

MINUTE ITEM

This Calendar Item No. 40  
was submitted for information  
only, no action thereon  
being necessary.

INFORMATIONAL

CALENDAR ITEM

A 57, 58

- 40

09/23/91

S 29

W 17097

Starzner

TWELVE MONTH STATUS REPORT FOR  
1990-1991 PLAN OF DEVELOPMENT AND OPERATIONS AND BUDGET  
LONG BEACH UNIT, WILMINGTON OIL FIELD, LOS ANGELES COUNTY

At the end of the twelve months of fiscal year 1990-1991, the approved Long Beach Plan of Development and Operations and Budget remains unchanged at \$152.8 million, including administrative overhead and carry-in from fiscal year 1989-1990. Total expenditures for the twelve month period during the 1990-1991 fiscal year were \$144.9 million. This is an increase of \$14 million over the 1989-1990 fiscal year. This increase is primarily a result of drilling and development activity and from a short term increase in producing activity spurred on by a temporary increase in oil price.

Total income from the Long Beach Unit for fiscal year 1990-1991 was \$299.2 million including \$7.0 million from gas sales. With total expenditures during the twelve month period of \$144.9 million, the resulting net income generated from the Long Beach Unit during fiscal year 1990-1991 was \$154.3 million. This compares to the original budgeted net income of \$127 million for the 1990-1991 fiscal year and a net income of \$124 million for the 1989-1990 fiscal year.

The increase in net income is primarily a result of increased oil prices. Approximately sixty percent of the increase in net income over the plan is due to price variance with the remaining increase primarily due to increased oil production rate. Oil prices for fiscal year 1990-1991 began at \$10.40 per barrel but increased to record levels, approaching a composite price of \$28 per barrel during the first half of the fiscal year. Shortly after concerns over supply shortages due to the Persian Gulf conflict abated, oil prices fell towards previous levels. Oil price for the first half of the fiscal year averaged \$21.16 per barrel which compares to \$13.91 per barrel for the second half of the fiscal year.

The 1990-1991 Plan and Budget, as originally submitted by the City and approved by the Commission amounted to \$139.9 million including

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the \$1.63 million carry-in from the previous year. Twenty requests by the Unit Operator (City of Long Beach) to transfer funds totaling \$3.5 million between line item accounts within the existing budget were approved. A planned \$5.0 million carry-out from this fiscal year's activity will fall into the 1991-1992 fiscal year. Total investment, expense and administrative overhead costs for the twelve month period were \$16.6 million, \$123.2 million and \$5.1 million respectively. Following is a summary of the variances in performance for the 1990-1991 fiscal year:

	<u>Original Plan</u>	<u>1990-1991 Actual</u>	<u>Variance to Plan (percent)</u>
Production:			
Oil	43,300 BOPD	45,500 BOPD	+ 5
Gas	8,100 MCF/D	8,500 MCF/D	+ 5
Revenue	\$266.9 MM	\$299.2 MM	+ 12
Expense	117.4 MM	123.2 MM	+ 5
Investment	17.7 MM	16.6 MM	- 6
Admin. Overhead	<u>4.8 MM</u>	<u>5.1 MM</u>	+ 6
Total Expenditures	\$139.9 MM	\$144.9 MM	+ 4
Net Income	\$127.0 MM	\$154.3 MM	+ 22

A summary of the Long Beach Unit 1990-1991 Plan and Budget activity (in thousands of dollars) is:

<u>Program</u>	<u>Original Budget</u>	<u>Adjusted* Budget</u>	<u>Total* Expenditures</u>
A. Drilling and Development	\$ 20,466	\$ 29,668	\$ 28,638
B. Oil and Gas Production	60,267	63,175	60,688
C. Enhanced Recovery and Stimulation	-0-	-0-	-0-
D. Water Injection	24,309	26,357	23,946
E. Management	20,974	21,511	19,776
F. Taxes, Permits and Land Rental	<u>13,889</u>	<u>12,094</u>	<u>11,849</u>
Total	\$139,905	\$152,805	\$144,897

\*Adjusted Budget and Total Expenditures include \$1.63 million carry-in from the previous fiscal year.

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. The staff has identified many areas for well work, some of which have been implemented resulting in recent 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 thereby increasing the fields margin. The Mineral Resources Management (MRM) Division reviews all cost areas identifying areas which may be modified for more efficient operation. Although, the MRM Division staff is somewhat organizationally removed from the day to day operations, this effort has reduced costs while maintaining that all safety procedures and operations have been conducted in accordance with good engineering practices.

The State Lands Commission Reservoir Engineering staff continues to work with the City in evaluating the performance of the Long Beach Unit under various development scenarios. However, MRM Division staff limitations require a heavy reliance on City and THUMS engineering efforts. The focus of many of the MRM Division evaluations is improved vertical conformance under the existing water injection program. Several projects have been completed during this fiscal year which have yielded significant improvements in the water injection program and ultimate recovery for the field.

The State Lands Commission Reservoir Engineering staff is also working to evaluate well completion techniques and designs which will be incorporated into the long range development of the Unit. The recent success of selective completions in high water cut areas has recovered additional oil which would not have been recovered by earlier methods. Through direction by the State Lands Commission Reservoir Engineering staff, the City will continue to evaluate new technology which can be applied to offer greater flexibility in the well designs. Recent developments in high angle or horizontal drilling and completion technology appear very promising for the Long Beach Unit and may offer considerable cost savings with additional recovery of the resource. The MRM Division staff is evaluating the application of this new, progressive technology.

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. The drilling program for the three rigs has impacted production by arresting the field annual decline rate to approximately 3 percent. An additional 2500 BOPD at a low 59 percent water cut is currently being recovered as a result of this work. Investment recovery from the program has

been excellent with new wells coming on at an average producing rate of over 200 BOPD. Continuation of the program into the 1991-1992 fiscal year is expected to increase oil production from the field.

Presently, the production rate is 5 percent below earlier estimates made by the State Lands Commission Reservoir Engineering staff. Backing out production from new wells, overall field production is approximately 10 percent below planned. Reasons for this shortfall in field productive capacity include inefficiencies and failures in many of the producing well's artificial lift systems, increases in the number of idle wells during 1991, and increased downtime due to various operational problems. These operational constraints to maximum production from the Unit have been identified and will continue to be emphasized to the staffs of the Operator and Field Contractor.

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

**A. DRILLING & DEVELOPMENT PROGRAM**

The Long Beach Unit activated a third drilling rig in mid-August to increase oil 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 into the 1991-1992 fiscal year.

Drilling activity occurred on Islands Grissom, White, Chaffee, Freeman and Pier J. Eighteen new wells and 23 redrills were completed during the plan year. Abandonment of wells no longer of value to the development is continuing for the field. Drilling activity occurred in the Ranger, Upper Terminal and Lower Terminal Zones. Other opportunities will continue to be identified by the MRM Division Reservoir Engineering staff to optimize the existing development and expand areas of profitable operations.

The adjusted budget for the Drilling and Development Program for the 1990-1991 fiscal year is \$29.2 million, an increase of \$9.2 million over the original budget (Exhibit 5). Actual expenditures in the Drilling and Development Program for fiscal year 1990-1991 were \$28.6 million. 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 16.6 million barrels of oil and 3.1 billion cubic feet of gas during fiscal year 1990-1991. Average production rates were 45,500 barrels of oil per day and 8,500 MCF/D of gas versus projected rates of 43,300 BOPD oil and 8,100 MCF/D gas. Although the resulting increase in production from activating a third rig is presently below expectations, the response from individual wells drilled has been excellent. Recovery of investment funds to date has been quick yielding good economic return.

The principal function of this program is to provide budgetary planning for the production of fluids. Gross production for the fiscal year 1990-1991 averaged 498,000 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 periods of low oil price from 1986 through 1988. This upward trend through 1990-91 is a result of the increase in oil price, and the activation of the third drilling rig.

The adjusted budget for the Oil and Gas Production Program is \$63.2 million. Actual expenditures in the Oil and Gas Production Program for fiscal year 1990-1991 were \$60.7 million. A plot of monthly expenditures is shown on attached Exhibit 9. The expenditures for 1990-1991 of \$60.7 million dollars, is a five percent increase over 1989-90 Oil and Gas Production Program expenditures.

