

MINUTE ITEM.

This Calendar Item No. 35
was approved as Minute Item
No. 35 by the State Lands
Commission by a vote of 3
to 0 at its 4/24/86
meeting.

CALENDAR ITEM

A 57, 58

35

04/24/86

S 29

W 17089

Lammers

1986-87 PLAN OF DEVELOPMENT
AND OPERATIONS AND BUDGET, LONG BEACH UNIT,
WILMINGTON OIL FIELD, LOS ANGELES COUNTY

Section 5, Chapter 138, Statutes of 1964, 1st E.S., and Article 4 of the Long Beach Unit Agreement require adoption by the City of Long Beach of an annual Plan of Development and Operations and Budget for the Long Beach Unit. The Plan and Budget is then to be submitted to the State Lands Commission at least 100 days prior to submission to the participants of the Long Beach Unit before the start of the Plan Year July 1, 1986.

Under Section 5(b), the Commission has 45 days after submittal to take action. If no action is taken, the Plan and Budget is deemed to be approved as submitted. The Commission may affirmatively approve the Plan and Budget or modify it after holding a formal hearing. Under Section 5(g) the Plan and Budget as submitted may be modified without a hearing upon mutual agreement by the City and the Commission. This has been done in the past prior to the start of a fiscal year when conditions affecting the Plan and Budget have changed in the six month period between Budget preparation and the start of the fiscal year.

The City Council of the City of Long Beach, at its meeting of March 18, 1986, adopted this proposed Plan of Development and Operations and Budget for 1986-87, and authorized its submittal to the State Lands Commission for consideration and approval. The Plan and Budget was submitted to the State by the City on March 18, 1986.

Because of the statutory time restraints, the City of Long Beach Department of Oil Properties started preparing this Plan and Budget in December 1985 and January 1986. At that time, the crude oil price of the Long Beach Unit was \$22/bbl. The City staff had to finalize the Plan and Budget in the

CALENDAR ITEM NO. 35 (CONT'D)

latter part of February for consideration by the City Council. For the month of February, the crude oil price had dropped below \$19/bbl. The cover letter to the Plan and Budget indicates that a crude oil price of \$16/bbl was assumed in the preparation. However it states "appropriate changes or modifications will be recommended in the event of any significant deviations from the assumed value."

The State Lands Commission must now consider this Plan and Budget with current oil prices as low as \$10.35/bbl and spot prices two to three dollars lower. Long Beach Unit Oil Prices and Revenue are shown on Attachments "A" and "B". The forecasted oil price and proposed expenditures level are also plotted. Because of the recent large decline in oil price the City of Long Beach is agreeable to a modification of this Plan and Budget prior to the start of the fiscal year at the June Commission Meeting. This modification would take into consideration the sharp drop in oil prices and the potential for further reductions during the fiscal year. Revisions will be made to this Plan and Budget that are consistent with prudent management and the reduction of risk in any long term payout of capital expenditures. The Unit Five Year Plan of Development and Production and Operations dated November 1, 1985 is referred to in several places in the proposed 1986-87 Plan and Budget. The Five Year Plan with its annual revisions, in addition to its medium range look forward was to be an aid in Annual Plan and Budget preparation. Considering recent events, the current Five Year Plan is invalid.

Based on a \$16/bbl oil price and with the recognition that modification might be required, a 1986-87 Budget totaling \$186,788,000 has been submitted by the City of Long Beach. The proposed Plan is in a programmatic format with comparable budget funding, and provides for continued development of the Long Beach Unit and the operation and maintenance of necessary facilities in six programs. These programs combine the investment and expense expenditures included in the scope of the program as well as the administrative overhead costs related to those expenditures. Allocation between programs is required for some budget items. The proposed funding in the six budget programs is as follows:

A. Drilling and Development	\$ 33,942,000	18.2 percent
B. Oil and Gas Production	71,932,000	38.5 percent
C. Enhanced Recovery & Stimulation	212,000	.1 percent
D. Water Injection	38,981,000	20.9 percent
E. Management	20,637,000	11.0 percent
F. Taxes, Permits & Land Rental	21,084,000	11.3 percent
	<u>\$186,788,000</u>	<u>100.0 percent</u>

CALENDAR ITEM NO. 35 (CONT'D)

Past Unit expenditures and proposed Budget are shown on Attachments 1 and 2. The expenditures to date and proposed budget for each program are shown on Attachments 3-8. Expenditures for years prior to 1983-84 were calculated using the same percentage split for allocated budget items as the 1983-84 Budget. However, since then allocation factors have been changed and for the proposed Budget additional allocation changes of certain labor and salaries expenditures to different budget items have been made.

The proposed plan provides funding for four drilling rig years for new wells and redrills in the Drilling and Development program and workovers and production work in the Oil and Gas Production Program. While oil prices have declined over 50 percent in the last several months, the impact on net revenue per barrel of oil has had even greater reduction as can be seen on Attachment "A". This reduction affects expenditure proposals for well work as the payback must be realized from that reduced revenue. Payback periods are extended which increases the risk factor. For these reasons many new well, workover and repair work prospects are now uneconomic. With the reduced amount of drilling rig work and possibly even tighter criteria in the future, it is questionable if there is justification for the use of four drilling rigs during the plan year. Considerable emphasis must be placed on detailed reservoir analysis to assure optimum field development.

