply with those of HUD; in the case of any conflict, Section 5 of the Texas statute dictates that the federal standards take precedence and are to be given full force and effect. The Texas Department of Labor and Standards has issued rules that specify anchoring and manufacturing safety requirements, prescribe record keeping requirements for sale of mobile homes, and ensure stringent enforcement. Consequently, manufacture and placement of mobile homes within the state are now subject to comprehensive regulation, thereby guaranteeing hurricane-resistant safety standards for mobile homes within the limits of a municipality or within 300 feet of a dwelling in the coastal area.

State agencies are directed to consider hazards in the siting of state-owned facilities in the coastal floodplain. By Executive Order D.B. No. 34-A, December 16, 1977, the Governor directed the Texas Department of Water Resources to

lead the state's effort to prevent unsound and uneconomic uses and development of the state's floodplains and to lessen the risk of flood losses in connection with state-owned properties and state-financed or supported improvements. Under the direction of the Department, all state agencies directly responsible for the planning, location, or construction of state buildings, roads, or other facilities must evaluate flood hazards when planning the location of new facilities and, as far as practicable, must consider the economic, safe, and prudent use of flood plains in connection with such facilities. In the siting and construction of state-owned facilities within identified floodplains, all state agencies must comply with minimum floodplain management standards. State guidelines were modeled after the federal guidelines with certain modifications incorporated to reflect the Texas situation. These guidelines are contained in TDWR Publication LP-66 entitled Flood Hazard Evaluation Guidelines for Texas State Agencies (June 1978). The standards contained therein must be implemented by state agencies in order for the state to remain qualified for federal flood insurance and federal grants and loans for development in flood-prone areas.

State agencies responsible for administering grant or loan programs involving construction of buildings, structures, roads, or other facilities must evaluate flood hazards in connection with such facilities. All state agencies responsible for programs that affect land use planning, including state permit programs, are furthermore directed to take flood hazards into account when evaluating plans, projects, and requests for loans or grants, and shall encourage land use appropriate to the degree of hazard involved. Any requests for state appropriations for construction of new buildings, roads, or other facilities transmitted to the Legislative Budget Board and the Governor's Budget and Planning Office by any state agency must include the findings of the agency's evaluation and consideration of flood hazards in the development of such requests.

The Texas Catastrophe Property Insurance Association (CATPOOL) was established by the Catastrophe Property Insurance Pool Act, TEX. INS. CODE ANN. art. 21.49 (Vernon Pamphlet Supp. 1963-79), to provide wind, hail, and fire insurance in the first tier of Gulf Coast counties. Without CATPOOL, any single insurer would be forced to charge premiums that would be prohibitive to the average home owner.

The Act divides the coast into two distinct risk zones. The first consists of all property located landward of the Gulf Intracoastal Waterway or protected by a U.S. Army Corps of Engineers-approved seawall. For this inland area, CATPOOL requires that insured structures be built in compliance with the Southern Standard Building Code. Because of the low risk in this zone, premiums are lower. The second zone consists of all property seaward of the Intracoastal Waterway and not protected by a Corps-approved seawall. In this higher-risk zone, CATPOOL imposes its own building code, Texas Insurance Code, art. 21.49, sec. 6(a), which has stricter provisions than the Southern Standard Building Code, and it charges a higher premium on its policies. The object of CATPOOL is to charge higher rates for those areas most prone to hurricane wind damage, with the intent to set rates high enough to cover all losses. CATPOOL therefore, uses a market solution, rather than a subsidy-regulatory solution.

Hurricane damage to property can be significantly reduced if construction is limited to areas protected from hurricane flooding, storm waves, and wind, and if structures are designed to withstand hurricane forces. To assist those planning to build on the coast in selecting safe sites and in building hurricane-resistant structures, the Texas Coastal and Marine Council, as part of the Hazard Awareness Program, has developed hurricane hazard maps and model minimum hurricane-resistant building standards for voluntary public use. The resulting document, Model Minimum Hurricane Resistant Building Standards for the Texas Gulf Coast, was published by the Texas Coastal Management Program in September of 1976 and distributed to local officials, building and insurance companies, and the public.

2. Subsidence

Because of the localized nature of the subsidence problem, the Texas Legislature has chosen to deal with it through creation of a special purpose district that is a subdivision of the state government, the Harris-Galveston Coastal Subsidence District (Chap. 284, General and Special Laws of Texas, 63rd Legislature). The District is authorized to limit groundwater pumping, the major cause of subsidence, which also tends to aggravate surface faulting. In addition, the District regulates well-spacing for the purpose of ending subsidence, which contributes to or precipitates flooding, inundation, or overflow of any area

within the district, including rising waters resulting from storms or hurricanes. The District functions pursuant to a specific District Plan to control and prevent subsidence. The Plan takes into account all factors, including availability of surface water, economic impact upon persons and the community, degree and effect of subsidence upon the surface of the land, and differing topographical and geophysical characteristics of land areas within the District. Standards for Controlling Subsidence in Galveston and Harris Counties are contained in the District rules and regulations and form the basis of the District's decisions for approving groundwater withdrawal projects in this designated area. These are found in Appendix C-7.

Oil and gas extraction also contributes to subsidence. The Texas agency generally responsible for oil, gas and geothermal resources extraction is the Railroad Commission. The district manages the activities under its jurisdiction in conformance with the Texas Coastal Program's policy on coastal hazards.

3. Erosion

The most significant erosion in Texas occurs along the open Gulf shoreline. The 63rd Legislature of the State of Texas, through a special line appropriation, directed the Bureau of Economic Geology to conduct a program involving the historical monitoring of the Texas Gulf shoreline to measure the rate of erosion. Although erosion of the Gulf beach presents an essentially unsolvable problem, Texas has undertaken actions to mitigate the impact of erosion. The state can exert only limited influence on erosion because of large-scale natural processes and the actions of the federal government in redirecting the sediment supply from the Mississippi River.

Activities and uses contributing to erosion in coastal areas include construction of groins, piers, docks, wharves, or marinas; channels; dredging and dredged material disposal; and structures for protection from coastal hazards, such as bulkheads and seawalls.

State statutes provide for cities and counties to construct seawalls on the Gulf shore (TEX. REV. CIV. STAT. ANN. art. 6830 (Vernon 1960)). Although these structures may cause localized destruction of the beach, they are deemed necessary to prevent erosion of valuable upland

areas. Legislative approval of such structures therefore establishes a policy of accepting the potential for damage to state lands in return for protection of upland areas.

The School Land Board regulates structures on state-owned lands that may increase the erosion hazard. Uses and activities that contribute to erosion on state-owned lands must obtain the necessary approval from the SLB prior to initiation of the project. The Board allows groins to be constructed for erosion control only if a serious erosion problem exists. Structures for protection from erosion may not be constructed where coastal wetlands are adequately serving this purpose. The GLO/SLB require compliance with applicable performance standards, found in Appendix C-8.

Considerable work has been undertaken by the Soil and Water Conservation Districts in the state to mitigate or prevent erosion. District No. 432 was a project sponsor for work completed at Dick Dowling State Park in Jefferson County and in Chambers County, the Trinity Bay District participated in a project to control shoreline erosion on the Anahuac National Wildlife Refuge area. The Waters-Davis Soil and Water Conservation District, because of erosion problems associated with intercoastal canal wave action and extensive development, has constructed bulkheads to control erosion and protect upland property. Jackson County's Conservation District has worked with the commissioners court and landowners to install retaining walls, grade stabilization structures and railroad ties and pilings to stop shoreline erosion. Calhoun County's District has approximately 500 miles of shoreline with approximately 70 percent being damaged by erosion. The District's shoreline protection work includes an attempt to reshape and revegetate a section of the shoreline. The Copano Bay District in Refugio County maintains a conservation plan on the Aransas Wildlife area.

D. MANAGEMENT OF COASTAL DEVELOPMENT

Identified concerns for management of coastal development include three major elements: development of offshore submerged lands, facility siting and air quality, and ports and navigation.

1. Development of Offshore Submerged Lands

Uses and activities related to development of offshore submerged lands subject to state leases and permits--such as geophysical and other surveys, and exploration, development and production of minerals and energy resources--require approval from the appropriate state agencies prior to initiation of the project.

The Railroad Commission, Texas Department of Water Resources, and the General Land Office/School Land Board have authority to protect the state's coastal waters and water bottoms from adverse effects associated with offshore oil and gas development. The major example of their authority is the regulation of the laying of pipelines from the federal OCS to onshore terminals. The laying of pipelines across state submerged lands is the primary activity of OCS development affecting the state's coastal waters. In addition, through the mechanism of the Regional Technical Working group, the state has the opportunity to participate in the formulation of a Regional Transportation Management Plan. This plan will identify existing pipeline corridors, provide direction for their maximum utilization, and determine future needs. Pipelines that must cross state submerged lands are required to conform with state standards (see Appendix C-9).

For oil and gas development on state-owned lands, the Railroad Commission and the General Land Office/School Land Board regulate geophysical and other surveys, and exploration, development and production activities that occur on state-owned lands. Mineral exploration and extraction in state waters are generally allowed by the School Land Board, subject to specified standards designed to protect wildlife and prevent interference with navigation (Appendix C-1). The Railroad Commission specifically prohibits the pollution of Texas offshore waters and adjacent estuarine zones and damage of aquatic life in such areas (Appendix C-1).

Decisions regarding offshore development must give consideration to location of historical and cultural resources. All sunken or abandoned pre-twentieth century ships and wrecks of the sea, their parts or contents, and all treasure inbedded in the earth on state-owned lands are state archaeological landmarks. Such landmarks may not be taken, altered, damaged, destroyed, salvaged or excavated without a contract or permit from the Antiquities Committee. For specific standards of the Committee which must be met before issuance of a permit, see Appendix C-11.

State agency leases, permits and other approvals are required for activities in state-owned submerged lands. The area beyond the state's territorial limit, approximately 10.3 miles, is the federal Outer Continental Shelf. Although activities conducted on the federal Outer Continental Shelf are not subject to state regulation, the State of Texas has the opportunity to participate in policy and planning decisions relating to the development of federal offshore oil and gas resources. This occurs primarily through state agencies reviewing and commenting on the following pre-sale, sale, and post-sale documents: OCS planning schedule, call for nominations, tract selection notices, and environmental impact statements for proposed sales.

The Governor's Budget and Planning Office coordinates this state review process and ensures that all documents are reviewed by affected agencies and organizations. In addition, the state is represented on the OCS Advisory Board and its Gulf of Mexico Regional Technical Working Group. These two groups provide recommendations to federal officials regarding stipulations for oil and gas leases, regional environmental studies, transportation management plans, and other pre-lease sale activities. State participation is partially funded by Section 308(c)(2) of the CZMA, a section of the Coastal Energy Impact Program.

The Secretary of Interior is required by the 1978 amendments to the Outer Continental Shelf Lands Act (43 U.S.C.A. 1331 et seq. to consult with the governor concerning the disposition of revenues that may be generated from oil and gas pools underlying the seaward state/federal boundary. As a part of this consultation process, the secretary must identify any field, geological structure, or trap in the proposed lease area and provide all relevant

information concerning geographical, geological, and ecological characteristics of the area. Estimates of oil and gas reserves in common pools must also be furnished.

2. Facility Siting and Air Quality Management

a. Facility Siting Process

The 1976 amendments to the Coastal Zone Management Act require that states include provisions within their planning programs to address the energy facility siting process. Accordingly, this discussion will focus on energy facilities as defined in the 1976 amendments, although Texas siting policy does not differentiate between the impacts of energy or other facilities. In the current approach, industries initiate the siting process as they are influenced by their own siting criteria and constraints within the surrounding economic, political, and regulatory climates. The state's role, through its several permitting authorities, is to prevent or mitigate specific adverse impacts where they might arise. State agencies can deny permits, grant permits with conditions, or, to the extent provided by law, require consideration of alternative sites.

In their selection of coastal sites, industries employ various criteria. The ranking of these criteria is determined by several factors.

These criteria are of three broad types:

- Cost-effective access to resources, markets, labor and transportation,
- social and physical characteristics of the locale; and
- the regulatory climate.

Completion of the siting process consists of weighing the benefits of the remaining sites and gradually narrowing them down to a final choice. Facilities located in the coastal area require permits, licenses, easements, and other approval from the appropriate state agency prior to initiation of the project.

A company must comply with all air and water regulatory programs, including those relating to dredging, filling and construction of structures on state-owned submerged lands, and disposal of hazardous or toxic materials or industrial

solid wastes. The many permits and performance standards with which a new facility must comply are found in Appendix C-10. Compliance with these standards assures that impacts of new facilities are acceptable to and occur in accordance with state coastal policies. The agencies most often involved in approving new facilities on the coast are the Texas Air Control Board, Texas Department of Water Resources, Texas Antiquities Committee, Texas Parks and Wildlife Department, the General Land Office/School Land Board (for use of state-owned lands), and the Railroad Commission.

The Texas Industrial Commission is mandated to investigate means to promote and encourage development and protection of business, industry, agriculture and commerce. The Commission is composed of members from different geographical and demographical areas and includes both management and labor representatives. It is directed to develop an effective business information service for business and industry. The Commission also is directed to promote and encourage the location and development of new business in the state as well as maintenance and expansion of existing business. The accomplishment of these directives are facilitated in part by the availability of Industrial Revenue Bonds to prospective new businesses. The State of Texas encourages industrial siting within the state, particularly in the rural areas, through such means as the Act for Development of Employment, Industrial and Health Resources, Article 5190.1, the Rural Industrial Development Act, Article 5190.2, and the Small Business Assistance Act, Article 5190.3.

Industry proposing to site along the Texas coast generally will select several sites and investigate them with reference to items of particular interest to that industry. These factors include access to waterborne transportation and relative ease or difficulty of transit, safety, hazards from hurricanes or flooding, special structural needs such as support for heavy storage tanks, availability of labor, the general social environment, and possible pipeline route difficulty. An industry proposing to site in Texas can obtain substantial amounts of information from the Texas Industrial Commission.

In order to match specific requirements of industries proposing to locate in Texas with those Texas cities capable of meeting those requirements, in 1969 the Texas Industrial Commission developed a computerized information system called "Instasite." This system provides a broad spectrum

of data on sub-regions of the state, including demographic, economic, and technical facts related to local infrastructural capability such as electricity, water and gas transmission line capacities. This system also has extensive data on all counties of the state. An industrial site prospect might request a list of all communities that could meet criteria such as availability of natural gas, certain unemployment rates and per capita income levels, and railroad and interstate highway access. Subsequently, numerous social and economic quantitative indicators were put into this industrial site selection system, and these indicators have been updated every year. During 1978, the Texas Industrial Commission developed a management information system for more efficient analysis of the available data. This information can be used not only by the industries wishing to site in a particular area, but also by communities and counties who wish to project capabilities for future growth.

In addition to the social and economic planning data system available through the Texas Industrial Commission, industries wishing to site in Texas can utilize the Texas Natural Resource Information System, available at the Department of Water Resources, to obtain existing meterological, biological, geological, water, land and socio-economic data. The Department of Water Resources also will provide flood and hurricane hazard information.

An industry wishing to site along the Texas coast can frequently narrow the possibilities because of access for water or other transportation, availability of water supply if needed, access to storage such as that provided by underground salt domes, remoteness for safety reasons, or proximity to certain supplies such as natural gas. If large sites are needed, the industries have tended to locate slightly away from the coastal margin and use only small tracts adjacent to waterborne transportation for water access. Rail and pipeline service then can be used to gain access to that industry's water site. Recent examples of such siting are the Corpus Christi Petrochemical Company that sited its main plant several miles from water transportation but used pipelines to access its barge and proposed tanker facility on the Corpus Christi Channel, and the proposed Pelican Terminal Corporation that will have a water-access crude carrier terminal but that will locate its crude tank storage on the mainland with access by pipeline.

A company proposing to site in a coastal area may conduct one major environmental assessment report to provide to the various agencies reviewing the site decision, or, if there are only isolated, specific impacts, a company may prepare specific environmental assessment reports for an individual component of the project. Prior to conducting an environmental assessment report, industries generally have one or more scoping sessions with interested state and federal agencies. In these, the nature of the inquiry that will be necessary for determining whether the impacts of a proposed facility will be acceptable is ascertained. The industries in all cases must conduct air and water studies to obtain construction and operating permits if the proposed facility will have air emissions or water discharges. These will be separate from, and in addition to, any general or specific environmental assessment report prepared for specific impacts that may result from dredging, filling or other activities having a direct and significant impact on the coastal lands and waters.

b. Air Quality and Surface Mining Management

The Texas Air Control Board regulates air quality within the state pursuant to the requirements set forth in the Clean Air Act of Texas (V.A.C.S., art. 4477-5) and the federal Clean Air Act Amendments of 1977 (42 U.S.C.A 7401 et seq.). The Environmental Protection Agency has promulgated regulations pursuant to the Federal Clean Air Act. Compliance with these regulations is directed by the Texas Air Control Board, through the State Implementation Plan (SIP). These regulations call for the designation of attainment and nonattainment areas, review of photochemical oxidant standards, and development of plans for prevention of significant deterioration (PSD). In addition, the Board conducts emissions inventories, air quality analysis functions, and health effects studies. In the continuing development of the SIP, proposed revisions are scheduled for public review during October 1981. The revised Plan will be submitted to the Governor in June 1982 and to EPA on July 1, 1982.

The Texas coastal area, because of its unique resources, is an attractive site for industrial development. It has experienced considerable economic growth in the past, which is expected to continue. As a result, the Texas Air Control Board will become more involved in monitoring, investigations, and detailed permit reviews.

Since all large emission sources are investigated on a regular basis by the Texas Air Control Board, continued construction will require increased investigations to monitor the industrial sources. Of particular interest will be emissions from electric power generating plants along the lignite belt and industrial processes converting low sulfur content natural gas to high sulfur content fuels.

The Texas Air Control Board's policy includes continued solicitation of public participation in the decision process, more effective controls on potential carcinogenic compounds, and development of programs to ensure environmentally sound industrial growth.

In addition to problems associated with industrial air emissions, lignite mining air pollutants such as dust from surface mines and coal piles are concerns of the TACB. Surface mining will play an increasingly significant role in the coastal area due in part to the mandates of the Federal Powerplant and Industrial Fuel Use Act of 1978 (42 U.S.C.A. 8301 et seq.). This Act calls for all utility powerplants and industrial boilers built after November 1978 to use coal and lignite as the primary source of fuel. Although lower in quality than high grade western coal, lignite is found in significant quantities along the Texas coast, and because of the high cost of transporting western coal, it is expected that Texas lignite will be the primary conversion fuel in the area.

The Railroad Commission of Texas is responsible for the control and regulation of all exploration and surface mining of lignite, coal, uranium, and uranium ore; in-situ gasifications of lignite, and the reclamation of the lands disturbed by such mining operations. The Commission's activities are directed toward preventing the adverse effects on society and the environment, which might result from unregulated mining operations, and protecting the rights of landowners and other persons with legal interest in the land.

The Railroad Commission has the authority to enforce state laws and regulations consistent with the Texas Surface Coal Mining and Reclamation Act or the federal Surface Mining Control and Reclamation Act of 1977 and its regulations. Specific performance standards for air quality management and surface mining are found in Appendix C-10.

3. Ports and Navigation

a. Navigation Districts

Navigation Districts are the governmental agencies and political subdivisions of the state that have developed individual Texas ports. When Texas enacted a constitutional provision relating to conservation of natural resources in 1904, it granted constitutional status to the development of navigation and authorized creation of navigation districts as political subdivisions of the state. The Texas ports have always played an important role in maintaining a strong, viable economy for the state as a whole, not just for the coast. They also have been instrumental in assuring that transporation channels are available for industries engaged in waterborne commerce.

At this time, Texas has 22 navigation districts within the coastal zone (Table III-6). Ten contain a deepwater port and 12 are principally concerned with recreational ports or barge-depth channels branching off of the Gulf Intracoastal Waterway. The Waterway is an important navigation artery that connects all the bays and ports along the Texas Gulf Coast for commercial and recreational uses. Without it, recreational boating would be severely limited. The state, in promotion of the project, has named the Texas Department of Highways and Public Transportation to the local sponsorship role in the project, ensuring that cooperation is achieved at the state level between local, state, and federal interests in the Waterway. The Waterway is discussed in an earlier section, on page III-28.

There are now 10 major ports (excess of 1 million tons) on the Texas coast. They are the Ports of Brownsville, Corpus Christi, Freeport, Galveston, Houston, Texas City, Port Arthur, Beaumont, Orange and Port Lavaca. These ports are concerned with port planning and construction. The deepwater ports in particular are vital for the exportation of Texas' agricultural and petrochemical products and the importation of crude oil and manufactured goods. Proposals for additional port facilities in the coastal area are discussed later in this chapter.

Navigation districts have broad powers to develop and maintain channels and port facilities and all other facilities incidental to or useful in the operation, promotion, and development of water-oriented industries and waterborne

traffic; and to navigation and commerce and foreign trade. Districts also may improve, preserve and conserve coastal water for navigation. Navigation districts may exercise certain police powers relative to port facilities not located inside an incorporated city or town, by-passing any ordinance, rule or police regulation necessary to protect property and promote the general welfare, health and safety of persons using the property. Specific powers generally relate to control of district-owned facilities and regulated traffic that is not federally controlled, and to human activities within the port facilities.

To encourage the construction of waterways and navigation channels, the State of Texas in 1930 provided that navigation districts could acquire submerged land for $1.00 per acre from the state for purposes authorized by law with the right to dredge out or fill in and reclaim the lands. This statute was amended in 1973 to provide for leasing rather than outright sale of the lands (Texas Water Code, Sec. 61.116(b)).

Table III-6. Navigation Districts in Texas

Aransas Co. Navigation District 1	Nueces Co. Navigation District 1
Arroyo-Colorado Navigation District	Orange Co. Navigation-Port District
Beaumont Navigation District	Port of Bay City Authority
Brazos River Harbour Navigation District	Port of Beaumont Navigation District
Brownsville Navigation District	Port of Houston Authority
Calhoun Co. Navigation District	Port Isabel-San Benito Navigation District
Chambers-Liberty Cos. Navigation District	San Patricio Co. Navigation District 1
Cypress Valley Navigation District	Victoria Co. Navigation District
Deep East Texas Interbasin Navigation District	West Side Calhoun Co. Navigation District
Jackson Co. Navigation District	Willacy Co. Navigation District
Newton Co. Navigation District	Matagorda Co. Navigation District 1

b. Dredged Material Disposal

Although industry will continue to locate on the Texas coast, the availability of water-oriented industrial sites on existing deep water channels is limited. There are industrial sites that can be provided with water transportation if new, deep water channels are dredged. However, there is a shortage of available dredged material disposal sites located within reasonable distances of existing navigation channels, except where open water disposal is permitted.

Potential disposal sites that are submerged and have not been previously sold to navigation districts may be the subject of a lease from the School Land Board unless the Constitution and statutory authorities of navigation districts authorize their use for navigation improvements without lease. Those port projects that do not involve a navigation district lease, but that require a SLB/GLO easement or other permits, are subject to School Land Policies under the authority of the Coastal Public Lands Management Act. If onshore deepwater ports seek leases from the School Land Board to dispose of dredged material on state-owned lands or flats, the leases will be regulated under Section 61.116 of the Texas Water Code, which provides authority for comprehensive state evaluation of the project. This statute directs the district applying for the lease to prepare a draft environmental impact statement generally conforming to the requirements of the National Environmental Policy Act (NEPA), including a discussion of reasonable alternatives, if project requires dredging, filling or bulkheading.

Potential sites already under the ownership of navigation districts, purchased under prior statutory provisions, are subject to the comment authority of the Texas Parks & Wildlife Department and to approval by the Texas Department of Water Resources, under Section 401 Certification when application is made for a Corps of Engineers permit. At this time, the Texas Department of Water Resources is aware of the location of most toxic sediments in Texas coastal areas, and upon application for Section 401 Certification can usually provide definitive advice on dredge materials that cannot be discharged into new or existing submerged land or bay disposal sites.

To aid in assessment of bay and submerged land coastal disposal proposals, the Texas Parks & Wildlife Department

has prepared maps to show the location of existing oyster reefs in certain bay areas and the General Land Office has maps locating rookeries and colonial bird habitat areas on spoil disposal islands. These maps will be helpful in decision-making for maintenance and virgin material disposal.

c. Channel and Port Expansion

The water is shallow in Texas bays and estuaries and in the Gulf near shore. Hence, navigation channels and turning basins at all Texas ports must be constructed and maintained by dredging. Continuation of dredging activity is necessary for the maintenance and improvement of Texas ports to maintain economic vitality of the coastal region and the state.

The Ports of Galveston, Corpus Christi, Freeport and Brownsville have proposed increasing their existing channel depths to allow deeper-draft vessel access, and each has proposed the use of offshore disposal sites for disposal of uncontaminated material. The Corps of Engineers has approved dredging and pipeline permits for Galveston's expansion. All offshore disposal (in both state and federal submerged lands) is subject to the results of bioassay and bioaccumulation studies of the EPA. These studies must be reviewed by the Texas Department of Water Resources and may be reviewed by the Texas Parks & Wildlife Department and the General Land Office through the 401 certification process (see Appendix A).

Factors commonly considered by state and federal agencies review of channel expansion proposals include assessment of possible contaminated sediments, availability of disposal sites, salinity intrusion, increased hurricane surge prospects, effects on erosion, alteration of water circulation patterns, impacts on marine life, impacts on cultural resources, and routes for pipelines.

Port expansion decisions are made by individual ports and navigation districts based on their needs and the economics of expansion. The Legislature, in delegating this responsibility to the districts, intended that these subdivisions of the state make such decisions generally in accordance with social and economic needs. The state does not decide whether port expansion is necessary on any particular part of the coast.

d. Oil Importation and Ports

The continued import of foreign oil to the Texas Gulf Coast, and the delivery of this oil to the extensive refineries and petrochemical plants of coastal Texas, necessitates development of improved means to transfer supertanker cargoes to onshore facilities. This type of cargo transfer is accomplished by lightering from VLCCs into smaller shuttle tankers, since ports cannot accomodate such tankers at this time. Offshore deepwater ports, combined with pipelines, can offer one alternative of accomplishing this objective. Legislation has been passed, at both the federal and state levels, requiring approval of deepwater port construction and operation by appropriate authorities (33 U.S.C.A. 1503; Texas Water Code, Chapter 19).

A second alternative for foreign oil importation via VLCCs involves construction of one or more onshore deepwater ports near refinery centers. There are several proposals under consideration by state and federal agencies for onshore facilities which have the advantage of being able to handle dry cargo such as coal ores and grain in addition to oil. The state has not endorsed or rejected the concept of onshore deepwater ports per se. Instead, state concerns will be addressed by a case-by-case review through the School Land Board, the Texas Department of Water Resources and the Texas Parks and Wildlife Department.

Technology provides for a number of other alternatives for oil importation. Ship-to-ship lightering is a method whereby VLCCs unload cargo onto smaller shuttle tankers for transfer into port. Offshore lightering from a fixed lightering facility involves a single-point mooring structure to which VLCC and lightering vessels can moor and transport cargo. Another alternative is a single-point monobuoy through which oil is transferred onshore via pipeline.

e. Port Proposals

Following is an update on the status of port projects proposed in Texas.

(1) Seadock

In 1972, the various economic and environmental considerations discussed above prompted the formation of Seadock, Inc., a consortium of oil companies organized to build

and operate an offshore oil terminal in the Gulf of Mexico near Freeport, Texas. The final Seadock plan called for development of a tanker terminal 26 miles offshore and complementary onshore terminal and support facilities. The project enjoyed support from virtually all interests in the state including environmentalists, business, industry and labor.

Seadock officials pursued their plan vigorously and had spent over $22 million by 1977, when they received a federal deepwater port license from the Department of Transportation (DOT). This license was required under the provisions of the National Deepwater Port Act of 1974, and was subject to certain environmental and antitrust conditions. Several Seadock members found the antitrust portion of these stipulations very objectionable, however, and many of the companies withdrew from the project. Eventually, these actions led to the termination of the Seadock effort.

(2) Texas Deepwater Port Authority

The Texas Legislature investigated the possibility of supporting the project terminated by Seadock and passed the Deepwater Port Authority Act in 1977. This act created the Texas Deepwater Port Authority, granting permission to construct and maintain a public port similar to that previously proposed by Seadock. Continued planning of the Authority represents the state's viewpoint that the basic need for such a facility still remains, despite the withdrawal of private action.

The Texas Deepwater Port Authority Act of 1977, TEX. WATER CODE ANN. sec. 19.001-.149 (Vernon Supp. 1978), establishes as a state policy the construction and operation of a public offshore deepwater port capable of accommodating supertankers for the importation of crude oil. The port was required to be financially self-supporting because the credit of the state may not be pledged for bonds. Protection of the environment is listed as an essential component of the policy. The Act created the governing board of the Authority consisting of nine commissioners appointed by the governor, but commencement of operations is contingent upon a determination by the governor that no viable, active, private offshore deepwater plan exists within the state. The governor has already made this determination, but his determination in no way affects the onshore port proposals.

The Authority has all the powers permitted to a corporation by the general laws of the state. It has the power to acquire by purchase, lease, or condemnation, real or personal property other than minerals or interests in minerals. The School Land Board leases to the Authority state-owned water bottoms that are necessary for the construction, operation, and maintenance of a deepwater port. TEX. WATER CODE ANN. sec. 19.053 (Vernon Supp. 1978).

The most important provisions of the Act relate to the conditions that TDPA must satisfy prior to sale of lands or notes, acquisition of facilities, or the beginning of port construction. First, it must receive all necessary state and federal licenses and permits. At the federal level, the most important permits are the lease of federal offshore lands and waters and licensing under the federal Deepwater Port Act. At the state level, the Authority must secure several air and water quality permits from the Texas Air Control Board and Texas Department of Water Resources. In addition, it must secure permits from the General Land Office and School Land Board for pipelines crossing state-owned submerged lands between the coast and federal offshore areas. Also, permits for pipeline crossings of the Intracoastal Canal and inland highways must be obtained from the State Department of Highways and Public Transportation. This list does not include all of the various licenses and permits that are necessary, and the state Act requires that concurrent with application for these permits, the Authority must conduct engineering and environmental impact studies to determinate means of minimizing adverse environmental effects.

Secondly, after securing all permits and licenses, the Authority is to conduct a study to determine the financial feasibility of constructing and operating a deepwater port facility, and the most feasible means of financing. The results of this investigation, together with those of the engineering and environmental studies, are to be submitted in a report to the governor and legislature, with findings as to whether the project is both feasible and in the public interest.

On August 15, 1979, the Secretary of Transportation offered the TDPA a license to construct a deepwater port off the coast of Texas. This offer had an expiration date of May 15, 1980. Subsequent to this offer, the Authority has worked diligently to complete the financing and other ar-

rangements necessary to accept the license. However, unsettled world conditions and other economic considerations have precluded finalizing the long-term commitments prerequisite to financing the deepwater port. In view of this problem, the governor requested that the license offer be extended and the Secretary of Transportation responded by announcing his intention to extend the acceptance period until November 15, 1980.

(3) "Deeport" Project

"Deeport" is a project proposed by the Port of Corpus Christi to modernize and expand the onshore port at Harbor Island, immediately across the Corpus Christi Ship Channel from Port Aransas. The Corps of Engineers permit has been applied for, and is pending. The project involves deepening the ship channel from its present project depth of 45-47 feet to 72 feet. The existing channel must be extended 6.9 miles to reach the 72-foot contour offshore water. From the 72 foot contour it is 9.5 miles to the end of the south jetty, 10.3 miles to the shoreline, and 13.0 miles to the westerly end of the docking basin. The project would include a new docking basin, expansion of the existing turning basin and filling of both emergent and submerged areas for construction of onshore surge tankage and ancillary transfer facilities. Approximately 64.2 million cubic yards, and a possible additional five million in overdepth, will be dredged. Two-thirds of the dredged material will be disposed of in designated sites offshore. The remainder will be placed in leveed onshore sites, with a substantial quantity of material placed on San Jose Island in an area approximately five miles long. Loaded tankers would dock head-in in the docking basin for offloading. Two tankers would be unloaded simultaneously, with provision for a third tanker berth in the future. Tankers would be turned in light condition for sailing outbound.

The Draft Environmental Impact Statement for the project has been prepared by the Corps of Engineers, and a public hearing was held in September 1978. The project, according to the Statement, would provide for low-cost, safe marine transportation for a major complex of refineries and petro-chemical industries in the Corpus Christi Bay area, benefitting the economy of the South Texas region. On the other hand, the project would adversely affect the natural environment by causing the loss of 3,077 acres of wetlands, temporary removal of benthic life in portions of the channel, disruption of wildlife habitat, and increased turbidity during construction.

The Port of Corpus Christi is in the process of finalizing their response to the various comments received as a result of the public hearing, and modifying the project plan to make it more environmentally acceptable.

(4) Port of Galveston

The Port of Galveston has proposed to deepen and lengthen its existing ship channel entrance from its present depth of 40 feet to a project depth of about 56 feet, widen the channel, and extend it 25 miles to deep water in the Gulf of Mexico. Light loading will be accomplished at the initial shipment point or by lightering in Carribbean ports or at the offshore facility near Grand Isle, Louisiana. This onshore deepwater port will also provide facilities for shipment of dry bulk cargoes. VLCCs will dock head-in at the docking basin for offloading and will be turned in light condition in a new turning basin for sailing outbound. An emergency turning basin will be dredged offshore for the VLCCs in the event one must return to sea after entering the channel without offloading.

Tanker berthing and terminal facilities with oil offloading equipment will be located on the southeastern shore of Pelican Island. The facilities are designed to accommodate two VLCCs simultaneously. Two unloading 142-inch pipelines will carry the oil from the terminal to a tank farm near Texas City, and from the tank farm storage facility, individual pipelines would transport the oil to Houston, Freeport, and Nederland for refining.

The Final Environmental Impact Statement summarizing the probable environmental and socioeconomic impacts of the Galveston Project was released in September, 1979. The project sponsors have agreed to incorporate a number of special conditions proposed by the School Land Board, the U.S. Fish & Wildlife Service, and the Environmental Protection Agency into the permit. The Texas Air Control Board issued its permit in December 1979, and the U.S. Army Corps of Engineers granted approval on July 9, 1980. The Corps permit requires the creation of 30 acres of littoral habitat to replace that destroyed on Pelican Island, and prohibits dredging during shrimp migration months, disturbance of sea-bird nesting sites, and pile driving between the hours of 10 p.m. and 6 a.m.

(5) DSI Terminal Facility

A $30 million complex is planned by DSI Terminals, Inc. at the intersection of the Freeport Ship Channel and the Intracoastal Waterway. The group has a formal agreement with the navigation district to deepen the harbor from 38 to 50 feet and widen the channel by relocating a jetty, and to supply public-use facilities and marine terminals to connect with existing rail and road networks. Widening of the harbor to 45 feet was authorized by Congress in 1970. The project will deal in petrochemicals, transporting and storing up to 2.5 million barrels. DSI does not expect the harbor modifications and land terminals to conflict with the proposed Deepwater Port should it be built. That facility will be offshore and would only off-load crude oil from VLCCs to be sent to shore by pipelines. The two projects should receive different cargos and serve different customers. DSI has been working to secure congressional funding, and has an offer from Dow Chemical for one-third of the needed finance.

f. Port and Waterway Planning

Texas handles more waterborne commerce than any other state in the nation. Three-quarters of all commerce leaving the State coastal region moves by water. In the five year period from 1972 to 1977 the total ocean-going commerce from Texas ports increased 90.3 percent, or an average of 18 percent a year. Future projections indicate a continued growth in waterborne commerce along the Texas coast. A significant part of this growth is expected to be in liquid and energy-related cargoes, with imports of oil, ores and minerals, and exports of agricultural products and petrochemicals. The Gulf Intracoastal Waterway provides a significant contribution to waterborne commerce in the state. The Waterway is discussed more fully earlier in this chapter.

To help insure that this growth will continue for the benefit of the citizens of the state and be compatible with the Texas Coastal Program, TENRAC anticipates formation of a task group to address the issues and make projections concerning the future of Texas ports. The Task Group will consist of two subgroups, composed generally of port and port-related industrial developers and port regulators. The Task Group will provide recommendations for state level policy decisions on port and waterway planning. The Texas Program may provide assistance during its implementation phase for various studies and planning efforts in this area.

The U.S. Maritime Administration, the Texas Coastal and Marine Council and the General Land Office are engaged in a cooperative effort to study the needs and problems of Texas ports. The specific objectives of the Texas Port Study are to meet three goals: (1) develop the information necessary to assure continued growth of Texas waterborne commerce, (2) enhance multiple use and sound management of the state's coastal resources, and (3) bring together the knowledge and experience of those who develop, manage or use marine commerce in Texas.

CHAPTER IV

PROGRAM IMPLEMENTATION AND COORDINATION

Once the Texas Coastal Program has been formally reviewed and approved, the program will move from development to implementation status. It is anticipated that TENRAC would be the lead agency responsible for administration of program implementation, under Section 306 of the CZMA. A description of TENRAC and a brief summary of potential responsibilities under 306 are outlined below.

One element of implementation of the program is the provision for consistency certification by the state--certifying that federally initiated, permitted or financially-assisted programs and projects are consistent with the approved Texas Coastal Program. This chapter contains an explanation of how this element of the program will be implemented in Texas.

A. ROLE OF TENRAC IN PROGRAM DEVELOPMENT AND IMPLEMENTATION

The Texas Energy and Natural Resources Advisory Council (TENRAC) was created by the 66th Legislature, in 1979 (V.A.C.S., art. 4413(47c)). Under the Act, the Governor's Office of Energy Resources, the Texas Energy Advisory Council and the Natural Resources Council were merged into one agency, TENRAC. The Council is co-chaired by the Governor and Lieutenant Governor, and the Speaker of the House of Representatives serves as vice-chairman.

Council membership includes representatives of eight state agencies, (usually the elected chairman or a commissioner), the Attorney General, the Comptroller of Public Accounts, two senators appointed by the Lieutenant Governor, two members of the House of Representatives appointed by the Speaker, and four citizens appointed by the Governor.

Divisions within the staff of the agency represent the functions and responsibilities of the predecessor agencies. The staff responsibilities of the former Natural Resources Council now generally fall to the Natural Resources Division of TENRAC.

The Coastal Coordination Act of 1977 (TEX. NAT. RES. CODE, sec. 33.201) gave specific responsibilities to the Natural Resources Council. In addition to studying problems and issues affecting the coastal natural resources areas of the state, the Council was mandated to:

- adopt and continually reassess a natural resources policy for the state;

- recommend legislation to Congress and the Legislature implementing natural resources policy of the state;

- review existing and proposed actions and policies of federal agencies to determine the energy and natural resources impact on the state and to recommend to the legislature and the governor alternative actions and policies consistent with state energy and natural resources policy;

- develop projects and programs to insure proper protection and development of the state's natural resources including the participation of all necessary entities; and

- study problems and issues connected with state agency permitting processes.

TENRAC could play a major role in achieving and maintaining a comprehensive, coherent coastal program by identifying and studying coastal issues and making recommendations at the state level.

While not a regulatory agency, TENRAC is important to the continued development of the Texas Coastal Program. TENRAC can coordinate and provide direction for the necessary activities of the other state agencies involved in management of the coastal resources. TENRAC provides a forum in which the state agencies having direct jurisdiction over coastal matters can share information about their many plans and activities. As a multi-agency council, TENRAC has the capacity to recommend special policy direction. For example, should cumulative impacts from a project be such that state agencies wish to review a proposed project from a

perspective broader than their specific rules allow, TENRAC may provide for open discussion regarding interagency solutions. Through Council meetings, state agencies can increase their understanding of comprehensive, long-range plans of other agencies.

The Natural Resources Division is currently responsible for administration of the Texas Coastal Program, under a 305(d) grant from the Office of Coastal Zone Management. At the present time, the Division reviews applications for Coastal Energy Impact Program funds to ensure the proposed projects are consistent with policies of the proposed Texas Coastal Program. As a part of program development, the Division is also working on specific work tasks. These tasks are discussed more fully later in this chapter.

Once the program has been formally reviewed and approved, the state will designate a lead agency for program implementation, under Section 306 of CZMA. Functions of the lead agency, anticipated to be TENRAC, will include:

- Development and administration of the state's annual Section 306 grant. Like the 305(d) grant for current program development, the 306 grant will be available on an 80/20 basis, with the state responsible for a 20 percent match to the federal funds.

- Collection of data regarding the effectiveness of the state program in meeting federal and state objectives, in preparation for annual review of the TCP by OCZM pursuant to Section 312 of the CZMA.

- Fulfillment of specific tasks as part of the consistency certification process. TENRAC, or the designated agency, would aid the Governor in consistency determinations and would be instrumental in the conflict resolution process. For details of these procedures, see "Federal Consistency" in this chapter.

Concurrent with proposed DEIS review of this program, application will be made for the 306 grant. Depending upon the details of that grant application, responsibilities of the lead agency will be subject to revision.

B. FEDERAL CONSISTENCY

A principal benefit of final federal approval of the Texas Coastal Program is found in the provisions of Section 307 of the CZMA of 1972 (as amended), which are generally referred to as the "Federal Consistency" requirements of the law. These provisions of the Act apply to most activities conducted by any federal agency in or affecting the coastal zone of a state with an approved coastal management program, and require determination that the proposed activity is consistent with the state's program. Federal consistency is intended to benefit both the coastal states and federal agencies by maximizing communication and coordination for activities occurring in the coastal zone. The OCZM has provided coastal states, federal agencies and other interested parties with regulations (15 CFR Part 930, 44 Federal Register p. 37142, June 25, 1979) that set forth the policies and procedures necessary for the implementation of the Federal consistency provisions. (See Table IV-1.)

Four types of actions have been identified in the federal rules and regulations as requiring a federal consistency determination:

- Direct Federal Activities/Development Projects
- Federal Licenses and Permits
- Outer Continental Shelf (OCS) Activities
- Federal Assistance Programs

The first of these, direct federal activities and development projects, must be consistent "to the maximum extent practicable." Activities falling in the other three categories must be "consistent" before the license, permit or assistance is approved by the federal agency. Federal Consistency provisions do not require a federal agency to approve activities that the state has determined to be consistent with its coastal management program. A state determination on consistency is not the sole requirement for federal decisions concerning licenses, permits or assistance.

FEDERAL CONSISTENCY MATRIX DIAGRAM

CZMA Section	307(c)(1) & (2) (Subpart C)	307(c)(3)(A) (Subpart D)	307(c)(3)(B) (Subpart E)	307(d) (Subpart F)
Federal Action	Direct Federal activities including development projects	Federally licensed and permitted activities	Federally licensed and permitted activities described in detail in OCS plans	Federal assistance to State and local governments
Coastal Zone Impact	Directly affecting the coastal zone	Affecting the coastal zone	Affecting the coastal zone	Affecting the coastal zone
Responsibility to notify State agency	Federal agency proposing the action	Applicant for Federal license or permit	Person submitting OCS plan	A-95 Clearinghouse receiving State or local government application for Federal assistance
Notification procedure	Alternatives chosen by Federal agency (subject to NOAA regulations)	Consistency certification	Consistency certification	OMB Circular A-95 notification procedure
Consistency requirement	Consistent to the maximum extent practicable with CZM Program	Consistent with the CZM Program	Consistent with the CZM Program	Consistent with the CZM Program
Consistency determination	Made by Federal agency (Review by State agency)	Made by State agency	Made by State agency	Made by State agency
Federal agency responsibility following a disagreement	Federal agency not required to disapprove action following State agency disagreement (unless judicially impelled to do so)	Federal agency may not approve license or permit following State agency objection	Federal agency may not approve Federal licenses or permits described in detail in the OCS Plan following State agency objection	Federal agency may not grant assistance following State agency objection
Administrative Conflict resolution	Mediation by the Secretary	Appeal to the Secretary by applicant or independent Secretarial review	Appeal to the Secretary by person or independent Secretarial review	Appeal to the Secretary by applicant agency or independent Secretarial review
	(Subpart G)	(Subpart H)	(Subpart H)	(Subpart H)

Table IV-1

Consistency is required for federal activities "affecting" the coastal zone. In the case of direct federal activities and development projects, activities must "directly affect" the coastal zone. For federal activities falling under the other three categories above, the activity must simply "affect" the coastal zone. Activities that do not either "directly affect" or "affect" the coastal zone are not subject to review. The initial determination that an activity does or does not require a consistency determination must be made by the person or agency seeking to conduct that activity, unless the state has already done so. The specific activities listed in this section require a consistency review. Activities not contained in these lists ("unlisted activities") may also require a consistency determination.

The consistency review requirement will, in some cases, extend beyond those activities taking place within the coastal boundary. Activities on federal lands and on other lands outside the boundary are subject to consistency review if it is found that they "directly affect" or "affect" the coastal zone (15 CFR 930.33(c)). Whether these "spillover effects" will have such an impact will depend generally on the type of activity to be conducted, its magnitude, and its proximity to the coastal zone.

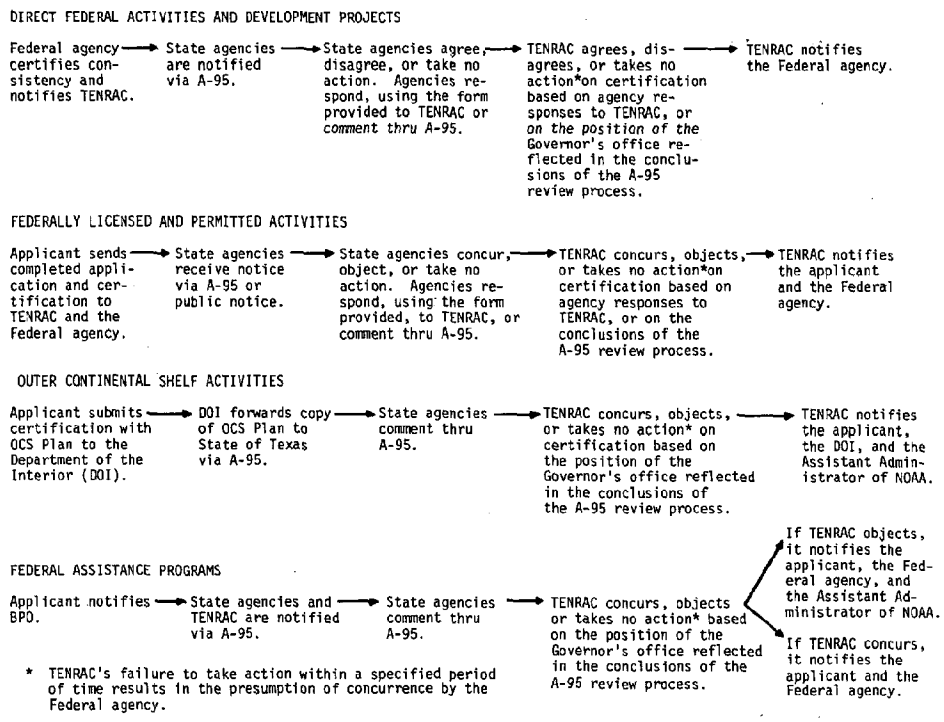
Concurrent with program approval, the Governor will designate a state agency to administer and review federal actions in Texas to determine their consistency with the state's coastal management program. It is anticipated that this agency will be the Texas Energy and Natural Resources Advisory Council (TENRAC). Within TENRAC, the Natural Resources Division would be responsible for securing necessary review and comment from other state, regional, or local government agencies. This information would be developed through the state's A-95 review process, and would serve as the basis for TENRAC's consistency determination. There would exist close cooperation and coordination between TENRAC and the Governor's Budget and Planning Office, where A-95 is housed.

This section on Federal Consistency outlines in detail the procedures that would be followed for consistency determinations for the four types of actions described above. A flow chart of these procedures is found in Figure IV-1. This proposed procedure would be in effect once the Texas Coastal Program has been formally approved by OCZM.

TENRAC's decision whether a federal action is consistent with the Texas Coastal Program is based on existing state review mechanisms, and on state law and regulations. In the case of federal actions which require a state license, permit, or other approval, only those state agencies which have authority to issue a state permit, license, lease, easement, or other approval for a particular federal action may review and make comments to TENRAC. Because the state agency's review process is limited to the information available at that time, the issuance of consistency by TENRAC does not guarantee the obtaining of all necessary state permits, licenses, or other approvals.

In cases where federal actions do not require a state license, permit, or other approval, the Governor shall take a position on a proposed project, pursuant to review authority granted to him in his capacity as the state's Chief Executive Officer, upon which TENRAC will base its consistency determination. In these cases, the Governor's position shall take into consideration comments from state agencies generated thru the A-95 review process.

Figure IV-1. PROCEDURES FOR CONSISTENCY DETERMINATION



Procedures for Consistency Determination
Figure IV-1

1. Direct Federal Activities/Development Projects

Subsections 307(c)(1) and (2) of the federal Coastal Zone Management Act address the subject of federal activities and federal development projects in the coastal zone. Although these subjects are treated as a single class of federal actions, "development projects" have been defined as being a subset of "activities."

Federal agencies are required to determine which of their activities within this category "directly affect" the coastal zone of states with approved management programs. Once a federal agency determines that an activity has a direct effect on the coastal zone, it is required to determine whether or not the activity is consistent to the maximum extent practicable with the state's management program and to give notice to the state of the proposed or ongoing activity along with the accompanying consistency determination.

The designated state agency is then required to inform the federal agency of its agreement or disagreement with the consistency determination at the earliest practicable time. Should the state agency disagree with the federal agency's determination, it must accompany its response with the reasons for disagreement as well as supporting information on which its decision is based. If the disagreement cannot be settled, the federal agency should delay the implementation of its proposed activity until the disagreement is resolved.

a. Definitions

(1) federal activity - A federal activity is any function performed by or on behalf of a federal agency in the exercise of its statutory responsibilities. Federal activities include federal actions which are neither federal development projects nor activities pertaining to federal licenses, permits and federal assistance.

(2) development project - A federal development project is a federal activity involving the planning, construction, modification, or removal of public works, facilities, or other structures, and the acquisition, utilization, or disposal of land or water resources.

(3) consistent to the maximum extent practicable - This term describes the requirement for federal activities including development projects directly affecting the coastal zone of states with approved management programs; that is, to be fully consistent with such programs unless compliance is prohibited based upon the requirements of existing law applicable to the federal agency's operations.

(4) coastal zone - For the purposes of federal consistency, "coastal zone" means all coastal waters and submerged lands seaward to the state's jurisdictional limits and all lands and waters in the following counties: Aransas, Brazoria, Calhoun, Cameron, Chambers, Galveston, Harris, Jackson, Jefferson, Kenedy, Kleberg, Matagorda, Nueces, Orange, Refugio, San Patricio, Victoria and Willacy. (All lands which lie within this geographic area and which are owned, leased, held in trust or whose use is otherwise by law subject to the discretion of the federal government, its officers or agents are excluded from the coastal zone.)

Federal activities other than development projects may be viewed as a residual category covering federal actions that are neither federal development projects nor activities covered by the Federal License and Permits and the Federal Assistance to State and Local Governments sections discussed below. An example would be federal assistance for housing development to entities other than state and local governments, such as to private or nonprofit interests or Indian tribes.

b. Federal Activities and Development Projects Subject to Consistency Review

Federal activities and development projects are subject to consistency review if it is determined that these activities or projects will "directly affect" the coastal area. "Federal agencies shall consider all development projects within the coastal zone to be activities directly affecting the coastal zone." (Section 930.33(b), Federal Register, Vol. 44, No. 123, June 25, 1979.) All other types of activities within the coastal zone, and federal activities outside the coastal zone (e.g. on excluded federal lands, the Outer Continental Shelf, or landward of the coastal zone) are subject to federal agency review to determine whether they directly affect the coastal zone. (Section 930.33(b) and (c) Federal Register, Vol. 44, No. 123, June 25, 1979.)