**C. ENHANCED RECOVERY AND STIMULATION PROGRAM**

This program encompasses projects such as thermal stimulation, steam flooding, CO<sub>2</sub> and chemical stimulation. No funds were budgeted for 1990-1991 and no activity took place in this program.

**D. WATER INJECTION PROGRAM**

A total of 198 million barrels of water were injected during fiscal year 1990-1991. The average rate was 543,000 BWPD, which is greater than the 520,000 BWPD projected. Produced

fluids totaled 182 million barrels resulting in an Injection/Production fluids volume ratio that averaged 109 percent for fiscal year 1990-1991. A plot of water injection rates and program expenditures as dollars per barrel of water injected are shown on Exhibit 10.

The State and City staffs are concerned about the possible lack of source water for future Long Beach Unit operations. A variety of alternatives are currently being studied. One of these, a seawater filtration project, has been underway with an initial pilot study. Results of the pilot study are expected within the next few months. In addition, fluid compatibility testing utilizing available source water from local refinery output is underway. A review of the results of these studies has been requested by the Lands Commission. A solution to the limited source water available for injection is expected to be identified and possibly remedied during the next fiscal year. The State staff will continue efforts to maximize oil withdrawals and improved water handling by better reservoir management.

The adjusted budget for the Water Injection Program amounted to \$26.4 million. Actual expenditures in the Water Injection Program for fiscal year 1990-1991 were \$23.9 million. 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 oil production.

Other significant items include 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 for the Management Program amounted to \$21.5 million. Actual expenditures in the Management Program for fiscal year 1990-1991 were \$19.8 million. 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 for fiscal year 1990-1991 are \$12.1 million of which \$11.8 million were actually 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.

AB 884: N/A.

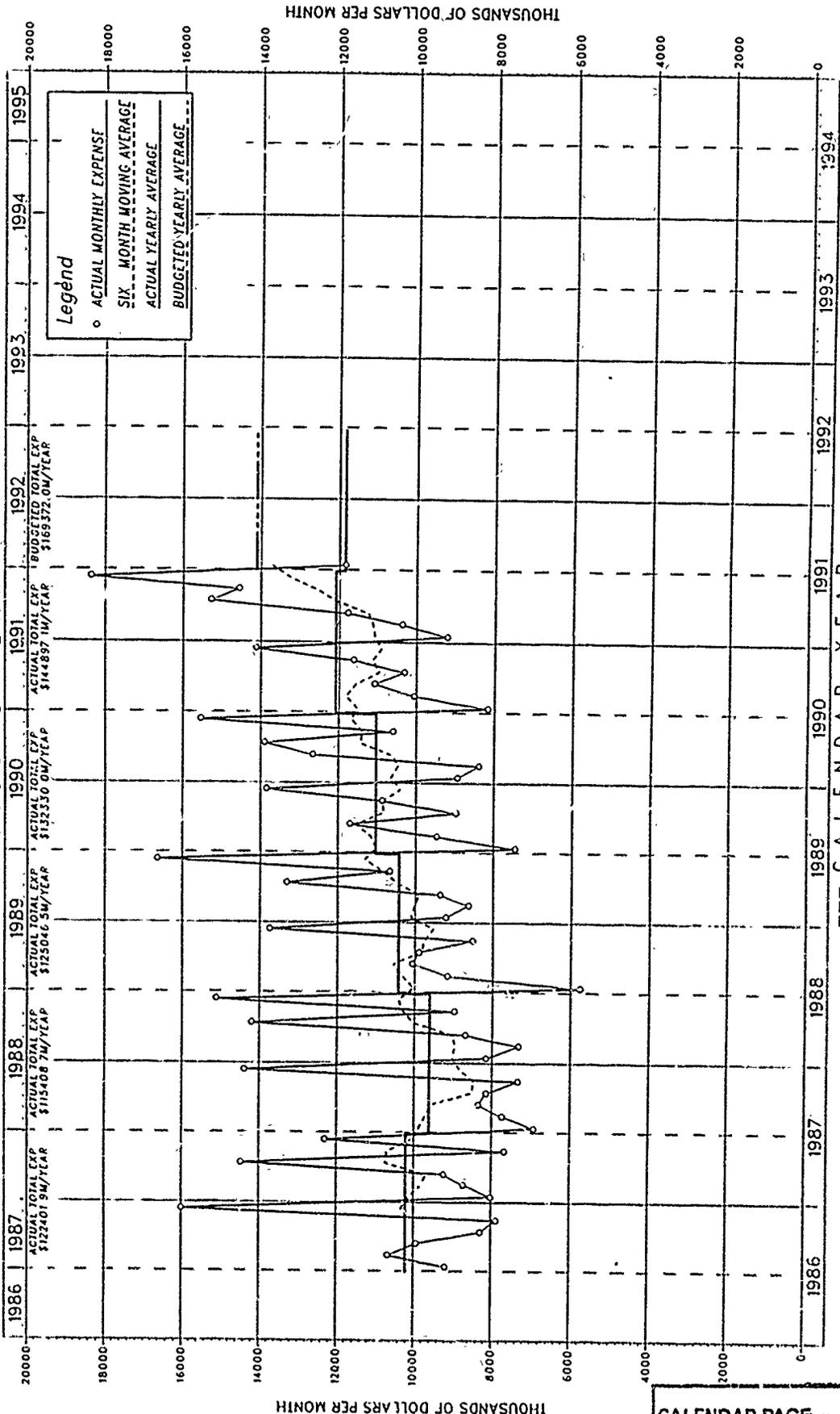
**EXHIBITS:**

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).

