

~~MINUTE PAGE~~
This Calendar Item No. C26
was submitted for information
only, no action thereon
being necessary.

INFORMATIONAL

CALENDAR ITEM

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10/29/90

W 17097

G. Scott

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

PARTY: State Lands Commission
1807 - 13th Street
Sacramento, California 95814

At the end of the first three months of the 1990-91 fiscal year (FY) (September 30, 1990), the Long Beach Unit Plan of Development and Operations and Budget remains unchanged at \$146,535,000 including administrative overhead costs and \$1.63 million carry-over from 1989-90. The expenditure trend for the same period indicates a total of \$172 million for the plan year, an increase of \$15.1 million over 1989-90 expenses. This trend will change due to increased drilling and development activity generated by city and State Lands staff to improve oil recovery.

The Long Beach Unit (Unit) has experienced a significant improvement in revenue generation during this three-month period as a result of the marked increase in oil price.

Oil prices for Wilmington crude oil were at \$10.40/bbl. at the end of the 1989-1990 fiscal year. Since that time, crude oil prices have rebounded to record levels, and at the end of September were at \$29.35/bbl. That is a \$19/bbl. difference, or nearly 300 percent increase. Because of this increase,

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Revenue for the three-month period has risen significantly. The revenue during the period was \$79,787,000. This compares to the projected oil and gas revenue of \$55,225,000 in the 1990-1991 Plan and Budget for the first quarter. Expenditures for the same period were \$29,295,000, or \$3,281,000 less than budgeted resulting in a net income of \$50,492,000. The Long Beach Unit deployed a third drilling rig in mid-August, which is intended to satisfy an aggressive drilling schedule to increase oil production rates in the best areas of the field. The third rig was employed in an area of significant oil potential, but because of the commitment to satisfying a voidage balance by a 105 percent injection replacement, some high volume oil producers have been shut down temporarily by the city.

This Upper Terminal West area is also very sensitive to voidage replacement by water injection. A drilling operation requires the shut-in of injection in the vicinity of the drilling well to minimize the effects of high formation pressures while drilling. The injection shut-in causes a like volume of gross production to be shut in by the city to meet their voidage requirements. The above has resulted in a shut-in of up to 900 barrels per day oil production. This is a temporary situation which will improve after drilling ceases in that area, however, this will not occur until the end of December. We anticipate returning the 900 barrels of oil per day currently shut in to production and adding 500 BOPD from new well drilling when water injection is restored.

Drilling candidates will exist to carry the third rig through to the end of the 1990-1991 budget year. An augmentation to the Plan and Budget is being presented this month for Commission approval which will provide funds to allow continuation of the third drilling rig through June, 1991.

The State Lands Commission Reservoir Engineering staff has been aggressive in identifying areas where Long Beach Unit production and revenue can be enhanced to take advantage of the high oil price. The staff has identified several areas where immediate implementation of work can occur. These areas are being discussed with the city so that action can be taken with as little delay as possible. Full implementation of any program to enhance oil recovery will depend upon staffing and rig availability constraints.

The State Lands Commission staff is also reviewing areas where operating cost reduction strategies. The operational expertise within the Extractive group recognizes high cost areas that can be modified for more efficient means of operation.

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The State Lands Commission Reservoir Engineering staff is involved in an intense and aggressive evaluation of the performance of the Long Beach Unit under various development scenarios. In conjunction with the city staff, we are developing a strategy to maximize the Long Beach Unit oil recovery under an optimized waterflood recovery program. Already approved on the current drilling program is a pilot test project changing the existing waterflood pattern. If successful, this method will be considered for development in other areas of the field. The State Lands Commission Reservoir Engineering staff is also evaluating the well completion techniques and designs which will be incorporated into the long range development of the Unit. New technology is available which can be applied to offer greater flexibility in the well design, allowing for longer lived wells, and adaptability to more selective use.

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.

The staff has recently engaged in discussions with local oil operators who are involved in cogeneration activities so that we may determine the applicability, benefits, and limitations to a similar project for the Long Beach Unit. The potential for enhanced oil recovery through steam stimulation or steam flooding is considerable, based on the success of a nearby operator. In addition, the city engineering staff is considering returning to service the portable steam generators for stimulating wells through a revived "huff and puff" project.

During the first three months of the 1990-1991 fiscal year, the Long Beach Unit experienced two planned island shut downs for scheduled maintenance. These occurred in September resulting in a reduction of the Unit oil production an average of 700 BOPD for that month. The third drilling rig commenced operations in mid-August, and completed its first well the second week of September. This well is presently producing approximately 300 BOPD. Thus far, drilling activity through September of this fiscal year has added 500 BOPD production to offset normal production decline.

Projecting the revenue trend through the remainder of this fiscal year assuming an average oil price of twenty-five dollars per barrel and an average production rate of 45,000 BOPD, yield a potential of \$383,537,000. Net income after

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expenses forecasts to \$243,000,000 for the entire fiscal year. This compares to the net income performance for the 1989-1990 fiscal year of \$124 million, and budgeted net income of \$72.7 million for the 1990-1991 fiscal year.

It is anticipated the adjusted budget plus carryovers for 1990-1991 fiscal year may require additional augmentation in the Oil and Gas Production Program, the Water Injection Program, or the Enhanced Recovery Program, particularly if oil prices remain above \$20/bbl.

Significant activities and accomplishments in each Plan and Budget Program during the fiscal year were.

A. DRILLING & DEVELOPMENT PROGRAM

Three drilling rigs were operated during the first three months. Activity was on Islands Grissom, White, Chaffee and Pier J. One new water injection well was drilled, four producers and four injectors were redrilled, two idle producers were recompleted higher in the same zone and converted to injection, two injection wells were worked over, and one producer converted to injection. One injection well was permanently abandoned in zone. Drilling activity was in the Ranger, Upper Terminal and Lower Terminal Zones. Oil production of 500 BOPD was obtained from this work which helped reduce the rate of the production decline in the Unit. Because of the need to optimize the current waterflood to increase the ultimate oil recovery of the Long Beach Unit and the record high oil prices, the State Lands Commission Reservoir Engineering staff has identified more economic opportunities. The anticipated increase in drilling and development activity will require the continued use of a third drilling rig in Fiscal Year 1990-91 and activation of a fourth rig is being considered if additional candidates can be identified.

The adjusted budget for the Drilling and Development Program for the first three months of 1990 was \$7.6 million. Funds expended were \$4.1 million. Budgeted for the entire 1990-1991 FY is \$25.50 million, an increase of \$5.0 million. This increase is a result of activating a third drilling rig recommended by State Lands Staff in FY 1990-91 to accelerate field development and increase ultimate oil recovery. The Third Modification, pending Commission approval in October 1990 will augment this Program an additional \$4.6 million.

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B. OIL AND GAS PRODUCTION PROGRAM

The Unit produced 4.2 million barrels of oil and 717 million cubic feet of gas during the three month period. Average production rates were 45,650 barrels of oil per day and 8,000 MCF/D of gas versus projected rates of 44,500 barrels-per-day oil and 7,800 MCF/D gas. Expenditures for the three-month period plotted as dollars per barrel of oil produced are shown on Exhibit 6.

The principal function of this program is to fund the production of fluids. Gross production for the period averaged 492,500 barrels per day. The city projected rate was 470,000 barrels per day. 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 thru 1988 period. An upward trend in 1990-91 is expected as a result of the activation of third rig. Scheduled island shut-downs for complete electrical maintenance have been done on islands Freeman and Chaffee.

The adjusted budget for the Oil and Gas Production Program was \$60,267,000 of which \$13.136 million (21.8%) were expended at the end of the three-month period. A plot of monthly expenditures is shown on attached Exhibit 9. The budget for 1990-91 is \$60.3 million dollars, a six percent increase over 1989-90 expenditures.

C. ENHANCED RECOVERY AND STIMULATION PROGRAM

No funds were budgeted for 1989-90 and no activity took place in this program. It is anticipated that steam "huff and puff" projects could be revived if oil prices remain above \$15 per barrel. The city is presently evaluating well candidates in anticipation of restoring this project later this year.

D. WATER INJECTION PROGRAM

A total of 49.4 million barrels of water were injected during the three-month period. The average rate was 537,300 BOPD, greater than the 520,000 BOPD projected. Gross produced fluids amounted to 45.3 million barrels so the Injection/Production fluids volume ratio averaged 109 percent for the year. A plot of water injection rates and program expenditures as dollars per barrel of water injected are shown on Exhibit 10.

