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A PERSPECTIVE ON OFFSHORE OIL

AND

ITS IMPACTS UPON VENTURA COUNTY'S

"208" AREAWIDE WASTEWATER TREATMENT MANAGEMENT

AND

AIR QUALITY MANAGEMENT PLANS

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VENTURA COUNTY
RESOURCE MANAGEMENT AGENCY
PLANNING DIVISION

JUNE 1983

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CHAPTER I

INTRODUCTION AND SUMMARY

A. PURPOSE OF REPORT

The purpose of this report is to provide a perspective on current as well as future offshore oil development and its affect upon Ventura County's long-range planning. This report is primarily intended as a planning guide to assist future decision-making on offshore drilling and related issues. It is also anticipated that the report will provide useful information to citizens of Ventura County concerned with the impacts of offshore drilling. It should be noted, however, that the scope of this report is limited to a discussion of population related socioeconomic impacts and air quality impacts, and is not intended to address other impacts associated with offshore oil drilling. For example, the socioeconomic costs associated with an oil spill offshore Ventura County are not addressed in this report.

B. ORGANIZATION OF REPORT

The report is organized into five chapters. Chapter II, Part A of the report presents an overview of offshore leasing and development activities in the Santa Barbara Channel. Part B presents existing and proposed onshore facilities related to offshore oil production. Maps portraying these activities are provided in the "Appendix" (Maps 1-3). Chapter III utilizes the revised 1983 APCD Emissions Inventory (Draft) to project future OCS activity. Projections of future State Tidelands activity were also developed. From these activity projections, projections of offshore oil-induced population were developed using the economic model contained in Volumes 1 and 2, U.S. Fish and Wildlife Services document Environmental Planning for Offshore Oil and Gas, March 1978. Comparisons to projections developed in 1981 are also drawn. The impacts of projected OCS emissions upon the County's Air Quality Management Plan are discussed in Chapter V.

C. SUMMARY OF CONCLUSIONS

OFFSHORE DEVELOPMENT

Oil exploration and development has been occurring in the Santa Barbara Channel since the early 1800's. Since then, there have been a total of 9 Federal, and several State lease sales, which have resulted in the leasing of the majority of tracts offshore Santa Barbara and Ventura Counties (between the islands and shore). Proposed OCS Lease Sale #80 (1984) offers most of the remaining tracts in the Channel which have not yet been leased. The majority of oil exploration and development activities have historically occurred in the western Channel, while activities in the eastern Channel, offshore Ventura County, have been relatively limited. Of the 12 development platforms currently located in the Santa Barbara Channel OCS, only 3 are located offshore Ventura County. Activities in the State Tidelands (within 3 miles) offshore Ventura County have also been relatively limited, and have primarily occurred from Rincon Island. In addition, some

exploratory activity has occurred on the Pierpont Prospect offshore Oxnard Shores. Only a small percentage of the tracts leased offshore Ventura County have been explored. Therefore, continued and accelerated offshore oil development is expected in the future offshore the County.

ONSHORE FACILITIES

Facilities related to the development of offshore oil resources in the Santa Barbara Channel are scattered along the Santa Barbara-Ventura County coastline. The primary supply/crew base serving the Channel is at Port Hueneme in Ventura County. A total of seven active processing and treatment facilities and three active marine terminals are located in Santa Barbara County and are primarily centered around the Gaviota and Coal Oil Point areas. In Ventura County, there are six processing and treatment facilities for offshore oil, five of which are located in the Rincon-La Conchita area, and one at Mandalay Beach. Ventura County has three marine terminals locted at; the Ventura River, Ventura Marina, and Mandalay Beach. Ventura County also has a refinery which processes Channel crude.

OFFSHORE ACTIVITY PROJECTIONS AND RESULTANT POPULATION PROJECTIONS

Oil exploration and production in the Santa Barbara Channel is expected to increase in the future compared to current levels of activity. Exploration is expected to increase sharply in 1986, due largely to activities in State waters where leases are about to expire. After peaking in 1986 exploratory activities are expected to decline. Oil development activity is expected to increase toward the end of 1983 and then rise again in 1985. Peak development is projected to occur in 1991, followed by declining development activity. Projections of oil-induced population growth have been developed from the above activity projections, and follow similar trends.

Ventura County has been the area most impacted by the increased employment and housing needs generated by offshore oil development since Port Hueneme, the support base for these activities, and most support industries are located in Ventura County. Therefore, this report assumes that Ventura County will be the primary area affected by offshore drilling-induced population. In the future, however, a greater proportion of the population impacts may be born by Santa Barbara and San Luis Obispo Counties should major onshore support facilities be built there.

"208" PLAN IMPACTS

Ventura County has adopted a "208" Wastewater Treatment Management Plan which contains population projections to the year 2000. The purpose of these projections is to guide future population growth in order to minimize impacts upon public services, primarily sewer and water. Most of the population is concentrated in the south half of the County, for which projections have been developed. In addition, the "South-Half has been divided into various Growth and Non-Growth (G/NG)areas, for which projections have also been developed. The impacts of additional offshore oil-induced population growth on the "208" Plan population projections in either the "South-Half" or the individual G/NG areas would not appear to be

significant. The population projections for the Oxnard GA should be able to accommodate the projected oil-induced growth. However, the "208" Plan's wastewater treatment plant capacity projections for the Oxnard GA could be exceeded.

AQMP IMPACTS

A generalized evaluation of air quality impacts on Ventura County due to emissions from current and projected petroleum related activities in the Sant Barbara Channel has been prepared by APCD. Projections of emissions were based on a petroleum production scenario comprising the expected development in the Channel. Petroleum production and corresponding emissions are expected to peak around 1987-1990. Baseline (1979) emissions and emission forecasts in 1987 and 1995 were developed. Emission controls resulting from current, technoeconomically feasible engineering practice are considered in the emission forecasts.

The following impacts from emissions generated in the Channel upon air quality onshore Ventura County are expected between 1987 to 1995:

- emissions of reactive organic compounds and nitrogen oxides may seriously interfere with efforts by the County to comply with federal requirements for attainment of the ozone health standard;
- emissions of nitrogen oxides may cause violations of the nitrogen dioxide standard, and may contribute to acid rain;
- emissions of sulfur oxides may cause violation of sulfur dioxide and sulfate standards, and may further contribute to acid precipitation;
- emissions of carbon monoxide should not be significant;
- particulate emissions will probably not be significant.

It is concluded that mitigation of these impacts will require application of reasonably stringent emission control measures. As most of the developments will be in federal waters, emission control measures must be promulgated at the Federal level.

D. RECOMMENDATIONS

The following are recommendations for future action based upon the findings of this report:

OFFSHORE ACTIVITIES:

- At the same time activities offshore Ventura County in State and Federal waters are projected to increase, continued funding of the County's program to access the impacts of those activities has been eliminated. State and Federal revenue-sharing legislation which provides for assistance to affected local governments should be supported.

ONSHORE FACILITIES RELATED TO OFFSHORE DRILLING:

- Ventura County should continue to support the transportation of Santa Barbara Channel crude oil via pipeline versus tankering.

"208" PLAN:

- As there are no "significant" 208 Plan impacts at either the Countywide or local-city level, no recommendations are proposed.

AQMP:

- The Ventura County Air Pollution Control District has repeatedly called for an "air quality monitoring study" in order to more precisely determine the impacts of OCS activities on Ventura County air quality and upon the Air Quality Management Plan. The County has maintained that no further leasing should occur before such a study is completed and mitigation measures are developed.

CHAPTER II
STATUS OF OFFSHORE OIL IN THE SANTA BARBARA CHANNEL AND RELATED ONSHORE FACILITIES

A. OFFSHORE ENERGY DEVELOPMENT

The Santa Barbara Channel has been the scene of offshore drilling since the early 1800's, when shallow wells were drilled from piers off Summerland. The following sections provide an overview of past and present oil activities in the Santa Barbara Channel for both the OCS and State tidelands.

1. State Lands Activities

The first State leases were issued in the Santa Barbara Channel in 1929. Most of the State leasing offshore Ventura County occurred during the 60's. In 1969, following the Santa Barbara oilspill, a moratorium on drilling in the Channel was initiated. In 1974, the moratorium was lifted for platform development and for case-by-case exploratory work. Exploration and development activities in State waters have historically been concentrated offshore Santa Barbara County, in the Western Channel, however, more recently, there has been some activity offshore Ventura County. Within the last two years, State tidelands activities have increased, primarily proposals for resumption of exploratory drilling. The status of platforms in State waters is shown in Table 1. Table 2 shows all activities approved for State waters since the moratorium was lifted in 1974.

Currently in State waters offshore Santa Barbara County, there are two exploratory rigs and seven production platforms. Offshore Ventura County, the only exploration or development in State waters is from Rincon Island. An exploratory rig, however, is proposed to be sited in State waters offshore Mandalay Beach in the near future.

2. OCS Activities

There have been nine oil and gas lease sales in the Pacific Region, five of which have involved portions of the Santa Barbara Channel and are summarized below. In addition, Table 3 provides statistics for these lease sales.

The first sale in 1966 covered one block, which was leased to protect the block from drainage via slant drilling by adjacent wells in the Carpinteria Offshore Field. Phillips Petroleum has erected two platforms in this one block lease area, Hogan and Houchin, from which 92 development wells have been drilled, 47 of which are currently producing oil.

In the 1968 Lease Sale, the first full scale oil and gas sale offshore Southern California, 71 blocks in the Santa Barbara Channel were leased, 34 of which are still active. As of June 1981, 126 exploratory wells have been drilled as a result of the 1968 Sale. This Sale has

resulted in 247 development wells, drilled from seven producing platforms (Hondo, Grace, Hillhouse, Union's Platforms A, B, and C), of which 176 are producing. In addition, Platforms Gina and Gilda, sited offshore Oxnard, have recently begun production.