Exhibit I

LONG BEACH UNIT

TOTAL BUDGET -- INCLUDING ADMIN OVERHEAD  
 --- FISCAL YEAR ---



THOUSANDS OF DOLLARS PER MONTH

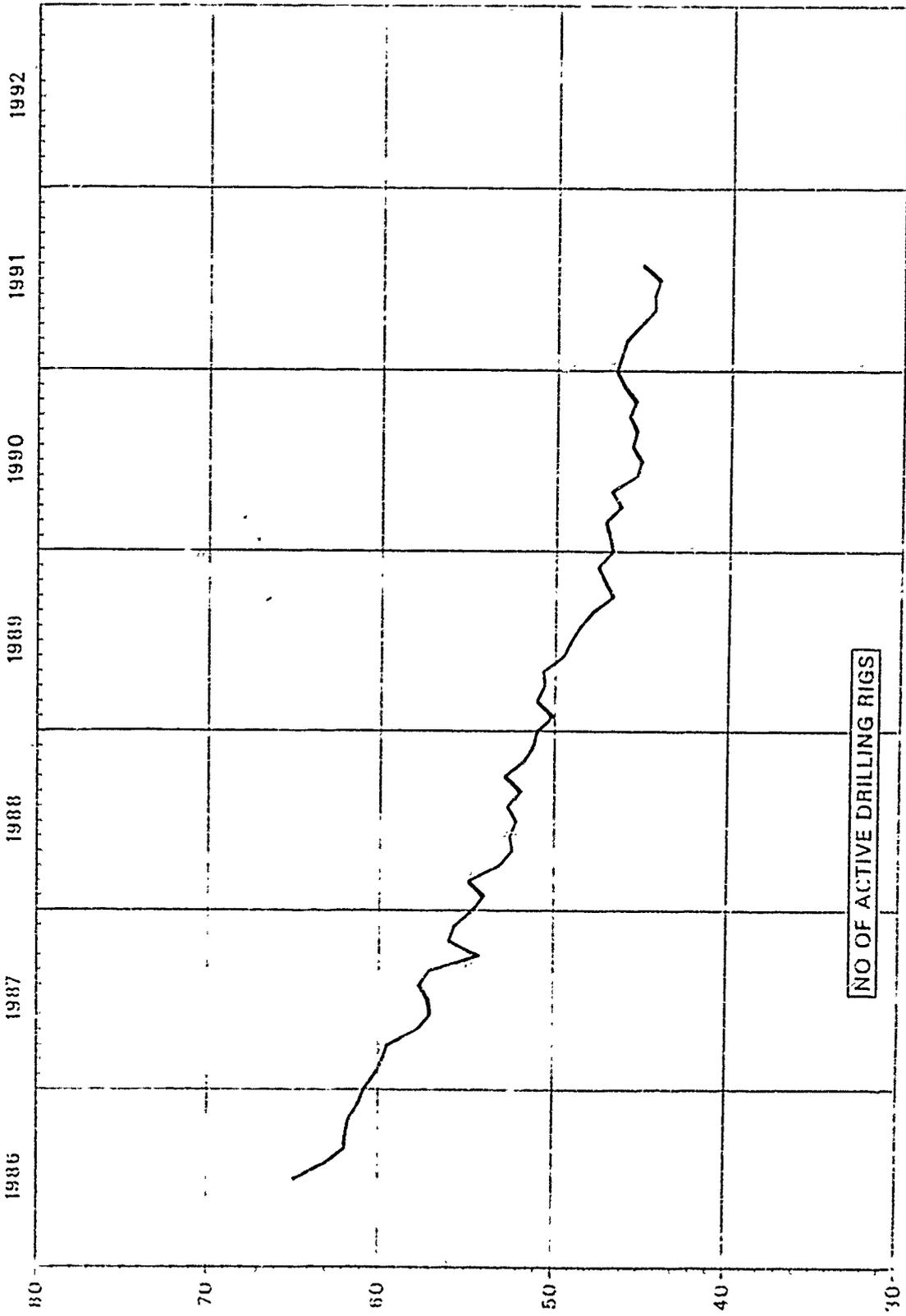
THOUSANDS OF DOLLARS PER MONTH

Legend  
 ○ ACTUAL MONTHLY EXPENSE  
 - - - SIX MONTH MOVING AVERAGE  
 — ACTUAL YEARLY AVERAGE  
 - - - BUDGETED YEARLY AVERAGE

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# LONG BEACH UNIT OIL PRODUCTION RATE



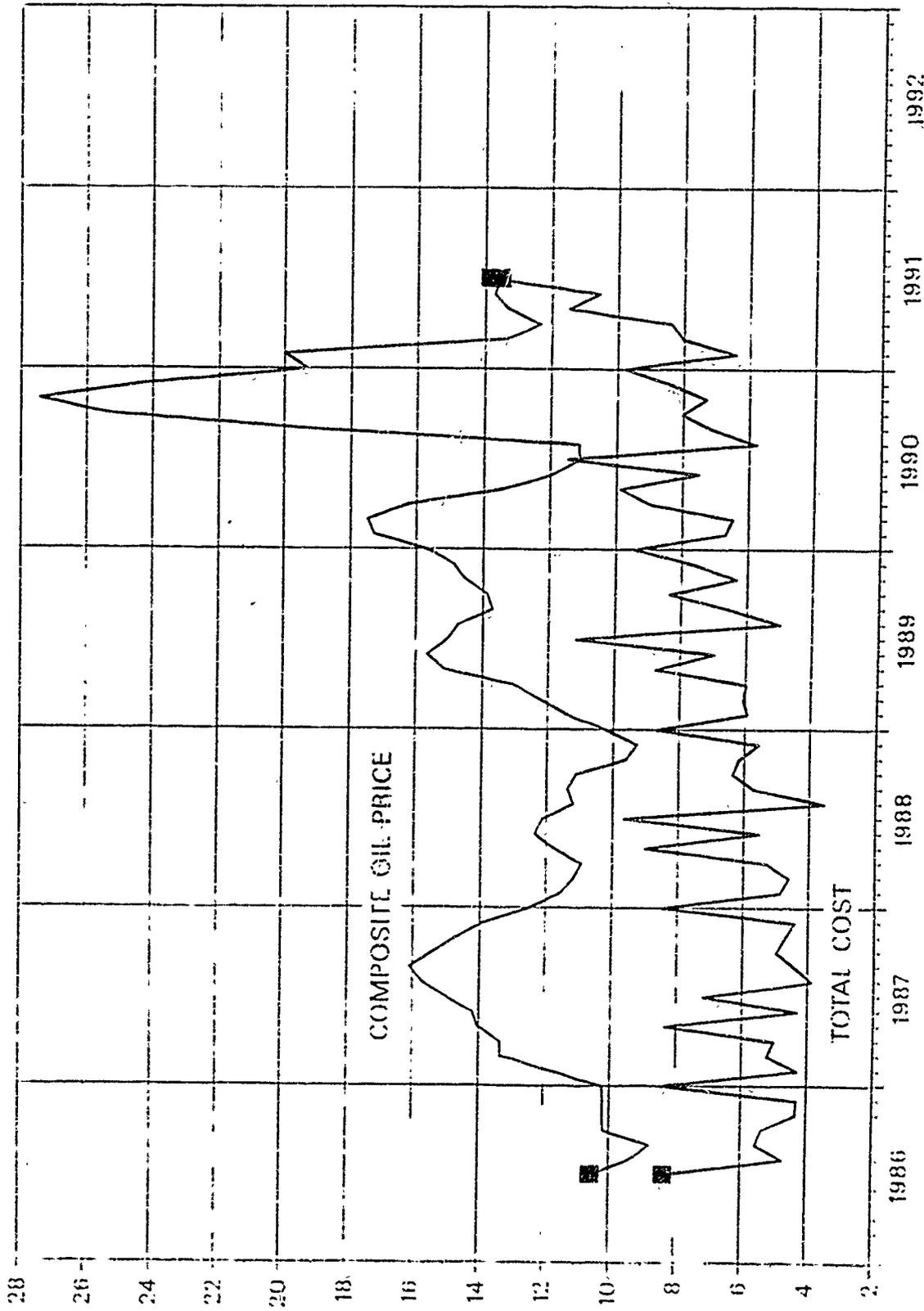
NO OF ACTIVE DRILLING RIGS

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

NET OIL PRODUCTION RATE - 1000 B/D

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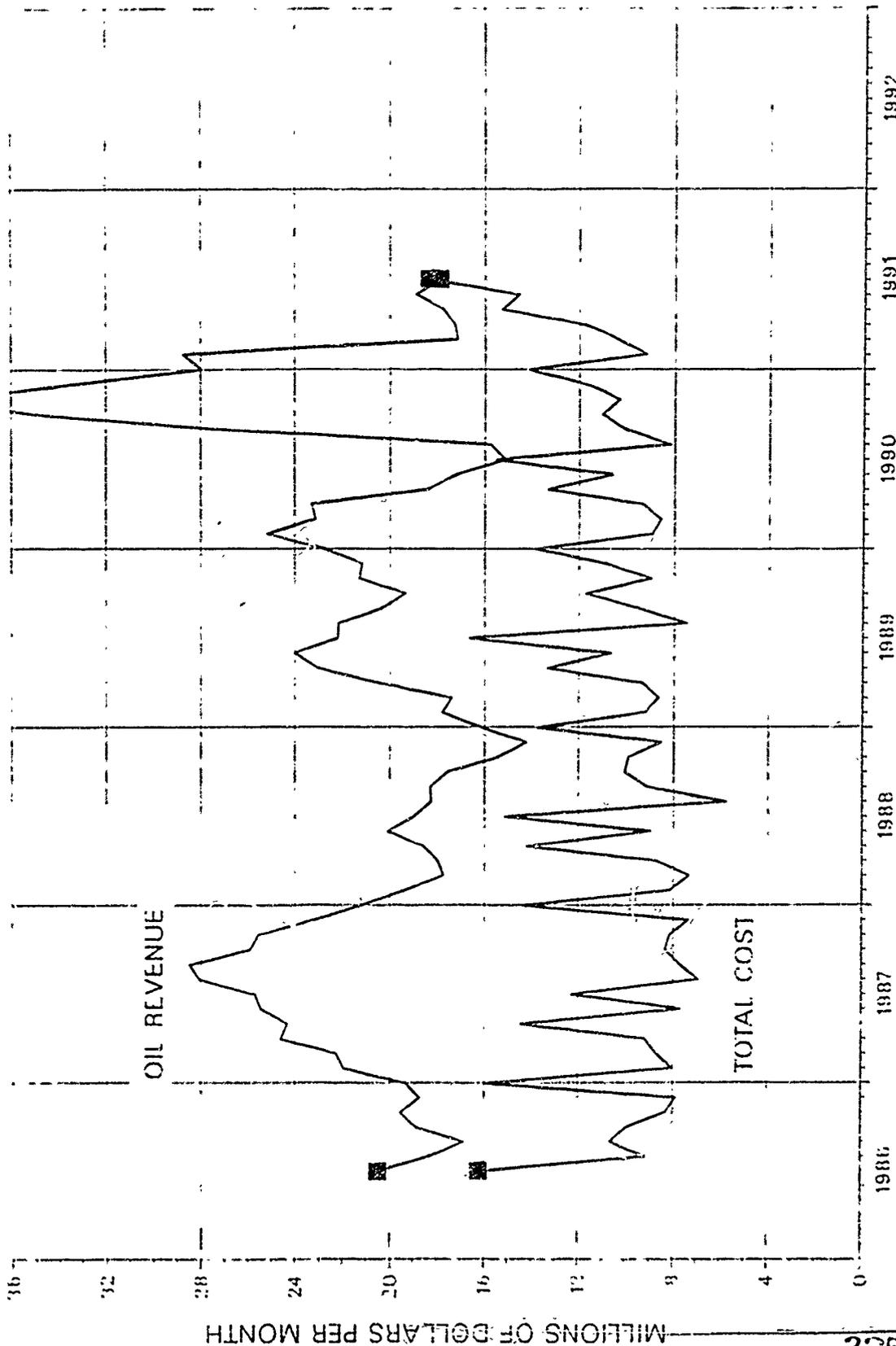
# LONG BEACH UNIT