A. DRILLING AND DEVELOPMENT PROGRAM

Funding of \$33,942,000 is proposed for this program representing, 18.2 percent of the Budget. Investment funding is \$20,002,000 including administrative overhead, which with the exception of \$47,000, is for the drilling of new wells. The expense funding of \$13,940,000 including administrative overhead has the major components of \$4,140,000 for redrilling of existing wells, \$4,873,000 for drilling support and supervision and \$2,844,000 for waste disposal. The total administrative overhead for the program is \$1,305,000.

The estimated expenditure in the Drilling and Development Program for the current year, 1985-86, is \$49 million. Comparison with past years is shown on Attachment 3 and shows the expenditure trend reduction for new facilities and wells. The investment portion is \$30 million, all for the drilling of new wells. The expense expenditure is estimated at \$19 million with the major components \$2.9 million for redrilling of wells.

\$8.0 million for drilling support and \$5.7 million for waste disposal.

Attachment 3A is a plot of the calculated program monthly expenditures prior to July 1983 and actual expenditures since that time. Also shown is the reduced expenditure trend for cellars and drilling equipment. Attachment 3B is a plot of the monthly investment expenditures in the Program and the lower curve shows the decline in expenditures for new facilities from \$13 million in 1983-84 and \$640,000 in 1984-85 to \$0 in 1985-86. Attachment 3C shows program monthly expense expenditures. Attachment 3D shows the total producing wells in the Unit, the active producing wells, the down time of the active wells and the resulting full time equivalent active wells. The number of inactive wells continues to increase and will accelerate as additional wells are shut-in as uneconomic at present oil prices.

B. OIL AND GAS PRODUCTION PROGRAM

Funds for new oil well surface equipment, oil well maintenance and operation and oil and gas gathering, metering, processing and shipping are provided by this program. Total proposed funding is \$71,932,000, representing 38.5 percent of the total budget. Comparison with previous year is shown on Attachment 4. The investment funding is \$1.0 million, expense costs are \$68.2 million and Administrative Overhead is \$2.8 million. The main sub programs are Oil Well Repairs, \$22,781,000, Fluid Lifting, \$26,292,000, and Production Maintenance, \$17,647,000, including administrative overhead. A large part of the expenditure in this program is for lifting gross fluid. Based on current economics, the projected gross fluid production rate is too high. Also, the number of active wells will be reduced due to the shutting in of high cut wells and expenditures in this program should be reduced.

The estimated program expenditures, including administrative overhead, for the current year are \$69 million total and for the main sub programs: Oil Well Repairs, \$19 million, Fluid Lifting and Handling, \$26.5 million and Production Maintenance, \$16.5 million. Attachment 4A is a plot of the monthly program expenditures and attachments 4B-4F are similar plots for the subprograms.

C. ENHANCED RECOVERY AND STIMULATION PROGRAM

This program was designed to administer the costs associated with enhanced recovery and stimulation projects to aid in determining project economics. Proposed funding is \$212,000, representing 0.1 percent of the budget. Only oil well stimulation has been funded in the program this year.

Estimated expenditures for 1985-86 are \$0.7 million which has been almost entirely for oil well stimulation. The caustic flood project was terminated in June 1984. There was never a positive response to the caustic flood and as the injected chemicals reached the producing wells maintenance costs became excessive because of scale formation. The steam drive project was terminated in early 1985, following marginal response.

There are no firm plans for any tertiary oil recovery field demonstration projects during the next two to three years. Therefore, there will be no field-wide applications during the next five to ten year period. The Unit will have to utilize a conventional water flood with existing injection patterns as the oil recovery plan through the 1980's. Any changes involving a water flood with modified injection patterns or one that considers the injection of some other substance will be for the 1990's period.

D. WATER INJECTION PROGRAM

The pressure maintenance and waterflood operations in this program are required by the Unit Agreements. The funding is for the necessary work on injection wells; operation of the surface installations used for filtering produced water and pressuring water for injection; and the purchase of pressured water for additional injection water. Proposed funding for 1986-87 is \$38,981,000, or 20.9 percent of the Budget. Comparison with past years is shown on Attachment 6. The estimated expenditure for 1985-86 is \$36 million. The calculated monthly expenditures prior to July 1983 and actual expenditures after that time are shown on Attachment 6A-C.

The increased funding for this program is primarily a result of the anticipated increase in fluid volume to be injected and increased injection well repairs. The City estimates a water injection volume of 250 million barrels of water in 1986-87. The injection volumes projected in Exhibit C-3 are more than 113 percent of the gross fluids projected. This is a very high

replacement ratio. Also because of the changed economics for high cut wells it is anticipated that the gross fluid volumes will be less than those projected. Therefore, expenditures in the program should be reduced.

E. MANAGEMENT PROGRAM

This program covers the cost of the Field Contractor management staff's salaries and office expense, the cost of Unit accounting, the City of Long Beach Unit Operator's billable costs special projects and equity work. Monthly expenditures are shown on Attachments 7A-C. The 1985-86 expenditures are estimated at \$22 million excluding prior year adjustments.

The proposed 1986-87 funding of \$20,637,000 is 11 percent of the Budget. Previous years expenditures and proposed budget funds are shown on Attachment 7 and 7A. Starting in the 1985-86 Budget year approximately \$4 million of the Field Contractor's engineering staff's salaries and related expenses previously charged to other programs have been a part of this program. Funding for Management Projects of \$1.4 million is about the same as for the current year which reflected a significant increase over previous years, primarily to provide for reservoir related studies and water quality and treatment studies. Also included are the continuing additional costs to establish a data base management system. Unit Equity Expense which may exceed \$3 million this year, primarily for equity coring, are expected to be less than \$1 million for 1986-87.