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We are concerned about the possible lack of make-up water for future Long Beach Unit operations. A variety of alternatives are being studied by city and State Staff. One alternative is to produce water from a shallow aquifer. Initial test results are encouraging and a high rate flow test is planned. If the flow tests are successful, expansion of the shallow aquifer as a make-up water source on other island locations is anticipated. This test should be evaluated by the end of December 1990.

The adjusted budget for the Water Injection Program amounted to \$24.3 million of which \$5.537 million (22.8%) were expended at the end of the three 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. 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.

During the last month of the 1989-90 FY, the State Lands Commission Reservoir Engineering staff conducted a production improvement study to identify opportunities for increased oil production and recovery from the Long Beach Unit. As was mentioned in the Drilling Program previously, a pilot pattern waterflood concept was proposed, and has been approved for implementation in the 1990-1991 FY. In addition, increased oil production from an "optimized waterflood" project could result in an oil production increase of nearly 2,000 barrels of oil per day.

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 barrel of oil is shown on Exhibit 12. The trend of dollars per barrel of oil for this program is upward.

CALENDAR ITEM NO. C 26 (CONT'D)

The adjusted budget at the end of September 1990 amounted to \$20.9 million for the Management Program of which \$4.73 million (22.6%) 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 September 30, 1990 amounted to \$13.9 million of which \$1.8 million (13%) 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.

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

<u>Program</u>	<u>Original Budget**</u>	<u>Adjusted Budget**</u>	<u>Expenditures* to 9/30/90</u>
A. Drilling and Development	\$ 20,466	\$ 25,465	\$ 4,079
B. Oil & Gas Production	60,267	60,267	13,136
C. Enhanced Recovery & Stimulation	--0--	--0--	--0--
D. Water Injection	24,309	24,309	5,537
E. Management	20,974	20,974	4,731
F. Taxes, Permits & Land Rental	13,889	13,889	1,872
G. 1989-90 Carry-over	<u>1,630</u>	<u>1,630</u>	<u>-</u>
Total	\$141,535	146,535	29,295

**Including Administrative Overhead Costs.

AB 884:

N/A.

EXHIBITS:

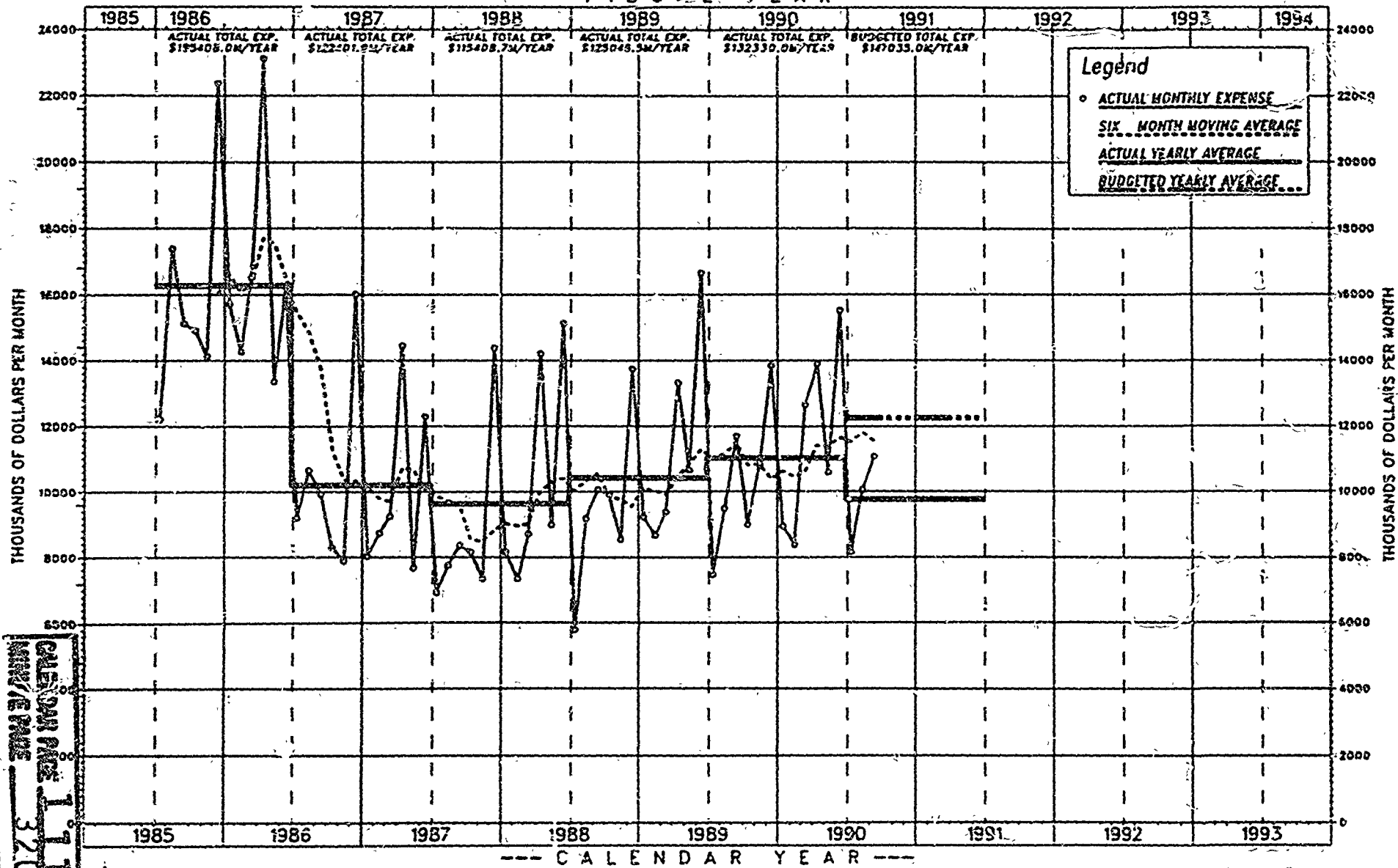
1. Total Budget Expenditures.
2. Oil Production Rate.
3. Oil Price and Costs.
4. Oil Revenue and Costs.

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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).