TENRAC considers an activity to have a direct affect on the coastal zone, and therefore subject to the consistency requirements, if it meets one or more of the following criteria:

- it is located in one or more of the following four natural resource areas: coastal waters, wetlands, beaches and primary ocean-front sand dunes;

- it has a detrimental environmental impact upon one of these natural resource areas (for example, water pollution upstream from an inland source, which would then reach and result in degradation of the coastal waters);

- it has adverse effects (natural, economic, social or historical) on the quality or quantity of coastal resources; or

- it disrupts access to a public coastal resource.

There are two separate issues involved: (1) whether or not a particular type of federal action directly affects the coastal zone and (2) whether or not the proposed action satisfies the relevant consistency requirements of the Act. The first issue simply addresses a test of the criteria described above, which, once met by a federal action, leads to an opportunity for state agency review of the proposed action. During the consistency review stage, the second issue of the actual consistency of the proposed federal action with the state management program is analyzed and resolved.

TENRAC has determined that the following federal activities directly affect the Texas coastal zone. TENRAC reserves the right to make additions or deletions to this list after consultation with the pertinent federal agency or agencies. TENRAC will also review for consistency federal activities/development projects proposed for or occurring in areas outside the coastal zone that may have "spillover" effects and thus could directly affect the state's coastal zone.

(1) DEPARTMENT OF DEFENSE (Army Corps of Engineers, Air Force, Army and Navy)

- Navigation projects (including all ongoing maintenance and ancillary activities that are reviewed on a one-time basis as part of the project as a whole.)
- Maintenance dredging (including all ongoing maintenance and ancillary activities that are reviewed on a one-time basis as part of the project as a whole.)
- Shoreline protection projects.
- Beach nourishment.
- Other public works projects with the potential to impact coastal lands and waters.
- Construction of docks, piers, bulkheads, mooring dolphins, etc.
- Construction or maintenance of sewage or drainage ditches or canals located in coastal waters or wetlands.
- Location, acquisition and design of new or enlarged defense installations.
- Actions conducted on federal lands with potential impact on coastal lands and waters.

(2) DEPARTMENT OF THE INTERIOR

(a) U.S. Fish and Wildlife Service

- Construction and/or maintenance of waterfowl impoundments.
- Construction and/or maintenance of docking facilities and navigation approaches.
- Construction and/or maintenance of shoreline protection projects.
- All other activities that are proposed on refuge lands that normally (i.e. within the coastal zone) would require a state or federal permit, or which would result in any direct impact on coastal waters.
- Proposed acquisition of wildlife refuges.

(b) National Park Service

- Proposed acquisition of national parks and seashores and national park and seashore management activities normally (i.e. within the coastal zone) requiring a state or federal permit, or which would result in any direct impact on coastal waters.
- Preservation of historic and cultural sites.

(c) Bureau of Land Management

- OCS pre-lease sale activities (e.g. tract selection, stipulations) (TENRAC reserves the right to review proposed OCS Lease Sales when the question of whether lease sales are eligible for consistency has been resolved.)

(3) DEPARTMENT OF TRANSPORTATION

(a) Federal Highway Administration

- Construction of roads, bridges or rights-of-way in the coastal zone.

Because of their limited scope and absence of a direct effect on the coastal zone, the following activities of the FHA are exempted from the federal consistency requirements of this section.

Category 1: Modernization of an existing highway section including (but not limited to) such improvements as:

- resurfacing, restoring and rehabilitation.
- widening by less than a single lane width, unless in a wetland area.
- adding shoulders and/or sidewalks, unless in a wetland area.
- adding auxiliary lanes for localized purposes to provide weaving, speed changes and turn storage.
- making intersection improvements that do not change existing traffic patterns.
- improving railroad grade crossings, unless in a wetland area.

Category 2: Installation of lighting, signing, pavement marking, signalization, freeway surveillance and control systems, and railroad protective devices.

Category 3: Safety improvement projects such as pavement grooving, glare screens, safety barriers, energy attenuators, etc.

Category 4: Unless a wetland is impacted, improvement to existing crossroad or railroad separations and stream crossings such as replacement of bridge decks and parapets, and closing open medians between dual bridges; grade-separated crossings of highways by railroads or by highways which do not require extensive approach relocations.

Category 5: Unless a wetland area is impacted, highway landscaping, safety rest areas, scenic overlooks, truck weigh stations, bus shelters and bays and fencing.

Category 6: Alterations to existing buildings to provide for noise-attenuated installation of noise barriers, berms, or any combination of devices.

Category 7: Temporary emergency replacement of a highway facility that begins immediately after the occurrence of a natural disaster or catastrophic failure. This work is usually required to restore the highway for the health, welfare, and safety of the public and does not involve work of the nature and extent that causes it to come under the purview of National Environmental Policy Act (NEPA).

Category 8: Unless a wetland area is impacted, utility installations along or across a highway.

(b) U.S. Coast Guard

- Construction of docking facilities and navigation approaches with the exception of Coast Guard maintained or authorized aids to navigation.
- Construction of Coast Guard bases, facilities and installations.
- Any activity related to oil spill or other clean-up operations that involves permanent alteration of a critical area.

(4) DEPARTMENT OF AGRICULTURE

(a) Forest Service

- Construction or silvicultural activities normally (i.e. within the coastal zone) requiring a state or federal permit, or which would result in any direct impact on coastal waters.

(b) Soil Conservation Service

- Planning and management activities that require either a state or federal permit, or which would result in any direct impact on coastal waters.

(5) GENERAL SERVICES ADMINISTRATION

- Location and design of proposed federal government property acquisition and building construction.
- Disposal of surplus federal lands.

(6) DEPARTMENT OF ENERGY

- Demonstration projects for the production of energy.
- The underwriting of the conversion of existing dams to small-scale hydroelectric projects.

c. Consistency Determination Procedures

In the case of a direct federal activity or development project, the CZMA requires the federal agency involved to make a consistency determination and to notify the state's coastal management agency (TENRAC) of its determination. Federal regulations require that the consistency determination be provided to state agencies at least 90 days before final action of the federal activity unless both the federal agency and the state agency agree to an alternative notification schedule.

The method of notification is determined by the federal agency. However, TENRAC recommends adoption of the OMB Circular A-95 review process as the method of notification. The decision on method of notification will be made in each instance through agreement with each individual federal agency and TENRAC.

The following information will be included in consistency determinations for activities in this category.

(1) The consistency determination made by the federal agency should include with the application a certification statement.

This statement will read as one of the following:

- "This activity (or development project) is not subject to the consistency requirements of Section 307 of the Coastal Zone Management Act of 1972, as amended."
- "This activity (or development project) is consistent with the Texas Coastal Program."
- "This activity (or development project) is not consistent in all respects with the Texas Coastal Program, but it is consistent to the maximum extent practicable. Please refer to the supplementary information below."
- "This activity (or development project) is not consistent with the Texas Coastal Program, but no practicable alternative exists to carry out the legal purpose for which the activity (or development project) is designed."
- "This activity (or development project) is not consistent with the Texas Coastal Program, but no practicable alternative exists to meet the national security need filled by this activity."

(2) Date by which federal agency plans to make a final decision on whether or not to proceed with the activity/ development project.

(3) Detailed description of activity/development project, its associated facilities, and their coastal zone effects (including primary, secondary and cumulative coastal zone effects).

(4) Comprehensive data and information sufficient to support consistency statement.

Federal agencies are urged to obtain the views and assistance of TENRAC regarding provisions of the Texas Coastal Program related to the proposed activity/development

project and the information necessary to make a consistency determination. The activity/development project, its primary effects, its associated facilities and the primary effects of the associated facilities must all be consistent to the maximum extent practicable with the management program. Also, the determination may be a negative one, in which the federal agency decides that a certain activity does not require a consistency determination. (See Section 930.35(d) Federal Register, Vol. 44, No. 123, June 25, 1979.) Negative determination procedures are provided to assure state agencies of an opportunity to review borderline cases. TENRAC must be notified of all federal agency negative determinations.

d. General Consistency Determinations

A general consistency determination may be issued when federal agencies will be performing a repeated activity other than a development project (e.g., ongoing maintenance, waste disposal, etc.), which cumulatively has a substantial effect on the coastal zone. This general consistency determination may be used only in situations where the incremental actions are repetitive or periodic, substantially similar in nature, and where they do not directly affect the coastal zone when performed separately. At least once every three months, unless the federal agency and TENRAC agree to an alternate schedule, consultation with TENRAC is required to discuss the manner in which the incremental actions are being undertaken.

When a federal agency has sufficient information to determine the consistency of a proposed development project from planning to completion, only one consistency determination is required. However, in cases where planning, siting and design decisions will be made in phases, a consistency determination is required for each major decision.

e. Determinations for Activities/Development Projects Initiated Prior to Management Program Approval

(1) Federal Activities

When ongoing federal activities (e.g. waste disposal practices) are initiated prior to program approval and where the federal agency retains the discretion to reassess and modify the activity, a consistency determination is required. This determination must be made by the federal agency at the earliest practicable time following the approval of Texas' program.

For all ongoing federal activities that TENRAC identifies, through monitoring, as subject to consistency, federal agencies must provide TENRAC with a consistency determination no later than 120 days after approval of Texas' coastal program.

(2) Development Projects

A consistency determination is required for major, phased federal project decisions, which are made following management program approval and are related to development projects initiated prior to approval of Texas' coastal program.

f. Multiple Federal Agency Participation

One consistency determination may be made whenever more than one federal agency is involved in conducting or supporting a federal activity/development project or its associated facilities directly affecting the coastal zone, or is involved in a group of federal activities/development projects related to each other because of their geographic proximity.

The consistency determination must be sent to TENRAC at least 90 days before final decisions are taken by any of the participating agencies. Each of the proposed activities must be addressed.

g. State Agency Reviews

In the case of federal actions which require a state license, permit, or other approval, TENRAC will ensure that state agencies with jurisdiction to review a project for consistency are informed of the proposal through the A-95 review process. State agencies will have 35 days from the date of issuance of the notice through the A-95 process in which they can forward one of the following determinations to TENRAC.

- "We find the proposed federal action <u>consistent</u> with our statutory authority incorporated in the Texas Coastal Program based upon all presently available information. Additional information may be required for the state to issue a permit, license, lease, easement, or other approval."

- "We find the proposed action inconsistent with the Texas Coastal Program based upon our statutory authority to grant permits, licenses, leases, easements, or other approvals cited in (cite statute or rule):"

- "We do not have sufficient information at this time to make a determination regarding consistency with the Texas Coastal Program."

State agencies may also simply elect not to respond within the 35-day period indicating that they either do not have jurisdiction to make a consistency determination or that they do not object to the issuance of consistency. TENRAC may grant a 15-day extension period at its discretion if a state agency so requests.

Agency responses are compiled for a particular project by the Governor's Budget and Planning Office (BPO). A form letter, found in Appendix D, has been provided for agency response. BPO will forward to TENRAC a list of those proposals for which there are no objections to consistency concurrence, and TENRAC will grant consistency in these cases.

TENRAC may not grant consistency concurrence over the objection of a state agency which has determined the federal action is inconsistent with state statutes and rules under that agency's authority. If an objection to consistency concurrence is received, then TENRAC may proceed with the mediation procedures.

If TENRAC has not developed and issued a final response within 45 days from receipt of the federal agency notification, TENRAC will then inform the federal agency of the status of the matter. The federal agency shall approve one request for an extension period of 15 days. Should TENRAC fail to provide a response within 45 days from receipt of the federal agency notification, the federal agency may conclusively presume TENRAC agreement.

If no state agency has the jurisdiction to issue a required state license, permit, lease, easement, or other approval for the proposed project, then TENRAC will base its consistency finding on the position taken by the Governor's Office, on the proposed action. This position will take into consideration the comments of state agencies which are developed thru the A-95 review process.

h. Conflict Resolution

One or more of the following methods may be used for the mediation of conflicts arising between a federal agency and TENRAC regarding a federal consistency determination. Informal discussions and/or mediation are strongly encouraged.

(1) Informal discussion among all parties involved, mediation by TENRAC between the state agency or agencies objecting and the federal agency involved.

(2) Mediation by the Secretary of Commerce. Either the federal agency or TENRAC may request Secretarial Mediation.

(3) Judicial Review. Either party may seek judicial review. Judicial review may be sought without first having exhausted the mediation process.

i. Expedited Consistency Concurrence

If a project must receive an expedited consistency concurrence, the applicant should consult with TENRAC and BPO to determine the appropriateness and a method for obtaining an expeditious consistency determination.

2. Federal Licenses and Permits

Subsection 307(c)(3)(A) of the CZMA addresses the subject of federal licenses and permits for activities affecting land or water uses in the coastal zone. The subsection states:

> After final approval by the Secretary of a state's management program, any applicant for a required Federal license or permit to conduct an activity affecting land or water uses in the coastal zone of that state shall provide in the application to the licensing or permitting agency a certification that the proposed activity complies with the state's approved program and that such activity will be conducted in a manner consistent with the program.

In accordance with the Section 307 regulations, a coastal zone state must identify and develop a list of federal license and permit activities likely to affect its coastal zone. All such proposed license and permit activities will be reviewed by the state to determine whether or not they are consistent with the state's mangement program.

Upon approval of the management program, the state's list of federal license and permit activities is forwarded to all relevant federal agencies which must, in turn, make this information available to applicants. The applicant for a federal license or permit is required to certify to the federal agency that the proposed activity complies with the state's coastal management program and that it will be conducted in a manner consistent with the program. If the state determines that the activity is not consistent, the federal permitting agency may not issue the license or permit until all disagreements have been resolved.

a. Definitions

(1) federal licenses and permits - A federal license or permit includes any authorization, certification, approval, or other form of permission that any federal agency is empowered to issue to an applicant. All federal leases except those issued pursuant to the Outer Continental Shelf Lands Act are included with this definition as are renewals

and major amendments that cause coastal zone effects. (See Section 930.51, Federal Register, Vol. 44, No. 123, June 25, 1979.

(2) applicant - An applicant includes any individual, public or private corporation, partnership, association or other entity organized or existing under the laws of any state, regional, or local government, who, following management program approval, files an application for a federal license or permit to conduct an activity affecting the coastal zone of Texas. The term "applicant" does not include federal agencies applying for federal licenses or permits. Federal agency "activities" requiring federal licenses or permits are subject to the consistency requirements of the section on Direct Federal Activities/ Development Projects, beginning on page IV-9.

b. Federal License and Permit Activities Likely to Affect the Texas Coastal Zone

The following is a list of federal license and permit activities likely to affect the coastal zone of Texas. TENRAC reserves the right to make additions or deletions to this list after consultation with the pertinent federal agency or agencies. All such license or permit activities must be reviewed by TENRAC for consistency with the state's coastal management program.

When application is made for one of the permits or licenses listed below, the federal agency will direct the applicant to consult with TENRAC to determine the consistency of the application. No federal license or permit described in this list shall be issued until the requirements of this section (Federal Licenses and Permits) have been satisfied.

TENRAC also reserves the right to review for consistency federal license and permit activities proposed for areas outside the coastal zone, which may have "spillover" effects and thus would affect the state's coastal zone.

(1) DEPARTMENT OF DEFENSE

Army Corps of Engineers - permits and/or licenses for:

- discharge of dredged or fill material in navigable waters pursuant to Section 404 of the Federal Clean Water Act, as amended;

- obstructions or alterations in navigable waters pursuant to Sections 9, 10, 11 and 14 of the Rivers and Harbors Act of 1899;
- transportation of dredged material in navigable water pursuant to Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972.

(2) DEPARTMENT OF ENERGY - certificates, permits and licenses for:

- siting and operation of nuclear and fossil fuel power plants and transmission lines;
- construction and operation of facilities needed to import or export natural gas;
- construction and operation of facilities used in interstate gas transportation;
- construction and operation of interstate gas pipelines, both onshore and offshore;
- construction and operation of LNG import/export marine terminals pursuant to the Natural Gas Act;
- construction and operation of natural gas pipelines, transportation and storage facilities pursuant to the Natural Gas Act;
- construction and operation of non-federal hydroelectric power projects.

(3) FEDERAL ENERGY REGULATORY COMMISSION - certificates, permits and licenses for:

- non-federal hydroelectric projects and associated transmission lines under Sections 4(e) and 15 of the Federal Power Act (16 U.S.C 797(e) and 808);
- interconnection of electric transmission facilities under Section 202(b) of the Federal Power Act (16 U.S.C. 824 a(b));
- construction and operation of natural gas pipeline facilities, defined to include both interstate pipeline and terminal facilities under Section 7(c) of the Natural Gas Act (15 U.S.C. 717f(c));
- abandonment of natural gas pipeline facilities under Section 7(b) of the Natural Gas Act (15 U.S.C. 717f(b)).

(4) DEPARTMENT OF TRANSPORTATION

(a) U.S. Coast Guard - permits for:

- construction and operation of deepwater ports under the Deepwater Port Act of 1974 (PL 93-627);
- construction of bridges under 33 USC 401, 491-507 and 525-534.

(b) Federal Aviation Administration - permits and/or licenses for:

- construction or alteration of airports.

(c) Materials Transportation Bureau (Office of Pipeline Safety Operations) - permits for:

- transportation of liquids (other than petroleum products) by pipeline (Section 195.6 of the regulations for transportation of liquids by pipeline).

(5) ENVIRONMENTAL PROTECTION AGENCY - permits for:

- dumping material other than dredged material in navigable waters pursuant to Section 102 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C.A. 1412).
- storage of hazardous waste pursuant to Section 3005 of the Resource Conservation and Recovery Act of 1976 (42 U.S.C.A 6925).

(6) NUCLEAR REGULATORY COMMISSION permits and licenses for:

- construction and operation of nuclear facilities and the possession and use of byproduct, source and special nuclear material pursuant to the Atomic Energy Act of 1954, as amended, Title II of the Energy Reorganization Act of 1974 and the National Environmental Policy Act of 1969.

(7) PERMITS ASSOCIATED WITH OCS ACTIVITIES:

- permits related to geological and geophysical exploration;

- permits related to the siting, design and construction of common carrier pipelines required respectively by the Bureau of Land Management in the Department of Interior and the Materials Transportation Bureau in the Department of Transportation;
- permits related to drilling and the siting, design and construction of flow and gathering lines required by the Geological Survey in the Department of the Interior (involve activities described in detail within OCS plans);
- permits related to discharges of pollutants from fixed platforms and structures and/or dumping of nondredged material required by the Environmental Protection Agency;
- permits related to the installation of platforms, pipelies, artificial islands, fixed structures, navigational and free floating structures required by the Corps of Engineers;
- permits related to the transportation and disposal of dredged or fill material required by the Corps of Engineers.

TENRAC shall monitor unlisted license and permit activities through the OMB Circular A-95 review. Federal agencies shall cooperate with and assist TENRAC in its monitoring of these unlisted activities. Within 30 days from notice of the license or permit application, TENRAC will notify federal agencies, applicants and the Assistant Administrator of Coastal Zone Management in NOAA, of unlisted activities judged by it to affect the coastal zone of Texas. No federal license or permit may be issued until the requirements of this section have been satisfied, unless the Assistant Administrator disapproves TENRAC's decision to review the activity.

Whenever any disagreement occurs between a federal agency and TENRAC regarding whether a listed or unlisted federal license or permit activity is subject to consistency review, either party may request Secretarial mediation as provided in the Federal Register, Vol. 44, No. 123, Subpart G, p. 37158, June 25, 1979.

c. Consistency Determination Procedures

The following procedures will be used to make consistency determinations for activities falling in this category.

(1) The applicant, upon determining that the proposed activity meets the federal consistency requirements, shall include with the application a certification statement. This statement will read as follows: "The proposed activity complies with Texas' approved coastal management program and will be conducted in a manner consistent with such program." The application and certification statement shall be sent to the federal permitting or licensing agency and to TENRAC.

(2) The state agencies involved in the consistency determination process will be informed through the A-95 review procedures that a proposed activity requires a consistency determination. In the case of Section 404 permits under the Federal Clean Water Act, it is necessary for the applicant to send the consistency certification with the application to the COE. Notice for Section 404 permits will not be sent through the A-95 process. In the case of those permits, the state agencies involved in the consistency determination will receive information for the proposed activity through the (proposed) joint COE/state public notice. All 404 permits located in the coastal zone will require a consistency determination. State agencies monitor the joint COE/state public notices and will begin their review of a project for consistency upon receipt of the public notice.

(3) State agencies have 60 days from the issuance of public notice, in the case of 404 permits, and 35 days in the case of all other federal licenses and permits, to forward one of the following determinations to TENRAC:

- "We find the proposed licensing activity <u>consistent</u> with our statutory authority incorporated in the Texas Coastal Program to the extent that can be determined based upon all presently available information. Additional information may be required for the state to issue a permit, license, lease, easement or other approval."

- "We find the proposed activity inconsistent with the Texas Coastal Program based upon our statutory authority to grant permits, licenses, leases, easements, or other approvals cited in (cite statute or rule):

  _____

  _____

  and the facts delineated below:

  _____

  _____."

- "We do not have sufficient information at this time to make a determination regarding consistency with the Texas Coastal Program."

State agencies may request a 15-day extension if they find it necessary. State agencies may also simply elect not to respond within the appropriate time, indicating that they either do not have jurisdiction to make a consistency determination or that they do not object to the issuance of consistency.

(4) Agency responses are compiled for a particular project by BPO. A form letter, found in Appendix D, has been provided for agency response. BPO will forward to TENRAC a list of those proposals for which there are no objections to consistency concurrence, and TENRAC will grant consistency in these cases.

(5) Whenever possible, TENRAC will make its determination within 45 days following commencement of its review. In the case of 404 permits, wherever possible, TENRAC will make its determination within 70 days. State agency concurrence is conclusively presumed for applications other than for 404 permits in the absence of an objection, or request for an extension, within 45 days following commencement of state review. In the case of 404 permits, conclusive presumption by TENRAC will occur after 70 days. If unable to issue a determination at the end of the appropriate review period, TENRAC will notify the applicant and the federal agency of the status of the matter.

(6) (a) When TENRAC concurs with an applicant's consistency certification, it shall notify in writing the applicant and the federal agency, at the earliest practicable time. Upon receipt of TENRAC concurrence, or when concurrence is presumed, the federal agency may approve the license or permit application. Federal regulations, 15 C.F.R. 930.63, allow the federal agency to presume TENRAC concurrence with consistency in the absence of an objection within 6 months from commencement of TENRAC review. However, in most cases TENRAC will be able to issue its consistency determination within 70 days.

Should the federal agency determine that an application will not receive federal approval, it shall immediately notify the applicant and TENRAC. This notification will preclude the need for further state agency review.

(b) TENRAC may not grant consistency concurrence over the objection of a state agency with the authority to issue a required state license, permit, or approval for the proposed project. TENRAC, the applicant, the state agency or agencies objecting, and the federal agency are encouraged to meet informally in an attempt to resolve the objection. In the event of an unresolvable objection, TENRAC will notify in writing the applicant, the federal agency and the Assistant Administrator of Coastal Zone Management in NOAA. The objection must describe how the proposed activity is inconsistent with the management program as well as suggest alternative measures (if they exist) that would permit the activity to be consistent. A statement informing the applicant of a right of appeal to the Secretary of Commerce will be included in the objection.

If no state agency has the jurisdiction to issue a required state license, permit, lease, easement, or other approval for the proposed project, then TENRAC will base its consistency finding on the position taken by the Governor's Office on the proposed action. This position will take into consideration the comments of state agencies which are developed through the A95 review process.

Following receipt of a TENRAC objection to a consistency certification, the federal agency shall not issue the license or permit except as provided in "Conflict Resolution" below.

d. Responsibilities of Participants in the Consistency Process

(1) Responsibilities of Federal Agency:

- to inform applicants of their responsibilities to TENRAC in the determination of the consistency of their applications.

(2) Responsibilities of TENRAC:

- to make available copies of the management program document for public inspection;
- to assist applicants in development of means for ensuring that the proposed activity complies with and will be conducted in a manner consistent with Texas' management program by identifying agencies with the authority to concur or object to consistency.
- to assist applicants in developing the necessary data and information in e. below; and
- to inform the federal agency involved of its consistency determination.

(3) Responsibilites of Applicant:

- to meet with TENRAC to discuss the federal license and permit application and obtain assistance from TENRAC regarding the means for ensuring that the proposed activity will be conducted in a manner consistent with Texas' management program;

- to furnish TENRAC with the information required by Section 930.58 of the Federal Register, Vol. 44, No. 123, p. 37152, June 25, 1979, as well as any additional information requested by TENRAC (see Necessary Data and Information below.); and

- to consolidate, where applicable, related federal license and permit activities affecting the coastal zone for TENRAC review.

e. Necessary Data and Information

The applicant shall furnish TENRAC with the following data and information along with the consistency certification:

- detailed description of the proposed activity and its associated facilities. The description should contain sufficient detail to permit an assessment of the probable coastal zone effects of the activity and its associated facilities ("Coastal zone effects" means primary, secondary and cumulative effects, and includes nonassociated facilities. However, the applicant is not responsible for assessing the consistency of any nonassociated facilities.);

- a brief assessment relating the probable coastal zone effects of the proposed activity and its associated facilities to the relevant elements of the management program;

- a brief set of findings, derived from the assessment, indicating that the proposed activity (e.g., project siting and construction), its associated facilities (e.g., access road, support buildings), and their effects (e.g., air, water, waste discharges, erosion, wetlands, beach access impacts) are all consistent with the provisions of the management program. Appropriate weight must be given to the various types of provisions within the management program; and

- status of all relevant state and/or local government permits required in addition to the federal license or permit.

f. Public Notice and Public Hearing Requirements

(1) Public Notice

Within ten days after receipt of the consistency certification (consistency statement, required data and information), TENRAC will publish notice of the proposed activity in accordance with federal regulations (15 CFR 930.61). The public notice shall include a summary of the

proposed activity, an announcement that information on the activity is available for public inspection from TENRAC, and a request that comments be submitted by a specified date.

The federal agency and TENRAC should issue a joint public notice when applicable to avoid duplication of effort and unnecessary delays.

(2) Public Hearings

At its discretion, a state agency may hold a public hearing on the proposed activity. Announcement of the hearing may be included in the public notice discussed in (1) above. A public hearing may not be held until at least 30 days after publication of the hearing announcement. Federal agencies and the state agency should publish joint public hearing announcements and should hold joint public hearings when both agencies determine that a hearing is necessary. All interested parties will be given sufficient time after the hearing in which to submit comments to TENRAC.

g. Conflict Resolution

Two avenues exist for the resolution of conflicts. These are:

(1) Informal Discussion

TENRAC, the applicant, the state agency objecting, and the federal agency should meet informally in an attempt to resolve the matter rather than appealing the issue to the Secretary of Commerce.

(2) Appeals to the Secretary

If informal discussion fails to resolve the matter, the applicant may, within 30 days of receipt of TENRAC's objection, file a notice of appeal with the Secretary of Commerce. The notice must be accompanied by supporting information, and copies of both must be sent to the Federal agency and TENRAC.

Following public notice by the Secretary of Commerce, receipt of comments and, in some cases, a hearing, the secretary shall determine whether the proposed activity is consistent with the objectives or purposes of the federal Coastal Zone Management Act or is necessary in the interest of national security.

If the secretary finds that the proposal meets either of these two criteria, the federal agency may approve the activity and issue the license or permit. (For complete details see the Federal Register, Vol. 44, No. 123, June 25, 1979, pp. 37158-37160, subparts G and H).

h. Expedited Consistency Concurrence

When a project must receive an expedited consistency concurrence, the applicant should consult with TENRAC and BPO to determine the appropriateness and a method for obtaining an expeditious consistency determination.

3. Outer Continental Shelf (OCS) Activities

While all of the procedures outlined in each of the four categories of consistency are subject to change as the result of public input, it is necessary to note that a policy decision which could substantively affect the proposal in this category is being considered. It was not clear at the time of publication of this State Hearing Draft whether or to what extent Texas could selectively review proposed federal actions for consistency. Management of OCS activity is currently assessed as adequate. Texas wishes to seriously consider the value of any additional review, especially if it appears that there will be a substantial economic cost which will accrue to industry or to the state as a result of that review. TENRAC is presently negotiating with representatives of state and federal agencies, the Governor, and the oil and gas industry to determine to what extent, if any, Texas should or must review category three OCS activities for consistency.

Subsection 307(c)(3)(B) of the Federal Coastal Zone Management Act, and its accompanying rules and regulations require that after approval of a coastal management program, any person submitting to the Interior Department any OCS plan for the exploration or development and production from any area leased under the Outer Continental Shelf Lands Act must provide Interior with a consistency certification, attached to the OCS plan, and must furnish the state coastal management agency with the same information. The consistency certification must state that the activities comply with and will be conducted in a manner consistent with the state's management program.

At the earliest practicable time, the state coastal management agency must notify the person as to whether it concurs with or objects to the consistency certification. Should the state coastal management agency object to the certification, it must accompany its objection with reasons and supporting information. Following receipt of a state coastal management agency objection, federal agencies may not issue any of the licenses or permits for activities until all conflicts have been resolved.

a. Definitions

(1) federal license or permit activity described in detail - This term means any activity requiring a federal license or permit that the Secretary of the Interior determines must be described in detail with an OCS plan.

(2) person - Any individual, corporation, partnership, association, or other entity organized or existing under the laws of any state, the federal government, any state, regional or local government, or any entity of such federal, state, regional or local government, who submits to the Secretary of the Interior, following management program approval, an OCS plan describing in detail federal license or permit activities.

(3) OCS Plan - Any plan for the exploration, or development and production from any area leased under the Outer Continental Shelf Lands Act and the regulations under that Act, which is submitted to the Secretary of the Interior following management program approval and which describes in detail federal license or permit activities.

b. Federal License or Permit Activities Described in Detail Within an OCS Plan

(See "Permits Associated with OCS Activities," p. IV-23.)

c. Consistency Determination Procedures

The following procedures will be used to make a consistency determination of activities in this category.

(1) The applicant, upon determining that a particular OCS activity requiring a federal license or permit is one that the Secretary of Interior requires to be described in detail with an OCS plan, shall submit along with that plan a consistency certification. The certification shall state: "The proposed activity complies with Texas' approved coastal management program and will be conducted in a manner consistent with such program."

(2) The Department of Interior (DOI), to which the OCS plan and certification are submitted, shall forward a copy of the plan and certification to TENRAC.

(3) State agencies have 35 days from the issuance of notice through the A-95 process to review the proposal and forward comments to BPO. State agencies may request a 15-day extension if they find it necessary. State agencies may also simply elect not to respond within the 35-day period, indicating that they do not object to the issuance of consistency.

(4) Agency responses are compiled for a particular project by BPO. A form letter, found in Appendix D has been provided for agency response. BPO will forward to TENRAC a list of those proposals for which there are no objections to consistency concurrence, and TENRAC will grant consistency in these cases.

(5) Whenever possible, TENRAC will make its determination within 45 days following commencement of its review. State agency concurrence is presumed in the absence of an objection within 35 days following commencement of state review. If unable to issue a determination at the end of 45 days after commencement of its review, TENRAC will notify the applicant and the federal agency of the status of the matter.

(6) (a) When TENRAC concurs with an applicant's consistency certification, it shall notify the DOI, the applicant, and the federal agency in writing at the earliest practicable time. Upon receipt of TENRAC concurrence or when concurrence is presumed the federal agency may approve the license or permit application. Federal regulations, allow the federal agency to presume TENRAC concurrence with consistency in the absence of an objection within 6 months from commencement of TENRAC review (15 CFR 930.63). However, in most cases TENRAC will be able to issue its consistency determination within 45 days.

Should the federal agency determine that an application will not receive federal approval, it shall immediately notify the applicant and TENRAC. This notification will preclude the need for further state agency review.

(b) TENRAC may not grant consistency concurrence if the position of the Governor's Office is to oppose the proposed exploration, or production and development plan. In the event of an unresolvable objection, TENRAC will notify in writing the applicant, the federal agency and the Assistant Administrator of Coastal Zone Management in NOAA. The objection must describe how the proposed activity is inconsistent with the management program, as well as suggest alternative measures (if they exist) which would permit the activity to be consistent. A statement informing the applicant of a right of appeal to the Secretary of Commerce will be included in the objection.

Following receipt of a TENRAC objection to a consistency certification, the federal agency shall not approve the OCS plan except as provided in "Conflict Resolution" below.

If no state agency has the jurisdiction to issue a required state license, permit, lease, esement or other approval for the proposed project, then TENRAC will base its consistency finding on the position taken by the Governor's Office on the proposed action. This position will take into consideration the comments of state agencies which are developed through the A-95 review process.

d. Responsibilities of Participants in the Consistency Process

(1) Responsibilities of TENRAC:

In conjunction with the procedures outlined above, participants in the consistency process have the following responsibilities.

- to make copies of the management program document available for public inspection; and

- to assist persons regarding the means for ensuring that the proposed activities will be conducted in a manner consistent with the Texas Coastal Program.

(2) Responsibilites of Applicant:

- to meet with TENRAC to discuss the OCS plan and activities and obtain assistance regarding the means for ensuring that the proposed activities will be conducted in a manner consistent with Texas' management program;

- to furnish TENRAC with the information required by Section 930.58 of the Federal Register, Vol. 44, No. 123, p. 37152, June 25, 1979, as well as any additional information requested by TENRAC (see Necessary Data and Information below); and

- to consolidate, where applicable, related federal license and permit activities affecting the coastal zone for TENRAC review.

e. Necessary Data and Information

The applicant shall furnish TENRAC with data and information that is included in the OCS plan submitted to DOI. TENRAC does not require an Environmental Report, or portions thereof, in order to make its consistency determinations for category three OCS activities. A detailed description of the proposed activities and their associated facilities should be included. The description should contain sufficient detail for an assessment of the probable coastal zone effects of the activities and their associated facilities.

f. Public Notice and Public Hearing Requirements

(1) Public Notice

Within 10 days after receipt of the consistency certification (consistency statement, required data and information), TENRAC will provide public notice of the proposed activity in accordance with federal regulations (15 CFR 930.61). The public notice shall include a summary of the proposed

activities, an announcement that information on the activities is available for public inspection at TENRAC, and a request that comments be submitted to TENRAC by a specified date.

(2) Public Hearings

At its discretion, the state agency may hold a public hearing on the proposed activities. Announcement of the hearing may be included in the public notice discussed in (1) above. A public hearing may not be held until at least 30 days after publication of the hearing announcement. All interested parties will be given sufficient time after the hearing in which to submit comments to TENRAC.

g. Conflict Resolution

Two avenues exist for the resolution of conflicts. These are:

(1) Informal Discussion

TENRAC, the person, and representatives of the Department of the Interior should meet informally in an attempt to resolve the matter rather than appealing the issue to the Secretary of Commerce.

(2) Appeals to the Secretary

If informal discussion fails to resolve the matter, the person may, within 30 days of receipt of TENRAC's objection, file a notice of appeal with the Secretary of Commerce. The notice must be accompanied by supporting information, and copies of the notice and supporting information must be sent to the Department of the Interior and TENRAC.

Following public notice by the secretary of Commerce, receipt of comments and, in some cases, a hearing, the Secretary shall determine whether each of the objected to OCS activities is consistent with the objectives or purposes of the Federal Coastal Zone Management Act or is necessary in the interest of national security.

If the secretary finds that all of the objected to OCS activities meet either of these two criteria, the Department of the Interior may approve the OCS plan and issue permits. If the secretary does not make either of these two findings, the Department of the Interior may not approve the OCS plan and the person must submit an amended or new OCS plan to the Department and to TENRAC, along with a new consistency certification and supporting information. State review will begin again. The applicable time period for purposes of concurrence by conclusive presumption shall be three months instead of six months.

h. Expedited Consistency Concurrence

When a project must receive an expedited consistency concurrence, the applicant should consult with TENRAC and BPO to determine the appropriateness and a method for obtaining an expeditious consistency determination.

4. Federal Assistance Programs

Section 307(d) of the Federal Coastal Zone Management Act addresses the subject of federal assistance to state and local governments under other federal programs affecting the coastal zone. The subsection states:

> Federal agencies shall not approve proposed projects that are inconsistent with a coastal state's management program, except upon a finding by the Secretary that such project is consistent with the purposes of this title or necessary in the interest of national security.

The state agency is notified of federal assistance applications by means of the Office of Management and Budget (OMB) A-95 process, which provides for the evaluation, review and coordination of federally assisted programs. In the event the state coastal management agency objects to the applicant agency's proposal, these objections must be accompanied with reasons and supporting information and must describe alternative measures (if they exist) that would permit the proposed project to be conducted in a manner consistent with the management program. Following receipt of a state coastal management agency objection, the federal agency may not grant the federal assistance until all disagreements have been resolved.

a. Definitions

(1) federal assistance - Assistance provided under a federal program to an applicant agency through grant or contractual arrangements, loans, subsidies, guarantees, insurance, or other form of financial aid.

(2) applicant agency - Any unit of state or local government, or any related public entity such as a special purpose district, which, following management program approval, submits an application for federal assistance.

b. Types of Federal Assistance Programs Subject to Consistency Review

TENRAC has identified the following as being subject to consistency review within the coastal zone of Texas. TENRAC reserves the right to make additions or deletions to this list after consultation with the pertinent federal agency or agencies. TENRAC also reserves the right to review for consistency federal assistance activities proposed for areas outside the coastal zone that may have "spill-over" effects and thus would affect the state's coastal zone.

Federal Assistance for the construction of:

- power generating plants;
- desalination plants;
- chemical processing, transfer or storage facilities;
- petroleum processing, transfer or storage facilities;
- mineral extraction facilities;
- sewage treatment and disposal facilities;
- solid waste disposal facilities;
- water control structures or waterway easements serving agricultural lands;
- federal financing of public or subsidized housing units, or private residential developments;
- transportation facilities (including airports, highways and railroads).

In addition, TENRAC will monitor federal assistance applications affecting the coastal zone, including but not limited to the following programs.

(1) DEPARTMENT OF AGRICULTURE
Soil Conservation Service - Watershed protection and flood protection.

(2) DEPARTMENT OF COMMERCE
Economic Development Administration - Economic Development Planning Grants; Economic Development Grants for Public Works and Development Facilities.

(3) DEPARTMENT OF ENERGY - State Energy Conservation Program.

(4) DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT/FHA - Housing Assistance, Mortgage Insurance, Community Development Block Grants, and Section 701 Planning Assistance Grants.

(5) DEPARTMENT OF THE INTERIOR
Heritage Conservation and Recreation Service - Land and Water Conservation Fund.
Fish and Wildlife Service - Endangered Species Act of 1973, as amended.

(6) DEPARTMENT OF TRANSPORTATION
Federal Aviation Administration - Airport Development Aid Program.
Federal Highway Administration - Federal Aid Highway Program. (Exemptions on p. IV-12 apply here.)
Urban Mass Transportation Administration - Urban Mass Transportation Grants.

(7) ENVIRONMENTAL PROTECTION AGENCY - Air Pollution Control Program Grants, Construction Grants for Wastewater Treatment Works, and State and Interstate Program Grants for WAter Pollution Control.

c. Consistency Determination Procedures

The following procedures will be used to make a consistency determination.

(1) When applying for federal assistance for an activity located in the coastal zone, the applicant agency shall, pursuant to the OMB A-95 process, notify the state clearinghouse of its intentions. To ensure timely and complete notification to TENRAC, applicant agencies may submit, in addition to the A-95 process, appropriate environmental reviews, impact reports, Environmental Impact Statements, or related in-house agency reports as required by the National Environmental Policy Act of 1969 as the method of notification. (The applicant agency shall utilize the OMB A-95 process and any other applicable notification processes for every major funding phase of the federal assistance activity that entails the consideration of new information not previously reviewed, or which results in substantial modifications to previously reviewed phases.)

The state clearinghouse shall notify TENRAC of the application for federal assistance by means of the OMB A-95 process.

(2) TENRAC will base its concurrence or objection to the issuance of consistency on the recommendation developed by BPO through the A-95 process. If TENRAC does not object to the proposed activity, the federal agency may grant assistance to the applicant agency. If TENRAC objects to the proposed project, it shall notify the state clearinghouse of its objection. The clearinghouse shall in turn notify the applicant agency, the federal agency and the Assistant Administrator of the objection.

The objection must describe how the proposed project is inconsistent with Texas' management program and suggest alternative measures (if they exist) that would permit the proposed project to be conducted in a manner consistent with the management program.

The objection shall include a statement informing the applicant agency of its right of appeal to the Secretary of Commerce on the grounds described in Federal Register, Vol. 44, No. 123, June 25, 1979, pp. 37158-37160, Subpart H.

d. Responsibility of Federal Assisting Agency

When notified of a TENRAC objection to a proposed project, the federal agency shall not approve assistance for the project except as provided in of the Federal Register, Vol. 44, No. 123, June 25, 1979, pp. 37158-37160, Subpart H.

e. Conflict Resolution

Several avenues exist for the resolution of conflicts.

(1) Informal Discussion

TENRAC, the applicant agency, and the federal assisting agency should meet informally to resolve the matter rather than seeking Secretarial mediation.

(2) Mediation by the Secretary of Commerce

Either the federal assisting agency or TENRAC may request Secretarial mediation.

(3) Judicial Review

Either TENRAC or the federal assisting agency may seek judicial review, without first having exhausted the mediation process. Informal discussions and/or mediation are strongly encouraged.

(4) Secretarial Review

The applicant agency may, within 30 days of receipt of TENRAC's objection, file a notice of appeal with the Secretary of Commerce. The notice must be accompanied by supporting information, and copies of the notice and supporting information must be sent to the federal agency and TENRAC.

Following public notice by the Secretary of Commerce, receipt of comments, and, in some cases, a hearing, the secretary shall determine whether the proposed activity is consistent with the objectives or purposes of the federal Coastal Zone Management Act or is necessary in the interest of national security.

If the secretary finds that the proposal meets either of these two criteria, the federal agency may approve the activity. If the secretary does not make either of the two findings, the federal agency may not approve the activity. (For complete details, see the Federal Register, Vol. 44, No. 123, June 25, 1979, pp. 37158-37160, subparts G and H).

f. Expedited Consistency Concurrence

When a project must receive an expedited consistency concurrence, the applicant should consult with TENRAC and BPO to determine the appropriateness and a method for obtaining an expeditious consistency determination.

CHAPTER V

TECHNICAL REQUIREMENTS

In order to obtain approval under the provisions of the Federal Coastal Zone Management Act, the Texas Coastal Program must meet specified technical requirements of the law. These requirements are:

A. A description of the coastal boundary;

B. Identification of and a listing of priorities of uses in special management areas;

C. A description of the uses of regional benefit and assurances that local regulations within the coastal zone do not unreasonably restrict or exclude these described uses;

D. A description of the national interest;

E. A discussion of the special planning requirements in energy facility siting, shorefront access, and erosion control;

F. A description of methods of public participation, and consultation and coordination with federal agencies, in the development of the program.

A. BOUNDARIES

The Federal Coastal Zone Management Act of 1972, as amended, requires that the state identify the boundaries of the coastal zone subject to management (15 CFR 923.30-.34). This chapter will define the coastal zone boundary and discuss the significance of this requirement relative to present state law. Designation of a coastal boundary in no way changes the present jurisdiction, authority or policy of state agencies and officials. The Act requires establishment by the state of seaward, lateral and landward boundaries. Discretion exists only for definition of the landward boundary.

1. Landward Boundary

The landward boundary of the coastal zone is an existing political boundary -- the county line of the first tier of counties. This boundary includes all coastal waters and adjacent shorelands strongly influenced by each other. These counties are:

Aransas	Kenedy
Brazoria	Kleberg
Calhoun	Matagorda
Cameron	Nueces
Chambers	Orange
Galveston	Refugio
Harris	San Patricio
Jackson	Victoria
Jefferson	Willacy

Included in this inland boundary are:

- areas necessary to control uses that have direct and significant impacts on coastal waters;
- special management areas as identified in this document;
- waters containing a significant quantity of seawater, including bays, Gulf waters, and waters under saline influence;

- salt marshes and wetlands that are subject to regular inundation of tidal salt waters and which contain marsh vegetation typical of the Texas coastal area;

- beaches adjacent to seawater;

- transitional and intertidal areas that are subject to regular inundation of tidal salt waters and which contain marsh vegetation typical of the Texas coastal area;

- transitional and intertidal areas that are subject to coastal storm surge and that contain vegetation that is salt tolerant and survives because of conditions associated with proximity to coastal waters; and

- barrier islands, peninsulas, and other islands.

This boundary clearly identifies eligibility for Coastal Energy Impact Program (CEIP) financial assistance because, to qualify for CEIP funds, at least a portion of a community must lie within the first tier of counties. A county boundary is simple to locate since it is an existing jurisdictional line, and easily provides notice for prospective residents and industry that they may be locating in an area possibly subject to hurricanes. It also is a simple planning tool for state planning and funding since many programs are administered on a county-wide basis. The primary regulatory effect of the boundary is the requirement of a consistency certification for federal agency proposals including licenses and permits (see "Federal Consistency", Chapter IV).

In the coastal zone, agencies must apply those state coastal resource policies that they are authorized by law to consider in granting any currently required approval or authorization of proposed activities. Even without an approved coastal management program, state agencies must apply these policies which are firmly established in existing state law. The uses subject to management under the Texas Coastal Program are those uses in the coastal area for which the approval of a state agency is legally required, as outlined in Table III-1, page III-2.

2. Seaward Boundary

The United States Supreme Court has recognized that Texas has jurisdiction over submerged land to a distance of three marine leagues, or approximately 10.35 statute miles, (U.S. v. States of Louisiana, Texas, Mississippi, Alabama, and Florida 364 U.S. 502, 81 S. Ct. 258, 5L. Ed. 2nd. 247, 1960). However, the federal Coastal Zone Management Act defines the seaward extent of the coastal zone as the outer limit of the U.S. territorial sea, currently three statute miles. This limitation extends to all states regardless of other jurisdictions. Therefore, the seaward boundary of the Texas Coastal Program is three miles for purposes of Federal Act Section 306 funding. This seaward boundary in no way alters the state's claim to ownership of all land and waters to a distance of 10.35 miles, nor does it reduce in any way or otherwise alter the jurisdiction of the state over those lands and waters.

3. Lateral Boundaries

The northern lateral boundary of the State's coastal zone is defined by the adjudicated boundary between Texas and Louisiana. The southern lateral boundary is determined by treaty between the Republic of Mexico and the United States.

4. Excluded Federal Lands

Lands owned, leased, held in trust or whose use is otherwise by law subject solely to the discretion of the federal government, its officers or agents, are excluded from the state's coastal zone. Federal landholdings in the Texas coastal zone in excess of two acres in urbanized areas and in excess of four acres in rural areas have been identified. Some of these areas are identified in "Special Management Areas."

These areas have been mapped and listed in the Texas Coastal Management Program: Report to the Governor and 65th Legislature, plates 2A and 2B. These plates are incorporated by reference for informational purposes only.

B. SPECIAL MANAGEMENT AREAS

The Texas commitment to management of coastal resources is reflected in a unique cooperative endeavor by private citizens and local, state and federal governments to set aside areas along the coast for special management. A study of the geographical areas of the Texas coast that are currently preserved or restricted for certain uses reveals the extent of this commitment.

Although lands owned, leased, held in trust or whose use is otherwise by law subject solely to the discretion of the federal government, are excluded from the Texas Coastal Program, these areas are geographically extensive in Texas, and recognition of them is important. Among the most important federal holdings are Padre Island National Seashore, Laguna Atascosa National Wildlife Refuge, Aransas National Wildlife Refuge, San Bernard National Wildlife Refuge, Brazoria National Wildlife Refuge, Anahuac National Wildlife Refuge, and McFaddin Marsh, which constitute over 260,000 acres in the coastal area under federal ownership or protection for wildlife and recreational purposes. The Padre Island Seashore constitutes over half of this acreage. Thousands of additional acres are under federal control for naval or air force installations, aero-space facilities, navigation channels, and installations. In addition, the Corps of Engineers has under its jurisdiction numerous spoil islands that provide beneficial habitat to a number of rare or threatened birds. These include Atkinson Islands (Chambers County), Little Pelican and the north half of Pelican Island (Galveston County), and spoil islands in Lavaca and Matagorda Bays (Calhoun County). These and other federal management programs contribute significantly to coastal management as a whole in Texas.

Another contribution to Texas coastal management is the role taken by private landowners who, on their own initiative, manage large coastal holdings as private preserves. The Texas Coastal Program does not attempt to duplicate the existing private management of these areas, but recognizes the special contributions of the private sector to Texas coastal resources management.

1. Areas of Particular Concern

In contrast to those areas that are under federal or private management, a number of geographical areas have been nominated in Texas as Areas of Particular Concern (APC). In order to meet the federal requirements for approval, the Texas Coastal Program must include an inventory and designation of areas of particular concern within the coastal zone and must include guidelines on the priorities of uses in those particular areas (15 CFR 923.21). In addition to those areas listed below, Texas recognizes areas particularly suitable for industrial development and marine commerce, such as existing ports and navigation districts.

The Texas Program has designated the following areas of concern:

- historical and cultural sites which have been nominated for or included in the National Register of Historic Places or which are State Landmarks;
- National Audubon Society and Houston Audubon Society leases;
- state parks;
- state management areas; and
- critical dunes (designated by the General Land Office).

The management of regulated APC differs from management of other areas because:

- The explicit statement of the nature of the state's concern puts potential resource users on notice of the special features of the areas, and
- conflicts among users in areas of particular concern will be resolved according to the published rankings of priorities.

a. Historical and Cultural Sites

Sites which are listed or nominated for inclusion on the National Register of Historic Places include such areas or sites as:

(1) Fort Brown (Cameron County)
(2) Resaca de la Palma Battlefield (Cameron County)
(3) Palo Alto Battlefield (Cameron County)
(4) Brazos Santiago Depot (Cameron County)
(5) Garcia Pasture Site (Cameron County)
(6) Mansfield Cut Underwater Archaelogical District (Willacy and Kenedy Counties)
(7) King Ranch (Nueces, Kleberg, Kenedy, and Willacy Counties)
(8) Dunn Ranch (Padre Island)
(9) James McGloin Homestead (San Patricio County)
(10) Fort St. Louis (Lavaca Bay)
(11) Cedar Bayou Archaeological District
(12) Orcoquisac Archaeological District
(13) Fort Anahuac (Chambers County)
(14) Matagorda Lighthouse (Calhoun County)
(15) Bolivar Lighthouse (Galveston County)
(16) Fort Velasco (Brazoria County)
(17) Copano (deserted city) (Aransas County)
(18) Fulton Mansion (Aransas County)
(19) Fort Esperanza (Calhoun County)
(20) Acadia Shipwreck (Brazoria County)

Over 150 sites in the coastal area have been listed or nominated for inclusion on the National Register. In addition, the Texas Antiquities Committee has marked hundreds of other sites as important state cultural or historical resources.

Texas provides special protection to these designated federal and state landmarks. All sunken or abandoned pre-twentieth century ships and wrecks of the sea, their parts or contents, and all treasure imbedded in the earth on state-owned lands are state archaeological landmarks and the sole property of the state. Such landmarks may not be taken, altered, damaged, destroyed, salvaged or excavated without a contract or permit from the Antiquities Committee. Other sites, objects, buildings, artifacts, and locations of historical, archaeological, scientific or educational interest located on land belonging to the state or its political subdivisions are also state archaeological landmarks and the property of the state. Sites on private lands that are designated landmarks are afforded the same protection as state archaeological landmarks.

The state's cultural and historical resources are currently managed by the Texas Antiquities Committee and

Texas Historical Commission. Activities or uses affecting these resources must comply with certain specific standards, found in Appendix C-11.

Priorities for uses for historical and cultural sites listed or nominated for inclusion on the National Register of Historic Places and for state archeological landmarks are:

- education
- research
- non-intensive recreation such as walking or sight-seeing
- recovery and exhibits (if destruction cannot be avoided)

b. National Audubon Society and Houston Audubon Society Leases

These are significant bird colonies and nesting sites. The areas are leased by the School Land Board to the National Audubon Society. In addition, Snake Island in West Bay is leased to the Houston Audubon Society and is an important area for bird nesting sites and colonies.