F. TAXES, PERMITS AND LAND RENTAL PROGRAM

This program contains \$21,034,000 or 11.3 percent of the 1986-87 budget to fund the various taxes, licenses and fees paid to the County of Los Angeles, the City of Long Beach and other governmental agencies. The 1985-86 personal property and mining rights taxes and the Long Beach oil production license taxes will be \$17.3 million, excluding \$2.5 million in credits, and \$3 million respectively. The annual expenditures are shown on Attachment 8.

Expenditures for electrical energy are in four of the six programs with estimated expenditures in the current year of \$36 million and \$37 million in 1986-87. Electrical energy is used primarily for lifting oil and water to the surface and for the injection of the produced and makeup water. The City estimates that 470 million barrels of fluid will be handled in

CALENDAR ITEM NO. 35 (CONT'D)

1986-87. Electrical energy expenditures and rates are shown on Attachments 9 and 10.

Exhibits C-3 and C-4 of the Plan and Budget estimate the 1986-87 net income for the Unit, without consideration of windfall profit tax, will be \$235 million. This is based on oil and gas prices of \$16 per barrel and \$2.80 per MCF. With current oil prices at \$10 per barrel these exhibits need to be revised. The Unit Oil Production History is shown on Attachment 11.

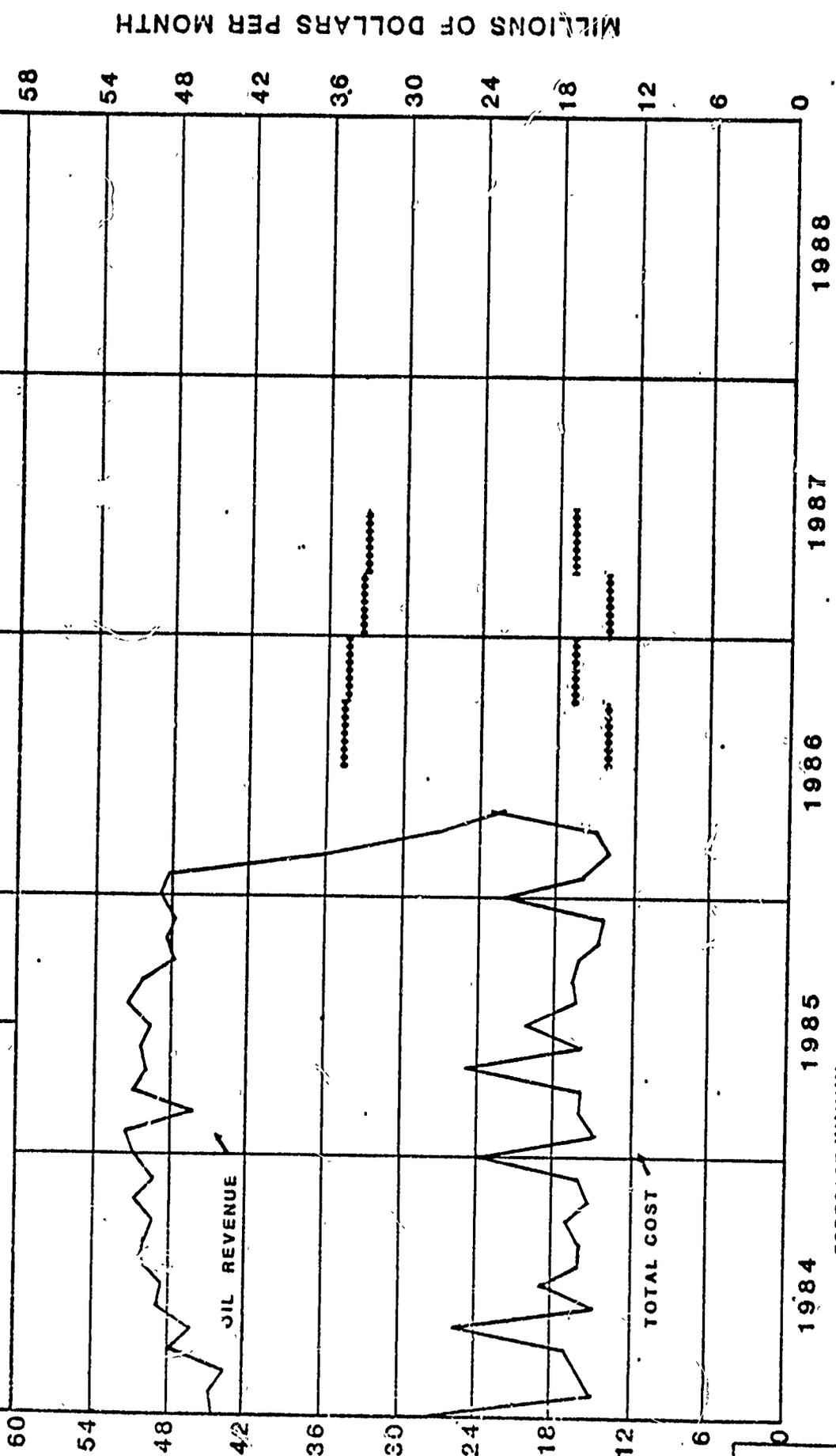
AB 884: N/A.