LONG BEACH UNIT

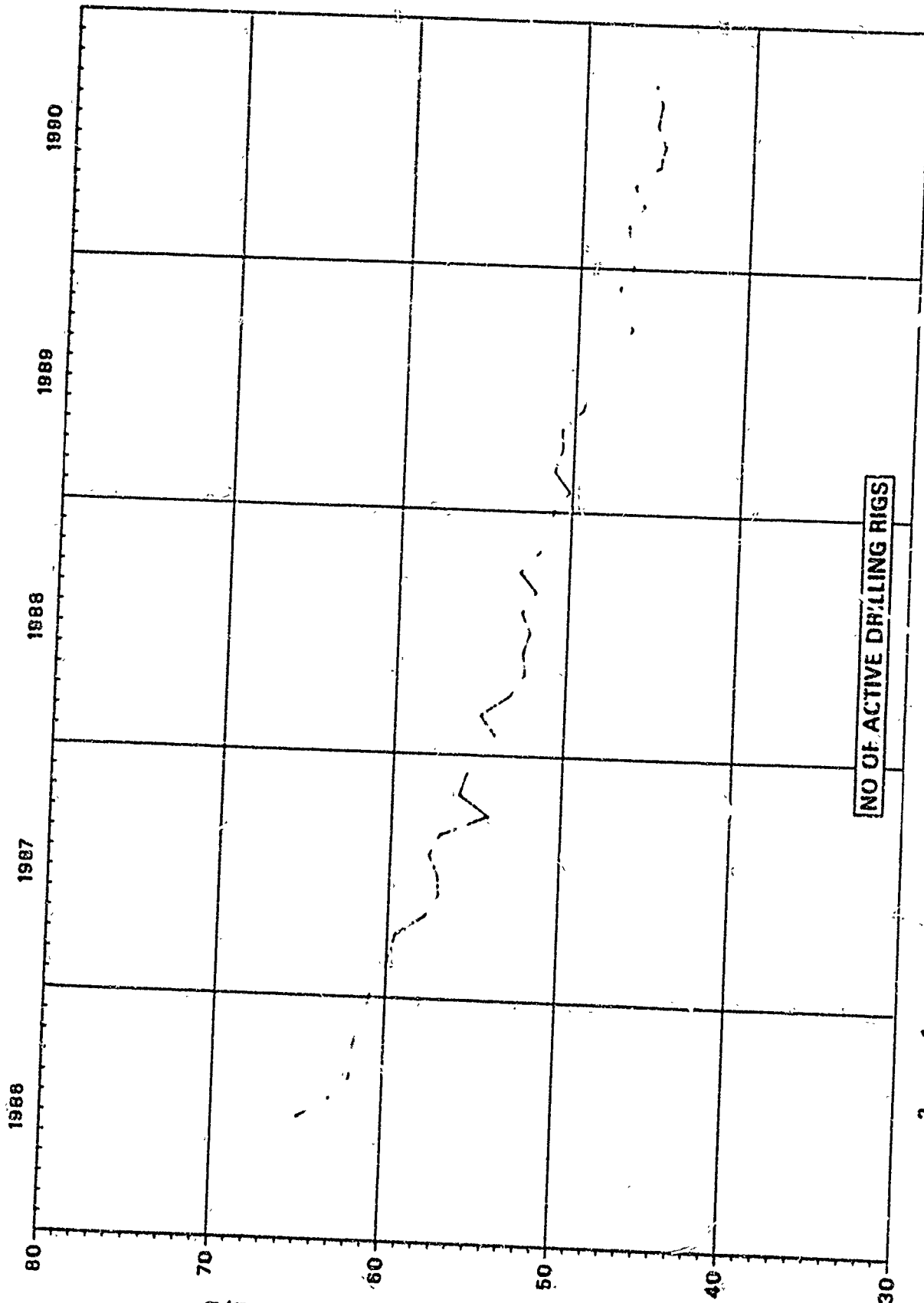
TOTAL BUDGET -- INCLUDING ADMIN. OVERHEAD
 --- FISCAL YEAR ---



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 3200

LONG BEACH UNIT OIL PRODUCTION RATE

EXHIBIT Z



NO OF ACTIVE DRILLING RIGS

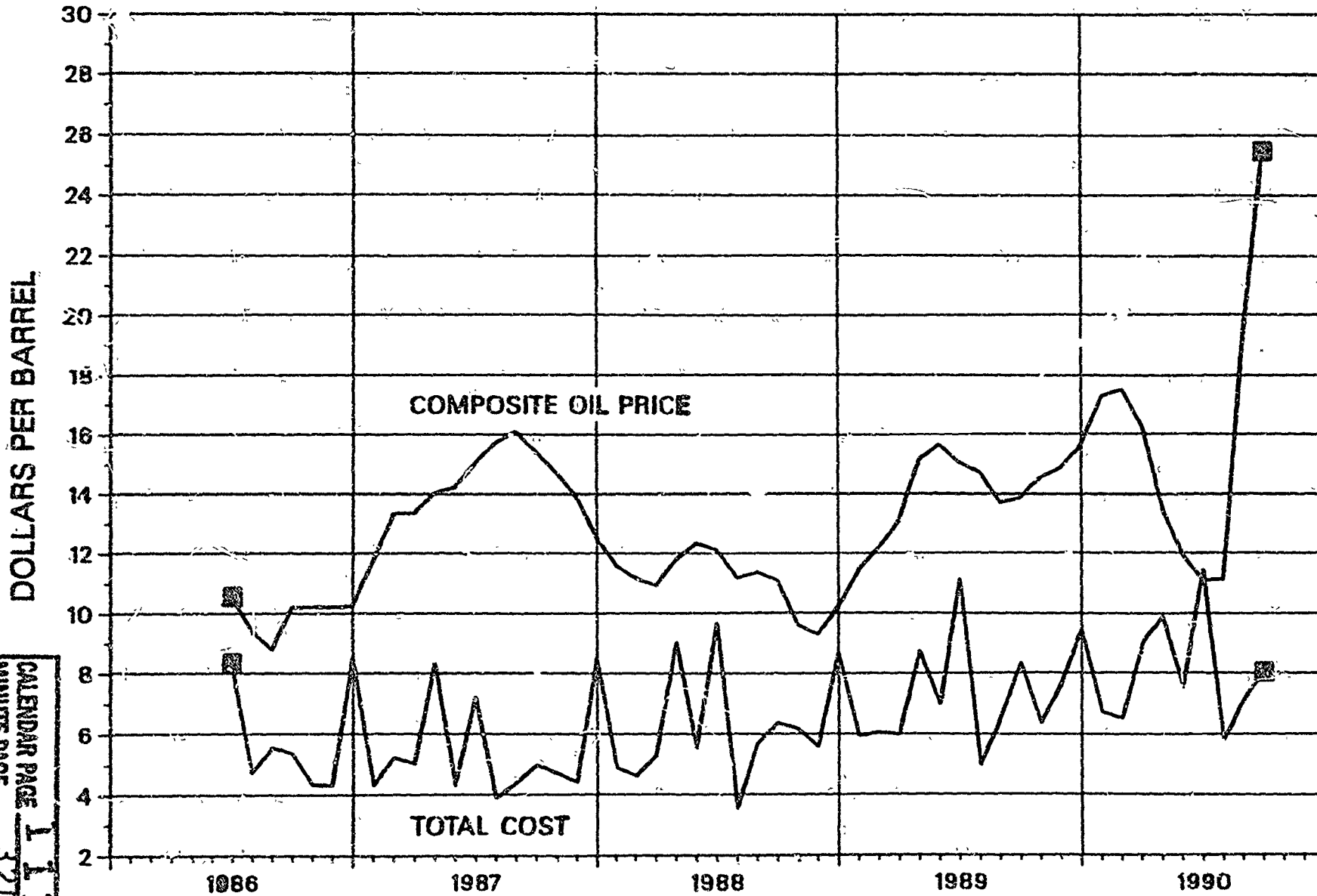
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OIL PRODUCTION RATE - 1000 B/D

