

MINUTE ITEM  
This Calendar Item No. C09  
was submitted for information  
only, no action thereon  
being necessary.

INFORMATIONAL

CALENDAR ITEM

A 57, 58

C 0 9

S 29

07/15/91  
W 17097  
G. Scott

FIRST TEN MONTHS STATUS REPORT  
1990-91 PLAN OF DEVELOPMENT AND OPERATIONS AND BUDGET  
LONG BEACH UNIT, WILMINGTON OIL FIELD  
LOS ANGELES COUNTY

At the end of the first ten months of the 1990-91 fiscal year (April 30, 1991), the latest approved Long Beach Unit Plan of Development and Operations and Budget remains unchanged at \$152.8 million, including administrative overhead costs and \$1.63 million carry-over from 1989-90. One hundred and twelve million dollars (\$112,000,000) has been spent through April 1991, and the expenditure trend, as shown in Exhibit 1, projects a total of \$146 million for the Plan-year. This would be an increase of \$14 million over 1989-90 fiscal year expenses. This trend increase is due to increased drilling and development activity and from short-term increase in producing activity as a result in the temporary increase in oil price.

The Long Beach Unit has experienced an improvement in revenue generation during this ten-month period. The increased revenue is a result of the marked increase in oil price, as shown in Exhibit 3.

Oil prices for Long Beach Unit crude oil were at \$10.40/bbl. at the end of the 1989-90 fiscal year. Since that time, crude oil prices increased to record levels, and at the end of the first quarter of the 1990-1991 fiscal year, prices were above \$29 per barrel. However, during the second quarter of the fiscal year, oil prices dropped again and are now below \$14/bbl, as seen in Exhibit 3. Because of the overall increase in price, revenue for the ten-month period has risen significantly (Exhibit 4). The revenue during the period was \$264.5 million. Expenditures for the same period were \$112 million, resulting in a net income of \$152.6 million through the ten-month period. The Long Beach Unit activated a third drilling rig in mid-August to increase oil

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production rates in the best areas of the field. The third rig has been employed in the Upper Terminal Fault Block VI, which is an area of significant oil potential.

Drilling candidates presently exist to carry this third rig through the end of 1990-91 year and through the 1991-1992 fiscal year. A modification to the Plan and Budget, which provides funds to allow continuation of the third drilling rig through June, 1991, was approved by the Commission in October 1990.

The State Lands Commission Reservoir Engineering staff has been aggressive in identifying the best areas where Long Beach Unit production and revenue can be enhanced to take advantage of the high oil price. Manpower limitations prevent the State staff from reviewing all areas. The staff has identified several areas for implementation of work, some of which have been implemented, and the work resulted in significant increases in oil production. The staff is presently working with the City's staff to continue these efforts.

The State Lands Commission staff is also reviewing areas where operating cost reductions can be made. The operational expertise within the Mineral Resources Management division reviews high cost areas that can be modified for more efficient operation which will result in reduced costs, which maintaining all safety procedures and operations conducted in accordance with good engineering practices.

The State Lands Commission Reservoir Engineering staff continues to work with the City in an evaluation of the performance of the Long Beach Unit under various development scenarios. However, staff limitations require that we rely heavily on the City and Thums engineering. Already completed, in the current drilling program, is a project allowing for improved vertical conformance with a small pattern waterflood in the Ranger 8A Fault Block. This has already exhibited successful results, and this recovery technique is being considered for expansion to other areas of the field. The State Lands Commission Reservoir Engineering staff is also working with the City to evaluate well-completion techniques and designs which will be incorporated into the long range development of the Unit. The recent success of selective completion in a high water cut area of Ranger VI has added new oil production which would not have been recovered by early methods. The State Lands Commission and City staffs continue to evaluate new technology which can be applied to offer greater flexibility in the well designs.

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Operating expenses and trends are being more closely tracked so we can accurately anticipate the need to accommodate fund transfers or augmentations within the budget.

During the first ten months of the 1990-91 fiscal year, the Long Beach Unit experienced five planned island shut downs for scheduled maintenance. These occurred in September and in May resulting in a reduction of the Unit oil production an average of 700 BOPD for September, and 300 BOPD in May.

The third drilling rig, which was recommended by the State Lands Reservoir staff, commenced operations in mid-August, and completed its first well the second week of September. This well is presently producing appropriately 190 BOPD. The third rig has drilled eleven producing wells to date. Thus far, drilling activity through April of this fiscal year has added nearly 250,000 barrels of new oil production to the Long Beach Unit. The oil production performance has declined sharply since February, however, as seen in Exhibit 2, and the State and City staffs are presently attempting to identify the causes and also identify methods for production improvement.

Projecting the revenue trend through the remainder of this fiscal year assuming an average oil price of \$13/barrel and an average production rate of 44,500 BOPD for the remaining two months, a potential revenue of slightly less than \$300 million for the entire fiscal year is expected. Net income after expenses is forecasted to be approximately \$155 million compared to an original budgeted net income of \$127 million for the 1990-91 fiscal year. This compares to the net income performance for the 1989-1990 fiscal year of \$124 million.

Significant activities and accomplishments in each Plan and Budget Program during the ten-month period were:

**A. DRILLING & DEVELOPMENT PROGRAM**

Three drilling rigs were operated during the first ten months. Activity was on Islands Grissom, White, Chaffee, Freeman and Pier J. Five new water-injection wells were drilled, sixteen producers and ten injectors were redrilled, one idle producer was recompleted from the UP Ford to the Terminal Zone and placed on production. Four producers were converted to injection. An active abandonment program is continuing, and a total of 25 wells are expected to be abandoned by the end of the fiscal year. Drilling activity was in the Ranger, Upper Terminal and Lower Terminal Zones.

CALENDAR ITEM NO. C 0 9 (CONT'D)

Because of the need to optimize the current waterflood to increase the ultimate oil recovery of the Long Beach Unit, the State Lands Commission Reservoir Engineering staff has identified other economic opportunities.

The adjusted budget for the Drilling and Development Program for the entire 1990-91 fiscal year is \$31.8 million, an increase of \$11.3 million over the original budget (Exhibit 5). Funds expended through the first ten months were \$21 million or 66 percent. This increase is a result of activating a third drilling rig as recommended by State Lands staff in Fiscal Year 1990-91 to accelerate field development and increase ultimate oil recovery.

**B. OIL AND GAS PRODUCTION PROGRAM**

The Unit produced 13.9 million barrels of oil and 2.6 billion cubic feet of gas during the ten month period. Average production rates were 45,600 barrels of oil per day and 8,600 MCF/D of gas versus projected rates of 43,300 BOPD oil and 8,100 MCF/D gas. Expenditures for the ten-month period plotted as dollars per barrel of oil produced are shown on Exhibit 6.

The principal function of this program is to provide budgetary planning for the production of fluids. Gross production for the period averaged 501,000 barrels per day. The original budget projected rate was 470,000 barrels per day. The increase is a result of returning previously uneconomic wells to production because of the increase in oil price. The actual and proposed gross rates and program expenditures plotted as dollars per barrel of gross fluids are shown on Exhibit 7. The number of active producing wells is shown on Exhibit 8 and is increasing slightly after a downward trend experienced during the 1986 through 1988 period. This upward trend through 1990-91 is a result of the increase in oil price, and the activation of the third drilling rig. The trend through the next two months is expected to trend with oil price. Scheduled island shut downs for complete electrical maintenance have been done on Islands Freeman, Chaffee, White, Grissom, and Pier J.

The State Lands Commission Reservoir Engineering staff identified several increased production opportunities which were implemented by the City during the second quarter of the fiscal year. This work was extremely successful resulting in considerable additional oil production.

CALENDAR ITEM NO. C 0 9 (CONT'D)

Since then, the staff has identified an additional 2,000 barrels of oil per day potential production from other wells with high fluid levels. The City has reviewed these wells for increased production and has stated they may act on these opportunities as economics and other criteria dictate.

The adjusted budget for the Oil and Gas Production Program is \$61,075,000 of which \$46.2 million (76%) were expended at the end of the ten month period. A plot of monthly expenditures is shown on attached Exhibit 9. The budget for 1990-91 of \$61.1 million dollars, is a six percent increase over 1989-90 total Program expenditures.

C. ENHANCED RECOVERY AND STIMULATION PROGRAM

This program encompasses projects such as thermal stimulation, steam flooding, CO-2 and chemical stimulation. No funds were budgeted for 1990-91 and no activity took place in this program.

D. WATER INJECTION PROGRAM

A total of 166 million barrels of water were injected during the ten-month period. The average rate was 547,000 BWPB, which is greater than the 520,000 BWPB projected. Produced fluids amounted to 152 million barrels so the Injection/Production fluids volume ratio averaged 109 percent for the ten month period. A plot of water injection rates and program expenditures as dollars per barrel of water injected are shown on Exhibit 10.