(1) Sidney Island (Sabine Lake)
(2) Vingt-et-un Islands (Trinity Bay)
(3) North Deer Island (West Bay)
(4) Bird Island (San Luis Pass)
(5) Second Chain of Islands (Between Ayers and San Antonio Bays)
(6) Long Reef/Deadman Island (Aransas Bay)
(7) Lydia Ann Island (Lydia Ann Channel)
(8) Harbor Island (edge of Aransas Bay)
(9) South Bird Island (northern Laguna Madre)
(10) Green Island (southern Laguna Madre)
(11) Three Islands (southern Laguna Madre)

Priority uses for these areas are:

- wildlife sanctuaries
- dredged material disposal sites to offset losses from erosion, with agreement of the lessee
- research and scientific studies
- education
- mineral exploration and development
- pipelines
- recreation
- erection of permanent structures

c. State parks

The Texas coastal area contains numerous state parks, state recreation areas, and state historical parks, as well as county or municipal parks. Because these areas are of historical, cultural, scenic, or recreational value, they are designated as Areas of Particular Concern, and include:

(1) Del Mar Brazos Island State Park
(2) Port Isabel Light House State Park
(3) Galveston Island State Park
(4) Sea Rim State Park
(5) Mustang Island State Park
(6) Varner Hogg Plantation State Park
(7) San Jacinto Battleground
(8) Bryan Beach
(9) Goose Island State Park
(10) Copano Bay Causeway State Park
(11) Palacios Park and Fishing Pier
(12) Surfside Beach

Priorities for these Areas of Particular Concern are:

- recreation
- education
- recreational facility construction
- camping
- pipeline construction in the absence of reasonable, practical alternate routes

d. State management areas

Large natural areas in the coastal zone contain unique, fragile, scarce, or vulnerable natural habitat for fish and wildlife. The state, therefore, has already provided special management to the following Areas of Particular Concern by establishing special management areas:

(1) Las Palomas State Wildlife Management Area
(2) J. D. Murphree Wildlife Management Area
(3) Sheldon Wildlife Management Area
(4) Swan Point Fisherman Access Area

Priorities for these areas are:

- wildlife sanctuaries
- wildlife and marine related research
- non-intensive recreation
- pipeline construction in the absence of reasonable, practical alternate routes
- mineral exploration and development

e. Designated Critical Dunes

Under the authority of TEX. NAT. RES. CODE sec. 63.121 (Vernon, 1978), the General Land Office has developed criteria for identifying dune areas critical to protecting public lands. As described in Chapter III, the GLO is presently designating critical dune areas in Nueces and Galveston Counties.

Priorities for uses in these Areas of Particular Concern are:

- preservation and revegetation
- elevated walkways
- pipeline construction, in absence of reasonable, practical alternate routes
- pedestrian traffic
- bulkheads or seawalls
- beach access roads, in absence of reasonable, practical alternate routes
- residential or recreational construction

2. Areas Utilizing Special Management Techniques in Response to Particular Resource Problems: Clear Lake

The School Land Board has developed special regulations for activities in Clear Lake, located southeast of Houston, in response to the unique developmental pressures and widespread local concern in that area. These Special Bay Area Guidelines were developed by the General Land Office staff with the cooperation of the Texas Parks and Wildlife Department, the U.S. Fish and Wildlife Service, the National Marine Fisheries Service and the Environmental Protection Agency. These special guidelines, incorporated into the School Land Board rules, provide planning guidance for project proponents and notice of what will be permissible in Clear Lake, and they will be used by the General Land Office Environmental Management Program staff when it assesses any project proposed to be located in Clear Lake.

The Clear Lake standards are an example of how state and federal agencies can respond to special resource problems in an area particularly when cumulative impacts result from many rather minor projects. It is anticipated that the special management technique can be applied to other areas in which local citizens and officials request planning guidance or regulatory assistance for proposed uses and activities in a problem area. Each set of standards would have to reflect the particular problems, necessary resource management techniques, and geographical limitations of the locality requesting management guidance and assistance. See specific standards adopted by the SLB for Clear Lake in Appendix C-12, "Special Bay Area Guidelines."

3. Areas for Preservation and Restoration

The General Land Office is responsible for a continuous inventory of the coastal public land and water resources. Under the Coastal Wetlands Acquisition Act, the General Land Office is directed to certify to the acquiring agency (Parks and Wildlife Department) those coastal wetlands (both public and private) which are most essential to the public interest, and to assign priorities for acquisition of interests in such coastal wetlands (TEX. NAT. RES. CODE secs. 33.053, 33.231-.238). In response to these requirements, the GLO has undertaken an analysis of resource productivity in wetland areas. Information developed in the analysis will form the basis for identification of (1) critical components of resources productivity, (2) location of essential wetland areas, and (3) compatible configurations of use. This information is important in determining which wetlands are most important to the public interest, and is essential to the continuation of a thriving commercial and sport fishing industry. For more details on coastal wetland acquisition procedures, see page III-24 and Appendix C-2, "Wetlands and Submerged Lands Management."

In addition to the critical wetlands, areas to be preserved and restored include lands leased by the School Land Board to the National Audubon Society (see page V-8).

C. USES OF REGIONAL BENEFIT

Section 306(e)(2) of the federal Coastal Zone Management Act requires states to explain how their programs assure that local land and water use regulations within the coastal zone do not unreasonably restrict or exclude uses of regional benefit. Uses of regional benefit include those that serve or impact more than one local unit of government.

In practice, local exclusion of uses of regional benefit has not been a problem in Texas. Local municipalities usually have welcomed siting of new facilities, rather than excluded them through municipal zoning authority. Coastal counties, with the exception of Cameron and Willacy, do not have zoning authority. In unincorporated areas, therefore, an abundance of potential sites exists, ensuring that facility siting for regional benefit will not be unreasonably restricted from the coastal area.

In addition to a favorable attitude toward siting facilities and uses of regional benefit, Texas has procedural and legal safeguards to assure regionally beneficial uses will not be unreasonably restricted. These include notice provisions, agency regulations providing for balancing of interests, state purchase of land, the governmental power of condemnation, and the ability of the state to grant easements and other interests in state-owned lands.

Should local governments propose actions that might affect uses of regional benefit, statutory procedural requirements ensure that state authorities would have adequate notice and an opportunity to respond to the proposed action. Both county and municipal decisions must be made in public meetings held after due notice (TEX. REV. CIV. STAT. art. 6252-13a (Vernon Supp. 1978)). Finally, the state and its political subdivisions are statutorily granted powers to purchase and condemn land for specified purposes, and the state may grant easements or other interests in state-owned lands for specified purposes.

The Texas Coastal Program defines uses of regional benefit to include the following activities and uses:

- Transportation facilities including roads, railroads, ports, navigation districts, waterways, and airports;

- Sport and commercial fisheries;

- Recreation and wildlife management including large scale parks, preserves, wildlife refuges, national seashore areas, and beaches;

- Pipelines for oil and gas transfer;

- Underground storage of gas;

- Electric power plants and power lines;

- Regional waste treatment plants; and

- Energy facilities.

1. Transportation Facilities

a. Roads

Normally, rights-of-way for highways are acquired through purchase or condemnation by county commissioners courts on behalf of the state. For this purpose, county commissioners courts have the power of eminent domain. In the event that they fail to acquire the right-of-way, however, the State Highway and Public Transportation Commission may direct the Attorney General to institute condemnation proceedings. TEX. REV. CIV. STAT. ANN. art. 6674n (Vernon 1977).

b. Railroads

Availability of rail service is assured by the ability of railroad companies to acquire lands and rights-of-way for spurs or industrial tracks through condemnation procedures. TEX. REV. CIV. STAT. ANN. art. 6316a (Vernon 1926).

c. Ports and Navigation Districts

State control of ports is conveyed through leases or other interest in state-owned lands for harbor improvements or other unit projects to be constructed by or for a federal agency. Upon the recommendation of the State Highway and

Public Transportation Commission or upon the request of federal authorities, the governor may convey an interest or easement in the land to the federal government or to any political subdivision, agency, or subdivision of the state (TEX. REV. CIV. STAT. ANN. art. 5244a-3 (Vernon 1962)).

d. Waterways

The State Highway and Public Transportation Commission is also involved in any condemnation of property or interests in property necessary to fulfill its responsibilities as the non-federal sponsor of the Gulf Intracoastal Waterway. Agencies and political subdivisions of the state, within their legal authority and available resources, are required to assist the Commission in these efforts (TEX. REV. CIV. STAT. ANN. art. 5415e-2 (Vernon Supp. 1978)).

e. Airports

The Texas Constitution allows the legislature to provide by law for creation and operation of airport authorities composed of one or more counties. These authorities would have numerous powers, including that of eminent domain. TEX. CONST. art. IX, sec. 12.

2. Sport and Commercial Fisheries

The Parks and Wildlife Code confers extensive authority upon the Texas Parks and Wildlife Department to regulate fishing within the state. This statutory authority is extremely detailed both with respect to substance and with respect to the geographic areas of its application. For example, application of the basic fisheries management law, the Uniform Wildlife Regulatory Act (TEX. PARKS & WILD. CODE secs. 61.001-.901) (Vernon 1976 and Vernon Supp. (1978)), is applied in varying fashion to each coastal county. Chapters 101-354 of the code specify these county-by-county exceptions. For counties where all or portions of the Uniform Act do not apply, these chapters substitute specific local requirements. Thus, Texas law gives the Department broad, overriding control over coastal fishing.

3. Recreation and Wildlife Management

The Open Beaches Act (TEX. NAT. RES. CODE, sec. 61.011), enforced by the Attorney General, protects recreational uses of regional benefit by ensuring access to public

beaches along the Gulf. Within their corporate limits, cities may pass ordinances to regulate motor vehicle traffic or littering of beaches. These ordinances take precedence over state laws in the event of any conflict (TEX. NAT. RES. CODE, sec. 61.129, Vernon 1978). While the Attorney General cannot overrule such ordinances in an attempt to improve beach access, the Attorney General may consider the cumulative impact that these and other restrictions may have in denying access to public beaches. Where vehicle use is denied by local officials, reasonable alternative access routes or alternative facilities which enhance beach access must be provided. If there is a clear lack of alternative access, the Attorney General reserves the option to bring suit under the Open Beaches Act.

The Texas Parks & Wildlife Department has authority to acquire land, water, and interests in land and water for outdoor recreation areas and facilities. In addition, the Department may receive gifts of state park sites and acquire historic sites by purchase, gift, or other manner. It may also institute condemnation proceedings to acquire land for developing outdoor recreation resources in cooperation with federal assistance programs for planning, acquiring, operating, and developing these state resources. Counties, river authorities, water districts, and other political subdivisions may also acquire land for public recreation. (TEX. PARKS & WILDLIFE CODE, §§ 13.002, 13.003, 13.005, 13.302, 13.304, 13.305.)

Through the years, the State of Texas has shown a marked commitment to resources management by providing areas for wildlife management. Lands necessary for commercial and recreational fisheries restoration and management, wildlife restoration and management, and migratory game-bird areas and preserves have been granted to both federal and state entities to ensure proper resources management. For example, the Governor has approved acquisition by the U.S. Fish & Wildlife Service of the McFaddin Ranch in Jefferson County.

The Parks and Wildlife Commission may construct and maintain saltwater hatcheries and propagation farms for fish, oysters, and game on islands owned by the state in coastal waters. For this purpose, and for the purpose of constructing, enlarging and maintaining passes or channels from one body of tidewater to another in the state, the Department has certain powers, including condemnation (PARKS

& WILDLIFE CODE, §§ 81.101, 81.103, 81.104). The Department also has the authority to accept control from any person owning land who transfers the right to preserve, protect, and introduce for propagation specified game birds or game animals for 10-year intervals (TEX. PARKS & WILDLIFE CODE, §§ 81.301, 81.306).

The state, furthermore, has made provisions for full cooperation in various federal-state agreements to conduct a number of wildlife programs. Texas has granted the federal government authority to acquire land or water in this state by purchase, gift, devise or lease in order to establish migratory bird reservations (TEX. PARKS & WILDLIFE CODE, § 83.004). The Parks & Wildlife Department is also granted authority to participate in cooperative federal-state programs for fish restoration projects, commercial fisheries research, and wildlife restoration projects (TEX. PARKS & WILDLIFE CODE, §§ 83.001, 83.002, 83.003).

4. Pipelines for Oil and Gas Transfer

Public utilities are authorized to condemn and appropriate lands, rights-of-way, easements, and property where necessary to lay pipelines in areas outside of incorporated cities and towns. They also may exercise this power within cities or towns, with the consent and under the direction of the local government (TEX. REV. CIV. STAT. ANN. art. 1436 (Vernon Supp. 1978)). Since local governments are invariably served by a public utilities right-of-way or easements, the local consent requirement does not constitute an unreasonable local restriction on the power of eminent domain.

Privately-owned pipeline companies are covered by those sections of the Natural Resources Code dealing with common carriers. Common carriers have the power of eminent domain, subject to requirements that condemned property be restored to its former condition as nearly as is reasonably practical. In some cases, common carriers must also gain permission from local governments to lay pipelines through cities and towns (TEX. NAT. RES. CODE, secs. 111.019-.022 (Vernon 1978)). Pipelines across state lands are generally considered acceptable uses of state-owned lands as long as all permit conditions or requirements are met.

5. Underground Storage of Gas

Storage of gas for regional use is regulated by the Underground Natural Gas Storage and Conservation Act of

1977 (V.T.C.A., Natural Resources Code Secs. 91.171-91.184). Gas utilities or related parent corporations and subsidiaries may exercise the right of eminent domain to accommodate such storage, upon order of the Railroad Commission approving the project. In issuing an order, the Commission considers various criteria pertaining to the storage plan, including the public interest associated with the storage. With certain exceptions, a storer granted the right of eminent domain may condemn all subsurface areas and all mineral and royalty rights in which the storer has a two-thirds interest. This granting of eminent domain by the Railroad Commission prevents local restrictions on this use.

6. Electric Power Plants and Power Lines

Public utilities may condemn sites for electric power plants, under the same power of eminent domain as described above (TEX. REV. CIV. STAT. ANN. art. 1436 (Vernon Supp. 1978)). Electric cooperatives, river authorities, or public utilities also have the power of eminent domain with respect to placement of power-lines. This power, as in the case of pipelines, is contingent upon the consent of local governments. Also, the State Highway and Public Transportation Commission proposes location of lines built along public roads outside corporate limits, and may designate alternative routes if necessary (TEX. REV. CIV. STAT. ANN. art. 1436a (Vernon Supp. 1978)). Power-lines across state lands are covered by General Land Office rights-of-way, and are generally considered acceptable uses when all permit conditions are met.

7. Regional Waste Disposal

The Texas Water Code provides for creation of regional waste-disposal districts or authorities, which govern multi-city or multi-county waste disposal. These authorities have various financial and other powers, including that of eminent domain. Their activities are supervised on behalf of the state by the Texas Department of Water Resources (TEX. WATER CODE ANN. secs. 30.001-.106 (Vernon Supp. 1978)). One such regional district in the coastal zone is the Gulf Coast Waste Disposal Authority, which encompasses Harris, Galveston, and Chambers Counties (TEX. REV. CIV. STAT. ANN. art. 7621d-2 (Vernon Supp. 1978)).

8. Energy Facilities

A major purpose of the 1976 amendments to the federal Coastal Zone Management Act was to ensure that coastal management programs would take into account the national interest in energy development. (See "National Interest".) To this end, programs after October 1, 1978 must set forth not only planning processes for energy facilities that are likely to be located in or that may significantly affect the coastal zone, but must include processes for "...anticipating and managing the impacts from such facilities" (Section 305 (b)(8)). (Emphasis added.) This provision is complemented by the added Coastal Energy Impact Program provisions of the Act.

D. NATIONAL INTEREST

Recognizing the distinct and irreplaceable value of this country's coastline, the Congress, in enacting the Coastal Zone Management Act, found that: "There is a national interest in the effective management, beneficial use, protection, and development of the coastal zone." (Coastal Zone Management Act, Section 302(a)).

The Texas Coastal Program provides the basic policies for managing the Texas coastal zone in accord with both state and national interests. To ensure that the national interest is adequately addressed, the CZMA requires that a state's coastal program "provide for adequate consideration of the national interest involved in planning for, and in the siting of, facilities (including energy facilities in, or which significantly affect, such state's coastal zone) which are necessary to meet the requirements which are other than local in nature." (Section 306(c)(8)).

The regulations of the CZMA, (15 CFR 923.52) specify that Texas must: 1) describe which national interests were considered during the program development and the sources relied upon for such considerations, 2) indicate how consideration of these interests is reflected in the substance of the program, and 3) describe a process for continued consideration of the national interest.

Consideration of the national interest, which is general in nature, must make due allowance for the <u>specific</u> national interest considerations set forth in Section 306 (c)(8). After October 1, 1978, coastal management programs must set forth not only planning processes for energy facilities that are likely to be located in or that may significantly affect the coastal zone, but must include processes for " ... anticipating <u>and managing</u> the impacts from such facilities." (Section 305(b)(8)). (Emphasis added.) The Coastal Energy Impact Program complements this subject. Accordingly, the national interest consideration of energy facilities rises to an important level within a coastal state's program.

In a balanced coastal program, however, it is important to recognize that other national interests, such as the national interest in resource conservation and protection, will be involved in decisions regarding the siting of iden-

tified national interest facilities. Consequently, resource issues also were considered during program development. The national interest in those resources and facilities is shared by Texas and is reflected in the goals of the coastal program, as specified in the Texas Water Code and Texas Natural Resources Codes.

1. Consideration of the National Interest in Program Development

In the development of the Texas Coastal Program, the primary sources relied upon for definition of national interests have been federal statutes, in which Congress has declared certain uses or resources to be in the national interest. A partial list of the statutes considered is given below:

- Fishery Conservation and Management Act, 16 U.S.C. secs. 1801-1882 (1976)
- National Flood Insurance Act of 1968, 42 U.S.C. secs. 4001-4128 (1976)
- Outer Continental Shelf Lands Act, 43 U.S.C. secs. 1331-1343 (1978) as amended by P.L. No. 95-372,95 Stat. 629 (1978)
- Ports and Waterways Safety Act, 33 U.S.C. secs. 1221-1232 (1976)
- Clean Air Act, 42 U.S.C.A. secs. 7401-7642 (Supp. 1978)
- Deepwater Port Act of 1974, 33 U.S.C. secs. 1501-1524 (1976)
- Endangered Species Act Amendments of 1978, 16 U.S.C. secs. 1531-1542 (1978)
- Energy Policy and Conservation Act, P.L. No. 94-163, 89 Stat. 871 (1975)
- Federal Water Pollution Control Act, 33 U.S.C.A secs. 1251-1376 (Supp. 1970-1977)
- National Environmental Policy Act of 1969, 42 USCA 4321-4361.

In addition to these federal laws, consideration was given to: policy statements or Executive Orders from the President of the United States (e.g., National Energy Plan, E. O. 11990 - Protection of Wetlands); special reports, studies and comments from federal and state agencies; testimony received at public hearings and meetings on the Texas program in the past; certificates, policy statements and solicited opinions issued on specific projects by federal regulatory agencies such as those within FERC; and statements of the national interest issued by federal agencies.

The Texas program also made early contacts with federal agencies and commissions in an effort to define the national interest in the Texas coast. In late 1975, the Program requested that federal agencies supply a statement of the national interest to assist Texas in developing a definition. A synopsis of the comments received is found in Appendix 6 of the Texas Coastal Management Program: Report to the Governor and 65th Legislature, 1977. In late 1977, agencies were invited to update the statements as appropriate.

Consultation with both federal and state agencies, coupled with the use of major statutes and policy documents, has provided a sound basis for developing a program that incorporates consideration of the national interest. The following section describes activities and resources in which there is a national interest, and indicates how their consideration is reflected in the substance of the program.

2. Description of National Interests and Incorporation into TCP

The following eleven areas have been identified as national interests:

- National Defense and Aerospace
- Energy
- Recreation
- Transportation
- Air and Water Resources
- Coastal Wetlands
- Fisheries
- Endangered Species
- Protection from Coastal Hazards
- Historical and Cultural Resources
- Agriculture

a. National Defense and Aerospace

The Texas Program recognizes the paramount importance of national defense and excludes existing federally-owned or -leased lands as required by federal law. The Texas coast hosts numerous military installations as well as National Aeronautics and Space Administration facilities. The Texas Coastal Program recognizes that national security contingencies may, in the future, require new or expanded defense facilities.

With respect to proposals for new or expanded defense facilities, the Texas Program will not seek to question the national security justification. Rather, it will strive to ensure that reasonable investigation of feasible alternative sites is conducted so that conformance, to the maximum extent practicable, is reached with applicable policies of the Texas Coastal Program. When necessary, federal consistency mediation procedures will be sought (see "Federal Consistency", Chapter IV).

b. Energy

The following sources were consulted in determining the national interest as it relates to energy:

- National Energy Plans I and II
- National Environmental Policy Act of 1969
- Outer Continental Shelf Lands Act
- Department of Energy
- Bureau of Land Management
- Bureau of Mines
- U.S. Geological Survey
- National Aeronautics and Space Administration
- Nuclear Regulatory Commission

A useful articulation of the national interest in energy facility planning and siting is found in the National Energy Plan. The major objectives found in the plan are:

- as an immediate objective, to reduce dependence on foreign oil and vulnerability to supply interruptions;

- to keep U.S. imports sufficiently low to weather the period when world oil production approaches its capacity limitation; and

- in the long term, to have renewable and essentially inexhaustible sources of energy for sustained economic growth.

The salient features of the National Energy Plan are conservation and fuel economy, national pricing and production policies, reasonable certainty and stability in government policies, substitution of abundant energy resources for those in short supply, and development of nonconventional technologies for the future.

The Texas coast has one of the greatest concentrations of energy-related activities in the nation. It contains the following existing facilities: 39 petroleum refineries, 73 gas processing plants, 54 petrochemical plants, 10 mobile drilling rig and platform construction yards, 22 conventional electric generating plants, 58 petroleum bulk stations and terminals, and a large network of oil and gas pipelines. (See Appendix F for a complete listing of facilities.) Its storage, processing, and refinery capacity plays a major role in satisfying the nation's energy needs.

In addition to these existing facilities, increased growth is likely in production of oil and gas from the Outer Continental Shelf; installation of new nuclear, coal, and lignite-fired electric generating plants; construction of new offshore and onshore deepwater ports to handle imports of foreign oil; and possible construction of liquefied natural gas terminals to handle imports of foreign gas, with associated oil and gas pipelines.

The response of Texas state agencies to this important national interest is to refrain from placing additional special restrictions on energy facilities proposed for the coastal area. Rather, under its impacts management approach, state agencies will grant permits to those facilities if they meet reasonable performance standards pertaining to air and water quality and if they otherwise satisfy requirements for granting of state permits, leases, or easements.

More specifically, in the Texas Coastal Program the goal relating to energy facilities is to encourage and accommodate installations and facilities related to exploration, development and production of energy resources; including offshore oil and gas, geothermal energy, and alternative sources of energy; in conformance with applicable

state and federal laws (TEX. WATER CODE, secs. 19.001 and 26.262; TEX. NAT. RES. CODE, secs. 52.072 and 141.002).

In addition to encouraging production, Texas also seeks to avoid wasteful or excessive production. Duties of the Railroad Commission include the requirement: "To enforce the laws of the state and make and enforce such other rules, regulations, or orders as may be necessary to prevent excess production of oil and gas beyond transportation and market facilities as would result in waste; in so doing to regulate the drilling, equipping, locating, spacing, operating, and production of oil and gas wells" (Vernon's Ann. Tex. Const., art. 10, sec. 2, Interpretive Commentary).

There is a potential for competition between the national interest in energy facilities and the national interest in protection of the environment. For example, construction of energy facilities in coastal areas often requires substantial dredging in order to provide water transportation access to the facility site. These potentially conflicting national interests are considered through the decision-making process of the boards and commissions in issuing or denying permits, certifications, leases and easements. The processes, rules and regulations with which the boards and commissions operate are outlined throughout the Texas Coastal Program. The regulatory authorities of these agencies are described in Chapter III, and standards are found in detail in the Appendices of the Program.

In general, the Texas Coastal Program aims to properly balance the needs of energy with the need for preservation of natural resources and in so doing addresses national interest. The Program encourages the production of energy while maintaining reasonable guidelines to protect our natural resources. Skillful and reasonable management ensures that Texas attends to the national interest in all facets of its energy policies.

c. Recreation

A goal of the Texas Coastal Program is "...to promote the state's coastal recreational resources, including parks, preserves, seashores and beach areas..." (page I-4). Recognizing its responsibilities to the rest of the nation, Texas has incorporated in its coastal planning local, state and federal recreational interests in issues affecting the coastal zone. The Texas coastal recreational policies have been developed after consideration of the following sources:

- Federal laws and regulations
- National Outdoor Recreation Plan
- National Historic Preservation Act
- Land and Water Conservation Fund Act
- State and local recreation programs (e.g., Texas Outdoor Recreation Plan, Texas Open Beaches Act)
- Special reports, studies and comments from federal, state and local agencies
- Department of Agriculture
- Corps of Engineers
- National Park Service
- Fish and Wildlife
- Bureau of Outdoor Recreation (now Heritage Conservation and Recreation Service)
- U.S. Coast Guard

The following are major objectives of the national interest in recreational facilities:

- To consider recreation as an equal among competing uses of the coastal region;

- To provide high quality recreational opportunities to all people of the United States while protecting the coastal environment;

- To increase public recreation in high density areas;

- To improve coordination and management of recreational areas; and

- To protect existing recreational areas from adverse contiguous uses.

The national interest has been incorporated into the Texas Coastal Program through various means and is implemented through various policies. First, Texas guarantees public access under the Texas Open Beaches Act (V.T.C.A., Natural Resources Code, Sec. 61.011) and the program provides for such access. Further, "The state generally has a good regional distribution of free and easily accessible public shorefront. State authorities are empowered to acquire additional park lands, and access roads are built as expansion is needed" (page III-47).

Development pressures affecting Texas beaches are addressed by guidelines set by the Texas Attorney General, who has prepared maps depicting construction set-back lines. The Texas Parks and Wildlife Department, under statutory mandate, has established a licensing procedure for licensing of mobile businesses on beaches. Moreover, licenses shall not be granted for business establishments located at a fixed or permanent location on a public beach." (V.T.C.A., Natural Resources Code, sec. 61.169).

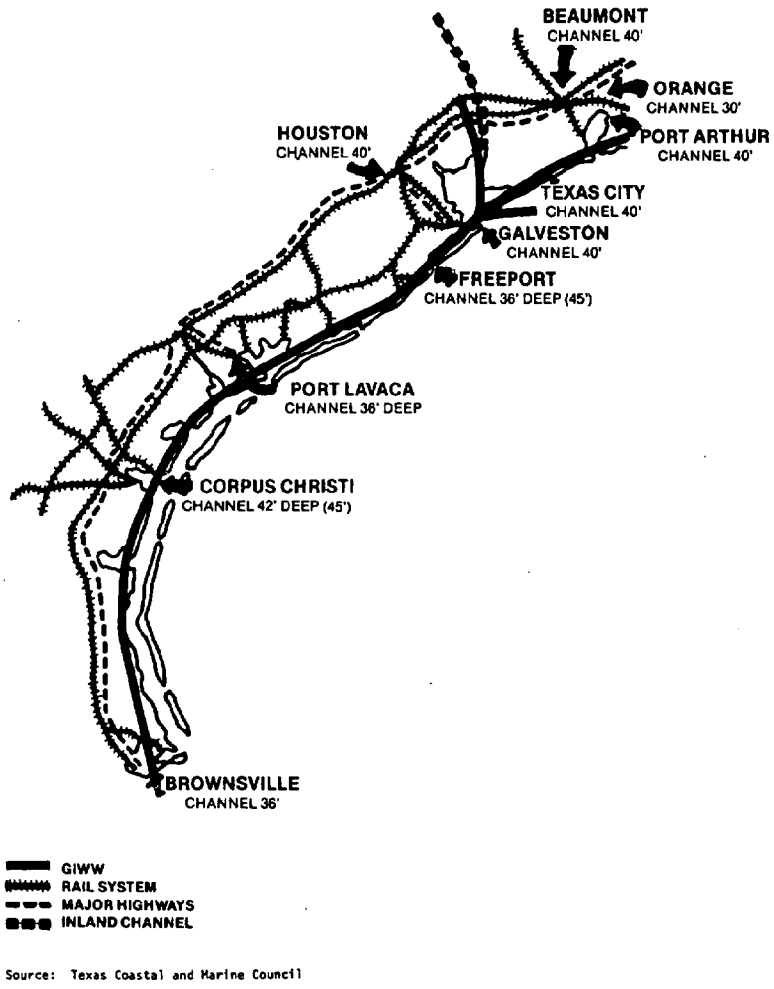
To further the national interest in recreation, the Texas Coastal Program incorporates planning for additional park facilities by the Parks and Wildlife Department based upon the needs estimated in the Texas Outdoor Recreation Plan, and planning for additional access roads by the State Department of Highways and Public Transportation. Moreover, in the chapter on "Special Management Areas," the Program outlines standards governing areas of preservation and recreation such as state parks. The Program regards the coastline as more than a local and state resource; it is a national recreational resource of unique and natural beauty.

d. Transportation

Ports and maritime shipping are important economic sectors within the Texas coastal zone. The coastal region contains 10 major ports, each of which processes over one million tons per year. These ports are managed by state-created navigation districts (see page III-76). The Texas segment of the Gulf Intracoastal Waterway, which connects the state with major ports in the East, Midwest, and South, is 426 miles long. More than 66 million tons of cargo are transported over the waterway annually, including a high percentage of energy-related products and a significant volume of agricultural commodities (Figure V-1).

Maintenance of coastal area transportation facilities, including highways and other roadways, is of national significance. In determining the national interest in transportation, ports and navigation, the following documents and federal agencies were consulted:

- Rivers and Harbors Act of 1899
- Department of Agriculture
- Department of Transportation
- Federal Aviation Administration



Source: Texas Coastal and Marine Council

The Gulf Intracoastal Waterway

Figure V-1

Perhaps the best articulation of national interest with regard to transportation is made by the Department of Transportation. The national interest shall "include construction, maintenance, and improvement of the present transportation systems on and under the land, on and over the water, and in the air. Of specific interest in the coastal area are deepwater port sites, [and] long-range navigation (LORAN)." Moreover, of national interest is the development of a fast, safe, efficient transportation system including well-articulated and integrated modes of transport for the movement of people, goods and services to, from, and through the coastal region.

The Texas Program incorporates this national interest through state sponsorship of the Gulf Intracoastal Waterway by the State Department of Highways and Public Transportation (Texas Coastal Waterway Act of 1975, Vernon's Ann. Civ. St., art. 5415e-2). Further, the Texas Coastal Program states that one of its policies is "to recognize, promote, and protect the public interest in navigation, transportation and commerce" (page I-4).

National interest in transportation is clearly addressed in Texas legislation. "The legislature finds, determines and declares that the purpose of this Act is to delegate certain additional authority to the State Highway Commission to promote the Public Safety, to facilitate the movement of traffic, to preserve the financial investment of the public in its highways and to promote the National Defense." (Vernon's Ann. Civ. Stat. art. 6674w.)

The necessary balance between national interest in transportation and the national interest in preservation and conservation is achieved through the requirement that ports and navigation districts obtain various state permits from the GLO and TDWR for construction and modification activities. The most important activities requiring a permit are dredging and dredged material disposal, which are necessary for continued maintenance of coastal waterways. The Texas approach to balancing national interests in promoting transportation and preservation with regard to dredging is discussed later in this chapter and more fully in Chapter III.

e. Air and Water Resources

In determining the national interest in air and water quality the following were consulted:

- The Federal Clean Air Act, and amendments
- The Federal Water Pollution Control Act
- Council on Environmental Quality
- National Aeronautics and Space Administration
- Corps of Engineers
- U.S. Environmental Protection Agency
- U.S. Fish and Wildlife Service
- U.S. Coast Guard

The national interest in air and water quality is to protect the quality of these resources that in turn enhance the quality of life of the citizens of the United States.

The Texas Program recognizes this interest and has as a policy and purpose the safeguarding of "... the air resources of the state ... consistent with the protection of health, general welfare, and physical property of the people, including the aesthetic enjoyment of the air resources by the people and the maintenance of adequate visibility." (Texas Clean Air Act, Vernon Ann. Civ. Stat. art. 4477-5, Sec. 1.02) Further, the Program seeks "to promote the conservation and beneficial use of the state's coastal waters..." (page I-2).

The Texas Program also recognizes this interest through its incorporation of the Texas Air Control Board and Texas Department of Water Resources air and water quality methods and standards. Pursuant to the policy set forth in the Texas Clean Air Act, the Texas Air Control Board seeks to "... safeguard the air resources of the state from pollution by controlling or abating air pollution and emissions of air contaminants..." (Vernon's Ann. Civ. St. art. 4477-5, sec. 1.02). It is a policy of the Texas Department of Water Resources to conserve the state's natural resources, including the waters of its rivers and streams (TEX. WATER CODE 1.003). Actions by these two state agencies under their statutory authorities meet the requirements of the federal acts and pertinent regulations of the Environmental Protection Agency.

Nondegradation and emission offset policies specified within the Clean Air Act necessitate that any industrial expansion along the Texas coast be compatible with preservation or improvement of surrounding air quality. Under the Texas Program, facility siting remains largely an industry-initiated process. Nevertheless, the federal requirements, as reflected in the recently-adopted State Implementation Plan, constitute a major influence on siting decisions.

With respect to water quality, in addition to the above the state is presently seeking authority to have administration of the National Pollution Discharge Elimination System transferred to the Texas Department of Water Resources. This agency is already involved in development of areawide and river basin plans to control nonpoint source pollution. It also has authority to regulate placement of hazardous solid wastes and to cooperate with the U.S. Coast Guard in the event of accidental toxic discharges or oil spills in the Texas coastal area.

f. Coastal Wetlands

The coastal wetlands environment plays a major role in coastal biological productivity, especially that of fish and other commercial marine resources. The supplying of nutrients from such areas is important in the life cycles of these species, as is the migration of the species among various estuarine, bay, and open Gulf habitats. The national interest in wetlands is determined after consulting the following sources:

- The President's Executive Order on Wetlands, Exec. Order No. 11990
- Federal Clean Water Act
- National Park Service
- U.S. Fish and Wildlife Service
- Corps of Engineers
- National Oceanic and Atmospheric Administration

The President's Executive Order on Protection of Wetlands, Exec. Order No. 11990, 3 C.F.R. 121 (1977), reprinted in 42 USCA sec. 4321 nt. (Supp. 1978), expresses the national interest in wetlands:

> ....to avoid to the extent possible the long- and short-term adverse impacts associated with the distribution or modification of wetlands and to

avoid direct or indirect support of new construction in wetlands whenever there is a practicable alternative.

The Texas Coastal Program aims "to promote the conservation, protection, and the wise management of the state's coastal wetlands through measures that prevent or mitigate effects of pollution, avoid unreasonable destruction of wetlands, provide for acquisition of critical coastal wetlands, and protect vested rights in land and ensure the orderly use of littoral property consistent with the policy of this state" (page I-2). The General Land Office/School Land Board and the Texas Parks and Wildlife Department in particular have promulgated rules, pursuant to their statutory mandates, which provide for the protection of coastal wetlands (see Appendix C-2).

The national interest in both transportation and energy facilities may come into conflict with the interest in coastal wetlands preservation. To resolve the conflict, the Texas Coastal Program has incorporated agency rules, regulations, and guidelines as standards that are designed to minimize potential environmental harm. Such standards are described explicitly in the section on "Wetlands and Submerged Lands Management," in Appendix C-2. The draft Memoranda of Understanding provide for a coordinated agency response into 401 certification of activities on privately-owned wetlands and submerged lands not under the jurisdiction of the GLO/SLB. Through the MOU, the agencies also agree to consider the national interest in their decision-making process. TDWR, RRC, and GLO/SLB have developed draft proposed rules which may affect agency decisions on activities in wetlands, found in Appendices A-5, A-6, and B.

g. Fisheries

The national interest in Texas commercial fisheries is evident in that the state ranks fourth in the nation in the value of its commercial landings. Leading centers for commercial fishing in the Texas coastal zone are the Brownsville-Port Isabel, Aransas Pass-Rockport, and Freeport areas. Commercial shrimping dominates the industry in terms of catch value.

In determining the national interest in living marine resources, the following documents, legislation and agencies were used as indicators:

- Federal Fishery Conservation and Management Act of 1976
- Offshore Shrimp Fisheries Act of 1973
- A Marine Fisheries Program for the Nation; U.S. Department of Commerce; July, 1976
- Marine Protection, Research, and Sanctuaries Act of 1972
- Fish and Wildlife Coordination Act
- A Compilation of Federal Laws Relating to Conservation and Development of Our Nation's Fish and Wildlife Resources, Environmental Quality, and Oceanography; The Library of Congress, Congressional Research Service; January, 1975
- U.S. Fish and Wildlife Service
- National Park Service
- U.S. Coast Guard
- National Oceanic and Atmospheric Administration

The major objectives of the national interest in fisheries as expressed are as follows:

- To conserve, enhance and manage in a rational manner commercial fishing, which constitutes a major source of employment and contributes significantly to the food supply, economy and health of the nation.

- To strengthen the contribution of marine resources to recreation and other social needs.

- To develop and protect all species of wildlife, resources thereof and their habitat, and to control losses by damage to habitat areas through coordination with other features of water resource development programs.

The national interest in fisheries is accommodated in the Texas Coastal Program partly by the state policies on coastal wetlands, and partly by a variety of fishery management and conservation laws. Among these are the Uniform Wildlife Regulatory Act (V.T.C.A., PARKS AND WILDLIFE CODE, Chap. 61), Shrimp Conservation Act, and Red Drum Conservation Act.

Texas' recognition of the national interest in fisheries is also reflected in the state's participation in the

activities of the Gulf of Mexico Fishery Management Council, established by the federal Fishery Conservation and Management Act of 1976. To avoid any conflicts between national and state interests, the Legislature has authorized the Texas Parks and Wildlife Department to issue whatever additional regulations might be needed to comply with the Act. The state also coordinates its programs with this and other regional or federal programs.

The Texas Coastal Program aims "to use reasonable methods to provide for the conservation and management of fish, shell fish, and wildlife resources and their habitat, to maintain the proper ecological environment of the bays and estuaries of Texas and the health of related marine resources, to prevent depletion and waste of wildlife resources, to prevent pollution of water and destruction of marine life, to encourage fisheries management, and to regulate the taking of all fish, wildlife, and marl, sand, gravel, shell, or mudshell" (page I-3).

h. Endangered Species

The Texas coast contains five major national wildlife refuges which serve as habitats for protected wildlife. These are the Anahuac, Aransas, Brazoria, San Bernard, and Laguna Atascosa National Wildlife Refuges. Although these refuges are excluded from the Coastal Program because they are federally owned or administered, their establishment is evidence of the state's recognition of wildlife protection as a national interest. The Aransas refuge, in particular, serves as a seasonal habitat for the whooping crane, which has been a major focus of national conservation efforts under the Endangered Species Act.

The following sources were consulted in determining the national interest in endangered species:

- Endangered Species Act Amendments of 1978
- Fish and Wildlife Coordination Act
- Marine Protection, Research and Sanctuaries Act of 1972
- Marine Mammal Protection Act of 1972
- Migratory Bird Conservation Act
- U.S. Fish and Wildlife Service
- National Park Service
- U.S. Coast Guard
- National Oceanic and Atmospheric Administration

The national interest in endangered species has been determined to be:

- To provide a means to preserve ecosystems which are threatened and upon which endangered species depend.

- To consider the effect of proposed activities on threatened and endangered species.

The Texas Coastal Program complies with the national interest in protection of endangered species under several sections of the Parks and Wildlife Code. Sections 43.021-.030 of the Code require the obtaining of a permit to take, possess or transport protected wildlife, including endangered species, for propagation. Section 43.024 imposes special restrictions on these permits, prohibiting their issuance for taking or transportation of endangered species where prohibited by federal law. The Parks and Wildlife Department may also refuse to grant a permit if the species can be obtained from an intrastate source other than its natural habitat.

Chapter 68 of the Code, which deals specifically with endangered species as classified by federal and state authorities, includes a secondary reference to the preceding requirements. Section 68.006 prohibits the taking, possessing, or transporting of endangered species, without a permit as described above. The Parks and Wildlife Department rules 127.30.09.001-.006, which are designed to implement these statutory requirements, contain a list of the state's endangered species.

i. Protection from Coastal Hazards

The national interest in floodplains and erosion-prone areas is expressed through the President's Executive Order on Floodplains and the National Flood Insurance Program (42 U.S.C.A. secs. 4001-4128). Nearly all city governments within the coastal zone have passed the zoning and building ordinances necessary to qualify for the national programs so that loss of life and property, as well as federal expenditures, will be minimized in the event of a coastal disaster.

Although their major effects are upon Texas coastal residents, hurricanes and associated hazards are also subject to the national interest. In the event of a hurricane

during the summer tourist season, for example, out-of-state visitors would benefit from emergency evacuation as provided for by the Texas Disaster Plan.

j. Historical and Cultural Resources

In determining the national interest in historic sites and cultural resources, the following documents, legislation, and federal agencies were consulted:

- The Historic Sites Act of 1935
- The National Historic Preservation Act of 1966, amended under the Land and Water Conservation Fund Act of 1965
- The National Environmental Policy Act of 1969
- Department of Housing and Urban Development
- National Park Service
- U.S. Geological Survey

The major objectives of the national interest in historic sites and districts have been identified to be:

- To afford protection to significant historic suites (including archaeological sites) from adverse impacts.

- To consider cultural resources in assessing the environmental impacts of proposed activities.

The Texas Coastal Program has incorporated the national interest in historic preservation in various areas of legislation. One goal of the Program is to locate and protect coastal cultural, historical, and archaeological resources. This aim is clearly defined in the Antiquities Code which declares it to be " ... the public policy and in the public interest of the State of Texas to locate, protect, and preserve all sites, objects, buildings, pre-twentieth century shipwrecks ... in, on, or under any of the land in the State of Texas, including the tidelands, submerged land, and the bed of the sea within the jurisdiction of the State of Texas." (V.T.C.A., Natural Resources Code, sec. 191.002).

The Texas Coastal Program also names the Areas of Particular Concern in the state, including these historical

sites (page V-7 and 8). Standards of the Antiquities Committee address the national interest by affording protection to such areas and consideration to environmental impacts (Appendix C-11).

k. Agriculture

With approximately 160,000 farms and ranches covering almost 140 million acres, the importance of Texas' agriculture to the state and to the nation is evident. Texas leads the nation in the production of cotton, grain sorghum, beef cattle, sheep, horses and goats, and has the third largest fruit and vegetable harvest. Farming and ranching were the state's first enterprises and traditionally have made an invaluable contribution to the health and economic well being of the nation. In 1975, for example, Texas exported over $1.2 million in agricultural products. Major commodities sold to foreign countries are cotton, wheat, rice, mohair, grain sorghum, hides and skins, and fats and tallows. In addition, many processed foods, meats, and fresh fruits and vegetables are helping to boost the total dollar value of agricultural exports. The importance of these exports in helping to tip the balance in trade toward the United States makes Texas' agriculture vital to the national interest.

The following legislation and federal agencies were consulted in determining the national interest in agriculture:

- Watershed Protection and Flood Protection Act
- Soil Conservation and Domestic Allotment Act
- Food and Agricultural Act of 1962
- Soil Conservation Service
- Agricultural Stabilization and Conservation Service
- Farmers Home Administration
- Forest Service

The major objectives of the national interest have been determined to be:

- To conserve national resources, preventing the wasteful use of soil fertility, and to preserve, maintain and rebuild farm and land resources.

- To maintain and develop food and fiber production.

- To assist in the marketing of agricultural commodities for domestic consumption and for export.

- To develop a program of land conservation and land utilization in order to correct maladjustments in land use, to promote soil and water conservation, and to prevent soil erosion.

The Legislature of the State of Texas has long recognized the value of agriculture to the state and to the nation. Therefore, the legislature has charged the Commissioner of Agriculture with promoting the advancement of agricultural methods and practices, investigating methods for broadening the market and methods of increasing the demand for agricultural and horticultural products (both in the U.S. and foreign countries), inquiring into methods for improving crop and livestock production, and making such studies as are necessary and appropriate for the advancement of irrigation in the state (V.A.C.S., art. 51). In addition, the State of Texas addresses the national interest in declaring that it is in the public welfare "... that the producers of any agricultural commodity be permitted and encouraged to develop, carry out, and participate in programs of research, disease and insect control, predator control, marketing, and use of such agricultural commodity." (V.A.C.S., Art. 55c, sec. 1).

As early as 1876, Texas recognized the importance of agriculture to the state and the nation when provision was made for the Texas A&M University (originally the Agricultural and Mechanical College of Texas). Subsequently, the legislature emphasized the importance of agriculture when it enacted a statute establishing "... experiment stations for the purpose of making experiments and conducting investigations in planting and growing agricultural and horticultural crops and soils, and the breeding, feeding and fattening of livestock for slaughter." (V.T.C.A., Education Code, Sec. 88.201). Thus, the State of Texas actively promotes agricultural activities in accordance with the national interest.

3. Continuing Consideration of National Interests

OCZM regulations also require states to describe a process for continued consideration of national interests during program implementation, including a description of the administrative procedures and decision points where such interests can be considered.

The determination of national interests, the resolution of conflict among differing national interests and conflict between the national and state interests, are policy questions. Therefore, the appropriate point to consider national interests is at the level of the board, commission, or elected officials. Under the Administrative Procedures and Texas Register Act, TEX. REV. CIV. STAT. ANN. art. 6252-13a (Vernon Supp. 1978), the Legislature and the public can determine whether specific decisions or rules make adequate provision for the national interest. The Act provides judicial relief at key points if administrative discretion is abused to the extent of ignoring national interests under standards set by the agency.

State agencies with jurisdictional authority in the area of water quality have developed draft Memoranda of Understanding regarding state certification (Section 401) of the Corps of Engineers' 404 permits on privately-owned wetlands and submerged lands not under the jurisdiction of the GLO/SLB. The four Memoranda between state agencies specifically provide that the state agencies that are a party to the agreement "will consider the national interest during the process for comments and certification outlined in this agreement." (See Appendix A.)

On state-owned lands, the General Land Office/School Land Board is mandated to protect the state's proprietary interests in its public lands. In its proposed rules for state-owned lands in the coastal area, promulgated pursuant to Section 33.064 of the Texas Natural Resources Code, the School Land Board specifically provides that the board "shall consider the national interest in those portions of projects on or directly and significantly affecting state lands in the coastal area that are relevant to the planning and siting of facilities." (SLB proposed rule, 135.18.04.003(c)(13), on page B-1-10). The complete set of proposed rules and amendments of the SLB and the GLO are found in Appendix B of this document.

With these mechanisms on both public and private wetlands, Texas is assured that continuing consideration will be given to the national interests in coastal resources protection and development.

E. SPECIAL PLANNING REQUIREMENTS

Regulations issued by the Office of Coastal Zone Management pursuant to the federal Coastal Zone Management Act, as amended, require that a state describe a planning process for energy facility siting, shorefront access, and erosion control. In the following discussion, the specific requirements of these regulations and the state's responses are identified.

1. Energy Facility Planning Process

The state has fulfilled the requirements for developing an energy facility planning process as follows.

a. Identification of energy facilities that are likely to locate in, or that may significantly affect, a state's coastal zone. (15 CFR 923.13(b)(1))

The Texas Coastal Program has produced the following list of facilities likely to locate in or significantly affect the state's coastal zone:

(1) Petrochemical plants
(2) Gas processing plants
(3) Nuclear-powered electrical generating plants
(4) Petroleum refineries
(5) Mobile drilling rig/platform construction yards
(6) Liquefied Natural Gas (LNG) plants and associated terminals
(7) Conventional electrical generating plants
(8) Bulk terminals
(9) Salt dome storage facilities
(10) Primary metal processing facilities
(11) Metal fabrication plants
(12) Machinery manufacturing plants
(13) Offshore platforms
(14) Onshore drilling rigs
(15) Oilfield equipment storage depots (for both onshore and offshore drilling)
(16) Crew and supply bases (for both onshore and offshore)
(17) Deep-draft ports
(18) Expansion of facilities of existing ports
(19) Pipelines (both onshore and offshore)
(20) Geothermal energy extraction

Appendix F of this document provides an analysis and detailed list of projected and existing facilities.

b. Procedures for assessing the suitability of sites for such facilities. (15 CFR 923.13(b)(2))

Procedures for assessing the suitability of sites for energy facilities have been developed in Texas and are implemented through the state permitting process and performance standard requirements discussed in Chapter III in the section on facility siting. Specific standards are found in Appendix C-10. The laws and policies of the State of Texas are oriented toward the anticipation of such facilities. The Texas process is based on a project-by-project review of planned facilities by the appropriate state agencies, and Texas statutes assign various agencies the authority to control the use of natural resources. State agencies review a project and may require substantial changes in the design of the facility in order to minimize impacts. The law also requires posting of public notice and, in some cases, holding of a public hearing in the permit application process.

In the case of facilities affecting air and water quality, construction and operation permits must be obtained from the Department of Water Resources and the Texas Air Control Board. Permits give the detailed standards and specifications the facility is required to meet as well as time limitations on the validity of the permit. When this time limit is reached, a new permit application must be submitted if the operation is to continue, and any design changes, including expansion plans, require receipt of an amended permit. The Department of Water Resources considers the environmental as well as the social and economic impacts of proposed facilities. The Texas Air Control Board advises applicants when alternative site analysis for siting in non-attainment areas is required pursuant to regulations of the Environmental Protection Agency and the National Environmental Policy Act.

In addition, the School Land Board and General Land Office may consider site feasibility for those portions of projects on state-owned lands. The board or commissioner also may consider the extent to which alternative sites more consistent with SLB/GLO management objectives and performance standards can be used.

c. Articulation and identification of enforceable state policies, authorities and techniques for managing energy facilities and their impacts. (15 CFR 923.13(b)(3))

The agencies with requirements relating specifically to energy facilities are the Railroad Commission and the General Land Office/School Land Board. The Railroad Commission rules for prevention of pollution by offshore oil, gas, and geothermal activities and the School Land Board and General Land Office rules for energy activities occurring on state-owned lands were discussed in Chapter III. Specific standards are found in the Appendices of this document.

The policy of the Texas Coastal Program is directed toward impact management, controlling impacts of coastal activities. As a general rule, Texas policy does not preselect sites as suitable or unsuitable for given activities. Rather, the responsibility for initiating the siting process begins in the private sector where initial criteria for selecting a site narrows the potential location to one or two sites. These criteria include physical and social characteristics and proximity to resources, transportation routes, labor supplies and services. Texas does not interfere with an industry's decision in facility siting if the facility complies with existing laws and regulations. Present coastal siting procedures simultaneously consider the issues of promoting the economic health of the coastal area and protecting the quality of the environment. Private and government planners can frequently provide technical engineering modifications to address the known disadvantages of a site and bring impacts within levels acceptable to agency regulations and standards.

Rather than automatically ruling out sites or areas because they appear to be unsuitable for energy or general industrial siting, the Texas Coastal Program recognizes that in the future, potential technological and economic changes could make such sites attractive to industry and appropriate in terms of state and national interests.

Areas of special management and particular concern, addressed earlier in this chapter, are unique in that priorities of uses in these areas are published, siting of certain facilities in special management areas is discouraged. For example, much of the land in the coastal area is considered unsuitable for facility siting because it is designated as park and natural refuge area.