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MINUTE PAGE 3201

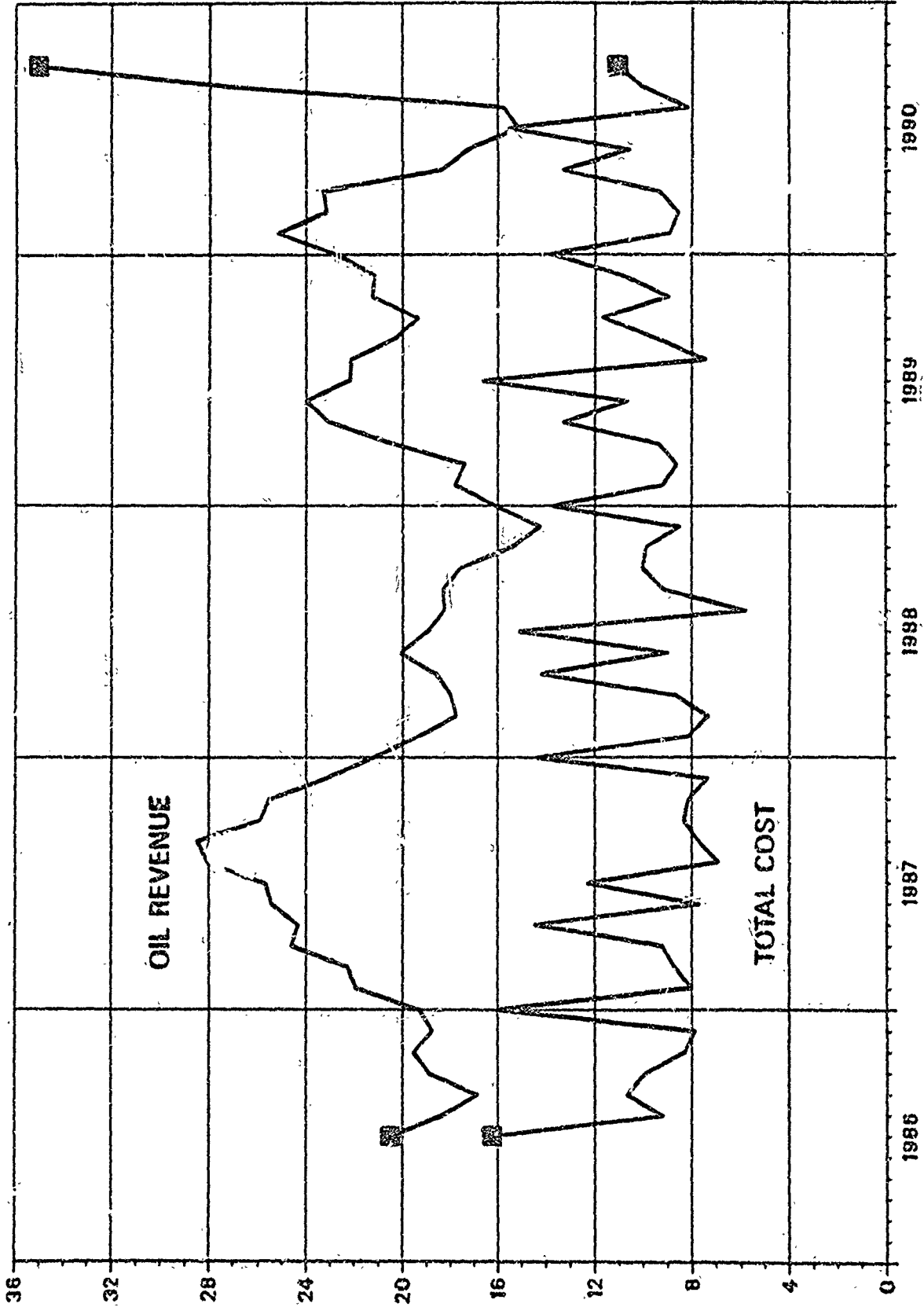
October 17 1990

LONG BEACH UNIT



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LONG BEACH UNIT



MILLIONS OF DOLLARS PER MONTH

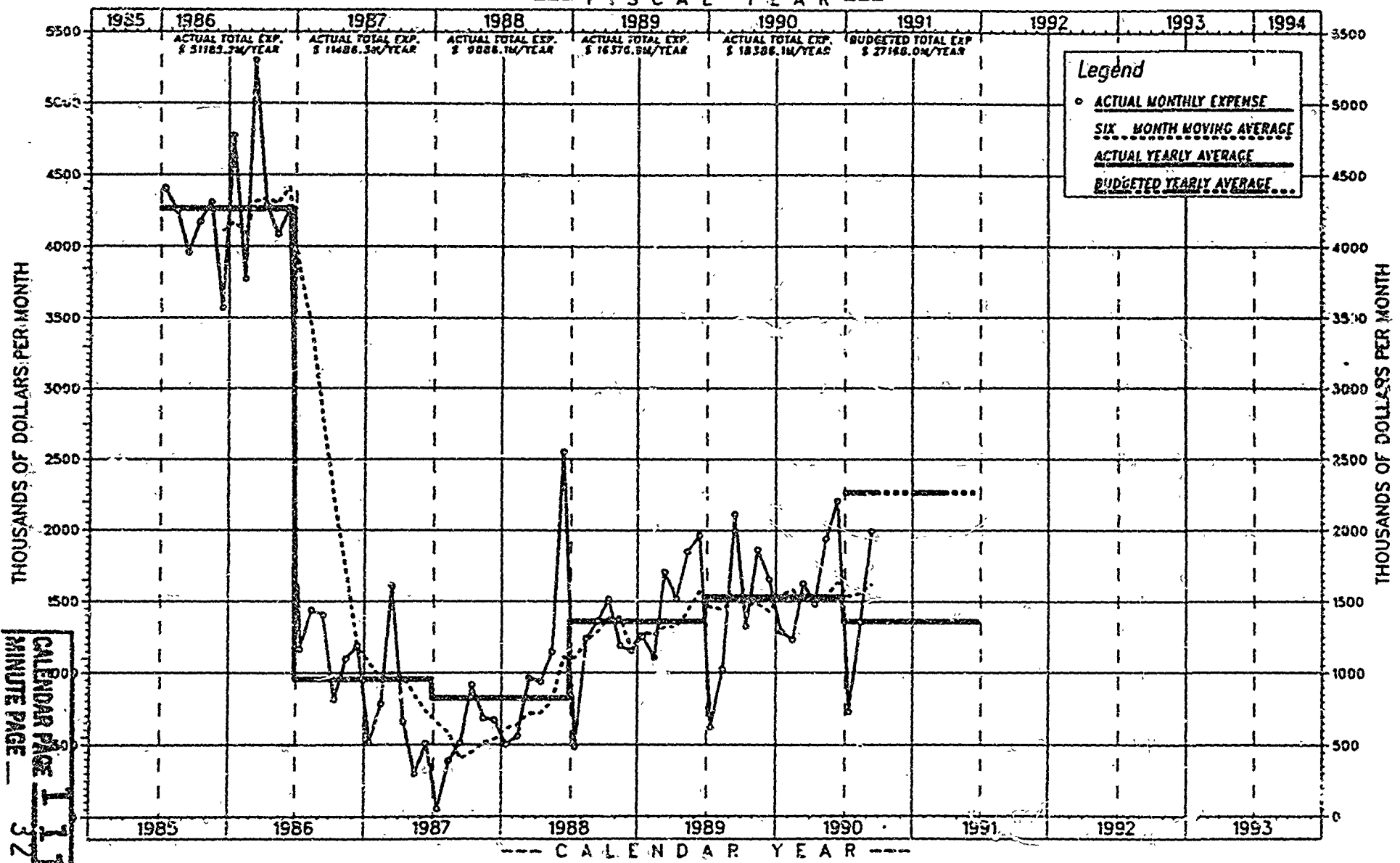
CALENDAR PAGE 1171
MINUTE PAGE 3203

LONG BEACH UNIT

DRILLING & DEVELOPMENT PROGRAM

PROGRAM A

--- FISCAL YEAR ---



Legend

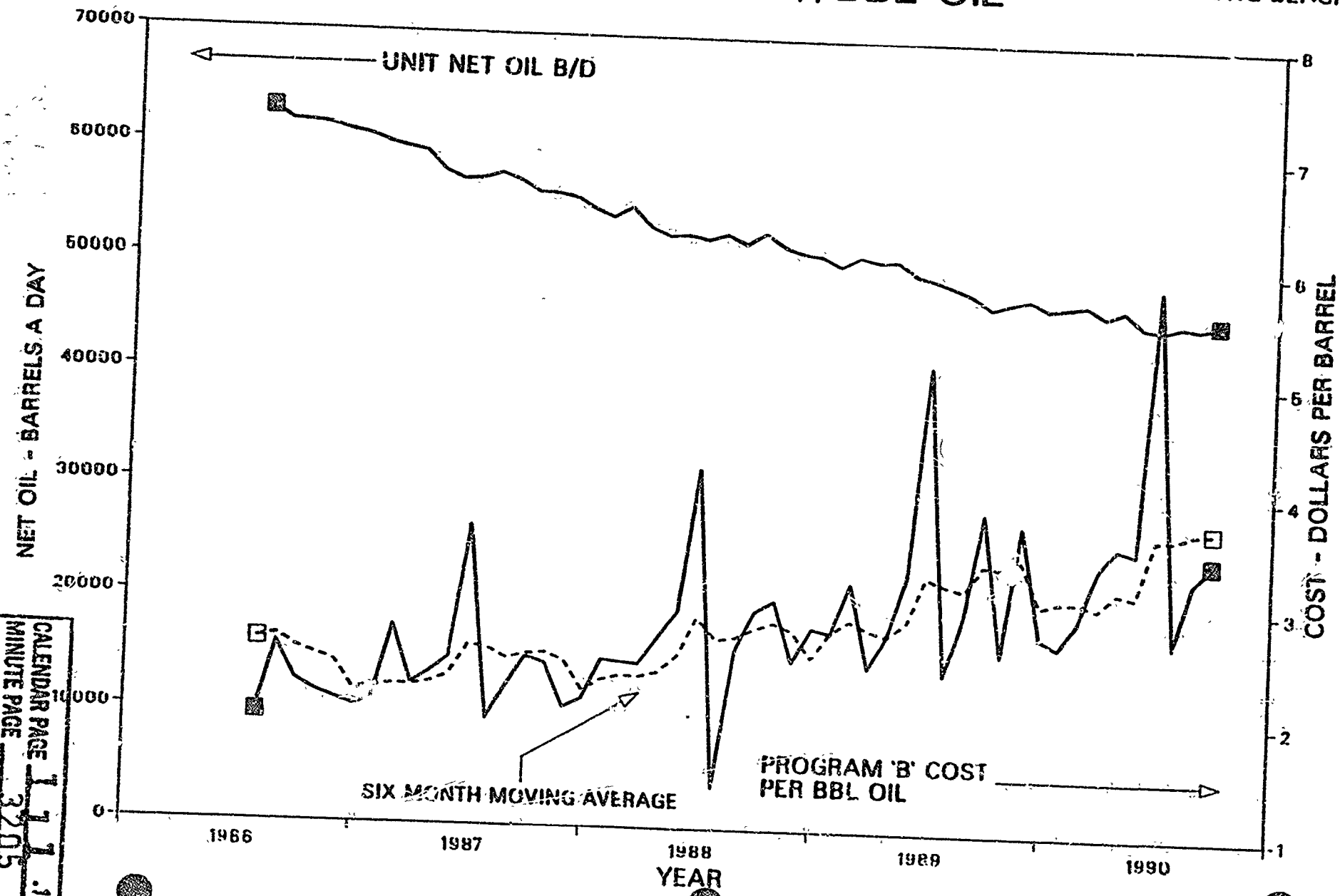
- ACTUAL MONTHLY EXPENSE
- SIX MONTH MOVING AVERAGE
- ACTUAL YEARLY AVERAGE
- BUDGETED YEARLY AVERAGE ---

