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APPENDIX I:

**Regulatory Framework and
Environmental Review Process
for the Decommissioning of Oil and Gas Facilities**

Prepared for:

**DECOMMISSIONING AND REMOVAL OF
OIL AND GAS FACILITIES OFFSHORE CALIFORNIA:
RECENT EXPERIENCES AND FUTURE DEEPWATER CHALLENGES**

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INTRODUCTION

This regulatory framework and environmental review process overview focuses on Federal, State, and local laws and regulations, as well as the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA), with respect to applicable regulatory authorities for offshore oil and gas facility decommissioning. Some of the decommissioning activities would include the abandonment of oil and gas platforms, wells, pipelines, and onshore facilities.

Federal agencies are responsible for the environmental authorities under NEPA, while local and State of California agencies are responsible for the environmental authorities under CEQA. The Federal, local, and State of California agencies below are the major agencies having regulatory authorities for decommissioning activities offshore California.

Federal Agencies

- Minerals Management Service
- National Marine Fisheries Service
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- U.S. Environmental Protection Agency
- U.S. Coast Guard
- U.S. Department of Transportation, Office of Pipeline Safety

State and Local Agencies

- California State Lands Commission
- California Coastal Commission
- California Department of Fish and Game
- California Division of Oil, Gas, and Geothermal Resources
- California State Fire Marshal, Hazardous Liquid Pipeline Safety Division
- Local Planning and Resource Management Departments
- Local Air Pollution Control Districts

Figure 1 provides a matrix of permitting responsibility for facilities in the Outer Continental Shelf, State Waters and onshore areas.

PERMIT REQUIREMENTS BY FACILITY LOCATION

	Permit Requirement by Facility Location		
	Federal OCS	State Waters	Onshore – County/City
Federal Agencies			
Minerals Management Service			
- Lease Conditions/Stipulations	●		
- Development and Production Plan	●		
- Lease Term Pipeline Application	●		
- Pipeline Right-of-Way	●		
EPA – NPDES Permit	●		
ACOE – Section 10 Permit	●	●	●
USCG – Aids to Navigation	●	●	
State Agencies			
California Coastal Commission			
- Consistency Certification	●		
- Coastal Development Permit		●	
SLC – Lease Agreement/Permit		●	●
RWQCB – NPDES Permit		●	●
CDF&G – Section 1603			●
City or County			
Preliminary Development Plan			●
Conditional Use Permit			●
Final Development Plan			●
Coastal Development Plan			●
Misc. Permits			●
Air Pollution Control District			
- Authority to Construct	●	●	●
- Authority to Operate	●	●	●

Figure 1. Permit Requirements by Facility Location

National Environmental Policy Act (NEPA)

and

**Major Federal Agencies with Regulatory Authorities for
Decommissioning of Offshore Oil and Gas Facilities**

NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

NEPA (Public Law 91-190) was promulgated in 1970. It requires all administrative agencies of the Federal Government to consider the environmental impacts of their actions in the process of project development and decision-making. Further, NEPA allows other officials, Congress, and the public to independently evaluate the environmental consequences of government action. Finally, NEPA directs all Federal agencies to carry out their duties to the fullest extent possible in order to preserve and protect the environment and public health, safety, and productivity.

In many respects, the core requirement of NEPA is Section 102, under which environmental impact statements (EIS) are required for Federal actions that could significantly affect the environment. Under this provision, every recommendation or report on proposals for major Federal actions significantly affecting the quality of the human environment must include a detailed statement on: (1) the environmental impact of the proposed action; (2) any adverse environmental effects which cannot be avoided should the proposal be implemented; (3) alternatives to the proposal; (4) the relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity; and (5) any irreversible and irretrievable commitments of resources involved in the proposal. According to the Council on Environmental Quality Guidelines, the primary purpose of the EIS is to ensure that the policies and goals of the Act are carried out. Federal agencies are to make their decisions based on the information contained in the EIS, as well as on other material.

The threshold question is whether an EIS is even required (See Figure 2). The answer depends on whether the proposal under consideration constitutes a "major Federal action significantly affecting the environment." "Federal Action" means both actions that a Federal agency undertakes and those the agency merely has the discretion to permit or approve. The "major action" provision allows agencies to avoid preparation of an EIS for minor matters with little potential for adverse impact. The standard "significantly affecting the quality of the human environment" means having an important or meaningful effect (direct or indirect) upon a broad range of aspects of the human environment. The cumulative impact with other projects must be considered.

An "Environmental Assessment (EA)" is prepared when a Federal agency determines an action may have no significant impact. The EA is a concise document briefly providing sufficient evidence and analysis for determining whether the proposal would have a significant impact and aiding the agency in determining when an EIS is necessary.

The basic rules for determining whether an EIS is adequate depends on: (1) whether the agency in good faith has taken an objective look at the environmental consequences of a proposed action and alternatives; (2) whether the EIS provides detail sufficient to allow those who did not participate in its preparation to understand and consider the pertinent environmental influences involved; and (3) whether the EIS explanation of alternatives is sufficient to permit a reasoned choice among different courses of action. Particular attention must be given to the analysis and comparison of alternatives to the proposed project. The details regarding EIS criteria may be found in the NEPA Regulations adopted by the Council on Environmental Quality. The Council was created under NEPA to assist with the implementation of the Act.

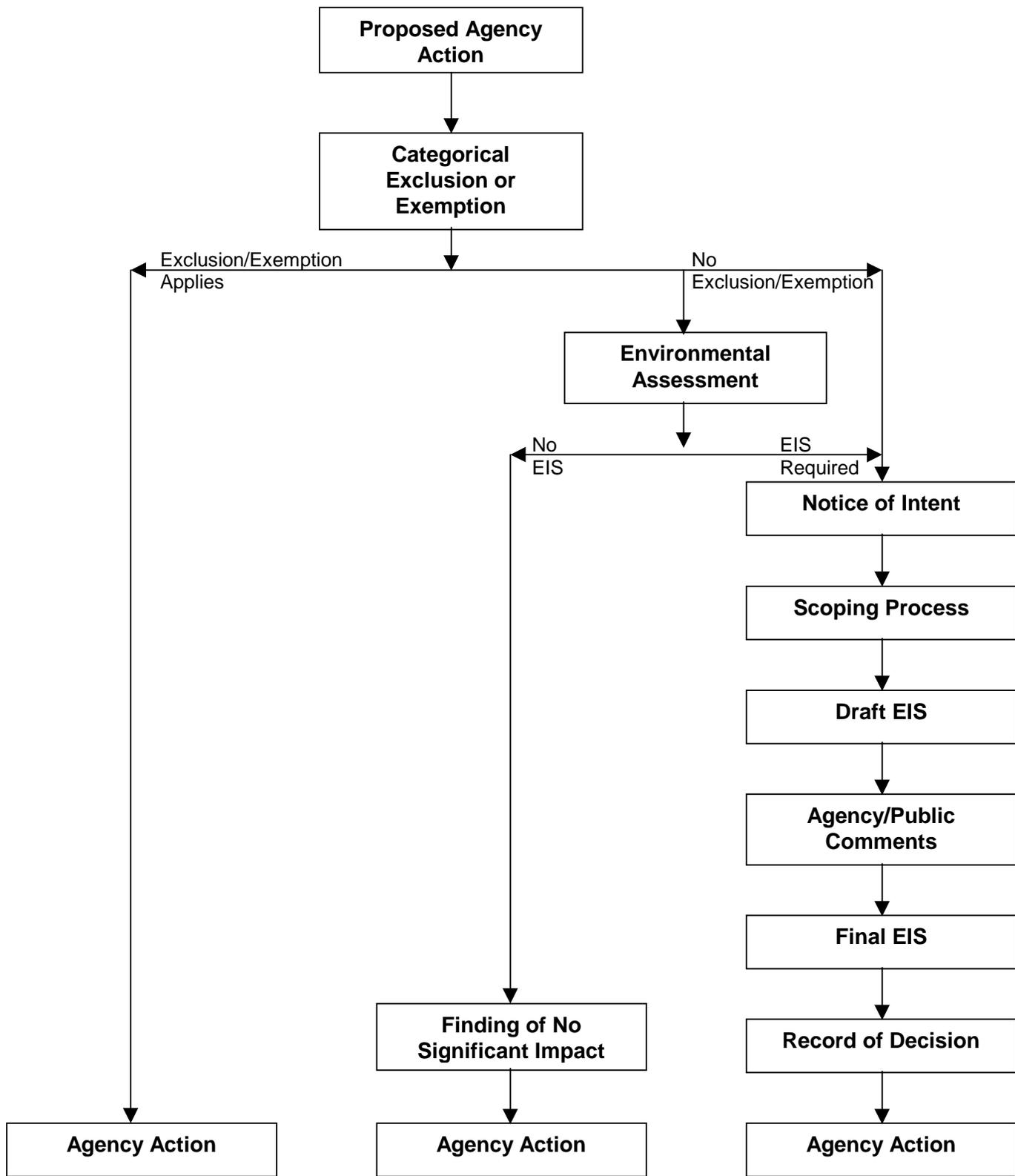


Figure 2
NEPA Environmental Review Process: An Overview

MINERALS MANAGEMENT SERVICE (MMS)

The MMS is responsible for regulating oil and gas exploration and development operations on the Federal Outer Continental Shelf (OCS) which offshore California are those submerged lands located seaward of the three-mile State lands boundary. Regulations for oil and gas operations on the OCS are found in 30 Code of Federal Regulations (CFR) Part 250. The following is a summary of the MMS regulatory requirements pertaining to the decommissioning of OCS oil and gas facilities that are included in CFR 250 and the OCS lease instrument. Interested parties should refer to the regulations for additional detail.

OCS OIL AND GAS REGULATIONS (CFR 30 - 250)

Platform Removal and Location Clearance (250.143)

- Structures are to be removed in a manner approved by the Regional Supervisor (RS) that ensures the location has been cleared of all obstructions to other activities in the area.
- All platforms (including casing, wellhead equipment, templates, and piling) shall be removed to a depth of at least 15 feet below the ocean floor or to a depth approved by the RS based upon the type of structure or ocean bottom conditions.
- The lessee shall verify the location has been cleared of all obstructions.
- The results of a location clearance survey conducted by the company performing the work shall be submitted to the RS.
- The company performing the work shall submit a letter to the RS certifying the area was cleared of all obstructions, the date the work was performed, the extent of the area surveyed, and the survey method used.

Permanent Abandonment of Wells (250.110, 250.111, 250.112, 250.114)

- All well sites shall be cleared in a manner so as to avoid conflict with other uses of the OCS.
- The lessee shall not initiate abandonment operations without the prior approval of the District Supervisor (DS).
- The lessee must submit a request to abandon a well on Form MMS-124, Sundry Notices and Reports on Wells, to the DS for approval, and submit a subsequent report on abandonment describing procedures and results within 30 days of completion of the work.
- Form MMS-124 shall specify the date the work is to be performed, the extent of the area to be searched around the location, and the search method utilized.
- All wellheads, casings, pilings, and other obstructions shall be removed to a depth of at least 15 feet below the mud line or to a depth approved by the DS.
- The lessee shall verify that the location has been cleared of all obstructions.
- The requirements for removing subsea wellheads or obstructions or for verifying location clearance may be reduced or eliminated if the DS determines the wellheads or other obstructions do not constitute a hazard to other uses of the seafloor or other legitimate uses of the area.
- The lessee shall verify site clearance after abandonment by one or more of the following methods as approved by the DS:

- (1) Drag trawl in two directions across the location.
 - (2) Perform a diver search around the wellbore.
 - (3) Scan across the location with a side-scan or on-bottom scanning sonar, or
 - (4) Use other methods based on particular site conditions.
- The lessee shall submit certification the area was cleared of all obstructions, the date the work was performed, the extent of the area searched around the location, and the search method utilized on Form MMS-124.

Temporary Abandonment of Wells (250.113)

- Subsea wellheads, casing stubs, or other obstructions remaining after temporary abandonment above the seafloor shall be protected in such a manner as to allow commercial fisheries gear to pass over the structure without damage to the structure or fishing gear.
- Depending on water depth, nature and height of obstruction above the seafloor, and the types and periods of fishing activity in the area, the DS may waive this requirement.
- The lessee shall follow the requirements of the U.S. Coast Guard in identifying and reporting subsea well heads, casing stubs, or other obstructions extending above the mud line.

Abandonment of DOI Pipelines (250.156)

- A pipeline may be abandoned in place, if the RS determines it does not constitute a hazard to navigation, commercial fishing operations, or unduly interfere with other uses in the OCS.
- Pipelines abandoned in place shall be flushed, filled with seawater, cut, and plugged with the ends buried at least 3 feet

General Requirements for a Pipeline Right-of-Way Grant (250.159 and 250.164)

- The holder of a right-of-way grant shall submit an application for the relinquishment of the grant to the RS.
- A relinquishment shall be effective on the date it is filed subject to the satisfaction of all outstanding debts, fees, or fines and requirements
- Upon relinquishment, forfeiture, or cancellation of a right-of-way grant, the right-of-holder shall remove all platforms, structures, domes over valves, pipes, taps, and valves along the right-of-way.
- All of these improvements shall be removed by the holder within 1 year of the effective date of the relinquishment, forfeiture, or cancellation unless the requirement is waived in writing by the RS.
- All such improvements not removed within the time period provided herein shall become the property of the U.S., but that shall not relieve the holder of liability for the cost of their removal or for restoration of the site.

- The holder of the right-of-way grant is responsible for accidents or damages which might occur as a result of failure to remove improvements and equipment and restore a site.

Supplemental Regulations

The requirements for specific offshore decommissioning activities, as outlined above, are supplemented by generic regulations of 30 CFR Part 250 that relate to the conduct of offshore decommissioning activities. These include:

- **250.3, Performance Requirements: Allows** the use of new or alternative techniques, procedures, equipment, or activities other than those prescribed if they afford a degree of protection, safety, or performance equal to or better than that intended to be achieved by the regulations.
- Also provides the MMS the flexibility to depart from the operating requirements of the regulations of this part when such departures are necessary for The conservation of natural resources, or the protection of life (including fish and other aquatic life), property, or the marine coastal, or human environment.
- **250.20, Safe and Workmanlike Operations:** Requires that all offshore operations be conducted and facilities maintained in a safe and workmanlike manner to a level consistent with the regulatory objectives.
- **250.22, Best Available and Safest Technologies:** The MMS requires that the best available and safest technologies (BAST) be used when practicable.

OCS LEASE INSTRUMENT

Removal of Property on Termination of Lease

- Within a period of 1 year after termination of this lease in whole or in part, the lessee shall remove all devices, works, and structures from the premises no longer subject to the lease in accordance with applicable regulations and orders of the Director.
- The lessee may, with the approval of the Director, continue to maintain devices, works, and structures on the leased area for drilling or producing on other leases.

NATIONAL MARINE FISHERIES SERVICE (NMFS)

The Protected Species Management Division (PSMD) of the NMFS is responsible for the management of protected marine species (i.e., marine mammals, sea turtles and winter-run chinook salmon) in the Southwest Region, under the provisions of the Endangered Species Act (ESA) and the Marine Mammal Protection Act (MMPA). The PSMD reviews NEPA and CEQA environmental documents prepared for projects that are likely to affect protected marine species. If a determination is made that a non-Federal action "may affect" protected marine species, alternatives will be recommended in order to insure that these species are not affected by the proposed project. In contrast, all Federal agencies are required to consult with the Secretary of Commerce/Interior, under Section 7(a)(2) of the ESA, to insure that any action it authorizes, funds, or carries out will not jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat.