EXHIBITS: 1. Attachment "A".
2. Attachment "B".
3. Attachments 1-12.

IT IS RECOMMENDED THAT THE COMMISSION:

1. DETERMINE THAT THE ACTIVITIES CONTEMPLATED BY THE "PLAN OF DEVELOPMENT AND OPERATIONS AND BUDGET, LONG BEACH UNIT, JULY 1, 1986 THROUGH JUNE 30, 1987" ARE PLANNED TO BE CARRIED OUT PURSUANT TO AGREEMENT APPROVED BY THE COMMISSION BEFORE APRIL 5, 1973 AND ARE THEREFORE ONGOING PROJECTS WITHIN THE MEANING OF 14 CAL. ADM. CODE 15007(B), AND DO NOT REQUIRE THE PREPARATION OF EITHER AN EIR OR A NEGATIVE DECLARATION.
2. APPROVE THE "PLAN OF DEVELOPMENT AND OPERATIONS AND BUDGET, LONG BEACH UNIT, JULY 1, 1986 THROUGH JUNE 30, 1987", AS ADOPTED BY THE CITY OF LONG BEACH CITY COUNCIL ON MARCH 8, 1986 SUBJECT TO A FIRST MODIFICATION SUBMITTED BY THE CITY OF LONG BEACH FOR COMMISSION APPROVAL IN JUNE 1986.
3. DIRECT THE STAFF TO APPROVE BY MAY 1, 1986, UNDER PART IV B-7 OF THE PROCEDURES, WELLS AND WELL WORK IN THE JULY - OCTOBER 1986 PERIOD FOR TWO DRILLING RIGS.
4. DIRECT THE STAFF TO NOT IMPLEMENT ANY OTHER ACTION UNDER THE 1986-87 PLAN AND BUDGET FOR THE LONG BEACH UNIT UNTIL APPROVAL BY THE COMMISSION OF THE FIRST MODIFICATION AT THE JUNE, 1986 MEETING.