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

EXHIBIT 6

LONG BEACH UNIT



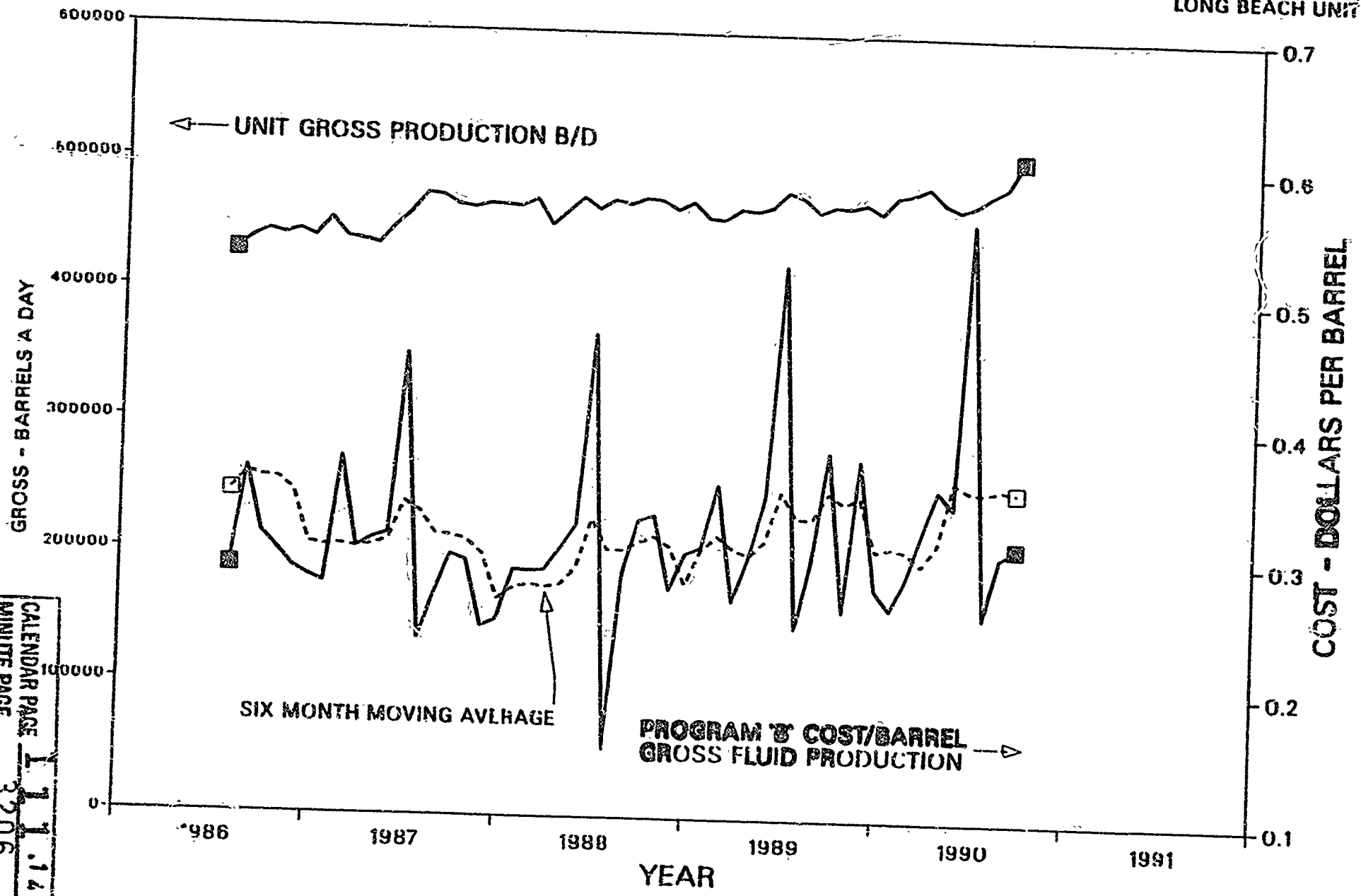
CALENDAR PAGE 117.13
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Oct 23 1990