Informal Section 7 Consultation is initiated when a Federal agency or designated non-Federal representative provides to the NMFS Regional Director (for most protected marine species): (1) written request for a list of any "listed species" (including any proposed species, designated critical habitat, or proposed critical habitat) that may be present in the project area; or (2) written notification of the listed species that may be present in the project area. Within 30 days of the notification receipt of or request for a species list, the Regional Director shall concur or revise the list or advise the Federal agency in writing whether any listed species may be present in the project area. The Federal agency prepares within 90 days of receipt of the species list: (a) a biological assessment (BA) or (b) equivalent environmental impact statement (EIS) or environmental assessment (EA) that evaluates the effects of the proposed action on any listed species. Subsequently, the Federal agency submits the BA or equivalent document to the Regional Director for review (at the option of the Federal agency, Formal Section 7 Consultation could be initiated at this point). If the BA or equivalent document concludes that no listed species are present that are likely to be adversely affected by the action and the Regional Director concurs with this finding, the Regional Director will respond in writing within 30 days and conclude the consultation process. However, the Regional Director may request the Federal agency to initiate formal consultation if the BA or equivalent document concludes that listed species are present that are likely to be adversely affected by the action.

Formal Section 7 Consultation is initiated when a written request to initiate formal consultation is submitted to the NMFS Regional Director by the Federal agency. The NMFS (in the case of most protected marine species) will formulate a biological opinion (within 90 days of receipt of the request) which will include the NMFS's finding on whether the action is likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat. If a "no jeopardy" biological opinion is issued; conservation recommendations to assist the Federal agency in reducing or eliminating impacts may be included. If a "jeopardy" biological opinion is issued; it will include reasonable and prudent alternatives (if any). An Incidental Take Statement will be included in the biological opinion if the NMFS determines that a Federal action will "take" listed species.

In addition to Section 7 requirements of the ESA, Federal and non-Federal actions that are likely to "take" listed or non-listed marine mammals must receive authorization under Section 101(a)(5) of the MMPA- Section 101(a)(5) provides a mechanism for allowing (upon request) the incidental taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity other than commercial fishing. Incidental taking may be authorized for a period of up to five years as long as the taking has only a negligible impact on the species or stock. Regulations must be promulgated that set forth permissible methods of taking, monitoring, and reporting.

U.S. ARMY CORPS OF ENGINEERS (COE)

33 CFR Part 320 - General Regulatory Policies

The COE has regulated certain activities in the nation's waterways since 1899. The regulatory jurisdiction of the COE includes all ocean and coastal waters within a zone three geographic (nautical) miles seaward of the baseline (territorial seas). In addition, wider zones are recognized for navigable waters of the United States for special regulatory powers exercised over the Outer Continental Shelf (OCS).

Section 10 of the River and Harbor Act of 1899 - prohibits the unauthorized obstruction or alteration of any navigable water of the United States. The construction of any structure in or over any navigable water of the United States, the excavating from or depositing of material in such waters, or the accomplishment of other work is unlawful unless the work has been specifically authorized by the Corps of Engineers. The authority to prevent obstructions to navigation in navigable waters of the United States was extended to artificial islands, installations, and other devices located on the seabed, to the seaward limit of the OCS, by Section 4(f) of the OCS Act of 1953, as amended.

Section 404 of the Clean Water Act - prohibits the unauthorized discharge of dredged or fill material into waters of the United States. The selection and use of dredged disposal sites will be in accordance with the guidelines developed by the Environmental Protection Agency (EPA) Administrator in conjunction with the Secretary of the Army. The EPA Administrator can deny, prohibit, restrict or withdraw the use of any defined area as a disposal site whenever, if it is determined, that after notice and opportunity for public hearing and after consultation with the Secretary of the Army, that the discharge of such materials into such areas will have an unacceptable adverse effect on municipal water supplies, shellfish beds and fishery areas, wildlife, or recreational areas.

Permits Issued

1. Individual Permits (33 CFR Part 325) - are processed through the public interest review procedures, public notice publication, and receipt of comments.
2. Letters of Permission (33 CFR 325.2(e)(1)) - are issued through an abbreviated processing procedure which includes coordination with Federal and state fish and wildlife agencies, public interest evaluation, but without publishing a public notice.
3. Nationwide Permits (33 CFR Part 330) - are general permits issued by the Chief of Engineers and are designed to regulate with little, if any, delay or paperwork, certain activities having minimal impacts.

U.S. FISH AND WILDLIFE SERVICE (FWS)

The primary concern of the FWS is the protection of public fish and wildlife resources and their habitats. The FWS mandates require that it provide comments on any public notice issued for a Federal permit or license affecting the nation's waterways, in particular, U.S. Army Corps of Engineers' permits pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899.

In addition, the FWS administers certain portions of the Endangered Species Act (ESA) of 1973, as amended. Section 9 of the ESA prohibits any taking of a listed species. The definition of "take" includes to harass, harm, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct. A notable component of this definition is the definition of "harm." "'Harm' in the definition of 'take' in the ESA means an act which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering (50 CFR 17.3)." Anyone who engages in a take would be subject to prosecution under Section 9 of the ESA. Such taking may occur only under the authority of the FWS through a permit pursuant to Section 7 or Section 10, as mandated in the ESA.

Section 7(a)(1) of the ESA requires all Federal agencies to use their authorities in furtherance of the purposes of the Act by carrying out programs for the conservation of endangered and threatened species. Section 7(a)(2) requires Federal agencies to review their proposed activities and determine whether listed species will be affected. Section 7(a)(4) requires Federal agencies to confer with the FWS on any agency action that is likely to jeopardize the continued existence of a proposed species. Information consultation or conference may be used to exchange information and resolve conflicts with respect to listed or proposed species prior to a written request for formal consultation or conference.

It is important to note that the FWS will confer on actions affecting Federally listed endangered or threatened species. The National Marine Fisheries Service takes the lead on all marine mammals (except sea otters, walrus, manatees/dugongs, and polar bears), including those that are Federally listed as endangered or threatened species.

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

The EPA's role in the Clean Water Act (CWA) Programs which may affect decommissioning of OCS platforms, pipelines, and onshore facilities include:

National Pollution Discharge Elimination System (NPDES) Permit Program

Section 301 (a) of the CWA requires an NPDES permit for discharges of pollutants from point sources to surface waters. The following discharges could accompany the decommissioning of OCS platforms, pipelines, or onshore facilities and, thereby, require an NPDES permit:

1. Discharges associated with the flushing of pipelines prior to removal or decommissioning in place.

NPDES permits for these discharges would include technology-related effluent limitations and any additional limits necessary to ensure compliance with the Ocean Discharge Criteria regulations (40 CFR 125, Subpart M). Permits for these discharges would have to consider the nature of the discharges and the pollutants that might be present. Permits issued in Federal waters (3 miles from the coast and beyond) are issued by the EPA, while those in state waters or onshore are issued by the California Regional Water Quality Control Boards (RWQCBs).

- 2) Storm water runoff from onshore facilities during dismantling (if 5 or more acres would be disturbed).

The 1987 Water Quality Act requires that NPDES permits be issued for storm water discharges associated with industrial activity. On November 16, 1990, the EPA promulgated final regulations (55 Fed. Reg. 47990) which set forth permit application requirements and also define the coverage of the program. These regulations require permits for construction activity (including dismantling) where 5 or more acres are disturbed. As such, storm water runoff occurring during the dismantling of onshore facilities could be subject to NPDES permitting. On August 20, 1992, the State of California issued a general NPDES permit for construction site runoff that would cover most storm water discharges associated with decommissioning of onshore facilities.

- 3) Miscellaneous discharges such as sanitary and domestic wastes that may occur from the platform during part of the decommissioning phase.

EPA-Region 9 has issued a general permit and individual permits for some platforms that authorize and set forth effluent limitations and monitoring requirements for the above discharges in Federal waters. Similar permits have been issued by the California RWQCBs for the same discharges in state waters.

Section 404 Permits

Section 404 of the CWA requires permits for discharges of dredged or fill material into waters of the United States (excluding discharges more than 3 miles from the coast). Although the U.S. Army Corps of Engineers issues Section 404 permits; the EPA has an oversight role regarding the implementation of this permit program. Various Memorandum of Agreements (MOAs) have been developed between the EPA and U.S. Army Corps of Engineers regarding Section 404 permit review procedures. Platform or pipeline removal could require a Section 404 permit for backfilling operations. On December 24, 1980, the EPA adopted guidelines that set forth the procedures for evaluating proposed discharges and determining when permits may be granted.

U.S. COAST GUARD (CG)

33 CFR Part 62 - United States Aids to Navigation System

The CG administers the United States Aids to Navigation System. The system consists of Federal aids to navigation operated by the CG, aids to navigation operated by the other armed services, and private aids to navigation operated by other persons.

The CG maintains systems of marine aids to navigation consisting of visual, audible, and electronic signals that are designed to assist the prudent mariner in the process of navigation. The primary objective of the aids to navigation system is to mark navigable channels and waterways, and obstructions in areas of general navigation that may not be anticipated. Other waters, even if navigation, are generally not marked.

33 CFR Part 67 - Aids to Navigation on Artificial Islands and Fixed Structures

The regulations in this part prescribe the obstruction lights and fog signals to be operated as privately maintained maritime aids to navigation on artificial islands and structures which are erected on or over the seabed and subsoil of the Outer Continental Shelf and in the waters under the jurisdiction of the United States, for the purpose of exploring for, developing, removing and transporting resources therefrom.

"Structures" include all fixed structures, temporary or permanent, for which a Corps of Engineers' permit is issued. It shall include, but is not necessarily limited to, all drilling platforms, production platforms, quarters platforms, pipe line riser platforms, manifold platforms, loading platforms, boat landings, caissons, well protective structures, tank battery barges submerged on station, drilling barges submerged on location, artificial islands and all other piles, pile clusters, pipes, or structures erected in the waters.

33 CFR Part 153 - Control of Pollution by Oil and Hazardous Substances and Discharge Removal

This part concerns notification to the CG of the discharge of oil or hazardous substances as required by the Federal Water Pollution Control Act (FWPCA), as amended; the procedures for the removal of a discharge of oil; and the costs that may be imposed or reimbursed for the removal of a discharge of oil or hazardous substances under the FWPCA. Chief, Office of Marine Safety, Security and Environmental Protection is the CG Officer designated by the Commandant to assist and advise the Commandant on matters related to marine environmental response, port and environmental safety, and waterways management.

Oil Pollution Act (OPA) of 1990

OPA has new provisions for oil liability; prevention; preparedness and cleanup pertaining to vessels, offshore oil and gas facilities, onshore terminals, and other petroleum industries. Major provisions of the law include: (1) oil pollution liability and compensation; (2) prevention and removal of oil pollution; (3) oil pollution research and development program; and (4) amendments to the oil spill liability trust fund. The U.S. USCG has greater responsibility to direct oil spill cleanups.

**U.S. DEPARTMENT OF TRANSPORTATION
OFFICE OF PIPELINE SAFETY (OPS)**

OPS is a part of the Research and Special Programs Administration, U.S. Department of Transportation. OPS has regulatory authority over pipeline safety under the (1) Natural Gas Pipeline Safety Act of 1988, as amended; (2) the Hazardous Liquid Pipeline Safety Act of 1979; and (3) the Hazardous Materials Transportation Act, as amended, OPS regulations are in 49 of the Code of Federal Regulations (CFR). 49 CFR Part 192 - Transportation of Natural and Other Gas By Pipeline: Minimum Federal Standards and 49 CFR Part 195 Transportation of Hazardous Liquids By Pipeline are the two major sections governing pipeline safety.

49 CFR 192.727 Abandonment or Inactivation of Facilities

- a) Each operator will provide an operating and maintenance plan for abandonment or deactivation of pipelines.
- b) Each pipeline abandoned in place must be disconnected from all sources and supplies of gas; purged of gas; in the case of offshore pipelines; filled with water or inert materials; and sealed at the ends. The pipeline need not be purged when the volume of gas is so small that there is no potential hazard.
- c) Except for service lines, each inactive pipeline that is not maintained must be disconnected from all sources and supplies of gas; purged of gas; in the case of offshore pipelines; filled with water or inert materials; and sealed at the ends. The pipeline need not be purged when the volume of gas is so small that there is no potential hazard.

California Environmental Quality Act (CEQA)

and

**Major State and Local Agencies with Regulatory Authorities
for Decommissioning of
Offshore and Onshore Oil and Gas Facilities**

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

CEQA was enacted in 1970 in response to growing concern over environmental protection and has four basic purposes: to inform the public and governmental decision-makers of potential environmental effects of proposed activities; to identify ways to reduce or avoid environmental damage; to prevent damage by requiring changes in projects through alternative projects and/or mitigation measures; and to make the public aware if an approved project will have significant environmental effects. CEQA regulations are found in the Public Resources Code, Section 21000, et seq.) and the CEQA Guidelines (California Code Regulations, Title 14, Section 15000, et seq.).

Any activity proposed, funded, or permitted by a state or local public agency which has the potential for resulting in a physical change in the environment, is considered a "project" by CEQA- Unless a project is statutorily or categorically exempt from CEQA review, either a Negative Declaration (ND) or Environmental Impact Report (EIR) must be prepared to assess potential impacts to the environment. Generally, an EIR is required if a project (individually or cumulatively) has a significant effect on the environment. If there is no substantial evidence that a project may cause a significant effect on the environment, then an ND may be prepared (See Figure 3).

Very clearly, CEQA has a profound effect on applications for all types of proposed activities. Most public agencies have devised internal policies, systems, and environmental management divisions to maintain responsibilities as required by CEQA.