The State staff and the City is concerned about the possible lack of make-up water for future Long Beach Unit operations. A variety of alternatives are currently being studied. One of these, a seawater filtration project, is scheduled for testing soon on a limited volume basis. Another option the State staff has identified is to reduce water withdrawals by better reservoir management.

The adjusted budget for the Water Injection Program amounted to \$26.4 million of which \$18.2 million (69%) were expended at the end of the ten months. A plot of monthly expenditures is shown on attached Exhibit 11.

**E. MANAGEMENT PROGRAM**

The major portion of this program consists of expenditures for salaries, benefits and expenses of the Field Contractor, management and administrative personnel, engineering consultant services, data processing equipment purchases and operating costs, office expenses including rental, supplies and services, and the Unit Operator's billable costs. Expenditures have been escalating and will continue to escalate based on the approved 1991-1992 budget. The computer reservoir modeling program initiated in 1985 is continuing and has resulted in the identification of many opportunities for field development and contributed significantly to a successful drilling and development program over the last two years. Some of the recent drilling successes were in part due to the contribution of the reservoir model.

During the last month of the 1989-90 fiscal year, the State Reservoir Engineering staff conducted a production improvement study to identify opportunities for increased oil production and recovery from the Long Beach Unit. Some of this work was implemented in the 1990-1991 fiscal year which contributed significantly to the unit oil production.

Other significant items include Unit equity expense, special management projects, townlot participation administration and special studies related to Unit waste management and disposal. A plot of the Management Program expenditure expressed as dollars per barrels of oil is shown on Exhibit 12. The trend of dollars per barrels of oil for this program is upward and will increase significantly in the 1991-1992 budget year.

The adjusted budget at the end of April, 1991 amounted to \$21.5 million for the Management Program of which \$15.7 million (73%) was expended. A plot of monthly expenditures is shown on Exhibit 13.

**F. TAXES, PERMITS AND LAND RENTAL PROGRAM**

Adjusted budget funds for the Taxes, Permits and Land Rental Program on April 30, 1991, amounted to \$12.1 million of which \$11 million (91%) were expended. The major cash outflow in this program occurs with mining rights tax payments in December and April of the budget year. A plot of program expenditures is shown on Exhibit 14.

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A summary of Long Beach Unit 1990-91 Plan and Budget activity during the first ten months ending April 30, 1991 (in thousands of dollars) is:

<u>Program</u>	<u>Original Budget</u>	<u>Adjusted Budget*</u>	<u>Expenditures to 4/30/91</u>
A. Drilling and Development	\$ 20,466	\$ 31,768	\$20,982
B. Oil & Gas Production	60,267	61,075	46,204
C. Enhanced Recovery & Stimulation	-0-	-0-	-0-
D. Water Injection	24,309	26,357	18,174
E. Management	20,974	21,511	15,668
F. Taxes, Permits & Land Rental	<u>13,889</u>	<u>12,089</u>	<u>10,955</u>
Total	\$139,905	\$152,800	\$111,983

AB 884:  
N/A.

**EXHIBITS:**

1. Total Budget Expenditures.
2. Oil Production Rate.
3. Oil Price and Costs.
4. Oil Revenue and Costs.
5. Drilling and Development Program Expenditures (Program A).
6. Program B Costs Dollar Per Barrel Oil.
7. Program B Costs Dollar Per Barrel Gross Fluid.
8. Producing Well Count.
9. Oil and Gas Production Program Expenditures (Program B).
10. Program D Costs Dollar Per Barrel Injected Water.
11. Water Injection Program Expenditures (Program D).
12. Program E Costs Dollar Per Barrel Oil.
13. Management Program Expenditures (Program E).
14. Taxes, Permits and Land Rental Program Expenditures (Program F).

\* Including \$1.63 million in 1989-1990 carryover, and \$11.1 million in Budget Augmentation

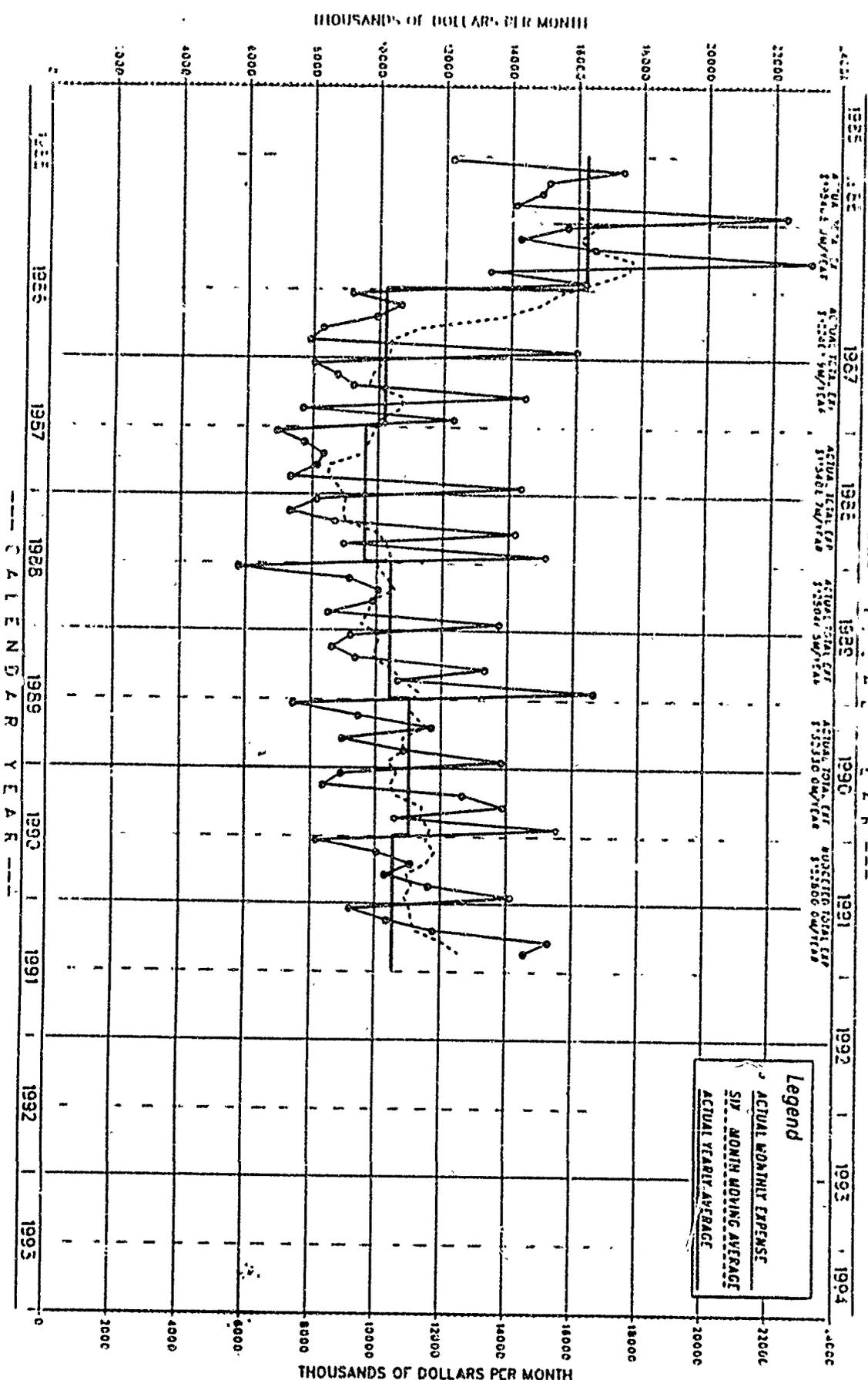
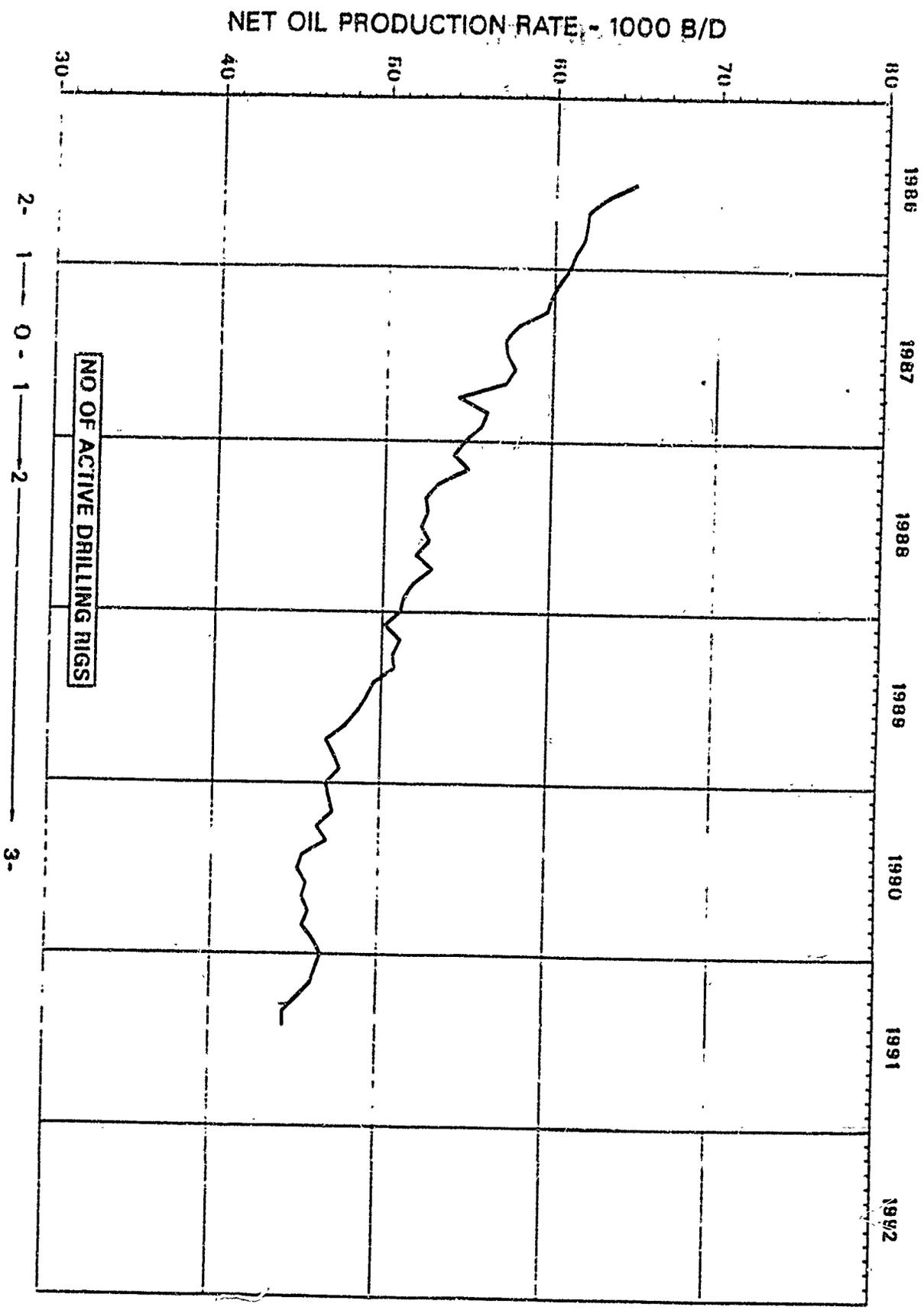