Lease Sale 35 (1975) resulted in the leasing of 56 blocks off Southern California; however, only seven of which are still active, while the remainder have expired. A total of 40 exploratory wells have been drilled; however, no production wells have yet been drilled in the Santa Barbara Channel from this sale.

Lease Sale 48 (1979) resulted in the leasing of 54 tracts, which are still active. As of June 1981, six exploratory wells have been drilled.

Lease Sale 68 (1982) resulted in the leasing of 29 tracts, totaling 147,066 acres. The sale originally included 208 tracts covering 1.2 million acres; however, tracts lying within the Channel Islands Marine Sanctuary, the Santa Barbara Ecological Preserve Buffer Zone, and those which would have conflicted with Defense Department operations, were removed from the sale. In addition, the sale of 24 tracts off Point Dume, Santa Monica Bay, and Laguna Beach were blocked as a result of a lawsuit filed by the State of California. The U.S. Supreme Court recently agreed to hear this case on Appeal.

Currently, a total of 12 platforms are operating in the Santa Barbara Channel OCS, and several additional platforms are planned. A listing of existing and proposed OCS platforms are provided in Tables 4 and 5, respectively.

Several major oil and gas discoveries have been made recently by Chevron, Texaco, and Phillips, all centered approximately 10 miles offshore Point Conception.

CONCLUSION

Currently, there are three production platforms, and two exploratory drillships in OCS waters offshore Ventura County. In State Tidelands offshore the County, there are no exploratory rigs or development platforms, except for development activities from Rincon Island. The siting of an exploratory rig off Mandalay Beach is pending Coastal Commission action. Offshore drilling activities affecting Ventura County are expected to increase in the future due to the fact that most of the OCS offshore Ventura County (between the islands and County) has been leased, but not yet developed, and the remaining tracts will be offered in Lease Sale #80, proposed for 1984. It is anticipated, however, that the majority of the OCS exploration and development activities will continue to occur offshore Santa Barbara County. No more than six, and probably five, platforms are expected in the OCS offshore Ventura County at any given time. Acceleration of leasing and development activities is expected for the State Tidelines offshore Ventura County, since many of these leases are about to expire. No more than two development platforms are expected in State waters offshore Ventura County at any given time.

B. ONSHORE FACILITIES RELATED TO OFFSHORE OIL AND GAS DEVELOPMENT IN THE SANTA BARBARA CHANNEL

There are four major categories of onshore facilities necessary for the development of oil and gas resources in the Santa Barbara Channel: processing (separation and treatment) facilities marine tanker terminals, support facilities, and refineries. Existing and proposed facilties are described below and are illustrated on Map 3 in the "Appendix."

Processing Facilities

Processing facilities are designed to separate impurities, including oil, natural gas, and formation water, in the crude oil waste stream. If the gas is sour, the excess hydrogen sulfide is removed at a gas treatment plant. Small processing facilities are scattered along the Santa Barbara-Ventura County coastline.

There are a total of seven active processing facilities in Santa Barbara County which process offshore oil and gas. These include Union-Point Conception, Arco Gaviota, Chevron-Gaviota, Shell-Molino, Phillips-Tajiguas, Arco-Ellwood, and Arco-Coal Oil Point. Due to declining production in the State tidelands offshore Santa Barbara County, most of these facilities are functioning with considerable excess capacity.

However, in response to expected increases in OCS production, capacities will need to be increased in the future, either through expansion of existing sites or consolidation into one or more major processing/terminal facilities. Currently, Chevron-Gaviota is proposing to expand their capacity in order to treat Chevron field production off Point Conception. Oil would be transported ashore at Point Conception and thence via pipeline to the Chevron-Gaviota facility. The Arco processing facility at Coal Oil Point is also proposed for expansion.

Ventura County has six facilities which process offshore oil and gas. The largest of these is Mobil-Rincon, which is owned by a consortium of seven oil companies. The facility is located atop a bluff on the inland side of Highway 101 and is not visible from the highway. The facility has a net design capacity of 95,000 barrels of oil per day (BOPD) and 60 million cubic feet per day (MMCF/D) of natural gas. Only approximately 60% of this capacity, however, is currently being utilized. In addition, only 32 acres of the 140 acre site is currently developed. Thus, the Mobil-Rincon facility could be a candidate for future expansion to accommodate much of the anticipated production in the Santa Barbara Channel. Three other small separation and treatment facilities are located just east of Mobil-Rincon along Old Highway 1.

Phillips-La Conchita is located a few miles east of the Santa Barbara County line, on the inland side of the 101 Freeway. The plant's design capacity is 27,000 BOPD and 22 MMCD/D of natural gas, however, current throughput is only approximately 20% and 15% of capacity, respectively.

Along the County's south coast, Union Oil's Mandalay Beach separation and treatment facility processes crude from platforms Gina and Gilda. This facility has a capacity of 22,000 BOPD, however the design of the facility provides for doubling this capacity should conditions warrant.

Marine Terminals

There are currently three active marine (tanker) terminal facilities in Santa Barbara County which include: Union Cojo Bay, Getty-Gaviota, and Aminoil-Coal Oil Point. In addition, there is a terminal at El Capitan which is currently inactive. The Exxon-Capitan facility is expected to be phased out in the future because of land use conflicts. Cojo Bay is a small facility which is relatively inactive. Two competing major marine terminal facilities are currently proposed for the Getty-Gaviota site and for Las Floras Canyon (Exxon). Both propose to serve existing and future Western Channel and Santa Maria Basin production. Aminoil is proposing a minor expansion of its Coal Oil Point facility, however, the need for this proposal may be satisfied by either of the major marine terminal proposals.

There are three marine terminals in Ventura County, however, none are currently used to transport Channel crude to other locations. All crude which is produced offshore Ventura County and most which is produced onshore is transported via pipeline. Getty Oil Company does not operate any major pipelines in Ventura County and, therefore, utilizes its Ventura River marine tanker terminal to transport its onshore production to a refining center via tanker. A second terminal facility located in Ventura Marina is used to store both onshore and offshore production to be pipelined out of the area. In the past, this terminal has been used for onloading marine tankers. The Union-Mandalay terminal, located near Oxnard Shores, is used only for offloading of fuel for Edison's steam power plant boilers.

Support Facilities

There are currently three primary support facilities which serve the Santa Barbara Channel - the Chevron-Carpinteria site in Santa Barbara County, and La Conchita and Port Hueneme in Ventura County. Carpinteria has eight boats operating and serves the platforms directly offshore (Henry, Hillhouse, A, B, C, Hogar, and Houchan). Supply boats are limited there because of the shallow water depths. La Conchita is used primarily as a staging area for the fabrication of offshore pipelines. Port Hueneme functions as the Channel's primary supply and and crew base facility, where 22 supply and 10 crew boats are currently operating. An additional eight crew boats are located there which are available. Channel Islands Harbor has one supply boat and one crew boat operating, in addition to three other available crew boats. These serve Platform's Heidi, Hope, Hazel and Hilda. Ventura Harbor has two active crew boats and another five available, serving Platforms Gina and Gilda. The harbor also has two utility, or mini-supply boats available. The Ellwood Pier, located to the west of Coal Oil Point is also used as a crew base, however, the pier is currently being reconstructed because of damage from this year's storm.

Because of the distance to Port Hueneme from the western channel, the establishment of an additional supply base in San Luis Obispo County is being studied by that County.

Refineries

USA Petrochem, located in the lower Ventura River Valley, has a capacity of 30,000 B/D, and a current throughput of about 18-21,000 B/D. Petrochem's primary product is heavy fuel oil, however, because of changing market conditions, they have proposed to modify the facility's permit to enable production of higher grade fuels (i.e, diesel, gasoline, jet fuels, etc.). Although this modification request is not an expansion, it will, if approved, provide the incentive for Petrochem to refine a greater amount of Channel crude, thereby reducing the necessity for tankering to out-of-state or County refining centers. According to the State Energy Commission, similar modifications are planned for 15 of the State's 37 refineries.

CONCLUSION

A number of small-scale processing and treatment and marine terminal facilities are located along the Santa Barbara-Ventura County coastline. In anticipation of increased development in the western Santa Barbara Channel, oil companies are nominating various sites in Santa Barbara County for a consolidated marine terminal and processing facility. In addition, a location for a supply/crew base to serve the western Channel is being explored. Ventura County appears to have sufficient capabilities to expand existing processing and treatment facilities at Mandalay and Rincon to accomodate any future activities offshore the County. Ventura County currently does not use any of its marine terminals for transhipment of Channel crude and does not envision a need for a major marine terminal facility in the future. Crude from the County's offshore platforms (Gina, Gilda, and Grace) is pumped onshore and then into an onshore pipeline network.

CHAPTER III

REVISED PROJECTIONS FOR OFFSHORE OIL AND GAS ACTIVITIES AND RESULTANT POPULATION INCREASES

In March 1981, a report assessing the socioeconomic impacts of offshore oil on Ventura County was developed by the Planning Division. The report utilized projections of future OCS and State Tidelands activity contained in the Ventura County Air Pollution Control District's 1981 Emissions Inventory as a baseline to project future population and related socioeconomic impacts. Extrapolating information from a revised (February 1983, Draft) APCD Emissions Inventory, this chapter updates the 1981 Socioeconomic Impacts report. It was also necessary to update the projections of future State Lands activities, as APCD's revised inventory only contains OCS projections. This was accomplished through discussions with State Lands Commission Commission staff (March/April 1983) and review of State Lands documents.

A. Revised Offshore Activity Projections

1. Exploration

Projections of exploration activities are shown in Table 1. The total number of exploratory wells are expected to decline over the next few years as existing wells are either abandoned or replaced with development wells. However, the number of exploratory wells is expected to increase significantly in 1986, due largely to activities in State waters where leases are about to expire. A total of 38 wells are expected to be operating during that year, 11 OCS and 27 State. Exploratory activities are then expected to decline after 1986.