The Texas Coastal Program recognizes that specific parts of the coastal environment are more vulnerable to the effects of man's activities than others. This includes areas that will be certified as critical wetlands as a part of the Program, and which may then be acquired by the Texas Parks and Wildlife Department.

d. Identification of how interested parties and affected public and private parties will be involved in the planning process, including the procedures by which the national interests can continue to be considered. (15 CFR 923.13(b)(4))

There are a number of ways in which affected parties are involved in the Texas process. The procedures by which the national interest is considered in the energy facility siting process are discussed earlier in this chapter. In the planning process, state agencies are required to post notice and hold public hearings when they are proposing to change their procedures or rules. The Texas Administrative Procedures and Texas Register Act (APTRA) requires these rules to be on file and available to the public (TEX. REV. CIV. STAT. ANN. art. 6252-13a (Vernon Supp. 1978)). The rules set out a basis for granting or denying a permit as well as the procedures necessary to obtain a permit.

In specific permit application cases, state agencies also hold public hearings. In some cases, the applicant is required to publish notice of the hearing in a local newspaper before the hearing. The agencies may also be required to publish notice of the hearing in the Texas Register and maintain a mailing list of those who may be interested, usually including local governments. The hearing is open to the public, anyone can testify, and all testimony and evidence becomes part of the record. Both written and oral comments may be entered into the record. After the hearing date is set, APTRA specifies that a permit decision must be issued within a maximum of 120 days after the hearing record is closed. Using the evaluation of its staff and the testimony received, the agency board grants or denies the permit application. Any dissatisfied party may make a motion for rehearing, which the board or agency may grant or deny. If the motion for rehearing is denied, the decision can be appealed to the court.

2. Shorefront Access Planning

The state will fulfill the requirements for developing a shorefront access planning process as follows:

a. A definition of the term "beach." (15 CFR 923.24(c)(2))

The Texas Natural Resources Code, sec. 61.001(5) defines the public beach as "any beach area, whether publicly or privately owned, extending inland from the line of mean low tide to the line of vegetation bordering on the Gulf of Mexico to which the public has acquired a right of use or easement to or over the area by prescription, dedication, presumption, or has retained a right by virtue of continuous right in the public since time immemorial, as recognized in law and custom." By virtue of the Texas Open Beaches Act, the public is guaranteed free access to shorefront areas in Texas that are in public ownership or that are subject to a public easement, as discussed in Chapter III. The publicly-owned beach includes the "wet beach" owned by the State of Texas landward to the line of mean high tide or mean higher high tide. The publicly owned beach also includes portions of the "dry beach" along the Gulf of Mexico shoreline.

b. A procedure for assessing public beaches and other public areas, including state-owned lands, tidelands and bottom lands, which require access or protection, and a description of appropriate types of access and protection. (15 CFR 923.24(c)(1))

The Texas Outdoor Recreation Plan, developed by the Texas Parks and Wildlife Department in 1975, covers all aspects of outdoor recreation in Texas and includes present and projected demand (through the year 2000) for coastal recreation. The data necessary to assess the need for additional public access is readily available from the Plan as well as from this Program document, particularly the Shorefront Access section of Chapter III.

This Plan cites criteria for determining relative beach "accessibility." The Department's use of the term is not synonymous with that referred to in the Open Beaches Act, and is not used by the Office of the Attorney General as criteria in determining the need for litigation under the Act. The standards for accessibility are merely intended

for use by the Department in classifying and evaluating public recreational needs. According to the Department, a Texas beach segment is considered "easily accessible" for public recreational purposes if it meets any of the following three criteria:

(1) It can be reached by a public road.

(2) It can be reached by driving along the beach in a normal two-wheel-drive vehicle.

(3) It is within one mile walking distance of a point on the beach that can be reached by a normal two-wheel-drive vehicle.

According to this definition, 173 miles (46 percent) of the Texas Gulf shoreline are easily accessible. Segments of the remaining 204 miles (54 percent) are classified as accessible-with-difficulty or inaccessible. Many of these areas can be reached only by lengthy walks, four-wheel-drive vehicles, or boats.

The regional distribution of easily-accessible shoreline corresponds to the distribution of the state's coastal population and to measured recreational activity. Of the total 173 miles of the easily-accessible shoreline, 104 miles (60 percent) lie in the upper coastal region (Jefferson, Orange, Chambers, Galveston, Harris and Brazoria Counties). Ten miles (six percent) lie in the central coastal region (Matagorda, Calhoun, Aransas, Jackson, and Refugio Counties). The remaining 59 miles (34 percent) lie in the lower coastal region (San Patricio, Nueces, Kleberg, Kenedy, Willacy, and Cameron Counties).

Access to bay and Gulf waters is also important. About 478 miles of public land fronts on coastal waters - 128 miles along the open Gulf shoreline, and 350 miles along the enclosed bay shores. Public ownership of bay and Gulf waters amounts to approximately 2,508,000 acres in the Gulf of Mexico and 1,537,000 acres within the 15 major bays. Public access to these waters is provided by boat ramps, shorefront parks, bay shore areas, and a variety of marinas and other facilities. Public boat-ramps for recreational use exist in all regions of the coast. Texas bays are connected by the 426 miles of the Gulf Intracoastal Waterway and its tributaries, providing safe daytime navigation for small boats and barges.

While the federal requirement for assessment of shorefront access has been accomplished in the Texas Outdoor Recreation Plan, continued evaluation of shorefront access problems can be achieved under the direction of the Texas Energy and Natural Resources Advisory Council. The Council has broad authority to adopt and reassess a natural resources policy for the state and to develop projects and programs to protect and develop the state's natural resources, including the participation of all necessary entities. The Council, therefore, may consider a variety of access-related items and has the authority to recommend necessary legislation for recreational needs.

c. An identification and description of enforceable policies, legal authorities, funding programs and other techniques that will be used to provide such shorefront access and protection that the state's planning process indicates is necessary. (15 CFR 923.24(c)(3))

The discussions above and in the Shorefront Access section in Chapter III have identified the policies and legal authorities for providing necessary shorefront access and protection. The Texas Parks and Wildlife Department is the primary state agency responsible for funding projects that provide access to the public coastal areas. The Department also provides additional state parks and recreation areas through Fund 31. Local parks and recreation facilities in coastal areas are administered through the Land and Water Conservation Fund. Boat ramp access in coastal areas is guaranteed through the Boat Ramp Program (Fund 059) administered by the Texas Parks and Wildlife Department. The State Department of Highways and Public Transportation provides access roads to coastal areas through general revenue funds; right-of-way funds for additional access roads are made available through the counties. The Department of Highways and Public Transportation also was requested, by the 66th Legislature, "to emphasize construction of free beach accessways, free beach-user parking areas, and a system of public signs, either by assisting local governments or by acting directly," (Senate Concurrent Resolution 46).

3. Shoreline Erosion Mitigation Planning

The state will fulfill the requirements for developing a planning process for shoreline erosion mitigation as follows:

a. A method for assessing the effects of shoreline erosion and evaluating techniques for mitigating, controlling or restoring areas adversely affected by erosion. (15 CFR 923.25(c)(1))

Two monitoring programs that have been assessing the rates and effects of shoreline erosion are the Bureau of Economic Geology shoreline monitoring program and the Corps of Engineers erosion monitoring. The Texas Coastal Program sections on erosion in Chapters II and III have evaluated many of the erosion impacts and identified areas of erosion. The efforts made in cooperation with the coastal Soil and Water Conservation Districts to control erosion are endorsed by the Texas Coastal Program; the Texas Energy and Natural Resources Advisory Council can utilize these studies and projects in evaluating the state's erosion problems and recommend financial support be given to state programs which are participating in local district conservation programs for mitigating erosion. The Council may also consider designating areas for erosion control and the appropriate state action, if any, for erosion mitigation.

b. An identification and description of enforceable policies, legal authorities, funding and other techniques that will be used to manage the effects of erosion as the State's planning process indicates is necessary. (15 CFR 923.25(c)(2))

The enforceable policies and legal authorities used to manage the effects of erosion have been discussed in Chapter III in the section on erosion. The Texas Energy and Natural Resources Advisory Council has the authority to recommend to the Legislature necessary policies and actions, including additional funding, when such a need is indicated. As described in Chapter III, however, most of the erosion problems on the Texas Coast are the result of natural processes that cannot be controlled.

F. PUBLIC PARTICIPATION AND FEDERAL CONSULTATION AND COORDINATION

1. Public Participation

Since the beginnings of the Texas Coastal Program, efforts have been made to increase public awareness of the Program and keep the public informed of the Program's progress.

Beginning in 1974, the Texas Coastal Management Program, under the direction of the General Land Office, held a series of public hearings to give interested parties an opportunity to contribute ideas and raise questions. Later that same year, a survey was made of a variety of interest groups. Questionnaires were used to identify major coastal issues and concerns.

In 1975, General Land Office Commissioner Bob Armstrong appointed a citizen's advisory committee. Its 41 members represented all major coastal interests, including industries, agriculture, local governments, conservation organizations, and civic groups. The committee reviewed all work products and assisted in drafting the program's recommendations and legislation.

A 16 mm film entitled Faces of the Coast was produced and shown approximately 180 times to a wide variety of groups and organizations. A series of 15 regional meetings was held to discuss coastal issues and problems. In August and September of 1976, 10 public hearings were held in seven coastal cities, as well as in Austin, San Antonio and Dallas. Verbatim transcripts were provided to all who attended the hearings, state legislators, local government officials, and others who requested copies.

In 1977, the advisory committee was reorganized. Twenty-five new members were added and two additional subcommittees were appointed to assist in the studies of facility siting, shorefront access and coastal hazards. A three-day conference was held in Galveston in June, 1977 entitled "Offshore Oil: Dialogues Toward Understanding."

Subsequent drafts were published in 1978, followed by public hearings to consider the program's development, but the program was not submitted to the Department of Commerce

for approval. When Governor William P. Clements, Jr. took office in 1979, he organized a task force to revise the program and prepare it for submission to OCZM for preliminary approval under Section 305(d) of the CZMA. The eight member group represented industrial, environmental, agricultural, civic and legal interests.

The Natural Resources Division of the Texas Energy and Natural Resources Advisory Council took on responsibility for final development of the Texas Coastal Program in January of 1980. Efforts aimed at public awareness and participation were strengthened and numerous meetings were held with groups from industry, government, environmental organizations, ports, and others. A wide array of concerns and issues were identified. The director and staff members of the Natural Resources Division attended meetings of regional organizations for the purpose of providing information on the Program and receiving comments and suggestions from local interests. Area Councils of Government provided an avenue for communication with many local elected officials. Meetings were held with area environmental and conservation groups, in cooperation with the League of Women Voters, to receive comments and to inform interested citizens about Program development. In an effort to keep interested parties informed of program development, the Division distributes a bi-monthly newsletter.

A mailing list of over 1,300 names was used for distribution of this draft. Public hearings on this document, which will provide the primary vehicle for public input, are scheduled for October in Corpus Christi, Houston and Austin. All comments expressed orally or provided in writing will be given full consideration in final development of the plan. Continued public involvement will be vital to the success of the program and its goals.

2. Federal-State Coordination

The Texas federal-state consultation effort began early in the developmental stage of the state's coastal program. In April 1975, each affected federal agency was contacted to introduce the agency to the Texas Program and to determine how the agency would participate during the Program's development.

The state was required to provide for federal agency input on a timely basis. In this effort, Texas and Louisi-

ana requested utilization of the Federal Regional Council, Southwest Region. This council provided a forum for discussion of federal interests in the coastal zones of the two states. The council established an interagency ad hoc coordinating committee made up of representatives from:

- The Department of Agriculture,
- The Department of Defense,
- The Department of Health, Education, and Welfare,
- The Department of Housing and Urban Development,
- The Environmental Protection Agency,
- The Federal Energy Administration (now Department of Energy),
- The Federal Power Commission,
- The General Services Administration,
- The International Boundary Commission,
- The Department of the Interior, and
- The Department of Transportation.

The Department of Commerce acted as the lead agency in organizing the committee--convening meetings and maintaining contact with the Federal Regional Council.

The primary purposes of the committee were to coordinate agency inputs as required by the Coastal Zone Management Act, ensure federal participation in the Program, and clarify the national interest in the coastal zones of Texas and Louisiana. The Texas Coastal Management Program gave the committee members the opportunity to review preliminary working papers, position papers, and draft documents. Their comments and suggestions were incorporated into the program. A synopsis of the comments received is found in Appendix G of the Texas Coastal Management Program: Report to the Governor and 65th Legislature, 1977. In late 1977, agencies were invited to update the statements as appropriate.

The program staff met with the committee as needed and maintained communication between meetings through correspondence and by telephone. Beginning in March 1978, the TCMP initiated a continuing series of individual briefings with all relevant federal agencies, both at the regional level and in Washington, D.C., to familiarize reviewers with the Texas approach to coastal management and to provide an early opportunity for discussion. This early discussion helped in informal resolutions of disagreements.

In 1980, when TENRAC became the lead agency for development of the Texas Coastal Program, communication was made with several federal agencies. Department of Interior, U.S. Fish and Wildlife, National Marine Fisheries Services, Corps of Engineers and the Environmental Protection Agency were represented at meetings held in Austin to discuss the permitting process for Section 404 Corps of Engineers' permits.

Letters were sent to 24 federal agencies, summarizing current development of the Texas Coastal Program. It is anticipated that there will be further communications with the federal agencies concerned when comments are received in response to this State Hearing Draft document. Consultation and coordination with federal agencies will continue through development and implementation of the Program. Federal consistency provisions will guarantee continued consultation and coordination with federal agencies in implementation of the Program.

APPENDIX A

PROPOSED MEMORANDA OF UNDERSTANDING AND RULES FOR THE MANAGEMENT OF PRIVATELY-OWNED WETLANDS

The Texas Coastal Program has developed this series of four Memoranda of Understanding in order to adequately address state management of privately-owned coastal saltwater wetlands and submerged lands not under the jurisdiction of the GLO/SLB. This mechanism for state review determination was developed pursuant to state agency authority contained in Chapter 26 of the Texas Water Code and is enforceable through Section 401 certification of federal permit applications filed with the U.S. Army Corps of Engineers under Section 404 of the federal Clean Water Act.

Also included are drafts of proposed rules for adoption by the Railroad Commission and the Department of Water Resources. The rules contain standards to be used by these agencies when reviewing projects for 401 certification, or, in the case of the Railroad Commission, reviewing activities on drill sites.

For an historical review and detailed description of procedures for the proposed Memoranda and rules, see Chapter III, page III-24.

APPENDIX A-1

DRAFT

MEMORANDUM OF UNDERSTANDING
Between
TEXAS DEPARTMENT OF WATER RESOURCES
AND
TEXAS RAILROAD COMMISSION

WHEREAS, the Railroad Commission of Texas currently provides certification to the U.S. Army Corps of Engineers for discharges associated with oil, gas and geothermal activities into state waters authorized by Corps of Engineers' permit and maintains standards for the protection of state waters under Section 91.101 of the Natural Resources Code, and Chapter 26 of the Texas Water Code; and

WHEREAS, pursuant to Section 401 of the federal Clean Water Act, the Governor has designated the Department of Water Resources to provide water quality certification to the U.S. Army Corps of Engineers for applications for the discharge of dredged and fill material into state waters authorized by Corps of Engineers' permit; and

WHEREAS, Chapter 26 of the Texas Water Code provides that the Department of Water Resources shall establish policies and procedures for securing close cooperation among state agencies that have water quality control functions; and

WHEREAS, Chapter 26 provides that the Department of Water Resources shall cooperate with the Government of the United States and with its official agencies with respect to water quality control matters; and

WHEREAS, Chapter 26 designates the Department of Water Resources as the principal authority in the state on matters relating to the quality of the water of the state and other agencies are mandated to coordinate their water quality activities with the Department of Water Resources;

WHEREAS, Chapter 91 of the Natural Resources Code gives the Railroad Commission of Texas the authority to adopt and enforce rules to prevent pollution of streams and public bodies of surface water of the state resulting from the drilling, production, operation, abandonment and plugging of oil and gas wells.

NOW THEREFORE, BE IT AGREED, by the Texas Department of Water Resources, and the Railroad Commission of Texas, that in the issuance of certifications under Section 401 of the federal Clean Water Act of 1977, on permit applications filed under Section 404 of that Act, that where a drilling

activity is proposed, a Railroad Commission drilling permit must be provided to Texas Department of Water Resources prior to issuance of a 401 certification. Any conditions attached to the drilling permit by the Commission will be appended as conditions to the 401 certification.

BE IT FURTHER AGREED, that this agreement will apply to privately-owned coastal saltwater wetlands and any submerged lands not under the jurisdiction of the General Land Office/School Land Board. Certifications granted under this agreement may not be used in any way with regard to questions of ownership, because no review of property rights or of the locations of property lines has been made.

BE IT FURTHER AGREED, that for the purposes of this agreement, the term "coastal saltwater wetlands" means those areas that are inundated or saturated by surface water at a frequency and duration sufficient to support, and that under normal circumstances do support, vegetation typically adapted for life in saltwater saturated soil conditions. Such vegetation will usually include one or more of the following: Spartina alternaflora, Sesuvium portulacastrum, Monanthocloe littoralis, Salicornia spp., Distichlis spicata, Batis indistitulas, Batis maritima, Thalassia testudinum, Halophila ingelmanii, Rupia martima, Halodule wrightii, Cymoeocea filiforme. Unless one or more of the above species is present, this agreement will apply only to areas lying below the five-foot elevation contour as defined on official seven and one-half minute topographic maps of the United States Geological Survey.

BE IT FURTHER AGREED, that for the purpose of this agreement, "submerged land" means land extending from mean high water or mean higher high water seaward.

BE IT FURTHER AGREED, that the issuance of the drilling permit obligates the permittee to comply with all Railroad Commission regulations. (See Appendix A-5.)

BE IT FURTHER AGREED, that the certification of channels, roads and other access to sites, and bulkheads and fill, to the extent that water quality and drainage patterns are concerned are the sole responsibility of the Texas Department of Water Resources. Issuance of 401 certification will ensure that proposed activities comply with all regulations of TDWR. (See Appendix A-6.)

BE IT FURTHER AGREED, that the Railroad Commission of Texas may comment to Texas Department of Water Resources regarding 401 certification, but such comments must be made in writing during the comment period for 401 certification. This comment period shall be 30 days beginning on the date of issuance of notice of the proposed activity. The period may be extended as necessary at the discretion of Texas Department of Water Resources, for full processing upon the showing of good cause. Comments from the Commission shall be considered and may be appended as conditions upon the 401 certification at the discretion of the TDWR.

BE IT FURTHER AGREED, that the Texas Department of Water Resources and the Railroad Commission of Texas will consider the national interest during the 401 certification process outlined in this agreement.

The signatories agree to the implementation of the above policies and procedures.

APPENDIX A-2

DRAFT

MEMORANDUM OF UNDERSTANDING
Between
TEXAS DEPARTMENT OF WATER RESOURCES
AND
TEXAS PARKS AND WILDLIFE DEPARTMENT

WHEREAS, the Parks and Wildlife Department is mandated to enforce the provisions of Chapter 26 of the Texas Water Code to the extent that any violation affects the aquatic life and wildlife; and

WHEREAS, the Parks and Wildlife Department currently comments to the Corps of Engineers regarding applications for permits under Section 404 of the Federal Clean Water Act of 1977; and

WHEREAS, Chapter 26 provides that the Department of Water Resources shall establish policies and procedures for securing close cooperation among state agencies that have water quality control functions; and

WHEREAS, Chapter 26 designates the Department of Water Resources as the principal authority in the state on matters relating to the quality of water of the state, and other state agencies are mandated to coordinate their water quality activities with the Department of Water Resources; and

WHEREAS, Chapter 26 provides that the Department of Water Resources shall cooperate with the Government of the United States and with its official agencies with respect to water quality control matters; and

WHEREAS, pursuant to Section 401 of the federal Clean Water Act, the Governor has designated the Department of Water Resources to provide water quality certification to the U.S. Army Corps of Engineers for applications for the discharge of dredged and fill material into state waters authorized by Corps of Engineers' permit; and

WHEREAS, the Texas Parks and Wildlife Department has authority to file suit and seek judicial relief for violations of the Parks and Wildlife Code and of water quality standards promulgated under Chapter 26 to the extent they affect wildlife and aquatic life; and

NOW THEREFORE, BE IT AGREED, by the Texas Department of Water Resources, and the Texas Parks and Wildlife Department, that in the issuance of certifications under Section 401 of the federal Clean Water Act of 1977, on permit applications filed under Section 404 of that Act, the Texas Parks and Wildlife Department may comment to the Texas Department of Water Resources concerning the effects of proposed activities on aquatic life and wildlife.

BE IT FURTHER AGREED, that comments from Texas Parks and Wildlife Department will be made in writing during the comment period for 401 certification. This comment period shall be 30 days beginning on the date of issuance of notice of the proposed activity. The period may be extended at the discretion of Texas Department of Water Resources, for full processing upon the showing of good cause.

BE IT FURTHER AGREED, that all comments from Texas Parks and Wildlife Department will be forwarded to the Corps of Engineers by the Texas Department of Water Resources upon request of Texas Parks and Wildlife Department. Comments from Texas Parks and Wildlife Department will be considered and may be appended as conditions upon 401 certification by Texas Department of Water Resources, at its discretion. It is understood that only those conditions appended are enforceable by Texas Department of Water Resources under the 401 mechanism. This agreement in no way limits the authority of Texas Parks and Wildlife Department under the Fish and Wildlife Coordination Act, but simply allows Parks and Wildlife to have input into the decision making process at the state level, and avoids duplication of efforts in most cases.

BE IT FURTHER AGREED, that the Texas Department of Water Resources and the Texas Parks and Wildlife Department will consider the national interest during the process for comments and certification outlined in this agreement.

BE IT FURTHER AGREED, that this agreement will apply to privately owned coastal saltwater wetlands and any submerged lands not under the jurisdiction of the General Land Office/School Land Board. Certifications granted under this agreement may not be used in any way with regard to questions of ownership, because no review of property rights or of the location of property lines has been made.

BE IT FURTHER AGREED, that for the purposes of this agreement the term "coastal saltwater wetlands" means those areas that are inundated or saturated by surface water at a frequency and duration sufficient to support, and that under normal circumstances do support, vegetation typically adapted for life in saltwater saturated soil conditions. Such vegetation will usually include one or more of the following: *Spartina alternaflora*, *Sesuvium portulacastrum*, *Monanthocloe littoralis*, *Salicornia spp.*, *Distichlis spicata*, *Batis indistitulas*, *Batis maritima*, *Thalassia testudinum*, *Halophila ingelmanii*, *Rupia maritima*, *Halodule wrightii*, and *Cymoeocea filiforme*. Unless one or more of the above species is present, this agreement will only apply to areas lying below the five foot elevation contour as defined on official seven and one-half minute topographic maps of the United States Geological Survey.

BE IT FURTHER AGREED, that for the purpose of this agreement the term "submerged land" means land extending from mean high water or mean higher high water seaward.

BE IT KNOWN, that in addition to comments to the 401 process discussed herein, the Texas Parks and Wildlife Department has independent authority under the Parks and Wildlife Code to enforce compliance with agency rules and regulations.

The signatories agree to the implementation of the above policies and procedures.

APPENDIX A-3

DRAFT

MEMORANDUM OF UNDERSTANDING
Between
TEXAS DEPARTMENT OF WATER RESOURCES
AND
TEXAS DEPARTMENT OF HEALTH

WHEREAS, Chapter 26 of the Texas Water Code provides that the Texas Department of Health is responsible for the abatement of nuisances resulting from pollution not otherwise covered in that chapter; and

WHEREAS, Chapter 26 provides that the Texas Department of Health shall investigate and make recommendations to the Department of Water Resources concerning the health aspects of matters related to the quality of the water in the state; and

WHEREAS, Chapter 26 provides that the Department of Water Resources shall establish policies and procedures for securing close cooperation among state agencies that have water quality control functions; and

WHEREAS, Chapter 26 prohibits any activity which will cause pollution of any water of the state; and

WHEREAS, Chapter 26 provides that the Department of Water Resources shall cooperate with the Government of the United States and with its official agencies with respect to water quality control matters; and

WHEREAS, pursuant to Section 401 of the federal Clean Water Act, the Governor has designated the Department of Water Resources to provide water quality certification to the U.S. Army Corps of Engineers for applications for discharges of dredged and fill materials into state waters authorized by Corps of Engineers' permit; and

WHEREAS, Chapter 26 designated the Department of Water Resources as the principal authority in the state on matters relating to the quality of the water of the state, and other state agencies are mandated to coordinate their water quality activities with the Department of Water Resources;

NOW THEREFORE, BE IT AGREED, by the Texas Department of Health and the Department of Water Resources, that in the issuance of certifications under Section 401 of the Federal Clean Water Act of 1977, on permit applications filed under Section 404 of that Act, the Department of Health may comment to the Department of Water Resources concerning the health aspects of matters relating to water quality.

BE IT FURTHER AGREED, that comments from Texas Department of Health to Texas Department of Water Resources will be made in writing during the comment period for 401 certification. This comment period shall be 30 days beginning on the date of issuance of notice of the proposed activity. The period may be extended as necessary, at the discretion of Texas Department of Water Resources, for full processing upon the showing of good cause. Comments will be considered and may be appended as conditions to the 401 certification at the discretion of the Department.

BE IT FURTHER AGREED, that the Texas Department of Water Resources and the Texas Department of Health will consider the national interest during the process for comments and certification outlined in this agreement.

BE IT FURTHER AGREED, that this agreement will apply to privately owned coastal saltwater wetlands and any submerged coastal lands not under the jurisdiction of the General Land Office/School Land Board. Certifications granted under this agreement may not be used in any way with regard to questions of ownership, because no review of property rights or of the locations of property lines has been made.

BE IT FURTHER AGREED, that for the purposes of this agreement, the term "coastal saltwater wetlands" means those areas that are inundated or saturated by surface water at a frequency and duration sufficient to support, and that under normal circumstances do support, vegetation typically adapted for life in seawater saturated soil conditions. Such vegetation will usually include one or more of the following: *Spartina alternaflora*, *Sesuvium portulacastrum*, *Monanthocloe littoralis*, *Salicornia spp.*, *Distichlis spicata*, *Batis indistitulas*, *Batis maritima*, *Thalassia testudinum*, *Halophila ingelmanii*, *Rupia maritima*, *Halodule wrightii*, and *Cymoeocea filiforme*. Unless one or more of the above species is present, this agreement will only apply to areas lying below the five foot elevation contour as defined on official seven and one-half minute topographic maps of the United States Geological Survey.

BE IT FURTHER AGREED, that for the purpose of this agreement the term "submerged land" means land extending from mean high water or mean higher high water seaward.

The signatories agree to the implementation of the above procedures.

APPENDIX A-4

DRAFT

MEMORANDUM OF UNDERSTANDING
Between
TEXAS DEPARTMENT OF WATER RESOURCES
AND
GENERAL LAND OFFICE/SCHOOL LAND BOARD

WHEREAS, Chapter 33 of the Natural Resources Code provides that the surface estate in the coastal public land constitutes an important and valuable asset of this state; and

WHEREAS, for the purpose of implementing the policies of Chapter 33, pursuant to the management of the surface estate in coastal public lands, certain responsibilities have been delegated to the School Land Board, assisted by the General Land Office; and

WHEREAS, Chapter 33 provides that the coastal public land is defined as all or any portion of state-owned submerged land, the water overlying that land, and all state-owned islands or portions of islands in the coastal area; and

WHEREAS, Chapter 51 of the Natural Resources Code provides that all public lands set apart to the public school fund and various asylum funds under the constitution and laws of this state together with the mineral estate in riverbeds, channels and the tidelands, including islands, shall be controlled, sold and leased by the School Land Board and the Commissioner of the General Land Office.

WHEREAS, Chapter 52 of the Natural Resources Code provides that the School Land Board may lease to any person for the production of oil and natural gas: (1) islands, saltwater lakes, bays, inlets, marshes, and reefs owned by the state within tidewater limits; (2) the portion of the Gulf of Mexico within the jurisdiction of the state; and (3) all unsold surveyed and unsurveyed public school land.

WHEREAS, the Attorney General of the State has ruled that so long as jurisdiction over an activity on adjoining lands not administered by the General Land Office sought to be abated does not lie with another agency, the Commissioner of the General Land Office has general authority to institute court proceedings to abate activities that adversely affect state lands administered by the General Land Office; and

WHEREAS, Chapter 26 of the Texas Water Code provides that the Department of Water Resources shall establish policies and procedures for securing close cooperation among state agencies that have water quality control functions; and

WHEREAS, Chapter 26 prohibits any activity which will cause pollution of any water of the state; and

WHEREAS, Chapter 26 provides that the Department of Water Resources shall cooperate with the Government of the United States and with its official agencies with respect to water quality control matters; and

WHEREAS, pursuant to Section 401 of the federal Clean Water Act, the Governor has designated the Department of Water Resources to provide water quality certification to the U.S. Army Corps of Engineers for applications for discharges of dredged and fill materials into state waters authorized by Corps of Engineers' permit; and

WHEREAS, Chapter 26 designates the Department of Water Resources as the principal authority in the state on matters relating to the quality of the water of the state, and other state agencies are mandated to coordinate their water quality activities with the Department of Water Resources;

NOW THEREFORE, BE IT AGREED, by the Texas Department of Water Resources, and the General Land Office, and the School Land Board, that in the issuance of certifications under Section 401 of the Federal Clean Water Act of 1977, on permit applications filed under Section 404 of that Act, the General Land Office may comment to the Department of Water Resources concerning activities which (1) are proposed on land of mixed ownership, part of which is state-owned land, or (2) are proposed on privately owned coastal saltwater wetlands but would have a direct and significant impact on state-owned lands. Comments from the General Land Office will be considered and may be appended as conditions upon 401 certification by the Texas Department of Water Resources at its discretion.

BE IT FURTHER AGREED, that comments from the General Land Office to Texas Department of Water Resources will be made in writing during the comment period for 401 certification. This comment period shall be 30 days beginning on the date of issuance of notice of the proposed project. The period may be extended as necessary, at the discretion of Texas Department of Water Resources, for full processing upon the showing of good cause.

BE IT FURTHER AGREED, that the Texas Department of Water Resources and the General Land Office/School Land Board will consider the national interest during the process for comments and certification outlined in this agreement.

BE IT FURTHER AGREED, that this agreement will apply only to privately owned coastal saltwater wetlands and any submerged lands not under the jurisdiction of the General Land Office/School Land Board. Certifications granted under this agreement may not be used in any way with regard to questions of ownership, because no review of property rights or of the location of property lines has necessarily been made.

BE IT FURTHER AGREED, that for purposes of this agreement, the term "coastal saltwater wetlands" means those areas that are inundated or saturated by surface water at a frequency and duration sufficient to support,

and that under normal circumstances do support, vegetation typically adapted for life in saltwater saturated soil conditions. Such vegetation will usually include one or more of the following: Spartina alternaflora, Sesuvium portulacastrum, Monanthocloe littoralis, Salicornia spp., Distichlis spicata, Batis indistitulas, Batis maritima, Thalassia testudinum, Halophila ingelmanii, Rupia maritima, Halodule wrightii, and Cymoeocea filiforme. Unless one or more of the species listed above is present this agreement will apply only to areas lying above the five-foot elevation contour as defined on official seven and one-half minute topographic maps of the United States Geological Survey.

BE IT FURTHER AGREED, that for the purposes of this agreement "submerged land" means land extending from mean high water or mean higher high water seaward.

BE IT FURTHER AGREED, that for the purpose of this agreement "direct and significant impact" shall be defined as changes in physical, biological or chemical relationships in a natural system that on balance alter the life support or ecological value of these areas, or changes in socio-economic factors which on balance have measurable effects on communities.

The signatories agree to the implementation of the above procedures.

APPENDIX A-5

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DRILL SITE STANDARDS

These rules are proposed as an amendment to Rule 8 under the authority of Title III of the Natural Resources Code and Chapter 26 of the Texas Water Code.

(1) Scope of Rules. These rules of practice shall apply to privately-owned coastal saltwater wetlands and submerged lands not under the jurisdiction of the General Land Office/ School Land Board and supersede any other rules of the Railroad Commission of Texas to the extent of any conflict.

(2) Definitions. As used in this subsection, the following terms have the following meanings:

(A) Borrow pit - a hole in the ground from which earth is borrowed for the purpose of obtaining embankment or fill material.

(B) Cutting - chips of earth or rock produced as a result of drilling which are carried to the surface by circulating drilling mud.

(C) Mud tank - a steel tank circulating drilling mud to allow sand and fine sediment to settle out, where additives are mixed with mud, and where this fluid is temporarily stored before being pumped back into the well.

(D) Ring levee - an artificial levee completely surrounding a wetland drilling site, usually made from sediment dug from borrow pits in the wetland, constructed to prevent waste or spilled material from entering the wetland outside the levee.

(E) Saltwater - any water containing a concentration of one-twentieth of one percent or more by weight of total dissolved inorganic salts derived from the marine water of the Gulf of Mexico.

(F) Submerged land - land extending from mean high water or mean higher high water seaward.

(G) Sump - small depression or excavation in which water is collected for pumping; or a low spot to which water is drained and from which water is removed by a pump.

(H) Wetlands - those areas that are inundated or staturated by surface water at a frequency and duration sufficient to support and that under normal circumstances do support, vegetation typically adapted for life in saltwater saturated soil conditions. Such vegetation will usually include one or more of the following: Spartina alternaflora, Sesuvium portulacastrum, Monanthocloe littoralis, Salicornia spp., Distichlis spicata, Batis maritima, Batis indistitulas, Thalassia testudinum, Halophila ingelmanii, Rupia maritima, Halodule wrightii, Cymoeocea filiforme. Unless one or more of the above species is present, this definition will apply only to areas lying below the five foot elevation contour as defined on official seven and one-half minute topographic maps of the United States Geological Survey.

(3) Standards. The Railroad Commission of Texas shall be solely responsible for determining and enforcing compliance with the following standards. Exceptions may be granted after notice and hearing.

(A) Ring levees will be required in wetlands. They will generally:

(i) be constructed from material from borrow pits located outside the leveed area;

(ii) have an adequate berm of at least 15 feet between the levee base and borrow pit edge;

(iii) be no larger than 3 acres in the drilling phase and be decreased in area during the production phase;

(iv) have a sump dug around the inner perimeter with a trench from the drilling rig to the sump to collect spilled materials.

(B) Drilling fluids must be contained in mud pits or portable steel tanks and be disposed of in accordance with Railroad Commission requirements.

(C) Cuttings must be stored inside the main levee system, but may be stored within sublevees. Cuttings may be disposed of within the leveed site on termination of drilling if they are spread evenly within the contours of the land within the site.

(D) Upon termination of all activities, the levee system must be removed, at least by making breeches in the enclosed levees, after all equipment has been removed.

(E) The project must otherwise comply with Railroad Commission regulations and Texas Department of Water Resources water quality standards.

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APPENDIX A-6

CERTIFICATION OF 404 PERMITS IN THE COASTAL ZONE

The following rules are proposed under the authority of sections 5.131 and 5.132, Texas Water Code.

.001 Scope of Rules. These rules of practice shall apply to the issuance of certifications by the Texas Department of Water Resources under Section 401 of the Clean Water Act (33 U.S.C.A. 1341), on permit applications filed under Section 404 of that Act for dredge and fill activities on privately owned coastal saltwater wetlands and submerged lands not under the jurisdiction of the General Land Office/School Land Board.

.002 Definitions. As used in these rules, the following terms have the following meanings:

(1) Activity - the planning, construction, operation, maintenance or modification of facilities, structures, channels, equipment, or mterial necessary to serve a particular purpose.

(2) Borrow pit - a hole in the ground from which earth is borrowed for the purpose of obtaining embankment or fill material.

(3) Bulkhead - a structure usually built parallel to and abutting the shoreline to prevent shorefront property from eroding or sliding into the water.

(4) Channel - a waterway created or expanded by the moving of soil, sand, gravel, shell, or any other material from its natural setting.

(5) Commission - the Railroad Commission of Texas.

(6) Department - the Texas Department of Water Resources.

(7) Direct and significant impact - changes in physical, biological or chemical relationships in a natural system that on a balance alter the life support or ecological value of these areas, or changes in socio-economic factors which on balance have measurable effects on communities.

(8) Directional drilling - drilling at an angle from the vertical; controlled directional drilling makes it possible to reach subsurface points laterally remote from the point where the bit enters the earth.

(9) Dredging - excavating, displacing, or moving material from lands in the coastal area for the purpose of deepening or expanding a body of water or for obtaining fill material. Prop-washing is included in this definition.

(10) Fill material - any material purposely placed to raise the elevation of the land or to level or stabilize the land surface or water bottom, excluding any material discharged into coastal waters primarily to dispose of waste.

(11) Flushing- the stirring and replacement of standing water in a canal or channel by tidal forces or flows of water from nearby natural drainages.

(12) Keyways (or offsets) - areas dredged in channels for placement of drilling barges during drilling operations. The areas are dredged parallel but slightly off to one side of the channel to allow barges and other vessels to move freely up to the drilling barge.

(13) Natural drainage - as applied to a given area, refers to the natural contours of the land that determine the direction and rate of flow of surface water drainage from the land to small ditches, creeks, depressions, and channels.

(14) Non-navigable channels - topographic depressions or ditches which serve to provide drainage for an area of land but are not deep enough to allow most vessels to operate.

(15) Saltwater - any water containing a concentration of one-twentieth of one percent or more by weight of total dissolved inorganic salts derived from the marine water of the Gulf of Mexico.

(16) Spoil - material removed from a navigation channel by dredging; consists of rocks, detritus, clay, silt, sand and municipal or industrial sludge.

(17) Spoil area - any area in which dredge spoil is deposited. Spoil areas on land may be diked to contain all spoil except the effluent water; spoil areas in open water may be diked or undiked, submerged or emergent from the water.

(18) Structure - any temporary or permanent improvement or alteration to real property including but not limited to fixed or floating piers, wharves, docks, jetties, groins, breakwaters, certified reefs, fences, posts, retaining walls, levees, ramps, cabins, houses, shelters, landfills, excavations, canals, channels, and roads.

(19) Submerged land - land extending from mean high water or mean higher high water seaward.

(20) Wetlands - those areas that are inundated or saturated by surface water at a frequency and duration sufficient to support and that under normal circumstances do support, vegetation typically adapted for life in saltwater saturated soil conditions. Such vegetation will usually include one or more of the following: Spartina alternaflora, Sesuvium portulacastrum, Monanthocloe littoralis, Salicornia spp., Distichlis spicata, Batis maritima, Batis indistitulas, Thalassia testudinum, Halophila ingelmanii, Rupia maritima, Halodule wrightii, Cymoeocea filiforme. Unless one or more of the above species is present, this defiition will apply only to areas lying below the five-foot elevation contour as defined on official seven and one-half minute topographic maps of the United States Geological Survey.

.003 Issuance of Certification. The Department, in issuance of certifications, shall ensure that the water quality standards listed in Rule .009 ar met. Provided, however, that the Department shall not issue such certification prior to issuance of a drilling permit by the Railroad Commission of Texas, if such permit is required. Any conditions attached to the drilling permit by the Commission shall be appended as conditions to the certification.

.004 Consideration of the National Interest. The Department shall give due consideration to the national interest during the certification process.

.005 Comments from the Railroad Commission of Texas. The Commission may submit written comments to the Department regarding certification. Any comments must be submitted to the Department within 30 days from issuance of notice of the proposed activity. The Department may extend the comment period, at its discretion, as necessary for full processing upon the showing of good cause by the Commission. Comments from the Commission shall be considered and may be appended as conditions upon the certification at the discretion of the Department.

.006 Comments from the Texas Parks and Wildlife Department. The Texas Parks and Wildlife Department may submit written comments to the Department concerning the affects of proposed activities on aquatic life and wildlife. Any comments must be submitted to the Department within 30 days from issuance of notice of the proposed activity. The Department may extend the comment period, at its discretion, as necessary, for full processing upon the showing of good cause by the Parks and Wildlife Department. Comments from the Parks and Wildlife Department shall be considered and may be appended as conditions upon the certification at the discretion of the Department. Any comments from the Parks and Wildlife Department will be forwarded to the U.S. Army Corps of Engineers by the Department upon request of the Parks and Wildlife Department.

.007 Comments from the Texas Department of Health. The Texas Department of Health may submit written comments to the Department concerning the health aspects of matters related to the quality of the water. Any comments must be submitted to the Department within 30 days from the issuance of notice of the proposed activity. The Department may extend the comment period, at its discretion, as necessary, for full processing upon the showing of good cause by the Health Department. Comments from the Health Department will be considered and may be appended as conditions upon the certification at the discretion of the Department.

.008 Comments from the General Land Office and the School Land Board. The General Land Office and the School Land Board may submit written comments to the Department concerning certification of activities which (1) are proposed on land of mixed ownership, part of which is state-owned land, or (2) are proposed on privately-owned land but would have a direct and significant impact on state-owned lands. Any comments must be submitted to the Department within 30 days from the issuance of notice of the proposed activity. The Department may extend the comment period, at its discretion, as necessary for full processing upon the showing of good cause by the General Land Office or School Land Board. Comments will be considered and may be appended as conditions upon the certification at the discretion of the Department.

.009 Water Quality Standards. The Department shall be solely responsible for determining and enforcing compliance with the following standards in issuance of certification:

A. Roads and Other Access to Sites

(1) To the maximum extent practicable, the following priority system for access to sites shall be adhered to:
(a) board roads laid directly on the marsh surface;
(b) overland routes;
(c) a combination of overland and barged access;
(d) barged access.
The application shall contain a discussion of general alternatives for access methodology.

(2) The road shall be oriented, to the maximum extent practicable, to ensure adequate drainage and to minimize disturbance of water flow regimes, specifically direction, duration, quantity, and pattern of flow.

(3) Culverts shall be placed where streams and sloughs are crossed by the roadway embankment and at other locations to promote or maintain sheet flows. The openings of the culverts must be maintained so as to allow for free flow of water.

(4) Borrow pits for levees or roads through wetlands shall, to the maximum extent practicable, not serve as a drainageway and to the maximum extent practicable be:

(a) staggered on alternate sides of the road;
(b) no larger than 1320 ft. X 35 ft. X 6 ft.;
(c) no closer than 100 ft. from the edge of a drainage canal;
(d) so constructed as to leave a margin of at least 15 feet between the edge of the levee base and the edge of the pit.

(NOTE: Where borrow pits associated with road construction serve as drainageways, they must meet channel criteria in B below.)

(5) Areas devegetated during construction must be revegetated to the extent practicable within one year after project completion or cessation of operations to avoid excessive erosion and the runoff of turbid waters to water in the state.

(6) After cessation of operations, the land surface shall be restored to its original contours to the maximum extent practicable. If contour restoration is not practicable, breeches shall be made at intervals sufficient to restore original water flows.

(7) Drawings submitted with the application shall, to the maximum extent practicable, show all existing roads, waterways, canals, etc., within one mile of the proposed work site.

(8) The discharge of fill material must otherwise comply with water quality regulations of the Texas Department of Water Resources.

B. Channels

(1) Channels shall be, to the maximum extent practicable, designed to:
(a) utilize existing channels;
(b) ensure adequate flushing;
(c) prevent the creation of stagnant water pockets;
(d) minimize disruption of natural sheet flow, water flow, and drainage systems; and
(e) minimize adverse impacts to wetlands and submerged lands, as such would adversely affect water quality.

(2) Channel alignments shall avoid disrupting natural drainage in the wetland systems to the maximum extent practicable. When this is not possible:

(a) Dredged channels will be routed and constructed so that areas not subject to daily tidal inundation will be protected from saline water intrusion.

(b) If the wetland area is generally subject to daily tidal inundation, the natural drainage shall be left functionally open by use of very low spoil bank placement, drainage structures, or natural openings to ensure sufficient flooding to the maximum extent practicable.

(3) Spoil resulting from dredging will be disposed of above mean high water in approved, leveed disposal areas that utilize nonwetland areas, existing roads, existing dredged material disposal sites and similar areas to the maximum extent practicable. Open water disposal will require site-specific justification and approval by the Texas Department of Water Resources.

(4) For spoil placed adjacent to the channel, a berm of at least 15 feet will, to the maximum extent practicable, be left between the levee base and channel bank to help control bank erosion and to minimize the runoff of turbid waters to water in the state.

(5) For nonnavigable channels connecting lower salinity marsh regions to higher salinity marsh regions, water retention structures (gates or inflatable dams) may be required to preserve the integrity of the low salinity areas. Where such structures are not possible, levees shall be constructed to minimize leakage of high salinity water into low salinity marshes. This may require stripping surface vegetation and coring to mineral soil to provide an effective barrier for salinity intrusion.

(6) Where dredging keyways for flotation rigs are planned, the maximum dimensions allowed are 140 feet by 400 feet for a single well. Directional drilling agreements by the applicant may allow enlargement of this area, subject to prior approval by the Texas Department of Water Resources in consultation with the Railroad Commission.

(7) At the termination of exploration and production, abandoned flotation canals in low salinity areas will be plugged, if necessary, to prevent significant salinity intrusion to the maximum extent practicable. In wetlands subject to regular inundation, such canals will be left in such condition that frequent flooding of tidal creeks and channels will be assured to the maximum extent practicable. The application shall state clearly whether or not the proposed canal will be plugged.

(8) Any discharges, including dredged and fill material, will otherwise meet water quality standards of the Texas Department of Water Resources.

C. Bulkheads and Fill

(1) Bulkheads and filling activities will be certified in wetlands only if there will be, to the maximum extent practicable, no significant adverse impact upon water quality or hydrologic factors which affect water quality such as: natural drainage characteristics, sedimentation patterns, salinity distribution, flushing characteristics, current patterns, wave action, erosion, flood water storage, natural recharge functions, and water purification functions resulting from the destruction of underlying wetlands.

(2) The construction of the bulkhead will be performed without significantly increasing the ambient levels of turbidity in adjacent waters.

(3) Natural shoreline configurations will be restored as much as possible to their former state.

(4) Fill will be placed behind the bulkhead in such a manner as to minimize the runoff of turbid waters.

(5) During construction, adequate erosion control methods will be used in order to minimize runoff and consequent elevation of turbidity in water in the state.

(6) Areas devegetated during construction will be revegetated to the extent practicable within one year after completion, to avoid excessive erosion and the runoff of turbid waters to waters of the state.

(7) Any discharges, including dredged and fill material, will otherwise meet the water quality standards of the Texas Department of Water Resources.

(8) Sloping rip rap made of natural materials is preferred over vertical concrete seawalls.

D. Pipelines

(1) Double ditching of pipeline construction shall be encouraged through wetland areas.

(2) Existing rights-of-way shall be used to the maximum extent practicable.

(3) Construction of pipelines shall be performed in such a way as to minimize adverse impacts to wetlands and submerged lands, as such would adversely affect water quality.

E. Other Activities

This agreement does not provide standards for all possible activities that may be proposed in wetlands and submerged lands. The activities

delineated in A, B, C, and D above are the ones most frequently proposed. The certification of other activities will be considered on a case-by-case basis, based upon the rules and regulations of the Texas Department of Water Resources, and comments received from the Railroad Commission of Texas, the Texas Department of Health, the Texas Parks and Wildlife Department, the General Land Office, and the School Land Board.

.010 DEFINITION OF "... To The Maximum Extent Practicable"

In those standards in which the modifier "to the maximum extent practicable" is used, the proposed activity is in compliance with the standard if the Department of Water Resources determines, through a review of all available information regarding the activity and its water quality impacts, that (1) there is a significant public need for the activity based on the local, state, regional, or national interest, and (2) there is no feasible and prudent alternative to meet the need for the proposed activity which would conform to the modified standard, and (3) all feasible and prudent steps have been taken to maximize conformance with the standard. The term "feasible and prudent" means consistent with sound engineering practice and not causing environmental, social, or economic problems that outweigh the public benefits to be derived from compliance with the standard modified by the term "feasible and prudent."

APPENDIX B

DRAFT PROPOSED RULES OF THE SCHOOL LAND BOARD AND THE GENERAL LAND OFFICE

The School Land Board is repealing existing agency rules and adopting new rules under the authority of Chapter 61 of the Texas Water Code and Chapter 33 of the Texas Natural Resources Code. These proposed rules 135.18.02.005-.008, "Lease of State-Owned Lands and Flats," and 135.18.04.001-.009, "State-Owned Lands in the Coastal Area," are found here as B-1 and B-2. The Board proposes to adopt new rules which provide definitions, clarify board policy and application requirements, and set the standards which must be met before the Board will grant a lease, permit or easement. Rules found here for the School Land Board were published in the Texas Register August 1, 1980.

The General Land Office proposes to withdraw proposed rule amendments 126.16.01.001 and .005 (published in the Texas Register, March 2, 1979) and substitute proposed rule amendments in this appendix. The General Land Office proposed rule amendment 126.16.01, "Exploration and Development - Exploration Permits for Geophysical and Other Surveys," is found here as B-3. These changes are proposed under the authority of the Texas Natural Resources Code, Chapter 31. The proposed amendments differentiate between high velocity explosives and other energy sources for geophysical surveys, a differentiation necessitated by advancements in surveying technology. Rule .005 was revised to reflect new practices and existing operations conditions. Amendments found here for General Land Office were published in Texas Register, August 5, 1980.

Comments on these proposed rules and amendments of the School Land Board and the General Land Office should be submitted in writing to Mike Hightower, Director, Coastal Division, General Land Office, 1700 North Congress Avenue, Austin, Texas 78701. Comments on SLB rules will be accepted until 5:00 p.m., Monday, September 1, 1980 and on GLO proposed amendments, until Monday, September 8. The proposed date (subject to change) for adoption of rules is September 16, 1980. If a public hearing is held, the comment period would be extended.

School Land Board
Land Resources
135.18

Lease of State-Owned Lands and Flats
135.18.02. 005-.008

These rules are proposed under the authority of the Texas Water Code Sec. 61.116 and 61.117.

.005 Definitions

(a) Board: the School Land Board of Texas.

(b) District: a navigation district organized under any special or general law for creation of navigation districts. The term "district" also applies to any incorporated city in this state which owns and operates wharves, docks, and other marine port facilities.

(c) Navigation: marine commerce and immediately related activites, including but not limited to port development; channel construction and maintenance; commercial and sport fishing; recreational boating; industrial site locations;transportation, shipping, and storage facilities; pollution abatement facilities; and all other activities necessary or appropriate to the promotion of marine commerce. Residential development is specifically excluded.

(d) State-owned lands and flats: any lands belonging to the state which are covered or partly covered by the water of any of the bays or other arms of the sea and the gulf.

.006 Mineral Leasing on Navigation District Lands Acquired Under Vernon's Civil Statutes Art. 8225.

(a) Leasing of tracts for oil, gas, or mineral exploration and development shall follow the procedures set out in 135.16.01.001-.003. A lessee shall also follow the procedures in General Land Office Rules 126.16.01.001-.012 to obtain

a permit for geophysical exploration and in General Land Office Rules 126.18.02.001-.006 to obtain an easement for any pipeline necessary to operation of the leased tract.

(b) No surface drilling location may be nearer than 660 feet and special permission from the Commissioner of the General Land Office is necessary to make any surface location nearer than 2,160 feet, measured at right angles from the nearest bulkhead line designated by a navigation district of the United States as the bulkhead line or from the nearest dredged bottom edge of any channel, slip, or turning basin which has been dredged, or which has been authorized by the United States as a federal project for future construction, whichever is nearer.

(c) A district must file a description of any new project proposed for those lands patented to the district by the state.

.007 Lease of State-Owned Lands and Flats to a District for Navigation Purposes.

(a) General. This rule prescribes, in addition to the definitions of Rule .001, the general policies of Rule 135.18.04.003, and procedures of Rule 135.18.04.004, those special policies, practices, and procedures to be followed by the board in connection with the review of applications for board leases for navigation purposes on state-owned lands and flats pursuant to Section 61.116 and 61.117, Texas Water Code.

(b) Policies of the Board.

(1) The lease application and any related permit or easement applications for any proposed project shall be considered at the same time.

(2) The lease shall be for navigational purposes only.