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

EXHIBIT 7

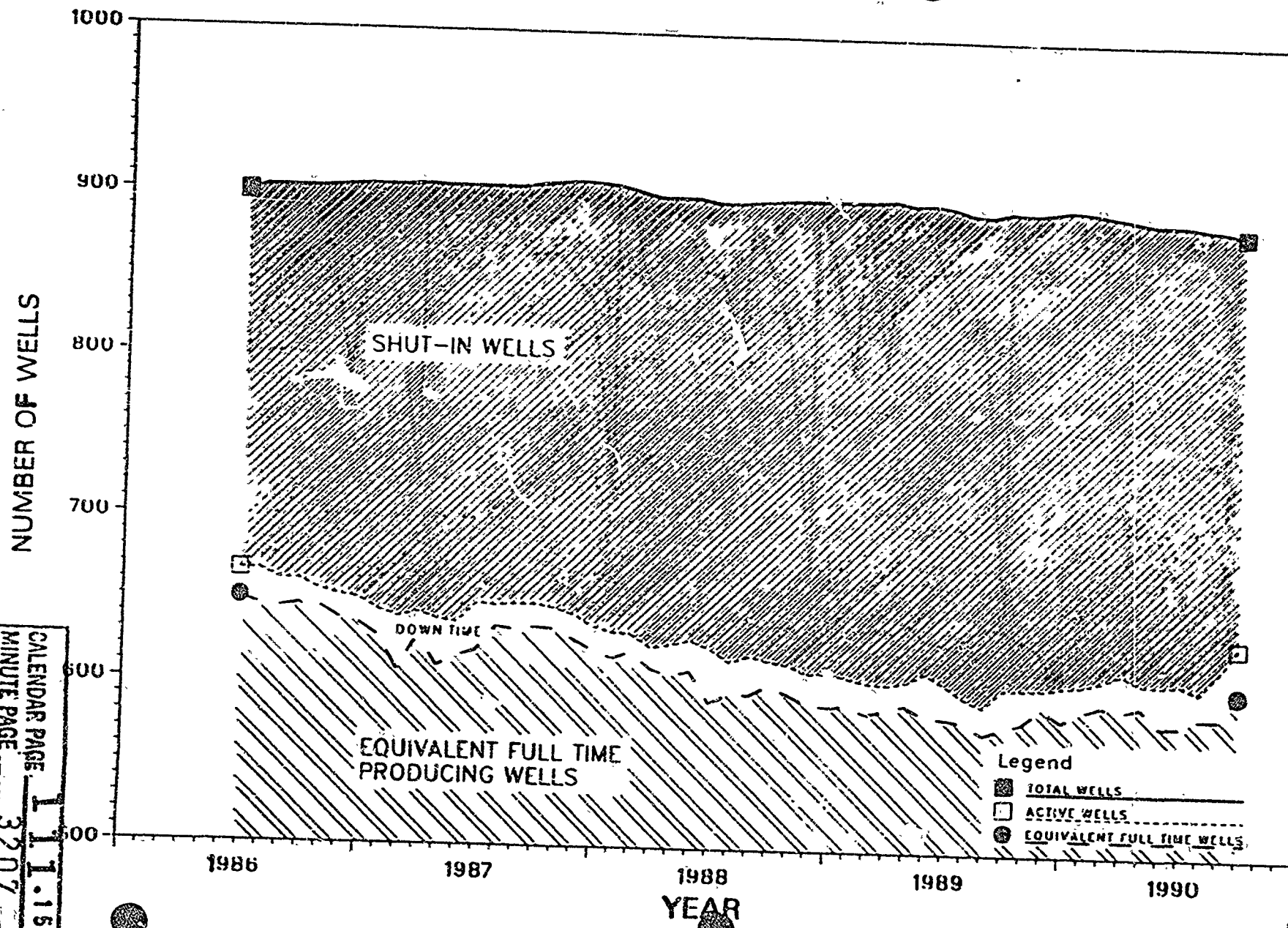
LONG BEACH UNIT



CALENDAR PAGE 111.14
MINUTE PAGE 3206

LONG BEACH UNIT PRODUCING WELLS

EXHIBIT 8



NUMBER OF WELLS

CALENDAR PAGE 11.15
MINUTE PAGE 3207

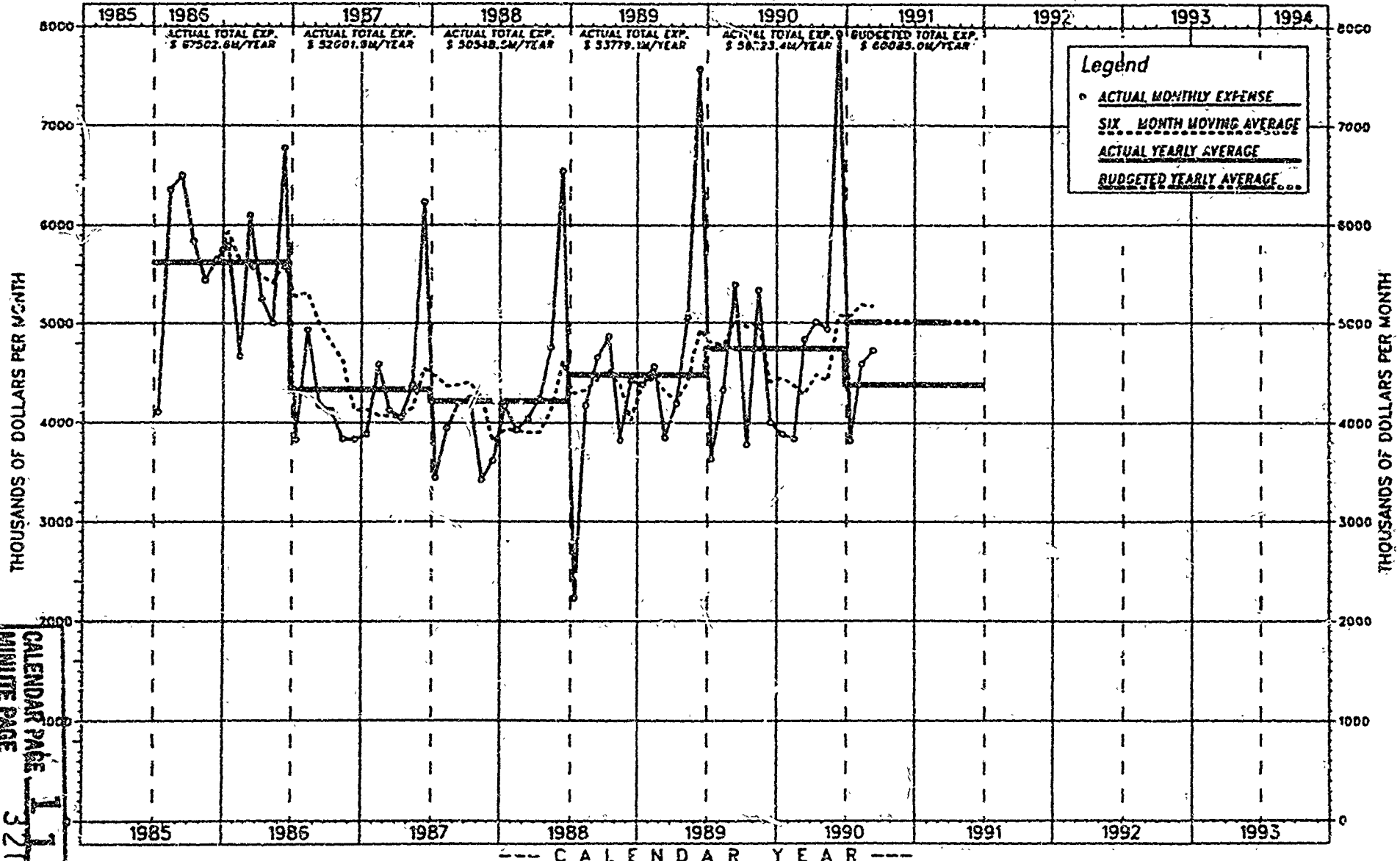
October 23 1990

LONG BEACH UNIT

OIL & GAS PRODUCTION PROGRAM

PROGRAM B

--- FISCAL YEAR ---



Legend

- ACTUAL MONTHLY EXPENSE
- SIX MONTH MOVING AVERAGE
- ACTUAL YEARLY AVERAGE
- BUDGETED YEARLY AVERAGE

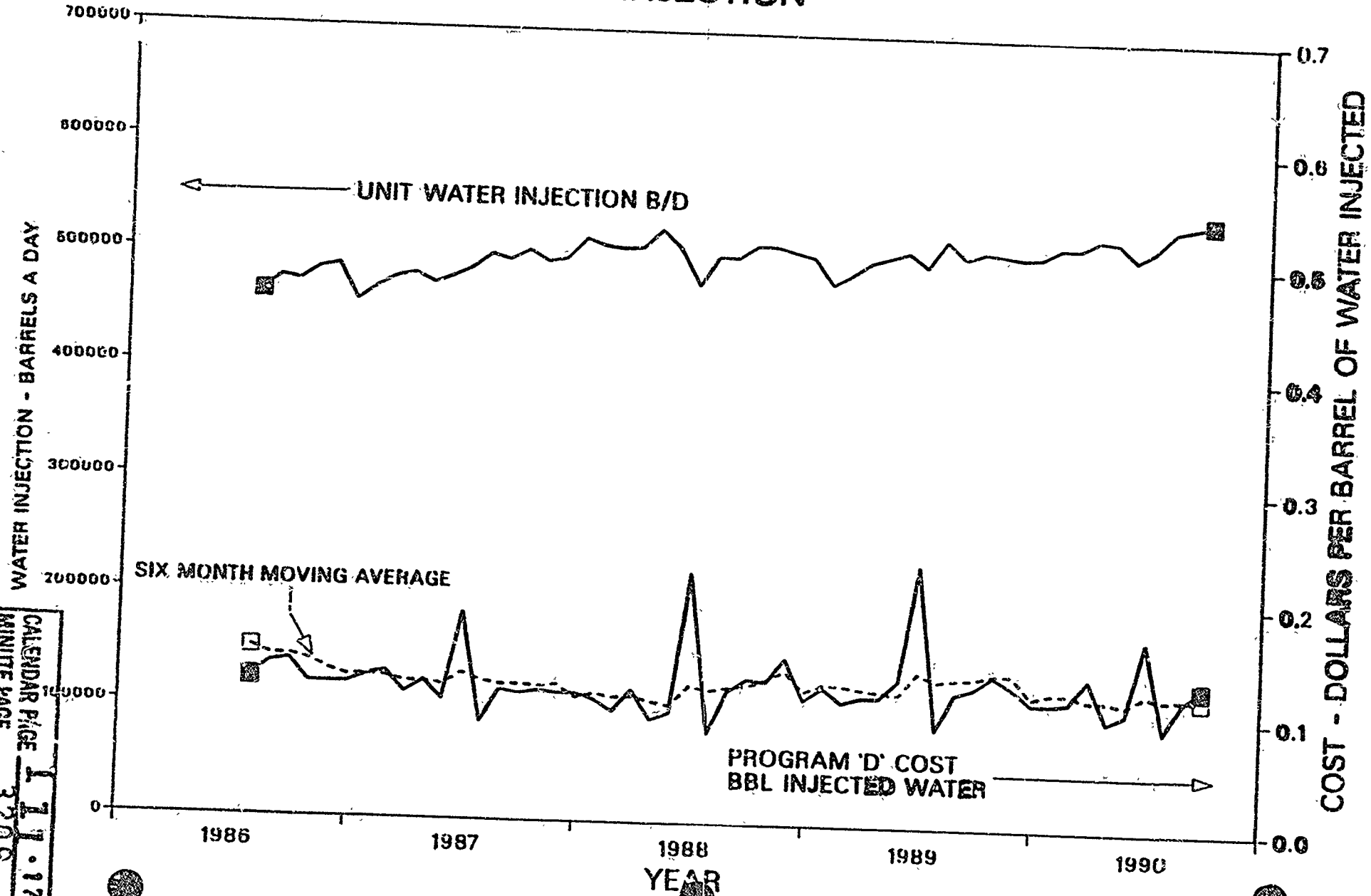
CALENDAR PAGE 1
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 7.16