2. Development

Table 2 provides estimates of the number of future platforms expected in Federal and State waters through 1991. As indicated, the number of platforms in the Channel are expected to increase from the current 19 to 21 toward the end of 1983, after which that number will remain constant until 1985. In 1985, the total number of platforms is projected to increase to 33. This represents a 74% increase over the current number of platforms, and is attributed primarily to State Tidelands activities. Offshore development is expected to continue escalating through 1991, at which time a peak of 63 platforms are projected, 34 in State waters and 29 in Federal OCS.

B. Revised Offshore Oil Induced Population Projections

The projected increases in offshore development activity discussed above will result in population growth. Projected population increases are presented in Table 3. As indicated, resulant population growth is expected to increase toward the end of 1983 and then stabilize until 1985. In 1985,

the projections show a sharp increase. Gradual, but significant increases follow through 1991, the peak year, when offshore development generates a total of 23,452 persons.

C. Comparison with 1981 Offshore Activity and Population Projections

A review of current and proposed activities indicates that the projections contained in the 1981 Socioeconomic Impacts report underestimated the level of offshore activity and resultant population increases by a factor of approximately 2.5 times. For example, a total of 21 platforms are expected in 1983 as compared to the previous estimate of 9 platforms. As indicated in Table 3, the resulting population projections for that year were therefore similarly underestimated in the 1981 Report, 3,350 persons (Scenario C) versus 7,817 persons (Secenario D).

CONCLUSION

Since much of the Western Channel has already been explored, a slow decline in exploratory drilling is expected offshore Santa Barbara County as development drilling increases. Offshore Ventura County, many areas leased in Sales 35, 48, and 68 have yet to be fully explored, and therefore exploratory activities in those areas may be expected to increase slightly. A cumulative total of 63 State and OCS development platforms are projected for 1991 for the Santa Barbara Channel (assuming no directional drilling from shore), generating 23,452 persons. The majority of the projected development will continue to occur in the Western Channel. Population related socioeconomic impacts associated with offshore drilling has historically focused on Ventura County, where the major supply base, Port Hueneme, and most support industries are located. However, in the future some of these impacts may shift to Santa Barbara and San Luis Obispo Counties should major support facilities be constructed there.

CHAPTER IV

IMPACT OF REVISED OFFSHORE OIL POPULATION PROJECTIONS ON THE VENTURA COUNTY AREAWIDE WASTEWATER TREATMENT MANAGEMENT "208" PLAN

Ventura County has adopted two Federally required environmental management plans, the "208" Areawide Waste Treatment Management Plan, and the Air Quality Management Plan (AQMP). These plans contain population projections to the year 2000. The 208/AQMP projections have historically been used to guide residential growth within the County in order to minimize impacts upon public facilities, as well as to reduce air quality impacts so as to meet the requirements of the Clean Air Act.

Total Population

The County has been divided into two halves for the purpose of projecting future population, the "North Half" and "South Half." The overwhelming majority of the population resides in the South Half, whereas, the North Half primarily encompasses the Los Padres National Forest. On March 2, 1982 the Ventura County Board of Supervisors adopted a revised the population forecast for the year 1985. A total of 584,489 persons are projected for the South Half in 1985. The existing, (first quarter of 1983) estimate of population for the South Half is 524,782. Thus, the population projections can accommodate an additional 59,707 persons by 1985 on a Countywide basis. Offshore oil-induced population is projected at 12,285 for 1985. Should this additional offshore oil-induced population cause the projections to be exceeded, public services could be significantly impacted. However, this event appears unlikely due to the gap which exists between current estimates of population and that of the adopted projections.

Geographical Distribution

Offshore oil-induced population will probably not be evenly distributed throughout the County. Instead the Planning Division has assumed that the added population would be concentrated in the coastal areas of Oxnard, Port Hueneme, and Ventura. The South Half of the County has been divided into growth areas (GA's) and non-growth areas (NG's), for which population projections have been adopted. Projections for the Oxnard, Port Hueneme and Ventura GA/NGA's are shown below (Table 12), along with corresponding population estimates. Note that "estimates" in this context reflect current population based upon the number of building completions.

POPULATION ROJECTIONS/ESTIMATES
FOR AFFECTED GROWTH/NON-GROWTH AREAS

TABLE 12

	OXNARD GA	OXNARD NG	PORT HUENENE GA	VENTURA GA	VENTURA NG
1985 208/AQMP Pop. Projections	136,576	3,900	21,000	80,114	1,658
1983 Population Estimates	120,515	3,363	19,039	84,043	1,768
Remaining Population	16,061	537	1,961	-4,957	-110

PROJECTED CUMULATIVE POPULATION FROM
OCS/STATE TIDELANDS DVLP.-1985: 12,285

As can be seen from reviewing Table 12, the only areas that could receive additional population and stay within the 208/AQMP limitations are Oxnard and Port Hueneme. Also, if offshore-induced population occurs as projected (12,285 persons), it could absorb over two-thirds of the remaining growth increment for Oxnard and Port Hueneme.

In contrast, it is unlikely that significant offshore oil-related growth would occur within the City of Ventura due to the growth management plan implemented by the City in order to achieve the National Ambient Air Quality Standards in accordance with the Ventura County AQMP. Also growth in the Ventura NG is constrained by sewer and water limitations.

Accommodating future growth within the Port Hueneme GA is also limited, primarily due to a limited availability of developable land. Thus, the Port Hueneme GA has very little capacity to accommodate future oil-induced growth; the actual capacity will depend upon how much growth from other sources occurs within the GA.

SUMMARY

Whereas the Ventura GA/NGA and Port Hueneme GA have limited capabilities to accommodate the projected levels of OCS/State Tidelands - related growth, the projections for the Oxnard GA do appear to have sufficient capacity to accommodate such growth. Therefore, it is reasonable to assume future offshore oil-related population growth will focus there. While not considered significant, the OCS/Tidelands growth will contribute to the higher costs of providing public services and these may not be offset by the additional revenues generated. Primary among these required urban services are: schools, police and fire, public works, water, and sanitation. For the City of Oxnard, the provision of water may be of crucial importance since the City presently does not possess formal entitlements to approximately 50% of its water supply. In addition, the subject of sanitation is of significant concern, since the capacity of the City's wastewater treatment facility is being approached.

CONCLUSION

The impact of future offshore oil induced population would not appear to impact the 208 Plan; i.e., the population projections contained in the Plan would likely not be exceeded at either the Countywide or growth/non-growth area level. However, oil induced growth may place added stress on the provision of services in the Oxnard growth area, where the majority of growth is projected to occur.

CHAPTER V
IMPACT OF REVISED PROJECTIONS OF OFFSHORE OIL RELATED ACTIVITY ON THE VENTURA COUNTY AIR QUALITY MANAGMENT PLAN (AQMP)

I. Introduction

Studies indicate that prevailing westerly winds (winds from the west) carry smog forming emissions from petroleum related activities in the Santa Barbara Channel into Ventura County. The County is a nonattainment area for ozone (smog). Consequently, stringent controls have been placed on onshore sources of emissions that produce ozone downwind. Activities in the Outer Continental Shelf (OCS) are solely under Federal jurisdiction and therefore need not comply with rules and regulations to control onshore emissions. The OCS is all underwater land more than three miles offshore. Current and potential emissions from OCS activities, if unmitigated, are expected significantly to interfere with efforts in Ventura County to comply with ozone attainment requirements mandated by the Clean Air Act.(1) An evaluation of current and projected emissions from these activities on compliance with ozone attainment requirements in Ventura County is given below, together with considerations of impacts of sulfur dioxide, carbon monoxide, and particulate emissions from the projected OCS activities on the County's air quality.

II. Background

Prevailing westerly winds that carry emissions from the Santa Barbara Channel into Ventura County are shown in Figure 1. Offshore petroleum activities produce substantial emissions of reactive organic compounds (ROC) and nitrogen oxides (NOx) - the precursors to smog formation, together with emissions of suflur dioxide, carbon monoxide and particulates. Recent atmospheric tracer studies, and evaluations of meteorological data obtained in OCS waters off Ventura and Santa Barbara Counties indicate that the prevailing winds shown in Figure 1 carry these pollutants from offshore to onshore Ventura and Santa Barbara Counties. (2,3) The data generally indicate that there is a greater impact of these pollutants on Ventura County than on Santa Barbara County. (3)

Assessment of the cumulative impact of current petroleum activities, and of expected future activities deriving from Lease Sales 48, 68 and 80 on the County's air quality is of great concern to the Ventura County Air Pollution Control Board (Board of Supervisors). In comments on each of the Lease Sales, the County has requested assessment of these cumulative impacts by the Department of the Interior. This assessment has not yet occurred.

III. Procedure for Air Quality Assessment of OCS Activities

The assessment of ozone impacts will require a process known as photochemical modeling. Photochemical modeling of current or potential ozone impacts in this case mathematically relates current or projected ROC and NOx emissions in the source area (i.e., throughout the Santa Barbara Channel), to current and projected ozone levels in the receptor area (i.e., throughout Ventura County's south half).

Ozone production involves a very complex series of chemical reactions in the presence of sunlight. There is no direct relationship between the amount of ROC and NOx emissions in a source area and ozone levels in the receptor area. Modeling of onshore impacts of OCS activities on ozone levels must include locations of activities, spatial and temporal variations in ROC and NOx emissions rates, sunlight intensity, and various meteorological and topographical factors, along with consideration of the many and complex chemical reactions.