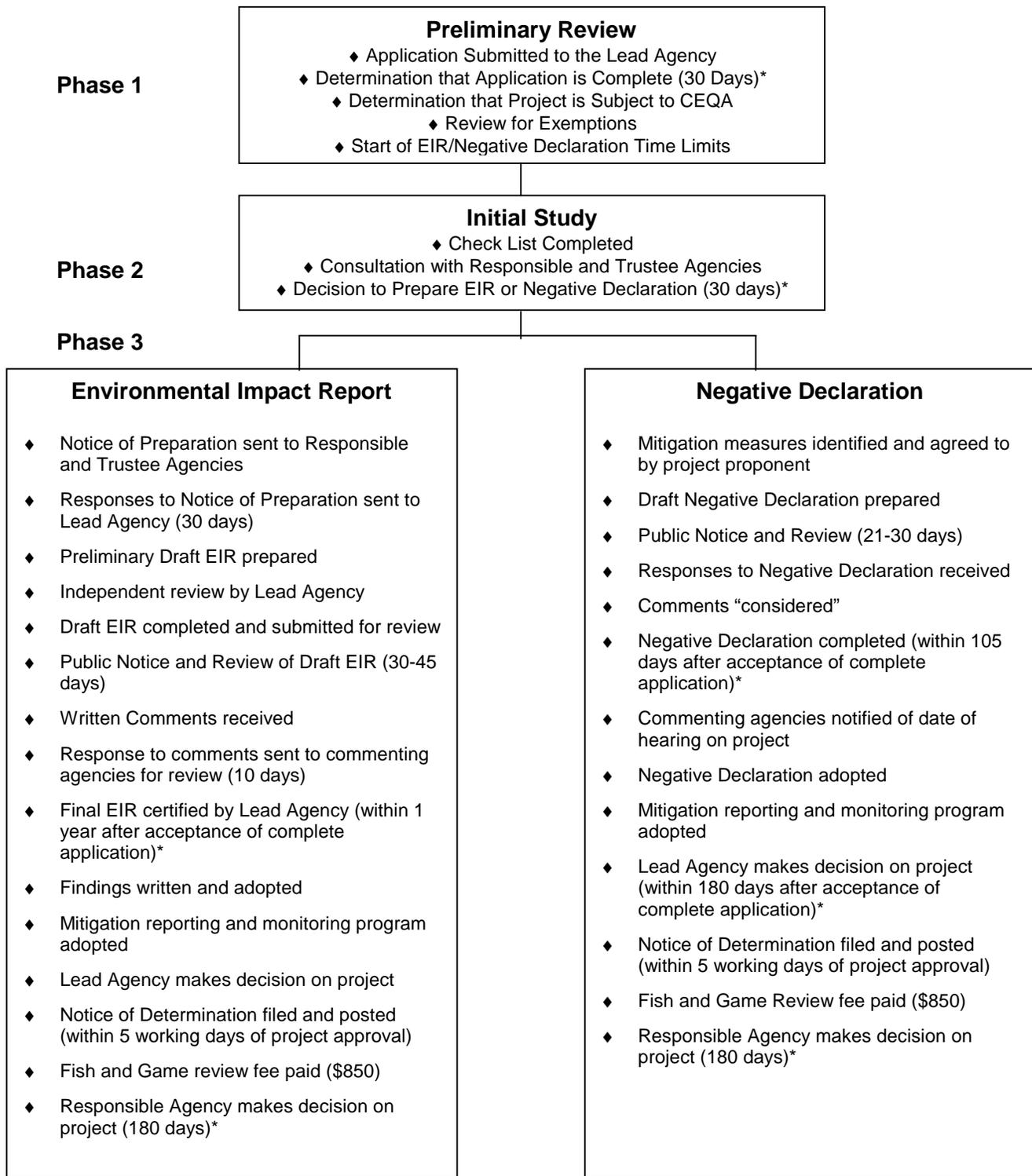
CEQA is continuously modified and interpreted by legislation and court decisions that reflect environmental changes and concerns of public agencies, developers, special interest groups and the general public.

Mitigation Monitoring (Public Resources Code, Section 21081.6)

Legislation adding this section to CEQA was enacted in 1988 to assure that mitigation measures imposed in an environmental document are monitored for proper compliance and to analyze the effectiveness of the measures. A public agency must adopt a reporting and monitoring program whenever it makes a finding relative to mitigating or avoiding significant environmental effects of a project. This program puts "teeth" in the CEQA process by causing public agencies to monitor projects they have approved so that specified mitigation measures are not ignored, avoided, or modified.

Phases in the CEQA Environmental Review Process

Normally, the CEQA process entails three separate phases. The first phase consists of preliminary review of a project to determine whether it is subject to CEQA. The second phase involves preparation of an Initial Study to determine whether the project may have a significant environmental effect and the preparation of a ND if no significant effects will occur. The third phase is the preparation of an EIR if the project may have a significant environmental effect (CEQA Guidelines Sec. 15002(k)).



*Applicable only to projects subject to the Permit Streamlining Act

Figure 3. Steps in the Environmental Review Process under CEQA

CALIFORNIA STATE LANDS COMMISSION (SLC)

The SLC is responsible for the management of extractive development of mineral resources located on State lands. The public lands under the SLC's jurisdiction include sovereign and school lands. Oil and gas development has primarily been concentrated on those sovereign tide and submerged lands adjacent to the coast and out three nautical miles offshore southern California.

Division 6 of the Public Resources Code (PRC) provides the statutory framework for the Commission's responsibilities. The statutory requirements are implemented through Title 2 of the California Code of Regulations. To carry out these responsibilities, SLC staff provides land management, resource management, and engineering oversight services for all marine facilities in state waters pursuant to leases issued by the SLC. These activities include all oil and gas drilling and production facilities. The oversight responsibilities extend from the construction and development stages of a project, through its operational life and decommissioning and abandonment phases.

The following is a brief summary of the principal SLC statutory and regulatory requirements pertaining to decommissioning of offshore oil and gas facilities.

General:

Section 6216.1 (PRC) authorizes the Commission to remove or cause to be removed any manmade structures or obstructions from ungranted lands under its jurisdiction if the Commission determines that such removal is appropriate and the Attorney General advises that there is no legal recourse to compel other responsible parties to effect such removal.

Section 6819 (PRC) directs the Commission to promulgate rules and regulations to require any person extracting oil or gas or other minerals from lands under the jurisdiction of the Commission to remove beach and underwater obstructions.

Section 6829 (PRC) requires every oil and gas lease executed by the Commission to contain provisions specifying methods of operation and standard requirements for carrying on operations in proper and workmanlike manner; the prevention of waste; the protection of safety and health of workmen; and the liability of the lessee for personal injuries and property damage.

Section 8755 (PRC) requires the Commission to adopt rules, regulations, and guidelines, and Commission leasing policies governing the operation of all marine terminals within the state, and all marine facilities under lease from the Commission to minimize the possibilities of a discharge of oil.

Section 8756 (PRC) requires periodic review of these regulations to ensure that all operators of marine terminals within the state and marine facilities under the Commission's jurisdiction always provide the best achievable protection of the public health and safety and the environment.

Section 2125 et. Seq. (CCR) provide specific requirements for oil and gas drilling, production, and pollution control, including the requirements that all operations be carried on in accordance with accepted good oilfield practice, that prevents and eliminates pollution and assures protection of human health and safety. In addition, the regulations require submission and Staff approval of Oil Spill Contingency Plans and Critical Operations and Curtailment Plans.

Wells:

Section 2128(q) (CCR) provides for plugging and abandonment of wells. This section addresses the design, placement, and testing of cement plugs pumped into the wellbore to isolate hydrocarbon zones and prevent future leakage. Minimum requirements are specified for isolation of cased and uncased hole, plugging of perforated intervals, isolation of zones behind cemented

or uncemented casing, junk in hole or collapsed casing, plugging of casing stubs, plugging of annular spaces, surface plugs, and surface clearance. Written Staff approval of individual well abandonment programs is required prior to commencement of rig operations.

Platforms and Pipelines:

Section 2122 (CCR), Lease Operations Offshore, requires timely removal of structures or facilities used for the drilling of wells that are no longer operative.

Section 2123 (CCR), Lease Operations on Uplands, specifies similar requirements for onshore facilities used to drill offshore.

Section 2124 (CCR), Surrender of Leased Premises, requires that upon expiration of a lease, the lessee must surrender the lease with permanent improvements in good order and condition or, at the option of the Commission, to remove all structures and facilities as specified by the Commission.

CALIFORNIA COASTAL COMMISSION (CCC)

The California Coastal Act of 1976 (Public Resources Code Section 30000 et seq.), the foundation of the Federally approved California Coastal Management Plan (CCMP), was enacted by the State Legislature to provide for the conservation and development of the State's 1,100-mile coastline. Under the Coastal Act and the CCMP, the Commission must consider the impacts of removal and abandonment activities on resources and uses within the coastal zone. Although removal and abandonment projects generally have overall environmental benefits, specific activities including vessel operations and equipment use (e.g., the equipment proposed to cut a platform's legs prior to platform removal) can potentially cause adverse impacts to marine resources, sensitive species and habitats, water quality (both from project-related operations and upset events such as an oil spill), air quality, commercial and recreational fishing, other recreational opportunities such as surfing and boating, cultural resources, aesthetics, and access.¹

With regard to the removal or decommissioning of offshore oil and gas structures, Coastal Act Section 30106 includes under the definition of "development" the following: "... on land, in or under water, the ... change in the [intensity of use of land and water, and]; ... demolition, or alteration of the size of any structure..... Section 30600(a) states in part: "... any person wishing to perform or undertake any development in the coastal zone ... shall obtain a coastal development permit." Consequently, most removal and decommissioning activities occurring within the coastal zone including state waters will require a coastal development permit (CDP).

In addition, the Federal Coastal Zone Management Act (CZMA) and the regulations of the Secretary of Commerce give the Commission authority to review Federally licensed or permitted activities "in or outside of the coastal zone affecting any land or water use or natural resource of the coastal zone" to assure that such activities are conducted in a manner consistent with the enforceable policies of the CCMP. (See CZMA Section 307(c)3(A) and (B); 15 CFR 930.50 and 930.70). The Commission may also review renewals and major amendments of Federally licensed or permitted activities (15 CFR 93051(b)). For example, the MMS requires in its leases and in an operator's Development and Production Plan (DPP) that the operator provide for the abandonment of wells, removal or decommissioning of platforms and pipelines, and clearance of the project site of all obstructions to other activities in the area (30 CFR Sections 250.100-4; 250-143; and 250-156.) Although an decommissioning plan may be included in a DPP, the DPP and Environmental Impact Report/Statement (EIR/S) may not address specific removal and decommissioning activities and associated environmental impacts in sufficient detail for the Commission to make a complete assessment of the impacts of these activities to the coastal zone. Therefore, the Commission typically reviews the abandonment phase of a project separately from the development phase.

¹ Coastal Act Chapter 3 policies that may be pertinent to the Commission's review of removal and decommissioning projects address marine resources and environmentally sensitive habitat areas (Section 30230, 30231 and 30240), oil spills (Section 30232), air quality (Section 30253(3)), commercial and recreational Fishing (Section 30234.5), recreation (Section 30220), cultural resources (Section 30244), visual quality (Section 30251), public access (Section 30211), and cumulative effects (Section 30250).

CALIFORNIA DEPARTMENT OF FISH AND GAME (CDF&G)

The CDF&G's participation in offshore oil and gas development and decommissioning process is primarily as a review and commenting agency. The CDF&G reviews NEPA and CEQA documents with respect to fish and wildlife resource and habitat impacts resulting from project implementation. Specifically, the CDF&G reviews Federal permit actions under the authority of the Fish and Wildlife Coordination Act. These include permits from the U.S. Army Corps of Engineers, U.S. Coast Guard, and other Federal permits.

In addition, the CDF&G reviews proposed state permits issued by State Lands Commission and Regional Water Quality Control Board (NPDES permits) and provides comments and recommendations for project modification as well as mitigation measures and permit conditions to offset or eliminate resource and habitat losses which would result from project implementation.

A permit for the use of explosives in state waters is required pursuant to Fish and Game Code Section 5500.

CALIFORNIA DIVISION OF OIL, GAS, AND GEOTHERMAL RESOURCES (DOGGR)

The California Department of Conservation's DOGGR is responsible for supervising the drilling, operation, maintenance, and abandonment of wells throughout the State, including those wells within the territorial seas. The Division enforces statutes in Division 3 of the Public Resources Code and regulations in Title 14 of the California Code of Regulations. Division staff in district offices evaluates operator well applications on engineering and geologic bases and issue permits to conduct well operations.

General plugging and abandonment regulations require the well bores to be plugged with cement across various intervals, including the oil- and gas-producing zones, casing stubs and shoes, and at the surface. Furthermore, any intervals not plugged with cement must be filled with drilling mud of sufficient density to control subsurface zone pressures. All operations must be carried out following good oil field practices and with appropriate safety equipment installed. In addition, Division inspectors conduct onsite verification of many of the operator's procedures to plug and abandon wells.

**CALIFORNIA STATE FIRE MARSHAL
HAZARDOUS LIQUID PIPELINE SAFETY DIVISION**

The Hazardous Liquid Pipeline Safety Act of 1979 had vested upon the Federal Government jurisdiction over all hazardous liquid pipelines (both interstate and intrastate). However, the California State Fire Marshal entered into a certification agreement with the U.S. Department of Transportation (DOT) and was granted jurisdiction over intrastate hazardous liquid or carbon dioxide pipelines which it now exercises. Also, under the certification, the Hazardous Liquid Pipeline Safety Division of the California State Fire Marshal acts as an agent for the DOT as it relates to interstate pipelines.

The Division's mission is to ensure the safety of the citizens of California and to protect its environment as it relates to potential hazards created by jurisdictional hazardous liquid or carbon dioxide pipelines. The Division regulates all interstate and intrastate hazardous liquid pipelines in California, including, pipelines emanating from offshore oil and gas platforms that cross state boundaries. The Division inspects and evaluates pipeline operator's facilities, written procedures and records for compliance with Federal (49 CFR Part 195) and state (California Government Code/ Chapter 5.5 Sections 51010 through 51019) pipeline safety laws and regulations. All spills, ruptures, fires or similar incidents are responded to immediately and such accidents are investigated for cause. In addition, hazardous liquid pipelines are periodically tested for integrity using approved Division procedures.

LOCAL PLANNING AND RESOURCE MANAGEMENT DEPARTMENTS

The County of Santa Barbara Planning and Development Department submitted the summary below. Other California counties would expect similar regulatory requirements for the decommissioning of oil and gas facilities in Federal and State waters.

Virtually all remaining offshore oil and gas development facilities in Southern California have onshore facility components associated with them. Federal and State environmental review and permitting laws consider decommissioning and removal activities to be “development” and when the potential environmental impacts of development are evaluated, these laws require that the “whole of the project” be considered. Therefore, the County believes that when offshore facilities are proposed for decommissioning, that the related onshore facilities must be considered as part of the environmental review process even if the operator is not immediately planning to abandon the facilities. An environmental analysis that only consider the offshore impacts of an offshore decommissioning project that also has onshore facilities does not meet the legal requirements of environmental review and permitting. (Conversely, the same would hold true for an onshore decommissioning proposal that has offshore components that aren’t analyzed).

On most occasions, offshore decommissioning projects also have onshore staging areas that are necessary to support the offshore activities. When pipelines are proposed to be removed from the shallow subtidal region, the proposed removal will include some onshore pieces of pipeline above the mean high tide line. In both cases, local agencies will typically have permits to issue and any environmental analyses must include the impacts from the onshore activities.

Even if there were no legal need to include the onshore impacts from offshore facilities decommissioning efforts, coordination with the County and other local governments ensures that the levels of review are consistent and that issues important to local governments are addressed. Local citizens and various businesses, such as tourism and commercial fishing, consider local governments responsible for preventing impacts to their businesses from offshore oil and gas activities, including facility decommissioning.

When an operator ultimately decides to decommission and abandon onshore facilities that supported offshore oil and gas development, the County has clear permit authority. Virtually any form of demolition of existing facilities requires a permit. For those facilities in the “Coastal Zone” of the County, local governments who have approved local coastal programs issue permits for abandonment. The locally approved coastal permits for decommissioning activities can, in most cases, be appealed to the California Coastal Commission for further review. Outside of the Coastal Zone, permits are approved solely by a local government and are not appealable to the Coastal Commission. Where an operator has an existing permit to operate that also includes a condition or other requirement to abandon the facility; the County may be able to amend the permit to allow the specific abandonment project. Otherwise, permits may range from ministerial permits approved by staff for simple abandonment efforts to more complex discretionary permits approved by the Planning Commission and/or Board of Supervisors. In all cases, permits require that adequate environmental review be completed. That can range from simple exemptions to more complex environmental impact reports.

LOCAL AIR POLLUTION CONTROL DISTRICTS (APCDs)

The following overview was provided by Santa Barbara County APCD. Similar requirements are expected for other County's. Offshore decommissioning plans submitted to the appropriate regulatory agency (e.g., Minerals Management Service and California State Lands Commission) are reviewed by the local APCD for compliance with APCD rules and regulations and the applicant's existing permit requirements.