(3) The lease shall include preliminary plans and shall outline project specifications, and the project shall conform to those plans and specifications.

(4) The lease shall be limited to those phases of the project presented to the board, and a lease shall not be construed to indicate approval of any future phases of a project.

(c) Content of application. In making application for a lease of state-owned lands and flats the district shall satisfy the requirements of Rule 135.18.04.004 and also submit the following to the commissioner:

(1) The name, address, and telephone number of the district and the name of the agent authorized by the district to execute documents.

(2) Proof of eligibility to qualify as a district: date and statutory authority under which the district was formed and is operating, the names of district commissioners and commission chairman (at the time of application submission), and a map of all leaseholds of state-owned lands and flats.

(3) A description of the lands and flats sought to be leased or subleased.

(4) A draft or final environmental impact statement (EIS) conforming to the requirements of the National Environmental Policy Act (PL 91-190, 42 U.S.C. 4321, et seq.) or an environmental report prepared in accordance with federal guidelines and regulations in effect at the time that the application materials are submitted to the board. However, an environmental impact statement is not required if the proposed project requires no dredging, filling, or bulkheading.

(5) Proof satisfactory to the board that the project is consistent with public convenience and necessity. Supporting materials should include:

(A) a statement of the conformity of the project as proposed with existing state, regional, and local land, air, water, recreation, transportation, and other such plans, and an explanation of any variance between the project and any such plans;

(B) an economic analysis of the impact of the proposed project of the local area; and

(C) a statement of how the proposed project would fill any recognized local, state, or federal need.

(6) The applicant's offer as to consideration and requested term for the lease or sublease of the state-owned lands.

(7) A filing fee.

(d) Maintenance Operations.

(1) A district may perform maintenance dredging of channels across state-owned lands and flats and discharge the dredged material onto state-owned lands and flats provided:

(A) the district used these lands and flats for this purpose prior to and during May 27, 1975, and

(B) the district submitted acceptable maps and drawings depicting the structures and boundaries of the state-owned lands and flats used to the General Land Office before the effective date of these rules.

(2) A district must file notification of maintenance dredging with the General Land Office giving the date of dredging, the location of the dredging and of the dredged material disposal site, and the expected date of completion.

(e) No district may expand any operations on state-owned lands and flats without obtaining a lease from the board. Expansions include:

(A) widening or deepening of a navigation channel;

(B) disposal of dredged material on a new site on state-owned lands and flats;

(C) any other proposed operation which requires use of state lands.

(f) Oil, gas, and mineral leases.

(1) Lessees must observe the environmental codes specific to lands leased to districts.

(2) Lessees must apply to the General Land Office for appropriate permits or easements in connection with their lease.

(g) Any district granted a lease under these rules must adhere to the project performance standards under 135.18.04.008.

.008 Subleases

(a) Districts may sublease lands leased from the state under the provisions of these rules to third parties for navigation purposes, but such sublease and any amendments thereto shall be subject to the approval of the board according to the requirements set forth in Rule .007(c)-(g).

(b) If the work, improvements, and uses specified in the sublease were included in the district's original lease and were authorized by the board or if the state-owned lands and flats to be subleased were included in the final amended lease to the district, no approval by the board will be required; however, the district must submit a copy of the sublease, and any amendments thereto, to

the board for a determination that the sublease is for a purpose that was contemplated by the district in the district's original lease. No environmental impact statement will be necessary for any sublease which requires no dredging, filling, or bulkheading, and which would not have a substantial impact upon the environment, or which requires only insubstantial dredging, filling, or bulkheading, as determined by the board; nor will a district in obtaining approval for a sublease under any circumstances be required to reveal the name of the tenant to whom the sublease is to be made.

APPENDIX B-2

School Land Board
Land Resources
135.18

State-Owned Lands in
the Coastal Area
135.18.04.001-.009

These rules are proposed under the authority of the Texas Natural Resources Code Sec. 33.064.

.001. Scope of Rules.

These are rules of practice for the surface estate of state-owned lands in the coastal area and supersede any other rules of the School Land Board to the extent of any conflict.

.002. Definitions. As used in this subchapter, the following terms have the following meanings:

(1) Adverse impact: changes in physical, biological, or chemical relationships in state-owned coastal wetlands or in areas within tidewater limits that on balance significantly diminish the life support or ecological value of these areas; changes in socioeconomic factors which on balance have significant negative effects on communities.

(2) Applicant: a person applying for a permit, lease or easement.

(3) Board: the School Land Board of Texas.

(4) Bulkhead: a structure usually built parallel to and abutting the shoreline to prevent shorefront property from eroding or sliding into the water.

(5) Channel: a waterway created or expanded by the moving of soil, sand, gravel, shell, or other material from its natural setting.

(6) Coastal area: the geographic area comprising all the counties of Texas having any tidewater shoreline, including that portion of the Gulf of Mexico within the jurisdiction of the State of Texas.

(7) Coastal public lands: all or any portion of state-owned submerged land, the water overlying that land, and all state-owned islands or portions of islands in the coastal area.

(8) Coastal wetlands: marshes and other areas of high biologic

productivity where seawater is present during times other than and in addition to storms or hurricanes as defined by the Beaufort Wind Scale. Coastal wetlands do not, however, include any mainland area where seawater is present only during storms or hurricanes as defined by the Beaufort Wind Scale. The presence at a given point of vegetation characteristic of marshes containing seawater shall be prima facie evidence that seawater is present at such point during times other than and in addition to storms or hurricanes as defined by the Beaufort Wind Scale.

(9) Commercial structure: any structure located on state-owned lands in the the coastal area which is used directly for the sale of goods, wares, services on or property of any kind and includes any structure on coastal public lands adjacent to littoral property used commercially.

(10) Commissioner: the commissioner of the General Land Office of Texas, who serves as chairman of the School Land Board.

(11) Contaminating substance: any substance, excluding freshwater and normal-salinity seawater, that exists within, is introduced into, or is released within state-owned lands in the coastal area and can cause adverse impacts.

(12) Cumulative impact: the significant impacts which will result from a proposed project considered together with the impacts of existing projects in the area of the proposed project.

(13) Dredging: excavating, displacing, or moving material from lands in the coastal area for the purpose of deepening or expanding a body of water or for obtaining fill material. Prop-washing is included in this

definition.

(14) Fill material: any material purposely placed to raise the elevation of the land or to level or stabilize the land surface or water bottom, excluding any material discharged into coastal waters primarily to dispose of waste.

(15) Groin: a structure usually built perpendicular to the shore to protect it from erosion or to trap sand and other sediment.

(16) Gulf lands: the state-owned lands extending from the three-marine-league line shoreward to the line of mean higher high tide, excluding bays and arms of the Gulf.

(17) Island: any body of land surrounded by the waters of a saltwater lake, bay, inlet, estuary, or inland body of water within the tidewater limits of this state, including man-made islands resulting from dredged material disposal or other operations.

(18) Littoral owner: owner of any public or private land bordered by or contiguous to state-owned lands in the coastal area.

(19) Major navigational channel: a channel used for interstate or international commerce.

(20) Marina: a combination of docks or piers floating or constructed on pilings, extending into or over state-owned lands, which is used for storing or docking boats, pleasure crafts, shrimp boats, and similar structures. Charges are made for any of its services.

(21) Mean higher high tide: average of the highest level of the two daily tides.

(22) Other areas of high biologic productivity: areas in coastal wetlands that contain seawater, are adjacent to or within marshes, and

contain submerged benthic, sparse emergent, or no vegetation. These areas may include small water bodies, creeks, pans, and bare spots. They contribute to or perform the same functions as marshes.

(23) Owner: a property owner or a property owner's legal representative.

(24) Permit: a license, certificate, approval, registration, or similar form of permission issued by the board authorizing use of state-owned lands in the coastal area. This excludes easements and leases.

(25) Person: any individual, firm, partnership, association, corporation which is public or private and profit or nonprofit, trust, political subdivision, agency of the state, or agency of the federal government.

(26) Pier and dock: structures of timber or other material built onto or over state-owned lands in the coastal area which are used for fishing and recreational boating and which are not a wharf or marina as defined in this rule.

(27) Project: the planning, construction, operation, maintenance or modification of facilities, structures, channels, equipment or material necessary to serve a particular purpose.

(28) Rookery: the nesting or breeding place of a colony of birds.

(29) Seawater: any water containing a concentration of one-twentieth of one percent or more by weight of total dissolved inorganic salts derived from the marine waters of the Gulf of Mexico.

(30) Sensitive aquatic habitats: water environments that sustain coastal wildlife or fishery resources and are easily disturbed by structures, operations, or facilities. These areas include oyster reefs, grassflats, and bay and lagoon margins. Sensitive aquatic habitats may be adjacent to but are distinct from coastal wetlands.

(31) Shoreline: the Gulf Coast Low Water Datum as established by

the National Ocean Survey.

(32) State-owned lands: the coastal public lands and the lands dedicated to the permanent school fund and asylum funds by the constitution and laws of this state.

(33) Structure: any temporary or permanent improvement or alteration to real property including but not limited to fixed or floating piers, wharves, docks, jetties, groins, breakwaters, certified reefs, fences, posts, retaining walls, levees, ramps, cabins, houses, shelters, landfills, excavations, canals, channels, and roads.

(34) Structures for protection from coastal hazards: levees, pumping stations, seawalls, groins, bulkheads, riprap, and other structures whose principal purpose is to protect lives and property from coastal natural hazards such as storms, hurricanes, and erosion.

(35) Submerged lands: the land beneath any saltwater lake, bay, inlet, estuary, or inland water within tidewater limits, excluding beaches bordering on and land beneath the waters of the open Gulf of Mexico.

(36) Washover channel: a local breach through a barrier island or peninsula in the Gulf of Mexico resulting from storm-generated high waters, current, or wave action. Washover channels are topographically lower than the beach itself.

(37) Wharf: a structure of timber, cement, masonary, earth, or other material built onto or over state-owned lands for vessels to receive and discharge cargo, products, goods, paying passengers, etc. This definition applies only to structures or portions of structures which are directly connected with and used for the loading and unloading of waterborne commerce and specifically excludes such structures used only for commercial fishing purposes.

.003. Policies for Management of State-Owned Lands in the Coastal Area.

(a) Management goals and objectives.

(1) Pursuant to the powers and duties of the board, it is the goal of the board to manage state-owned lands in the coastal area in a manner which furthers the following objectives:

(A) the orderly development of the mineral estate;

(B) the orderly growth of navigation necessary to the economic well-being of the state; and

(C) the maintenance of the productivity and stability of the renewable resources of the surface estate for present and future generations as they provide

(i) habitat necessary for sustained populations of commercially and biologically important species of fish and wildlife,

(ii) protection of coastal residents from natural coastal hazards,

(iii) recreational opportunities to the general public,

(iv) aesthetic values which improve the quality of life of coastal residents and visitors.

(2) It is also the goal of the board to promote decision-making which furthers the long-term interests of the people of Texas and which reduces conflict between objectives to the maximum extent practicable.

(3) The board does not purport to have administrative control over the activities of any private landowner; nor does the board purport to have the authority to regulate, control, or restrict the use or development of the property of a littoral owner. The project performance standards the board shall consider

when exercising permitting, easement, or leasing authority or when commenting to other agencies are contained in Rule .008 of this subchapter.

(b) The board shall evaluate projects on state-owned lands in the coastal area, projects partially on state-owned lands in the coastal area, and projects directly and significantly affecting state-owned lands in the coastal area, and shall take such management actions as it is authorized to take and which it deems proper to further the long-term interests for the people of Texas. The management actions which are available to the board with regard to actual or proposed projects include, but are not limited to the following :

(1) Granting, granting with stipulations, or denying applications for permits, leases, or easements for projects on state-owned lands in the coastal area. Permit, lease, or easement stipulations will be based on the project performance standards contained in Rule .008.

(2) Granting, granting with stipulations, or denying applications for permits, leases, or easements for that portion of a project on state-owned land. Stipulations will be based on the project performance standards contained in Rule .008. Comments to other agencies may be made where that portion of the project off state-owned lands directly and significantly affects state-owned lands in the coastal area.

(4) Commenting favorably, conditionally, or adversely on applications for permits submitted to other governmental agencies in accordance with applicable rules, executive orders, state laws, and memoranda of understandings.

(c) The board shall employ the following policies in evaluating projects for possible management action.

(1) The following types of projects proposed to be located on state-owned lands in the coastal area, excluding coastal wetlands, are generally permissible to the extent such projects are subject to these rules and subject to other criteria contained in subchapter 135.18.04.

(A) Exploration for and extraction of oil, gas, and geothermal resources.

(B) Exploration and extraction of other mineral resources.

(C) Access channels required for mineral extraction.

(D) Access roads for approved projects.

(E) Structures for protection from coastal hazards.

(F) Recreational facilities, if dredging or filling is not required.

(G) Pipelines

(H) Structures for purposes connected with ownership of littoral property.

(2) The following types of projects proposed to be located on state-owned lands in the coastal area, excluding coastal wetlands, to the extent such projects are subject to these regulations, may be permissible if the board finds that the beneficial net social, economic, and environmental impacts of the project outweigh the adverse impacts and if the criteria contained in this subchapter are satisfied:

(A) Structures and channels for navigation.

(B) Harbor and port facilities.

(C) Highways, causeways, and bridges.

(D) Recreational facilities, if dredging and filling is required.

(E) Waste storage and disposal.

(F) Surface drainage structures and impoundments.

(G) Industrial facilities.

(H) All other projects not listed in Rule .003(c)(1).

(3) The board will not grant an easement for a private residence to be built on state-owned lands in the coastal area.

(4) The board may allow groins only if a serious erosion problem exists, if there is no practicable alternative means of stabilizing the shoreline, and if the proposed structure will not create adverse shoaling.

(5) The board will not grant an easement for any bulkhead to be built on state-owned lands in the coastal area.

(6) Excavation of private property is preferable to excavation of state-owned lands in the coastal area.

(7) When any person proposes to undertake any activity or place on coastal public lands any structure or place on the boundary line between coastal public lands and private property any structure which alters the shoreline, the board may require that the boundary line be established by an on-the-ground survey and may require submission of a survey plat and field notes and such other information as may be deemed necessary by the board.

(8) The board shall consider the direct and cumulative impacts and relative permanence of impacts of those portions of projects on or directly and significantly affecting state-owned lands in the coastal area.

(9) The board may require submission of a project plan for a proposed project only partially on state-owned lands to determine whether the project will directly and significantly affect state-owned lands.

(10) The board shall consider the extent to which those those portions of a project on or directly and significantly affecting state-owned lands in the coastal area or the purposes of such a project can be practicably accomplished through the use of alternative sites which are more consistent with the management objectives specified in Rule .003(a) and the performance standards specified in Rule .008.

(11) The board shall consider the direct and cumulative impacts of those portions of projects on or directly and significantly affecting state-owned lands in the coastal area.

(12) The board shall consider government agency comments on and nominations of areas of special environmental concern. The board may designate areas of environmental value which need special monitoring or protection.

(13) The board shall consider the national interest in those portions of projects on or directly and significantly affecting state lands in the coastal area that are relevant to the planning and siting of facilities.

(d) The board hereby delegates to the commissioner the authority to:

(1) receive all written communications for the board;

(2) establish and carry out, to the extent funding permits, a review of state-owned lands in the coastal area to identify;

(A) unauthorized uses of those lands,

(B) violations of the terms and conditions of permits, leases, or easements issued by the board, and

(C) projects on state lands which have direct and significant impacts adverse to the standards of the board;

(3) process applications for permits, leases, or easements from the board, including, but not limited to;

(A) determining, according to rules of the board, the administrative completeness of the application, and notifying the applicant of the completeness or deficiencies of the application,

(B) receiving filing fees and monies for permits, leases, or easements authorized by the board and depositing such funds in the proper account in accordance with state law;

(4) evaluate, and report to the board, the probable impacts of those portions of projects on or directly and significantly affecting state-owned lands in the coastal area in conformance with the policies and standards contained in these rules;

(5) make detailed recommendations to the board regarding management actions necessary to further the goals and objectives specified in Rule .003(a).

.004. Processing of Board Permits, Leases, and Easements.

(a) Application Requirements. Any person proposing to undertake a project requiring board authorization as specified in these rules must apply for a permit, lease, or easement. Applications for permits, leases, or easements must be prepared in accordance with these instructions, and in accordance with other application procedures which vary depending on the purpose and use of state-owned lands. The application form for a permit, lease, or easement may be obtained from the General Land Office, Coastal Division, 1700 North Congress, Austin, Texas 78701. Variations of the application form exist for different types of uses.

(b) Content of Application.

(1) The application shall contain the name, address, and telephone number of the applicant or of the person authorized to make the application. The application shall be signed by the person who desires to undertake the project, or by a duly authorized agent if accompanied by a statement designating the agent. It shall be accompanied by the appropriate non-refundable processing fee made payable to the General Land Office.

(2) In addition, the application shall include:

(A) a reasonably adequate legal description of the land in which rights are sought as specified by Rule .004(b)(4);

(B) a statement of the legal instrument sought and the time period for which it is desired;

(C) a description of the project for which use of state-owned lands in the coastal area is sought as specified in Rules .004(b)(3)(4);

(D) Any additional information the board considers necessary for proper consideration of the application.

(3) Project Description.

(A) General. The project description shall include necessary drawings, sketches, plans, maps, or plats indicated on the application form; the names and addresses of adjoining property owners; the location and dimensions of adjacent structures relevant to the permit, lease, or easement for which application is being made; and a list of the approvals required by other state, federal, or local agencies, including all approvals received or denials already made to the extent possible.

(B) If the project involves construction, modification, repair, or removal of a structure, the application shall include a description of any associated filling, dumping, excavating, or dredging.

(C) If the project involves dredging or discharge of dredged or fill material in or affecting state-owned lands in the coastal area, the application shall include a description of the source of the material; the type, composition, and quantity of material; the methods of dredging, transportation, and disposal; and the location of the disposal site.

(4) Maps and Plats. Legal descriptions of lands in which rights are sought and project descriptions shall include maps or certified survey plats in accordance with the instructions of the particular type of permit, lease, or easement.

(c) Nature of Permit, Lease, or Easement.

(1) A permit, lease, or easement, if granted, shall be subject to these rules in addition to those terms and conditions prescribed in the permit, lease, or easement. The permit, lease, or easement shall be for a specific purpose. An applicant, by accepting a permit, lease, or easement to occupy or otherwise place a structure on state-owned land or water surface

areas in the coastal area, agrees and consents to comply with and be bound by the following:

(A) All structures on these state-owned lands shall be subject to inspection by the board, commissioner, or their authorized representatives at any time.

(B) The applicant shall keep the commissioner informed at all times of the applicant's address and the name and address of any agent authorized by the applicant to receive service of notice.

(C) The rights granted by the permit, lease, or easement shall not be exercised in a manner that unduly prevents or interferes with the management, administration, or granting of other rights by the board in any part of the area included in the permit, lease, or easement.

(D) The board reserves the right to review any maintenance dredging and disposal activities required for any project authorized by a permit, lease, or easement unless maintenance dredging or disposal is authorized in the permit, lease, or easement.

(E) The applicant agrees to pay to the General Land Office, when due, the necessary fee or rent determined by the board to be adequate compensation for the use of public lands.

(F) The applicant agrees to indemnify the board and commissioner against any and all liability for damages to life, person, or property arising from his occupation or use of the area covered by the interest or permit granted.

(2) Failure to comply with these rules and regulations and terms of the permit, lease, or easement subject the permit, lease, or easement to forfeiture.

.005. Environmental Codes for Oil and Gas Leases

(a) Environmental Codes.

(1) The Notice for Bids Booklet is distributed by the General Land Office 30 days before each lease sale. The environmental codes found in the booklet are a compilation of recommendations of various federal and state agencies. Codes are assigned to each state tract to forewarn potential lessees of developmental restrictions that apply to the tract. These codes have been agreed upon by federal and state agencies having jurisdiction over oil, gas, and mineral development. Those agencies are: the U. S. Army Corps of Engineers, the U. S. Fish and Wildlife Service, the National Park Service, the Environmental Assessment Division of the Department of Commerce, the General Land Office, the Texas Antiquities Committee, and the Texas Parks and Wildlife Department.

(2) Rule .008 presents the performance standards which are partial basis for GLO's code assignments.

(b) Project Plans

(1) The board may require a project plan of operations to be filed with the General Land Office. A project plan will be requested when the required information on the project is not available from the Corps of Engineers public notice.

(2) A plat showing all production facilities and ancillary facilities for the purpose of gathering, storing, compressing, treating, processing, separating, transporting, or otherwise making the resource ready for sale or use must be filed with the General Land Office. The plat must be dated and filed 30 days after production begins. A revised plat must be dated and filed whenever the resource passes through an additional facility.

(3) If a lessee holds more than one lease in an area and the leased tracts are adjacent and share facilities, the required information may be filed in one plat.

(4) Rule .005 (b)(1)-(3) does not waive or otherwise limit the right of the state to require any additional information authorized by a lease agreement or state law.

.006. Cabin Permits.

(a) The board may issue permits authorizing limited continued use of structures on coastal public lands where such use is sought by one claiming an interest in any such structure but is not incident to ownership of littoral property.

(b) Application for a permit shall follow the general procedures of Rule .004.

(c) The term of a permit will be the period considered by the board to be in the best interest of the state and in no event may exceed five years.

(d) The board may renew existing permits upon receipt from the permittee of a renewal request accompanied by the required fees. Upon approval by the board, a new grant of interest right may be authorized.

(e) Permits granted pursuant to this section shall be subject to the following policies.

(1) The board may not grant a permit authorizing the continued use of any structure located within 1,000 feet of:

(A) privately owned littoral property, without the written consent of the adjacent littoral owner;

(B) any federal or state wildlife sanctuary or refuge;

(C) any federal, state, county, or city park bordering on state-owned lands in the coastal area.

(2) Such structures shall be used only for noncommercial recreational purposes.

(3) The board may not grant any permit which would be in violation of the public policy of this state as expressed in these rules; nor may it grant any permit for any structure not in existence on August 27, 1973.

(4) In the event a structure for which a permit has been issued is severely damaged or destroyed by any means, no major repairs or rebuilding may be undertaken by the permit holder without the approval of the board.

(5) A permit authorizing continued use of a heretofore unauthorized structure on coastal public lands shall be deemed automatically revoked and terminated if the coastal public land where the structure is located is subsequently leased for public purposes or exchanged for littoral property or if such land is leased to a navigation district as provided by law.

(6) Every permit shall provide that in the event the terms of the permit are broken the board may terminate the permit.

(f) All structures for which a permit is required pursuant to this rule have been declared by law to be the property of the state, and any construction, maintenance, or use of such structure, except as authorized in this section, is declared a nuisance per se and is expressly prohibited.

(g) Any structure for which a permit is required located in a rookery area may be permitted only if these restrictions are met:

(1) Pets shall not be permitted on the island between February 15 and September 1.

(2) During the period of February 15 through September 1, activities shall be limited to the immediate area of the permitted structure(s) unless

special permission is granted by a representative of the General Land Office.

(3) Activities causing excessive noise or obviously harmful to birdlife, such as the use of fireworks, use of firearms, or large open fires, are prohibited during the nesting season of February 15 through September 1.

(4) Vegetation removal, such as clearing brush or cutting limbs, without written consent from the General Land Office is prohibited.

(h) The board may approve, approve with qualifications, or deny a request for the undertaking of major repairs or for the rebuilding of a structure under permit.

(1) Major repairs will include all of the following projects unless the board shall determine otherwise:

(A) modification or renovation of facilities or structures currently in existence;

(B) addition of any structure to existing facilities or structures;

(C) any activity requiring dredging or filling;

(D) any construction or building activity not listed as minor.

(2) A permittee may undertake minor repairs which will include the repair of existing docks, piers, catwalks, breakwaters, sheds, cabins, and the normal maintenance of such structures in those instances where size and capacity remain the same, i.e.:

(A) the replacement of shingles or tin on roofs or boards on floors, walls, or any associated appurtenances;

(B) the replacement of pilings and other foundations which do not require filling or dredging;

(C) the painting of any structure;

(D) clean-up activities such as removal of trash to keep the area litter-free, neat, and orderly.

(3) If the need for major repairs or rebuilding was caused by damage to the structure, the applicant must submit a written request to rebuild or make major repairs and a sworn affidavit attesting to the nature and cause of the damage to the structure. If the request is made for reasons other than damage, the applicant must submit a written request for permission to make major repairs or rebuild stating the reason for the request.

(4) The applicant must submit with the request a set of plans delineating the nature and extent of all proposed construction. The plans must show the existing and proposed structure including dimensions.

(i) Structures determined by the board to be abandoned may be removed from coastal public lands, renovated for the use of the general public, or permitted to any person through a public drawing or some other method approved by the board.

(j) An applicant, by accepting a permit to occupy a structure on state-owned lands in the coastal area, agrees and consents to comply with and be bound by the following terms and conditions:

(1) The permit number assigned by the board must be displayed by the permittee on the permitted structure in no less than four-inch block letters and numerals affixed to the structure in a location which

can readily be seen from the nearest access channel and on the roof of the structu in no less than four-feet block letters and numbers in a way which can readily be seen from the air. These may be decals, metal, or painted in contrasting color.

(2) The allowance of the permit rights granted shall be subject to the express condition that the rights granted will not prevent or interfere in any way with the management, administration, or the granting of other rights by the board in any part of the area in which permit rights are granted.

(k) Assignment. A permittee may assign a permit upon approval of the board for a prescribed fee.

(1) The proposed assignee must submit in writing that he understands that he is receiving only the rights set out in the permit contract and that he will abide by the provisions of the contract.

(2) Upon notification of the approved assignment, the assignee shall be responsible for compliance with all rules, regulations, and contract provisions. The assignment shall be made upon the express condition that such assignment does not and shall not release or relieve the assignor from any liabilities accruing prior to the effective date of the assignment.

(l) Termination.

(1) Failure to comply with these rules subjects the permit to termination by the board. Upon termination of a permit, the permittee shall, at the option of the board, remove all of his personal property within 30 days, and shall remove all structures and manmade improvements authorized in the permit within a time agreed upon, provided all monies have been paid.

(2) The permittee shall abide by all federal, state, and local laws. The board may terminate a permit if the permittee breaches any of these laws.

(3) A permit once terminated may be repermitted at the option of the board through a public drawing or some other method approved by the board.

.007. Registration of Structures.

(a) A littoral owner may construct on or over coastal public lands a pier which does not exceed 100 feet in length or 25 feet in width, requires no filling or dredging, and is not used for commercial purposes without obtaining an easement from the board; however, the littoral owner shall be required to register the location and dimensions of the pier with the board.

(b) Any person registering a pier on coastal public lands with the board must submit the plat and registration form approved by the General Land Office.

(1) The commissioner may request any additional information deemed necessary.

(2) A nonrefundable registration fee made payable to the General Land Office must accompany the registration form for each structure.

(c) Upon receipt of a registration form the commissioner will, after review and evaluation of the information, authorize the registration of the structure.

(d) In the event a structure has been registered with the commissioner and the littoral owner subsequently desires to make modifications or additions or rebuild such structure, the littoral owner is required to obtain an easement or lease in lieu of the prior registration of such structure if such structure is for commercial purposes, requires dredging or filling, or exceeds 100 feet in length or 25 feet in width. If no easement or lease is required, the littoral owner shall notify the General Land Office of the proposed modifications, additions, or rebuilding prior to undertaking the work.

(e) Assignment may be made of any structure registered with the commissioner subject to the written approval of the commissioner and provided that such structure is not used for commercial purposes, requires no dredging or filling, and does not exceed 100 feet in length or 25 feet in width, in which event an easement may be required. Any such assignment must be filed in triplicate and accompanied by a written request for approval in which the assignee agrees to comply with all rules and regulations contained in this rule. No assignment shall be effective to transfer any structure until approved by the commissioner, the assignor, and the assignee.

(f) The failure of any littoral owner to register a structure shall prevent such owner from making any further claim of right against the state in such structure and shall render the structure a nuisance per se, subject to abatement by the state at the expense of the littoral owner.

.008. Project Performance Standards

(a) The board will apply the project performance standards in Rule .008 to the extent practicable in evaluating applications for permits, leases, and easements. The board may grant, grant with stipulations, or deny a permit, lease or easement on the basis of these performance standards as indicated in Rule .003. The board will use the project performance standards in commenting on or deciding whether to challenge projects which are deemed to cause direct and significant harm to state-owned lands in the coastal area.

The project performance standards include but are not limited to section .008 (c)-(j).

(b) An applicant may request a waiver or revision of a performance standard if evidence can be shown that the standard is unduly restrictive or inappropriate.

(c) Roads for ingress and egress to well sites:

(1) Roads may be allowed if alternative locations are not reasonable or practical for access and state-owned coastal wetlands and sensitive aquatic habitats are avoided to the maximum extent practicable.

(2) There will be no discharge of oil, gasoline, or other fuel or any other materials capable of causing pollution on state-owned lands arising from the operation.

(3) Roads must be oriented parallel to the direction of water flow in a wetland area.

(4) Board roads laid directly on the marsh surface will be used whenever practicable.

(5) Roads will normally follow the higher elevations through the wetland.

(6) To the maximum extent practicable, road alignment will minimize disturbance of water flow regimes, specifically direction, duration, quantity and pattern of flow.

(7) Culverts shall be placed at local topographic depressions along the road route.

(8) The top width of the levee should be no more than 10'; the side slope should be 2:1 or 3:1 unless the quality of the fill material requires a greater slope; the elevation of the road should be kept to a minimum and limited so that it provides a servicable road (after settling and compaction) that may be traversed except under hurricane surge conditions. Turn arounds or widened areas for passing will be acceptable if they are no closer than 3000 feet apart.

(9) If a board roadway will be abondoned at the end of use, it shall be removed and the land surface restored to original contours to the greatest extent practicable.

(10) At the end of use, leveed roads will be removed; if not practicable, breeches will be made in the levee system at locations sufficient to restore original water flows. Consultation and a site visit will most always be required.

(11) Areas devegetated during construction will be replanted to the extent practicable after completion, to avoid excessive erosion and the runoff of turbid waters to waters of the state.

(12) Roadways not oriented paralled to the dominant direction or waterflow and/or in wetland areas will always require site-specific inspection

and consultation.

(d) Drilling for and extraction of oil, gas, mineral, or geothermal resources.

(1) (A) In areas of recreational beach use, surface drilling in the Gulf of Mexico within two miles of the shoreline shall be avoided by use of methods such as directional drilling.

(B) In the Gulf areas offshore from the Padre Island National Seashore the restricted area is extended 2 miles, and drilling between 2 and 3 miles offshore is prohibited between March 15 and September 15. However, any drilling begun prior to January 1 will be allowed to extend beyond March 15 to reach completion; any starts after January 1 must be finished by March 15.

(2) Alteration of state-owned coastal wetlands and sensitive aquatic habitats shall be avoided to the maximum extent practicable. This may be done by employing such means as directional drilling or by use of existing drilling sites.

(3) The work will be performed without increasing the ambient levels of turbidity in adjacent waters.

(4) There shall be no discharge of oil, gasoline, or other fuel or any other materials capable of causing surface or ground water pollution on state-owned lands.

(5) Leveed, marsh floor drilling sites accessed by overland routes and subject to additional conditions below will be allowed.

(6) Leveed, marsh floor sites accessed by a combination of overland routes and barged access may be allowed if complete overland routes are not practicable, and dredging only for a slip for offloading equipment from an existing navigation channel is necessary.

(7) Dredged well sites with keyways will be acceptable only if no overland or combination barge-overland route is possible; under these circumstances a site specific inspection and consultation with the appropriate agencies shall be required before certification.

(8) A ring levee will be required, no more than 15 feet high, surrounding the entire marsh floor operation two or three layers of boards will be required for flooring; the levee for single wells will be no larger than 250x250 feet. Larger leveed areas may be considered if the applicant is willing to directional drill from one location.

(9) The ring levee will be constructed with material from borrow pits located outside the leveed area.

(10) An adequate berm of at least 15 feet will be left between the levee base and borrow pit edge. The top of the levee should be no more than 4 feet wide and the sides should slope between 2:1 and 3:1 unless construction material quality requires a lesser slope.

(11) The levee site should be stripped of surface litter and cored by dragline to mineral soil or to a depth of 3 feet before fill material is placed upon it and shaped into a levee.

(12) Inside the levee around the perimeter and leading from the drilling rig to the perimeter, a sump should be dug to collect spilt materials, rain water, and leaking marsh fluids. The sump should have a low spot where a skimmer could remove drilling or petroleum fluids that may be spilled.

(13) The applicant agrees to use portable mud pits.

(14) All drilling fluids shall be contained in steel tanks. Cuttings may be stored within the leveed site within sublevees. However, no pits

will be allowed outside the main levee system.

(15) When the well location site moves into the production phase a smaller leveed area will be established around the well head and production equipment and breeches made within the unused portion of the levee system.

(16) Drilling muds shall not be disposed onto coastal public lands or state-owned wetlands. Drill cuttings containing hydrocarbons or toxic substances shall not be released onto Gulf lands or coastal public lands. No drill cuttings shall be disposed onto state-owned wetlands.

(17) Upon termination of all activities, breeches will be made in the remaining enclosed levees after all equipment has been removed.

(18) Drilling and ancillary operations shall not occur:

(A) within 1000 feet of a rookery between February 15 and September 1;

(B) on or within 500 feet of an oyster reef, or where it results in a high turbidity plume impacting a living reef; or

(C) on the top or slopes of grouper or snapper banks.

(19) The applicant otherwise complies with Railroad Commission and Department of Water Resources regulations.

(e) Channels

(1) Existing channels shall be used wherever possible.

(2) Widening, deepening, and lengthening of existing channels shall be done in a manner that minimizes adverse impacts on the hydrological characteristics of the naturally functioning bay systems. These characteristics include freshwater inflow, tidal exchange, water circulation, salinity regime, and sediment transport processes.

(3) Channels shall be constructed to avoid nursery areas and shellfish beds.

(4) Channels through wetlands for petroleum activities shall be acceptable only if all other overland or barge-overland routes are not practicable. Even under these circumstances, approval will most always require site inspection and consultation with the appropriate agencies.

(5) Channels through wetlands for recreational boat access, navigation, or pipeline placement will always require site inspection and consultation.

(6) To the maximum extent practicable, the number of mineral exploration and production sites in wetland areas requiring flotation access shall be held to the minimum number consistent with good conservation and recovery practices, by directional drilling and use of existing access canals.

(7) Channels should be designed to insure adequate flushing and to prevent the creation of pockets or other hydraulic conditions which would cause stagnant water pockets.

(8) Channels shall make maximum use of existing channels and minimize disruption of natural sheetflow, water flow, and drainage systems.

(9) To the maximum extent practicable, the channel alignment should avoid natural drainages through the wetland system. If bisecting such a drainage channel is unavoidable, and the area drained is not usually influenced by daily tidal action, the drainage water course should be plugged by a reinforced earthen plug at least 15 feet long and high enough so that on compaction, channel water will not intrude into the drainage water course.

(10) Where water in areas normally subject to daily tidal inundation would be blocked by spoil bank placement, drainage structures, natural openings, or very low spoil banks should be provided to allow frequent flooding of tidal creeks and channels.

(11) The channel base should be no wider than 70 feet and no deeper than 8 feet (measured at mean low tide). The sides should be gently sloping to minimize slumping.

(12) Spoil resulting from dredging is disposed of above mean high water or in disposal area(s) approved by Corps of Engineers and Parks and Wildlife Department. Open water disposal will require site specific justification, additional approval by Texas Department of Water Resources and the General Land Office.

(13) For spoil placed adjacent to the channel, a berm of 15 to 30 feet should be left between the levee base and channel bank to help in the control of bank erosion.

(14) For channels connecting distal lower salinity marsh regions to proximate higher salinity marsh regions, water retention structures (gates or inflatable dams) may be required to preserve the integrity of the low salinity areas. Where such structures are not possible, levees should be constructed to minimize leakage of high salinity water into low salinity marshes. This may require stripping surface vegetation and coring to mineral soil to provide an effective barrier for salinity intrusion.

(15) Where possible dredging should take place behind a curtain or earthen plug to control turbidity into more downstream areas. When dredging of the reach is finished, the plug or curtain may be removed.

(16) Where dredged keyways for flotation rigs are planned, the maximum dimensions should not exceed 140 by 400 feet for a single well. Directional drilling agreements by the applicant may allow enlargement of this area subject to consultation.

(17) During use of channels with adjacent emergent spoils by vessels involved in petroleum activities, a 5 knot maximum speed should be established to minimize channel and spoil bank erosion.

(18) There shall be no discharge of oil, gasoline, or other fuel or any other materials capable of causing water pollution arising from the operation.

(19) At the termination of exploration and production, old flotation canals protruding into low salinity wetland areas will be plugged with reinforced earthen plugs to prevent salinity intrusion. In wetlands subject to regular inundation, drainage structures, breeches, or low levees will be left in such a condition that frequent flooding of tidal creeks and channels will be assured.

(20) Channels for access to drainage systems or mosquito control projects, mineral extraction sites, and littoral property shall not exceed eight feet in depth, measured from the shoreline, and shall be designed to insure adequate water circulation. This does not apply to major navigation channels.

(21) Channels adjacent to barrier islands or peninsulas shall not be constructed transverse to the Gulf shoreline if such construction will create washover channels or breaches. Channels across coastal wetlands or areas within tidewater limits that approach or are adjacent to washover channels shall not significantly increase the probability that storm erosion

and deposition will damage areas within tidewater limits.

(f) Recreation facilities.

(1) A pier, dock, wharf, or marina shall not be constructed which:

(A) significantly restricts water flow and circulation;

(B) significantly shades out vegetation in coastal wetlands and grassflats;

(C) significantly impedes navigation or public access to coastal waters;

(D) uses solid fill across state-owned coastal wetlands and sensitive aquatic habitats;

(E) allows unlawful handling of sewage, refuse, or petroleum wastes;

(F) unlawfully restricts public use of the beach.

(2) Open dockage to deep water shall be used instead of excavated boat basins where possible.

(3) The depth of an excavated basin shall not exceed that of access channels and canals leading to the basin.

(4) Excavation of private property is preferable to excavation of state coastal wetlands.

(g) Dredging and dredged material disposal:

(1) shall be planned to minimize adverse impacts;

(2) shall be scheduled to minimize the disturbance to living marine and wildlife resources.

(3) shall avoid areas important to fish and shellfish production, important recreational areas, and endangered species habitat as designated by the U. S. Fish and Wildlife Service;

(4) shall not alienate rights of public and private littoral owners;

(5) shall not occur within 1000 feet of a rookery;

(6) shall not create new disposal sites in state-owned coastal wetlands, bays, or estuaries unless it can be shown that disposal in this manner is of net benefit to these areas;

(7) shall not create significant erosion or other nonpoint sources of pollution;

(8) shall be compatible with sediment compositions and types at the disposal site;

(9) shall not expose state-owned lands in the coastal area to contaminating substances in concentrations greater than those established by the Texas Department of Water Resources;

(10) shall be conducted using methods of safe practice and safety in navigation.

(h) Structures for protection from coastal hazards.

(1) Structures for protection from coastal hazards are generally permitted to protect existing commercial and residential land and improvements, but not in order to convert coastal wetlands to commercial and residential use if such coastal wetlands are state-owned or if the structure will directly and significantly affect state-owned lands in the coastal area.

(2) Structures for protection from coastal hazards shall not:

(A) be constructed with material dredged from coastal wetlands;

(B) alter the elevation, water level, or water circulation in coastal wetlands;

(C) create sediment transport patterns which induce erosion or shoaling in adjacent areas;

(D) reflect wave energy in a manner which alters stable marine bottom;

(E) be constructed of materials which will degrade water quality;

(F) restrict free public access to state beaches and waters;

(G) be constructed as an erosion buffer where coastal wetlands are adequately serving this purpose.

(i) Structures below mean higher high tide.

Any structure, whether fixed or floating, placed on state-owned lands in the coastal area below mean higher high tide shall be marked or lighted so as to prevent a navigation obstruction in accordance with Coast Guard regulations. Any such structure shall be removed or retrieved when no longer in use.

(j) Construction of walkways over state-owned land.

(1) Elevated walkways may be constructed over state-owned sand dune areas to provide access from private property subject to the following criteria.

(A) Hand rails will be provided for safety and to deter individuals from walking onto the dune area.

(B) Spaces between planks in the decking will be provided to allow penetration of sunlight and to prevent the accumulation of sand.

(C) Walkways will be elevated a minimum of 4 feet above ground surface to allow for light penetration and continued growth of vegetation.

(D) Walkways will follow the natural ground contour as closely as possible for safety.

(E) The number of walkways will be minimized to prevent destruction of dune vegetation during construction.

(F) Walkways will be routed through washover channels or blowout areas where possible to minimize construction impact to stabilized dunes.

(G) Request for the permit will be accompanied by construction plans which will include materials to be used and the proposed route.

(2) Elevated walkways over other state-owned land will be considered by the board in light of the performance standards outlined in this section and on a case-by-case basis.

.009. Assessment of Economic, Social, and Environmental Impacts of Major Projects on State-Owned Lands.

(a) For major projects for which an environmental impact statement, assessment, or review has been required by a federal agency or for which substantial environmental filings have been required by a state agency, the applicant must:

(1) submit estimates of those impacts of the proposed action which the board is allowed by the applicable statutes and regulations to consider in acting on the permit, lease, or easement application, or

(2) demonstrate that granting of the application will have no significant adverse impacts which the board is allowed to consider. The board will not assess those impacts which are outside its jurisdiction.

(b) The procedures used for preparing estimates of impacts shall:

(1) specify geographic areas of impact and include a model or checklist showing that the proposed project's impacts on the components of each affected natural or social system subject to the board's review have been assessed;

(2) provide sufficient documentation of methodology to reasonably allow a person who did not perform the procedure to trace the reasoning process and professional judgments used in the estimate of impacts;

(3) produce a clear and concise summary of the significant impacts of the proposed action in a form understandable to policymakers and the general public.

(c) The commissioner shall determine whether the applicant's estimate of impacts meets the above criteria.

In making this determination, the commissioner will not require the submission of data or analysis not necessary for a reasonably precise and accurate estimation of impacts. The demands on the applicant will be commensurate in scale with the anticipated impacts of the proposed action.

The commissioner will make all reasonable efforts to coordinate the information requirements for the applicant with related requirements of other state and federal agencies to avoid unnecessary expense to the applicant.

General Land Office
Exploration and Development
126.16

EXPLORATION PERMITS FOR GEOPHYSICAL AND OTHER SURVEYS

126.16.01.001

These rules are proposed under the authority of Texas Natural Resources Code Sec. 31.107.

.001. Definitions.

(a) Areas within tidewater limits: islands, saltwater lakes, bays, inlets, marshes and reefs below mean higher high tide and that portion of the Gulf of Mexico within the jurisdiction of Texas.

(b) Applicant: a field exploration party and the person, company, or companies seeking an exploration permit.

(c) Coastal public lands: all or any portion of state-owned submerged land, the water overlying that land, and all state-owned islands or portions of islands in the coastal area.

(d) Coastal wetlands: marshes and other areas of high biologic productivity where seawater is present during times other than and in addition to storms or hurricanes as defined by the Beaufort Wind Scale. Coastal wetlands do not, however, include any mainland area where seawater is present only during storms or hurricanes as defined by the Beaufort Wind Scale. The presence at a given point of vegetation characteristic of marshes containing seawater shall be prima facie evidence that seawater is present at such point during times other than and in addition to storms or hurricanes as defined by the Beaufort Wind Scale.

(e) Commissioner: the Commissioner of the General Land Office.

(f) Exploration: geological, geophysical, and other surveys and investigations, including seismic methods for the discovery and location of oil, gas, or other mineral prospects, which may or may not involve the use of explosives.

(g) High-velocity explosive: dynamite, ammonium nitrate, or other explosives, excluding detonating cord, sleeve-enclosed explosive devices, and pneumatic, acoustic, and vibrating sources.

(h) Mean higher high tide: the average of the highest level of the two daily tides.

(i) Other energy sources for geophysical exploration: pneumatic, acoustic, and vibrating devices, detonating cord, and sleeve-enclosed explosive devices for geophysical and other surveys.

(j) Public beach: (1) the state-owned portion of Gulf beaches, below the line of mean higher high tide, (2) the larger area extending from the line of mean low tide to the line of vegetation bordering on the Gulf, but no more than 200 feet landward of the mean higher high tide line, in all areas where the public has acquired a right of use or easement by prescription, dedication, or continuous right, and (3) any parks bordering coastal public lands.

(k) Shot: the use and detonation of powder, dynamite, ammonium nitrate, or other high-velocity explosive.

(l) Shrimping fleet: ten or more boats trawling for shrimp within an area not more than one mile in diameter.

(m) Sleeve enclosed explosive: a metal cylinder approximately three feet long enclosed by vulcanized rubber which completely contains an explosion of spark ignited gases. The device is towed behind a vessel when being operated.

(n) Structure: any structure, work, or improvement constructed on, affixed to, or worked on areas within tidewater limits including but not limited to piers, docks, wharves, jetties, groins, breakwaters, natural or artificial reefs, ramps, cabins, well heads, producing platforms, brine separators, tank batteries or other oil and gas production facilities.

(o) Submerged lands: any land beneath any saltwater lake, bay, inlet, estuary, or inland water within tidewater limits, excluding beaches bordering on and land beneath the waters of the open Gulf of Mexico.

EXPLORATION PERMITS FOR GEOPHYSICAL AND OTHER SURVEYS

126.16.01.005

These rules are proposed under the authority of Texas Natural Resources Code Sec. 31.107.

.005. Operations.

(a) General.

(1) Use of wheeled or tracked vehicles on state-owned lands in the coastal area.

(A) Only vehicles with wide, low-pressure rubber tires shall be used in coastal wetlands.

(B) Marsh buggies and rubber-tired vehicles shall not use the same track twice in emergent tidal coastal wetlands.

(C) Marsh buggies shall avoid submerged grassbeds wherever possible. If a track is made, the same track shall be used every time to minimize the area of disturbed habitat.

(D) Vehicles shall avoid dense stands of vegetation wherever possible.

(E) Staging and work areas shall not be established in vegetated coastal wetlands or vegetated dune areas.

(2) All pipes, buoys, and markers used in surveys shall be distinctly and permanently marked with the name or initials of the permittee.

(3) Placement of buoys and markers shall be done in such a manner as to prevent damage to commercial fishing gear.

(4) Upon completion of the survey:

(A) all buoys and markers shall be removed except those authorized by the United States Coast Guard;

(B) all drill holes above mean high water in coastal wetlands shall be plugged to preproject elevations;

(C) in the gulf and bays, all rigging and material shall be removed and the bottom restored as nearly as practicable to its preproject condition.

(b) High-velocity explosives.

(1) High-velocity explosives shall not be discharged:

(A) in the water closer than five feet from the bottom if the bottom sediment would be significantly disturbed;

(B) in bays or inland waters within one mile of the mouth of a river unless properly buried;

(C) within a radius of one mile of a shrimping fleet.

(D) if the shot is in excess of forty pounds.

(2) If buried in drill holes, high-velocity explosives shall be detonated no less than ten feet beneath the bottom in the Gulf of Mexico, or no less than twenty feet beneath the bottom in coastal public lands unless special permission is granted.

(3) High-velocity explosives suspended in water:

(A) shall be designed to disintegrate and neutralize within a short time;

(B) using inflated floats, shall use two floats, each capable of supporting the shot at the proper depth;

(C) which fail to discharge shall be removed from the water if this can, in the opinion of the party chief, be done without danger to any member of the party and shall not be abandoned until all attached floats are destroyed or removed.

(4) High-velocity explosives buried beneath the bottom through pipes:

(A) may be discharged with the pipe in place provided the pipe is secured to a float or other device to prevent its loss;

(B) may be left in place overnight provided all wires are properly shunted, the charges are anchored at least two feet below the bottom of the pipes, and the location is not within 1,320 feet of any shoreline generally open to the public.

(c) High velocity explosives and detonating cord shall not be discharged:

(1) except during daylight hours;

(2) so long as one or more visible schools of fish are within a one-mile radius of the shot;

(3) within a radius of 500 feet of any structure, marked oyster bed, or marked snapper banks;

(4) within a radius of 300 feet of any dredged channel;

(5) prior to employing industry-approved methods to drive away marine life in the area to be shot;

(6) in the Gulf of Mexico, within a radius of one mile of a natural pass, jettied pass, fish pass, or river mouth unless properly buried.

(7) from October 15 to April 15 in whooping crane habitat as designated by the United States Fish and Wildlife Service;

(8) from March 1 to September 1 within a radius of 1,000 feet of a rookery;

(9) from May 15 to September 15 within a radius of one mile of a public beach unless the environmental code on that state tract indicates a different standard. The General Land Office maintains a master list of coded tracts.

(10) in excess of 40 pounds or other than as a single strand, respectively.

(d) Sleeve-enclosed explosive devices and pneumatic, acoustic, or vibrating sources shall:

(1) Not be discharged within one-half mile of a shrimping fleet day or night.

(2) When towing the equipment, require marking the distal end of the energy source in such a way that it is easily recognizable by both visual and electronic means.

(3) Not be discharged from May 15 to September 15 within a radius of 1/2 mile of a public beach unless the environmental code on that state tract indicates otherwise. The General Land Office Coastal Division maintains a master list of coded tracts.

(4) Not be discharged within a radius of 100 feet of a marked oyster bed.

APPENDIX C

PERFORMANCE STANDARDS

In Chapter I, uses and activities subject to management were listed, with appropriate management agency and authority identified. This appendix contains excerpts from specific rules and performance standards used by agencies to regulate those uses and activities subject to management. State agency rules serve as the basis for agency decisions regarding approval of specific projects, and for granting or denying various permits, licenses and easements.

A thorough explanation of the policies and authorities on which these regulations are based is found in the text of this document in Chapter III. Chapter III is divided into four broad areas of coastal management; i.e. Bays and Estuaries, Shorefront Access, Coastal Hazards, and Coastal Development. Agency responsibilities and activities concerning each of these areas are discussed in that chapter. Specific rules and standards are arranged throughout Appendix C in accordance with these general categorical areas.

APPENDIX C-1

STANDARDS FOR WATER QUALITY PROTECTION

Uses which affect the water quality of bays and estuaries include water diversion, industrial and sewage treatment facilities, nonpoint discharges such as private sewage disposal and runoff from construction or other sources, and industrial and municipal solid waste disposal facilites; in addition, water quality is affected by oil spills or accidental discharges of hazardous materials. Uses and activities which might affect water quality require the necessary permits and approvals from the appropriate state agency or agencies prior to initiation of the project. The Texas agencies responsible for approving these activities and uses through permits, licenses, and easements are the Texas Department of Water Resources, the Texas Department of Health, the Texas Railroad Commission, and the General Land Office/School Land Board.

So that the water quality of the bays and estuaries is properly managed, Texas agencies require compliance with applicable performance standards, including standards for:

1. Water Appropriation
2. Point Source Discharges
3. 208 Plans (Nonpoint Source Discharges)
4. Private Sewage Facilities
5. Sand and Gravel Washing
6. Commercial Swine Production Operations
7. Disposal of Wastes from Meat Processing Operations
8. Waste Discharge Permits
9. Industrial Solid Waste Disposal
10. Municipal Solid Waste Disposal
11. Oil, Gas, and Geothermal Resource Activities
12. Mineral leasing
13. Geophysical surveys
14. Managing Spills of Oil and Hazardous Substances
15. Spill Prevention and Control Plans

These performance standards are contained in agency rules and regulations and are the basis of agency decisions for project approvals. The Department of Water Resources has also prepared technical guidelines outlining methods designed to aid in the prevention of the conditions prohibited in the rule. Technical guidelines are available for

industrial solid waste management and for development of spill prevention and control plans.

1. Standards for Water Appropriation

Before anyone can appropriate, divert or store state water, which includes the water and tides of every river, stream, lake, bay or arm of the Gulf of Mexico, a permit must be granted by the Texas Water Commission.