Development and validation of a photochemical model to determine impacts of emissions throughout the Santa Barbara Channel on ozone levels onshore costs hundreds of thousands to millions of dollars - far beyond the resources of Ventura County. However, such a modeling project is being developed by the California Air Resources Board (ARB), and will be conducted by the ARB in cooperation with Ventura County and Santa Barbara County Air Pollution Control districts. Although presently we cannot quantify current and projected impacts of the OCS activities on ozone levels in Ventura County (or elsewhere), we can develop generalized statements concerning these impacts, based on current and projected OCS emissions, together with the evaluations of meteorological data and recent field (tracer) studies presented in references 2 and 3, cited previously.

Modeling for impacts of emissions of sulfur dioxide, carbon monoxide, and particulates deriving from the OCS activities may be somewhat less complex than ozone modeling, because the materials are essentially inert. However, the OCS petroleum projection activities in the Santa Barbara Channel will be scattered over a very large area. In all model efforts for cumulative effects, it will be necessary to sum (integrate) the OCS source emissions and their onshore, ambient air quality impacts.

IV. Current and Projected Petroleum Production Emissions in the Santa Barbara Channel

Ventura County Air Pollution Control District (VCAPCD) staff has recently (February, 1983) published a draft petroleum production emission inventory and emission forecasts for the Santa Barbara Channel OCS area. (4) The data will subsequently be used in the modeling project being developed by the ARB, noted above, and in future updates of the County's Air Quality Managment Plan (AQMP). (1)

The OCS petroleum production document comprises a base year inventory for 1979 consistent with the 1979 baseyear inventory addressed in the 1982 AQMP, (1) and forecast OCS inventories for 1987 and 1995. Federal ozone standards are mandated to be attained in 1987; petroleum production in the Channel is expected to peak before 1995. The baseyear inventory was developed from information obtained from petroleum producers, from the Department of the Interior's Minerals Management Service and U.S. Geological Survey, and from various published reports. The two forecast inventories were based on three different offshore petroleum production scenarios developed by VCAPCD staff. Platform and pipeline installation, drilling, production, processing, and crude oil transportation were considered in each scenario. Scenario A forecasts activity levels on the assumption that existing operations will

continue; scenario B includes A plus operations expected to occur in OCS leases sold during Lease Sale 48; scenario C adds to operations included in A and B those future OCS operations expected to occur as results of Lease Sales 68 and 80.

Only senario C is considered here, as this scenario comprises the expected, nearly complete levels of developments in the Santa Barbara Channel. Emissions of major concern are those of ROC and NOx that affect attainment of the ozone standard in the County. Emissions of total suspended particulate (TSP) are included because standards for TSP are also exceeded in the County. However, a change in the TSP health standard is anticipated that excludes the portion of TSP that is not health related; therefore, the impact of OCS activities on attainment of the TSP standard will be deferred until a new standard is promulgated. Emission of sulfur dioxide (SO_2) are included because although ambient levels of SO_2 in the County are well below standards, acid and sulfate particulates derive from SO_2 emissions. State standards for sulfates have been infrequently exceeded in the County. Emission of carbon monoxide (CO) are considered because although CO standards in the County have not been exceeded, they have been approached.

A summary of the current and projected oil production rates from scenario C and related emission rates follows, together with emission rates from all onshore petroleum production sources presented in the 1982 AQMP (1,4). Details of the onshore baseline and Scenario C offshore emissions are provided in the attached Tables from the referenced inventory document. (4)

	Full Development in Santa Barbara Channel		
		Scenario C	
	1979 Baseline	1987	1995
Petroleum production, barrels per year	10,971,000	93,003,000	64,443,000

		Emissions, Tons per Year		
All onshore petroleum production sources,		1979	1987	1995
1979[(1)]				
ROC	3,673	178	579	327
NOx	9,299	1,106	5,769	2,065
TSP	104	78	321	92
SO_2	58	91	3,471	2,897
CO^2	1,275	312	1,483	619

V. Evaluation of Air Quality Impacts

Data in the above Table are considered in the following evaluations. The petroleum production rate in the Channel is expected to peak around 1990 at about 120 million barrels per year. Emissions associated with production are expected to peak during roughly the same period, 1987 - 1990. Baseline, 1979 emissions from onshore petroleum sources are listed for comparison only; they will decrease as offshore emissions increase, due to decreasing production and more effective control of onshore emissions. However, 1979 emissions of ROC and NOx onshore the County must be reduced over 40% to approximately 17,000 tons per year and 19,000 tons per year respectively in order to attain the ozone ambient air quality standard Countywide.[1] This onshore reduction is not expected to occur, although substantial reduction is expected. Thus, the potential offshore activities will further interfere with Countywide attainment of the ozone standard by 1987. Furthermore, it is expected that under commonly occurring meteorological conditions the large increase in NOx emissions offshore may cause "exceedance" of health standards for nitrogen dioxide in the County, and may result in substantial amounts of acid precipitation including acid fog, and nitrate particulates as the emissions are transported onshore.

By 1978, SO_2 emissions in the Channel will increase almost forty-fold over 1979 SO_2 chemical emissions, and will represent about a sixty-fold increase over all onshore, 1979 petroleum production sources of SO_2 in the County. It is likely that, again under commonly occurring marine meterological conditions, by 1987 the health standards for SO_2 may be exceeded in the County due to this increase. The sulfate standard may also be exceeded, as sulfates derive from SO_2. It is also likely that together with the NOx emissions, the SO_2 emissions will contribute to acid precipitation in the County.

Substantial amounts of primary particulate emissions are not expected from the increase oil production activities offshore, and a significant portion will probably consist of larger and heavier particles that will tend to fall out before reaching shoreline. In addition, a new, health-related standard for TSP is being proposed, as mentioned above. Therefore, although the effect of petroleum production activities in the Channel on attainment of TSP standards is uncertain, it probably will not be significant.

About 70% of CO emissions in the County derive from operation of motor vehicles, and substantial reductions in these CO emissions are expected. It is doubtful that offshore emissions of CO will significantly affect countywide, ambient CO levels.

VI. Summary of Impacts

Under conditions of the expected, nearly complete level of petroleum related developments in the Santa Barbara Channel OCS waters, it is expected that emissions due to these developments will peak about 1987. Impacts of these emissions on air quality onshore Ventura County by 1987 are expected to be a follows:

- Emissions of ROC and NOx together may further interfere with efforts of the County to comply with ozone attainment requirements.

- Emissions of NOx may cause violations of NO_2 standards and may contrubute to acid precipitaiton, including acid fog.

- Emissions of SO_2 may cause violaitons of the SO_2 and sulfate health standards, and may contribute to acid fog.

- Impacts of primary particulate emissions on TSP levels are unknown, but probably are not significant.

- The additional CO emissions should not significantly affect ambient CO levels in the County.

VII. Mitigation Measures

As mentioned earlier, air quality requirements applied by the Department of the Interior allow petroleum industry activities in OCS waters to occur without application of reasonably stringent emission control measures. Emission controls resulting from normal, technoeconomically appropriate engineering practice are applied to forecasts of the three production scenarios.[4] In order to mitigate the impacts on air quality onshore Ventura County (and other coastal areas), the Federal government must require reasonable stringent measures comparable to those required onshore to control emissions from OCS petroleum development, production, processing, and transportation activities. In order to substantially mitigate air quality (and other) impacts of OCS activities, Ventura County has expressed a policy preference for construction of a coastal pipeline to transport the crude from the Santa Barbara Channel to refineries in the Los Angeles area.

REFERENCES (Ch. V)

1. Ventura County Air Quality Management Plan, 1982, Final Draft.

   Adopted by Board of Supervisors of Ventura County, March 23, 1982.

2. Characterization of Marine and Coastal Winds Associated with Violations of the National Embient Air Quality Standard for Ozone in Ventura County. Appendix N to above AQMP. July, 1980.

3. Summary Review of Current Studies Regarding Air Quality Impacts of Offshore Oil and Gas Activities in the Santa Barbara Channel on Onxhore Receptors in Ventura and Santa Barbara Counties. Appendix N-82 to above AQMP. January, 1982.

4. Santa Barbara Channel Outer Continental Shelf Petroleum Production Emission Inventory. Draft Report. Ventura County Air Pollution Control District. February, 1983.

MP:r

FIGURE 1

CHRONOLOGY OF SIGNIFICANT EVENTS
FOR CALIFORNIA OCS

1896	The world's first commercial offshore oil development has its start in the Santa Barbara Channel.
1906	More than 400 wells are drilled from wooden piers along the shores of Summerland, adjacent to the city of Santa Barbara. All permits are issued by littoral owners.
1921	The California Legislature enacts Chapter 303, authorizing the Surveyor General to issue prospecting permits or leases on State land, including tide and submerged land. A large number of permits are issued for the submerged lands offshore from Orange, Ventura and Santa Barbara Counties.
1927-29	Discovery of Rincon, Ellwood, and Capitan fields off Santa Barbara County
1929	The State Legislature enacts Chapter 536, closing the tide and submerged lands to further oil and gas leasing because of substantial overproduction of crude oil and citizen protest over coastal use.
1932	In the Rincon field the first piling-supported offshore drilling platform is constructed.
1938	In March, the California Legislature enacts the State Lands Act, creating the State Lands Commission and granting it exclusive jurisdiction over all ungranted tidelands and submerged lands owned by the State, with the power to administer, control and lease these lands.
1945	In September, by Proclamation No. 2667, President Truman declares the United States has paramount rights to the natural resources of the OCS from the low water mark seaward. Law suits follow, which in effect halt new oil and gas leases.
1953	In May Congress passes the Submerged Lands Act of 1953, granting state control over lands within 3 geographical miles of the mean high tide line. In August, Congress passes the Outer Continental Shelf Lands Act, setting out procedures for federal oil and gas leasing through the Department of the Interior.