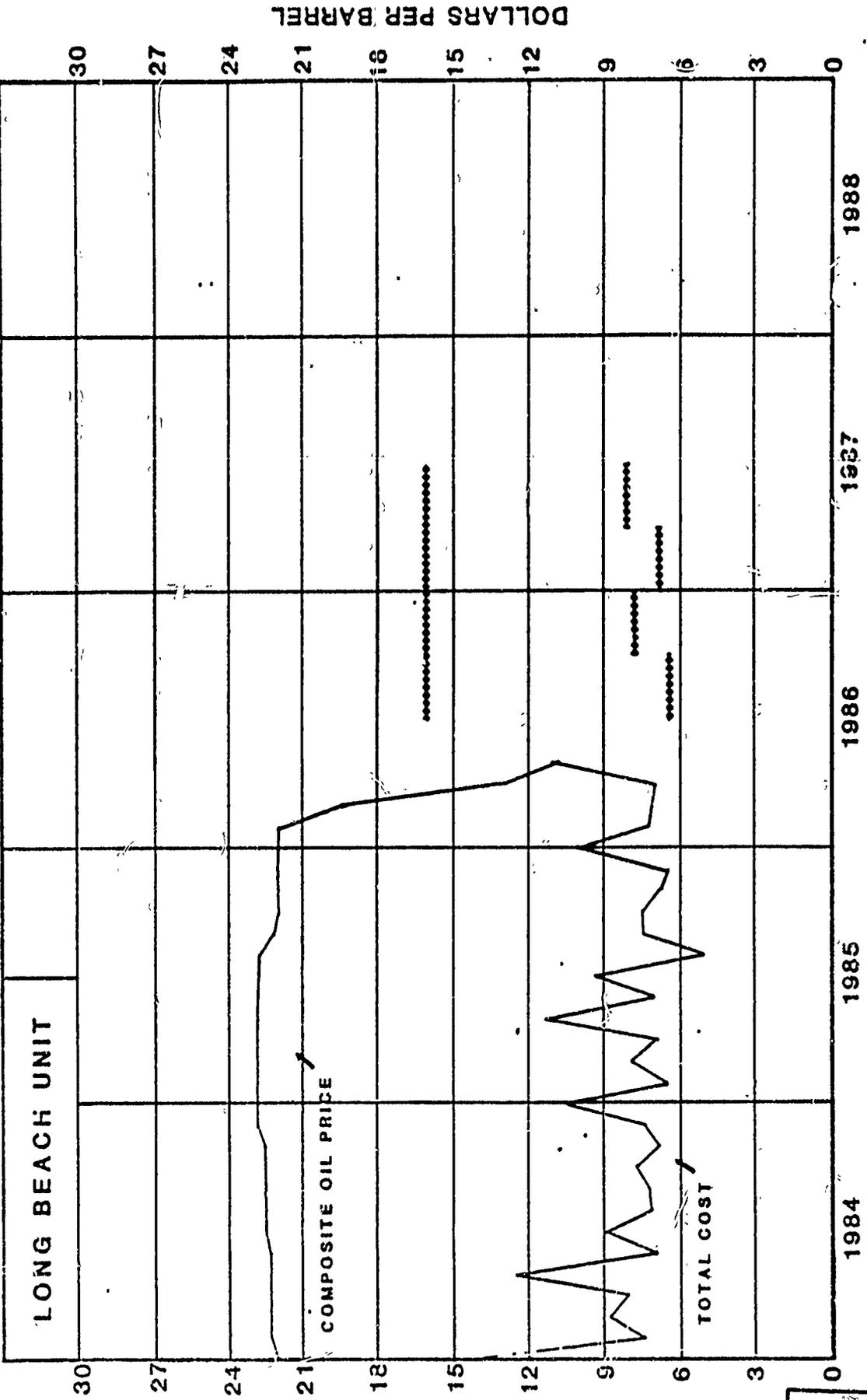
LONG BEACH UNIT



MILLIONS OF DOLLARS PER MONTH

CALENDAR PAGE
MINUTE PAGE

232.7
1114



LONG BEACH UNIT

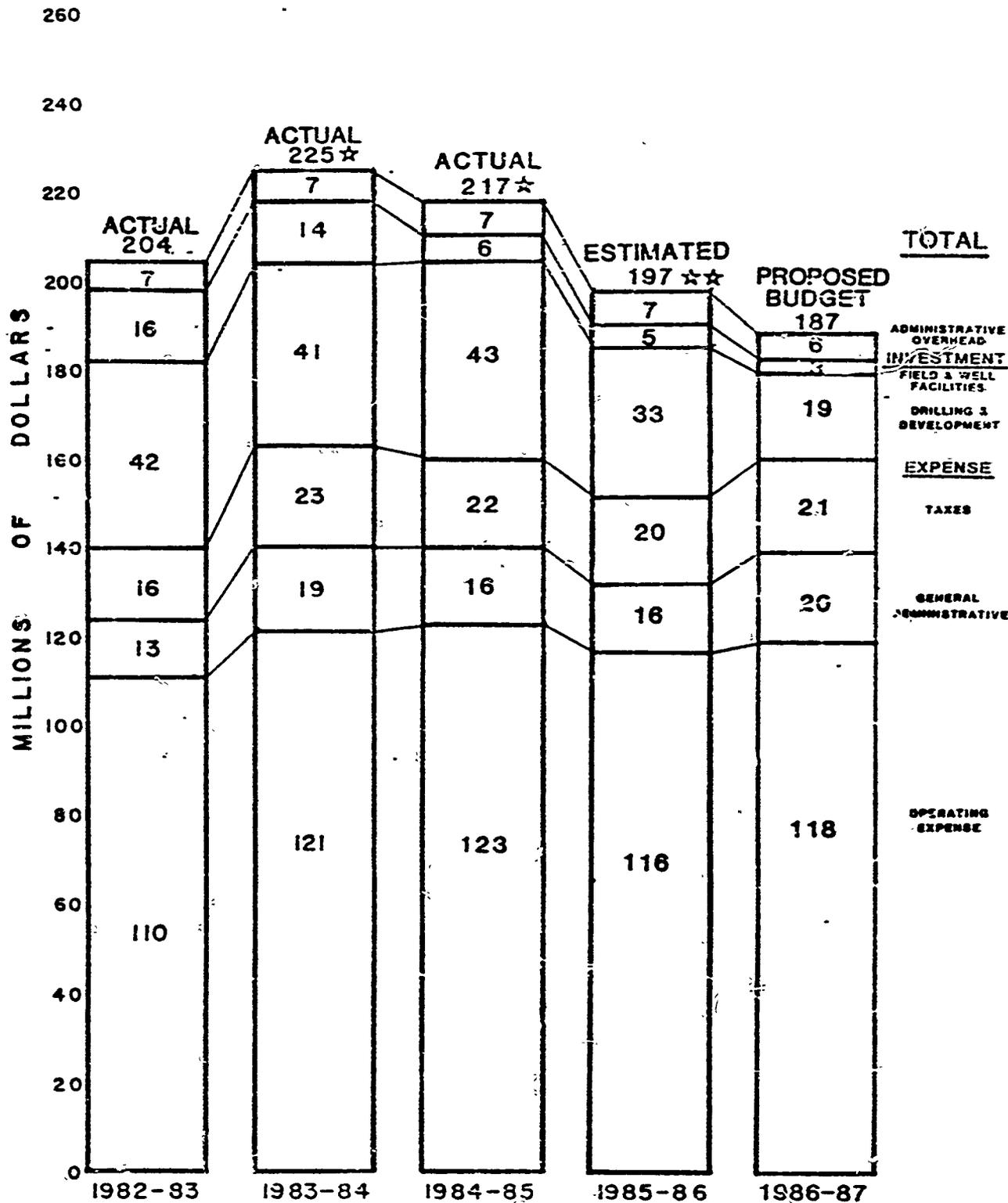
COMPOSITE OIL PRICE

TOTAL COST

FORECAST

DOLLARS PER BARREL

CALENDAR PAGE	232.8
MINUTE PAGE	1115