EXHIBIT 1

# LONG BEACH UNIT OIL PRODUCTION RATE

EXHIBIT 2



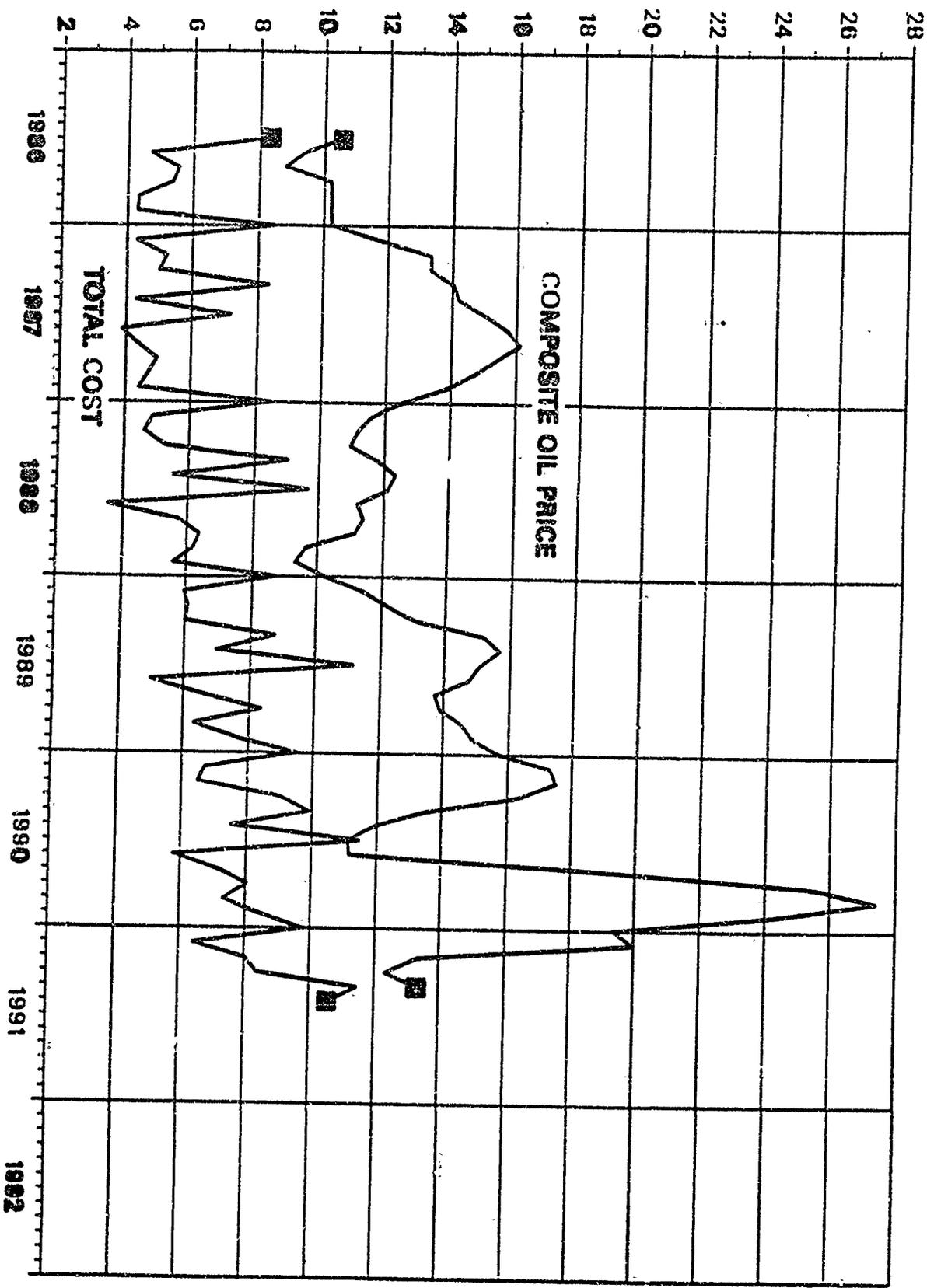
NO OF ACTIVE DRILLING RIGS

2- 1- 0 - 1 - 2 - 3-

# LONG BEACH UNIT

EXHIBIT

DOLLARS PER BARREL

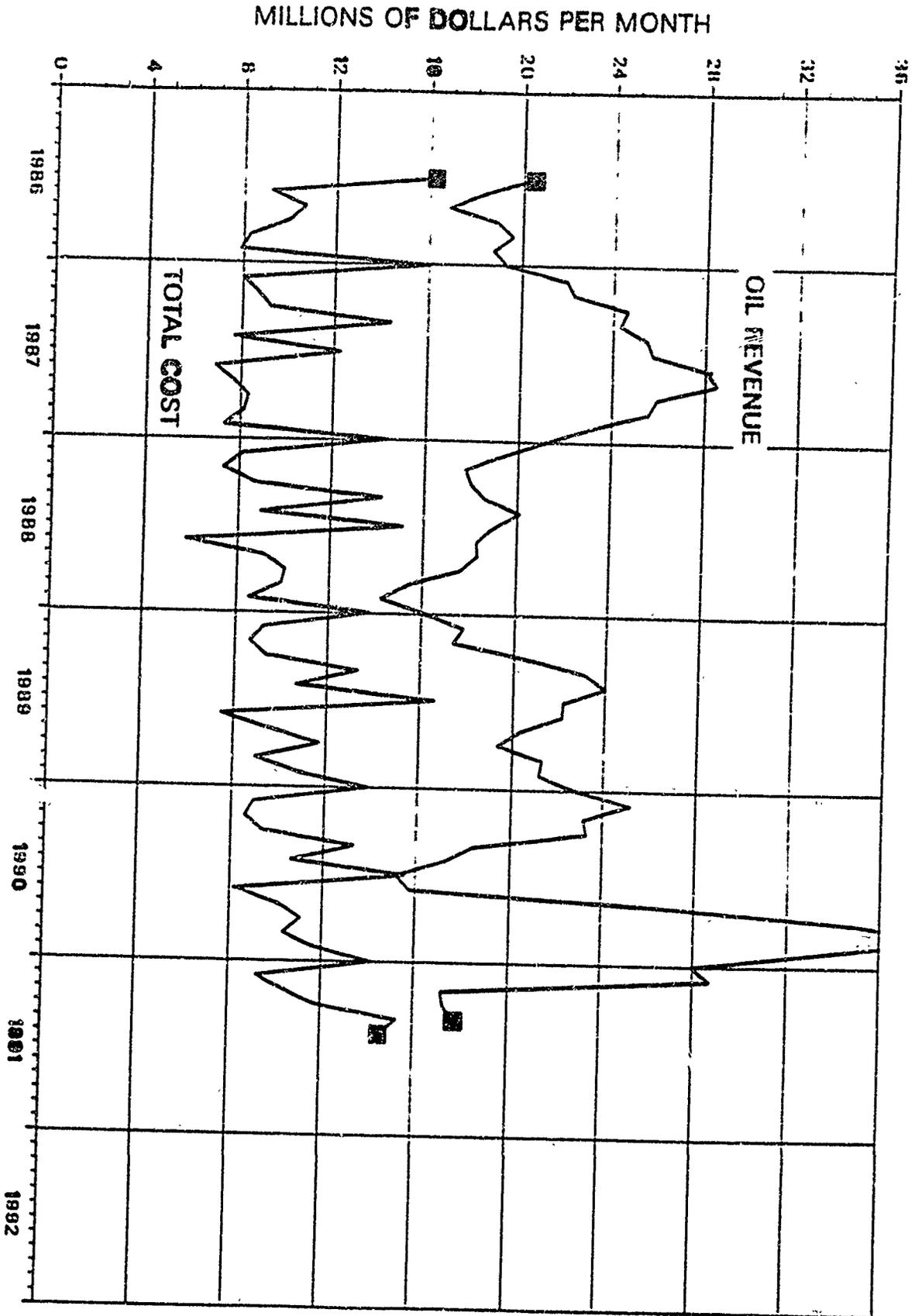


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June 25, 1991

# LONG BEACH UNIT

EXHIBIT 4