Source: Cal Energy Comm. Annual Petroleum Rev. June 1983

1955	The California Legislature passes the Cunningham-Shell Act, which creates a marine sanctuary adjacent to the shore, along the city of Santa Barbara's coastline; prohibits drilling in many coastal scenic areas and leasing anywhere in state waters except to prevent drainage from adjacent federal leases.
1963	In May, the first Federal Lease Sale, P1; no commercial discoveries are made and all 57 leases are subsequently relinquished between 1965 and 1967.
1964	California Senate Bill No. 60 leads to the development of the eastern portion of the Wilmington oil field on tidelands granted to the city of Long Beach.
1965	In May the U.S. Supreme Court rules that the Santa Barbara Channel was not "inland waters" of the state and that the 3-mile line should follow the mainline coast and around each Channel Island, thus ending 12 years of jurisdictional dispute between the federal and California governments.
1966	First and only federal drainage sale, Lease Sale P3, is held in December to prohibit drainage by adjacent state wells in the Carpenteria offshore field. The tract today is the site of two platforms, Hogan and Houchin, erected by Phillips Petroleum.
1968	Lease Sale P4 in February results in the leasing of 71 3-mile square tracts in the Santa Barbara Channel and the subsequent discovery of Dos Cuadras Field.
1969	Major oil spill of 77,000 barrels from a blow out in January on Platform A operated by Union Oil on federal tract 0241 in the Dos Cuadras Field leads to a seven year leasing moratorium for the Pacific OCS. In January, the last state offshore lease sale (one parcel to Chevron) is offered before State Lands Commission declares a moratorium on all new exploratory or production drilling in state waters. Passage of the National Environmental Policy Act, mandating that all proposed federal OCS activities be subject to its environmental review process.

1970	Passage of the California Environmental Quality Act requiring all proposed state and federal OCS exploration and production plans with onshore facilities to meet its environmental review process.
1972	State voters in June pass Proposition 20, the Coastal Initiative, setting up temporary regional coastal commissions to prepare the Coastal Plan, a blueprint for permanent coastal management.
1973	As part of its Project Independence, the Nixon Administration proposes an accelerated federal leasing program.
1974	Oil industry seeks approval of permits to resume drilling on undeveloped state leases.
1975	Lease Sale #35 in December results in the leasing of 56 tracts in Southern California from Santa Barbara to the Mexican border. Only four leases in San Pedro Bay remain active.
1976	The California Legislature enacts the Coastal Act of 1976, the product of the Coastal Initiative, declaring the California coast a state resource to be protected by the State through a cooperative program with local jurisdictions and establishing the California Coastal Commission.
1976	Congress amends the Federal Coastal Zone Management Act to give states explicit authority to assure that oil company exploration and development plans for OCS leases are consistent with federally-approved state coastal management programs.
1977	Joint Industry/Government Pipeline Working Group under the chairmanship of Santa Barbara County's Environmental Resources Division forms to develop the information, findings, and recommendations for determining the feasibility of an onshore pipeline for transporting OCS crude oil to California refineries in lieu of tankering. California's Permit Streamlining Act (AB 884) simplifies and accelerates public agencies' decisions on construction projects, under the CEQA procedures, including those OCS proposals with onshore facilities.
1977	The National Oceanic and Atmospheric Administration approves in November the California Coastal Management Program.

1978	Prepared under contract to the Joint Industry/Government Group, Hallanger Engineers' report, released in October, identifies the technical problems and economic costs of various onshore alternative pipeline systems to transport OCS crude oil.
1978	Congress amends the Outer Continental Shelf Lands Act, requiring the Secretary of the Interior to review annually and to revise periodically the federal 5-year OCS oil and gas leasing program.
1979	Federal government decontrols domestic price of high-sulfur, high-viscosity crude oil, allowing its price to rise to international oil market price levels. The majority of California OCS crude is believed to be of this quality.
1979	The Joint Industry/Government Group in May issues a draft report, Santa Barbara Channel Onshore Oil Pipeline Feasibility Study, recommending construction of a new onshore pipeline for Western Channel oil production and a policy that permits and development plans be approved only if an onshore pipeline and not tankers be used to transport crude oil to Los Angeles.
1979	In June, Lease Sale #48 results in 54 leases in the Santa Barbara Channel and in the San Pedro Bay AB 3396 introduced in October would fund a state pipeline for OCS. Subsequently dies in committee. Oil industry and state representatives meet in May to discuss the pipeline issue.
1980	Oil industry establishes in October a Southern California Coastal Pipeline Feasibility Study to examine further the technical feasibility and environmental impacts of a multi-user pipeline from Santa Barbara to Los Angeles refineries.
1980-82	State Lands Commission approves applications for exploratory drilling in new areas within existing state leases.
1981	Santa Barbara County's Local Coastal Plan is certified by the California Coastal Commission in March, thereby allowing the County to administer its own permit program for all development in its coastal zone.

In May, the most controversial sale to date, #53, result in 55 leases eventually being granted and 19 others held in escrow, pending a court decision on an appeal filed by DOI, it is now before the Supreme Court.

1982

The Petroleum Transportation Committee, an outgrowth of the Joint Industry/Government Group, forms under chairmanship of Santa Barbara County's Resource Management Department to study further the marine transport issue.

Secretary of the Interior Watt in January establishes the Mineral Management Service to implement OCS policy and procedures and to carry out functions previously performed by several offices within USGS and BLM as well as all functions relating to OCS programs transferred from DOE.

In June, Lease Sale #68 offers 140 tracts, covering 716,866 acres, from 3 to 84 miles offshore California from Pt. Conception to the Mexican border. Of the 35 tracts bid upon, 29 are actually leased from 147,066 acres.

In July, OPR released a Memorandum of Understanding describing existing policies of regulatory agencies with permit jurisdiction over OCS projects and presenting a general scheme for future evaluation of proposals.

In August, reoffering Sale RS-2, the first sale of the new accelerated five-year lease schedule, includes 12 offshore California tracts from Sales 53; 10 bids are accepted by DOI.

In September, Exxon, the County of Santa Barbara, and the Air Resources Board signed a Memorandum of Agreement outlining certain areas of consensus, with the emphasis on air emissions, for Exxon's proposal for production facilities for the Santa Ynez Unit in the Santa Barbara Channel.

In November, Exxon filed its POD for the Santa Ynez Unit.

SLC voted in December to offer for lease 8 state offshore tracts between Point Conception and Point Arguello.

Federal, state and local permitting actions in response to the 1973 Exxon DPP were timely. After publishing its final environmental statement in May 1974, the Department of the Interior in August 1974, approved the entire plan but stipulated that Exxon must make "diligent" efforts to permit the onshore option before reverting to the OS&T. In August 1974, the California State Lands Commission awarded Exxon a lease for its marine terminal. And in February 1975, the Santa Barbara County Board of Supervisors in a controversial decision, later subjected to and upheld by referendum, adopted a rezoning ordinance and approved conditional use permits for the onshore option.

Final action on the 1973 Exxon DPP rested with the Regional and California Coastal Commissions. The South Central Regional Coastal Commission approved a coastal permit in September 1975, but the decision was appealed to the California Coastal Commission. The basis of the appeal was that marine transportation of Santa Ynez crude oil would have adverse environmental and ecological effects and that these effects could be eliminated through the use of a pipeline to transport crude to refineries.

Reviewing the Exxon proposal on its own merits and in the context of expected Santa Barbara Channel development, the California Coastal Commission (CCC) staff concluded preliminarily that the construction of a common carrier pipeline transporting crude from Exxon and other OCS operators would eliminate tanker-associated traffic safety, spill risk, and air emission problems, and that such a pipeline to the Los Angeles area would be technically and economically feasible.[5]

The decision by the CCC was to reserve responsibility for determining the feasibility of a pipeline to the CCC, require Exxon to commit itself to eventual construction of a pipeline, and allow marine transportation on only an interim basis. In March 1976, Exxon, objecting to giving decision responsibility to the CCC and to the notion that a public agency could shutdown its only means of processing Santa Ynez crude, chose to pursue its OS&T option.

Since 1976, institutional initiative and authority in OCS matters at the state and local level has been significantly transformed. In particular, in November 1977, the Coastal Commission acquired sole authority under the Coastal Zone Management Act (CZMA) to determine whether the issuance of a federal permit to conduct activities on the federal OCS is "consistent" with California's Coastal Zone Management Program (CZMP). Failure to obtain such a

5. Ibid.

consistency determination is sufficient to prevent new development.[6] Similarly, the county of Santa Barbara through its submission under the State Coastal Act of a Local Coastal Plan (LCP), became the permitting authority for all onshore development within the coastal zone of Santa Barbara County.

In 1977, the county of Santa Barbara established a Joint Industry/Government Pipeline Working Group to further study the issue of pipelining and to provide a forum within which the county, industry, and interested state agencies could resolve their differences and coordinate plans. This group commissioned a 1978 pipeline feasibility study by Hallanger Engineers who determined that a heated 18-inch crude oil pipeline carrying 114,000 b/d to Los Angeles was technically feasible. At the time, economic feasibility could not be established due to inadequate proven reserves unless Exxon would commit its reserves to the pipeline. Exxon maintained its position of preferring to tanker its crude oil.

In 1980, the Southern California Coastal Pipeline Feasibility Study Group, in the light of increased OCS reserve estimates, sponsored reinvestigating the feasibility of a pipeline to Los Angeles in a Coastal Pipeline Study, Part A.[7] The conclusion of this study, performed by Bechtel Petroleum, Inc., was that none of the factors examined[8] posed problems which would make the pipeline technically infeasible. However, during the course of the Part A study additional issues relevant to pipeline feasibility were identified by Exxon. The most potentially important issue was the question whether Los Angeles refineries could process OCS oil without extensive retrofits and/or significant environmental impacts.