DOLLARS PER BARREL

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# LONG BEACH UNIT



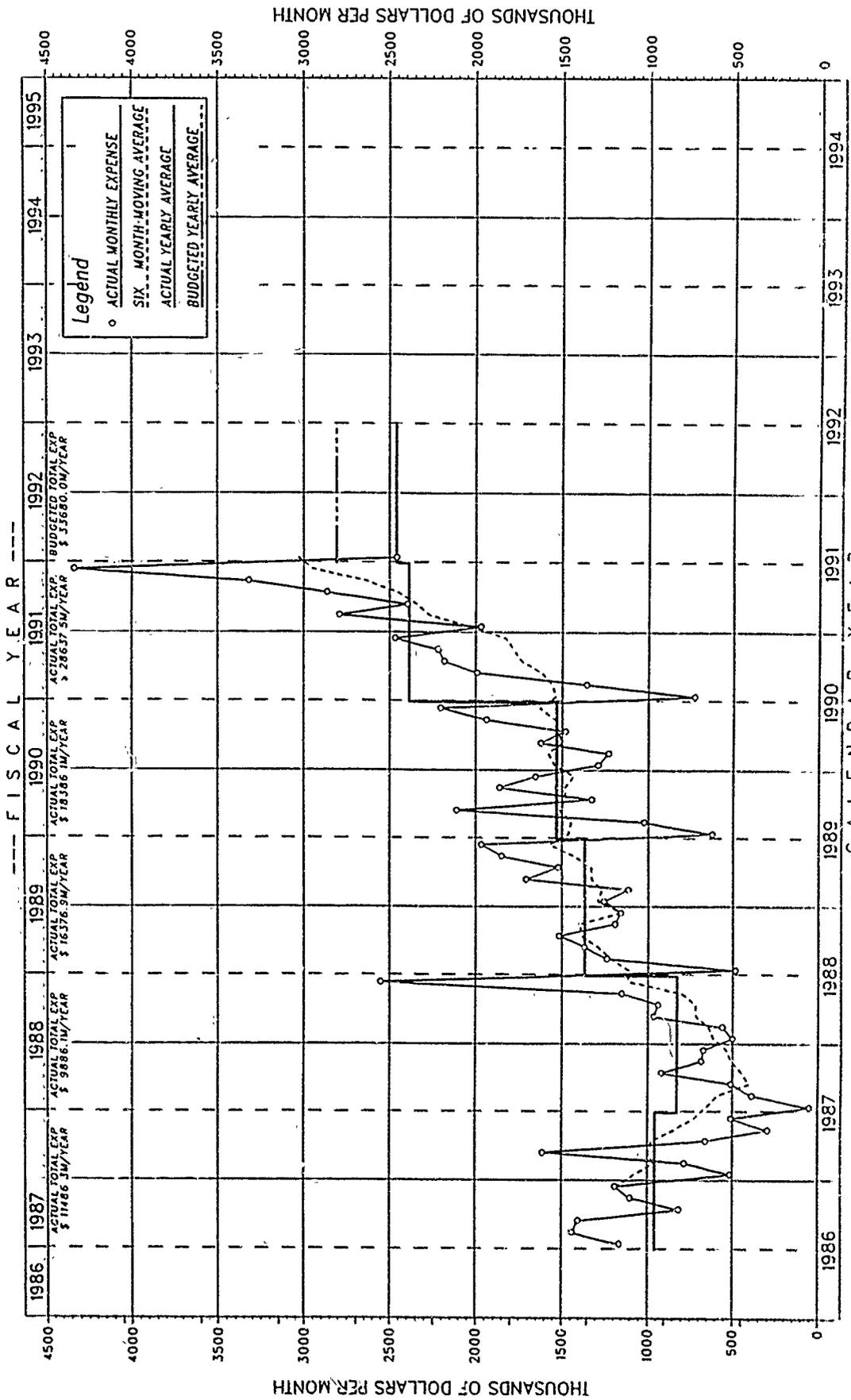
MILLIONS OF DOLLARS PER MONTH

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Exhibit 5

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

PROGRAM A



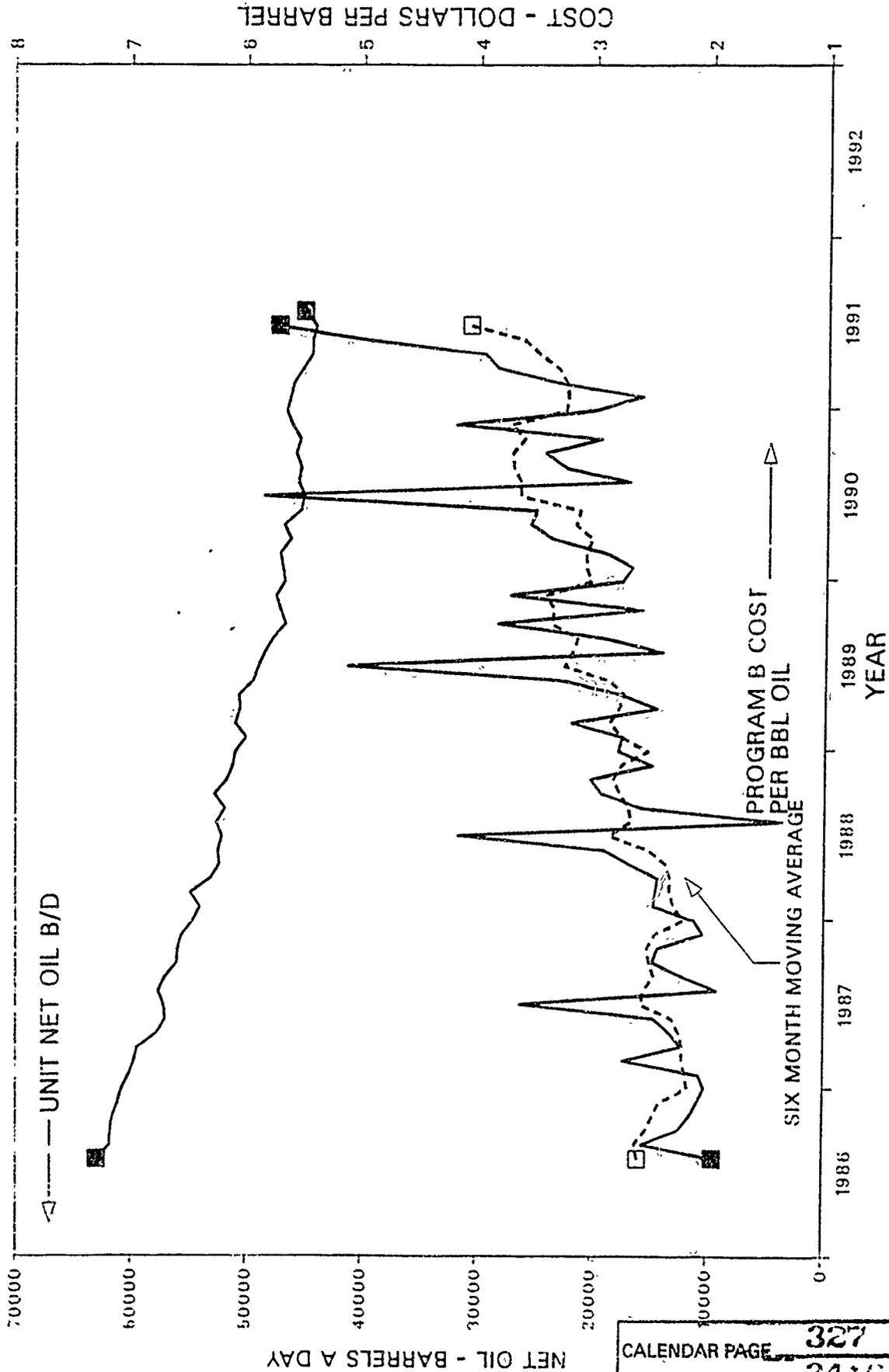
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# OIL & GAS PRODUCTION PROGRAM COSTS EXPRESSED AS \$/BBL OIL