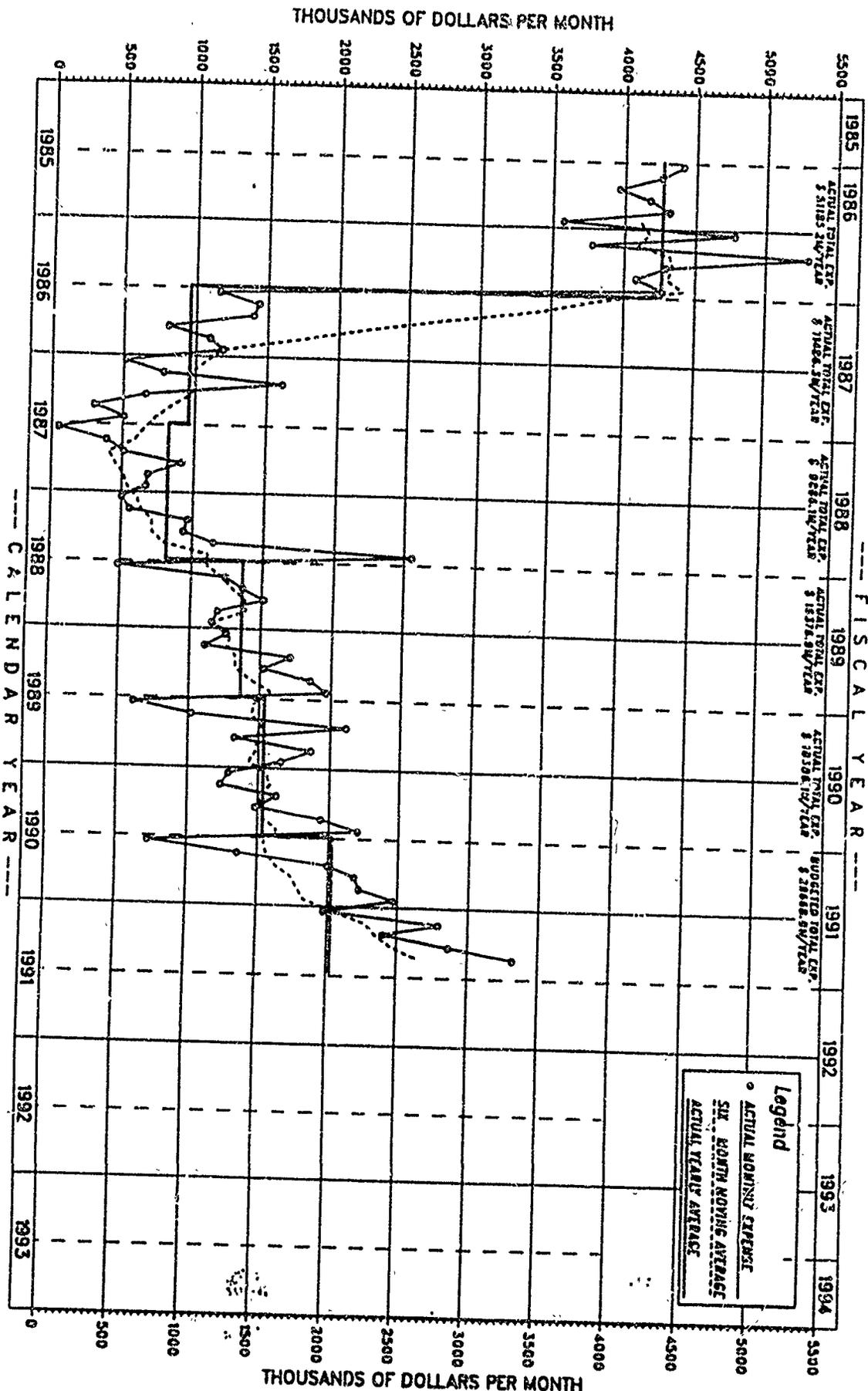


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June 25 1991

L O N G B E A C H U N I T  
PROGRAM A TOTAL

EXHIBIT 5

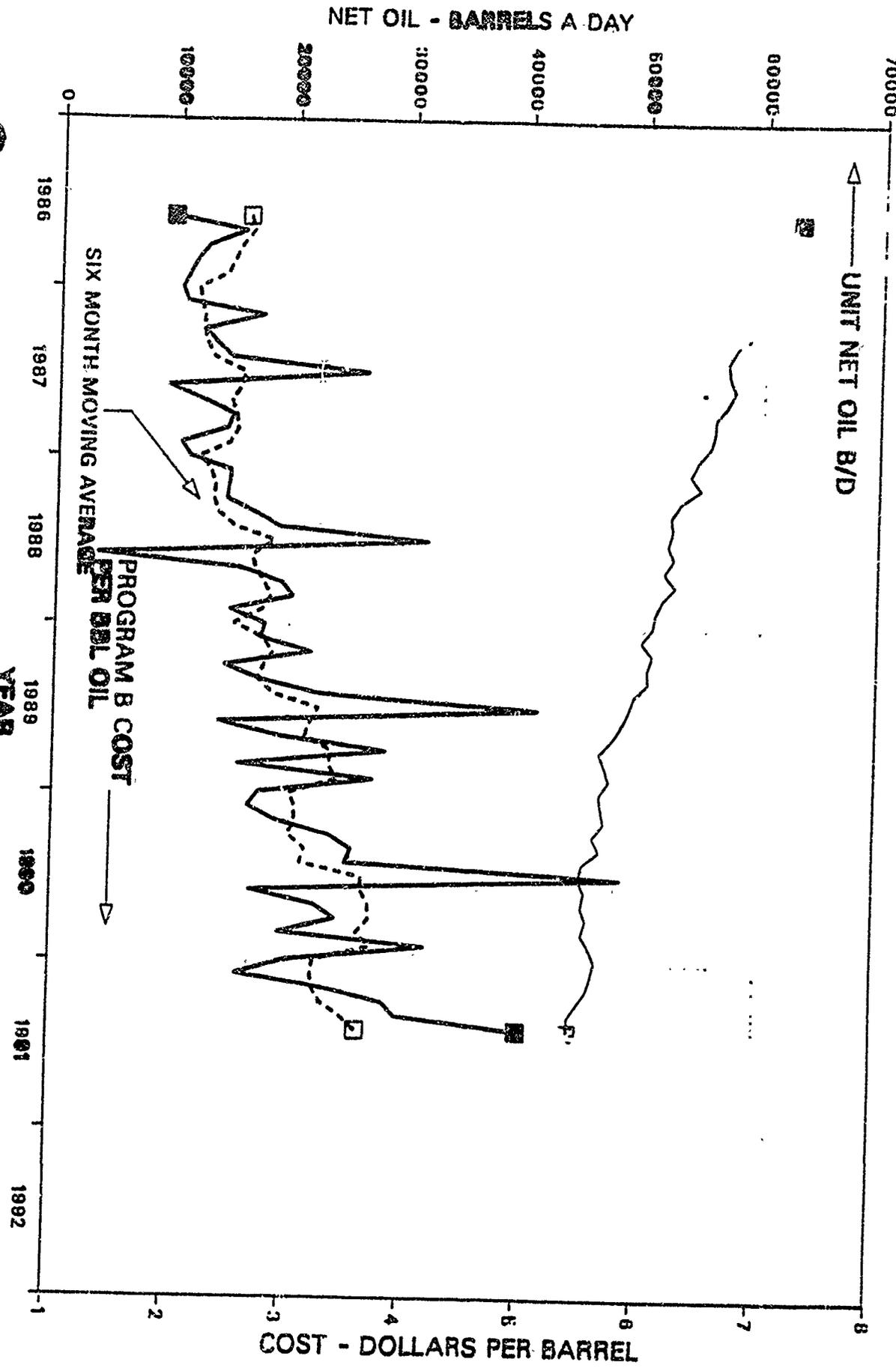


June 26 1991

# OIL & GAS PRODUCTION PROGRAM COSTS

EXPRESSED AS \$/BBL OIL

EXHIBIT 8  
LONG BEACH