To settle this latter question, Part C of the Coastal Pipeline Study was commissioned to estimate the modifications necessary for Los Angeles refineries to process OCS crude, along with other feasibility questions. The study found that a pipeline to Los Angeles would require the modification of Los Angeles area

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6. A decision of "inconsistency" may be appealed to the U.S. Secretary of Commerce.

7. Sponsors included: Chevron Pipeline Company; Getty Oil Company; Four Corners Pipeline Company; Shell Oil Company; Continental Pipeline Company; Mobil Oil Corporation/West Coast Pipeline; Phillips Petroleum Company; Texaco Inc; Union Oil Company of California; Exxon Company, USA; and the California Energy Commission.

8. Factors included production forecast, crude characteristics, route, capital costs, hydraulics, and environmental quality impacts.

refineries to process OCS crude oil for a total investment of $1.9 billion and an incremental annual operating cost of $240 million.[9]

Concurrently with the conduct of the above studies, companies which held federal OCS leases continued to prepare plans to develop the lease tracts they controlled. Exxon, in 1981, initially discussed a proposal to develop additional Santa Ynez unit reserves with various state and county agencies. Out of these discussions emerged a document entitled "Memorandum of Agreement II" (MOA II).[10] In MOA II, Exxon presented its plan for development of the Santa Ynez unit. Exxon promised to include various pollution mitigation measures, including removal of its OS&T: (1) if Santa Barbara County and the state agencies approve the plan, and (2) if Santa Barbara County makes a determination within five months of the signing of MOA II that pipeline transportation is infeasible for Exxon.[11] Also included in MOA II is the proviso that should Exxon not receive the permits it seeks, Exxon will forego onshore processing and pursue an alternative plan to expand the OS&T without additional pollution control measures. MOA II was signed in October 1981 by representatives of Santa Barbara County, the Santa Barbara Air Pollution Control District, the California Air Resources Board, and Exxon.

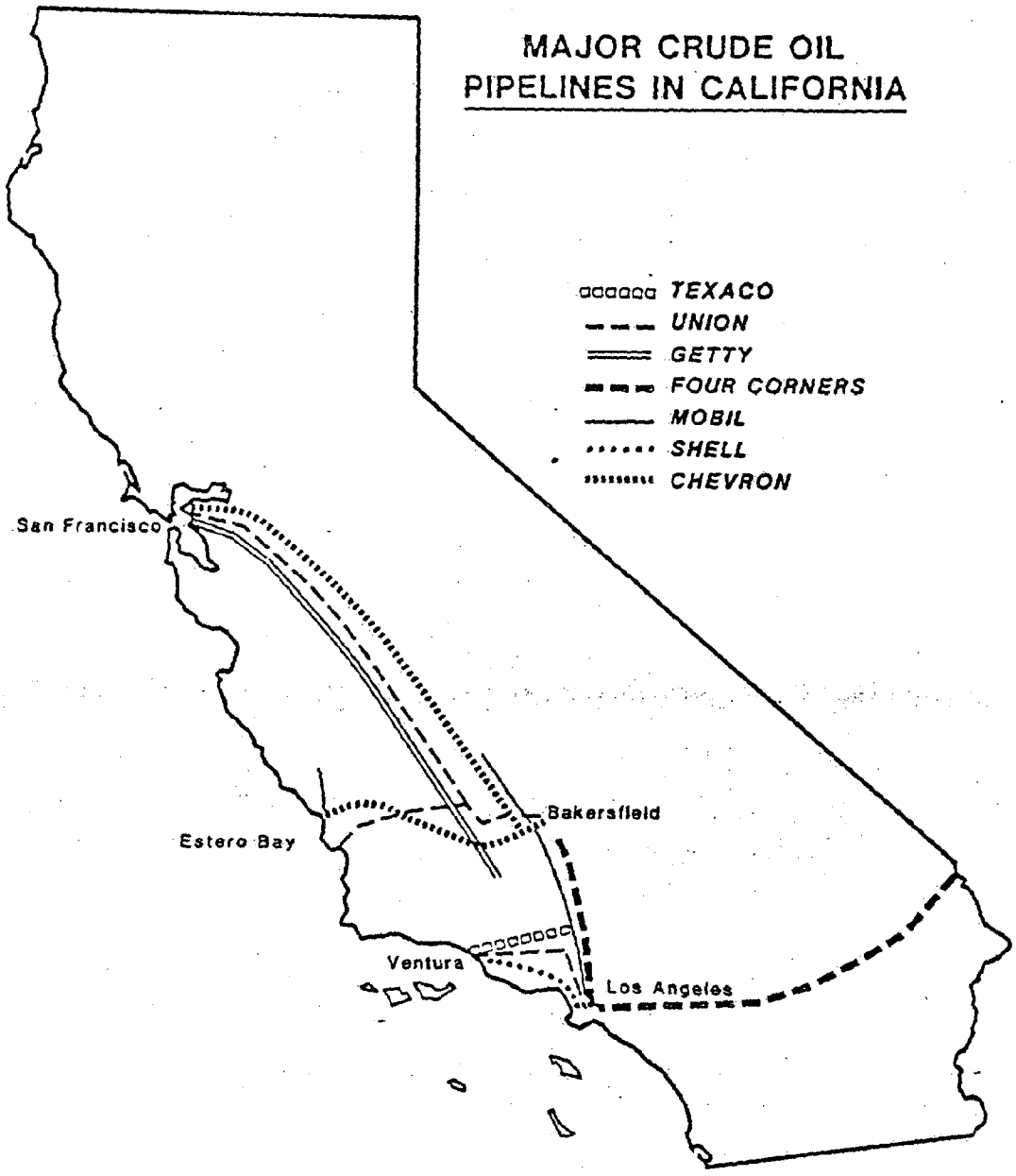
Finally, in December 1982 Exxon submitted its Development and Production Plan (DPP) for the Santa Ynez unit. As promised in the MOA, Exxon plans to add three to four new production platforms, either onshore treatment facilities to process 140,000 b/d or expanded OS&T capacity to treat 80,000 b/d, and a marine terminal for tankering crude. Exxon again restates its intention to not commit its Santa Ynez crude oil to a pipeline. The reasons advanced are: that Santa Ynez crude because of its physical characteristics cannot be refined and therefore cannot be marketed on the West Coast, and therefore Exxon needs the flexibility to be able to move its crude to any refining center in the United States it deems appropriate.