--- CALENDAR YEAR ---

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

EXHIBIT 10

LONG BEACH UNIT



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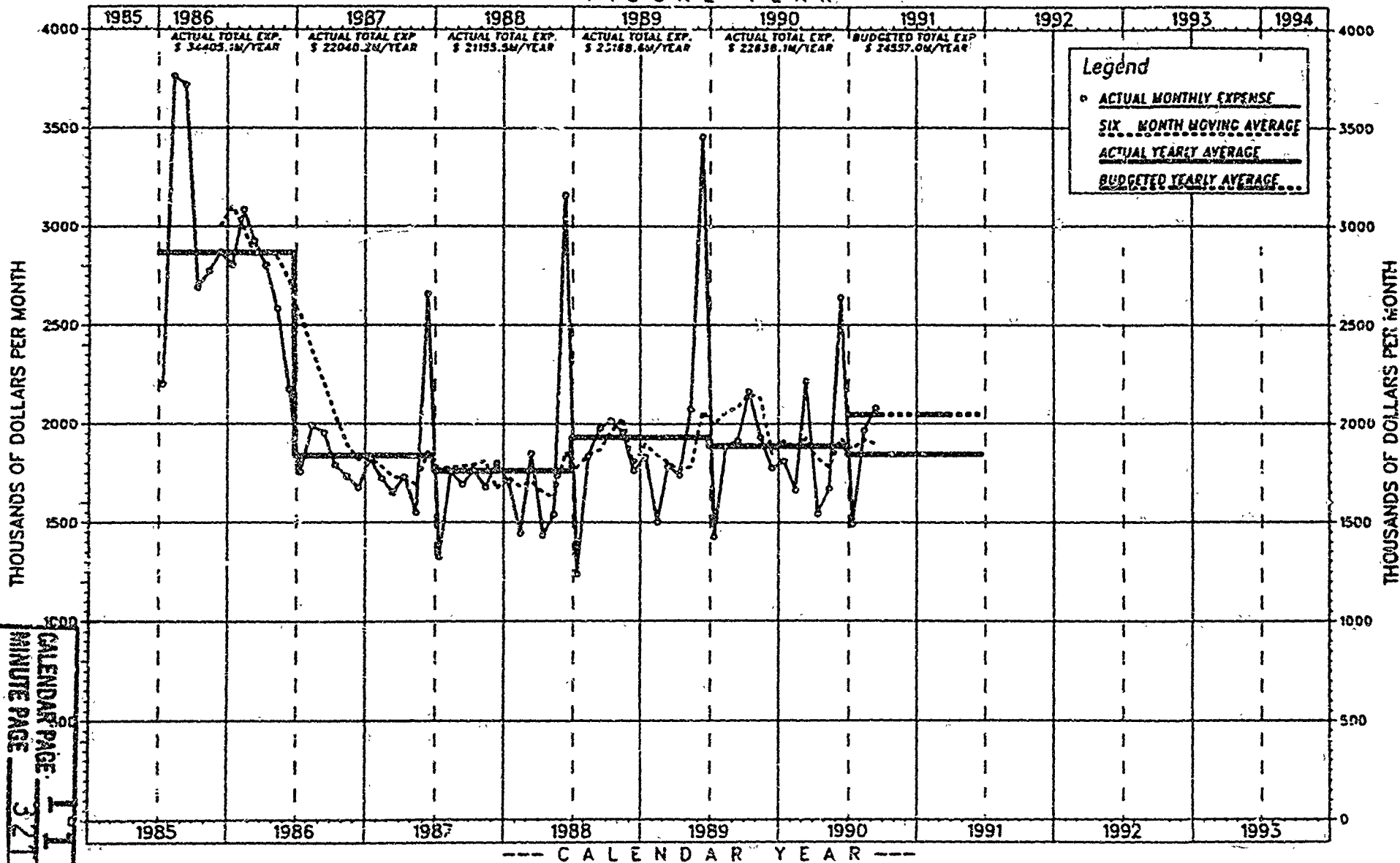
Oct 23 1990

LONG BEACH UNIT

WATER INJECTION PROGRAM

PROGRAM D

--- FISCAL YEAR ---



Legend

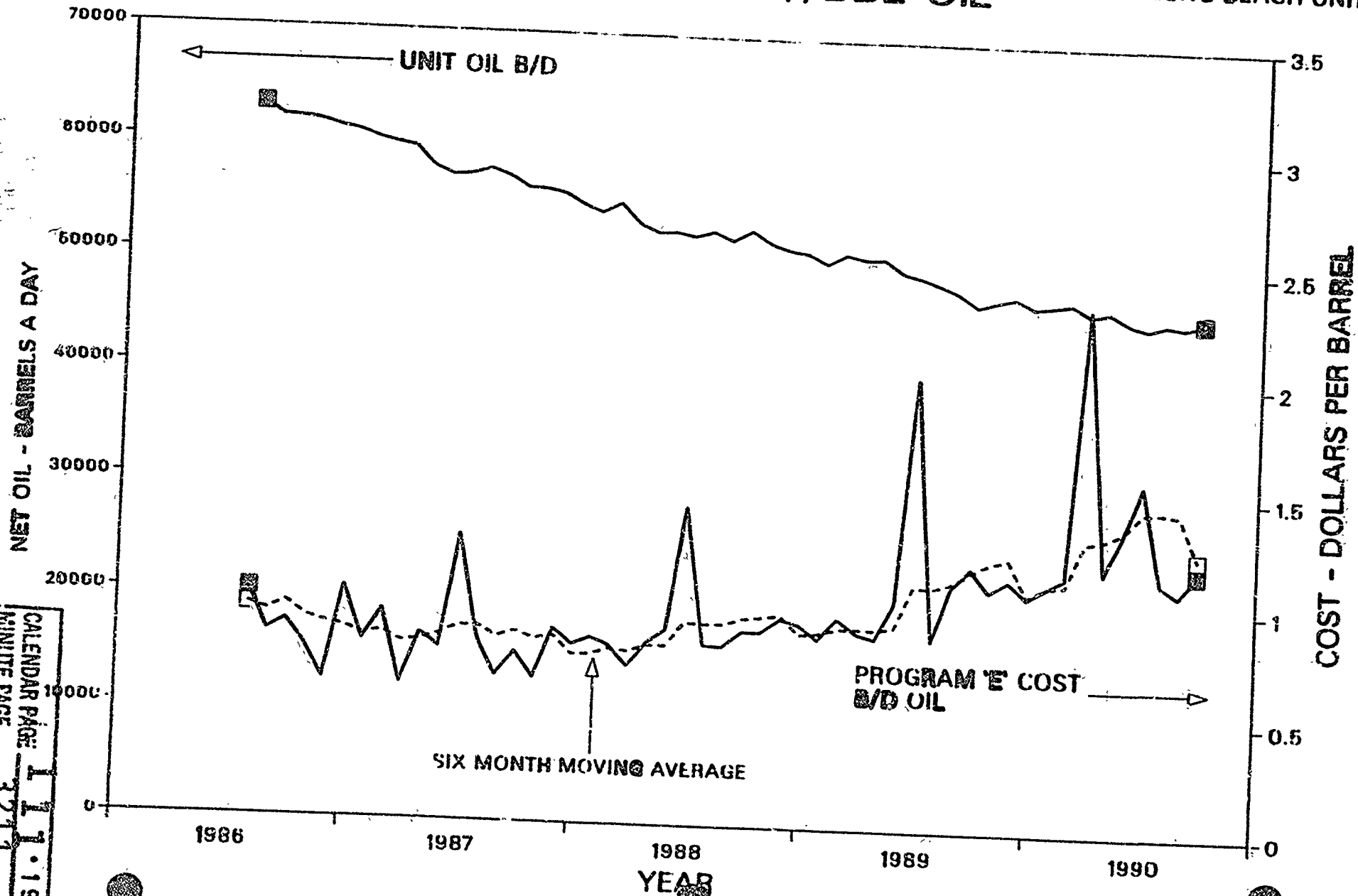
- ACTUAL MONTHLY EXPENSE
- SIX MONTH MOVING AVERAGE
- ACTUAL YEARLY AVERAGE
- BUDGETED YEARLY AVERAGE