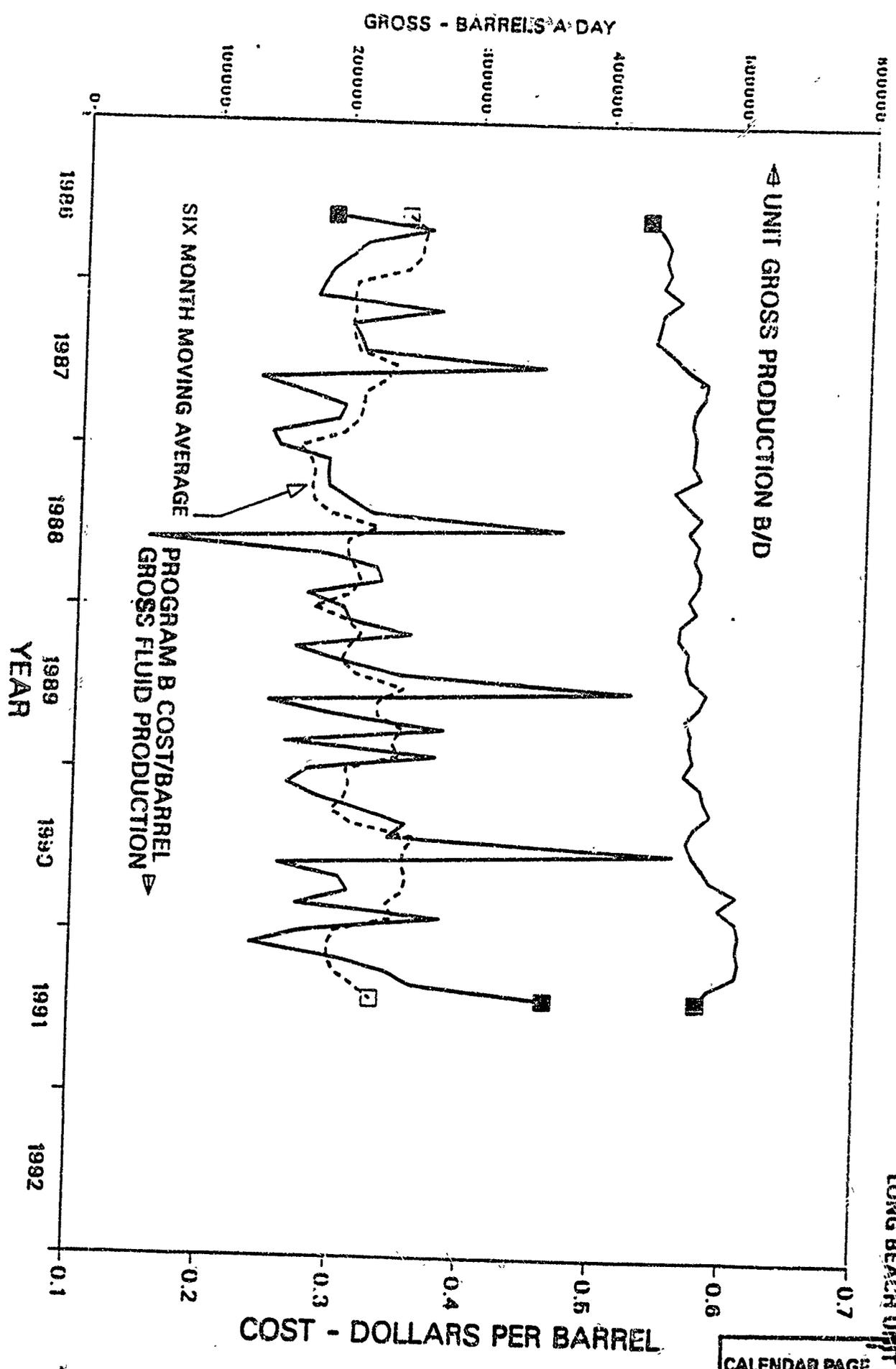


Jun 19 1991

# OIL & GAS PRODUCTION PROGRAM COSTS EXPRESSED AS \$/BBL GROSS FLUID

EXHIBIT

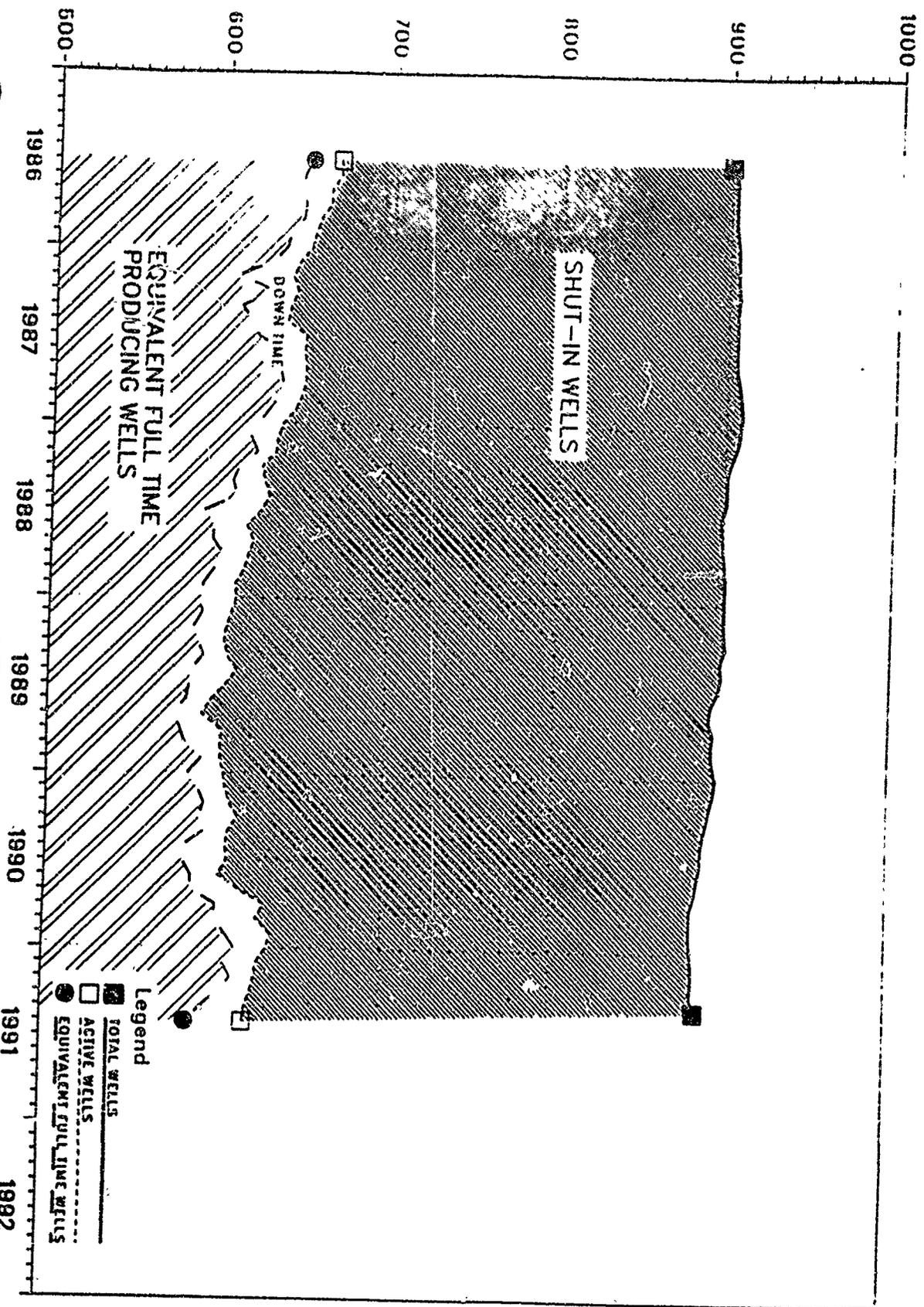
LONG BEACH UNIT



# LONG BEACH UNIT PRODUCING WELLS

EXHIBIT 8

NUMBER OF WELLS



- Legend
- TOTAL WELLS
  - ▨ ACTIVE WELLS
  - EQUIVALENT FULL TIME WELLS