Permits or permit modifications are required in Santa Barbara County for decommissioning and abandonment project. Such permits are usually done as a consolidated Authority to Construct/Permit to Operate (ATC/PTO). CEQA review is also performed during the permit processing to assess the permit air quality impacts. Significant issues to be addressed for any decommissioning project during the environmental review phase includes the analysis of potential impacts to air quality and feasible measures that may be used to reduce and or eliminate any air quality impacts. The primary purpose of defining significant issues is to identify, document and plan for the environmental and safety requirements that will need to be addressed during the pre-abandonment, abandonment, and the post-abandonment phases of a project.

The criteria used to determine the significance of air quality impacts are based on federal, state, and local air pollution rules and regulations. Air quality impacts are normally determined by estimating the net change in ambient pollution concentrations caused by the project. Baseline air quality is established using existing data from state and local air monitoring (SLAM) stations and prevention of significant deterioration (PSD) stations. To evaluate the significance of impacts pursuant to CEQA, emission increases from the project are compared to specific emission thresholds that define the significance of potential air quality impacts. Major sources of air emissions from decommissioning projects include, but are not limited to, derrick barges, support vessels such as tug boats, crew and supply boats, multiple diesel powered internal combustion equipment, and chemical solvent usage.

Project information and emission calculations are used to determine the permit requirements, applicability and compliance status of the project.

The potentially applicable requirements include:

- The standards promulgated in the State and Federal Implementation Plans (SIP and FIP);
- The National and State Ambient Air Quality Standards (AAQS);
- New Source Review (NSR) and Prevention of Significant Deterioration (PSD) Rules;
- Other requirements of the 1990 Clean Air Act Amendments (CAAA);
- OCS Regulations;
- Air Quality Attainment Plans (AQAP), and;
- Local prohibitory rules.

Large scale projects often result in emissions that exceed established significance thresholds and therefore require mitigation measures that reduce these emission levels. Emissions associated with decommissioning activities have been mitigated on previous projects through the use of Best Available Control Technology (BACT) and emissions offsets.

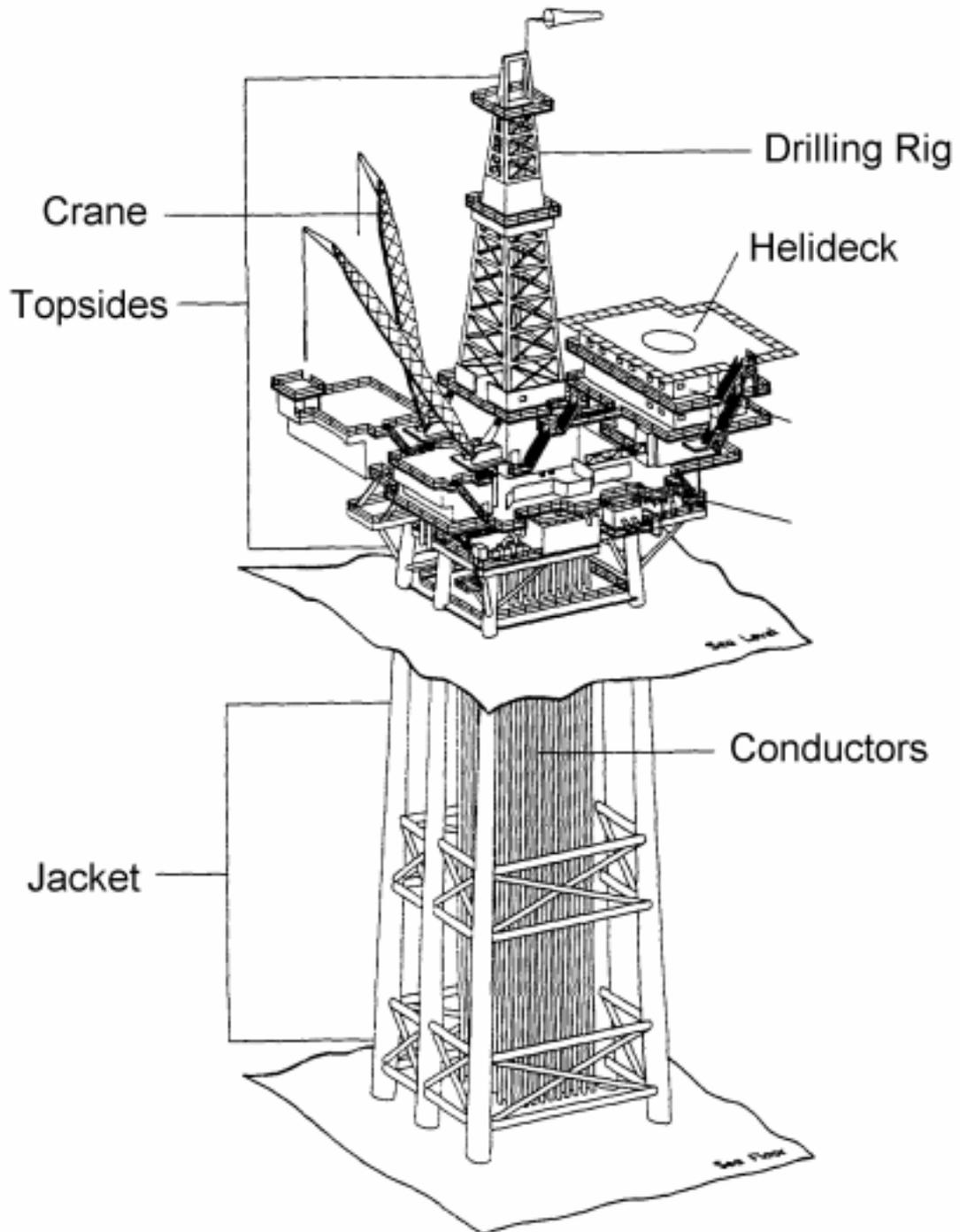
Assembly Bill Number 3047 (Olberg Act, 1996) which has been recently enacted prohibits any air district from requiring emission offsets from abandonment activities. It should be noted that this Bill has yet to be tested. Furthermore, some recent development projects have existing agreements with the local APCD that offsets the entire project through abandonment. In some areas including Ventura County, there is a community bank of emissions offsets that may be available for decommissioning projects.

In order to reduce emissions during the abandonment, best available control technology (BACT) and/or reasonably available control technology (RACT) may be applied to emitting equipment to reduce air emissions. Currently, the thresholds for requiring controls are based on project daily emissions. Depending on the type of equipment, different control technologies can be applied. For internal combustion equipment, the most likely controls would consist of turbo charge units, inter/after cooling, timing retard, different injector types, low sulfur fuel, and reduced operations (equipment shutdown when not in use).

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PLATFORM SCHEMATIC



Source: MMS, Pacific OCS Region

CALIFORNIA OFFSHORE OIL AND GAS FACILITIES PLATFORMS LOCATED IN FEDERAL WATERS, PACIFIC OCS REGION

Facility Name	Operator	Lease	Land distance miles	Water Depth (feet)	Installation Date	No. Slots	Initial Spud	First Production Date	Field/Unit	X	Y	Longitude W	Latitude N
Hogan	Pacific Operators	0166	3.7	154	09/01/67	66	04/29/68	06-10-68	Carpinteria	1,006,354	805,646	119 32 29.35	34 20 15.63
Houchin	Pacific Operators	0166	4.1	163	07/01/68	60	01/30/69	04/28/69	Carpinteria	1,003,115	804,772	119 33 7.62	34 20 5.97
Heritage	Exxon	0182	8.2	1075	10/07/89	60	09/03/93	12/18/93	Pescado/Santa Ynez	783,935	818,089	120 16 45.06	34 21 1.41
Hondo	Exxon	0188	5.1	842	06/23/76	28	09/15/77	04/02/81	Hondo/Santa Ynez	832,341	830,947	120 7 13.91	34 23 26.63
Harmony	Exxon	0190	6.4	1198	06/21/89	60	07/23/93	12/30/93	Hondo/Santa Ynez	817,978	826,364	120 10 3.09	34 22 36.03
Gina	Nuevo	0202	3.7	95	12/11/80	15	10/27/81	02/11/82	Hueneme/Pt. Hueneme	1,084,073	723,121	119 16 34.53	34 7 2.99
Gail	Chevron	0205	9.9	739	04/05/87	36	06/16/88	08/08/88	Sockeye/Santa Clara	1,046,650	726,990	119 24 0.78	34 7 30.29
Gilda	Nuevo	0216	8.8	205	10/08/81	96	10/20/81	12/19/81	Santa Clara/Santa Clara	1,041,733	747,989	119 25 6.83	34 10 56.43
Grace	Chevron	0217	10.5	318	07/30/79	48	01/19/80	07/25/80	Santa Clara/Santa Clara	1,026,807	747,437	119 28 4.18	34 10 46.46
Habitat	Nuevo	0234	7.8	290	100/8/81	24	01/16/82	12/15/83	Pitas Point/Pitas Point	991,694	787,520	119 35 17.14	34 17 11.82
Henry	Nuevo	0240	4.3	173	08/31/79	24	02/08/80	05/15/80	Carpinteria	1,000,596	804,219	119 33 37.43	34 19 59.72
Hillhouse	Nuevo	0240	5.5	190	11/26/69	60	05/25/70	07/21/70	Dos Cuadras	987,642	803,937	119 36 11.69	34 19 52.84
A	Nuevo	0241	5.8	188	09/14/68	57	11/19/68	03/03/69	Dos Cuadras	984,865	804,224	119 36 44.89	34 19 54.79
B	Nuevo	0241	5.7	190	11/08/68	63	06/23/69	07/19/69	Dos Cuadras	982,134	804,478	119 37 17.53	34 19 56.43
C	Nuevo	0241	5.7	192	02/28/77	60	07/09/77	08/01/77	Dos Cuadras	979,355	804,781	119 37 50.76	34 19 58.53
Edith	Nuevo	0296	8.5	161	01/12/83	72	11/05/83	01/21/84	Beta/Beta	1,424,274	525,198	118 8 26.47	33 35 44.83
Ellen	CalResources	0300	8.6	265	01/15/80	80	08/09/80	01/13/81	Beta/Beta	1,427,981	520,247	118 7 41.60	33 34 56.52
Elly	CalResources	0300	8.6	255	03/12/80	n/a	n/a	n/a	Beta/Beta	1,428,333	520,618	118 7 37.52	33 35 0.25
Eureka	CalResources	0301	9.0	700	07/08/84	60	12/29/84	03/17/85	Beta/Beta	1,431,431	513,421	118 6 59.38	33 33 49.61
Harvest	Chevron	0315	6.7	675	06/12/85	50	11/12/86	06/03/91	Pt. Arguello/Pt. Arguello	664,622	866,189	120 40 50.94	34 28 8.89
Hermosa	Chevron	0316	6.8	603	10/05/85	48	01/30/87	06/09/91	Pt. Arguello/Pt. Arguello	674,783	860,793	120 38 47.00	34 27 19.83
Irene*	Torch	0441	4.7	242	08/07/85	72	04/25/86	04/13/87	Pt. Pedernales/Pt. Ped.	708,195	3,831,989	120 43 45.94	34 36 37.51
Hidalgo*	Chevron	0450	5.9	430	07/02/86	56	11/27/87	05/27/91	Pt. Arguello/Pt. Arguello	710,975	3,819,245	120 42 8.24	34 29 42.05

*Irene and Hildago are in UTM 10 (meters).

All others are Lambert Zone 6 (feet).