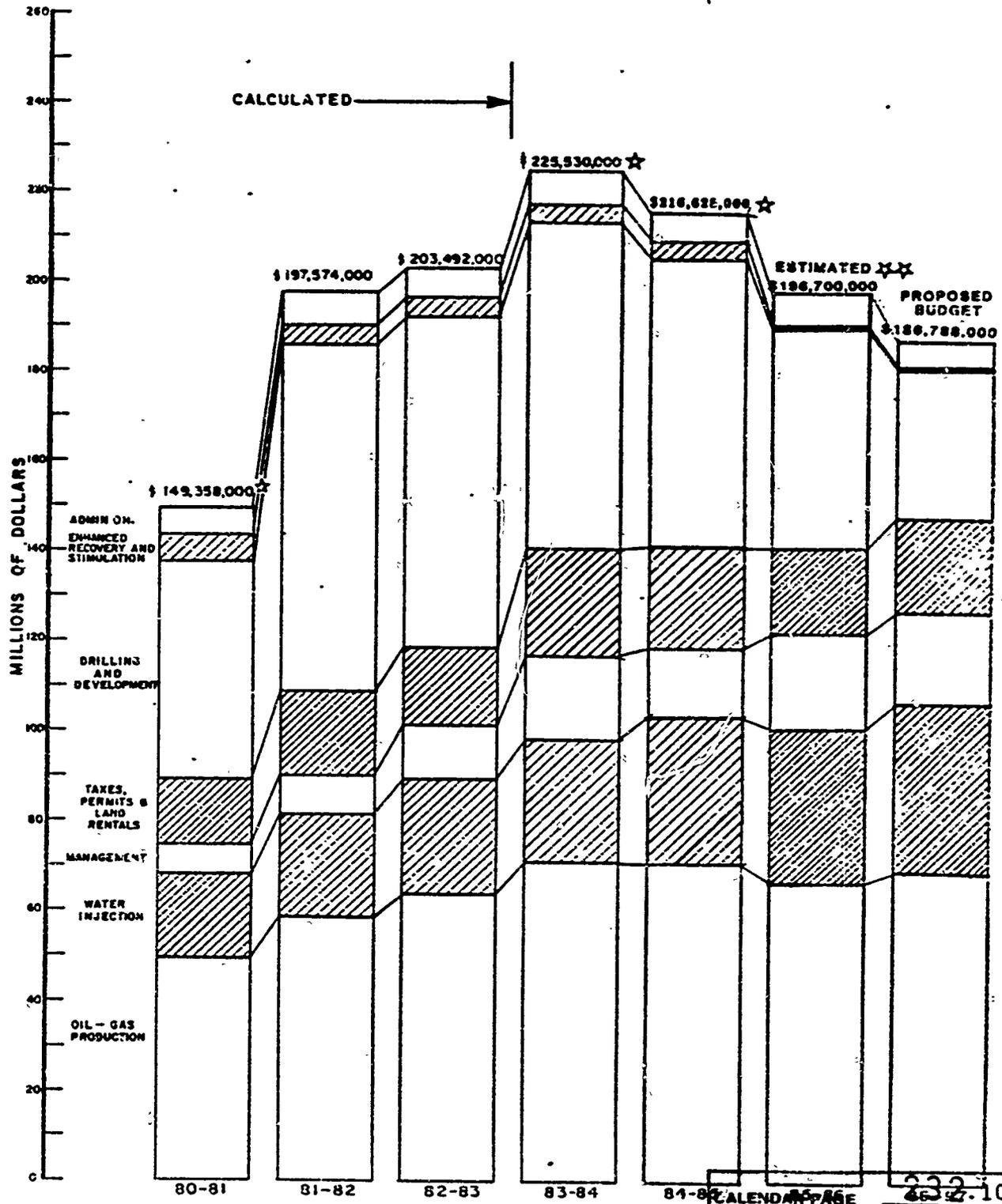
LONG BEACH UNIT EXPENDITURES

☆ EXCLUDES CREDIT FOR CAUST.C
 ☆ ☆ INCLUDES CREDIT FOR M/R TAXES

CALENDAR PAGE	232.9
MINUTE PAGE	1116

LONG BEACH UNIT BUDGET

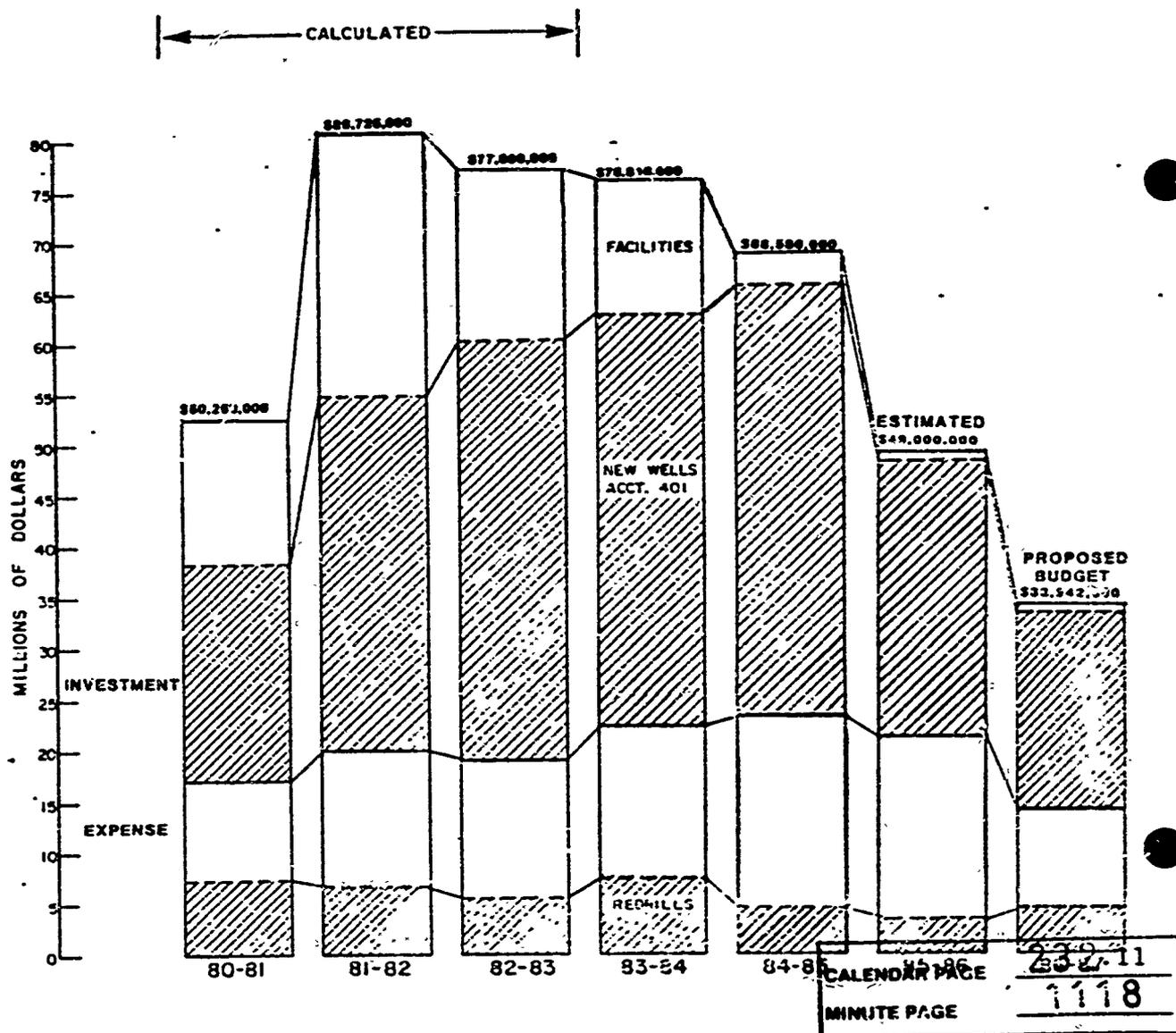
ALL PROGRAMS



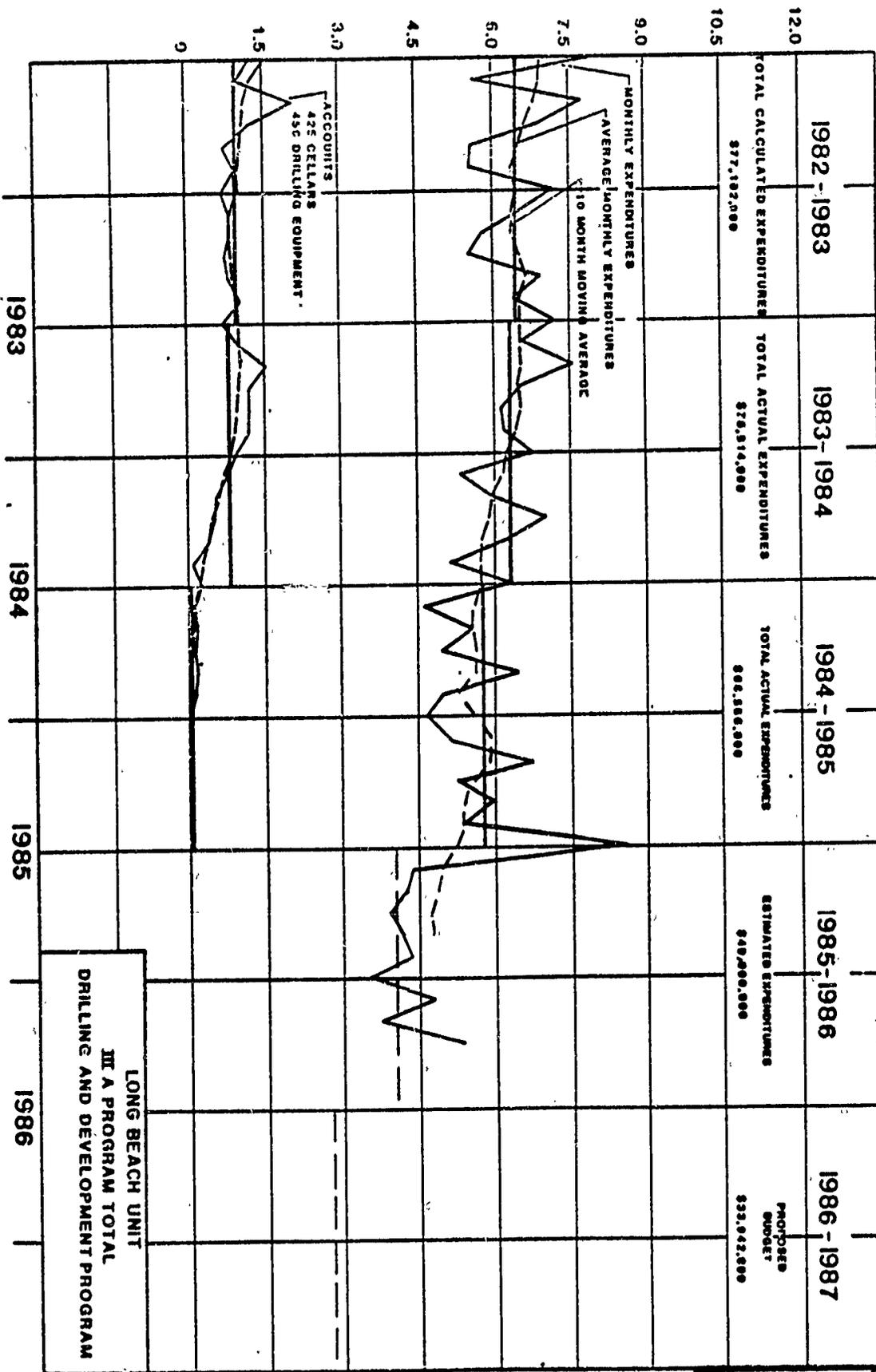