9. Southern California Coast Pipeline: Feasibility Study, Part C, Bechtel Petroleum, Inc., December 1982.

10. An earlier memorandum, MOA I, was signed in connection with Exxon's initial Santa Ynez development.

11. This deadline has since been extended to July, 1983.

FIGURE 2



SOURCE: CEC, Annual Petroleum Re
June 1983

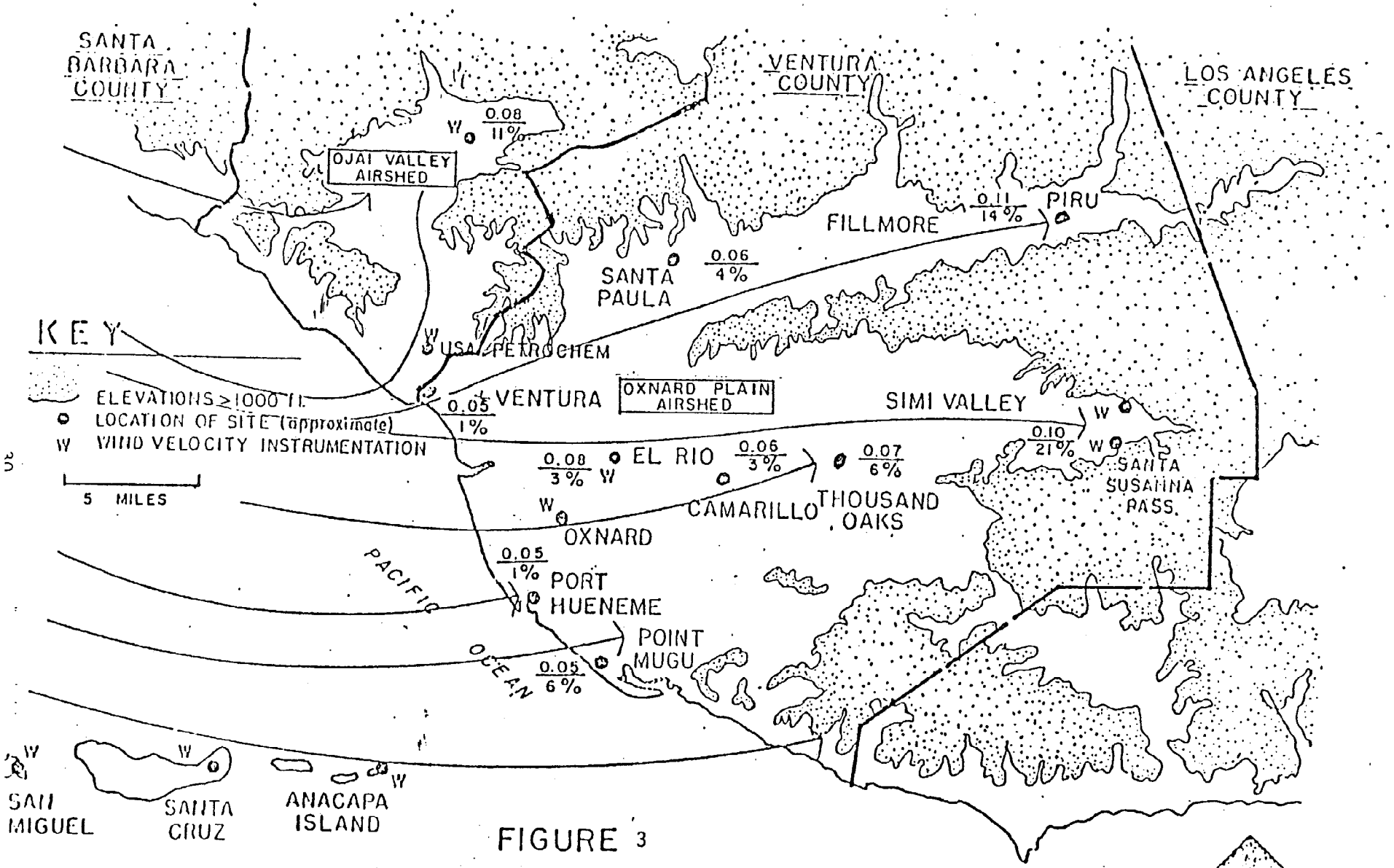


FIGURE 3

PREVAILING WINDS

WIND VELOCITY INSTRUMENTATION

DAILY OZONE MAXIMUM, ppm

PERCENT FREQUENCY OF DAYS SEVEN YEAR AVERAGE

SOURCE: Ventura County APCD

June 1983

TABLE 1— State of California status of platforms

Platform	Operator	Field or location	State PRC number	Number of slots	Water depth (feet)	Status
Herman	Texaco	West Tidelands	2725	0	88	Inactive platform; 19 subsea completions (inactive); Final environmental impact report (FEIR), resumption of exploratory drilling from within lease—not from platform.
Helen	Texaco	Cuarta Field	2206	40	94	Inactive platform; 9 idle wells. FEIR, resumption of exploratory drilling from within lease—not from platform.
Holly	ARCO	South Elwood Field	3242 3120	30	211	Redrilling in operation. FEIR, resumption of exploratory drilling from within lease—not from platform; 9 active wells also in PRC 3120 resuming exploratory drilling.
Hilda	Chevron	Summerland Field	1824	24	106	Producing platform.
Hazel	Chevron	Summerland Field	1824	25	100	Producing platform.
Heidi	Chevron	Carpinteria Field	3150	60	125	Producing platform. 1 producing well also in PRC 3133 from Platform Heidi; resumption of drilling into P-3133 from Heidi has been approved.
Hope	Chevron	Carpinteria	3150	60	136	Producing platform. 4 producing wells also in PRC 4000 from Platform Hope; also serves as transfer facility for OCS production.
Emmy	Aminoil	Huntington Beach	425	53	47	Development drilling ongoing.
Eva	Union	Huntington Beach	3033	39	57	Producing platform; also serves as transfer facility for OCS production.

SOURCE: Sanders, 1982.

Reprinted from Roger, Golden, & Halpren. Pacific Summary Report, Dec. 1982

TABLE 2—Oil and gas activity approved for State waters since the moratorium was lifted in 1974

Lease	Company	Approval date*	Project
		Redrilling	
427	Mobil	11/21/74	4 wells
3120 3242	ARCO	4/30/75	13 wells from Holly
186	Exxon	4/28/76	28 wells
91 163 425 426 392	Aminoil	1/26/77	144 wells from Emmy, 183 wells from upland locations
410	Cabot	3/31/77	6 wells
		New Development	
3095	Chevron	1/14/75	20 wells from Esther
3120 3242	ARCO	4/30/75	17 wells from Holly
186	Exxon	4/28/76	3 wells
1824 3150 4000	Chevron	10/28/76	36 wells
410	Cabot	3/31/77	5 wells
145	Energy Dev.	9/24/80	17 wells
1466	ARCO	10/30/80	1 well
3133	Exxon	12/17/81	--

TABLE 2 —Oil and gas activity approved for State waters since the moratorium was lifted in 1974 -- Continued

Lease	Company	Approval date*	Project
		Exploration	
2879	Union	5/29/80	4 wells
308 309	ARCO	10/8/80	9 wells
2920	Shell	12/16/80	1 well
3314	Shell	4/29/81	8 wells
208	Aminoil	2/25/82	13 wells
3120 3242	ARCO		
2206 2725 2955	Texaco	4/27/82	5 wells
2933	Phillips	5/27/82	4 wells

*Approval dates reflect approval from the California State Lands Commission. Some activity may not have yet been approved by other State agencies, such as the California Coastal Commission or the Air Resources Board.

SOURCE: Reprinted from Roger, Golden, & Halpren. Pacific Summary Report, Dec. 1982

TABLE 3—Statistics for Federal Pacific OCS lease sales

Lease Sale	Sale date	Sale[a] type	Area	Tracts	Acres[b] offered	Tracts bid on	Acres[b] bid on	Tracts leased	Acres leased	Total bonus leased tracts (in thousands)	Average per acre[c]	Total rentals	No. of bids rec'd	Tot. amt. bids rec'd (in thousands)	Highest per-acre bid[c]
P1 (1963)	5/14/63	G	Central Calif.	129	669,777	58	312,975	57	312,995	$ 12,807	$ 41	$ 938,838	70	$ 13,990	$ 455
P2 (1964)	10/1/64	G	Oreg., Wash.	196	1,090,079	101	580,853	101	580,853	$ 35,534	$ 61	$1,742,562	222	$ 53,580	$ 376
P3 (1966)	12/13/66	D	Southern Calif.	1	1,995	1	1,995	1	1,995	$ 21,189	$10,618	$ 9,980	7	$ 89,937	$10,618
P4 (1968)	2/6/68	G	Southern Calif.	110	540,609	75	383,391	71	363,181	$ 602,719	$ 1,660	$1,080,343	169	$1,293,601	$11,374
35	12/11/75	G	Southern Calif.	231	1,257,593	70	384,540	56	310,049	$ 417,312	$ 1,346	$ 930,147	166	$ 901,960	$18,260
48	6/29/79	G	Southern Calif.	148	792,843	55	294,018	34	288,260	$ 572,823	$ 1,987	$ 867,489	112	$ 994,684	$37,280
53[d]	5/28/81	G	Central Calif.	111	603,613	81	432,815	55	292,117	$2,036,954	$ 6,973	$ 936,744	301	$4,883,811	$57,916
68	6/11/82	G	Southern Calif.	140	716,866	35	176,253	29	147,066	117,873	$ 801	$ 443,913	66	$ 210,486	$10,083
RS-2	8/5/82	G	Central Calif.[e]	27	153,716	12	68,318	10	56,932	$ 12,311	$ 216	$ 184,320	19	$ 10,440	$ 1,611
Totals	---	---		1,093		5,827,086		488	2,635,108	434	2,353,380		1,156	$8,458,989	---

[a]G indicates general oil and gas lease sale; D indicates drainage oil and gas lease sale; GM indicates government motion oil and gas lease sale.

[b]OCS sales are generally made in terms of acres. To obtain the metric equivalent (hectares), divide the acreages by 2.47.

[c]Numbers are rounded off to nearest dollar.

[d]Statistics for Lease Sale 53 include all bids. The decision to accept or reject 19 bids received on some tracts is pending results of litigation. The sum of high bids on the 19 tracts in litigation is $220,632,072.

[e]Reoffering Sale RS-2 statistics only given for tracts in the Pacific OCS.

SOURCE: MMS, 1982.

TABLE 4 —Existing platforms on the Pacific OCS

Platform	Operator	OCS-P number	Unit/ (field)	Installation date	Number of well slots	Water depth (ft)	Distance to shore (mi)	API gravity	Sulfur content (% weight)
Ellen	Shell	0300	(Beta)	1980	80	265	8.8	15.4	3.5
Elly*	Shell	0300	(Beta)	1980	*	256	8.8	Treatment platform	
Gina	Union	0202	(Hueneme Offshore)	1981	15	95	3.6	16.0	3.54
Gilda	Union	0216	Santa Clara	1981	96	210	8.5	23.4	3.2
Grace	Chevron	0217	Santa Clara	1979	48	318	10.4	28.7	2.3
Hogan	Phillips	0166	(Carpinteria Offshore)	1967	66	151	3.7	24.8	1.72
Houchin	Phillips	0166	(Carpinteria Offshore)	1967	60	161	5.1	24.8	1.72
Habitat	Texaco	0234	Pitas Point	1981	24	302	9.0	Gas production only	
Henry	Sun	0240	(Carpinteria Offshore)	1979	28	174	4.4	25.5	1.3
Hillhouse	Sun	0240	(Dos Cuadras Offshore)	1969	60	190	5.7	26.5	1.1
A	Union	0241	(Dos Cuadras Offshore)	1968	57	184	5.8	25.0	under 1.0
B	Union	0241	(Dos Cuadras Offshore)	1968	63	187	5.7	25.0	under 1.0
C	Union	0241	(Dos Cuadras Offshore)	1977	60	194	5.6	25.0	under 1.0
Hondo	Exxon	0188	Santa Ynez	1976	28	850	5.5	18.8	4.5

TABLE 5 —Proposed platforms for the Pacific OCS

Platform	Operator	OCS-P number	Unit/ (field)	Number of well slots	Water depth (feet)	Distance to shore (miles)	Installation date
Edith	Chevron	0296	(Beta Northwest)	70	161	8.4	1983
Eureka	Shell	0301	(Beta)	60	699	10.0	1984
Gail	Chevron	0205	Santa Clara (Sockeye)	36	740	13.5	1986
Hermosa	Chevron	0316	New Discovery Tract	48	605	10.0	1983
n.a.	Texaco	0315	New Discovery Tract	n.a.	788	12.0	1985
Hondo "B"	Exxon[1]	0190	Santa Ynez (Hondo)	60	1,200	6.0	1987
Pescado "A"[2]	Exxon[1]	0182	Santa Ynez	60	1,075	8	1988
Pescado "B1"[3]		0183		28	1,025	7.8	1992 or 1998
Pescado "B2"		0182	(Pescado)	60	1,140	8	1988
Sacate	Exxon[1]	0193	Santa Ynez (Sacate)	28	620	5.0	1989