TEX. WATER CODE, § 11.134	The Texas Water Commission shall grant a water appropriation permit only if: - The application conforms in form and content to the appropriate requirements of the Texas Water Code; - Unappropriated water is available in the source of supply; - The proposed appropriation contemplates the application of water to a beneficial use; - The proposed appropriation does not impair existing water rights; and - The proposed water appropriation is not detrimental to the public welfare.
TEX. WATER CODE, § 11.147	In its consideration of an application for a permit to store, take, or divert water, the Commission shall assess the effects of the issuance of the permit on the bays and estuaries of Texas.
TDWR Rule 156.02.35.001 Texas Water Code Sec. 11.124	A person seeking to divert state water for other than domestic and livestock uses, from either a reservoir constructed by the federal government with no local sponsor, or a reservoir permitted for storage solely for the purpose of optimum development of the project, shall make application to the Water Commission.

2. Standards for Point Source Discharges

Discharges of pollutants or waste from point sources into any water of the state or which runs or seeps into any water in the state are the subject of a permit from the Texas Water Commission. This includes all industrial and municipal waste water discharges. In determining whether to issue a permit, the Commission must find that the proposed discharge will comply with established stream standards for all inland and coastal stream and water course segments. All regulatory activities of the Commission and the Department of Water Resources apply both to publicly and privately owned lands and must be the subject of a permit from the Texas Water Commission.

Texas Dept. of Water Resources, Texas Water Quality Standards, reprinted 1978, pp. 6-8

The general criteria enumerated below are applicable to all surface waters of the state at all times and specifically apply with respect to substances attributed to waste discharges or the activities of man as opposed to natural phenomena. The following listed criteria do not override a specific exception to any one or more of the following if the exception is specifically stated in a specific water quality standard.

- Taste- and odor-producing substances shall be limited to concentrations in the waters of the state that will not interfere with the production of potable water by reasonable water treatment methods, or impart unpalatable flavor to food fish, including shellfish, or result in offensive odors arising from the waters, or otherwise interfere with the reasonable use of the waters.

- The surface waters of the state shall be maintained so as to be essentially free of the floating debris and settleable suspended solids conducive to the production of putrescrible sludge deposits or

sediment layers which would adversely affect benthic biota or other lawful uses.

- The surface waters of the state shall be maintained so as to be essentially free of settleable suspended solids conducive to changes in the flow characteristics of stream channels, to the untimely filling of reservoirs and lakes, and which might result in unnecessary dredging costs.

- The surface waters of the state shall be maintained in an aesthetically attractive condition.

- There shall be no substantial change in turbidity from ambient conditions due to waste discharges.

- There shall be no foaming or frothing of a persistent nature.

- There shall be no discharge of radioactive materials in excess of that amount regulated by the Texas Radiation Control Act, Article 4590(f), Revised Civil Statutes, State of Texas and Texas Regulation for Control of Radiation.

  Radioactivity in fresh waters associated with the dissolved minerals (measurements made on filtered samples) shall not exceed those enumerated in U.S. Public Health Service, Drinking Water Standards, revised 1962, or latest revision, unless such conditions are of natural origin.

- The surface waters of the state shall be maintained so that they will not be toxic to man, fish and wildlife, and other terrestrial and aquatic life.

With specific reference to public drinking-water supplies, toxic materials not removable by ordinary water treatment techniques shall not exceed those enumerated in U.S. Public Health Service, Drinking Water Standards, 1962 edition, or latest revision, or established by EPA pursuant to the Safe Drinking Water Act when issued.

For a general guide, with respect to fish toxicity, receiving-waters outside mixing zones should not have a concentration of nonpersistent toxic materials exceeding 1/10 of the 96-hour TLm, where the bioassay is made using fish indigenous to the receiving-waters. Similarly, for persistent toxicants, the concentrations should not exceed 1/20 of the 96-hour TLm.

In general, for evaluations of toxicity, bioassay techniques will be selected as suited to the purpose at hand. However, bioassays will be conducted under water quality conditions (temperature, hardness, pH, salinity, dissolved oxygen, etc.) which approximate those of the stream as closely as practicable.

The surface waters of the state shall be maintained so that no oil, grease, or related residue will produce a visible film of oil or globules of grease on the surface, or coat the banks and bottoms of the watercourse.

Point source discharges must also comply with numerical criteria for chemical concentrations, pH and dissolved oxygen parameters, salinity levels and other technological ranges specified by the Department of Water Resources. These criteria are not reprinted here because of the variances from water-body to water-body and because they are subject to changing water quality conditions in each water-body.

3. 208 Plans (Nonpoint Source Discharges)

Special standards have been developed within each of the planning areas established under Section 208, federal Clean Water Act; Beaumont/Port Arthur, Houston, Corpus Christi, Victoria and the lower Rio Grande Valley. Specific requirements and effluent limitations established according to the plans will be reflected in the conditions attached to permits issued by the Environmental Protection Agency and the Texas Department of Water Resources once the plans are formally adopted and approved. See page III-19 for details on these water quality plans.

4. Standards for Private Sewage Facilities

The Texas Sanitation and Health Protection Law provides the authority for the Department of Health to promulgate construction rules and standards regarding private sewage facilities.

The Texas Water Commission has issued orders for control of septic tanks in several Texas coastal areas, and septic tank construction must conform with these specific area orders. Construction permits must also be obtained in certain areas. The Texas Department of Health has issued standards for actual design and construction of septic tanks.

TEX. REV. CIV. STAT. ANN. art. 4477-1, §5(a)	All human excreta in populous areas must be disposed of through properly managed sewers, treatment tanks, chemical toilets, approved privies, or by other methods approved by the State Department of Health. The disposal system shall be sufficient to prevent the pollution of surface soil, the contamination of any drinking water supply, the infection of any flies, cockroaches, or the creation of any other nuisance.
TEX. REV. CIV. STAT. ANN. art-4477-1, §5(b)	Septic tanks shall be constructed so that all effluent shall be disposed of through a subsurface drainage field designed in accordance with good public health engineering practice or any other method which does not create a nuisance.

TEX. REV. CIV. STAT. ANN art. 4477-1, §5(c)	No privy shall be constructed within 75 feet of any drinking-water well or of a human habitation, other than that to which it is appurtenant, without approval by the Local Health Officer of the Texas Board of Health, and no privy shall be erected or maintained over any abandoned well or over any stream or in any unincorporated village that is located within 1320 feet of any water well used for drinking-water purposes. The construction, maintenance, and use of such privy in violation of this provision shall be a nuisance.
TDH, Construction Standards for Private Sewage Facilities, .002(b)(3)	All new systems which deviate significantly from the TDH construction standards for conventional design should be reviewed and approved by the TDH prior to their installment and use.
TDH, Construction Standards for Private Sewage Facilities, .002(b)(4)(B)	Platted subdivisions of single family residences served by a public water supply but utilizing individual subsurface absorptive methods for sewage disposal should provide for individual lots having surface areas of at least 15,000 square feet.
TDH, Construction Standards for Private Sewage Facilities, .002(b)(4)(C)	To minimize the possibility of the transmission of waterborne diseases in platted subdivisions for single-family residences where each lot maintains an individual water supply well and septic tank with a soil absorption system, each lot should not contain less area than 20,000 sq. ft.
TDH, Construction Standards for Private Sewage Facilities, .002(c)(1)	The sewer from the house plumbing system to the septic tank should be constructed of structurally sound pipe such as cast-iron or approved types of plastic pipe. Cast-iron of high strength pipe should always be used under driveways. The line must be of watertight construction.

TDH, Construction Standards for Private Sewage Facilities, .002(c)(2)	A properly designed septic tank should be watertight and of a capacity equal to to the flow of sewage for a two-day period from the facilities being served.
TDH, Construction Standards for Private Sewage Facilities, .003	The following onsite sewage disposal systems are considered unsatisfactory for disposal of domestic wastes: cesspools, bore holes and injection wells, and seepage pits.

5. Standards for Sand and Gravel Washing

The Department of Water Resources regulates sand and gravel washing operations by rule to protect water quality from such nonpoint source discharges.

TDWR Rule 156.24.15.003	Any person who conducts a sand and gravel washing operation and who does not have a permit shall provide necessary retention ponds, dikes, ditches, dams and berms for retaining the process wastewater so that it does not enter the water in the state.
TDWR Rule 156.24.15.004	All uncontaminated runoff shall be diverted around process wastewater treatment and retention facilities.
TDWR Rule 156.24.15.005	The treatment and retention facilities shall at all times provide enough available capacity to retain all process wastewater.
TDWR Rule 156.24.15.006	Any person owning or operating a sand and gravel washing operation who makes, or proposes to make, any discharge into or adjacent to any water in the state shall submit to the Executive Director an application for a permit. No person shall make such discharge without authorization from the Commission.

6. Standards for Commercial Swine Production Operations

The Department of Water Resources regulates all commercial swine production operations by rule to protect water quality from such nonpoint source discharges. An operator must either register and comply with Department rules or obtain a specific waste discharge permit from the Texas Water Commission.

TDWR Rule 156.24.05.003	Owners or operators of commercial swine production operations with 500 or more animal units shall obtain a Certificate of Registration unless the facilities are presently regulated by a permit issued by the Commission. Before issuing the Certificate, the Executive Director will review the application and determine that the facilities provided comply with all requirements of the Department pertaining to such operations.
TDWR Rule 156.24.05.005(b)	If the Executive Director determines that the proposed activity is of such a nature as to warrant environmental safeguards in addition to or more stringent than those required by Department rules pertaining to such operations, the application shall be refused.
TDWR Rule 156.24.05.006	Any person whose commercial swine production operation is subject to Department rules for such operations may apply for a waste discharge permit.
TDWR Rule 156.24.05.007	Waste control facilities shall be designed to contain all feedlot runoff from the maximum probable 24-hour rainfall which will be expected to occur once in 25 years at the location of the operation. To prevent pollution of rainfall runoff originating outside the feeding area, feedlot wastes must

be isolated from outside surface drainage by ditches, dikes or other suitable structures. Waste retention facilities (dikes, lagoons, playa lakes or other structures relied on to hold waste materials from the operation) shall be sufficient to retain all runoff from uncovered commercial swine production operations resulting from the maximum probable 24-hour rainfall with a return frequency of 25 years and shall be sufficient to retain all wastewater produced within covered swine production facilities for a 30-day period.

TDWR Rule 156.24.05.008

Wastewater retention facilities shall be constructed in clay soils or lined with a minimum of one foot of compacted clay or lined with other suitable lining materials to control adequately seepage of contaminated wastewater into groundwaters which are acceptable for use as a domestic or livestock water supply.

TDWR Rule 156.24.05.009

If the applicant elects to dispose of waste materials through a land spreading program, he shall comply with the following requirements: (a) Liquid and solid waste materials shall be distributed on farm or pasture lands so that neither the waste nor rainfall contaminated by the waste will eventually enter the water in the state in a quantity which may adversely affect the quality of the receiving waters. (b) Waste shall be applied in concentrations and applications be made at intervals which will not inhibit growth of surface vegetation. (c) Collection, storage, and disposal of liquid and solid waste shall be

managed so as to prevent nuisance conditions, objectionable odors, and insect problems. All solid waste materials stockpiled outside the swine producing area shall be isolated by use of dikes from all outside drainage waters and shall be so diked to retain all rainfall which comes in contact with the stockpiled solid waste material.

TDWR Rule 156.24.05.011

The swine producer shall prevent the discharge of waters which have been contaminated by pesticides and shall notify the Executive Director immediately if such discharge occurs.

7. Standards for Disposal of Wastes from Meat Processing Operations

The Department of Water Resources regulates by rule meat processing operations, to protect water quality from nonpoint source discharges.

TDWR Rule 156.24.10.003

A person whose meat processing operation is subject to Department authority may submit an application to the Executive Director for a permit.

TDWR Rule 156.24.10.004

The degree of protection of surface waters is sufficient if waste control facilities are designed and operated in accordance with the following standards: (a) If a meat processing operation utilizes holding facilities, any holding facility shall be designed and operated to retain all wastewater produced by the meat processing operation for a 30-day period plus all rainwater which would enter the holding facilities as a result of a 25-year 24-hour rainfall. (b) If a meat processing operation utilizes an evaporation facility, it

shall be designed to retain wastewater with no overflow during a 10-year period of above-normal rainfall. (c) If a meat processing operation uses an irrigation facility, it shall be of adequate capacity to dewater all wastewater holding facilities within a 14-day period. If farmland or pastureland is irrigated with wastewater from the meat processing operation or its waste control facilities, the annual application rate (including rainfall) shall not exceed 200 percent of the expected consumptive use for the particular crop. (d) Wastewater must be isolated from outside surface drainage by ditches, diking, or other suitable structures where necessary to provide adequate environmental protection. Such diversion structures shall be designed to be effective during peak flows expected at times when a 25-year, 24-hour rainfall may occur.

TDWR Rule 156.24.10.005

Any wastewater holding facility in an area underlain by clean sands, fractured limestone, or other strata with exceptionally high permeability may be subject to additional seepage control requirements.

8. Standards for Waste Discharge Permits

The Department of Water Resources issues waste discharge permits which prescribe the controls and restrictions under which certain methods of disposal of defined waste may be conducted so as to conserve the natural resources of the state and to protect the quality of the environment. Any un-permitted nonpoint source discharges or runoff are subject to abatement by the Executive Director of the Texas Department of Water Resources.

TDWR Rule
156.25.01.004

Except as enumerated below, no person may discharge, deposit, inject, or otherwise dispose of any defined waste unless the disposal is authorized by and conducted in compliance with a waste discharge permit, rule, or other order of the Department. The following activities ordinarily do not need to be covered by a waste discharge permit: (However, nothing herein limits the authority of the Commission to require a waste discharge permit to abate and prevent water pollution resulting from the disposal of any defined waste.) (1) Disposing of sewage from a private dwelling by means other than a disposal well, unless the disposal is made in an area covered by a Commission order regulating the use of private sewage facilities, by an order of a county commissioners court, by a rule or order controlling the use in a given area of disposal wells for the subsurface disposal of sewage, or by any other rule or order of the Department. (2) Discharging or delivering defined waste to an organized sewer system, treatment facility, or disposal system when and so long as the system or facility has adequate facilities to handle and dispose of the waste and is operated in compliance with a valid waste discharge permit. (3) Discharging drainage water from a solid waste disposal operation as long as the discharge is done in compliance with the rules of the Department or other regulatory entity. (4) Discharging or delivering to a disposal-well operation any saltwater or other waste arising out of or incidental to the drilling for or the producing of

oil and gas, or using a disposal well for the subsurface disposal of any such saltwater or other waste as long as the well is operated in compliance with a valid permit from the Railroad Commission. (5) Disposing of waste resulting from activities associated with the exploration, development or production of oil and gas.

TDWR Rule 156.22.01.002

If the Executive Director determines there is good reason to believe that a discharge or proposed discharge of defined waste into or adjacent to any water in the state, whether the discharge is covered by a waste discharge permit or not, is creating or will cause extensive or severe property damage or economic loss to others, and that other procedures available to the Department to remedy or prevent the situation will result in unreasonable delay, the Executive Director may request the Commission to issue a temporary order to the person responsible for exercising control over the discharge or proposed discharge, directing that the discharge be discontinued, modified, or not made, or that other preventive measures be taken.

9. Standards For Industrial Solid Waste Management

The Texas Industrial Solid Waste Act, Tex. Rev. Civ. Stat. Ann. art. 4477-7, requires a permit from the Texas Department of Water Resources for storage, processing or disposal of any industrial solid waste except for nonhazardous waste on-site storage or disposal (TDWR rule 156.22.001.002). Anyone proposing to store, process or dispose of industrial solid waste on-site must notify the Executive Director of the Texas Department of Water Resources in advance so he can determine whether the activity will comply with the Department rules. The Executive Director may request information on waste composition, waste

management methods, engineering plans and geology. The Department recognizes continual changes in technical capabilities for industrial solid waste management. Thus, instead of promulgating numerous specific standards by regulation for permit issuance, it issues and periodically revises technical guidelines which are designed to aid in prevention of a nuisance and endangerment of public health and welfare.

TDWR Industrial Solid Waste Management Technical Guide No. 2	In selecting a location for a proposed disposal site, areas which shall be preferred are areas of low relief to minimize erosion and landslide or slumping potential, and areas with impervious stable rock formations, such as thick, massive clay beds; active faults, high seismic risk zones, and highly permeable formations should be avoided. The bottom of a proposed disposal site pit, pond or landfill should be well above the historical high groundwater table. Floodplains, shore lands, and groundwater recharge areas should be avoided. Proposed disposal sites should be located outside the paths of recurring severe storms, such as hurricanes and tornados, and should be located where air pollution potential is low. Significant hydraulic connection between the site and standing or flowing surface water should be absent. High sorption capacity, alkaline pH, and high cation exchange capacity are preferable as is homogeneous, workable soil with low permeability when considering a disposal site location. Disposal sites should be located in close proximity to waste sources and where there is adequate water and power supply; should be accessible by all-

weather highways or railroads; and should be located where there is low spill and accident potential.

Industrial waste disposal sites should be located in low population density areas and away from private wells for human or livestock use, from municipal water supplies reservoirs, or wells.

Sites should be located in areas of low fauna and flora diversity and avoid wilderness areas, wildlife refuges, migration routes, and areas of unique plant communities or animal populations.

Sites should be located where alternative land use value is low while areas with high recreational use potential should be avoided.

In order to prevent inundation of a disposal site area and to direct rainfall runoff around a disposal site, construction of surface-water diversion structures may be required.

At industrial solid waste disposal sites accepting hazardous wastes and located at elevations above the 50-year floodwater elevation, diversion structures employed should be capable of diverting all of the rainfall from a 24-hour, 25-year storm.

Industrial solid waste disposal sites accepting hazardous wastes and located below the 50-year floodwater elevation should provide surface water diversion dikes, with a minimum height equal to two (2) feet above the 50-year floodwater elevation, around the perimeter of the disposal site.

10. Standards for Municipal Solid Waste Management

Operators must obtain a permit from the Texas Department of Health for the operation of each municipal solid waste facility (TDH Rule 301.82.01.005). Such facilities, to be permitted, must meet the requirements of the Department of Health's Municipal Solid Waste Management Regulations.

TDH, Municipal Solid Waste Management Regulations, E-3.4b(2)	Solid waste processing plants shall be designed for easy cleaning. This may be accomplished by: - Controlling surface drainage in the vicinity of the plant to minimize surface water runoff onto, into, and off the treatment area. - Constructing walls and floors in operating areas of masonry, concrete, or other hard-surfaced materials that can be hosed down and scrubbed. - Providing necessary connections and equipment to permit thorough cleaning with water or steam. - Providing adequate floor drains to remove wash water.
TDH, Municipal Solid Waste Management Regulations, E-3.4b(3)	All liquids resulting from the operation of solid waste processing plants shall be disposed of in a manner which will not cause water pollution.
TDH, Municipal Solid Waste Management Regulations, E-3.4b(3)	Facilities shall be available for the treatment of wastewaters resulting from the process or from cleaning and washing.
TDH, Municipal Solid Waste Management Regulations, E-3.4b(3)	The procedure for wastewater disposal shall be in compliance with the rules and regulations of the Texas Department of Water Resources.

TDH, Municipal Solid Waste Management Regulations, E-3.4b(5)	Solid waste processing plants shall be designed for the rapid processing of solid waste and a minimum detention time at the facility. All solid waste capable of creating public health hazards or nuisances shall be processed or transferred during the same working day it is deposited at the facility. If the facility is in continuous operation, such as for resource or energy recovery, provisions shall be made to ensure that wastes are not allowed to accumulate or remain on-site awaiting processing or transfer for such periods that will allow the creation of nuisances or public health hazards due to odors, fly-breeding, or harborage of other vectors.
TDH, Municipal Solid Waste Management Regulations, E-4.1c	The TDH will give consideration to any recommendation or action taken by the governing body of a city or county within whose jurisdiction the proposed site is to be located concerning implications of the application with respect to public health, welfare, and physical property, including proper land use, reasonable projection of growth and development, and any other pertinent considerations.
TDH, Municipal Solid Waste Management Regulations, G-2.1(a)	The design capacity of a solid waste processing or experimental facility shall not be exceeded during operation. The facility shall not accumulate solid waste in quantities that cannot be processed within such time as will preclude the creation of odors, fly-breeding, or harborage of other vectors. If such accumulations occur, additional solid waste shall not be received until the adverse conditions are abated.
TDH, Municipal Solid Waste Management Regulations, G-2.1(b)	If a significant work-stoppage should occur at a solid waste processing or experimental facility due to a mechanical breakdown or other causes, the facility shall accordingly restrict the receiving of solid waste. Under such circum-

	stances, incoming solid waste shall be diverted to an approved back-up processing or disposal facility. If the work-stoppage is anticipated to last long enough to create objectionable odors, fly-breeding, or harborage of vectors, steps shall be taken to remove the accumulated solid waste from the site to an approved back-up processing or disposal facility.
TDH, Municipal Solid Waste Management Regulations, F-3.9	Any ponded water at the site shall be controlled to avoid its becoming a source of obnoxious odors. In the event objectionable odors do occur, appropriate measures, such as chemical treatment, shall be taken. All applicable Texas Air Control Board regulations concerning air pollution control shall be observed.

11. Standards for Oil, Gas, and Geothermal Resource Activities

The Texas Railroad Commission has jurisdiction over and must issue permits for all oil, gas and geothermal wells in Texas whether on public or private lands. The Railroad Commission is solely responsible for control and disposition of waste resulting from activities associated with the exploration, development and production of oil or gas. Discharge of any waste into state water must meet the water quality standards established by the Texas Department of Water Resources.

RRC Rule 051.02.02.005	A permit is required to drill, deepen, or plug back exploratory, fluid injection, injection water source, oil, gas, and geothermal resource wells.
RRC Rule 051.02.02.008(a)	Freshwater, whether above or below the surface, shall be protected from pollution whether in drilling, plugging, producing, or disposing of saltwater already produced.
RRC Rule 051.02.02.008(b)	All oil, gas or geothermal resource operations must be conducted so that no pollution of any stream or water course

	of this state, or any subsurface waters, will occur as the result of the escape, release or injection of oil, gas, saltwater, geothermal resource or other mineralized waters from any well.
RRC Rule 051.02.02.008(c)(1)	All operators conducting oil, gas, or geothermal resources development and production operations are prohibited from using saltwater disposal pits for storage and evaporation of oil field brines, geothermal resource waters or other mineralized waters.
RRC Rule 051.02.02.008 (c)(1)(B)	Impervious collecting pits may be approved for use in conjunction with approved saltwater disposal operations, provided that authority must be received for use of such pits from the Commission.
RRC Rule 051.02.02.008(c) (1)(C)	Discharge of oil field brines, geothermal resource waters or other mineralized waters into a surface drainage watercourse is prohibited unless an exception is granted.
RRC Rule 051.02.02.008 (c)(1)(D)	Disposition of oil field brines, geothermal resource waters, or other mineralized waters through off-lease facilities where transportation is by tank trucks, pipelines or other means, is the initial responsibility of the lease operator and shall not begin until a permit is obtained from the Railroad Commission. Such permit shall be subject to review and cancellation if permitted method of disposition is abused.
RRC Rule 051.02.02.008 (c)(4)	Where a saltwater disposal pit is presently used and is abandoned due to cessation of saltwater flow thereto, such pit shall be backfilled and compacted.
RRC Rule 051.02.02.008(d) (1),(2)	All oil, gas, and geothermal resource well drilling and producing operations shall be conducted in such a manner to

	preclude the pollution of the waters of the Texas offshore and adjacent estuarine zones and the damage of aquatic life.
RRC Rule 051.02.02.008(d)(2)(A)	The disposal of liquid waste material into these zones shall be limited to saltwater and other materials which shall have been treated to remove constituents which may be harmful to aquatic life or injurious to life or property.
RRC Rule 051.02.02.008(d)(2)(B)	No oil or other hydrocarbons in any form or combination with other materials or constituent shall be disposed of into these zones.
RRC Rule 051.02.02.008(d)(2)(C)	All deck areas on drilling platforms, barges, workover unit and associated equipment, both floating and stationary subject to contamination shall be either curbed and connected by drain to a collecting tank, sump or enclosed drilling slot for treatment and disposed of without causing hazard or pollution, or must utilize drip pans, or their equivalent, under any equipment considered a source from which pollutants may escape into surrounding water.
RRC Rule 051.02.02.008(d)(2)(E)	Drilling muds which contain oil shall be transported to shore or a designated area for disposal. Only oil-free cuttings and fluids from mud systems may be disposed of into Texas offshore and adjacent estuarine zones at or near the surface.
RRC Rule 051.02.02.008(d)(2)(F)	Fluids produced from offshore wells shall shall be mechanically contained in adequately pressure-controlled piping or vessels from producing well to disposition point. Oil and water separation facilities at offshore and onshore locations shall contain safeguards to prevent emission of pollutants to the Texas offshore and adjacent estuarine zones prior to proper treatment.

RRC Rule 051.02.02.008 (d)(2)(G)	All deck areas on producing platforms subject to contamination shall (1) be curbed and connected by drain to a collecting tank or sump in which the containment will be treated and disposed of without causing hazard or pollution; or, (2) use drip pans, or their equivalent under any source from which pollutants may escape into surrounding water. Drip pans must be piped to collecting tanks or sumps and means must be provided to empty the sumps to prevent overflow.
RRC Rule 051.02.02.008(d)(2)(I)	Immediate corrective action must be taken at the expense of the responsible operator in all cases where pollution has occurred.
RRC Rule 051.02.02.009(c)	Saltwater disposal wells must be cased in a manner which does not endanger oil, gas, geothermal resources or freshwater reservoirs.
RRC Rule 051.02.02.009(a)	With RRC approval, saltwater or other water unfit for general use may be disposed by injecting it into nonproducing oil, gas, or geothermal resource-bearing formations that naturally contain similar water.
RRC Rule 051.02.02.008(e)	A person who transports saltwater for hire by any method other than pipeline shall not haul and dispose of water containing salt or other mineralized substances produced by oil and gas operations, off a lease, unit, or other oil or gas property where it is produced, unless such transporter has qualified for and has been issued a saltwater hauler permit by the Commission.
RRC Rule 051.02.02.046	A permit must be obtained for injecting fluid into a productive oil, gas, or geothermal reservoir. The permit application must be accompanied by freshwater injection data.

RRC Rule 051.02.02.013	All wells must be cased and cemented with sufficient surface casing to protect freshwater sands.
RRC Rule 051.02.02.015	Freshwater sands are to be protected with casing which has been cemented, and such casing shall not be removed from the well at abandonment. This applies to wells drilled by cable tool and rotary rigs alike.

12. Standards for Mineral Leasing

All wells on state-owned land, whether submerged or emergent, must be the subject of a lease from the School Land Board and all activities on such lands must comply with the terms and conditions of the lease and with School Land Board regulations.

SLB Rule 135.16.03.004	All wells on state-owned lands must be drilled, reworked, cleaned, tested and produced in a manner to prevent pollution. Lessee has the responsibility to use all reasonable means to recapture all hydrocarbons or other pollutants which have escaped, and shall be responsible for all damage to public and private property.
SLB Rule 135.16.03.006	Waste oil from all mechanical equipment must be disposed of in such ways as to prevent pollution in submerged areas.
SLB Rule 135.16.03.007	No saltwater slush or mud materials shall be disposed of in the water of state-owned submerged lands before all oil or chemicals harmful to marine life have been removed.
SLB Rule 135.16.03.009	In submerged areas, all oil pipelines leading from wells to storage must be tested to 500 pounds per square inch water pressure before use. All such lines must be placed below the bottom of the Gulf or bays at a depth not less than 24 inches or placed on a structure above mean high tide when permitted by the Corps of Engineers. Pipelines to be

submerged must be treated to offer reasonable resistance to the corrosive effect of saltwater.

13. Standards for Geophysical and Other Surveys

All geophysical, geological and other surveys and investigations within tidewater areas (all islands, saltwater lakes, bays, inlets, marshes and reefs and the Gulf of Mexico within Texas jurisdiction) must be the subject of permits from the Commissioner of the General Land Office (TEX. NAT. RES. CODE secs. 31.101-.108). The General Land Office has proposed new rules to replace those listed below for 126.16.01.005. The proposed rules differentiate between high-velocity explosives and other energy sources for geophysical surveys. See Appendix B for a complete set of draft proposed rules.

GLO Rule 126.16.01.005(a)	All shots, meaning the detonation of powder, dynamite, nitroglycerin or other explosives, discharged for purposes of geophysical surveys in the waters of the Gulf of Mexico shall either be suspended in the water at a depth not greater than one-half the distance from the surface to the botton (and in no event nearer to the botton than five (5) feet) or buried at least ten (10) feet below the bottom. No shots shall be discharged closer than one mile to any pass, jetty, mouth of a river, or other entrance from inland waters to the Gulf of Mexico without a permit. All shot charges suspended in the water by floats shall be of such type and packaged in such manner that same will disintegrate and neutralize in the water within a short time, and any suspended charge which fails to discharge shall be immediately removed from the water if it can be done without endangering the life of any member of the party, but, in no event, shall any such undischarged suspended charge be abandoned without destroying the floats attached thereto.

GLO Rule 126.16.01.005(b)	All shots discharged in the bays, inland waters or within one mile of the mouth of any river shall be buried at least twenty (20) feet beneath the bottom through pipes. When the pipes are allowed to remain in place until the charge is fired, a substantial float or suitable device shall be attached securely to the pipe to prevent it from being lost when the charge is fired. No charges left overnight shall be located closer than 1320 feet to any shore line generally open to the public.
GLO Rule 126.16.01.005(f)	No seismic operations shall be conducted in or on any of the islands, saltwater lakes, bays, inlets, marshes and reefs owned by the State of Texas and the portion of the Gulf of Mexico within the jurisdiction of the State of Texas and landward from the fifteen (15) foot water depth line without the presence of an inspector assigned to the operation by the Commissioner or his designated representative.
GLO Rule 126.16.01.005(g)	No shots shall be discharged within five hundred (500) feet of any dredged channel, nor within three hundred (300) feet of any dock, pier, causeway and other structures, nor a marked oyster bed or marked red snapper bank. No shots shall be discharged except during daylight hours. No shots shall be used in excess of forty (40) pounds without a permit from the Commissioner.
GLO Rule 126.16.01.007	If an exploration party should drill a hole or holes in any of the bays or in the Gulf of Mexico, the hole or holes shall be drilled in such manner as will, so far as practicable, prevent the pollution of said waters, and in such manner as to interfere as little as possible with the fishing or shrimping industries. Upon the abandonment of such a hole, all of the rigging and material shall be removed, and the

bottom of the Gulf or bay where the hole was drilled shall be restored to its former condition as nearly as possible.

GLO Rule 126.16.01.008	Before any shot is discharged either in the Gulf of Mexico or the bays, the exploration party shall employ methods approved by the industry to frighten or drive away the fish and/or marine life which may be in the area where the shot is to be discharged. If there are one or more schools of fish in the area to be shot, operations must be suspended in that particular area until the school or schools of fish have been driven away. No shot shall be detonated within one mile of a shrimping fleet previously and in good faith operating in the area.
GLO Rule 126.16.01.011	No shots shall be detonated during the months of May, June, July, August and September within three miles of a major resort beach.

14. Standards for Managing Spills of Oil and Hazardous Substances

To effect the State of Texas policy to prevent a spill or discharge of oil and other hazardous substances into waters of coastal counties, the Texas Department of Water Resources has prepared an Oil and Hazardous Substances Spill Contingency Plan in accordance with Texas Water Code section 26.261 *et seq*.

Tex. Water Code, sec. 26.039	When an accidental discharge or spill occurs at, or from, any activity or facility which causes or may cause pollution, the individual operating, in charge of, or responsible for the activity or facility shall notify the office of the Texas Department of Water Resources as soon as possible and not later than 24 hours after the occurrence.

STATE OF TEXAS, Oil and Hazardous Substances Spill Contingency Plan, .004	Except in the case of medium and major oil spills, where immediate telephone reports are required, upon discovery of any spill or accidental discharge of oil or other hazardous substances into or adjacent to the waters of the State of Texas, a telephone report shall be made as soon as possible and not later than 24 hours after the occurrence to any one of the following State of Texas agencies; (a) Texas Department of Water Resources, (b) Texas Railroad Commission (for spills or accidental discharges of crude oil or natural gas closely associated with the production of crude oil or natural gas), (c) Texas Parks and Wildlife Department (for spills or accidental discharges of any material which cause apparent adverse effects on fish or wildlife).
Contingency Plan, .006(b)(2)	The initial thrust of cleanup action shall be to halt the spread of spilled oil by floating booms or other similar devices.
Contingency Plan, .006(b)(3)	Simultaneously with placement of containment devices, oil removal operations should be initiated using methods and/or equipment capable of removing the oil from the surface of the water and transferring it to a container for transport to a disposal site. In every case of oil removal operations, the removed oil pollutant must be disposed of in a manner or at a site acceptable to the Texas Department of Water Resources representative. Outdoor burning of spills should be done only as a last resort, after obtaining clearance from the Texas Air Control Board.
Contingency Plan, .006(b)(4)	Dispersants and/or sinking agents may not be used at any point without approval of the Texas Department of Water

Resources or Texas Parks and Wildlife Department representative on the scene.

Contingency Plan, .006(b)(8)

Storage of produced crude oil or gas in the State of Texas shall be pursuant to Texas Air Control Board Regulation V, Control of Air Pollution from Volatile Carbon Compounds.

The storage of materials derived from petroleum, but not crude oil or gas closely associated with the production of crude oil or gas, as well as the storage of any other hazardous substance, shall be pursuant to specifications, rules and regulations of the Texas Department of Water Resources where such specifications, rules, or regulations have been published, and pursuant to Texas Air Control Board Regulation V, Control of Air Pollution from Volatile Carbon Compounds.

Contingency Plan, .007(a)

Spills and/or accidental discharges of hazardous substances, upon discovery, shall be reported to the Texas Department of Water Resources as soon as possible and not later than 24 hours after the discovery.

Contingency Plan, .007(b)(1)

The party or entity responsible for the activity, facility, or vehicle from which a spill of a hazardous substance occurs is responsible for containment, removal and/or treatment of the polluting substance, and shall take immediate action to contain, remove, or nullify the effects of the pollutant substance.

Contingency Plan, .007(b)(2)

In the event of a spill or accidental discharge of any radioactive materials, the individual operating, in charge of, or responsible for the activity or facility from which the spill or accidental discharge occurs shall notify the Texas Department of Health in accordance

with the procedures and requirements established by the Department.

Contingency Plan, .007(c)	Every effort must be made by the party responsible for the storage, handling, or transportation of hazardous polluting substances to provide for spill prevention, containment of accidental spills and a countermeasure plan to be used in the event of an accidental spill or discharge.

15. Standards for Spill Prevention and Control Plans

The following standards may be required for individual cases under specific TDWR orders.

Contingency Plan, Special Guidelines, (2)(b)	Whenever acids are maintained in bulk storage, an adequate supply of neutralizing material, such as caustic, lime, or shell, should be available on the plant property, and should be stored as closely as practical to the acid storage area and in sufficient quantity to neutralize the contents of the largest capacity of acid contained in any one storage tank.
Contingency Plan, Special Guidelines, (2)(c)	A supply of personnel protective safety equipment should be maintained for immediate use in convenient spill control locations.
Contingency Plan, Special Guidelines, (2)(d)	When lighter-than-water chemicals are handled and stored within the plant, an adequate length of flotation spill containment boom should be available with suitable means to position the boom strategically and thus confine the spilled material.
Contingency Plan, Special Guidelines, (2)(e)	When oil and/or non-miscible lighter-than-water chemicals are handled and stored within the plant, an adequate amount of absorbent material should be close at hand for treatment.

Contingency Plan, Special Guidelines, (3)(a)	Drainage from diked storage areas should be valve-restrained to prevent a spill or other excessive leakage of a product into the drainage discharge or in-plant effluent treatment system.
Contingency Plan, Special Guidelines, (3)(b)	Valves used for the drainage of diked areas should, as far as practical, be of manual, open-and-close design.
Contingency Plan, Special Guidelines, (3)(c)	All plant drainage systems, if possible, should flow into ponds, lagoons, or catchment basins designed to retain materials less dense than water.
Contingency Plan, Special Guidelines, (4)(b)	When conditions permit, all ships and barges loading or unloading materials lighter-than-water should be effectively boomed in the area of material transfer. When tide and current conditions warrant such protection, "stand-offs" should be used to gain the fullest containment efficiency of the floating boom.
Contingency Plan, Special Guidelines, (4)(c)	Transfer pumps and flange connections should not be positioned directly above the water.
Contingency Plan, Special Guidelines, (4)(e)	Pressure-drop alarm and shut-off systems on the lines leading from the ship or barge should be provided so that losses from a line break will be held to a minimum.
Contingency Plan, Special Guidelines, (4)(g)	As far as practical, wooden decked docks with gaps between decking should be avoided, as spills can drip between the decking; preferably, full concrete or seawall-type marine loading-unloading facilities should be used.
Contingency Plan, Special Guidelines, (4)(k)	The practice of loading or unloading a barge or ship when such a barge or ship is tied outboard of another ship should be avoided. The fueling or bunkering of a ship with the fueling barge tied outboard of the other should be avoided.

	When practical, the fueling ship and the fueling barge should be secured directly to the dock facility, using the marine terminal onshore line connections to transfer fuel or hazardous polluting substances.
Contingency Plan, Special Guidelines, (4)(m)	"Slop" tanks should be provided at all marine loading/unloading facilities to contain polluted bilge-water discharged from visiting ships and barges. Such tanks should be installed in a fire- and explosion-proof manner with adequate systems to prevent mixing of dangerously incompatible materials.
Contingency Plan, Special Guidelines, (4)(n)	For the prevention of spills during flexible hose line connection and disconnection, butterfly valves should be installed immediately adjacent to the terminal flange connection.
Contingency Plan, Special Guidelines, (5)(a)	A system of containment curbs should be used for tank truck unloading areas, using ramps to provide truck access into the confines of the containment curb.
Contingency Plan, Special Guidelines, (5)(b)	A trenching system should encompass each railroad tank car unloading area.
Contingency Plan, Special Guidelines, (5)(d)	Prior to filling and departure of any tank car or tank truck, the lowermost drain and all outlets of such vehicles should be closely examined for leakage, and if necessary, tightened, adjusted, or replaced to prevent liquid leakage while in transit.
Contingency Plan, Special Guidelines, (6)(a)	No tank should be used for the storage of oil or hazardous polluting substances, unless its material and construction are compatible with the material stored.
Contingency Plan, Special Guidelines, (6)(b)	All bulk storage tank installations should be planned so that a secondary means of containment is provided for the entire contents of the largest single

	tank. Dikes, containment curbs, and pits are commonly employed for this purpose, but they may not always be appropriate. An alternative system would consist of a complete drainage trench enclosure arranged so that the flow could terminate and be safely confined in an in-plant catchment basin or holding pond. Drainage into a storm drain or an effluent discharge that empties into an open water course, lake, or pond is acceptable, only after the rough analysis of the material ensures compliance with applicable water quality standards.
Contingency Plan, Special Guidelines, (6)(c)	Buried storage tanks should be wrapped and coated to retard corrosive action. In addition, the earth should be subjected to electrolytic testing to determine if the tank should be further shielded by a cathodic protection system. Such buried tanks should at least be subjected to regular hydrostatic testing.
Contingency Plan, Special Guidelines, (6)(d)	Partially buried tanks for the storage of oil or hazardous materials should be avoided, unless the buried section of the shell is adequately coated.
Contingency Plan, Special Guidelines, (6)(j)	"Normal" plant effluent should be constantly monitored by a proven monitoring system.
Contingency Plan, Special Guidelines, (6)(k)	Visible product leaks from tank seams and rivets should be promptly corrected.
Contingency Plan, Special Guidelines, (6)(n)	The use of wooden tanks should be confined to water storage and should be avoided for liquid chemical storage.
Contingency Plan, Special Guidelines, (7)(a)	Piles of solid materials should be covered so as to prevent leaching by rainwater or snow, and so located that flood conditions will not dissolve or wash material into the waterways.

Contingency Plan, Special Guidelines, (7)(c)	Metal and fiber containers should be loaded, stored, and unloaded so as to minimize possibility of container dam age.
Contingency Plan, Special Guidelines, (8)(b)	Each oil or hazardous material product-fill line which enters a tank below the liquid level should have a one-way flow check valve located as closely as possible to the bulk storage tank. In addition to confining the product to the tank, in the event of valve or pipeline failure the check valve should permit overhaul of the main shut-off valve and should aid in preventing shock loading of the pipeline and valves from a "slug" of the tank contents caused by backflow into an empty fill line. As far as practical, the product flow in suction lines should be controlled by use of a positive-displacement pump.
Contingency Plan, Special Guidelines, (8)(c)	Buried pipelines should be avoided for pump and in-plant process and transfer pipelines. However, buried installations should have a protective wrapping and coating and should be cathodically protected if soil conditions warrant. An alternative would be the more frequent use of exposable pipe corridors or galleries.
Contingency Plan, Special Guidelines, (8)(e)	Wood-to-metal should be avoided as a pipeline support. Supports should be designed with only a minimum point of surface contact that allow for the pulsating movement of the line.

APPENDIX C-2

STANDARDS FOR WETLANDS AND SUBMERGED LANDS MANAGEMENT

Uses and activities which affect the water quality of bays and estuaries also affect coastal wetlands. In addition, construction in or near wetlands, as well as dredging activities and dredged material disposal, may alter or destroy the quality of water in bays and estuaries and the productive potential of wetlands. Uses and activities which impact coastal wetlands require necessary approvals from the appropriate state agency or agencies prior to initiation of the project. The Texas agencies responsible for approving these activities and uses on state-owned lands through certification, permits, licenses, and easements are the General Land Office/School Land Board and the Texas Parks and Wildlife Department, while the Texas Department of Water Resources and Texas Railroad Commission regulate activities and uses conducted on all lands regardless of ownership. State agencies responsible for management of wetlands require compliance with applicable performance standards, including standards for:

- Management of State-Owned Wetlands
- Dredge Spoil and Mitigation Policies
- Removal of Marl, Sand, Gravel, Shell, and Mudshell
- Management of Non-Public Wetland Areas (Dredge and Fill Activities)
- Coastal Wetlands Acquisition
- Gulf Intracoastal Waterway
- Conditions currently used for 401 Certification

These performance standards or conditions and are the basis of agency decisions for project approvals.

1. Standards for Management of State-Owned Wetlands

General Land Office and School Land Board rules apply to activities on coastal public land and state-owned submerged land within coastal counties. New rules proposed by the SLB to replace some of those found here, are in Appendix B.

SLB Rule 135.18.01.003(g)(1)(A)(B)	A dock, pier, or wharf should be constructed in a manner that does not constrict water flow and circulation, and the size and extension of the structure should be limited to that required for the intended use.
SLB Rule 135.18.01.003(g)(1)(G)	The use of a pier or catwalk, in preference to solid fills, will be encouraged to provide needed access across biologically productive shallows and marshes to navigable water.
SLB Rule 135.18.01.003(g)	A channel or basin should be designed to ensure adequate flushing and to prevent the creation of pockets or other hydraulic conditions which would cause stagnant water pockets.
SLB Rule 135.18.01.003(g)(2)(D)	The alignment of a channel or canal should make maximum use of a natural or existing channel and should minimize disruption of natural sheetflow, water flow, and drainage systems.
SLB Rule 135.18.01.003(g)(2)(E)	Alignment of a channel or canal should avoid oyster reefs and highly productive wetland areas.
SLB Rule 135.18.01.003(g)(2)(F)	A channel proposed to be dredged through highly productive coastal public lands is discouraged and will be approved only in unusual circumstances.
SLB Rule 135.18.01.003(g)(3)	To the extent possible, all dredged material should be placed on suitable uplands above mean high water. A disposal area should be located in relatively low production areas above the mean high water line. Any toxic material should be disposed of in an upland area behind impervious dikes unless detoxification is undertaken.
SLB Rule 135.18.01.003(g)(5)(D)	An application for the construction of a bulkhead on a significant coastal public marsh or grassflat, where such will lead to the destruction of this resource,

will normally be denied. To avoid this, extreme care should be taken as to the location and type of construction planned for bulkheads in a wetland area.

SLB Rule 135.18.01.003(g)(6)

A marina should be located in an area where maximum physical advantages exist and where the least dredging and maintenance will be required. Plans for a marina should minimize the disruption of currents and the need for excavation of the shore area. A turning basin or navigation channel for a marina should be designed to prevent long-term degradation of water quality. A dead-end or deep canal without adequate flushing should be avoided.

SLB Rule 135.18.01.003(g)(7)

A landfill proposed in marshes and submerged grass bed areas normally will be denied. Consideration will be given only to a landfill proposal for a water use or public use on relatively unproductive coastal public lands. A shoreline fill should be designed and located so that significant damage to existing ecological values or natural resources, or alternation of natural currents, will not occur. Fill material should be of such quality that it will not cause water quality degradation. Submerged lands should not be considered for a sanitary landfill or the disposal of solid waste.

2. Dredge Spoil

The Texas Parks and Wildlife Department has adopted specific policies which are used as a basis for comments to the Corps of Engineers for 404 permits regarding dredge spoils. In addition to dredge spoil policies, the Department, as a policy, actively seeks full mitigation of fish and wildlife resources incurred from water development and construction projects or as a result of proven man-made pollution.

TPWD Rule 127.30.01.001	It is the policy of the Commission to: (a) Recognize wetland areas as being of indispensable value to appropriate fish and wildlife. (b) Recognize that the deposition of dredge and spoil in wetland areas can often be detrimental to fish and wildlife resources. Wetland areas are defined as: (1) Coastal wetlands, including marshes, grass flats, ecologically valuable bay bottoms, and island rookeries, (2) Inland wetlands including marshes, swamps, and oxbow lakes. (c) Where the deposition of spoil is opposed any posture of opposition is to be in accordance with the limits of statutory authority; Public Law 85-624, Section 661-666c, cited as the Fish and Wildlife Coordination Act of 1958; and Public Law 91-190 cited as the National Environmental Policy Act of 1969.
TPWD Rule 127.30.01.001(c)(1)	Spoil disposal proposals that would adversely affect a wetland determined by the TPWD to have particularly valuable or unique aesthetic or ecological qualities will be opposed, and alternative spoil disposal sites may be recommended.
TPWD Rule 127.30.01.001(c)(2)	In cases where the TPWD staff determines that detrimental environmental effects can be substantially minimized, the implementation of spoil disposal techniques that result in minimization will be recommended.
TPWD Rule 127.30.01.001(c)(2)(A)	Spoil should be confined as much as possible in order to cover a minimum amount of bay bottom. Existing spoil dumps should utilized when available. Invaluable shallow water habitat, toe levees or emergent spoil islands or ring levees may be recommended. Construction of permanent levees for spoil containment that would eventually convert large

areas of the bays to dryland, however, should be avoided. Where anticipated volume of spoil indicates a need for such levees, spoil should be either placed on shore or transported from the bay.

TPWD Rule 127.30.01.001(c)(2)(C)	To prevent effects of continuous spoiling, alternation of spoil to opposite sides of a channel and the practice of leaving openings to permit water exchange shall be encouraged.
TPWD Rule 127.30.01.001(c)(2)(D)	When physically possible and environmentally desirable, new or greatly enlarged spoil areas should be situated in waters deeper than four foot depth, so oriented as to cause minimum interference with current patterns and migration routes, and so situated that shallow waters offering sanctuary and nursery opportunities are not displaced.
TPWD Rule 127.20.01.001(c)(2)(E)	Toxic spoil materials should be retained on shore with provisions made for settling of solids before the water is returned to the bay or watercourse. Recommendations concerning the disposition of toxic spoils are coordinated with the Texas Department of Water Resources (Texas Water Quality Board).
TPWD Rule 127.30.01.001(c)(2)(F)	Each policy procedure will be inspected and evaluated by departmental personnel. Quantity and type of spoil, importance of water over spoil sites, effect on current or water movement, and availability of alternate or on-shore spoil sites will be considered.
TPWD Rule 127.30.11.001(a)	Channelization and wetland drainage as a general practice shall be opposed.
TPWD Rule 127.30.11.001(b)	Full mitigation for fish and wildlife losses occurring as a result of water resources development projects shall be sought, including such measures as lands

to replace hunter opportunity loss and fishery management techniques such as construction of spawning areas and nursery cove areas.

TPWD Rule 127.30.13.001(a)	Full mitigation shall be sought for fish, wildlife, and habitat losses occurring as a result of proven man-made pollution, and shall include direct replacement of habitat destroyed or payments equal to the monetary value of fish, wildlife, and/or their habitat.

3. Standards for the Dredging of Marl, Sand, Gravel, Shell, and Mudshell

The Texas Parks and Wildlife Department issues permits for dredging sand, shell, mudshell, gravel and marl from state-owned submerged lands. A charge per cubic yard dredged ($.25 per cubic yard for marl and shell, $.20 per cubic yard of sand and gravel) is assessed unless the dredging is conducted for improvement of navigation.

TEX. PARKS & WIDLIFE CODE, § 86.002	No person may disturb or take marl, sand, gravel, shell, or mudshell under the management and protection of the Parks & Wildlife Commission, or operate in or disturb any oyster bed or fishing water for any purpose other than that necessary or incidental to navigation or dredging under state or federal authority, without first having acquired from the Commission a permit authorizing the activity.
TEX. PARKS & WILDLIFE CODE, § 86.004	The Commission may grant a permit to an applicant who has complied with all requirements of the Commission if the Commission finds that the disturbing, taking, and carrying away of marl, sand, gravel, shell or mudshell will not: a) damage or injuriously affect any island, reef, bar, channel, river, creek, or bayou used for navigation, or any oysters, oyster beds, or fish in or near the water used in the operation; and

	b) change or injuriously affect any current that would affect navigation.
TPWD Rule 127.30.04.002(a)(1)	In no event will shell dredging operation be conducted in Galveston and Trinity Bays within 300 feet of the exposed portions of what are known as Dollar's Reef, Todd's Dump Reef, Hanna's Reef, Fisher's Reef, No Name Reef (located south of the Texas City Dyke), and Moody's Reef.
TPWD Rule 127.30.04.002(a)(1)	In no event will shell dredging operations be conducted in Trinity Bay within 2000 feet of Vingt-et-une Island.
TPWD Rule 127.30.04.002(a)(2)	In no event will shell dredging operations be conducted in that portion of San Antonio Bay and tributary water bodies north of North Latitude 28 degrees and 22 minutes.
TPWD Rule 127.30.04.002(d)	Dredging operations for the removal, taking and carrying away of shell and mudshell may be conducted in coastal waters except within 300 feet of any exposed reef, within one-half mile of any shoreline, and in marginal water less than four feet deep.
TPWD Rule 127.30.04.005(a)(6)	A permit may be denied if the granting of the permit would have an adverse effect on recreational activity in the general area affected by the permit or if the granting of the permit would have an adverse effect on shrimping, oystering, fishing, or any part of the seafood industry in the general area affected by the permit.
TPWD Rule 127.30.04.005(a)(7)	The following criteria will be considered in determining whether to grant or deny a permit: a) whether operation would damage or injuriously affect any oysters, oyster beds, or fish-inhabited waters thereof or adjacent thereto;

b) whether such operation would damage or injuriously affect any island, reef, bar, channel, river, creek or bayou used for frequent or occasional navigation, or change or otherwise injuriously affect any current that would affect navigation; and

c) the requirements of industry for such shell materials and the relative value thereof to the state for commercial use.