EXHIBIT 6

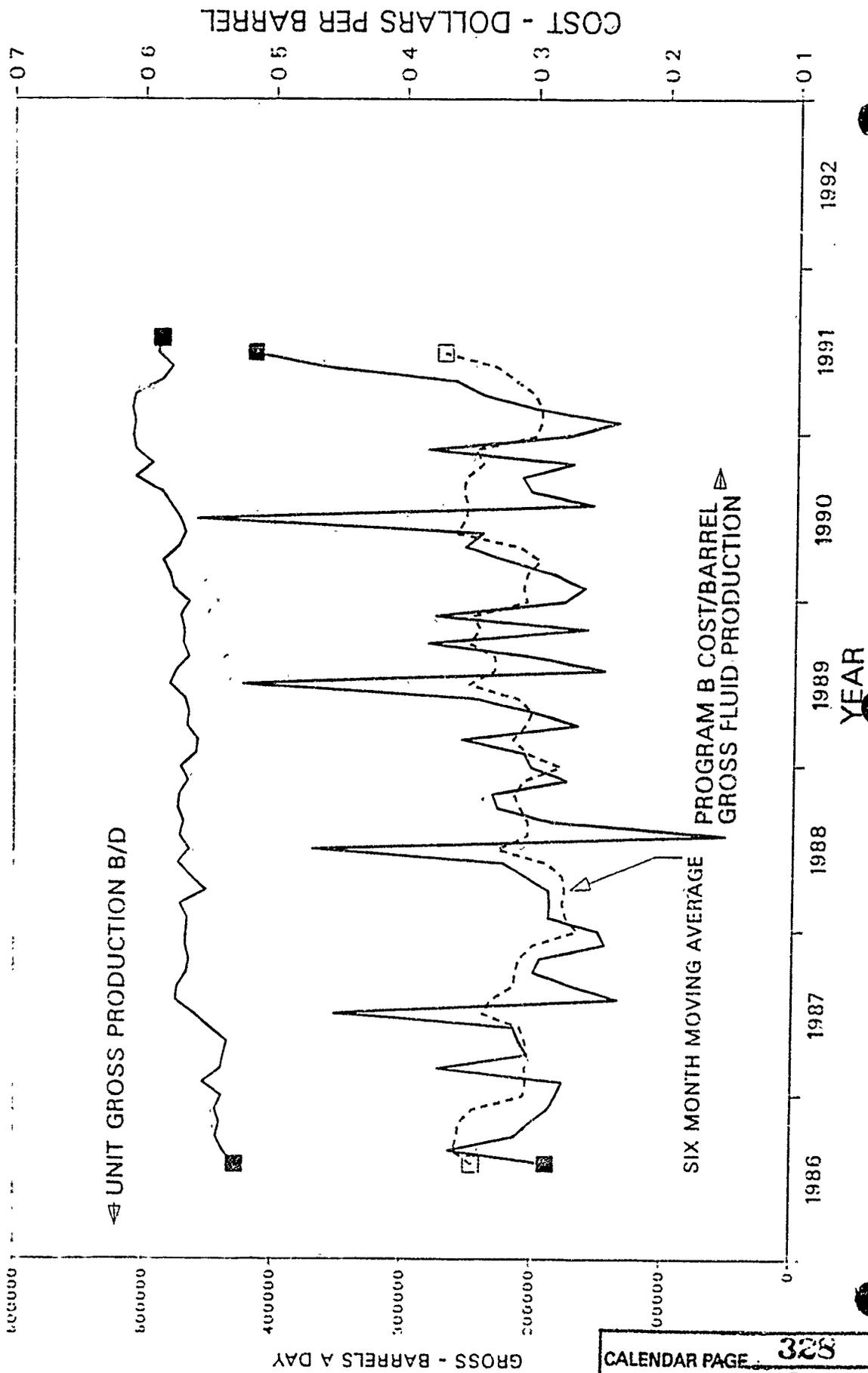
LONG BEACH UNIT



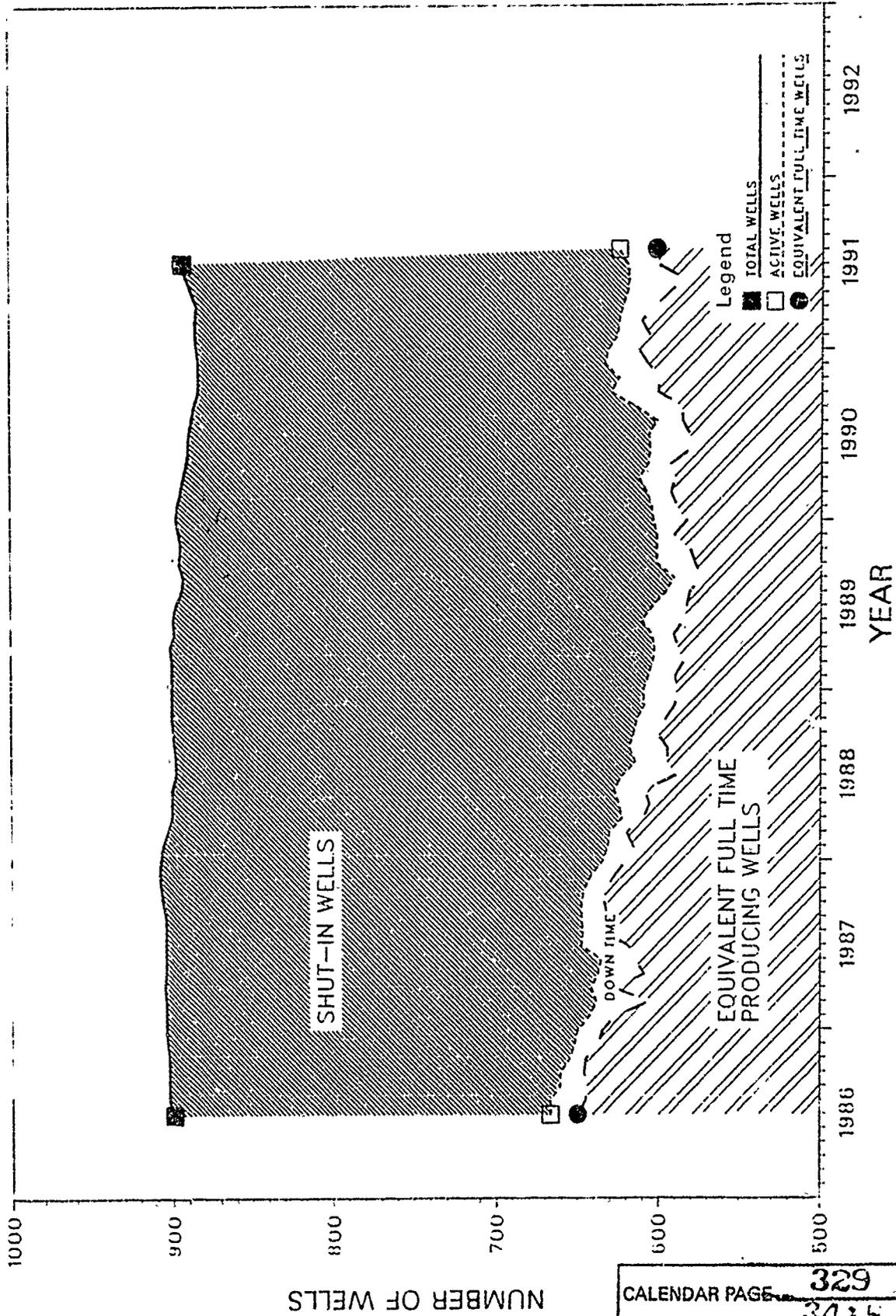
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# OIL & GAS PRODUCTION PROGRAM COSTS EXPRESSED AS \$/BBL GROSS FLUID