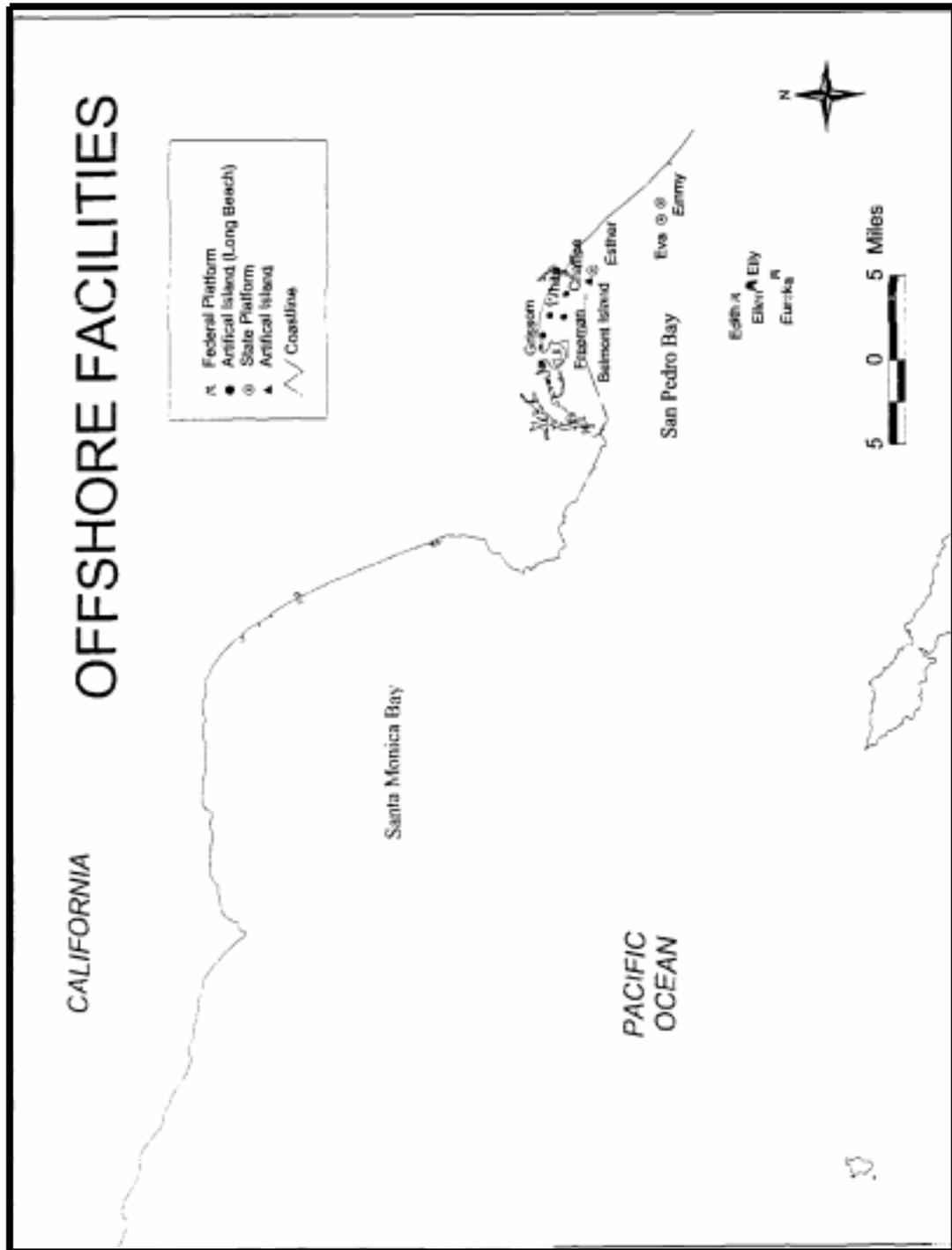
Source: MMS, Pacific OCS Region

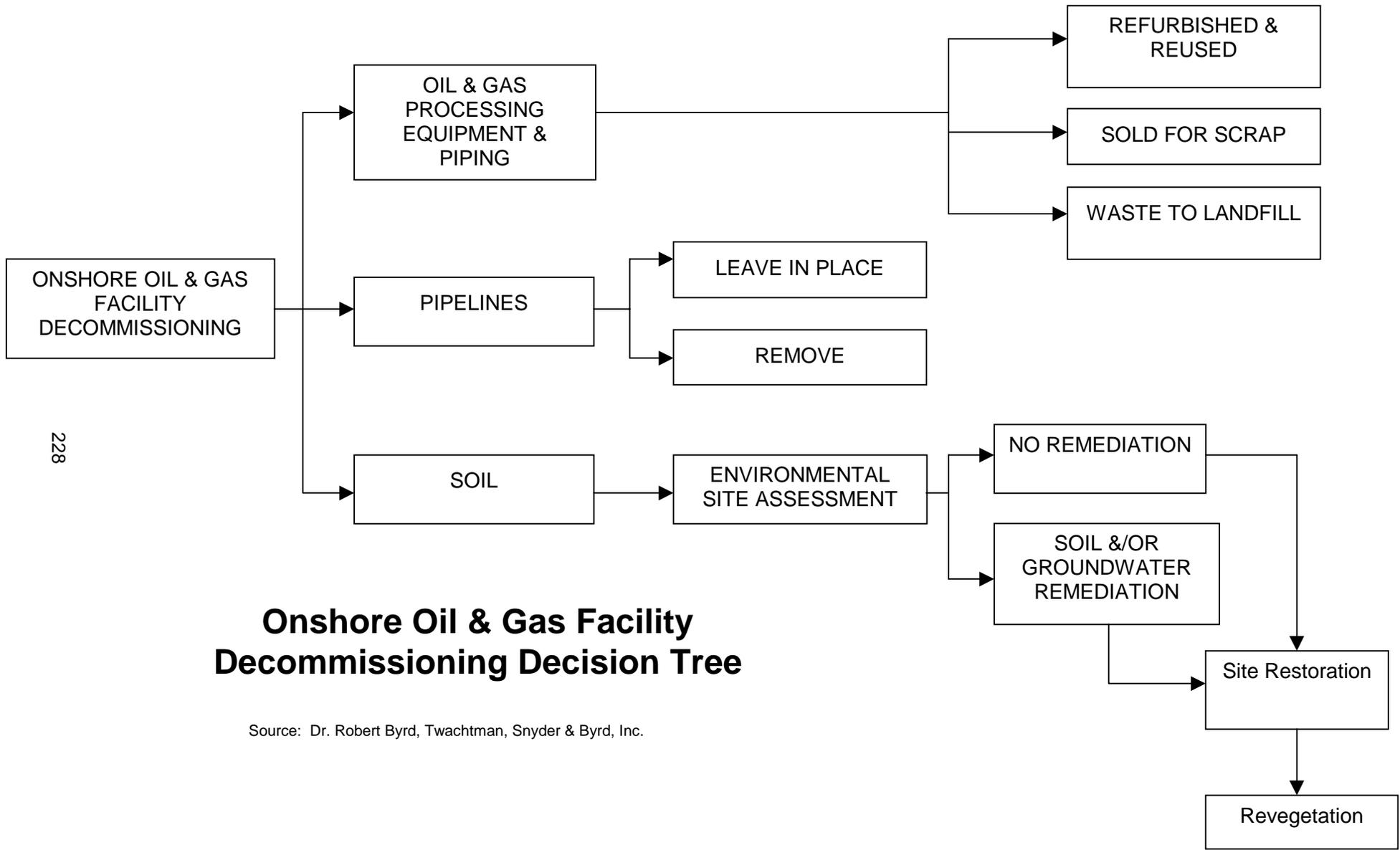
CALIFORNIA OFFSHORE OIL AND GAS FACILITIES STATE WATERS OFFSHORE FACILITIES

Facility Name	Operator	Location on State Lease #	Distance from Land (Nautical Miles)	Installation Date	Water Depth (feet)	Zone	Lamber Coordinate (feet)		Initial Spud	First Production Date	No. Slots	Present Status
							X	Y				
Platform Emmy	Aera Energy	PRC 425	1.2	1963	47	6	1,454,245E	548,870N	Mar-63	Apr-63	53	Producing
Platform Eva	Torch Operating	PRC3033	1.8	1964	57	6	1,448,916E	548,783N	Mar-64	Jan-66	39	Producing
Platform Esther	Torch Operating	PRC 3095	1.2	1985	35	6	1,433,450E	569,790N	n/a	Jul-95	64	Producing
Platform Holly	Venoco	PRC 3242	1.8	1966	211	5	897,722E	828,627N	Jul-65	Apr-66	30	Producing
Belmont Island	Exxon	PRC 186	1.3	1954	42	6	1,429,978E	570,927N	May-54	May-54	70	Process of Being Decommissioned
Rincon Island	Rincon Island Limited Partnership	PRC 1466	0.5	1958	45	6	1,035,710E	808,299N	Feb-60	Mar-60	68	Producing

Source: California State Lands Commission

Source: MMS, Pacific OCS Region





Onshore Oil & Gas Facility Decommissioning Decision Tree

Source: Dr. Robert Byrd, Twachtman, Snyder & Byrd, Inc.

OFFSHORE OIL & GAS
FACILITY
DECOMMISSIONING

OIL & GAS
PROCESSING
EQUIPMENT & PIPING

SENT TO SHORE

REFURBISHED
& REUSED

SOLD FOR SCRAP

WASTE TO LANDFILL

ONSHORE SCRAPING

RECYCLE STEEL

WASTE TO LANDFILL

MOVED TO NEW
LOCATION &
REINSTALLED

PARTIAL REMOVAL

TOPPLE IN PLACE

DISPOSED OF IN
DEEP WATER

SINGLE PIECE
PLACEMENT
OFF-SITE

CONVERT TO AN
ARTIFICIAL REEF

MULTI-PIECE
PLACEMENT
OFF-SITE

DECK & JACKET
STRUCTURE

Offshore Oil & Gas Facility Decommissioning Decision Tree

Source: Dr. Robert Byrd, Twachtman, Snyder & Byrd, Inc.

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GLOSSARY OF TERMS

Abandonment

A term generally used synonymously with decommissioning.

Anchor

A heavy hooked instrument which, when lowered to the seabed, holds a vessel in place by its connecting cable.

Anchor Buoy

A barrel shaped buoy through which the anchor pendant wire passes. The buoy holds the eye free end of the anchor pendant wire above the water surface. The pendant wire is used by the anchor handling tug to set and retrieve anchors.

Anchor Handling Tug (Resource)

A tug equipped with a winch to lift a derrick barge's anchors. It is also used as the derrick barge's tow tug.

Anchor Pile

A section (20 - 50 ft.) of large diameter (30 - 48 in.) pipe, with an anchor chain attached to it, driven below the seabed to a predetermined depth, usually 20 feet or more. Anchor piles are used to moor drilling rig tenders, other vessels or terminal mooring buoys. Anchor piles are normally installed in a pattern or system consisting of 6 to 8 anchor piles.

Annulus

The space between the inside face of an outer casing string and the outside face of the next smaller casing string.

Arc Gouging

The use of an electrical arc and compressed air to cut steel.

Artificial Reef

A disused structure emplaced in a designated area either in situ or other designated site. Intended as an enhanced marine habitat for animals and plants.

Assimilation efficiency

The percentage of energy ingested (swallowed) by an animal that is absorbed across the gut wall.

Assistant Derrick Barge Standby (Task)

The standby or idle period between the assist derrick barge's arrival at the platform location and the commencement of its work.

Barge Damage Deductible (Resource)

The deductible for a typical cargo barge hull insurance policy.

Bell Guides

See "Conductor Guides".

Benthic

Living on (or in) the bottom of the ocean and intertidal areas.

Biomass

The weight of living material, often including the dead parts of living organisms (e.g., the shell of a snail). Measured as the amount of living material per unit area or volume. Also known as Standing Crop.

Blasting Cap

See "Detonator".

Blasting Machine

A mechanical or battery operated device used to electronically ignite a detonator.

Bottom Clean Up (Task)

The removal of debris by divers from the sea floor.

Bottom Time (B.T.)

The amount of time during a dive that is spent working on bottom.

Brent Spar

A cylindrical oil storage and loading buoy operated by Shell UK Exploration and Production on behalf of Shell and Esso.

Bring In Cargo Barge (Task)

The process of maneuvering and securing the cargo barge along side the derrick barge.

Buoy

A float of any type used as a marker.

Caisson

A large diameter pipe driven into the seafloor through which well casings run. The purpose of the caisson is to protect and support the well casings. The caisson may have a small deck.

Cargo Barge (Resource)

A flat deck barge used to transport platform components, equipment modules and other cargo.

Carrying Capacity

The theoretical maximum number of individuals in a population that can be supported indefinitely by a given environment.

Casing

Steel pipe placed in an oil or gas well as drilling progresses to prevent the wall of the hole from caving in during drilling and to provide a means of extracting petroleum if the well is productive.

Casing String

Pipe inside an oil or gas well conductor installed during the drilling operations often cemented to the conductor.

Closure Plates

Plates welded into the tops of piles or jacket legs to seal them so that water can be evacuated using compressed air.

Coil Tubing

Rig like unit with continuous length of pipe on a big coil.

Communication

The movement of a substance (hydrocarbons, water, cement) from one position to another.

Concrete Gravity Base Structure

A concrete substructure which is not fixed into the seabed by piles but resists wind and wave force by its own bulk and weight.

Conductor or Drive Pipe

A large diameter pipe driven into the seafloor to protect the surface casing and to protect against a shallow gas blowout.

Conductor Guides

Guides built into the jacket and deck, during fabrication, used to install the conductors in their correct location.

Consumable Items (Resource)

Items used in the course of a typical project, the cost of which is not covered by the contract or the schedule of rates.

Continental Shelf

The seabed and subsoil beyond the territorial water over which a country has sovereign rights for the purpose of exploring for and exploiting natural resources.

Crew Boat (Resource)

A small fast boat used to transport personnel and supplies to and from the job site to shore.

Critical Path

The sequence of events that determine the duration of a project.

Cut Deck Legs, Equipment and Miscellaneous (Task)

The cutting of all equipment, miscellaneous piping and the deck leg to pile splices to allow lifting the equipment from the deck and the deck from the jacket.

Cut Jacket

The cutting of all braces necessary to remove the jacket in two or more sections. If a jacket is so large that its weight will exceed the capacity of the derrick barge, or if it is not structurally sound, it may have to be cut and removed in pieces. If this is required, the members to be cut above the surface would be cut by welders in the conventional manner and those members below water would be cut by divers using the Oxy-arc method.

Deballast Piles (Task)

The displacement of water inside the piles with compressed air to reduce the on-bottom weight of the jacket by causing it to be more buoyant.

Deck

The platform superstructure which supports drilling, wellhead, and/or production equipment.

Decommissioning

The process of deciding how best to shut down operations at the end of a field's life, then closing the wells, cleaning, making the installation safe, removing some or all of the facilities and disposing or reusing them.

Decommission Pipeline (Task)

The process of flushing a pipeline with water to purge it of hydrocarbons. After the pipeline is flushed, a pig is run using water and the pipeline is left filled with water.

Decommission Platform (Task)

A two phase operation, performed prior to the arrival of the derrick barge spread, to prepare the platform for salvage. The first phase is to make the environment safe for burning and welding. The second phase is to do any work which does not require, or will facilitate, the derrick barge operation.

Deep Water Disposal

Offshore disposal of a structure by emplacement at licensed, designated deep water sites.

Demobilize Assist Derrick Barge (Task)

The movement of the assist derrick barge from the platform location to its point of origin.

Demobilize Cargo Barges (Task)

The movement of a cargo barge and its tow tug from the platform location to the disposal contractor's yard.

Demobilize Derrick Barge (Task)

The movement of the derrick barge from the platform location to its point of origin.

Depth Pay

Premium paid to divers that dive below 50 feet, increasing at each 50 foot interval. Depth pay is paid once in 24 hours for the divers deepest dive.

Derrick Barge (Resource)

A barge (floating construction plant/camp) equipped with a revolving crane, a mooring system and crew quarters.

Detonation

The setting off of an explosive charge.

Detonator

A device or small quantity of explosives used for detonating high explosives.

Disposal Contractor

Contractor that will dispose of the platform components (scrap dealer).

Diving Services (Resource)

Services of a diving contractor used during a salvage or construction project.

Dolphins

A cluster of piling at the entrance to, or alongside, a dock or wharf for service as a fender, alongside of which boats may be moored.

Drive Pipe or Conductor

A large diameter pipe driven into the seafloor to protect the surface casing and to protect against a shallow gas blowout.

Dumping

A term sometimes used for offshore disposal.

E&P Forum

The Oil Industry International Exploration and Production Forum, a global association of the oil and natural gas exploration and production industry.

Electric Line Unit

A piece of equipment that allows work to be performed in an oil or gas well.

Emplacement

Regulated lowering of a platform in a designated disposal area, principally a designated artificial reef area.

Epifauna

The animals that live on the upper surface layers of ocean floor sediments. (Epiphytes are microalgal organisms that live on a surface.)

Explosive Charges (Resource)

High explosives and their sized containers used to sever conductors and piles.

Explosive Magazine

A portable container used to transport explosive charges and equipment from the explosive contractors facility to the job site.

Fabricate Deck Padeyes (Task)

Replacement deck lifting padeyes are fabricated for decks cut into sections and for decks whose padeyes are no longer safe for the lift. These padeyes are fabricated at the decommissioning contractors facility. The contractor would install these padeyes during its decommissioning.

Fabricate Explosive Charges (Task)

The assembly of high explosives in properly sized containers. The explosive charges container are sized to fit the internal diameter of either the pile or conductor pipe. The quantity of explosive material is determined based on the size and type of material to be severed (steel, cement, etc.). This work is performed at the explosive contractor's facility then packages for shipment.

Fish Attraction Device (FAD)

A manufactured object placed in ocean surface waters around which fish tend to aggregate.

Flame Cutting

The cutting of steel using a controlled flame and oxygen

Flame Washing

The use of a controlled flame and oxygen to remove metal.

Flared Conductor

See "Flared Pile".

Flared Pile

The outward spreading (mushrooming) of the metal above the area where the pile is explosive severed.

Gang Way

A portable access walkway used to span the gap between the platform and the derrick barge.

Gas Free

Free of explosive or poisonous gas. A safe working area.

Grout

Cement slurry used between concentric structural members. Grout was used to secure one member to another.

Grouted Pile

The annular region between the pile outside wall and the inside wall of a jacket leg or sleeve is filled with grout. The grout may be several feet deep or fill the length of the jacket leg.

Grout Plug

A plug of cement/water mix placed in a pile extending above and below the mudline to strengthen the platform, sometimes with reinforcing bar cages.

Hand Jet

High pressure water nozzle used by divers to move soil on the seabed.

Helideck

A pad to land helicopters on an offshore vessel or platform.

Infauna

The animals that live in the soft sediment layers of the ocean floor.

In-Water Decompression (IWD)

The time a diver must spend in the water decompressing at specific depths enroute to the surface.

In-situ

In the original position, on site.

Injection Rate

The rate fluids can be injected into the production formation and the pressure required to inject the fluids; example 10 barrels per minute at a pressure of 4200 pounds per square inch.

Inspector (Resource)

A representative of the oil company required to be present during all phases of the platform removal when work is being performed. His function is to observe the work and maintain a daily log of activities, to verify that the work is performed in accordance with the specifications and to verify extra contractual work.