TPWD Rule 127.30.04.006(b)	Any reef areas that are seriously silted by dredging activities must be replaced by the responsible permittee at his sole expense with a shell pad at least one foot thick and equal in surface area to the silted area placed at a location selected by the Director. Shell that is illegally dredged must be returned to coastal water in a volume at least equal to that allegedly taken at a site and in a manner selected by the TPWD Director. When siltation or an illegal dredging operation also results in measurable oyster mortality, monetary mitigation for the loss of the oysters will be paid by the permittee as a condition prior to further dredging activities under the permit.
TPWD Rule 127.30.04.006(c)	When dredging operations in a particular state tract repeatedly result in silt problems, or a history of recurring violations is established, all shell dredging permits may be deleted from the tract.
TPWD Rule 127.30.04.006(d)	Dredge discharge will be directed over the dredge cut. Any mounds created as a result of dredge discharge will be leveled by the permittee prior to leaving the dredge cut.

4. Standards for Management of Non-Public Wetland Areas (Dredge and Fill Activities)

See Appendix A for details of procedure and standards.

5. Standards for Coastal Wetlands Acquisition

GLO Rule 126.30.04.002	Those coastal wetlands which are both essential to the public interest and subject to alteration, damage, or destruction that will impair their ability to perform functions beneficial to the public will generally be considered a higher priority for state acquisition than those which are subject to less danger. Many activities, if properly designed and carried out, may be performed in coastal wetland areas without posing a substantial damage to the wetland.

6. Policies for Gulf Intracoastal Waterway

V.A.C.S. art. 5415e-2 (Sec. 3)	Coastal public lands and coastal marshes and similar coastal area located on both publicly and privately owned lands are similarly vital elements of the state's economy, and to the maintenance, preservation, and enhancement of the environment, wildlife and fisheries, the benefits of which are similarly realized directly or indirectly by the entire state. The Gulf Intracoastal Waterway can be maintained, operated and improved as to prevent waste of both publicly and privately owned natural resources, that adverse impacts are avoided or minimized.
V.A.C.S. art. 5415e-2 (Sec. 6)	The Highways and Public Transportation Commission shall fulfill the role of local sponsorship. Commission is authorized to acquire by gift, purchase, or condemnation of any property of any kind or character deemed necessary to fulfill its responsibilities as non-federal sponsor of the Gulf Intracoastal Waterway.

7. Conditions Currently Used for 401 Certification

Although not necessarily contained in agency rules, the following are conditions which currently may be attached to 401 certification when such certification is granted by the TDWR, whether on public or non-public land. These conditions may be attached at the discretion of TDWR on proposed projects seeking certification to be enforced by the Corps of Engineers under section 404 of the federal Clean Water Act.

1. The work must be done with the minimum production of turbidity in the waters where the work is taking place.

2. Spoil must be placed in spoil areas approved by the United States Army Corps of Engineers and Texas Parks and Wildlife Department in such a manner as to minimize the runoff of spoil or highly turbid waters into adjacent waters.

3. The discharge of oil, gasoline, or other fuel or materials capable of causing pollution arising from your operations is prohibited.

4. Natural shoreline configurations shall be restored as much as possible to their former state.

5. Pipelines are to be inspected periodically for leakage. Should leaks be discovered, pumping must stop until leaks are repaired.

6. Provision must be made for containment of any spillage which would occur during loading or unloading operations, and for prevention of the discharge or leakage of chemical products or other contaminants into state waters.

7. Sanitary wastes are to be retained for disposal onshore in some legal manner.

8. The arrangement of the constructed dock and its appurtenance shall be such that shoreside waste receiving and treating facilities can be added to serve boat customers for both sanitary wastes and other wastes as may in the future be required. Provision of these facilities is not by this letter required, but arrangements and/or space shall be such that they can be added conveniently.

9. Notify the Texas Department of Water Resources district office in _____ prior to commencement of the project.

10. Dredging shall be by dragline or earth moving equipment. Hydraulic dredging would require an amendment to this certification.

11. Liquid decanted from the spoil disposal area shall be returned to the channel being dredged.

12. The name of the person in charge of the operation of the dredge shall be supplied to the Texas Department of Water Resources district office in _____ prior to initiation of the project.

13. Future draining of the spoil disposal area shall comply with all provisions applied to the initial project operations.

14. Signs shall be posted on either side of the waterway including ownership and emergency telephone numbers.

15. This project is being recertified according to the provisions indicated. This certification expires at the end of the period covered by the applicable United States Army Corps of Engineers permit.

16. Materials resulting from the destruction of the existing structure must be removed from the water and disposed of in some legal manner.

17. Fill must be placed behind the bulkhead in such a manner as to minimize the runoff of turbid water to _____.

18. The dredged material shall be placed in an adequately leveed disposal area with controlled spillways.

19. During construction, adequate erosion control methods shall be used in order to minimize runoff and consequent elevations of turbidity in _____.

20. Areas devegetated during construction shall be replanted to the extent practicable after project completion, to avoid excessive erosion and the runoff of turbid waters to waters of the state.

APPENDIX C-3

STANDARDS FOR FISHERIES MANAGEMENT

Uses and activities which impact the Texas fisheries and fishery habitat include those uses and activities affecting water quality and wetlands, as described in previous sections. Fisheries protection also requires management techniques that will prevent depletion of the fisheries resources through activities such as overharvesting by commercial and sport fishing in saltwater areas and activities which destroy fisheries habitat. No person may catch a fish, marine animal or other aquatic life at any time or in any place without obtaining the appropriate license from the Texas Parks & Wildlife Department.

To ensure that Texas fisheries are managed properly, Texas agencies require compliance with applicable performance standards of TPWD for fishing activities. Because fisheries management is dependent upon the quality of the marine environment, all activities affecting fisheries shall be subject to the water quality and wetlands policies, found in Chapter 1, and standards in C-1 and C-2, where applicable.

These performance standards are contained in agency rules, regulations, and guidelines and are the basis of agency decisions for approving uses and activities which affect fisheries.

Standards For Management of Activities Affecting Fisheries

Hunting and commercial and sport fishing are subject to intensive regulation by the Texas Parks and Wildlife Department. All activities require permits and many commercial activities involve reporting requirements as well.

PARKS & WILDLIFE CODE, § 61.021.	Except as permitted under a proclamation issued by TPWC, no person may catch a fish, marine animal or other aquatic life at any time or in any place other than as specified by law.

PARK & WILDLIFE CODE, § 43.001 § 47.003(a), § 47.003(b), § 47.007, § 47.008, § 47.009, § 47.015.	Without obtaining the appropriate license: no person owning or navigating a sailboat or powerboat may accommodate another person engaged in hunting on board the boat for pay; no person may engage in business as a tidal water commercial fisherman; no person may catch or assist in catching menhaden in tidal water; no person may use a boat required to be registered under the laws of this state or the United States for the purpose of catching or assisting in catching fish, oysters, or any other edible aquatic life except shrimp and menhaden, from tidal water for pay or for the purpose of sale, barter, or exchange, no person may use a boat for the purpose of catching menhaden in tidal water; no person may engage in business as a wholesale fish dealer; and no person may use a seine or net for the purpose of catching edible aquatic life in the water of this state for pay or sale.
PARKS & WILDLIFE CODE, § 47.034	All persons engaged in business as commercial fishermen or wholesale or retail fish dealers must comply with laws regulating allowable maximum and minimum fish sizes.
PARKS & WILDLIFE CODE, §§ 47.038, 66.002, 66.004, 66.006, 66.008, 66.009, 66.201-.203, 66.206, 66.207, 66.212, 66.213, 66.214, 66.215	Any person operating under a license issued by the TPWD shall comply with all legally required restrictions regulating the sizes, the means, methods, times, and locations for taking of fish and other aquatic resources.
PARKS & WILDLIFE CODE § 66.204	No person may operate, possess, or moor a vessel or place any obstruction in a natural or artificial fish pass between the Gulf of Mexico and an inland bay, within a distance of 2800 feet inside the pass.

PARKS & WILDLIFE CODE, § 66.003	No person may place in the water of this state an explosive, poison, or other substance deleterious to fish unless necessary for construction purposes and authorized by the appropriate county judge.
PARKS & WILDLIFE CODE, § 76,101, 76.101	No person may take or attempt to take oysters from the public waters of this state by use of a dredge without first having acquired an oyster dredging license; during open season, night dredging of oysters in public water is prohibited.
PARKS & WILDLIFE CODE, § 51.002	No person may engage in shellfish culture in this state unless he has first acquired a shellfish culture license.
PARKS & WILDLIFE CODE, § 77.011	No person may conduct shrimping operations in the coastal water without obtaining the appropriate license.
PARKS & WILDLIFE CODE, § 77.061, 77.062	Except as specifically provided by law, no person may catch shrimp in outside water from June 1 to July 15 or extending from the Texas coastline up to and including seven fathoms in depth from December 16, of each year to February 1 of the following year, or during periods which the commission may specify.
PARKS & WILDLIFE CODE, § 78.001	No person may take any mussels, clams, or naiads or their shells from the public water of the state.
PARKS & WILDLIFE CODE, § 81.006	No person may take or attempt to take or possess any fish from a wildlife management areas except in the manner and during the times permitted by the TPWD.

APPENDIX C-4

STANDARDS FOR MANAGING SHOREFRONT ACCESS

Uses of the state's beaches and shorefront areas include swimming, boating, picnicking, camping, fishing and other recreational benefits. Activities that affect access to the public beach include construction of residential development, vehicular traffic, and mobile beach businesses. Certain uses and activities that may affect access of the public to state-owned beaches require necessary permits, licenses, or easements from the appropriate state agency prior to initiation of the projects. The Texas agencies that regulate uses and activities affecting or using the Texas shorefront are the Texas Parks & Wildlife Department and the School Land Board. Local coastal governments also may impose local conditions or restrictions in the interest of public safety, but may not restrict shorefront access. The Texas Attorney General enforces the Texas Open Beaches Act (TEX. NAT. RES. CODE, sec. 61.011).

In order to ensure that public use of the beach is not restricted, but enhanced, and that shorefront access is adequately provided, Texas agencies require compliance with applicable performance standards, including standards for:

- Beach Access and Recreation
- Mobile Beach Businesses
- Beach Cleaning and Maintenance

These performance standards are contained in agency rules and regulations and are the basis of agency decisions for project approvals.

1. Standards For Beach Access and Recreation

The Attorney General by suit prohibits obstruction of access and use of the public beaches pursuant to the Open Beaches Act. Enforcement is accomplished through a case-by-case review. The General Land Office/School Land Board must grant easements on state-owned submerged land (except on the Gulf of Mexico) and considers possible infringement on the right of public access. The School Land Board has proposed new rules to replace those listed for 135.18.01.003. Proposed rules are found in Appendix B.

NAT. RES. CODE, § 61.011	The public, individually and collectively, shall have the free and unrestricted right of ingress and egress to and from the state-owned beaches bordering on the seaward shore of the Gulf of Mexico, or if the public has acquired a right of use or easement to or over an area by prescription, dedication, or has retained a right by virtue of continuous right in the public, the public shall have the free and unrestricted right of ingress and egress to the larger area extending from the line of mean low tide to the line of vegetation bordering on the Gulf of Mexico.
NAT. RES. CODE, § 61.013	(a) It is an offense against the public policy of Texas for any person to create, erect or construct any obstruction, barrier, or restraint that will interfere with the free and unrestricted right of the public, individually and collectively: (1) to enter or to leave any public beach bordering on the seaward shore of the Gulf of Mexico, or any larger area extending from the line of mean low tide to the line of vegetation bordering on the Gulf of Mexico if the public has acquired a right of use or easement to or over the area by prescription, dedication, or has retained a right by virtue of continuous right in the public; or (2) to use lawfully and legally any public beach or any larger area abutting on or contiguous to a public beach if the public has acquired a right of use or easement to or over the area by prescription, dedication, or has retained a right by virtue of continuous right in the public. (b) "Public beach" shall mean any beach bordering on the Gulf of Mexico which extends inland from the line of mean low tide to the natural line of vegetation bordering on the seaward shore of the Gulf of Mexico, or such larger contiguous area to which the public has

	acquired a right of use or easement to or over by prescription, dedication, estoppel, or has retained a right by virtue of continuous right in the public since time immemorial as recognized by law or custom. This definition does not include a beach which is not accessible by a public road or public ferry. (c) A person who creates, erects, or constructs an obstruction, barrier, or restraint in violation of Subsection (a) of this section is liable to the state for a civil penalty of not less than $50 nor more than $1,000.
NAT. RES. CODE, § 61.014	Any person who displays or causes to be displayed on any public beach (extending from the line of mean low tide of the Gulf of Mexico to the line of vegetation bordering on the Gulf of Mexico, or to a line 200 feet inland from the line of mean low tide, whichever is nearer the line of mean low tide) any sign, marker, or warning, or who shall make or have made any written or oral communication stating that the public beach is private property or who states in any other manner that the public does not have the right of access to the public beach in violation of the lawful access rights of the public is liable to the state for a civil penalty of not less than $50 nor more than $1000.
NAT. RES. CODE, §§ 61.161 - 61.177	No business establishment located at a fixed or permanent location on a public beach shall be permitted.
SLB Rule 135.18.01.003(g)(1)(C)	A dock, pier, or wharf must not unduly restrict navigation or public use of the waters.
SLB Rule 135.18.01.003(g)(4)(B)	In addition to consideration of adverse physical effects, care must be taken that a jetty or groin does not unduly interfere with public use.

2. Licensing for Mobile Beach Businesses

The Texas Parks and Wildlife Department must license mobile beach businesses.

TPWD Rules 127.20.04.001-127.20.05.004	No person may operate a mobile business establishment on a public beach located outside the municipal limits of an incorporated city without a license from the TPWD, and issuance of such license must be consistent with the recreational needs and the public welfare and must not create a traffic or safety hazard.

3. Standards for Beach Cleaning and Maintenance

Counties and cities are responsible for cleaning and maintaining beaches within their jurisdiction. State funds are available to aid in such efforts.

TPWD Rule 127.50.04.006	It shall be the duty and responsibility of the governing body of any incorporated city, town, or village situated on or bordering upon the Gulf of Mexico to clean and maintain the condition of all public beaches within its corporate boundaries; such duty shall not extend to any public beach within its corporate boundaries that is owned by the county in which it is located.
TPWD Rule 127.50.04.007	It shall be the duty and responsibility of the Commissioners Court of any county situated on or bordering upon the Gulf of Mexico to clean and maintain the condition of all public beaches within its boundaries and not within the boundaries of any incorporated city, town or village.
TPWD Rule 127.50.04.008	It shall be the duty and responsibility of the State of Texas to clean and maintain the condition of all public beaches within state parks designated by the Department and to assist local governments financially in the cleaning of beach areas that are subject to access rights of the public.

TPWD Rule 127.50.04.011,.012	Any home rule city or county government which qualifies for and receives state financial assistance for beach maintenance shall provide for the establishment, maintenance, and administration of at least one beach park that shall meet the following minimum requirements of size and facilities: a) be of sufficient size to accommodate public use and enjoyment of that section of public beach; b) have adequate sanitation facilities to accommodate the average heavy use period of the park; c) have adequate off-beach parking to accommodate the number of visitors which could use the park during the average heavy-use day while using that section of the beach that the park is intended to serve; and d) have adequate access to such park from the nearest main arterial highway.
TPWD Rules 127.50.04.011(e); 127.50.04.012(e); 127.50.04.013(c); 127.50.04.014(c)	Any city or county government that receives state financial assistance for beach maintenance shall not charge an entrance fee to a public beach park under its jurisdiction.
NAT. RES. CODE Sec. 61.122	a) The commissioners court of a county bordering on the Gulf of Mexico or its tidewater limits may regulate, by order, motor vehicle traffic on any beach within the boundaries of the county and may prohibit the littering of the beach and may define the term "littering." b) The commissioners court of a county bordering the Gulf of Mexico or its tidewaters, may regulate, by order, the possession of animals on the beach within its boundaries, including, but not limited to, prohibiting animals to run at large.

APPENDIX C-5

STANDARDS FOR DUNE PROTECTION

Activities and uses that may disturb dunes or dune vegetation include geophysical and other surveys; construction; pipelines; vehicular and pedestrian traffic; road construction paralleling beaches within dunes; construction of bulkheads and seawalls; dredging and deposition of dredge materials; and jetties, groins, piers and similar structures. Activities or uses that disturb dunes and dune vegetation in critical dune areas and activities that disturb dunes on state-owned lands must be approved by the appropriate local governmental unit or the General Land Office, respectively.

To ensure that dunes are well managed, the General Land Office has developed performance standards for activities and uses affecting dune areas critical to the protection of state-owned lands. The standards are contained in the agency rules and regulations and are the basis of the agency's decisions for project approvals under its jurisdiction.

Standards for Management of Critical Dune Area Activities

The Commissioner of the General Land Office issues permits for geological, geophysical, and other investigations within the tidewater limits of the state. The Commissioner also grants easements or leases or rights-of-way across state lands for pipelines, utility lines, and structures such as jetties and piers. (See Appendix C-9 for regulations for such easements and leases).

GLO Rule 126.30.03.004(a)(1)	Removal of dune material (sand or vegetation) for any reason, especially from fore-island dunes, is discouraged.
GLO Rule 126.30.03.004(a)(2)	Decreasing the elevation of any dune is discouraged, and fore-island dunes should be lowered only in the most unusual cases. If fore-island dune elevation is lowered, disturbed areas should be restored to original contour and vegetated.

GLO Rule 126.30.03.004(b)(1)	Where pipelines must be laid across barrier islands, such pipelines should be routed around dune areas whenever possible.
GLO Rule 126.30.03.004(b)(2)	Pipelines should cross the beach/dune interface in areas already disturbed, such as washover channels and blowout areas. Where this is not feasible, pipelines should be laid beneath dunes by means of horizontal drilling, and dune surfaces should not be disturbed.
GLO Rule 126.30.03.004(b)(3)	Areas affected by a pipeline should be minimized.
GLO Rule 126.30.03.004(c)(1)(A)	Private homes, condominiums, and commercial establishments should not be constructed on fore-island dunes.
GLO Rule 126.30.03.004(c)(1)(B)	Where construction is undertaken on or near fore-island dune areas, such development should not reduce dune heights or change dune shape; such development should be located as far as possible landward of fore-island dunes, and should route pedestrian traffic from developments through washover channels or over elevated walkways.
GLO Rule 126.30.03.004(c)(2)	Industrial facilities should not be located in or near dunes.
GLO Rule 126.30.03.004(d)(1)	Roads paralleling beaches should be constructed as far landward as possible from dune areas and should not extend seaward of fore-island dunes.
GLO Rule 126.30.03.004(d)(2)	Roads perpendicular to beaches should be constructed in washover channels, blowout areas, or areas where dune vegetation is already disturbed and should be built so as to follow the natural land contour. The width of such roads should be minimized.

GLO Rule 126.30.03.004(d)(3)	Adjacent areas affected by road construction, such as unpaved shoulders, should be revegetated by artificial means or by encouraging natural revegetation.
GLO Rule 126.30.03.004(e)	Motor vehicles should not be driven on, through or across dune areas; vehicle access to beaches should be obtained wherever possible from existing roads; and adverse environmental impacts to beaches and dunes from vehicular traffic on beaches should be minimized.
GLO Rule 126.30.03.004(f)	Pedestrian traffic on or across dune areas is strongly discouraged, and pedestrian traffic across fore-island dune areas should be routed through washover channels or over elevated walkways.
GLO Rule 126.30.03.004(g)	Construction of bulkheads and seawalls by private landowners in areas adjacent to dunes is discouraged.
GLO Rule 126.30.03.004(h)	Reconstructed dunes should approximate natural dune morphology in the area, and fore-island dunes reconstructed in undesirable washover channels should be stabilized using the appropriate methodology for the site. Blowouts and sand flats should receive first priority for stabilization.
GLO Rule 126.30.03.004(i)	Jetties, groins, piers and similar structures extending from the beach or dunes onto the submerged lands should be constructed only after a thorough investigation into potential damage to adjacent dunes resulting from the structure.
GLO Rule 126.30.03.004(j)(2)	Dredging should be conducted in a manner that minimizes deposition of dredged material in dune areas, and deposition of dredged materials should be stabilized with vegetation.

APPENDIX C-6

STANDARDS FOR ACTIVITIES IN FLOODPLAINS AND HAZARD PRONE AREAS

Uses subject to hurricane and flood hazards include all development or construction located in hurricane and flood hazard areas. Uses and activities in these areas require necessary approvals from the appropriate state and local agencies prior to initiation of any project. All state agencies responsible for programs which affect land use planning, including state permit programs, must consider flood hazards when evaluating plans, projects, and requests for loans or grants.

To ensure that injury to life or property from hurricane and flooding disasters is minimized, Texas agencies require compliance with applicable performance standards.

Uses and activities are subject to the following standards, which are contained in agency rules, regulations and guidelines and are the basis of agency decisions for project approvals:

- Standards for Floodplain Construction
- Provision for Standards in Emergency Situations
- Hurricane-Resistance Standards for Mobile Homes.

1. Standards for Floodplain Construction

Executive Order D.B. No. 34-A directs state agencies to consider safe and prudent uses of flood plains in siting state-owned developments and in considering state-financed or approved development.

Executive Order D.B. No. 34-A (Dec. 16, 1977)	All state agencies must consider economic, safe and prudent uses of flood plains in siting state-owned developments.

TDWR, Flood Hazard Guidelines for Texas State Agencies, June 1978, pp. 8-9 and Texas Water Development Board 156.10.10.001(a)	All state agencies must evaluate alternative locations for siting state-owned developments proposed to be located in a floodplain. All agency requests transmitted to the Legislative Budget Board for state appropriations for construction to be located in a flood plain must be accompanied by an evaluation of flood hazards. All state agencies must comply with minimum flood plain management criteria, established by the U. S. Department of Housing and Urban Development in its rules and regulations for the National Flood Insurance Program, wherever state-owned properties are to be located in a special flood hazard area. This can be accomplished by complying with the Program's flood plain management requirements of all local participating communities where state-owned properties are located, or by modifying proposed state developments to satisfy minimum criteria of the Program. All state agencies responsible for programs which affect land-use planning, including state permit programs, must consider flood hazards when evaluating plans, projects, and requests for loans or grants, and shall encourage land use appropriate to the degree of hazard involved.

The National Flood Insurance Act of 1968 was enacted by Title XIII of the Housing and Urban Development Act of 1968 (Pub. Law 90-448, August 1, 1968) to provide previously unavailable flood insurance protection to property owners in flood-prone areas. While participation in the program is voluntary on the part of communities, the Act provides that flood insurance shall not be sold or renewed under the program within a community unless the community has adopted adequate flood plain management regulations consistent with Federal Criteria. Federal flood insurance regulations apply

to developments in local communities participating in the National Flood Insurance Program floodplain management requirements described below.

44 C.F.R. Sec. 60.3(b)(1)	The issuance of permits by the local governmental entity for all proposed construction of other developments, including the placement of mobile homes, in the floodplain.
44 C.F.R. Sec. 60.3(b)(6)	Notification, in riverine situations, of adjacent communities and the State Coordinating Office prior to any alteration or relocation of a water course.
44 C.F.R. Sec. 60.3(b)(7)	Assuring that the flood carrying capacity within the altered or relocated portion of any water course is maintained.
44 C.F.R. Sec. 60.3(c)(2)	Ensuring all new construction and substantial improvements of residential structures have the lowest floor (including basement) elevated to or above the base flood level unless the community is granted an exception.
44 C.F.R. Sec. 60.3(c)(3)	Ensuring that all new construction and substantial improvements of non-residential structures have (1) the lowest floor (including basement) elevated to or above the base flood level, or (2) together with attendant utility and sanitary facilities, be designed so that below the base flood level the structure is water tight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.
44 C.F.R. Sec. 60.3(d)(3)	Prohibiting encroachments including fill, new construction, substantial improvements, and other developments within the adopted regulatory floodway that would

result in any increase in flood levels within the community during the occurence of the base flood discharge.

44 C.F.R. Sec. 60.5(b)(2)	Requiring a setback for all new develop- from the ocean, lake, bay, riverfront or other body of water to create a safety buffer consisting of a natural vegetative or contour strip. The buffer may be used for suitable open space purposes such as agriculture, forestry, outdoor recreation and wildlife habitat areas, and for other activities using temporary or portable structures only.
44 C.F.R. Sec. 60.8(b)(1)	The federal regulations also include a provision that each flood-prone and flood-related erosion prone community must adopt and submit adequate flood plain management regulations as a condition or initial and continued flood insurance eligibility. This requirement is statutory and cannot be waived.

2. Provisions for Standards in Emergency Situations

The Texas Disaster Act provides adequate authority for emergency implementation of standards to protect property and the public safety in areas susceptible to disasters.

Texas Disaster Act of 1975, Sec. 12	Subject to the procedures, conditions, and provisions of the Texas Disaster Act of 1975, the governor may suspend existing standards and controls, such as zoning regulations, land-use regulations, or building requirements, found to be inadequate to protect the public safety, and uses and activities in areas susceptible to disasters must comply with new standards or controls promulgated by the governor and given effect by applicable state agencies and local governments until the legislature rejects or the governor amends the new standard or control.

3. Hurricane-Resistance Standards for Mobile Homes

TEX. REV. CIV. STAT. ANN. art. 5221f	The Texas Department of Labor and Standards may adopt such minimum standards as it deems necessary for the installation of mobile homes, except those in the inventories of manufacturers and dealers within this state, so that such mobile homes shall withstand winds of minimum hurricane-force velocity within the first two tiers of coastal counties of this state. Counties and municipalities may, with the approval of the Department, adopt more stringent standards when necessary for the public health and safety.
TDLS, Manufactured Housing Div. Rules 063.55.07.001	All mobile homes which are installed within the limits of a municipality, or which are installed within 300 feet from a dwelling are required to be installed as follows: (a) All mobile homes manufactured on or after June 15, 1976 shall be installed in accordance with the manufacturer's instructions. Manufacturers shall file with the department installation instructions approved by the manufacturer's design approval primary inspection agency and shall provide changes, modifications, and updates as they occur in order that each manufacturer's current installation instructions may be on file with the department. (b) All mobile homes manufactured on or after March 20, 1974, and prior to June 15, 1976, shall be installed in accordance with (1) the standards approved and promulgated by the department, (b) the manufacturer's instructions as may be filed with the department. (c) All mobile homes manufactured prior to March 24, 1974 shall be installed in accordance with the standards approved and promulgated by the department. (d) All

materials, anchoring devices (any device attached to the mobile home designed to resist the horizontal and vertical forces resulting from wind loading), and components used for the installation of a mobile home shall be in conformance with standards promulgated by the department.

063.55.07.004 All mobile homes manufactured prior to March 20, 1974 and purchased or leased after March 20, 1974 for which there exists no manufacturer's instructions for anchoring procedures shall be anchored to the following requirements:
(a) Ground anchors used shall be of an "approved design" in compliance with requirements of these standards, and shall be used in a soil type for which they are designed and approved.
(b) Over-the-top straps shall be placed on top of roof trusses and studs and shall be a continuous strap, running from the anchoring equipment on one side of the mobile home to the anchoring equipment on the opposite side.
(c) Vertical (over-the-top) and diagonal ties may be connected to the same anchoring device provided that the anchoring device used is designed to carry both loads.

APPENDIX C-7

STANDARDS FOR CONTROLLING SUBSIDENCE

Activities that contribute to subsidence include oil and gas extraction and groundwater withdrawal. These activities must be approved by the appropriate state and local agencies prior to initiation of any project. The Texas agency generally responsible for oil, gas and geothermal resources extraction is the Railroad Commission, while the particular subsidence problem due to groundwater withdrawal in Harris and Galveston Counties is regulated by the Harris-Galveston Coastal Subsidence District, created by an act of the 64th Session of the State Legislature, 1975.

To ensure that subsidence is minimized, the District requires compliance with applicable performance standards. These Standards for Controlling Subsidence in Galveston and Harris Counties are contained in the District rules and regulations and form the basis of the District's decisions for approving groundwater withdrawal projects in this designated area.

Standards for Controlling Subsidence in Galveston and Harris Counties

Harris-Galveston Coastal Subsidence District, Rules 7.1 to 7.20	Before a well, which is located within the boundaries of the Harris-Galveston Subsidence District and which is used or to be used for withdrawing groundwater, may be drilled or operated, the well owner or primary operator of the well must obtain a permit for each well. Permit applications to drill a well for withdrawing groundwater shall be evaluated on the basis of all relevant factors and the District Plan. The criteria considered in the permit evaluation shall include the quantity, quality, and availability of surface water at prices competitive with those charged by suppliers of surface water within the District; and the economic impact on the

applicant from grant or denial of the permit or the terms of the permit, in relation to the effect on subsidence which would result therefrom.

A permit may be issued whenever it is found upon presentation of adequate proof that there is no other available substitute or supplemental source of surface water at prices competitive with those charged by suppliers of surface water within the District and that compliance with the Act or the District's rules or regulations will result in an arbitrary taking of property or in closing or eliminating any lawful business, occupation, or activity without sufficent corresponding benefit or advantage to the public.

An applicant shall be denied a permit for groundwater withdrawal if the applicant requests a maximum annual withdrawal greatly in excess of that which he could possibly withdraw or might reasonably need for the purposes listed in the application or if the applicant has available an alternative source of water.

The permittee shall keep accurate records, on a monthly basis, of the amount of groundwater withdrawn and such records shall be available for inspection by the District's representatives.

TDWR Industrial Solid Waste Management Technical Guide No. 2

When submitting information on flood and flood plain elevations required for industrial solid waste applications, land subsidence must be considered. Where land subsidence is known to occur, the expected extent of the floodplain must be considered at all sites, by employing the USGS 5-year subsidence projection.

APPENDIX C-8

STANDARDS FOR MANAGEMENT OF EROSION PROBLEMS

Activities and uses that contribute to erosion in coastal areas include groins; channels; recreational facilities, such as piers, docks, wharves, or marinas; dredging and dredged material disposal; and structures for protection from coastal hazards such as bulkheads and seawalls. Uses and activities that contribute to erosion on state-owned lands must obtain the necessary approvals from the School Land Board prior to initiation of the project.

To ensure that erosion problems on state-owned lands are minimized, the General Land Office and School Land Board require compliance with applicable performance standards. The School Land Board has proposed new rules to replace some of those listed here. See Appendix B for a complete set of new proposed rules.

These Standards for Management of Erosion Problems are contained in agency rules and regulations and are the basis of agency decisions for project approvals.

Standards for Management of Erosion Problems

SLB Rule 135.18.01.003(g)(1)(A)	A dock, pier, or wharf should be constructed in a manner that does not constrict water flow and circulation.
SLB Rule 135.18.01.003 (g)(4)(A)	A plan for construction of a jetty, groin, or breakwater should be analyzed to insure that the structure does not create adverse sediment transportation patterns that induce erosion or undesirable shoaling in adjacent areas.
SLB Rule 135.18.01.003(g)(5)	Except in special circumstances, a bulkhead or seawall should be located no further seaward than the mean of the high water line, and designed so that reflected wave energy does not destroy the stable marine bottom or constitute a safety hazard. Where possible, sloping riprapping should be used rather than a

	vertical seawall or bulkhead. Bulkhead construction should avoid hard angle turns that may cause a shoaling or flushing problem.
SLB Rule 135.18.01.003(g)(6)	Plans for a marina should minimize the disruption of currents and the need for excavation of the shore area.
SLB Rule 135.18.01.003(g)(7)(C)	The perimeter of landfills should be provided with vegetation, retaining walls, riprap, or other mechanisms for erosion prevention.
GLO Rule 126.30.03.004(g)	Construction of bulkheads and seawalls by private landowners in areas adjacent to dunes is discouraged.
GLO Rule 126.30.03.004(i)	Jetties, groins, piers and similar structures extending from the beach or dunes onto submerged lands should be constructed only after a thorough investigation into potential erosional effects of the structure.

APPENDIX C-9

STANDARDS FOR MANAGING IMPACTS OF OFFSHORE SUBMERGED LANDS DEVELOPMENT

In conjunction with federal Outer Continental Shelf activities, the primary use affecting the state's coastal waters and water bottoms is the laying of pipelines across submerged state lands. Activities conducted on state-owned offshore areas include geophysical and other surveys and exploration, and development and production of minerals and energy resources. Uses and activities related to development of offshore submerged lands require the necessary approvals from the appropriate state agencies prior to initiation of the project. The Texas agencies responsible for approving these activities and uses through permits, licenses, and easements are the Texas Railroad Commission and the General Land Office/School Land Board.

In the management of offshore development, Texas agencies require compliance with performance standards, where applicable, including Standards for Pipelines Requiring a Right-of-Way Across Public Lands. Where applicable, the agencies require compliance with Standards for Water Quality Protection, Standards for Management of Wetlands and Submerged Lands, and Standards for Management of Activities Affecting Fisheries, outlined in other sections of this appendix.

These standards are contained in agency rules and regulations and are the basis of agency decisions for project approvals.

Standards for Pipelines Requiring a Right-of-Way Across Public Lands

All pipelines or utility lines crossing state-owned submerged lands must be granted a right-of-way by the General Land Office.

GLO Rule 126.18.02.002(a)	An easement or lease for pipelines over state public lands binds the grantee to comply with all existing rules and orders that the Commissioner determines to be necessary and proper in order to provide for the protection and conservation of the natural resources of public lands and waters.

GLO Rule 126.18.02.002(b)(1)	If an easement is obtained for pipeline purposes, the applicant is bound to comply with additional terms and conditions, except those waived by the Commissioner. These conditions are: - to bury the pipeline below the bottom of the gulf, bay, or inlet crossing at a depth not less than 24 inches or placing the pipeline on a structure of sufficient height to insure reasonable safety from sustaining flood damage; - to water-pressure test all lines before use to one and one-half times the anticipated working pressure; - to construct a steel line from new or reconditioned pipe in first class condition; - to electrically test or X-ray any steel line field weld to insure reasonable safety from leaks; - to dope and treat any steel line before it is submerged to offer reasonable resistance to the corrosive effect of saltwater; - to bury a pipeline in such a manner so as to backfill evenly the sand, gravel, soil, or other material excavated during construction onto the disturbed area to conform as much as is reasonably possible with the bottom profile of the adjacent natural submerged land; - to undertake erosion preventative measures at shorelines by either terracing or excavating cuts, fills, or other disturbed areas so that they may naturally vegetate, seeding cuts and fills as soon as possible to prevent erosion, or placing gravel, stone, or rock in cuts or on fills where site factors make it unusually difficult to establish a protective vegetative cover; - to select a right-of-way, when feasible, which avoids shell reefs, submerged grass beds, and marshes.

GLO Rule 126.18.02.002(b)(3)	In the event the easement is on state-owned upland and is for pipeline construction purposes, the applicant must bury any pipeline at least 24 inches below the surface and construct the pipeline so as not to interfere with the use of the land for the grazing of livestock or for farming in the usual manner, limit clearing of natural vegetation to that material which poses a hazard or a hindrance to the construction of the pipeline, and minimize clearing so as to leave a screen of natural vegetation where the right-of-way crosses a highway.

APPENDIX C-10

STANDARDS FOR FACILITY SITING AND AIR QUALITY MANAGEMENT

Facilities to be located in the coastal area are required to obtain all the necessary permits, licenses, easements, certifications, and approvals from the appropriate state agencies prior to initiation of the project. The Texas agencies most often responsible for approving facilities in the coastal area include the Texas Air Control Board, the Texas Department of Water Resources, the Texas Antiquities Committee, the Texas Parks and Wildlife Department, the General Land Office/School Land Board for use of state-owned lands, and the Texas Railroad Commission.

Facility siting in Texas is managed in conformance with all the applicable policies outlined in the Texas Coastal Program, and the agencies responsible for approving any proposed facility require compliance with the applicable performance standards issued by each agency according to the resource to be managed. To the extent that the standards previously discussed in the Program are applicable to a proposed facility, the facility must comply with the standards issued for Water Quality, Wetlands, Fisheries, Shorefront Access and Dunes, and Coastal Hazards found in other sections of this appendix. Facility siting is also subject to compliance with the following siting standards:

- Standards for Surface Mining Activities
- Standards for Siting Facilities Which Impact Air Quality

These performance standards are contained in agency rules, regulations, and guidelines and are the basis of agency decisions for project approvals.

1. Standards for Surface Mining Activities

RRC Rule 051.07.04.100	A person may not conduct a surface mining operation without a RRC permit for the surface mining of minerals (coal, lignite, uranium, or uranium ore). Applicants for a Surface Mining Permit must submit information including:

- A thorough physical, geological, and hydrological description of the mining area based on test information and other surveys;

- A description of anticipated environmental changes and plans to control such changes throughout the mining and reclamation processes;

- The nature, volume, quality, and location of all discharges and the type of treatment for each;

  A detailed description of the condition, land use, and land use capabilties of the affected land prior to the proposed or previous mining and after reclamation; and

- A detailed description of the reclamation procedure.

RRC Rule 051.07.03.109(c)

A permit will be denied if the proposed mining operation will cause pollution of any water of the state or of the ambient air of the state in violation of applicable laws.

RRC Rule 051.07.03.109(b); 051.07.03.304

A permit shall not be granted for land designated by the RRC as unsuitable for surface mining. An area may be designated unsuitable after a survey and/or hearing if: reclamation is not feasible; such operations will result in significant damage to important areas of historic, cultural or archaelogical value or to important natural systems; such operations will affect renewable resource lands resulting in a substantial loss or reduction of long-range productivity of water supply or food or fiber products; and if such operations are located in areas subject to frequent flooding or in areas of unstable geology and may reasonably be expected to endanger life and property.

2. Standards For Siting Facilities Which Impact Air Quality

Texas Air Control Board Rule 131.08.00.001-.003	Any person who plans to construct any new facility or to modify an existing facility which may emit air contaminants into the air of the state must obtain a construction permit from the Texas Air Control Board before any actual work is begun on the facility. In order to obtain a permit to construct, the owner or operator of the proposed facility must demonstrate that the proposed facility will: - comply with all rules and regulations of the TACB; - not cause significant deterioration of existing ambient air quality in the area; - provide for measuring emissions of significant air contaminants; - use the best available control technology, with consideration given to the technical practicability and economic reasonableness of reducing or eliminating the emissions resulting from the facility; - meet the requirements of any applicable new source performance standards promulgated by the EPA pursuant to Section 111 of the Federal Clean Air Act, as amended; - meet the requirements of any applicable emission standard for hazardous air pollutants promulgated by the EPA pursuant to Section 112 of the Federal Clean Air Act, as amended; - achieve the performance specified in the application for a construction permit; and - comply with the nonattainment requirements of the revised State Implementation Plan, if the project is to be constructed in an area in which the National Ambient Air Quality Standards are not being

attained (i.e., a nonattainment area).

In addition, in Harris and Nueces Counties, all major new sources or modifications with respect to volatile organic compound emissions must provide information on expected emissions to enable determination that total allowable emissions from existing facilities, from the proposed facility, and from new or modified facilities that are not major sources in the area will be sufficiently less than total emissions from existing sources allowed under the State Implementation Plan, so as to represent reasonable further progress. In areas designated as nonattainment for ozone, and where the TACB has not adopted regulations and a control strategy for attaining the standard, the applicant for a construction permit for a proposed facility, which is a major stationary source of volatile organic compound emissions, must demonstrate that total allowable emissions in the area will not increase as a result of operation of the proposed facility.

All major new sources or modifications of sources of air contaminants other than volatile organic compounds, for which a national ambient air quality standard has been issued, must meet additional requirements if the emissions would contribute significantly to a predicted exceedance of the standard or to an existing exceedance. A new major source or modification must apply the lowest achievable emissions rate. The applicant must certify that all existing major sources owned or operated by him in Texas are in compliance or on a schedule for compliance with all applicable state and federal emission limitations and standards. The proposed facility must not cause the national

ambient air quality standard for that contaminant to be exceeded at any location and must not significantly contribute to any existing exceedance at any location.

Where applicable under federal regulations, all major new sources or modifications are subject to a full Prevention of Significant Deterioration (PSD) review administered in Texas by the Environmental Protection Agency.

Substantive requirements for projects subject to a full PSD review consist of:

- control technology review showing compliance with emissions limitations (required in the State Implementation Plan, New Source Performance Standards, and Emissions Standards for Hazardous Air Pollutants) and Best Available Control Technology;

- air quality review demonstrating through modeling that allowable emissions together with all others will not cause or contribute to any exceedance of a national ambient air quality standard or increment over the baseline concentration in the area;

- possibly requiring submission up to one year of monitoring data for National Ambient Air Quality Standard pollutants; and

- possibly requiring additional impact analyses of the air quality impact of growth associated with the source, and impacts of the source on visibility, soils, and vegetation, and

- Prevention of Significant Deterioration (PSD) permits issued by the EPA in Texas.

Within 60 days after a major new source or modification has begun operation, the owner of the facility must apply for a permit to operate from the TACB. The permit applicant must demonstrate that the facility is complying with the rules and regulations of the TACB, the facility has been constructed and is being operated in accordance with the permit to construct, and the facility is being operated in accordance with any applicable new source performance standards and any applicable national emission standard for hazardous air pollutants promulgated by the EPA.

APPENDIX C-11

STANDARDS FOR ACTIVITIES
AFFECTING HISTORICAL AND CULTURAL RESOURCES

Texas' cultural and historical resources are managed by the Texas Antiquities Committee (TAC). Activities or uses affecting these resources must comply with the following standards.

NAT. RES. CODE § 191.131(b)	No one may conduct an operation on any state archaeological landmark without first obtaining a permit from the Antiquities Committee, or conduct an operation in violation of a permit.
NAT. RES. CODE § 191.091, 191.093	Sunken or abandoned pre-twentieth century ships and wrecks of the sea, any part or contents of them, and all treasure imbedded in the earth, located in, on, or under the surface of state-owned lands, including tidelands, submerged land, beds of rivers and the sea within jurisdiction of the state are state archaeological landmarks and the sole property of the state and may not be taken, altered, damaged, destroyed, salvaged, or excavated without a contract with or permit from the Committee. All sunken pre-twentieth century ships and srecks of the sea are considered state archaeological land marks.

The following rules of the Antiquities Committee are currently under revision. Activities affecting cultural resources must, of course, comply with final adopted rules of the Committee.

TAC Rule 355.01.00.005	Disturbance of archaeological landmarks by offshore oil drilling or other activities is prohibited, and the development company must ensure no landmarks exist in the proposed development area. Offshore development requires a survey permit and an underwater cultural resources survey of the area before the activity commences.

TAC Rule 355.01.00.006	The applicant, upon receipt of the permit, must comply with all terms and conditions included in the permit.
TAC Rule 355.01.00.007	All investigations must be carried out in such a manner that the maximum amount of historical, scientific, archaeological and educational information may be recovered and preserved, and must use scientific techniques. The area to be investigated must be thoroughly researched, including archaeological background, history and ethnohistory, architecture, environmental data and other useful information prior to initiation of the field phases of the project.

APPENDIX C-12

SPECIAL BAY AREA GUIDELINES: CLEAR LAKE

The School Land Board developed special regulations for activities in Clear Lake (southeast of Houston) in response to unique developmental pressures and widespread local concern in the area. Following are the special standards applicable to the Clear Lake area.

SLB Rule 135.18.01.009(c)	A littoral owner may construct a pier on pilings, no longer than 100 feet and no wider than 25 feet, onto State-owned lands in Clear Lake, provided that no dredging or filling is required, the pier is not for commercial purposes, and no condition exists requiring restriction of the pier length.
SLB Rule 135.18.01.009(d)	Construction of piers and docks larger than 100 feet in length or wider than 25 feet requires notification to the appropriate city and county governments in addition to GLO approval of the project description.
SLB Rule 135.18.01.009(e)	No piers or docks longer than 300 feet from the mean high water line may be constructed except under extremely unusual circumstances when public benefit can be shown.
SLB Rule 135.18.01.009(f)	A pier or dock shall be designed to extend into and over coastal public lands and water in a line perpendicular to the shoreline unless the design would obstruct navigation or unreasonably interfere with the use or enjoyment of the adjoining littoral owner's lakefront.
SLB Rule 135.18.01.009(i)	Deposition of dredge spoil or any other material in Clear Lake will not be permitted.

SLB Rule 135.18.01.009(k)	Except under extremely unusual circumstances, dredging is prohibited in Clear Lake vegetated wetlands, in nonvegetated wetlands less than three feet in depth (from mean low water), and within 25 feet of a shoreline or structure.
SLB Rule 135.18.01.009(k)(4)	Access channels to basins or inland canals constructed in nonwetland areas and which do not exceed 50 feet in width or six feet in depth will be permitted.
SLB Rule 135.18.01.009(k)(5)	Piers on pilings may be constructed over wetland areas, but boat slips and other such facilities will not be permitted within 10 feet of shore (mean low water line).
SLB Rule 135.18.01.009(l)	Applicants proposing to construct marina facilities will be required to provide pumpout facilities to service marine sanitation holding tanks if adequate treatment of those wastes can be arranged with local sewage treatment facilities. This requirement is in addition to facilities required by state and federal regulations for proper handling of waste, refuse, and petroleum products.
SLB Rule 135.18.01.009(m)(1)	Bulkheads with fill behind them should be constructed as closely as possible to the existing shoreline and shoreward of tidal wetlands; and the top of bulkheads should be constructed at an elevation of no lower than three feet above the mean high tide.
SLB Rule 135.18.01.009(m)(2)(A)	The top of a nonmarina pier should be at an elevation of four feet or more above mean low water line.
SLB Rule 135.18.01.009(m)(2)(B)	Under no circumstance shall a nonmarina pier or dock extend into the lake from a point on the shore less than 10 feet from the adjacent owner's littoral property line unless it is to be jointly used by both littoral owners.

SLB Rule 135.18.01.009(m)(3)	The top elevation of piers and walkways associated with a marina should be at least four feet above mean low water; a marina should be constructed at least 25 feet from the adjacent littoral owner's property line unless it is to be jointly used by both littoral owners.
SLB Rule 135.18.01.009(m)(4)(A)	Dredging of access channels in the open lake should be conducted at a minimum distance of 25 feet from all structures, unless approved by the littoral owner, to prevent undercutting or sloughing of those structures.
SLB Rule 135.18.01.009(m)(4)(B)	In order to provide better circulation, dredged access channels and associated boat basins should be of a uniform depth or become gradually shallower proceeding from the parent body of water to the inland-most part of the development.

APPENDIX D
DRAFT

FEDERAL CONSISTENCY REVIEW FORM FOR STATE AGENCIES

Agency _____ Corps of Engineers Permit No._____

SAI Number _____

Division
or Branch _____

Classification:
A. Direct federal activity
B. Federally licensed activity
C. Federally licensed OCS activity
D. Federal assistance

Title _____

Authorized
Signature_____

The following state permits, licenses, leases, easements or approvals are required from our agency (note status):

_____

_____.

( ) 1a. We find the proposed federal action consistent with our policies and authority in the Texas Coastal Program to the extent that can be determined based upon all presently available information. Additional information may be required for the state to issue a permit, license, easement or other approval.

( ) 1b. We find the proposed actiion inconsistent with the Texas Coastal Program based upon our statutory authority to grant permits, licenses, leases, easements or other approvals cited in (cite statute or rule):

_____

_____

and the facts delineated below:

_____.

_____.

_____.

( ) 1c. We do not have sufficient information at this time to make a determination regarding consistency with the Texas Coastal Program.

With these comments, the agency named above agrees to attempt conflict resolution or mediation, and further, agrees to document such finding of inconsistency in a court of law or other forum should the necessity arise.

A state agency's response that an activity is consistent with the Texas Coastal Program does not preclude the requirement that a state agency permit, license, or other approval be issued, nor does it indicate that it will necessarily be granted.

State agencies which do not have jurisdiction to issue a required license, permit, or other approval for the proposed action should send their comments on the action through the normal A-95 mechanism.

APPENDIX E
DRAFT

JOINT APPLICATION
Department of the Army/State of Texas

Sections which do not apply to the permit requested should be marked NA. Fill in all blanks.

1. Application number

2. Specify activity applied for:

3. Name and address of Applicant:

Telephone number (___)_____

3a. If applicant is a corporation:

President's name_____
Secretary's name_____

Attach certified copy of incorporation or certificate of authority to transact business in Texas.

4. Name and address of authorized agent for permit coordination:

Telephone number: (___)_____

5. Name and address of person responsible for public notice: (Proof of publication must be submitted)

6. Describe the activity, its purpose and intended use. Describe any structures that will be erected, any materials that will be moved or removed. (Attach additional sheets as necessary)

a. For piers, docks, or bulkheads:
Width and length _____
Material constructed from_____
Method of installation_____
Volume and source of material for fill (bulkhead) _____
_____
Total area involved_____

b. For dredging:
Type of material removed (sand, marl, gravel, shell) and method of removal
_____
Length, width and depth of dredged channel_____
Volume of material dredged_____
Proposed use of the material_____
Private____Commercial____Public____
Type of equipment_____

7. Activity location

County _____

Street address:

If within city limits, specity city_____
If outside city limits, number of miles from nearest Post Office or town_____

Subdivision_____ Block_____ Lot_____

Submit drawings showing the location and character of the proposed activity. See attached checklist for specifications, and see sample drawings.

8. Names and addresses of adjoining property owners:

9. Name of waterway involved:

10. Location of disposal site or spoil placement

11. Date activity is expected to commence:
Expected completion date:

Proposed date of submission of results report(for exploration, etc under TAC)
_____

12. Is any portion of the activity now complete? yes___no____
If yes, give reasons, month and date completed, and indicate current status of the work on accompanying drawings

13. List any other approvals or certifications or permits required by Federal, state or local agencies previously obtained for any of the activities described in this application.

14. Has any agency denied approval for the described acitvity or for any activity directly related to it? yes___no___ If yes, explain.

15. Remarks.

For TAC activity, provide the name of facility where specimens, material and data will be kept during analysis, evidence of adequate funds, personnel and equipment and facilities.

Attach drawings/maps in accordance with the accompanying checklist.

For revenue dredge/fill permits from TPWD, attachments A1 and A2 must accompany.

16. Application is hereby made for a permit or permits to authorize the activities described herein. I agree to provide any additional information/data necessary to provide reasonable assurance that the proposed project will comply with the applicable state water quality standards or other environmental protection standards both during construction and after the project is completed. I also agree to provide entry to project site for inspectors from the environmental protection agencies for the purpose of making preliminary analyses of the site and monitoring permitted works, if permit is granted. I certify that I am familiar with the information contained in this application, and that to the best of my knowledge such information is true, complete, and accurate. I furthur certify that I possess the authority to undertake the proposed activities.

Signature _____ Date_____

The application must be signed by the person who desires to undertake the proposed activity, or by a duly authorized agent if accompanied by a statement by that person designating the agent and agreeing to furnish upon request supplemental information in support of the application.

Drawing Requirements and
Checklist

1. General

Submit one original and two copies of all drawings on 8½by 11-inch paper. Submit the fewest number of sheets necessary to adequately show the proposed activity. Drawings should be in accordance with the general format of the enclosed sample drawings and must be of good reproducible quality.

A 1-inch margin should be left at the top edge of each sheet for binding purposes.

Drawings should not reflect the approval, non-objection, or action of other agencies.

Since drawings must be reproduced photographically, color shading cannot be used. Drawings may show work as dot shading, hatching, cross-hatching, or similar graphic symbols.

Show distance between proposed activity and navigation channel where applicable.

2. Vicinity Map. Submit as a separate sheet.

Show location of the activity site including latitude and longitude if known.

Show name of waterway.

Show pertinent access roads and geographical features.

Show name of and distance to local town, community, or other identifying location. (Section, block, or lot)

Identify map or chart from which vicinity map was taken, if applicable.

Show graphic scale.

Show north arrow.

3. Plan View

Show existing shorelines.
Show ebb and flood in tidal waters and direction of flow in rivers.
Show north arrow.
Show graphic scale.
Show mean high and low waterlines if the proposed activity is in tidal areas on the Gulf coast. Show ordinary high water line and ordinary low waterline if proposed activity is in a lake or stream.
Show principal dimensions of structure or work and extent of encroachment beyond the applicable high waterline.
For dredging, excavations, or fills, show number of cubic yards, type of material; method of handling, and location of fill or spoil disposal area. If spoil material is to be placed in approved dumping grounds, a separate map showing the location of the dumping grounds may be attached. The drawing must indicate proposed retention levees, weirs, and/or other devices for retaining hydraulically placed materials.
Show and identify structures (if any) in navigable waters immediately adjacent to the proposed activity including permit numbers if known.
Identify and show location of any structures to be constucted on fill or pile supported platforms in navigable waters. If nothing is to be constructed on fill or platform, state the intended use.
Show your property lines and identify adjacent property owners. (on narrow waterways the property owner on the opposite shore must also be identified.
Any registration numbers or easement numbers for any existing structures issued by the General Land Office must be shown.