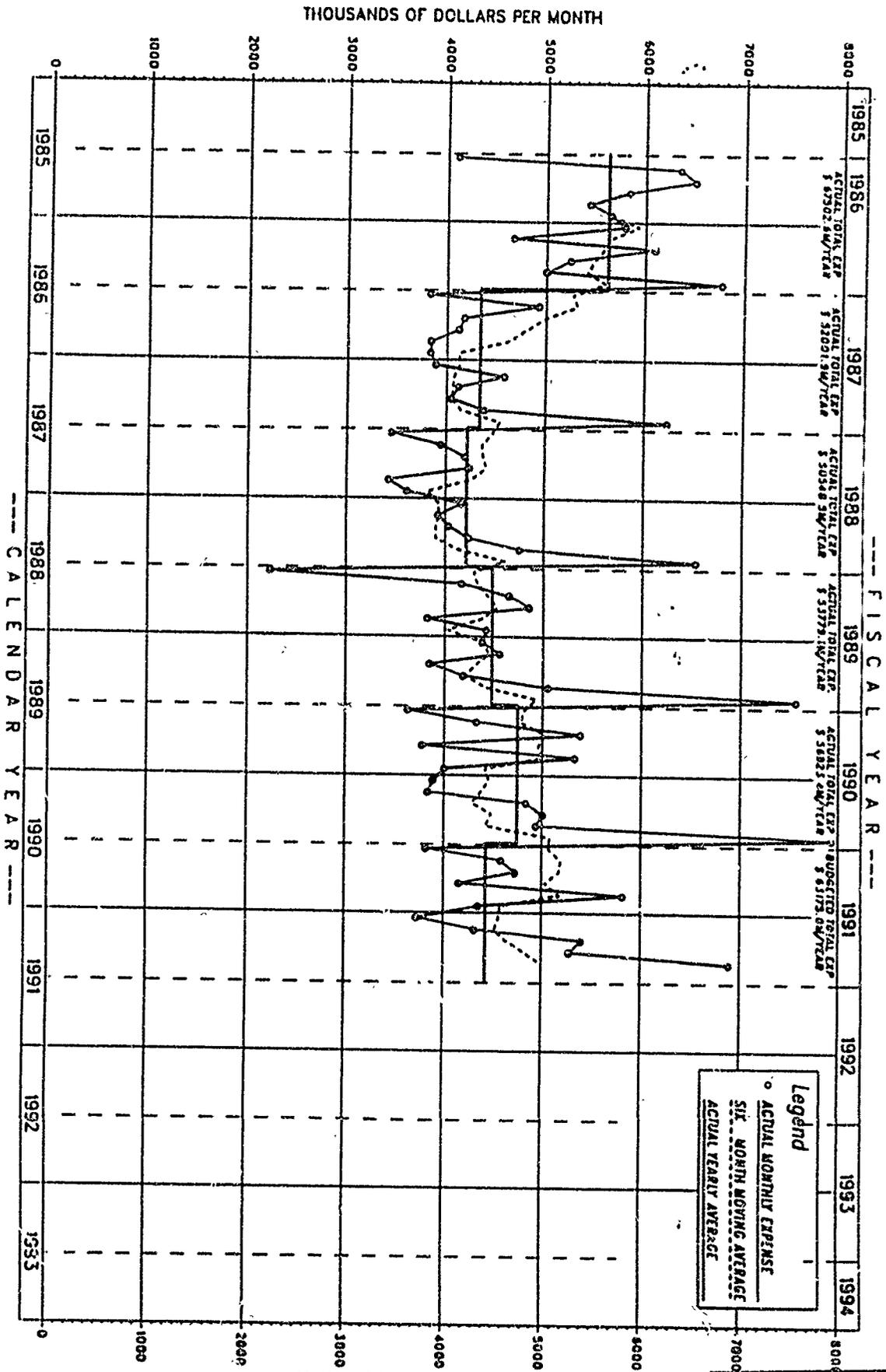
YEARS

June 20 1991

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L O N G B E A C H U N I T  
OIL & GAS PRODUCTION PROGRAM  
PROGRAM B

EXHIBIT 9



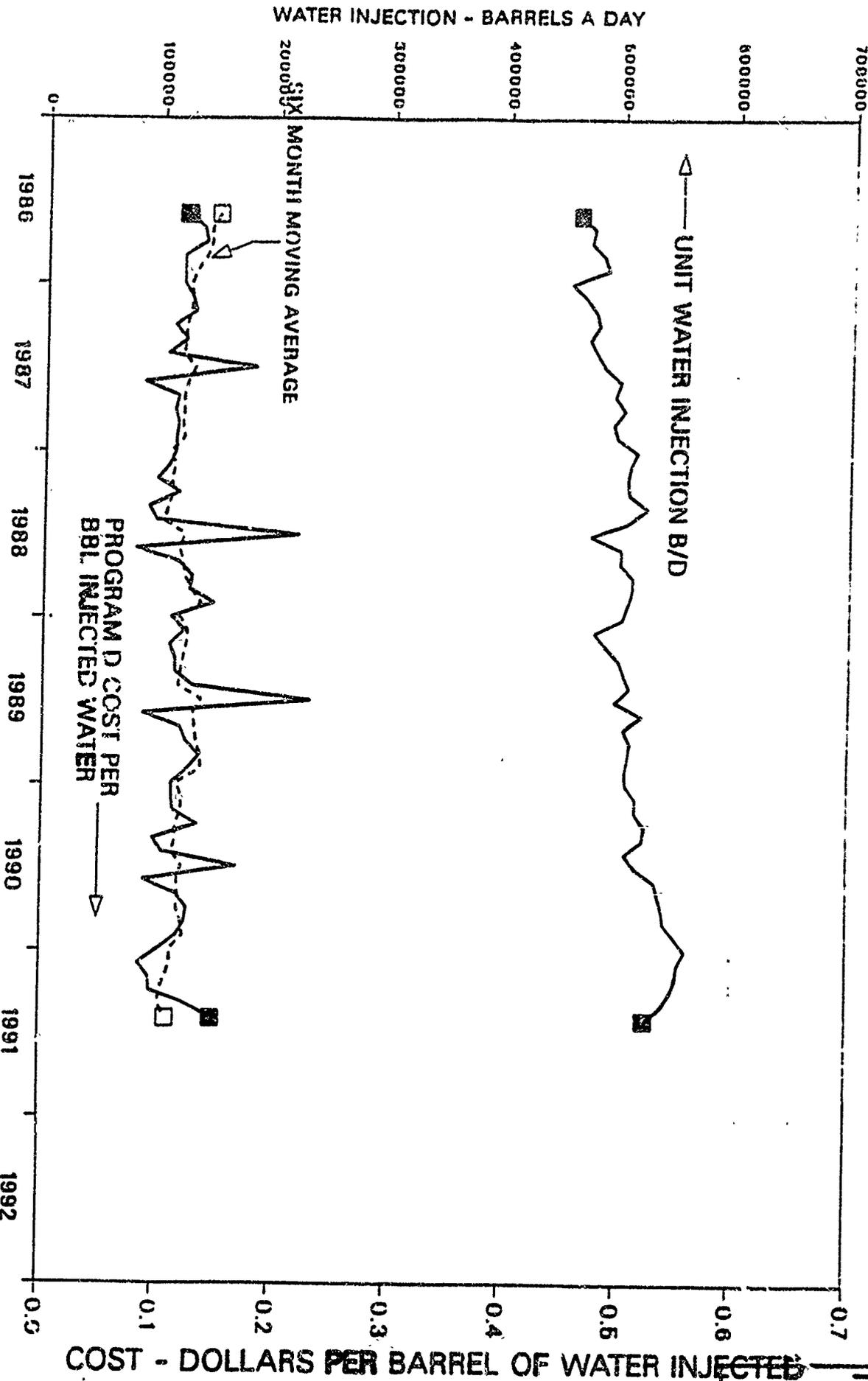
**Legend**  
 • ACTUAL MONTHLY EXPENSE  
 - - - SIX MONTH MOVING AVERAGE  
 . . . ACTUAL YEARLY AVERAGE