Installation

A generic term for an offshore platform or drilling rig (but excluding pipelines).

Install Closure Plates (Task)

Placing and welding prefabricated steel plates in the tops of piles or jacket legs so that the water inside can be evacuated by compressed air.

International Maritime Organization

The United Nations body charged with shipping safety and navigation issues.

Jacket

The portion of a platform extending from the seabed to the surface used as a template for pile driving and as a lateral bracing for the pile.

Jet/Airlift

A device used to remove the pile mud plug. High pressure water breaks up the mud plug and expanding air lifts the particles to the surface.

Jet/Airlift Mud Plugs (Task)

The removal of the soil from inside the piles using a jet/airlift system.

Lifting Block

A block, containing one or more sheaves, connected to the crane boom by wire rope, that is used to lift and lower loads.

Lifting Capacity

The weight a crane can lift at a given boom radius or angle.

Lifting Eyes

See "Padeyes".

Load Spreader

A pad of wood, steel, etc. Normally placed on a cargo barge to distribute a concentrated load over a larger area.

London Convention

An international treaty signed by more than 70 nations governing disposal of substances at sea.

Magnetometer

An electrical device towed by a boat over a location to locate metal objects, i.e. pipelines, wellheads, wrecks, and similar ferrous objects.

Marine Growth

Sea life (e.g. barnacles) attached to hard objects submerged in the sea.

Members

The structural pieces or components that make up a jacket or deck structure.

Mobilize Assist Derrick Barge (Task)

The movement of the assist derrick and it's tow/anchor handling tug boat from its point of origin to the platform location.

Mobilize Cargo Barge (Task)

The movement of a cargo barge and it's tug boat from their point or origin to the platform location.

Mobilize Derrick Barge (Task)

The movement of a derrick barge and it's tow/anchor handling tug boat from its point or origin to the platform location.

Mosaic

Number of pictures making up a big picture.

Mud Plug

The soil (mud, clay, sand) inside an open ended pile that has been driven into the seabed.

Mudline (M.L.)

The elevation of the natural seabed.

North East Atlantic

The sea area to which OSPAR Conventions apply, This is defined as westwards to the east coast of Greenland, eastwards to the continental North Sea coast, south to the Straits of Gibraltar, and north to the North Pole. This maritime area does not include the Baltic or Mediterranean seas.

North Sea

The sea bounded primarily by the coasts of Great Britain, Norway, Denmark, Belgium, Germany, Sweden, France and the Netherlands.

Off-Load Cargo Barge (Task)

The removal of all sea fastening and the platform components from the cargo barge at the disposal contractor's yard.

Offshore

Operations carried out in the ocean as opposed to on land.

Operator

The company either solely or in a joint venture which manages the operation of oil and gas production for itself or on behalf of the partners.

Oslo Commission

See "Osparcom".

Osparcom

The Oslo and Paris Commission which regulates pollution from offshore and onshore sources in the North East Atlantic.

Oxy Acetylene Torch

A device using oxygen and acetylene to cut steel.

Oxy-Arc Torch

A device using oxygen and an electrical arc to cut metal, usually underwater.

Padeye

A plate with a hole cut in it that is attached to a structure which allows a shackle connection for lifting the structure.

Paris Commission

See "Osparcom".

Pelagic

Living in the water column offshore of the coastal zone (i.e., seaward of the downward break in the continental slope).

Pendant Wire

The cable connected to the head of an anchor used by the anchor handling tug to raise or lower the anchor. The free end is held at the water surface by a buoy.

Pick Up Assist Derrick Barge Anchors (Task)

The retrieval of the assist derrick barge's anchors at the end of its portion of the project.

Pick Up Derrick Barge Anchors (Task)

The retrieval of the derrick barge anchors at the end of the project.

Pig

A plug, forced through a pipeline by liquid or gas, used to clean the pipe's interior or separate different fluid mediums.

Pile

Steel pipe driven into the seabed to secure and support an offshore structure.

Pile Driving Hammer

A steam, diesel or hydraulically operated impact hammer used to drive piles into the seabed.

Pipeline

A conduit of steel pipe extending from platform to platform or platform to shore used to transport oil and/or gas.

Pipeline Abandonment (Task)

The cutting and plugging of a pipeline that is to be abandoned in place. Prior to the jacket removal and after the pipeline decommissioning is completed, the pipeline is cut and abandoned in place using a diving crew. The diving is performed from the derrick barge or a dive boat prior to the derrick barge arriving on location.

Pipeline Surveying Services (Resource)

The services of a surveying contractor and his equipment or mark pipelines and other submerged objects to avoid interference with derrick barge anchor placement.

Plankton

Organisms living suspended in the water column and incapable of moving against water currents.

Platform

A structure secured to the seabed and extending above water for the production of oil and gas.

Population Dynamics

The variations in time and space in the sizes (number of individuals) and densities (number of individuals per unit area or volume) of a population.

Population

A group of individuals of the same species in a defined area.

Primary Productivity

The rate at which biomass is produced per unit area by plants.

Processing Facilities

Part of the topsides that treat oil and gas, remove impurities and pump the product into pipelines to shore.

Production Casing

A pipe set in the well after it is drilled. The tubing is inside the production casing.

Production Efficiency

The percentage of energy assimilated by an organism that becomes incorporated into new biomass.

Production Formation

The sub strata in which hydrocarbons are present. Where the oil and gas enters the tubing to be transported to the surface.

Productivity

The rate at which biomass is produced per unit area by any class of organisms.

Recruitment

The addition of individuals of a specified size or age to a population. In a fisheries context, recruitment refers to the addition of individuals to the size (or age) groups that can legally be caught. Otherwise, recruitment typically refers to the known addition of 'newborns' (see Young of the Year) to a population (also see Settlement).

Recycling

Removal of an installation or parts of an installation to shore where they are separated into different materials and melted down or reprocessed to be reused.

Remove Conductors(Task)

The removal of the conductors from the jacket and placing them on a cargo barge. The conductor guides in the jacket cannot support the weight of the conductors, therefore they must be removed prior to the removal of the jacket.

Remove Deck(Task)

The lifting of the deck from the jacket and placement of it on a cargo barge.

Remove Equipment (Task)

The lifting, placing and seafastening on a cargo barge, of all equipment removed from the deck.

Remove Jacket (Task)

The lifting of the jacket from the seafloor and placement of it on a cargo barge for transport to shore.

Remove Piles from Jacket Legs (Task)

The removal of the piles from the jacket to reduce the jacket's lift weight.

Rig

The derrick or mast, drawworks, and attendant surface equipment of a drilling or work over unit.

Rigless Abandonment

P&A without a rig.

Rig Up Cargo Barge (Resource)

The installation of protective pads to prepare a cargo barge for receiving the salvaged platform components.

Rigs to Reefs

A national policy in the US enshrined in legislation, promoting the conversion of disused platforms into artificial reefs for marine life at designated sites.

Riser

The portion of a pipeline that rises from the seabed to the water surface, supported by the platform jacket.

Riser Bend

The section of the riser that turns the pipeline from horizontal to vertical.

Salvage Contingency

An allowance of 15% of the estimated on site derrick barge spread work time to account for unforeseen factors which will increase the time required to perform the work. Examples of items to be covered by this contingency are as follows:

1. Conductor flaring
In the process of explosively severing the conductors, flaring of the cut ends occurs. This flaring will not allow the conductor to pass through the conductor bell guide framing in the jacket resulting in divers having to cut the flared end. This will require one hour of bottom time per conductor plus in water decompression time as determined by the dive tables for the applicable water depth.
2. Pile flaring
As in the case of conductor flaring described above, flaring of the pile ends also occurs. Additional time is required to trim the pile ends, eliminating the flared obstruction.

Sea Buoy

The first buoy encountered when approaching the entrance of a river or port from sea.

Seafasten

The securing by welding of platform components or cargo to the cargo barge for transport at sea.

Set Up Derrick Barge (Task)

The placement of the derrick barge's mooring anchors on the seafloor around the platform location at pre-selected positions. The derrick barge will be positioned along side the platform using its mooring system. A walkway will be placed between the derrick barge and the platform.

Settlement

Many marine organisms that live on the bottom (see Benthic) have early developmental stages that grow in the water column (see Plankton and Pelagic). Settlement refers to the event when the young leave the water column permanently to take up life on the bottom. Recruitment typically refers to the first observation of young following settlement from the water.

Sever Conductors (Task)

Cutting the conductors using high explosives.

Sever Piles (Task)

Cutting the piles using high explosives.

Shackle

A "U" shaped device with a removable pin or bolt across the end used to connect a sling or cable to a padeye.

Shaped Charge

An explosive charge designed to focus its blast onto a very small area, used to cut very thick materials.

Shim

Curved steel plates wedged between and welded to the jacket leg and pile, used to tie the jacket and piles together at the top of the jacket leg.

Shoe

A piece of equipment installed on the end of the casing when it is run into the well bore (i.e. that point in which the casing ends).

Side-scan Sonar

Radar like device used to determine shapes in the water on the sea floor.

Skirt Pile

A steel pipe driven into the seafloor that passes through a sleeve attached to the jacket. The sleeve and skirt pile extend from the mudline up 50 to 100 feet along the jacket leg. The annular region between the pile and sleeve is filled with grout. The purpose of a skirt pile is to secure and support offshore structures.

Slickline

A machine with a hydraulically controlled spool of wire used for setting and retrieving safety valves, lugs, gas lift valves, and running bottom hole pressures. Slicklines are also used for a variety of other jobs such as recovering lost tools and swedging out tubing. Slickline wire generally ranges in size from .072 inches to .108 inches.

Sling

Usually a wire rope of a given length with a loop formed on each end, used for lifting loads.

Spatial Distribution

The pattern of placement of items (e.g., individuals) in space.

Spreader Bar

A pipe or beam arrangement used to spread the slings to keep them from damaging the load while lifting.

Spreader Frame

See "Spreader Bar".

Spud Barge

A derrick barge moored by dropping pipe or beam spuds into the seabed.

Stakeholders

All the parties having an interest in an issue, including among others corporate shareholders, regulators, employees, community groups, the public at large.

Stiffleg Barge

A derrick barge with a crane that does not revolve and which may or may not boom up and down.

Stops

Metal plates welded to the sides of a pile to hold the pile at a desired elevation in the jacket leg.

Subsea Tie In

Point where a branch pipeline ties into a main pipeline on the seabed.

Survey Location for Pipelines (Task)

The locating and buoying of pipelines around a platform. A survey boat and crew are mobilized to the location to locate and mark, with buoys, all pipelines within a 4000 foot radius of the platform to enable the derrick barge(s) to place its anchors safely.

Temporal Pattern

Variation in some attribute (e.g., number of individuals in a population) over time.

Tension Leg Platform (TLP)

A floating platform anchored to the sea bed by long steel pipes (tension legs). The tension legs keep the platform from moving up and down on the waves.

Tonne

1000 Kilograms - a common weight unit used in offshore structure design and construction; also used as a measure for oil (approx. 1200 liters).

Toppling

Controlled "tipping over" of the platform (generally but not always without topsides) from it's vertical position to resting horizontally on the seabed.

Topsides

The facilities which contain the plant for processing oil and gas and accommodations.

Tow Tug (Resource)

A tug boat used to tow a barge, either a cargo barge or derrick barge. It may also be used as an anchor handling tug by the derrick barge.

Trophic Coupling

A strong linkage among organisms on two or more different levels in the food chain (e.g., herbivores - carnivores).

Tubing String

The smallest diameter pipe suspended in a well. The hydrocarbon product flows to the surface inside the tubing.

Trunk Line, Explosives

A detonation cord that connects all the explosive charges so they may be detonated in a group.

Walk Way

See "Gang Way".

Weather Contingency (Task)

An allowance of 6% of the estimated onsite derrick barge spread work time to account for lost time due to weather.

Well

The holes drilled through the seabed into the reservoir where oil or gas is trapped, often two thousand or more meters below the seabed. The hole is lined with piping which extends up through conductors onto the platform deck.

Well Head

The well head sits on top of the drive pipe. Casing and tubing strings are suspended from the well head. Valves on the well head allow the entrance to the tubing and the casing annuli.

Wire Rope

Steel wire formed into a cable.

Wood Piles

Wooden (timber) piles driven into the seabed to support equipment offshore.

Young of the Year (YOY)

The young of a species that were born in this year; typically applied to fishes (also see Settlement and Recruitment).

ABBREVIATIONS

API	American Petroleum Institute
BHT	bottom hole temperature
BOP	blow out preventer
CB	cargo barge
CEQA	California Environment Quality Assessment
CG	center of gravity
CIBP	cast iron bridge plug
CIRC.	circulate
DB	derrick barge
DEMOB	de-mobilize
DOT	Department of Transportation
DP	dynamic positioning
DPV	dynamic positioning vessel
HAZMAT	hazardous material
I. Csg.	intermediate casing
LAT	lowest atmospheric tide
LD	lay down
ML	mud line
MLW	mean low water
MMS	Minerals Management Service
MOB	mobilize
MT	metric ton
NDT	nondestructive testing
NDE	nondestructive examination
NEPA	National Environmental Protection Agency
NMFS	National Marine Fisheries Service
NORM	naturally occurring radioactive material
NOAA	National Oceanic and Atmospheric Administration
OCS	outer continental shelf
OD	outside diameter
P&A	plug and abandonment
PERF.	perforate
PL	pipeline
POOH	pull out of hole
PP	pump
RD	rig down
RETR.	retrieve
ROV	remote operated vessel
SAT	saturation diving
ST	short ton
SSCV	semi-submersible crane vessel
TBG	tubing
UT	ultra sonic testing
WL	wire line
WOC	wait on cement
WOR	work over rig
WT	weight
YOY	young-of-year

APPENDIX IV

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BIOGRAPHICAL INFORMATION ON SPEAKERS, PANEL MEMBERS, CHAIRPERSONS, AND ORGANIZERS

Lee Bafalon: Lee Bafalon is Senior Land Representative for Chevron U.S.A. Inc., based at Chevron's Ventura offices. He has been with Chevron for over 17 years, all of that time working on behalf of Chevron's offshore California operations. Lee is responsible for permitting and regulatory affairs for Chevron's Santa Barbara Channel assets, offshore and onshore. In that capacity, he was on the permitting team for the installation of the Point Arguello and Gaviota facilities in the 1980's, the permitting coordinator for Chevron's 4H State Platforms Project from 1992-1996, and is currently on the permitting team for Chevron's contemplated OCS Facilities Decommissioning Project.

Ann Scarborough Bull: Dr. Ann Scarborough Bull was born and raised in San Diego, California, and has worked as a marine biologist for the Minerals Management Service since 1988. She performed her graduate research at the Marine Biological Laboratory, Woods Hole, and her post doctoral work at Johns Hopkins in Maryland. Her research interests focus on the role of offshore platforms in the fisheries of the Gulf of Mexico.