LONG BEACH UNIT

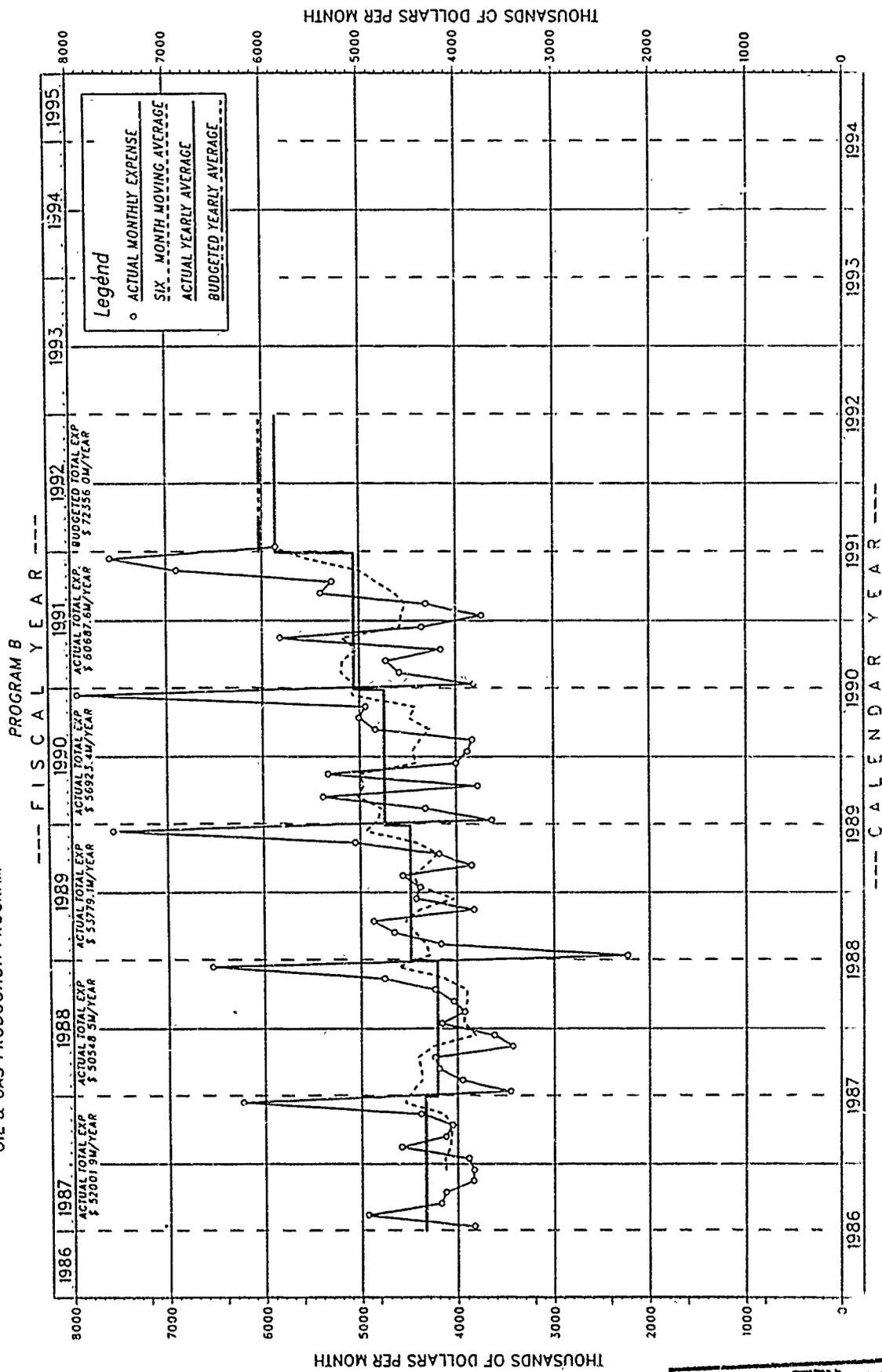


# LONG BEACH UNIT PRODUCING WELLS



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OIL & GAS PRODUCTION PROGRAM  
 LONG BEACH UNIT  
 PROGRAM B



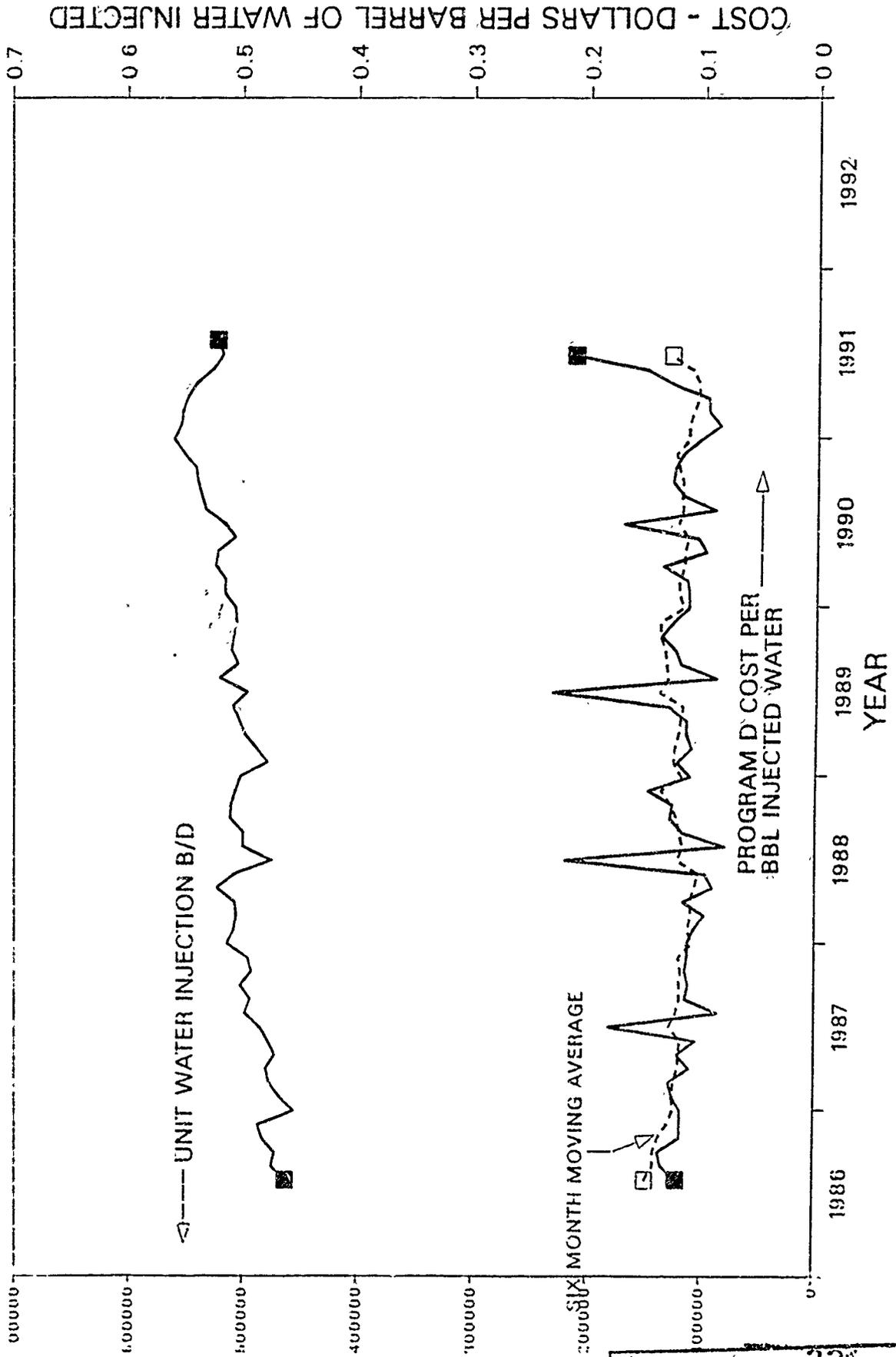
September 3 1991

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