--- CALENDAR YEAR ---

June 26 1991

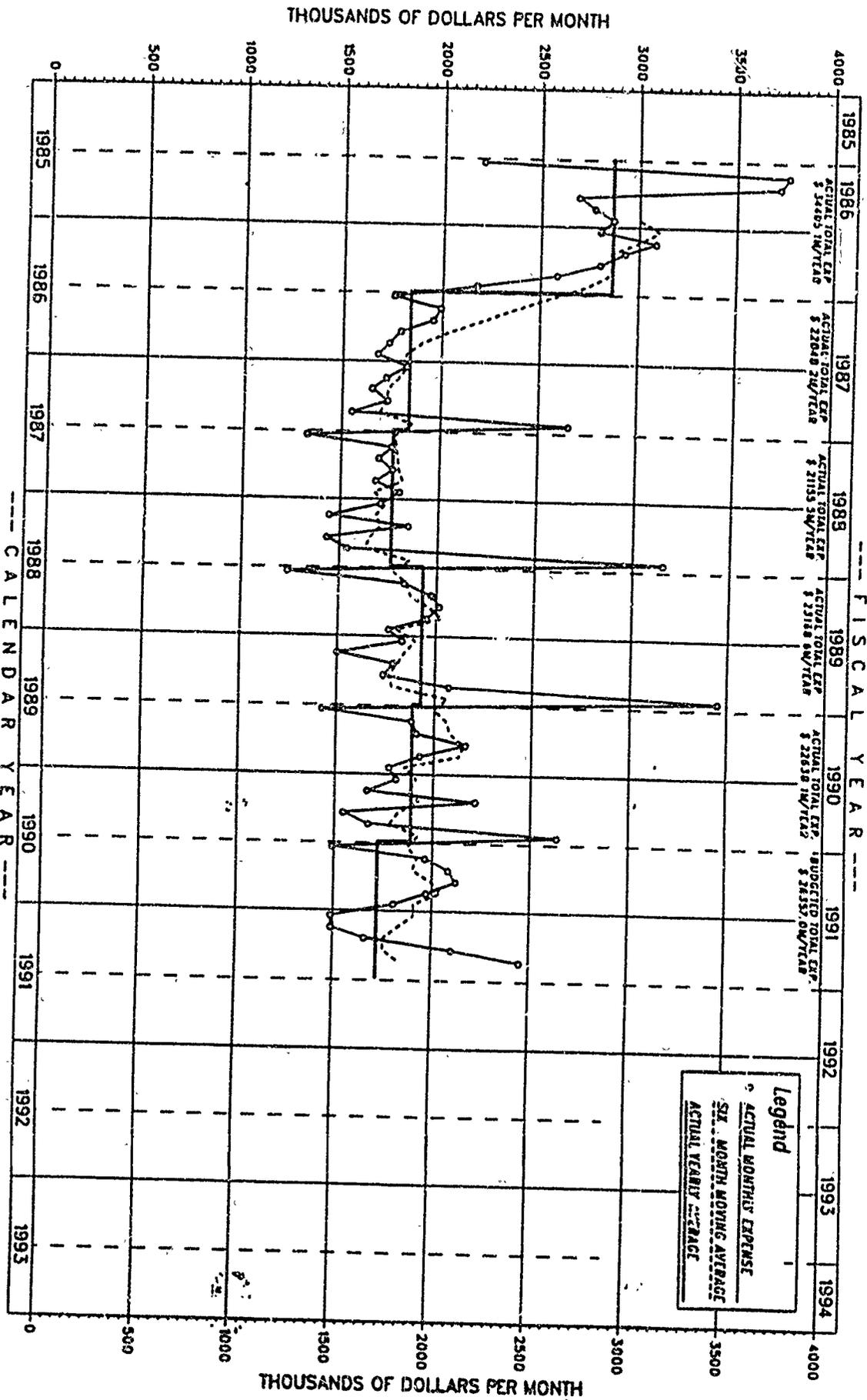
# WATER INJECTION PROGRAM COSTS EXPRESSED AS \$/BBL OF INJECTED WATER INJECTION

EXHIBIT 10  
LONG BEACH UNIT



L O N G B E A C H U N I T  
PROGRAM D  
WATER INJECTION PROGRAM

EXHIBIT 1-1



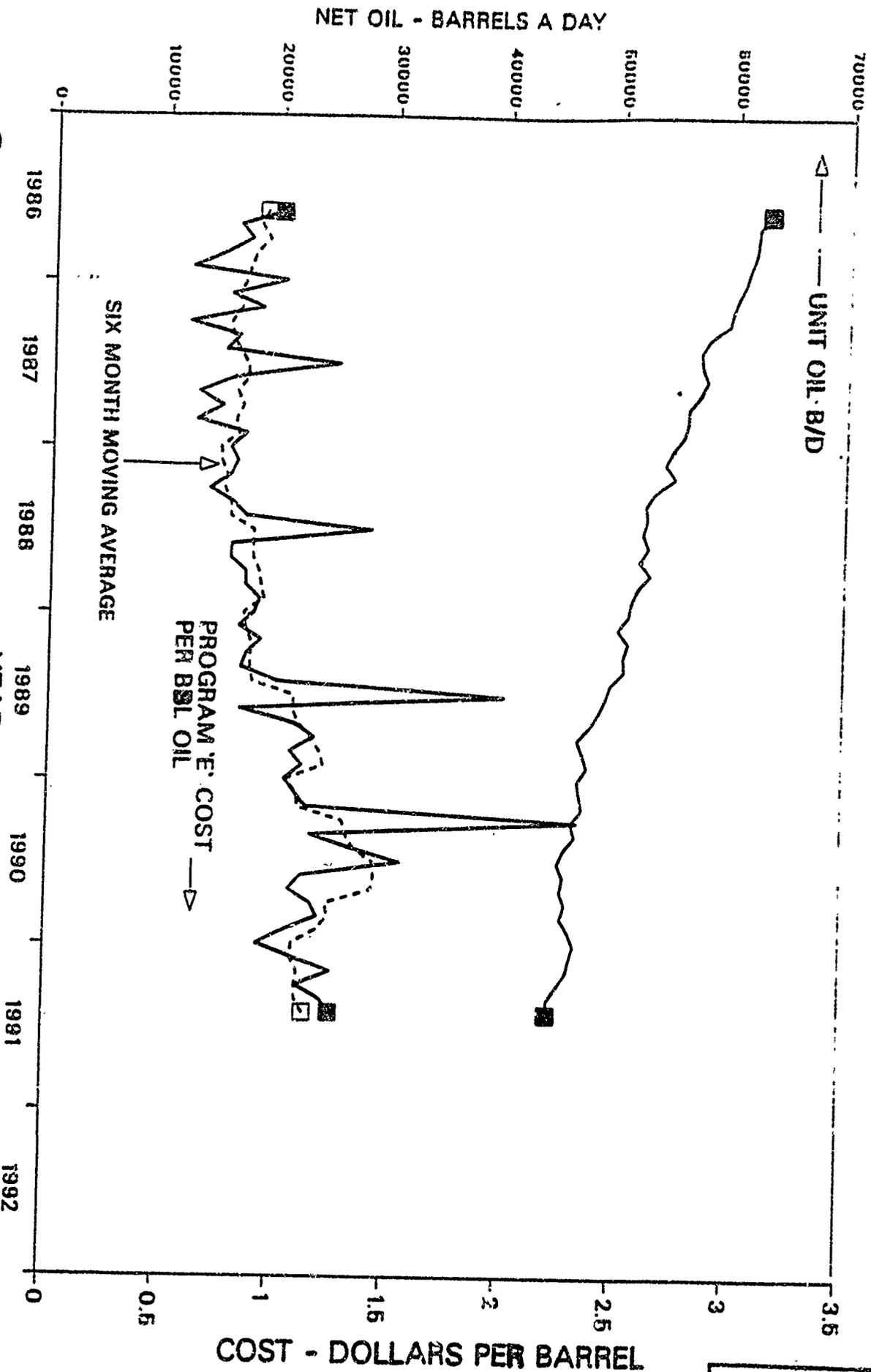
**Legend**  
 ○ ACTUAL MONTHLY EXPENSE  
 - - - SIX MONTH MOVING AVERAGE  
 . . . ACTUAL YEARLY AVERAGE