4. Elevation and/or Section Views.
   - Show same water elevations as for plan view.
   - Show depth at waterward face of proposed work or if dredging is proposed, show dredging grade.
   - If a fill, float, or pile supported platform is proposed, show dimensions and identity of any structures to be erected thereon.
   - Show graphic scale.
   - Show the cross sectional of the proposed structure showing the bottom profile of coastal public lands and the mean high water line relative to the proposed work and to existing land areas. Provide cross sectional diagram for each proposed structure. Draw to scale or clearly describe by other means.

5. Notes on Drawings.
   - List names of adjacent property owners whose property also adjoins the water if not shown in plan view.
   - State purpose (private use, commercial, public, etc.) of proposed activity.
   - State datum used in plan and elevation views.
   - If petroleum products or other hazardous material will be stored or handled at the proposed facility, so indicate.

6. Plat of survey, for easements and leases only
   - Draw to indicated scale, identifing location of the private property by tie to the nearest corner of the original General Land Office Survey, or tie to a permanent reference monument of a recorded subdivision plat tied to a corner of the GLO survey. Show existing and proposed man-made features and natural features (such as shoreline, marsh, creek, docks, piers, property lines, mean high water, fill areas, etc.). Be sure to indicate which exist and which are proposed. Show meridian arrow showing North, which must be at the top of the plat. Iftwo drawings are on the same sheet, their meridians must be parallel.

PURPOSE:

DATUM

ADJACENT PROPERTY OWNERS:

1

2

IN

AT

COUNTY OF STATE

APPLICATION BY

SHEET OF DATE

ATTACHMENT 1

For Revenue dredging or fill activity requiring TPWD permitting.

Applicants other than counties, city, or towns must agree to the following terms for approval of the activity. Applicant must sign below.

1. I understand that I am required to remit payment and file a report by the 10th day of each month for all material produced during the preceding month and that such reports must be filed each month whether or not any materials are produced.

2. I understand that I am required to keep records of all materials taken from public waters during the most recent 7 years and keep such records available so that they will be available for inspection and audit by a representative of the Department at any time.

3. I understand that failure to file such reports on time and to keep adequate records subjects the permit to immediate cancellation.

4. I understand that to operate without a valid permit from the Parks and Wildlife Department subjects the operator to a fine of $10 to $200 and that each day's operation constitutes a separate offense.

5. I shall not interfere with any State or Federal improvements, navigation, fish life, or property rights of landowners in or along any stream or violate any law or regulation of the Texas Parks and Wildlife Department pertaining to the taking of sand, shell, gravel, or marl.

6. I agree to indemnify and hold harmless the Department from each and every claim of damage or injury to any person, or to any property, real or personal, occasioned by any negligence, trespass, or operation related to this proposed dredging activity and that there will be no expressed or implied permit granted to conduct any operations which would cause injury to private property without the consent of such landowner.

Remarks:

Signed:_____ _____ Date

Payment. Sand and gravel twenty cents per cubic yard; marl, shell and mudshell twenty-five cents per cubic yard. No permit required nor charge for materials removed from private property.

State Sales Tax. State sales tax must be paid to the Department on marl, sand, shell and gravel purchased from the state for use by the permit holder. If purchased for resale, furnish the Department with a Certificate of Resale. If exempt from payment of sales tax, furnish exemption certificate.

Required in an amount sufficient to cover the cost of the maximum amount of material the applicant proposes to remove during any two-month period. ($1,000 min.)

BOND

THE STATE OF TEXAS

County of..... } KNOW ALL MEN BY THESE PRESENTS:

That I, ..., as principal,

and....., as surety,
are held and firmly bound unto the Parks and Wildlife Department of the State of Texas, and its

successors in the sum of ..... Dollars ($.....)
for the payment of which we hereby bind ourselves, our heirs, executors, and administrators jointly and severally by these presents.

The condition of the above and foregoing obligation is such that, whereas, the above bounden has made application to the Parks and Wildlife Department of the State of Texas, for a permit, to dredge, take and remove sand, gravel, marl and/or shell from the public waters and/or public streams of this State at the following described location:

.....

.....

NOW, THEREFORE, if the said.....
(Name of Principal)
be granted such permit and shall faithfully comply with the terms thereof, and account for and pay all monies accruing monthly not later than the tenth day of each succeeding month, and abide by all laws and regulations governing the taking of sand, gravel, marl and shell from the public waters and/or public streams of this State, then this obligation shall become null and void, otherwise the same shall remain in full force and effect.

The premium on this bond has been paid to cover the duration of the permit which is for .....year(s) beginning with the effective date of the permit.

IN TESTIMONY WHEREOF, witness our hands on this.....day of.....
A.D. 19..... .

.....
(Signature of Principal)

.....
(Signature of Surety)

.....
(Address of Surety)

AFFIDAVIT - SAND, GRAVEL, AND MARL

THE STATE OF _____ I

COUNTY OF _____ I

My name is _____. I am an official of _____ with offices in _____, and I am duly authorized to make this statement on behalf of _____.

This affidavit is being made in connection with the permit application of _____ (Applicant) pending before the Texas Parks and Wildlife Department for a permit to remove sand, gravel, and/or marl of commercial value from the _____ (River, Bay, etc.), in _____ County, Texas.

The material Applicant desires to remove in connection with this project and permit request is considered by the Applicant to be sand, gravel and/or marl of commercial value as that term is used in Section 86.001-86.019, Parks and Wildlife Code; and Applicant agrees to pay the Texas Parks and Wildlife Department the sum of 20¢ per cubic yard for all of the sand and gravel and 25¢ per cubic yard for all of the marl removed in connection with the above-referenced project, said prices being the standard charges established by the Texas Parks and Wildlife Commission for sand, gravel, and marl.

_____
(Applicant)

THE STATE OF _____ I

COUNTY OF _____ I

BEFORE ME, the undersigned authority, on this day personally appeared _____, the _____ of _____, and he affixes his name to the foregoing instrument in the capacity stated as the act and deed of _____.

Subscribed and sworn to before me, by the said _____, this _____ day of _____, 19__.

_____
Notary Public in and for
_____ County, Texas

AFFIDAVIT. Based upon a court decision, Amdel Pipeline, Incorporated vs. The State of Texas (530 SW2d. 647), the Department will require either a sworn affidavit (copy attached) from the applicant stating that the material removed from public waters is marl or sand of commercial value, or a report from a certified engineering consultant specifying, by testing and soil analysis, the total amount of marl, sand, gravel, shell or mudshell to be removed. The quantity of each material must be stated separately. If an engineering report is submitted, it will be reviewed by this Department for completeness and accuracy. The Department reserves the right to require additional information from the applicant in connection with any report filed.

APPENDIX F

List of Existing and Potential Facilities on the Texas Coast

INTRODUCTION

The Texas coastal area has historically attracted large energy-related industrial facilities. Surveys of facilities under construction, permit applications, and proposed or planned facilities indicate that this is likely to continue.

The analysis detailed in this appendix produces the following list of industrial facilities that are likely to significantly affect the Texas coastal zone in the future and which the state's facility planning process should be equipped to assess.

- Petrochemical plants
- Gas processing plants
- Nuclear-powered electrical generating plants
- Petroleum refineries
- Mobile drilling rig/platform construction yards
- LNG plants and associated terminals
- Conventional electrical generating plants
- Bulk terminals
- Salt dome storage facilities
- Primary metal processing facilities
- Metal fabrication plants
- Machinery manufacturing plants
- Offshore platforms
- Onshore drilling rigs
- Oilfield equipment storage depots (for both onshore and offshore drilling)
- Crew and supply bases (for both onshore and offshore)
- Deep-draft ports
- Expansion of facilities of existing ports
- Pipelines (both onshore and offshore)
- Geothermal energy extraction

This list emphasizes energy facilities because (a) the area now has and is expected to continue to have a relatively high concentration of energy facilities, and (b) federal regulations mandating a coastal facility planning process

stress energy facilities. The list represents a best estimate based on past experience, current trend, and future expectations.

The projection of the types of industrial facilities for possible future siting decisions in the Texas coastal area is based on five inventories:

- Existing industrial facilities;
- Industrial facilities under construction;
- Industrial facilities for which state and/or federal applications are pending;
- Proposed or planned facilities; and
- Projections of future industrial siting in the Texas coastal area prepared by various organizations.

These five inventories centered around the following types of industrial facilities:

- Petroleum refineries;
- Gas processing plants;
- Nuclear generating plants and enrichment or processing facilities;
- Petrochemical plants;
- Construction yards for offshore drilling platforms and mobile drilling rigs;
- Liquefied natural gas (LNG) terminals, transmission facilities, storage facilities, and treatment plants;
- Conventional electrical generating plants;
- Petroleum product storage terminals;
- Ship building/repairing facilities;
- Primary metal processing facilities (including blast furnaces and aluminum smelters);
- Metal fabricating facilities; and
- Machinery (other than electrical) manufacturing facilities.

The inventories were compiled to provide a basis for projections of the types of industrial facilities which may affect the Texas coastal area in the future. It was not assumed, however, that such projections would necessarily be limited to the twelve types of industrial facilities above.

U.S. Department of Commerce Regulations implementing the 1976 Amendments to the Coastal Zone Management Act specify that the identification of facilities which may significantly affect the coastal zone must include, in addition to the industrial facilities listed above, the following:

- Oil and gas platforms, storage depots, and crew and supply bases;
- Facilities, including shallow-draft and deep-draft ports and deepwater terminals, used for the transfer of petroleum;
- Pipelines and transmission facilities; and
- Petroleum-related terminals.

While it is important to note that the installation or expansion of those facilities will affect the coastal zone, their current existence in the Texas coastal area is not inventoried in this report for various reasons.

First, offshore oil and gas platforms, oil and gas production equipment storage depots, crew and supply bases, port facilities (particularly as they relate to petroleum cargo), and Texas-Federal OCS pipelines are inventoried elsewhere (Texas General Land Office, 1977a, Vol. 4 and Texas General Land Office, 1980). Second, inventories of onshore oil/gas production rigs and onshore pipeline rights-of-way and transmission facilities or terminals are maintained and periodically updated by the Texas Railroad Commission, Oil and Gas Division (Texas Railroad Commission, 1979). Third, inventories of pipelines and production platforms in state-owned waters are maintained by the Texas General Land Office both in the form of right-of-way or lease records and maps (Texas General Land Office, 1980). All of the inventories referenced above are incorporated by reference.

A. EXISTING INDUSTRIAL FACILITIES

Existing industrial facilities in the study area include 39 petroleum refineries, 73 gas processing plants, 54 petrochemical plants, ten mobile drilling rig and platform construction yards, and 22 conventional electrical generating plants. In addition, the study area contains 58 bulk petroleum stations and terminals, 22 major shipbuilding/repairing facilities, 32 major primary metal processing facilities, 148 major metal fabricating facilities, and 114

major machinery manufacturing facilities. Also, there are four steel production facilities, 12 smelters, 32 foundries, ten steel milling facilities, 12 forging facilities, and three rolling facilities in the study area. Nuclear generating plants, nuclear enrichment or fuel processing facilities, and LNG terminals or facilities do not currently exist in the study area. (Some of these facilities, however, are now under construction, being applied for, or being planned; see subsequent sections of this appendix.) In the case of ship building/repairing, primary metal processing, metal fabricating, and machinery manufacturing, a "major facility" is defined as a facility that employs 50 or more persons. Figures 1 through 10 present the results of these inventories.

B. FACILITIES UNDER CONSTRUCTION

A survey of facilities under construction indicates that the kinds of industrial facilities now existing in the study area continue to be drawn to the area. An inventory conducted in 1980 found that new and expanding facilities in the study area included at least 13 petrochemical plants, five refineries, one nuclear power generating plant, one gas processing facility, two primary metal processing facilities, two metal fabricating facilities, and four machinery manufacturing facilities under construction. Of the four machinery manufacturing facilities, two will manufacture equipment directly related to energy production (offshore oil field equipment and barges for offshore use).

The inventory of industrial facilities currently under construction in the study area included an examination of such periodicals as "Texas Industrial Expansion", a monthly publication of the Bureau of Business Research at the University of Texas at Austin; key news clipping service pamphlets such as that compiled by the Texas Coastal and Marine Council; and discussions with officials of relevant agencies or organizations, including the Texas Industrial Commission and the Bureau of Business Research. No attempt was made to catalogue each individual facility being constructed. Because the inventories are to provide a basis for projecting the type of facilities which may affect the coastal zone in the future, emphasis was placed on determining the types and general size ranges of industrial facilities under construction. This resulted in a representative sample of the kinds of industrial facilities which have been under construction since that last inventory of existing facilities (1978 County Business Patterns) was compiled.

C. PENDING APPLICATIONS

The facilities for which applications are pending tend to be the same type of industrial facilities that currently exist or are under construction or expansion in the study area. They include petroleum refineries, petrochemical plants, oil field service facilities, electrical generating stations, pipelines, gas plants, and LNG plants (Texas Department of Water Resources).

Interviews of staff members of the Texas Department of Water Resources, Texas' water quality permitting agency, indicate that petrochemical facilities represent the one most numerous type of application for siting or expansion in the study area. As was the case in the inventory of facilities under construction, the search for pending applications emphasized facility types and general size ranges, and did not attempt to provide an exhaustive listing.

D. PROPOSED OR PLANNED FACILITIES

The investigation focused on identifying types and size ranges of facilities that are proposed or planned, but are not yet into the application or construction phases. Due to the extensive amount of proprietary information inherent in the early stages of facility planning and the limitations of sources of information, it must be recognized that unknown numbers and types of facilities may be proposed or planned. However, conversations with officials of the Texas Industrial Commission (McAndrew, 1980) and the Texas Department of Water Resources (Grubb, 1980) indicate that petrochemical facilities will continue to generate the largest demand for major industrial sites.

E. PROJECTIONS OF OTHER SOURCES

Many studies provide projections of industrial activities. Some of these studies focus on the nation as a whole or on a particular industry and the projected nationwide demand for its products. More specific analyses conducted by local chambers of commerce, Councils of Governments, and private industries focus on local or regional service areas. Some projections center on employment, some on final demand, others on water use, and so forth.

An understanding of the types of projections available, as well as what they reveal, can be gained by an analysis of a representative few. A complete list of sources can be found in Figure F-12.

1. Statewide Employment Projections

The Texas Employment Commission's (TEC) forecasts of employment through 1985 for the seven largest Standard Metropolitan Statistical Areas (SMSAs) in Texas reveal that the major industrial sectors currently situated in the study area are expected to expand in the Houston, Beaumont-Port Arthur-Orange, and Corpus Christi SMSAs (Figure F-13). The one exception is petroleum refining in the Houston SMSA. In some cases, the projected percent of increase is dramatic; for example, a 31.6 percent increase in employment in the fabricated metals sector in the Houston SMSA and a 25 percent increase in employment in the primary metals sector in the Beaumont-Port Arthur-Orange SMSA. All three coastal SMSAs included in the TEC projections are expected to experience employment growth in primary metal processing, machinery manufacturing, utilities or electric light and power, and chemical and allied products.

The Texas Department of Water Resources (TDWR) has also made employment projections by industrial sectors for counties in the study area. In general, there are many similarities between the TEC projections (Figure F-13) and the Texas Department of Water Resources projections (Figure F-14). For example, both sets of projections anticipate relatively large increases in employment in the chemical and allied products sector. Moderate increases are anticipated in the machinery (except electrical), manufacturing, primary metal, fabricated metals, and utilities sectors.

The Texas Department of Water Resources projections for the entire coastal area include six counties which are not included in this study, but there is no reason to believe that the relative magnitude of those projections would be significantly changed if those additional counties were factored out (Figure B-14). This appendix arrays the TDWR projections for the entire coastal area and for the Southeast Texas, Houston-Galveston, Golden Crescent, Coastal Bend, and Lower Rio Grande Valley areas.

2. Water Demand Projections

The Texas Department of Water Resources has published projections of water use by manufacturers through 2030 which indicate (a) that use of water by manufacturers in all coastal basins will increase, (b) that counties in this report's study area are expected to represent the greatest demand, and (c) that petroleum refining and petrochemical processing are expected to be the major water-demanding manufacturers (see Figure F-15).

3. Regional Councils of Governments Projections

The Councils of Governments in the study area have largely adopted the employment projections made for their areas by such state agencies as the Texas Employment Commission and the Texas Department of Water Resources. Regional councils vary greatly in their needs for and capabilities to produce projections of industrial activities in their service areas. For example, the Southeast Texas Regional Planning Commission has published a set of land-use maps, one of which projects industrial land use in 1990. Projections of specific industry types, however, are less definite.

The Houston-Galveston Area Council has not attempted to project specific types of industrial facilities expected to site in the eight-county service area, except to note that manufacturing and, more importantly, the petrochemical industry are expected to expand.

4. Local Projections

Local chambers of commerce in the study area commonly establish Industrial Development Committees or similar entities, but they generally do not do extensive projections. Officials of these committees in various sites in the study area display great familiarity with facilities under construction or being planned in their respective areas. Due to the proprietary nature of the information surrounding planned facilities, however, chamber of commerce officials are often reluctant to discuss such facilities. These officials, were, on the other hand, very helpful in verifying information derived from other sources.

5. Specialized Projections

General analyses of the future of various energy sectors are readily available. Such sectors as petroleum refining, petrochemical production, petroleum storage, mobile drilling rig and platform construction, liquefied natural gas processing, geothermal energy production, nuclear-powered electrical generating plants, and port facilities have been analyzed in terms of general trends and prospects for the future.

a. Petroleum Refining

Most sources expect any increase in the petroleum refining sector to come in the form of expansion of existing facilities rather than in the construction of newly-sited facilities. The Oil and Gas Journal reported that "designers and builders of large oil refining facilities see a leveling-off ahead in the work" (August, 1977). In addition, officials of the Texas Industrial Commission doubt that new refineries will be built in Texas in the near future. They cite the depletion of domestic reserves, the increasing costs of construction, and federal regulations as reasons for a refinery construction slowdown. Nevertheless, the Texas experience, even in recent years, does not allow elimination of the possibility of new refinery construction during the next 20 years. Uncertainties surrounding conservation practices, federal legislation and regulations, international supply, domestic demand and other variables leave open the possibility of continued refinery construction in the study area.

Various federal agency scenarios of expansion in U.S. refinery capacity have been analyzed elsewhere (General Land Office, 1977a, vol. 3). Depending on which federal agency and which set of assumptions are used, the needed expansion in refining capacity by 1985 is expected to be between 1.1 and 6.4 million barrels per calendar day. According to any of the scenarios, there is a strong possibility of new refineries siting in or near the Texas Gulf Coast.

b. Petrochemical Plants

The probability of new petrochemical plants in the study area was stressed by virtually every source consulted. The inventories of existing facilities, facilities under construction, pending applications, and proposed or planned

facilities all provide ample evidence of an ongoing demand for new sites for petrochemical plants.

c. Storage Facilities

Storage facilities for crude petroleum, finished products, natural gas, and other products are likely to become increasingly important if a recent emphasis on strategic petroleum storage continues.

Aside from the fact that construction or expansion of refineries, gas plants, or petrochemical plants is normally accompanied by construction of storage tanks, there is much conflicting evidence as to the projected need for bulk terminals and tank farms. One study has found a significant amount of unused storage capacity in the study area (General Land Office, 1977a, vol. 3). This fact is seemingly contradicted, however, by the federal government's current effort to store petroleum in salt domes instead of conventional storage facilities. So while construction of conventional storage facilities and tank farms may reasonably be expected to continue as refining capacity expands, strategic storage of petroleum in salt domes is of equal importance.

d. Mobile Drilling Rig and Platform Construction

The mobile drilling rig and platform construction market is cyclical and difficult to predict. Capacity expansions are expected and are most likely to affect Louisiana, but may affect the Texas Gulf Coast as well.

e. Liquefied Natural Gas Facilities

Liquefied natural gas terminals, transmission facilities, and processing plants are beginning to make their appearance in the study area, as the inventories presented early in this appendix indicate. Sources agree that there will be increasing demand for sites for such facilities. The only liquefied natural gas terminal now under serious consideration, however, is the El Paso Natural Gas LaSalle Terminal near Port O'Connor, Texas, in Calhoun County. The plant would have the capacity to gasify 930 million standard cubic feet per day of natural gas. The plant would use about 160 acre-feet of freshwater per year but would divert over 200,000 acre-feet per year of Matagorda Bay water through the gas evaporators. The water will be returned to Matagorda Bay. According to current plans the gas will

be shipped from a liquefaction plant in Algeria. The Federal Energy Regulatory Commission license has not been issued for the construction of the LaSalle Terminal, but action is pending. No firm date for construction has been set. (Texas Department of Water Resources, 1980).

f. Geothermal Energy

Geothermal energy production seems less certain than that of other forms of energy. Although geothermal belts underlie the study area, several sources consider their future development to be uncertain. One report, for example, concludes that "it would appear that geothermal development is a marginally viable alternative to the continued development of electric production with present technology in the South Texas Coastal Zone" (University of Texas at Arlington, 1980). Even sources that are more optimistic about geothermal energy anticipate commercialization in 10-12 years at the earliest (University of Texas at Austin, 1980), and although test wells have been drilled, widespread commercial use is still an uncertainty. However, as the price of natural gas continues to undergo legislative decontrol, the utilization of geothermal energy appears more feasible economically.

g. Nuclear Power Plants

Nuclear power plants will probably continue to be proposed and planned. The only nuclear power plant presently planned in the coastal zone area is the South Texas Nuclear Project in Matagorda County. The plant, when completed in 1985, will have 2,500 megawatts of generating capacity. Additionally, two other plants will be operated in counties adjacent to the study area. While it is true that the future construction of nuclear plants is surrounded by uncertainty, they cannot be ruled out as facilities which will significantly affect the Texas Coastal Zone.

h. Port Facilities

The Ports of Galveston and Corpus Christi have initiated action to enlarge their port capacity by deepening existing channel depths to allow deeper-draft vessel access. The U.S. Army Corps of Engineers is currently reviewing the Corpus Christi application, and recently granted Galveston dredging and pipeline permits. Additionally, the State of Texas, through the Texas Deepwater Port Authority, proposes to build and operate an offshore oil terminal in the Gulf of Mexico near Freeport, Texas. The license to construct this

facility was authorized by the Secretary of Transportation, however, completion of financing and other arrangements encountered difficulties, and four companies in the area are developing plans for a smaller version of the offshore port.

FIGURE F-1

Petroleum Refineries

County	Company and Location	Capacity (b/d)
Brazoria	Phillips Petroleum Co.,	
	Sweeney Refinery	104,000
	Borger Refinery	100,000
Cameron	Petraco-Valley Oil & Refining Co., Brownsville	10,000
Harris	HNG Petrochemicals, Inc., Houston	N/A
	Petraco-Valley Oil & Refining Co., Port of Brownsville	N/A
	Charter International Oil Co., Houston	70,000
	Exxon Company, USA, Baytown	640,000
	Petromax Refinery Co., Inc. Houston	N/A
	Friendswood Refining Corp., Webster	12,500
	Amoco Oil Co., Texas City	415,000
	Atlantic Richfield Co., Houston	363,000
	Crown Central Petroleum Co., Pasadena	100,000
	Eddy Refining Co., Houston	3,200
	Intercoastal Refining Co., Inc., Houston	N/A
	Marathon Oil Co., Texas City	69,500
	Monsanto Co., Alvin-Texas City	8,500
	Shell Oil Co., Deer Park	285,000

FIGURE F-1 (continued)

Petroleum Refineries

County	Company and Location	Capacity (b/d)
	Texas City Refining, Inc., Texas City	119,600
	Channel Refining Co., Inc., Houston	N/A
Hidalgo	Southwest Petrochem, Inc., Rancho Refinery, Donna	1,200
Jefferson	American Petrofina Co. of Texas, Port Arthur	90,000
	Cosden Oil and Chemical Co., Port Arthur	65,000
	Gulf Oil Co. U.S., Port Arthur	334,500
	Independent Refining Corp., Winnie	16,000
	Texaco, Inc., Port Arthur	406,000
	Port Neches	47,000
	Union 76 Div., Union Oil Co., Nederland	120,000
	Nederland Processing Co., Nederland	N/A
	Erickson Refining Corp., Port Neches	30,000
Nueces	Saber Refining Co., Corpus Christi	22,500
	Champlin Petroleum Co., Corpus Christi	155,000
	Coastal States Petrochemical Co., Corpus Christi	185,000
	Gulf States Oil and Refining Co.,	
	Corpus Christi #1	12,500
	Corpus Christi #2	30,000

FIGURE F-1 (continued)

Petroleum Refineries

County	Company and Location	Capacity (b/d)
Nueces (cont.)	Quintana Refinery Co., Corpus Christi	35,000
	Raymal Refining, Ltd., Ingleside	2,500
	Southwestern Oil and Refining Co., Corpus Christi	120,000
	Tipperary Refining Co., Ingleside	6,500
	Suntide Refinery Co., Corpus Christi	57,000
	Union Oil Co., Ingleside	11,300
	Sentry Refining, Inc., Corpus Christi	10,000

SOURCE: Environmental Protection Agency
Oil and Gas Journal.
Moody's Industrial Manual, 1979, vol. 2.

FIGURE F-2

Natural Gas Processing

County	Company and Location	MMcfd
Aransas	Tenneco Oil Co., Fulton	N/A
Brazoria	Amoco Production Co., Hastings Plant	70.0
	Old Ocean Gasoline Plant, Sweeney	570.0
	Exxon Co., USA, Pledger Plant	210.0
	HNG Petrochemicals, Inc., Liverpool	24.0
	Phillips Petroleum Co., Alvin	N/A
	Texas Petro Gas Co., Houston	N/A
Calhoun	Cities Service Oil Co., near Seadrift	12.4
	Exxon Co., USA Heyser Plant, Bloomington	22.0
	Channel Industries Gas Co., Port Lavaca	N/A
Chambers	Cities Service Oil Co., Mont Belvieu	N/A
	Warren Petroleum Co., Mont Belvieu, 2 plants	N/A
Galveston	Houston Oil and Mineral Corp., Offshore at Galveston and Point Bolivar	18.0
	Margaret Hunt Trust Estate, Alta Loma Plant	N/A
	Amoco Production Co., Texas City	32.0
	Liquid Energy Corp., Galveston	N/A
	Mesa Petroleum Co., (offshore), Galveston	N/A

FIGURE F-2 (continued)

Natural Gas Processing

County	Company and Location	MMcfd
Harris	Coastal States Crude Gathering Co., Houston	N/A
	Exxon Co., USA, Tomball	80.0
	Clear Lake	220.0
	HNG Petrochemicals Corp., Westfield	100.0
	Tenneco Oil Co., La Porte	N/A
	Wanda Petroleum Co., Houston	N/A
	Houston Pipe Line Co., Houston	N/A
Hidalgo	Amoco Production, Inc., La Blanca Field	57.0
	Anchor Gasoline Corp., Mission	67.0
	Atlantic Richfield Co., Mission	N/A
	Clark Fuel Producting Co., Sullivan City	N/A
	Coastal States Gas Producing Co.,	
	Hidalgo	80.0
	Mission	30.0
	George H. Coates, Delmita	N/A
	Tenneco Oil Co., McAllen	140.0
Jackson	Mobil Oil Corp., Vanderbilt	150.0
Jefferson	Exxon Co., USA, Beaumont	N/A
	Warren Petroleum Co., Hampshire	N/A
	Centex Oil and Gas, Inc., offshore at Sabine Pass	N/A
Kenedy	Exxon Co., USA, Sarita Plant Julian Pasture Cycling Plant	255.0

FIGURE F-2 (continued)

Natural Gas Processing

County	Company and Location	MMcfd
Kleberg	Chevron USA, Inc., Padre Island	80.0
	Cities Service Oil Co., May Plant south of Vattmannville	50.0
	Exxon Co., USA, King Ranch Gas Plant	2,650.0
Matagorda	Amoco Production Co., Bay City	150.0
	Houston Oil and Mineral Corp., Gulf of Mexico Port O'Connor	N/A
	Marathon Oil Co., Markham	165.0
	Skelly Oil Co., Bay City	N/A
	Tenneco Oil Co., Palacios	95.0
	Texaco, Inc., Blessing Gas Plant	65.0
	Channel Industries Gas Co., Bay City	N/A
Nueces	Amoco Production Co., Chapman	N/A
	Champlin Petroleum Co., Gulf Plains Plant, Bishop	250.0
	Cities Service Oil Co., Robstown	65.0
	Coastal States Energy Co., Corpus Christi	N/A
	Valero Intrastate Transmission (div. of Coastal States Gas Corp.)	N/A
	HNG Petrochemicals, Inc., Robstown Plant	75.0
	Lovaca Gathering Co., Corpus Christi	200.0
	Sun Oil Co., Corpus Christi	10.0

FIGURE F-2 (continued)

Natural Gas Processing

County	Company and Location	MMcfd
Refugio	Amoco Production Co., Woodsboro	N/A
	Copano Oil Co., Mellon Pasture Plant, Refugio	N/A
	Exxon Co., USA, Refugio	150.0
	Hunt Industries, Refugio	N/A
	TC Oil Co., Lake Pasture Plant, Refugio	N/A
San Patricio	Atlantic Richfield Co., Taft Gas Plant, Taft	40.0
	HNG Petrochemicals, Inc., Gregory	70.0
	Marathon Oil Co., Welder Plant, Sinton	55.0
	Superior Oil Co., Portilla Plant, Sinton	15.0
	Warren Petroleum Co., Encinal Plant	10.0
Victoria	HNG Petrochemicals, Inc., Victoria	94.0
	Sun Oil Co., Victoria	40.0
	Tennessee Gas Pipeline Co., Victoria	N/A
Willacy	Amoco Production Co., La Sal Vieja Field Willamar Plant	75.0
	Pan American Petroleum Corp., La Sal Vieja Field	N/A

SOURCE: Texas Air Control Board
International Petroleum Encyclopedia, 1979.

FIGURE F-3

Petrochemical Manufacturing

County	Company Name	Capacity
Brazoria	Dow Chemical Co., Freeport	N/A
	Phillips Petroleum Co., Sweeney	1,133,200 mt/y
	Rhone Poulend, Inc., Freeport	N/A
	Amoco Chemicals Corp., Chocolate Bayou	2.466 billion [illegible]y
	Centennial Hydrocarbons Co., Alvin	N/A
	Dow Badische Corp., Freeport	N/A
	Dow Chemical Co., Clute Brazosport	N/A
	Monsanto Co., Chocolate Bayou	N/A
Cameron	Union Carbide Corp., Brownsville	250,000 mt/y
Galveston	Marathon Oil Co., Texas City	209,600 mt/y
	Amoco Chemicals Corp., Texas City	2,584 mt/y
	GAF Corp., Texas City	N/A
Harris	Haltermann, Inc., Channelview	N/A
	American Hoescht Corp., Bayport	N/A
	Arco Chemical Co., Channelview	200,000 mt/y
	Chemola Corp., Bayport	N/A
	Carpenter Chemical Co., Bayport	N/A
	Dixie Chemical Co., Pasadena Bayport	N/A 2,000 mt/y
	EI Du Pont de Nemours and Co., LaPorte	N/A
	Ethyl Corp., Pasadena	N/A

FIGURE F-3 (continued)

Petrochemical Manufacturing

County	Company Name	Capacity
Harris (cont.)	Exxon Chemical Co., USA, Baytown Olefins	471 mt/y
	Petro-Tex Chemical Corp., Houston	100,000 mt/y
	Celanese, Clear Lake	N/A
	FMC Corp., Bayport	N/A
	Gulf Oil Chemicals Co., Cedar Bayou	240 million lbs/y
	Hercules Incorporated, Bayport	91,000 mt/y
	Friendswood Refining Corp., Friendswood	N/A
	Lucidol Div., Penwalt, Crosby	N/A
	Merichem Co., Houston	12,000 mt/y
	Oxirane Chemical Co., Channelview	410,000 mt/y
	Petroleum Analyzical Research Corp., Houston	N/A
	Polyscience Corp., Houston	N/A
	Reichold Chemicals, Inc. Houston	N/A
	South Coast Products, Inc., Houston	N/A
	Texas Alkyls, Inc., Deer Park	N/A
	Dixie Oil Processors, Inc., Friendswood	2,000 mt/y
	Haldor Topsoe, Inc., Pasadena	N/A
	WR Grace and Co., Organic Chemical Div., Deer Park	N/A

FIGURE F-3 (continued)

Petrochemical Manufacturing

County	Company Name	Capacity
Jefferson	Browning Ferris Industries, Nederland	N/A
	EI Du Point de Nemours and Co., Beaumont	N/A
	PPG Industries, Inc., Beaumont	N/A
	Jefferson Chemical Co., Inc., Port Neches	772,000 mt/y
	Lubrizol Corp., Port Arthur	N/A
	Mobil Chemical Co., Beaumont	1,022,000 mt/y
	Neches Butane Products Co., Port Neches	N/A
	Texaco, Inc., Port Arthur	340,000 mt/y
Matagorda	Celanese Chemical Co., Bay City	361,000 mt/y
Nueces	Corpus Christi Petrochemical Co., Violet	N/A
Orange	B.F. Goodrich Chemical Co., Orange	N/A
	EI Du Pont de Nemours and Co., Orange	N/A
	Firestone Synthetic Rubber and Latex Co., Orange	230,000 mt/y
Victoria	EI Du Pont de Nemours and Co., Victoria	N/A

SOURCE: International Petroleum Encyclopedia and Texas Air Control Board.

FIGURE F-4

Mobile Drilling Rig and
Offshore Platform Construction Yards

County	Name of Yard
Cameron	Marathon LeTourneau
Galveston	Todd Shipyards
Harris	Cooper Offshore
Jefferson	Bethlehem Steel
Orange	Levingston Shipbuilding
San Patricio	Baker Marine ETPM, USA Chicago Bridge and Iron
Chambers	Brown and Root (Green Bayou Harbor)
Nueces	Brown and Root (Ingleside/Aransas Pass)

Source: Offshore Rig Data Service.

FIGURE F-5

OIL AND GAS FIELD SERVICES

Drilling, Exploration, and Other Necessary Services

	Total	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999
Aransas	None								
Brazoria	17	4	1	3	5	3	1		
Calhoun	None								
Cameron	None								
Chambers	8	4	2	1	1				
Galveston-	8	3		3	2				
Harris	301	149	43	32	30	26	12	8	1
Jackson	8	2	1	1	3	1			
Jefferson	13	4	2	3	3	1			
Kenedy	None								
Kleberg	15	5	4	3	1	1			
Matagorda	12	5			3	3	1		
Nueces	109	56	18	12	16	4	3		
Orange	None								
Refugio	17	4	3	4	5	1			
San Patricio	9	3	3	1	1		1		
Victoria	55	18	12	5	11	7	2		
Willacy	None								

SOURCE: 1977 County Business Patterns, issued June 1979.

F-22

FIGURE F-6

Electrical Generating Plants

County	Company and Location	Capacity Existing (kilowatts)	Capacity Scheduled (kilowatts)
Aransas	None		
Brazoria	None		
Calhoun	Ennis S. Joslin Station, Pt. Comfort, Central Power and Light	261,000	
			Retirement
Cameron	La Palma, Central P&L	263,900	58,000-1986
	Brownsville, Brownsville Municipal	51,570 53,000	
Chambers	Cedar Bayou, Houston Lighting and Power Co. (HL&P)	2,295,000	
Galveston	P.H. Robinson, HL&P	2,330,820	
Harris	Sam Bertron, HL&P	875,260	
	Greens Bayou, HL&P	1,253,400	
	Webster, HL&P	630,320	
	Deepwater, HL&P	355,050	
	T.H. Wharton, HL&P	1,496,420	
	Hiram O. Clarke, HL&P	306,000	
	Gable Street, HL&P	53,000	
Jackson	None		
Jefferson	Neches, Gulf States Utilities	454,772	
Kenedy	None		
Kleberg	None		
			Additions
Matagorda	South Texas Nuclear Project, HL&P; City Public Service Board, San Antonio; Austin and CP&L		1,250,000-1984 1,250,000-1986

FIGURE F-6 (continued)

Electrical Generating Plants

County	Company and Location	Capacity Existing	Capacity Scheduled
Nueces	Nueces Bay, Central P&L	565,500	
	Lon C. Hill Station	574,200	Retirement 88,000-1986
	City of Robstown, Texas	20,671	
	Barney M. Davis Station, Central P&L	703,800	
Orange	Sabine, GSU	2,050,984	
Refugio	None		
San Patricio	None		
Victoria	Victoria Station, Central P&L	553,500	Retirement 41,000-1986
	Sam Rayburn Station, South Texas Elec. Coop.	48,000	
Willacy	None		

Source: FERC Files, December 1979 data revised by Federal Energy Regulatory Commission, Fort Worth Regional Office, 6-5-80.

FIGURE F-7

Terminals, Bulk Hydrocarbons

County	Company Name and Location	Capacity
Brazoria	Phillips Petroleum Co., Freeport	250,000 BBL
	Seadock, Inc., Jones Creek Teminal	N/A
	Seaway Pipeline, Inc., Jones Creek	1.4 million BBL
	Texas Deepwater Port Authority, Jones Creek	N/A
Cameron	Mobil Oil Corp Terminal, Harlingen	N/A
	Texaco Inc., Port of Brownsville	N/A
Chambers	XRal Storage and Terminaling Co., Mont Belvieu	N/A
	M&K Fuels, Oaks Point Terminal	N/A
Galveston	Stan Trans, Inc., Texas City	140,000 BBL
	Arco Pipeline Co., Texas City	N/A
	Coastal States Marketing, Inc., Texas City	N/A
	Union Carbide Corp., Texas City	N/A
	Petroleum Terminalling, Texas City	120,000 BBL
	Pelican Terminal Corp., Galveston	500,000 BBL tanks (24)
	Marathon Oil, Texas City	536,000 BBL
Harris	Amerada Hess Corp., Galena Park	N/A
	Petro United, Inc., Seabrook	870,000 BBL
	Celanese Chemical Co., Bayport	357,000 BBL

FIGURE F-7 (continued)

Terminals, Bulk Hydrocarbons

County	Company Name and Location	Capacity
Harris (cont.)	Delta Solvents and Chemical Co., Houston	N/A
	Exxon Co., USA, Baytown North Houston South Houston	N/A
	Gatx Terminal Corp, Pasadena	2.25 MM BBL
	Intercontinental Terminals, Deep Park	24,000 BBL
	La Gloria Oil & Gas Co., Houston	450,000 BBL
	Oil Tanking of Houston, Pasadena	1,180,000 BBL
	Park Tank Gulf Coast, Inc., Galena Park Deer Park	 N/A N/A
	Phillips Petroleum Co., Pasadena	305,000 BBL
	South Coast Terminals, Inc., Houston	N/A
	Texaco, Inc., Houston	N/A
	Dow Chemical Co., Webster	464,000 Barrel
Jefferson	Sunoco Terminals, Inc., Nederland	400,000 BBL (26)
	Gulf Oil Co., US, Port Arthur	1,800,000 BBL
	Texas Oklahoma Port Co., Port Arthur	N/A
	Gulf Refining Co., Beaumont	300,000 BBL
	Mobil Oil Corp., Beaumont	N/A
	Petro Chem Energy Co., Port Arthur	500,000 Barrels

FIGURE F-7 (continued)

Terminals, Bulk Hydrocarbons

County	Company Name and Location	Capacity
Jefferson (cont.)	Texaco, Inc., Port Arthur	474,627 BBL
	Port Neches	550,000 BBL
	Texas Eastern Transmission Corp., Beaumont	1000 BBL
	Texas Pipeline Co., Port Arthur	N/A
	Colonial Pipeline Co., Nederland	N/A
	American Petrofina Co. of Texas, Port Arthur	N/A
Matagorda	Baytex Terminal Ltd., Bay City	N/A
	Corpus Christi Petrochemical Co., Clemville	N/A
Nueces	American Petrofina Pipeline Co., Port Aransas	N/A
	Champlin Petroleum Co., Corpus Christi	36,000,000
	Exxon Pipeline Co., Port Aransas	N/A
	Corpus Christi	N/A
	Mobil Oil Corp., Corpus Christi	N/A
	Mobil Pipeline Corp., Corpus Christi	N/A
	Sigmor Pipeline Co., Refugio	N/A
	Texas Pipeline Co., Corpus Christi	N/A
San Patricio	Exxon Pipeline Co., Ingleside	N/A
	Sunoco Terminals, Inc., Ingleside	750,000 BBL
Victoria	Gulf Oil Co., US, Victoria	N/A

Source: Texas Air Control Board Permits.

FIGURE F-8

Shipbuilding/Repairing Facilities

County	Employment 50-99	100-249	250-499	500-999	1,000 or more
Aransas		1			
Brazoria			None		
Calhoun			None		
Cameron			None		
Chambers			None		
Galveston	2		2	2	
Harris	3	3	1		
Jackson			None		
Jefferson		2			
Kenedy			None		
Kleberg			None		
Matagorda			None		
Nueces	1	1			
Orange	0	2		1	1
Refugio			None		
San Patricio		1			
Victoria			None		
Willacy			None		

Note: Platform Construction Yards have been factored out and listed separately.

Source: 1977 County Business Patterns issued June 1979.

FIGURE F-9

Primary Metal Processing Facilities

County	Employment 50-99	100-249	250-499	500-999	1,000 or more
Aransas			None		
Brazoria					1
Calhoun			1		
Cameron			None		
Chambers			None		
Galveston	2		1		
Harris	10	8	1	1	2
Jackson			None		
Jefferson		1			
Kenedy			None		
Kleberg			None		
Matagorda			None		
Nueces	2			1	
Orange			None		
Refugio			None		
San Patricio		1			
Victoria			None		
Willacy			None		

Source: 1977 County Business Patterns issued June 1979.

FIGURE F-10

Metal Fabricating Facilities

County	Employment 50-99	100-249	250-499	500-999	1,000 or more
Aransas			None		
Brazoria	1	2			
Calhoun			None		
Cameron		2	None		
Chambers			None		
Galveston	3	3			
Harris	50	49	12	7	
Jackson			None		
Jefferson	3	7	2		
Kenedy			None		
Kleberg			None		
Matagorda			None		
Nueces	3				
Orange	1			1	
Refugio			None		
San Patricio			None		
Victoria	1	1			
Willacy			None		

Source: 1977 County Business Patterns issued June 1979.

FIGURE F-11

Machinery (Other Than Electrical) Manufacturing Facilities

County	Employment 50-99	100-249	250-499	500-999	1,000 or more
Aransas			None		
Brazoria	2	1			
Calhoun			None		
Cameron	2				
Chambers			None		
Galveston			None		
Harris	43	33	14	7	6
Jackson			None		
Jefferson	1		1		
Kenedy			None		
Kleberg			None		
Matagorda			None		
Nueces	1				
Orange			None		
Refugio			None		
San Patricio	1				
Victoria		1	1		
Willacy			None		

Source: 1977 County Business Patterns issued June 1979.

FIGURE F-12

Sources of Industrial Projections

1. U.S. Department of Commerce
2. Economic Development Administration
3. Environmental Protection Agency
4. National Constructors Association
5. National Construction Industry Council
6. National Planning Association
7. National Utility Contractors Association, Inc.
8. National Association of Manufacturers
9. Industrial Development Research Council
10. International Petroleum Encyclopedia
11. National Petroleum Refiners Association
12. American Petroleum Institute
13. American Chemical Society
14. Manufacturing Chemists, Inc.
15. Moody's Industrial Manual
16. Oil and Gas Journal
17. Fortune
18. Texas Industrial Commission
19. Texas Industrial Expansion
20. Texas Department of Water Resources
21. Texas Air Control Board
22. Texas General Land Office
23. Texas Employment Commission
24. Texas Energy and Natural Resources Advisory Council
25. Texas Coastal and Marine Council
26. Texas Chemical Council
27. Greater South Texas Cultural Basin
28. Rice Center for Community Design and Research
29. University of Texas at Austin
30. University of Texas at Arlington
31. Coastal Bend Council of Governments
32. Golden Crescent Council of Governments
33. Houston-Galveston Area Council of Governments
34. South East Texas Regional Planning Commission
35. Lower Rio Grande Valley Development Council
36. Houston Lighting and Power
38. Central Power and Light
39. Gulf States Utility Co.
40. Todd Shipyards
41. Chambers of Commerce of Houston, Beaumont, Brownsville, Brazosport, Galveston, Texas City, Victoria, and Port Lavaca
42. Corpus Christi Industrial Development Commission

FIGURE F-13

Selected Employment Projections (By SMSA)

A. Houston SMSA

Sector	1974	1978	1985	1974-1985 Net	1974-1985 %
Primary Metals	9,600	9,800	10,200	600	6.25
Fabricated Metals	26,900	30,000	35,400	8,500	31.59
Machinery (Except Electrical)	35,600	38,500	43,600	8,000	22.47
Petroleum Refining	11,000	10,800	10,400	-600	-5.45
Electric Light and Power	7,300	7,900	9,000	1,700	23.28
Chemical and Allied Products	26,500	28,800	32,700	6,200	23.39

FIGURE F-13 (continued)

Selected Employment Projections (By SMSA)

B. Beaumont-Port Arthur-Orange SMSA

Sector	1974	1978	1985	1974-1985 Net	1974-1985 %
Primary Metals	600	650	750	150	25
Fabricated Metals	2,950	2,950	2,950	0	0
Machinery (Except Electrical)	1,300	1,300	1,300	0	0
Petroleum and Coal Products	14,350	14,750	15,400	1,050	7.3
Chemical and Allied Products	9,700	10,400	11,550	1,850	19.0
Utilities, Sanitary Services	2,800	2,950	3,200	400	14.2

FIGURE F-13 (continued)

Selected Employment Projections (By SMSA)

C. Corpus Christi SMSA

Sector	1974	1978	1985	1974-1985 Net	1974-1985 %
Primary Metals	1,800	1,950	2,200	400	22.22
Fabricated Metals	700	800	900	200	28.75
Machinery (Except Electrical)	500	650	850	350	70.0
Petroleum and Coal Products	1,300	1,400	1,600	300	23.0
Chemical and Allied Products	3,150	3,250	3,450	300	9.5
Utilities, Sanitary Services	2,650	3,050	3,800	1,150	43.3

FIGURE F-13 (continued)

Selected Employment Projections (By SMSA)

D. Galveston-Texas City SMSA

Sector	1974	1978	1985	1974-1985 Net	1974-1985 %
Primary Metals	400	500	650	250	62.5
Fabricated Metals	600	800	1,100	500	83.3
Utilities, Sanitary Services	1,050	1,250	1,700	650	62.0

E. Brownsville-Harlingen-San Benito SMSA

Fabricated Metals	200	300	500	300	150
Machinery (Except Electrical)	1,700	1,950	2,350	650	38.2
Utilities, Sanitary Services	1,100	1,300	1,600	500	45.5

F. McAllen-Pharr-Edinburg SMSA

Utilities, Sanitary Services	1,050	1,100	1,250	200	19.0

SOURCE: Texas Employment Commission.

FIGURE F-14

Employment Projections

Coastal Area Employment

Sector	1980	1990
Chemical and Allied	61,615	81,964
Machinery (Except Electrical)	38,420	45,389
Primary Metals	19,983	20,148
Fabricated Metals	37,915	44,656
Utilities	34,888	40,730

Southeast Texas Employment

Sector	1980	1990
Chemical and Allied	12,430	15,630
Machinery (Except Electrical)	1,170	1,146
Primary Metals	915	1,021
Fabricated Metals	2,522	2,786
Utilities	3,123	3,193

Houston-Galveston Employment

Sector	1980	1990
Chemical and Allied	43,823	59,152
Machinery (Except Electrical)	36,225	42,893
Primary Metals	12,978	12,726
Fabricated Metals	33,636	39,812
Utilities	22,685	27,417

FIGURE F-14 (continued)

Employment Projections

Golden Crescent Employment

Sector	1980	1990
Chemical and Allied	2,837	3,352
Machinery (Except Electrical)	112	143
Primary Metals	2,049	2,301
Fabricated Metals	171	2,204
Utilities	937	1,074

Coastal Bend Development

Sector	1980	1990
Chemical and Allied	2,897	3,416
Machinery (Except Electrical)	450	457
Primary Metals	3,849	3,799
Fabricated Metals	611	718
Utilities	4,860	5,523

Lower Rio Grande Valley Employment

Sector	1980	1990
Chemical and Allied	384	390
Machinery (Except Electrical)	583	758
Primary Metals	192	211
Fabricated Metals	288	311
Utilities	2,575	2,705

SOURCE: Texas Department of Water Resources

FIGURE F-15

Water Use Projections

Estimated Water Uses
(Thousand Acre-Feet)

Coastal Basin	Year 1974	Year 1980	Year 2030	Percent Increase 1980-2030
Neches-Trinity	72.4	88.5	135.2	53
Trinity-San Jacinto	55.1	64.8	255.0	294
San Jacinto-Brazos	104.5	131.3	478.8	272
Brazos-Colorado	11.9	17.6	97.5	454
Colorado-Lavaca	8.1	9.5	31.0	226
Lavaca-Guadalupe	22.2	26.3	91.1	246
San Antonio-Nueces	13.6	14.7	29.5	101
Nueces-Rio Grande	34.2	27.7	88.0	133

Source: Texas Department of Water Resources, 1980.

APPENDIX G

CEIP ALLOCATIONS FY 1979 TEXAS

Type of Funding	Amount	Recipient	Project	Year of Application
308(b)	$ 37,840	Cameron County	Isle Blanca Park Improvement	1977
[Formula grants: awarded on the basis of newly-leased OCS acreage adjacent to Texas, volume of oil and natural	38,897	General Land Office University of Texas	Pipeline Corridor Study	1977
gas produced from federal OCS adjacent to Texas, and volume of oil and natural gas first landed in Texas]	100,000	Galveston County	Improvement of Jack Brooks Park	1977
	517,000	Nueces Navigation District #1	Acquisition of dredge disposal sites for the Port Authority of Corpus Christi	1977
	150,000	City of Portland	Purchase of about 40 acres of beach and tidal area	1978
	216,975	Nueces County	Improvements to Padre-Balli Park	1978
	133,100	Nueces County	Nueces County Gulf Beach recreational improvements	1978
	196,000	City of Aransas	Port Aransas fishing pier construction	1977
	1,400,000	Valasco Drainage District	Removal of dredge spoil to environmentally acceptable site	1978
	230,130	Town of Bayside	Bulkheading of Bayfront Park on Copano Bay	1978
	120,000	City of Port Aransas	Garbage collection and landfill facilities	1979
	151,000	Brazoria County	Vehicle barrier, controlled parking facilities, and public facilities	1977

CEIP ALLOCATIONS FY 1979 TEXAS

Type of Funding	Amount	Recipient	Project	Year of Application
308(c) Planning Grants, OCS participation	$ 416,592	Governor's Budget and Planning Office	State CEIP Administration and 19 projects to plan for consequences of energy facilities	
308(b) (formula grants) and (d)(4)	76,711	University of Texas at Austin	Study surficial biology of marine and estuarine deposits in Corpus Christi vicinity for integrated environmental planning	1977
308(d)(4) Grants for environmental recreational loss	100,000	City of Beaumont	Development of access to proposed riverfront park	1978
308(d)(1)	13,484,507	Park Central Municipal Utility District (City of Port Arthur)	To purchase sewer, water, and drainage facilities	
	638,880	City of Port Arthur	Construct an 8-inch water line and pumping station improvements	
Total	$ 17,887,632			

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