EXHIBIT 10

LONG BEACH UNIT



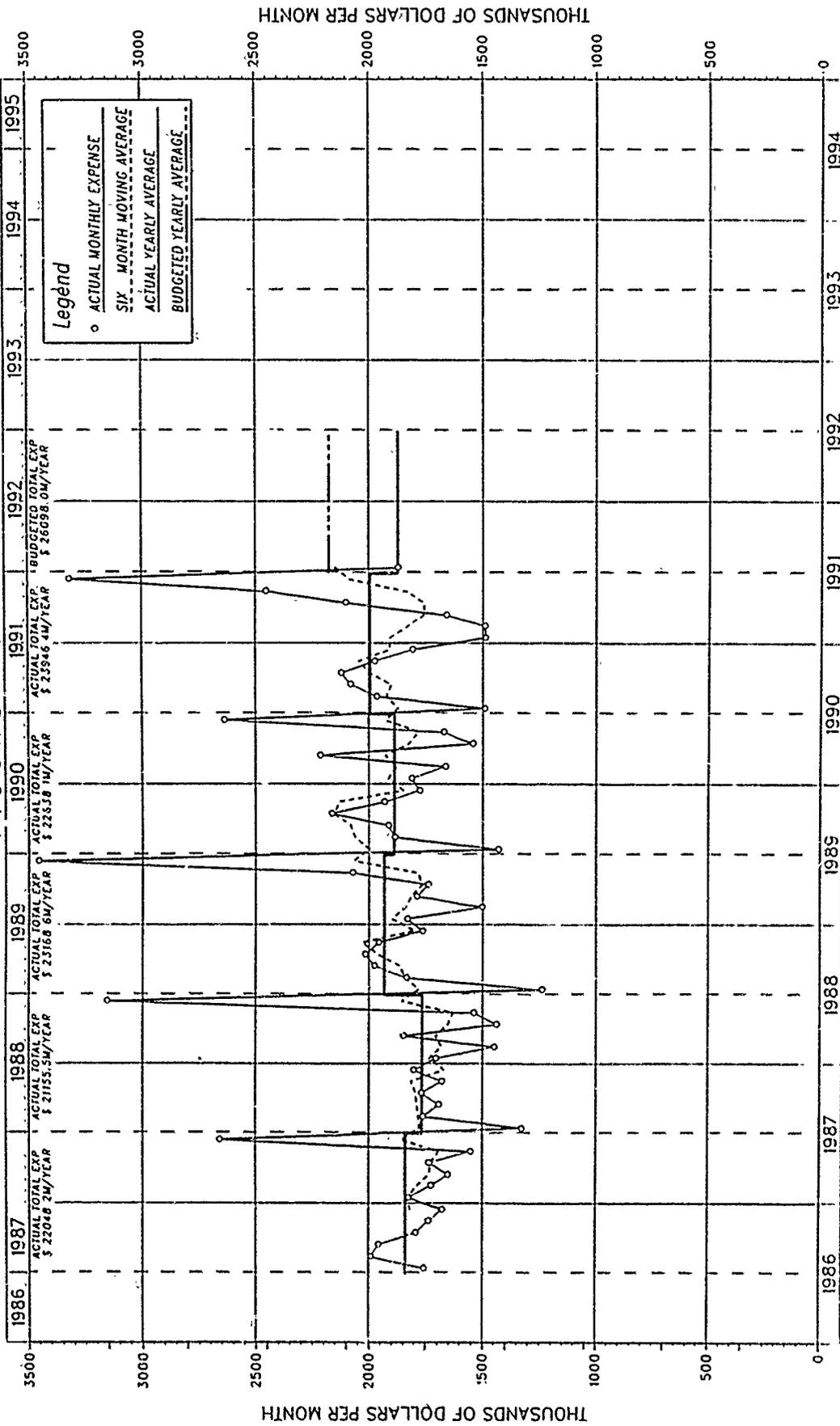
WATER INJECTION - BARRELS A DAY

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Exhibit 11

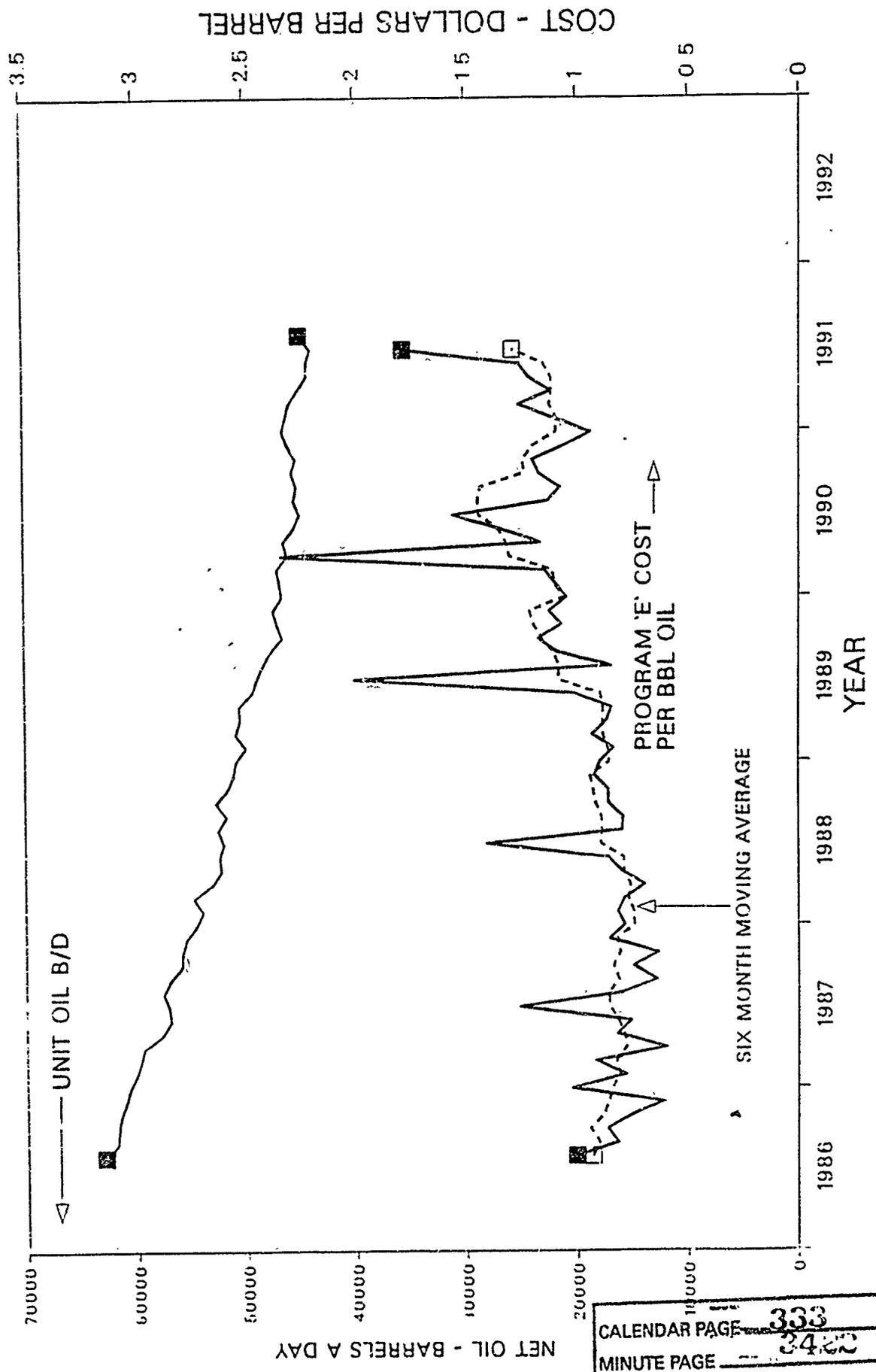
WATER INJECTION PROGRAM  
 L O N G B E A C H U N I T  
 PROGRAM D  
 F I S C A L Y E A R