Robert C. Byrd: Dr. Byrd is a Principal in Twachtman, Snyder & Byrd, Inc. (TSB), Houston, Texas, a project management and engineering firm which specializes in offshore oil and gas facility decommissioning. TSB has managed the decommissioning of over 200 facilities in the Gulf of Mexico and is active in planning the decommissioning of facilities offshore California and in Europe's North Sea. Dr. Byrd joined TSB in 1993. Prior to that he was President and Chief of Operations at IMODCO, Inc., Agoura Hills, California, for a period of seven years. IMODCO specializes in offshore oil and gas terminals and floating facilities worldwide. In total Dr. Byrd has over twenty years experience in a wide range of positions involving offshore facilities engineering, construction, and decommissioning. He is also a former U.S. Coast Guard officer. Dr. Byrd received his Ph.D. in Engineering from the University of California, Berkeley, where he was a Hans Albert Einstein Fellow in Ocean Engineering and was a recipient of the National Sea Grant Association Award for Applied Research. He holds a Masters in Ocean Engineering from the University of Alaska, Fairbanks, and a B.S. in Marine Engineering from the United States Coast

Guard Academy at New London, Connecticut. Dr. Byrd is a licensed Professional Engineer.

Peter Cantle: Peter Cantle has been employed with Santa Barbara County Air Pollution Control District since September 1988, providing engineering management, analysis and permitting services. Prior to Air Pollution Control District, he worked three years with the Energy Division (Planning and Development, Santa Barbara County), responsible for permitting and compliance of major energy projects (Exxon SYU, Chevron Point Arguello, Gaviota Marine Terminal, Celeron Pipeline, etc.) Prior to that, he worked five years with Shell as Environmental Specialist (Houston, TX). Prior to Shell, he worked two years with Hydril Co., manufacturing and marketing oilfield equipment. Peter earned a Bachelor and a Master of Science degree in Ecology from Texas A&M University. He is the father of two sons, and he is an avid enjoyer of the ocean and its related sports.

Mark H. Carr: Dr. Mark Carr is an Assistant Professor in the Department of Biology, at the University of California, Santa Cruz. He is also Deputy Program Director for the UC-MMS Coastal Marine Institute and the Southern California Educational Initiative. His current research involves experimental studies of recruitment and population dynamics of reef fishes in the Bahamas and the ecological role of oil/gas production facilities in the Santa Barbara Channel. He received his B.A. at the University of California, Santa Cruz, his M.S. from San Francisco State University and Moss Landing Marine Laboratories, and a Ph.D. from the University of California, Santa Barbara, all of which are in Biology with an emphasis on Aquatic Biology.

Marc Chytilo: Marc Chytilo is Chief Counsel of the Environmental Defense Center, a public interest law firm and advocacy organization with offices in Santa Barbara and Ventura, California. EDC has been attorneys in numerous air quality cases involving the oil industry and Outer Continental Shelf activities, including *Citizens to Preserve the Ojai v. Petrochem* (CEQA: Cumulative air quality impacts), *Citizens to Preserve the Ojai v. EPA* (federal implementation plant): *EDC v. EPA* (Clean Air Act § 328

regulation promulgation); and *Get Oil Out v. State Lands Commission* (subsea well abandonment project). Marc is a member of the Santa Barbara County Air Pollution Control District Community Advisory Council and an active outdoorsperson regularly enjoying the recreational opportunities provided in the Santa Barbara Channel.

Gordon Cota: Gordon Cota is a tenth-generation Santa Barbaran who is owner/operator of the F/V *Genoa*, a commercial fishing vessel home-ported in Santa Barbara. He has fished with tool and line, traps, and trawl nets for over 25 years in the Southern California Bight. Gordon has served on the Department of Interior, Mineral Management Service's Regional Technical Working Group, and is a former Santa Barbara Harbor Commissioner. He currently serves as a representative for the trawl fleet on the Joint Oil/Fisheries Committee, an ad-hoc group formed in 1983 to resolve interindustry concerns. He also serves as the Secretary of the Southern California Trawlers Association. Gordon has been very active in helping to solve at-sea interindustry problems, including serving as scout, chase, or pilot vessel for oil industry activities which might impact commercial fishing, and site clearance test-trawling after oil facility abandonments.

Andrew S. Culwell: Andy Culwell has been active in the decommissioning and removal of offshore oil and gas facilities for the past 24 years. As Vice President, Special Projects for American Pacific Marine, Inc. (his current affiliation), he planned and directed the removal of Chevron's Platforms Hope, Heidi, Hilda, and Hazel offshore Carpinteria in 1996. He also planned and directed the removal of Texaco's Helen and Herman Platforms offshore Gaviota in 1988 and supervised the removal of portions of Aminoil's Ellwood Pier off Goleta in 1979. Mr. Culwell has an extensive background in underwater construction and demolition, oil platform and pipeline installation and removal, and the use of remotely operated vehicles and manned submersibles in deep water construction applications, working in the U.S. Gulf of Mexico, the North Sea, South America and the U.S. West Coast.

Elmer (Bud) P. Danenberger: Mr. Danenberger earned a B.S. degree in petroleum and natural gas engineering and a Masters degree in environmental pollution control, both from Pennsylvania State University. He has been

employed as an engineer in the Department of Interior's offshore oil and gas program since 1971. He has served as District Supervisor for the Minerals Management Service (MMS) field offices in Santa Maria, California, and Hyannis, Massachusetts, as a staff engineer in the Gulf of Mexico regional office, and as chief of the Technical Advisory Section at headquarters office of the U.S. Geological Survey. He is currently the Chief of MMS's Engineering and Operations Division with responsibilities for safety and pollution-prevention research, engineering support, offshore operating regulations, and inspection programs.

Frank DeMarco: Frank DeMarco, Registered Civil Engineer in the State of California, is an Associate Water Resource Control Engineer for the Regional Water Quality Control Board, Central Coast Region. He has worked for the Regional Board for over sixteen years. Currently, he is working in the Board's "Spills, Leaks, Investigation and Cleanup" (SLIC) program and the "Underground Storage Tank" program. Projects Frank has worked on that might be of interest to those attending this workshop include: Unocal-Avila Beach, tank farm near the City of San Luis Obispo, pipelines, sumps/abandonment; Chevron-Estero Bay and Carpinteria marine terminals/facilities, Texaco-Estero Bay tank farm abandonment, San Ardo brine disposal; Shell-Hercules Gas Plant near Gaviota.

Leray A. deWit: Leray A. deWit is an independent environmental consultant, specializing in resource assessment and permitting for coastal and offshore developments. He has over 23 years of experience in environmental consulting, including management of multidisciplinary environmental documents for federal, state, and local agencies, marine and coastal surveys, permitting of port, harbor, marina, and oil and gas developments, and assessment of impacts of proposed projects on biological resources. In addition to his experience throughout California, Mr. de Wit has worked on several international projects including environmental analysis for proposed or existing marine and coastal developments in Iran, Qatar, Abu Dhabi, Cameroon, Curacao, Peru, the Bahamas, United Kingdom, Russia and Thailand. Mr. de Wit has developed and managed large field surveys and is an accomplished diver, having logged over 1,300 dives, including a one-week saturation dive in the Hydrolab Underwater Habitat as part of a study on the effects of oil on

coral reef communities. He has completed pre- and post-construction and abandonment marine biological surveys for oil and gas facilities throughout the Santa Barbara Channel.

Robert B. Ditton: Dr. Ditton received his B.S. from the State University of New York College at Cortland and his Masters and Ph.D. from the University of Illinois. He is a member of the faculty of the Department of Wildlife and Fisheries Sciences where he teaches graduate level courses in coastal zone management and the human dimensions of wildlife and fisheries. He is the only social scientist in this Department currently. Most of his current research focuses on the human dimensions aspects of recreational fisheries (fresh and saltwater). Ditton has written extensively on the need for integrated approaches to natural resources management. He served as a Senior Research Scientist on an IPA assignment with the Minerals Management Service, Gulf of Mexico Region, from 1981-83. Also, Ditton served as a member of the National Research Council Committee on the Disposition of Offshore Platforms in 1984-85. Later, he served as a member of the board of experts that developed the National Artificial Reef Plan pursuant to the National Fisheries Enhancement Act in 1985. He is currently completing the second year of a multi-year research project for the Texas Parks and Wildlife Department on better understanding stakeholder groups that currently use offshore reef systems in Texas including oil and gas platforms.

Tom Dunaway: Tom Dunaway works for the Minerals Management Service, a small Federal agency in the Department of the Interior. He is the Regional Supervisor for Development, Operations, and Safety for the Pacific OCS Region located in Camarillo, California. His office is responsible for all oil and gas operations in Federal waters off the west coast. He has held this position for the last fifteen years and started his government service twenty-seven years ago with the U.S. Geological Survey's Conservation Division the precursor of MMS. He graduated with a bachelor's degree in Chemical Engineering from the University of Kansas. Also, he graduated from the Tuck Executive Program, Dartmouth College. He successfully completed the Career Development Program to enter the Senior Executive Service of the Federal government. He has been awarded the Superior and Meritorious Service Honor Awards of the Department of the Interior.

Steve Fields: Steve Fields is an Operations Engineer in the Ventura Office for the State of California, Department of Conservation's Division of Oil, Gas, and Geothermal Resources (Division). He started with the Division in 1981 in the Santa Maria Office. While in Santa Maria, he was involved in the plugging and abandonment operations for the wells on Platform Helen and the subsea completions associated with Platform Hermit. In 1985, he transferred to the Long Beach office where he spent three years as an Enhanced Recovery Engineer. In 1988, he transferred to his current position in Ventura. While in Ventura, he has been the Lead engineer for the 4-H well abandonment, the well abandonment on the Rincon Piers, and for three of the subsea well abandonment.

Daniel Frumkes: Daniel Frumkes is a graduate of UCLA in Zoology in 1963. He was assistant to the Director of the UCLA Health Sciences Computing Facility through 1978, first in the UCLA Department of Biomathematics and later in directing the Brentwood Hospital Statistical Research Laboratory. He interfaced with a wide range of scientific research which provided the foundation for the development of new techniques for computer assisted data analysis. Dan was a commercial hook and line fisherman from 1959 through 1970. He began his career in marine conservation as a volunteer in 1983, first by evaluating the selectivity of near-shore gillnets and later by reviewing existing techniques for collecting and analyzing fisheries data. Dan describes his initial involvement with marine conservation as less *volunteerism* and more *falling* into the void between marine scientists who have valuable knowledge, and policy makers, who have little access to the best available information. Dan continues to function as an interface between scientists and both policy makers and the public. He is the Chairman of the Habitat Research and Enhancement Committee for United Anglers of Southern California, and is the Director of the Conservation Network for the American Sportfishing Association. The objective of both positions is to help develop synergistic solutions for fisheries enhancement through education.

Craig Fusaro: Dr. Craig Fusaro received his Doctorate in Biological Sciences from the University of California, Santa Barbara, in 1977, working on the population dynamics of intertidal crustaceans. From 1976 to 1983, he was an associate research biologist and co-principal

investigator with Ecomar, Inc., involved in a variety of applied research projects ranging from mussel mariculture to ocean outfall studies to the fate and effects of offshore oil drilling fluids in the marine environment. In 1983, he became the director of the Joint Oil/Fisheries Liaison Office, an inter-industry effort to improve communications and resolve conflicts between the two offshore industries in the Santa Barbara Channel and Santa Maria Basin. Working with the Mediation Institute, he continues that effort presently. Concurrent since 1981, he has also taught courses in Animal Diversity, Kelp Ecology, Environmental Biology and Environmental Field Studies at Santa Barbara City College. He also volunteers as the Central Coast Board Member for California Trout, a statewide trout and stream habitat conservation organization, and is working to restore anadromous steelhead to the Santa Ynez River.

W. S. (Bill) Griffin: Bill Griffin is Director of Special Projects for Worldwide Drilling and Production at Phillips Petroleum Company. He began his work for Phillips in 1961, after receiving a B.S. degree in Petroleum Engineering from the University of Oklahoma. His first assignment involving the decommissioning of offshore installations was in 1972. Bill was asked to determine the future financial liability involved in the removal of all offshore structures, on a worldwide basis, in which Phillips had an interest. He has subsequently held the position of Project Manager or Advisor on every decommissioning study carried out by Phillips. He has served on numerous industry committees related to decommissioning and has consulted with host governments. From 1987 until 1989 he was the industry Advisor for the U.S. Delegation during the IMO Guideline negotiations. Bill is currently working in London as the International Regulations Consultant for the industry's Offshore Decommissioning Communications Project.

Carolita Kallaur: Carolita Kallaur was named as the Associate Director for Offshore Minerals Management, Minerals Management Service, in January 1997. She is responsible for all phases of the Outer Continental Shelf (OCS) mineral resource management – from the initial offering of OCS lands for lease through the regulation of mineral development and lease abandonment activities. Ms. Kallaur had served as Acting Deputy Director from August 1994 until November 1995, when she became the Deputy Director. In that capacity, she assisted the

Director of MMS in running the day-to-day operations of the Agency. Ms. Kallaur also served as the Chief Financial Officer for the Bureau and served as Chair of its Information Resources Management Council. Ms. Kallaur has been with the Interior Department since 1968, when she began her federal career. She joined MMS in 1982. Ms. Kallaur has been honored with the U.S. Department of the Interior's Meritorious Service Award in 1985, the Distinguished Service Award in 1987, and the Presidential Meritorious Rank Award in 1987 and 1992. In 1995, she received the Presidential Distinguished Rank Award – the highest award bestowed a Senior Executive Service employee – for her exceptional contributions and leadership roles in the OCS oil, gas, mineral and international programs. Ms. Kallaur has a B.A. and an M.A. in economics from the University of Connecticut.

Linda Krop: Linda Krop is a Senior Staff Attorney with the Environmental Defense Center (EDC), non-profit public interest environmental law firm that represents community organizations in a wide variety of issues affecting our natural resources, air and water. Linda Krop currently represents the Environmental Coalition of Santa Barbara (comprised of the Sierra Club, League of Women Voters of Santa Barbara, and the Citizens Planning Association) and other community groups in matters relating to offshore oil and gas development. One of the issues the EDC is working on is the abandonment of facilities, both onshore and offshore. The EDC's clients (environmental groups and commercial fishing organizations) strongly prefer the complete removal of all facilities and a restoration of affected areas to pre-development natural conditions. EDC's clients also seek strict enforcement of approved abandonment plans and permit conditions.

James Lima: Dr. James Lima, formerly an Assistant Professor of Social Science at Troy State University, Alabama and adjunct professor at Dauphin Island Sea Lab, Alabama, is now a sociologist for the Minerals Management Service, Environmental Studies Section in Camarillo, California. Dr. Lima received his Ph.D. in Political Science in 1994 from the University of California, Santa Barbara. His area of expertise is in social and economic impacts of offshore energy development, coastal zone management, submerged cultural resources, environmental administration and policy analysis.

Milton Love: Dr. Milton Love is an Associate Research Biologist at the Marine Science Institute, University of California, Santa Barbara. For the past 25 years, his research interests have centered on Pacific Coast marine fishes of recreational and commercial importance. Currently, he is conducting research on the fish communities living around the oil platforms of the Santa Barbara Channel.

Frank Manago: Frank Manago is an Environmental Scientist with the Minerals Management Service (MMS), Pacific Outer Continental Shelf (OCS) Region in Camarillo, California. He joined MMS in 1984. In his present position, he is responsible for the development, procurement and contract management of environmental studies on the OCS in the areas of benthic, algal and fish ecology. He was one of the workshop coordinators for the 1994 MMS/CA State Lands Commission (SLC) workshop, *Abandonment and Removal of Offshore Oil and Gas Facilities: Education and Information Transfer*. Previously, Mr. Manago worked as an ecologist for the U.S. Army Corps of Engineers in Los Angeles, CA and was responsible for environmental planning and site assessment of military and civil work projects. Mr. Manago received his B.S. in Biology and Chemistry from North Carolina Central University and M.S. in Environmental Science from North Carolina State University.