June 26 1991

# MANAGEMENT PROGRAM COSTS EXPRESSED AS \$/BBL OIL

EXHIBIT 12

LONG BEACH UNIT

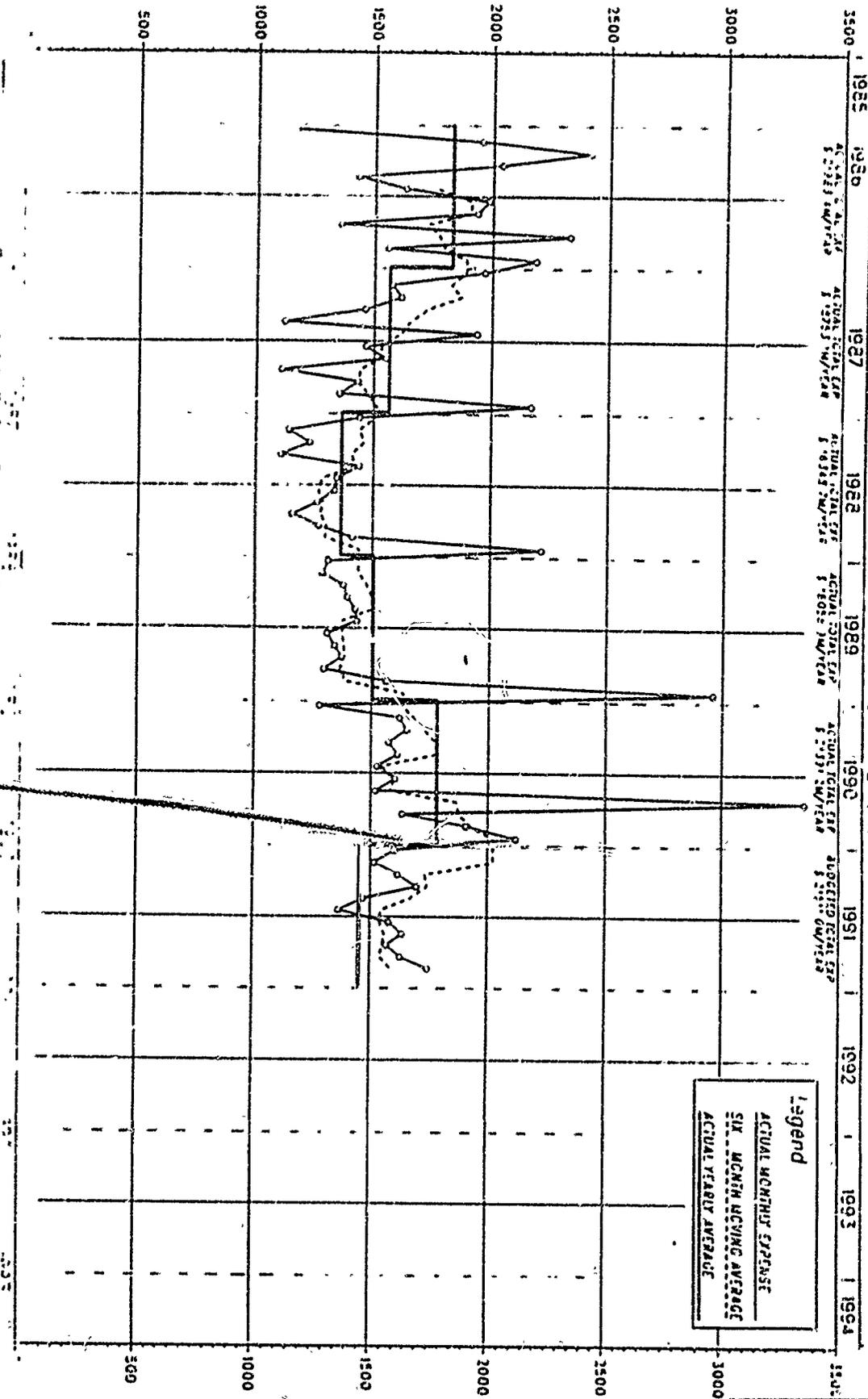


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YEAR

Jun 20 1991

THOUSANDS OF DOLLARS PER MONTH



THOUSANDS OF DOLLARS PER MONTH

MANAGEMENT PROGRAM

PROGRAM

TOTAL

EXHIBIT 13

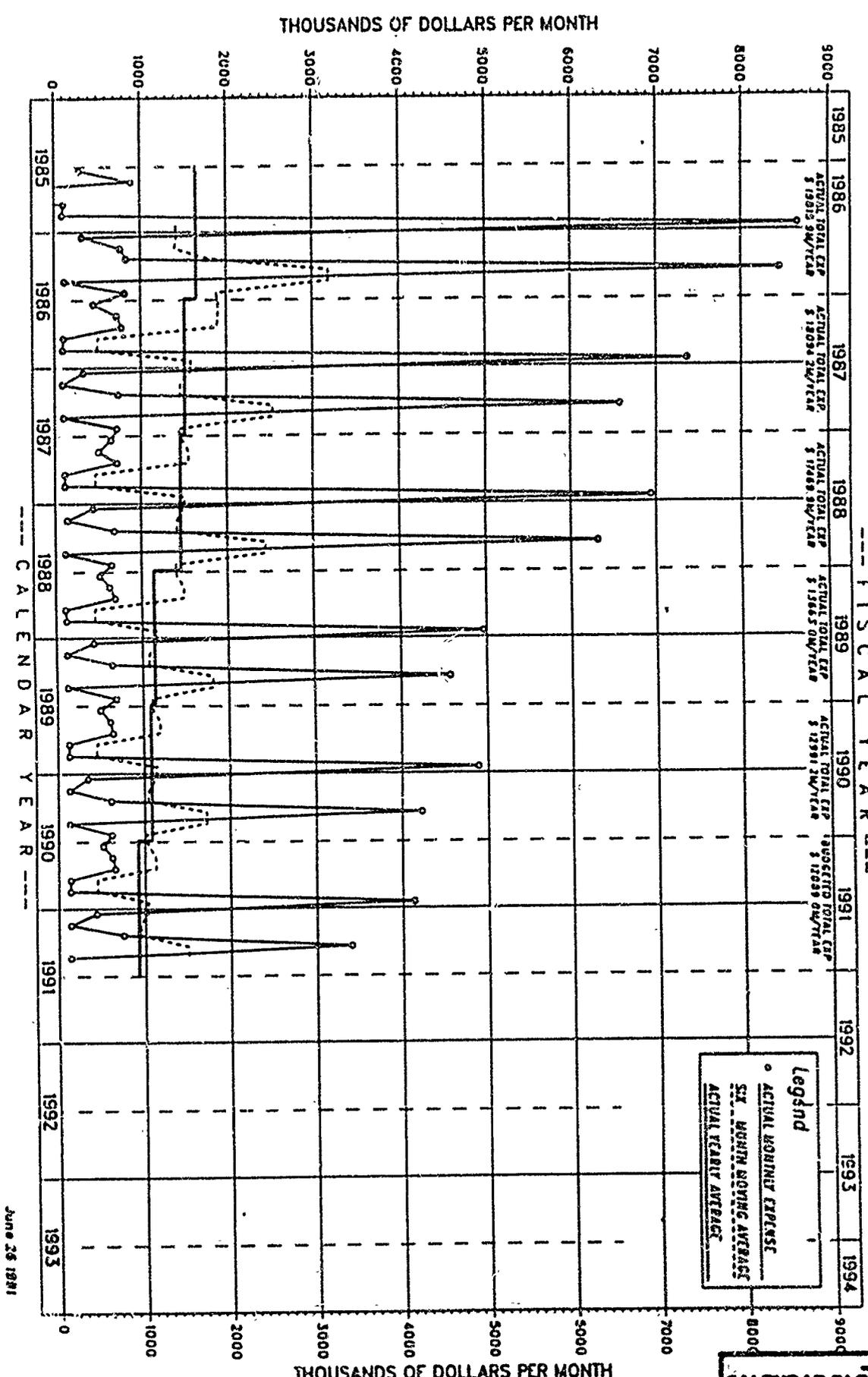
CALENDAR PAGE

MINUTE PAGE

46  
1993

**L O N G B E A C H U N I T**  
**TAXES, PRMTS. & RENTAL PROGRAM F**

EXHIBIT 14



**Legend**  
 • ACTUAL MONTHLY EXPENSE  
 - - - SIX MONTH MOVING AVERAGE  
 . . . ACTUAL YEARLY AVERAGE

--- CALENDAR YEAR ---

June 28 1981