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 MINUTE PAGE: 3210

MANAGEMENT PROGRAM COSTS EXPRESSED AS \$/BBL OIL

EXHIBIT 12

LONG BEACH UNIT



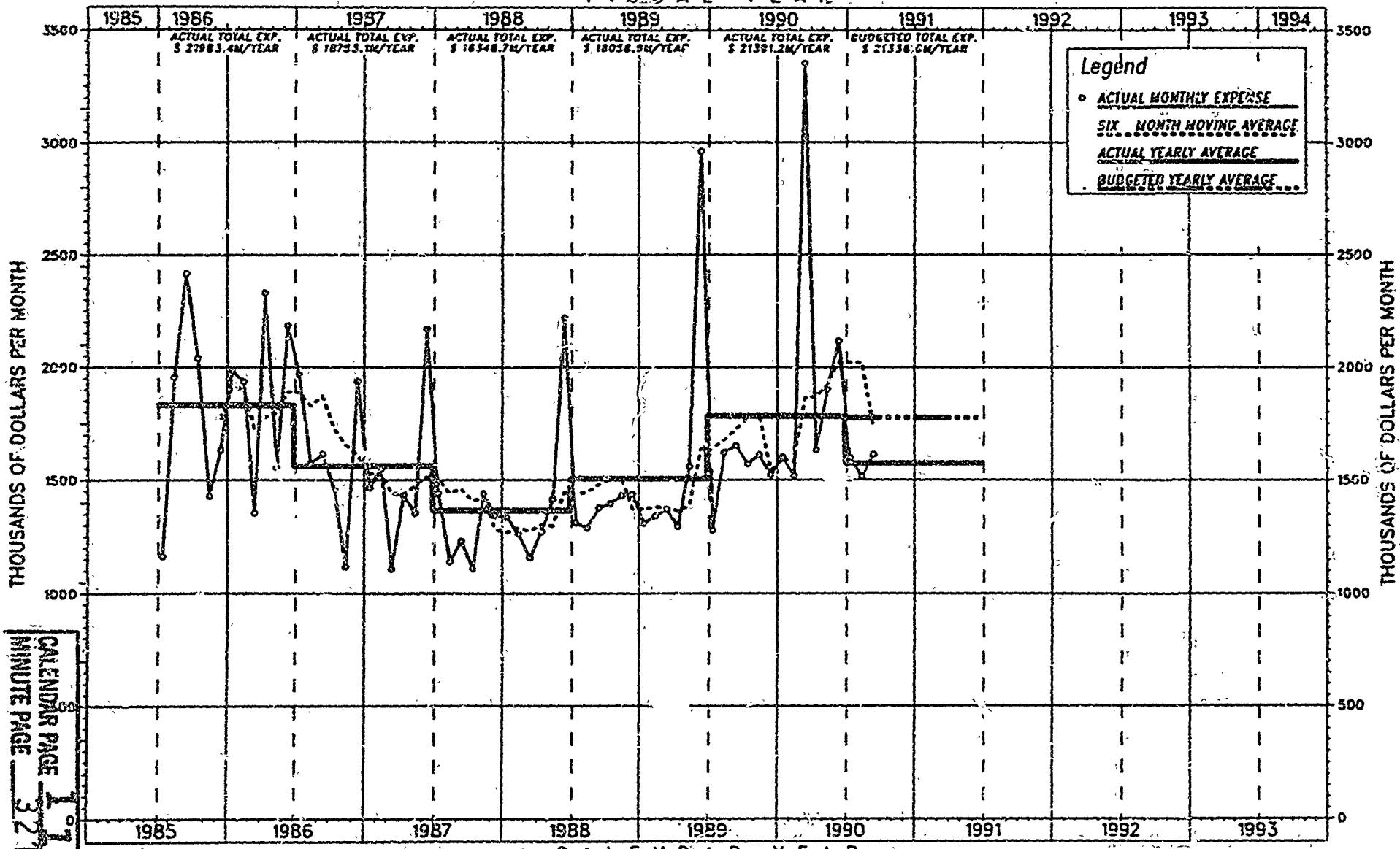
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MINUTE PAGE: 3217

Oct 28 1990

LONG REACH UNIT
MANAGEMENT PROGRAM TOTAL

PROGRAM E

--- FISCAL YEAR ---



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

THOUSANDS OF DOLLARS PER MONTH

THOUSANDS OF DOLLARS PER MONTH

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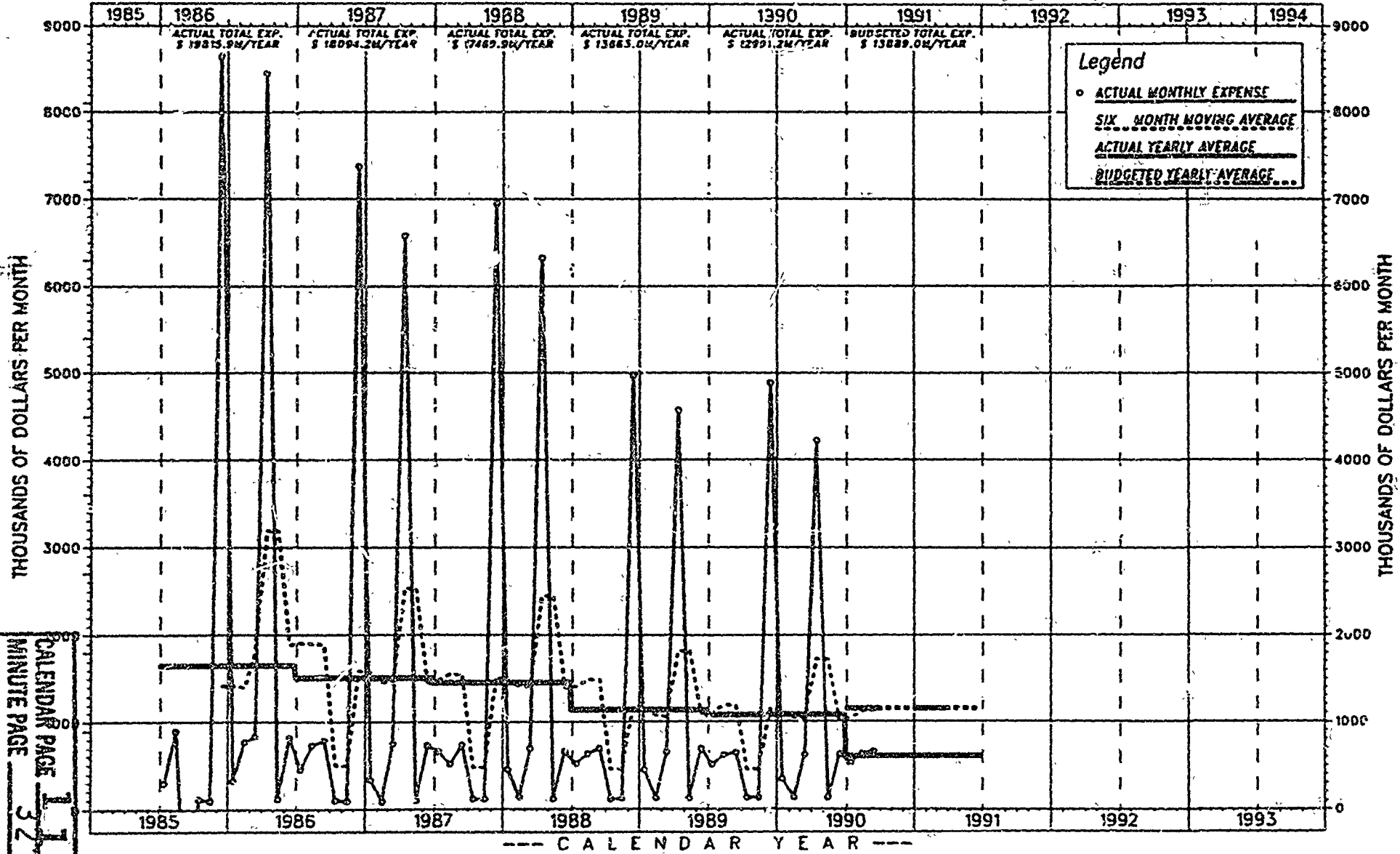
--- CALENDAR YEAR ---

LONG BEACH UNIT

TAXES, PRMTS, & RENTAL PROGRAM

PROGRAM F

--- FISCAL YEAR ---



Legend

- ACTUAL MONTHLY EXPENSE
- SIX MONTH MOVING AVERAGE
- ACTUAL YEARLY AVERAGE
- .-.-.- BUDGETED YEARLY AVERAGE

CALENDAR PAGE 1
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