TABLE 6

STATE TIDELANDS/OCS PROJECTED DEVELOPMENT ACTIVITY

SCENARIO D

YEAR	STATE PLATFORMS	OCS PLATFORMS	TOTAL
1983	7	14	21
1984	7	14	21
1985	16	17	33
1986	17	19	36
1987	18	24	42
1988	27	26	53
1989	29	27	56
1990	29	28	57
1991	34	29	63

SOURCE: Resource Management Agency, May 1983

TABLE 7

STATE TIDELANDS/OCS PROJECTED EXPLORATION

SCENARIO D

YEAR	CUMULATIVE OCS WELLS	ADDITIONAL STATE RIGS	ADDITIONAL STATE WELLS	CUMULATIVE OCS WELLS AND STATE WELLS
1980	6		15	21
1981	13		8	21
1982	13		22	35
1983	14	7	21	35
1984	12	1	3	15
1985	13	1	3	16
1986	11	9	27	38
1987	5	2	6	11
1988	2	0	0	2
1989	1	5	15	16

SOURCE: Resource Management Agency, May 1983

TABLE 8

PROJECTED EMPLOYEMENT PER YEAR RESULTING FROM
CUMULATIVE OCS/STATE TIDELANDS DEVELOPMENT

SCENARIO D

	1983	1984	1985	1986	1987	1988	1989	1990	1991
Number Platforms	21	21	33	36	42	53	56	57	63
Direct Employment (141/Platform)	2,961	2,961	4,653	5,076	5,922	7,473	7,896	8,037	8,883
Indirect Employment (5:1 Ratio)	592	592	931	1,015	1,184	1,495	1,579	1,607	1,777
Induced Employment (1.2 Multiplier)	4,264	4,264	6,701	7,309	8,527	10,762	11,370	11,573	12,792
Total Employment	7,817	7,817	12,285	13,400	15,633	19,730	20,845	21,217	23,452
Scenario C (10/1980) Comparison	3,350	4,467	5,211	5,584	4,467	3,722	1,861	1,489	1,117

SCOURCE: Resource Management Agency, May 1983

TABLE 9

PETROLEUM INDUSTRY INVENTORY
OCS EMISSIONS SUMMARY

1929

Location	Emissions (tons/yr) TOC	ROC	NOx	TSP	SO2	CO
East Channel OCS	324.9	140.0	773.5	53.4	52.8	220.2
Mid Channel OCS	24.3	22.0	211.0	15.4	16.3	54.2
West Channel OCS	17.0	15.9	119.9	9.2	20.3	38.0
Pt. Conception OCS	0.1	0.1	1.3	0.1	1.3	0.3
Total	366.3	178.0	1105.5	78.3	90.8	312.5

Category	Emissions (tons/yr) TOC	ROC	NOx	TSP	SO2	CO
Point Sources						
Platform Installation	5.2	5.0	62.2	3.8	4.0	11.8
Exploratory Drilling	47.4	41.9	498.8	35.6	33.1	107.9
Production Drilling	14.5	12.9	155.2	11.1	20.0	33.8
Production Operations - Compression	3.8	1.1	49.2	1.6		19.7
Production Operations - Pumping	2.7	0.8	26.2	0.9		7.3
Production Operations - Water Injection						
Processing Operations - Heater Treating						
Processing Operations - Glycol Regeneration						
Processing Operations - Sour Gas Treatment						
Fugitive Emissions	231.2	57.7				
Tanker Loading						
Tanker Exhaust - Hotelling						
Area Sources						
Pipeline Installation	0.5	0.4	5.6	0.3	0.3	1.1
Support Boats - Platform Installation	3.4	3.2	30.4	2.2	2.4	8.4
Support Boats - Pipeline Installation	0.6	0.6	5.4	0.4	0.4	1.5
Support Boats - Exploratory Drilling	24.9	23.8	117.7	9.6	11.2	52.8
Support Boats - Production Drilling	20.4	19.5	96.7	7.9	9.1	43.2
Support Boats - Production	11.3	10.7	53.1	4.3	5.0	24.0
Tanker Exhaust - Cruising	0.4	0.4	5.0	0.6	5.3	1.0
Total	366.3	178.0	1105.5	78.3	90.8	312.5

Process Rate Assumptions:

1)	Platforms Installed:	2
2)	Miles of Pipeline Laid:	15
3)	Exploratory Footage Drilled:	111000 ft/yr (12 wells)
4)	Production Footage Drilled:	90000 ft/yr (20 wells)
5)	# Producing Wells:	211
6)	Production:	10971 (1000 bbls/yr), 5927 (MMcf/yr)
7)	Tanker Loads (OCIT):	0
8)	Tanker Trips:	6

TABLE 10

PETROLEUM INDUSTRY INVENTORY
OCS EMISSIONS SUMMARY

1987 Scenario C

Location	Emissions (tons/yr) TOC	ROC	NOx	TSP	SO2	CO
East Channel OCS	542.0	210.3	1156.1	75.8	324.1	320.2
Mid Channel OCS	106.6	43.0	775.3	34.8	59.8	211.4
West Channel OCS	264.1	184.1	1991.8	114.3	526.6	442.6
Pt. Conception OCS	276.8	141.1	1846.2	96.0	2560.2	508.5
Total	1189.6	578.6	5769.3	320.8	3470.7	1482.8

Category	Emissions (tons/yr) TOC	ROC	NOx	TSP	SO2	CO
Point Sources						
Platform Installation	13.0	12.5	155.5	9.5	10.0	29.5
Exploratory Drilling	20.5	18.1	216.1	15.5	14.4	46.9
Production Drilling	186.6	165.0	1963.6	140.0	130.6	424.5
Production Operations - Compression	126.5	37.8	1336.9	42.2	3.0	360.3
Production Operations - Pumping	54.9	16.6	679.1	17.8	3.2	156.2
Production Operations - Water Injection	29.3	8.8	368.6	9.3	1.8	84.1
Processing Operations - Heater Treating	0.2	0.1	23.3	0.9		1.6
Processing Operations - Glycol Regeneration			10.0	0.4		0.6
Processing Operations - Sour Gas Treatment	0.6	0.2	0.8	0.1	3034.4	0.1
Fugitive Emissions	584.6	153.5				
Tanker Loading	0.4	0.4				
Tanker Exhaust - Hotelling	0.1	0.1	7.7	0.2	0.3	1.7
Area Sources						
Pipeline Installation	1.4	1.3	17.1	1.0	1.0	3.3
Support Boats - Platform Installation	8.5	8.0	76.0	5.5	6.0	21.0
Support Boats - Pipeline Installation	1.9	1.8	16.5	1.2	1.3	4.7
Support Boats - Exploratory Drilling	12.5	12.0	59.5	4.9	5.6	26.6
Support Boats - Production Drilling	101.6	97.5	481.6	39.1	45.6	215.8
Support Boats - Production	31.2	29.7	145.6	11.7	14.3	65.0
Tanker Exhaust - Cruising	15.7	14.9	211.5	21.5	199.2	40.9
Total	1189.6	578.6	5769.3	320.8	3470.7	1482.8

Process Rate Assumptions:

1) Platforms Installed: 5
2) Miles of Pipeline Laid: 46
3) Exploratory Footage Drilled: 50000 ft/yr (5 wells)
4) Production Footage Drilled: 930000 ft/yr (93 wells)
5) # Producing Wells: 887
6) Production: 93003 (1000 bbls/yr), 133703 (MMcf/yr)
7) Tanker Loads (OS&T): 47
8) Tanker Trips: 271

TABLE 11

PETROLEUM INDUSTRY INVENTORY
OCS EMISSIONS SUMMARY

1995 Scenario C

Location	Emissions (tons/yr) TOC	ROC	NOx	TSP	SO2	CO
East Channel OCS	431.0	127.7	434.4	22.6	108.0	160.3
Mid Channel OCS	97.7	31.5	384.8	16.9	39.4	107.9
West Channel OCS	356.5	115.1	837.0	34.3	1469.6	232.9
Pt. Conception OCS	169.5	52.7	408.4	18.5	1280.3	118.2
Total	1054.8	327.0	2064.7	92.2	2897.2	619.3

Category	Emissions (tons/yr) TOC	ROC	NOx	TSP	SO2	CO
Point Sources						
Platform Installation						
Exploratory Drilling						
Production Drilling						
Production Operations - Compression	94.3	28.2	984.7	33.1	1.5	296.1
Production Operations - Pumping	40.1	11.8	411.8	13.3	0.7	110.7
Production Operations - Water Injection	22.3	6.5	228.7	7.5	0.4	61.6
Processing Operations - Heater Treating	0.1		19.6	0.9		1.5
Processing Operations - Glycol Regeneration			6.6	0.2		0.4
Processing Operations - Sour Gas Treatment	0.1		0.1		2721.2	
Fugitive Emissions	828.7	214.5				
Tanker Loading	0.1	0.1				
Tanker Exhaust - Hotelling			1.0			0.2
Area Sources						
Pipeline Installation						
Support Boats - Platform Installation						
Support Boats - Pipeline Installation						
Support Boats - Exploratory Drilling						
Support Boats - Production Drilling						
Support Boats - Production	57.6	55.2	268.8	21.6	26.4	120.0
Tanker Exhaust - Cruising	11.3	10.8	143.3	15.5	147.1	28.8
Total	1054.8	327.0	2064.7	92.2	2897.2	619.3

Process Rate Assumptions:

1)	Platforms Installed:	0
2)	Miles of Pipeline Laid:	0
3)	Exploratory Footage Drilled:	0
4)	Production Footage Drilled:	0
5)	# Producing Wells:	1103
6)	Production:	64443 (1000 bbls/yr); 91163.5 (MMcf/yr)
7)	Tanker Loads (OS&T):	6
8)	Tanker Trips:	173

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