September 3 1991

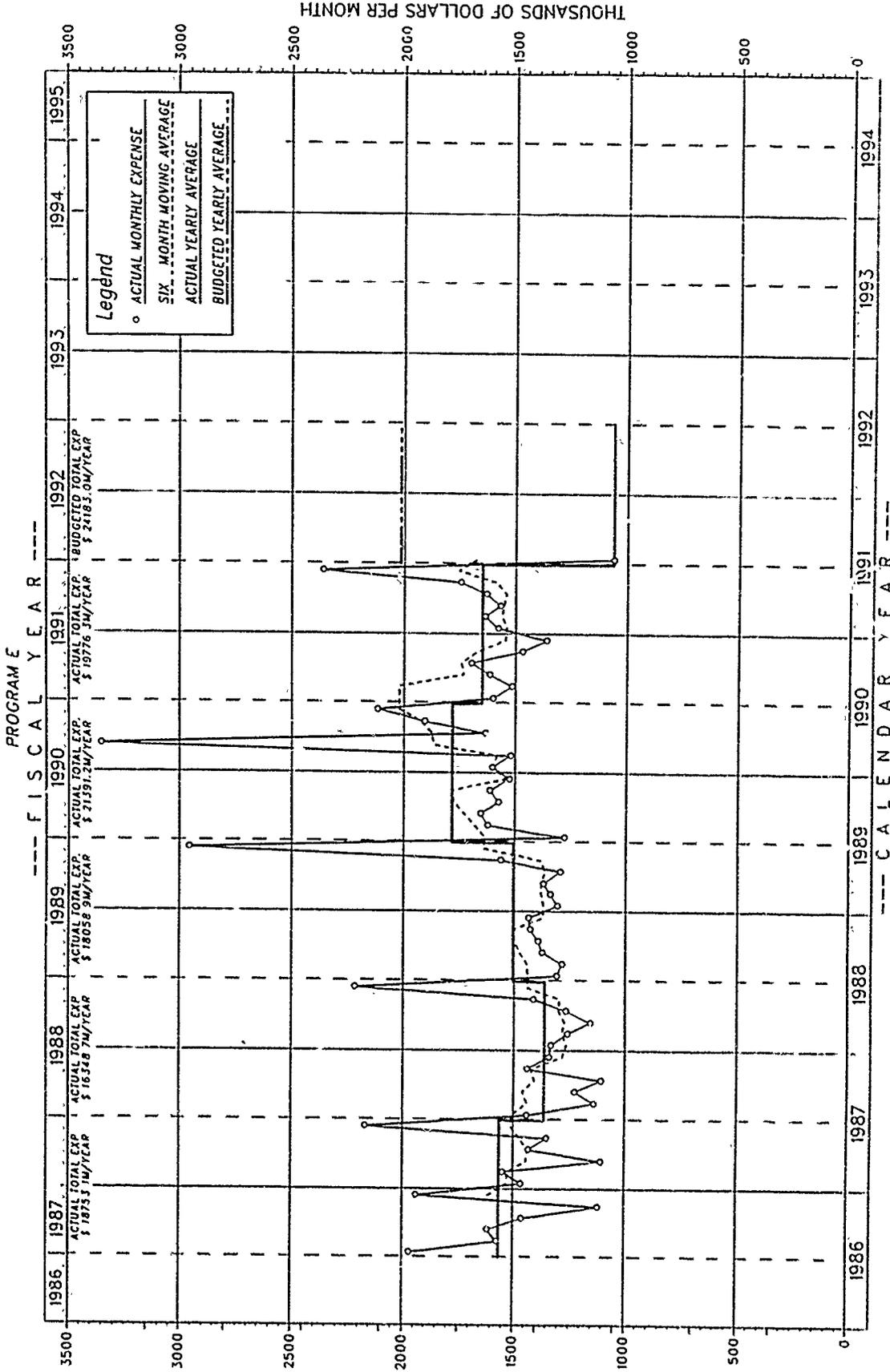
# MANAGEMENT PROGRAM COSTS EXPRESSED AS \$/BBL OIL

LONG BEACH UNIT



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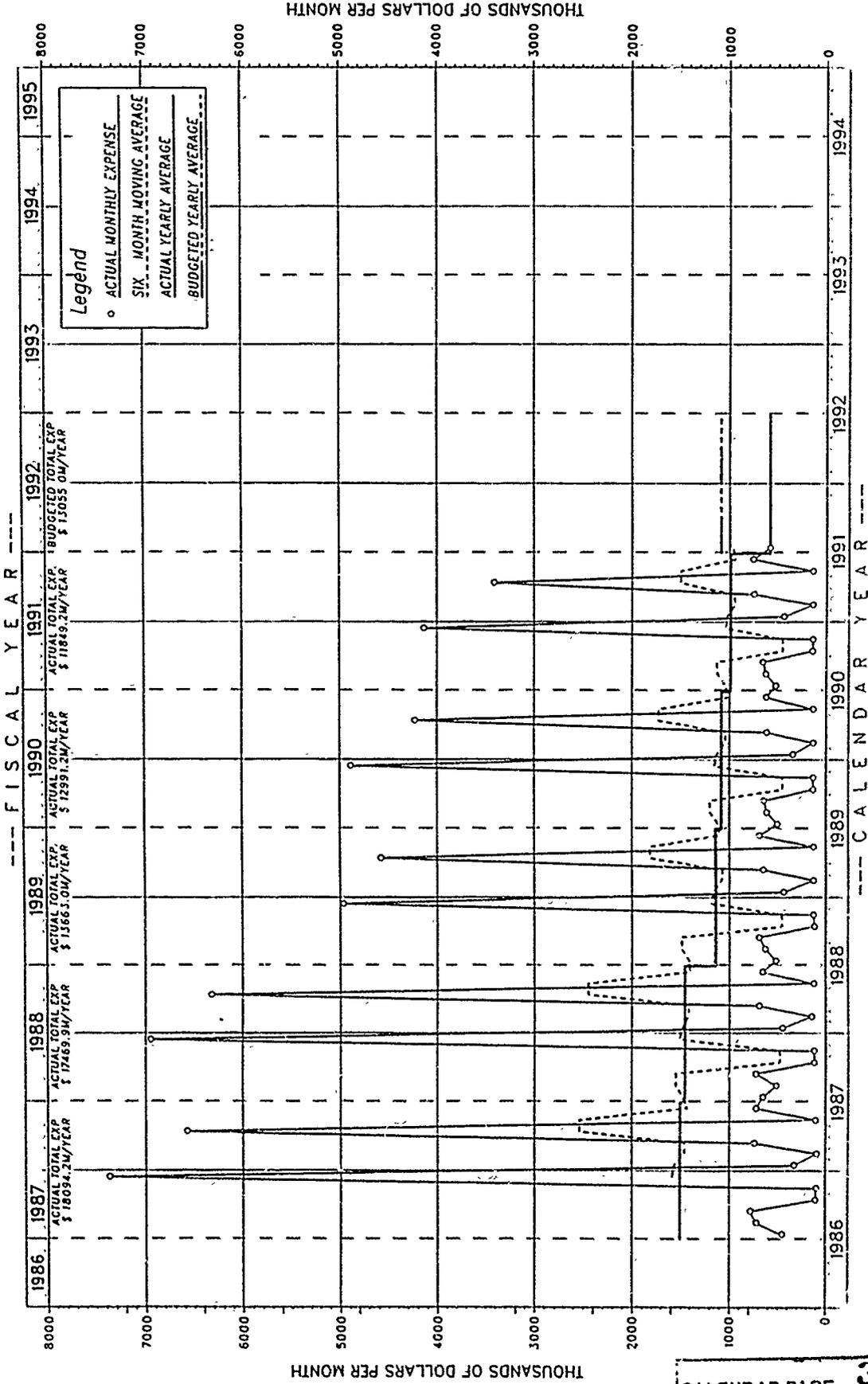
MANAGEMENT PROGRAM LONG BEACH UNIT TOTAL



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LONG BEACH UNIT  
TAXES, PRNTS, & RENTAL PROGRAM

PROGRAM F



September 3, 1991