Jack McCarthy: Jack McCarthy is currently employed as a geophysicist in the Pacific Region office of the Minerals Management Service. He has been involved with evaluating offshore leasing, drilling and development sites on the Atlantic, Gulf and Pacific OCS, using engineering geophysics and marine geotechnical methods, for more than twenty years. Site clearance operations depend on some of the same evaluation techniques. Given the anticipated increase in decommissioning activities in the near term off California, Jack's background in marine geology and oceanography and his experience in geoengineering survey technique, habitat mapping and commercial fishing makes him a logical candidate for assuming the functional role of MMS's "Marine Garbologist" for the Santa Barbara Channel.

Mike McCorkle: Mike McCorkle has been a full-time commercial fisherman for 41 years, with experience in all types of commercial fishing. He has 23 years of experience trawling around oil

rigs, and extensive experience talking about the pros-cons of rig removal from trawlers' point of view.

Merit McCrea: Merit McCrea has worked within the maritime industry in the area of Commercial Passenger Fishing Vessels, (CPFV), since 1974. For the last 12 years he has owned and operated a CPFV from Santa Barbara harbor predominantly in the area of the Santa Barbara Channel and Channel Islands. He has personal experience in this region for 22 consecutive years. He also has some limited experience in both gill net and hook and line commercial fishing. In addition to fishing operations he has worked with Dr. Milton Love of UCSB in the area of data and specimen acquisition on several projects including *Life History Aspects of 19 Rockfish Species (Scorpaenidae:Sebastes) from the Southern California Bight*. He is currently an active board member of the Sport Fishing Association of California. He owns and operates the Vessel SEAHAWK LXV from Sea Landing in the Santa Barbara Harbor.

Paul B. Mount II: Mr. Mount is Chief of the Mineral Resources Management Division of the California State Lands Commission. Mr. Mount graduated from Ohio State University, in Chemical Engineering with a major in Petroleum Engineering in 1973. After his graduation, he began his career with Unocal working in Santa Maria and Coalinga, California. In 1978, he was transferred to the Unocal's Research and Technology Center and responsible for research in enhanced oil recovery. He was one of the leading experts in the world on using single well tracer tests to determine residual oil saturation in oil and gas reservoirs. In 1981, Mr. Mount worked for Aminoil in Huntington Beach, California. He was promoted to Engineering Manager in 1982 and continued with Aminoil until 1987 in that capacity. In 1987, he took a position as a Reservoir Engineer with the State Lands Commission, and was promoted to Chief of Research and Development in 1988. He was promoted to Chief Reservoir Engineer in 1989, Assistant Chief of the Mineral Resources Management Division in 1990 and became Chief of the Division in 1991. He organizes and directs the Commission's Mineral Resources Management Program, including all oil, gas and geothermal and mineral resources on State Lands in the State of California. Mr. Mount is a licensed Professional Petroleum Engineer and is a member of the Society of Petroleum Engineers.

Mr. Mount recently retired as a Colonel in the U.S. Army Reserves.

Dave Parker: Dave Parker is a Senior Biologist with the California Department of Fish and Game's Marine Resources Division in Long Beach. He currently supervises the Department's Artificial Reef Program and has been involved with southern California nearshore invertebrate and sportfish issues with the Department for over 20 years.

John Patton: John Patton is Director of Santa Barbara County, California's Planning and Development Department. Prior to becoming Director, Mr. Patton was in charge of the County's Energy Division. The Energy Division is responsible for County permitting necessary for the \$6 billion development of offshore oil and gas in the Santa Barbara Channel and Santa Maria Basin. Mr. Patton received the U.S. Department of Commerce National Oceanic and Atmospheric Administration's first annual Award for excellence in Coastal, Estuarine and Marine Management for P&D's role in developing mitigation measures that make the Exxon Santa Ynez project a model of environmentally-sensitive offshore oil development. Mr. Patton holds a Bachelors degree from Tufts University and a Master of Regional Planning degree from the University of North Carolina.

Luis Perez: Luis F. Perez is an energy specialist with the Energy Division of the Planning and Development Department for Santa Barbara County where he has worked for the past 6 years. During that time, Luis has been a planner or project manager for decommissioning projects including Calresources/SWEPI Molino Gas Plant, the Texaco Gaviota Gas Plant, the Exxon Offshore Storage and Treatment (OS & T) Facility and the Guadalupe oil spill cleanup. Prior to his work with the Energy Division, Luis had worked in the Caño Limon - Rio Zulia Pipeline in Columbia, South America for 3 years in sub-contract management, emergency response and revegetation. Luis holds B.A. and B.S. degrees in environmental science and public relations from Northern Arizona University.

Simon Poulter: Simon A. Poulter is a principal of Padre Associates, Inc., a Ventura California based environmental and engineering consultant firm. Mr. Poulter has 14 years of experience as a project manager and environmental scientist responsible for physical, biological, and cultural

resource assessments for inland, coastal, and outer continental shelf projects. This experience has included numerous environmental impact reports (EIA/EIR/EIS), resource assessment studies, oil spill contingency plans, and regulatory permitting and compliance programs for projects within the United States, as well as the Russian Federation and South America. Mr. Poulter has been the project manager for the permitting and environmental review for a number of recent oil and gas facility abandonment programs in California. These decommissioning projects have included: Chevron's four State Waters platforms located offshore of Carpinteria; 23 subsea wells and associated flowlines in the Santa Barbara Channel; Unocal's Ventura tanker berth; Mobil's Seacliff Pier complex and Exxon's Belmont Island. Mr. Poulter holds a Masters degree in Environmental Planning from the University of Pennsylvania and a B/A/ in Marine/Aquatic Biology and Physical Geography from Wittenburg University.

Peter H. Prasthofer: Dr. Pete Prasthofer received a B.S. and M.S. degrees in Engineering Mechanics from the Georgia Institute of Technology and a Ph.D. in Mechanical Engineering from the University of California at Davis. Currently he is seconded by Exxon Production Research Company to be Technical Manager of the Offshore Decommissioning Communications Project (PDCP), funded by some 70 companies in the Oil Industry International Exploration and Production Forum (E&P Forum), the UK Offshore Operators Association and the Norwegian Operators Association OLF. Pete Prasthofer has over 23 years experience in the oil and gas industry in various research, technical and operational assignments. He has had significant involvement in the area of offshore decommissioning for the last 12 years, focusing on technical, regulatory, and public policy and risk management issues in national, regional and international arenas. He has worked full time on this issue since early fall 1995. He served as chair of the E&P Forum's Engineering Committee from 1985-1997.

J. Lisle Reed: Dr. J. Lisle Reed was born and rear in Missouri. He attended the University of Missouri at Rolla (Missouri School of Mines), where he received his Bachelors, Masters of Science, and Doctorate degrees in Chemical Engineering. Following graduation, Dr. Reed worked for five years in the oil and petrochemical industry. Dr. Reed entered Federal Government

service in 1970, and during the 70's, he served in several management posts, including Director of Oil and Gas for both the Federal Energy Administration and the Department of Energy. After the oil crisis of 1979, Dr. Reed returned to the private sector, where he was involved in synthetic fuels projects. In 1983, Dr. Reed was asked to join the Department of the Interior, where he served as Deputy Under-Secretary and Science Advisor to the Secretary. Since 1988, he has served as the Director of the Pacific Outer Continental Shelf Region of the Minerals Management Service. His office is in Camarillo, California. Additionally, Dr. Reed was the Secretary's representative to the statutorily authorized Klamath Fishery Management Council from 1986 to 1995. The Council oversees the restoration of the Klamath river fishery resources and facilitates appropriate allocation for harvest.

Villere C. Reggio, Jr.: Villere Reggio is an Outdoor Recreation Planner with the Minerals Management Service, Gulf of Mexico OCS Region. His responsibilities include assessment, research, and reporting on the interrelationship of the OCS oil and gas program with the recreational elements of the marine and coastal environment throughout the Gulf region. For the past 21 years Mr. Reggio has had a special interest in evaluating the fisheries value and potential of oil and gas structures.

John B. Richards: John Richards is a marine advisor emeritus with the California Sea Grant Extension Program and a research biologist with the Marine Science Institute at the University of California, Santa Barbara. In 1976, he began development of marine extension and applied research program for the south-central coast of California and served as Area Marine Advisor for the counties of San Luis Obispo, Santa Barbara, and Ventura until 1992. During the 1980's, Richards helped initiate a communications and conflict resolution program, worked with an oil/fishing industry mediation team, and published the *Oil and Gas Project Newsletter for Fishermen and Offshore Operators*. John is now a member of a team conducting research in marine fisheries and shellfish aquaculture at the Marine Science Institute. He continues to work on statewide projects with the Sea Grant Extension Program. He has a B.A. in zoology from the University of California, Santa Barbara and an M.S. degree in fisheries biology from Oregon State University.

Dwight Sanders: Dwight Sanders joined the California State Lands Commission in 1975 following more than 8 years as staff to the California Legislature. Mr. Sanders is currently Chief of the Division of Environmental Planning and Management and in that capacity has been involved in proposed State and Federal offshore lease sales, and in the policy and environmental analyses of: 1) offshore seismic operations; 2) the installation and operation of onshore and offshore oil and gas related facilities; and 3) the decommissioning and removal of such facilities. Mr. Sanders also serves as one of the ex officio members of the California Coastal Commission, representing the Chair of the State Lands Commission, having received his appointment in 1982. Mr. Sanders is a UC Davis alumni, a graduate of the CORO Foundation, and also holds a Master of Public Administration.

Russell J. Schmitt: Dr. Russ Schmitt is a Professor in the Department of Ecology, Evolution and Marine Biology at UC Santa Barbara and Director of the Coastal Research Center of UCSB's Marine Science Institute. He received his Ph.D. from UCLA in 1979. Dr. Schmitt serves as Program Director for the Coastal Marine Institute and the Southern California Educational Initiative, which are cooperative research programs supported by the State of California, University of California and the Minerals Management Service. He is also Program Director of the UC Coastal Toxicology Training Program, a UC-wide component of the UC Toxics Substances Research and Teaching Program. Russ Schmitt's primary research programs address the abundance and dynamics of benthic marine animals. His interests in the application of basic ecology has led to his research on the design and implementation of environmental impact assessment studies.

Nancy Settle: Nancy Settle has managed the Regional Programs and Project Section for the Ventura County Planning Division over the past eight years. She oversees and supervises the County's involvement in Offshore and Onshore Oil Development and the California Offshore Oil and Gas Energy Resources (COOGR) study.

John Smith: John Smith is a Senior Environmental Coordinator with the Minerals Management Service's Office of Environmental Evaluation in Camarillo, California. He has a B.S. degree in geology and an M.S. degree in mineral economics from the Pennsylvania State

University. He joined the Department of the Interior in 1976 with the Bureau of Mines. In 1983 he joined the Minerals Management Service and since 1988 has been with the Pacific OCS Regional Office where he has served as senior environmental coordinator for major oil and gas development projects

D. C. (Dave) Tyler: Dave Tyler received his Bachelor of Science in Mechanical Engineering in 1981 from the University of California at Berkeley. In 1990, he received his Masters in Business Administration from the University of California at Los Angeles. He began his career with Exxon Company, U.S.A. in Los Angeles and worked in various engineering and regulatory positions associated with Exxon's offshore California and Alaska interests. Dave also led Exxon's permitting efforts for the Santa Ynez Unit Development during its 6-year construction phase, including removal of the Offshore Storage and Treatment Facility. In 1994, Dave moved to Midland, Texas, and became Regulatory Supervisor for production fields in the western U.S.. Dave moved to Houston in 1996 and was named to his current position as Public Affairs Advisor.

Marina Voskanian: Marina Voskanian is the Chief Reservoir Engineer with the California State Lands Commission (CSLC), supervising Reservoir Engineering and Geology section of the Mineral Resources Management Division located in Long Beach. Marina has been employed with the CSLC since 1987, and she has worked in private industry for eleven years prior to working for the State of California. During those years she held several engineering and supervisory positions with Exxon Oil Company, Southern California Gas Company, Aminoil and Phillips Petroleum company. Marina also serves on the Board of Directors of the Society of Petroleum Engineers, and is presently the Western Region Director representing California and Alaska. She has been recipient of several awards from professional organizations for her dedicated service to the industry. She received her graduate degrees in Petroleum Engineering from the University of Southern California (U.S.C.) in 1976. She has been part-time member of faculty, at the California Polytechnic University from 1984 through 1990, teaching petroleum engineering courses. Last few years, she has been part time lecturer at U.S.C. teaching graduate courses in Petroleum engineering.

Maureen Walker: Maureen Walker is the Deputy Director of the Office of Ocean Affairs, Bureau of Oceans and International Scientific and Environmental Affairs, U.S. Department of State. She joined the Department of State in 1983 as a Foreign Affairs Officer in the Division of Marine Law and Policy. She has been in her current position for the past 8 years.. She is the Chair of the U.S. delegations to international multilateral meetings on issues related to energy, natural resources and the environment. She has participated on the U.S. delegation to preparatory meetings to the United Nations Conference on Environment and Development (Rio Earth Summit) and negotiated key documents such as Agenda 21. She serves as Executive Secretariat to the National Security Council Interagency Working Group on Global Environmental Affairs Task Force on Law of the Sea, and also serves as U.S. lead negotiator within the Asia Pacific Economic Cooperation forum on marine conservation issues. Maureen Walker has a B.A. from Boston College, an M.A. from Georgetown University and a J.D. from the Catholic University of America.

Bonnie Williamson: Bonnie Williamson has been the Assistant to the Director of the Southern California Educational Initiative and the Coastal Marine Institute for the past 8 years. She is involved in the administrative and fiscal management of these and other research programs administered by the Coastal Research Center (CRC) at UC Santa Barbara. She serves as liaison between the faculty, staff, researchers, agency personnel, grant recipients and the Directors. Bonnie has served on the organizing committee for numerous conferences and workshops sponsored by the Coastal Research Center. Bonnie has a B.A. in Earth Sciences from SUNY Brockport and an M.A. in Geology from UC Santa Barbara.

APPENDIX V

List of Attendees	257
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LIST OF ATTENDEES

Over 370 people attended the Decommissioning Workshop. There were representatives from four Federal Departments and five Federal Agencies, six State Agencies, nine local and county agencies, ten academic institutions, seventeen citizen groups, and over sixty industry companies (oil producers, consultants and contractors), as well as several international representatives.

Barbara Abbriano (student) Santa Barbara City College Santa Barbara, CA	Hector Hernandez Arana Instituto Nacional del la Pesca (Mexican Natl. Fisheries Institute) Pitagoras 1320 Col. Sta. Cruz Atoyac D.F. 03310 Mexico	Martha Barajas Minerals Management Service 770 Paseo Camarillo Camarillo, CA 93010
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Clement Alberts POOI 2225 Sperry, Suite 1300 Ventura, CA 93003	Avis Austin League Of Women Voters 1378 – 7 th Street Los Osos, CA 93402-1223	Kristine Barsky Calif. Dept. of Fish and Game 530 E. Montecito Street, Rm. 104 Santa Barbara, CA 93103
Jim Allen, President HydroDynamic Cutting Services P.O. Box 80843 Lafayette, LA 70598	Quang Bach Calif. State Lands Commission 200 Oceangate, Ste 1200 Long Beach, CA 90802	R.C. (Rick) Barton New Ventures-Central Coast Aera Energy LLC P.O. Box 11164 Bakersfield, CA 93389-1164
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