* CAUSING NOT INCLUDED
 ** INCLUDES CREDIT FOR M/R TAXES

LONG BEACH UNIT

DRILLING AND DEVELOPMENT
PROGRAM



MILLIONS OF DOLLARS PER MONTH



STATE OF CALIFORNIA
STATE LANDS COMMISSION

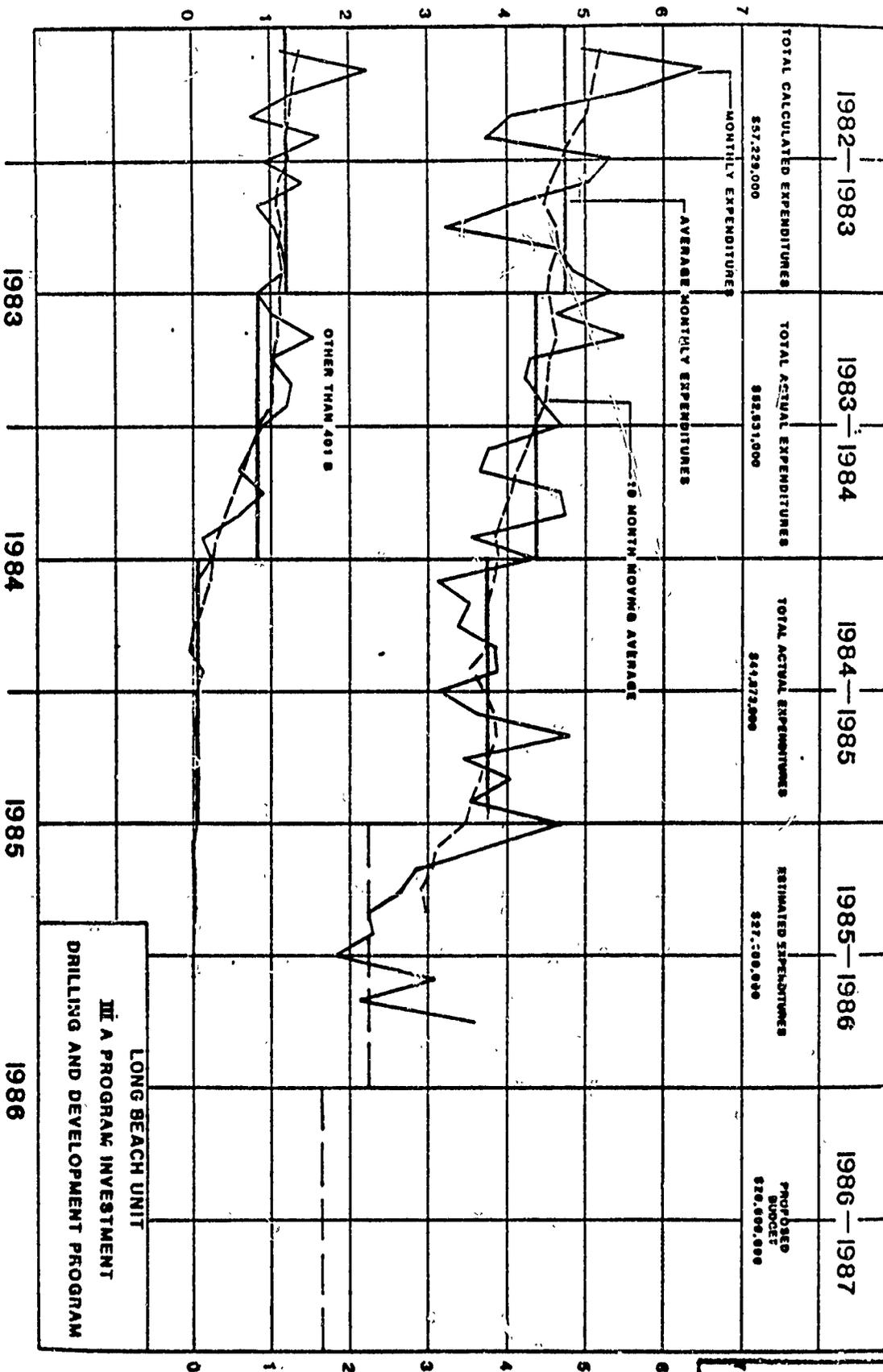
ATTACHMENT 3

LONG BEACH UNIT
III A PROGRAM TOTAL
DRILLING AND DEVELOPMENT PROGRAM

CALENDAR YEAR 1986 232.12
MINUTE YEAR 119

MILLIONS OF DOLLARS PER MONTH

MILLIONS OF DOLLARS PER MONTH



STATE OF CALIFORNIA
STATE LANDS COMMISSION

ATTACHMENT 3B

LONG BEACH UNIT
III A PROGRAM INVESTMENT
DRILLING AND DEVELOPMENT PROGRAM

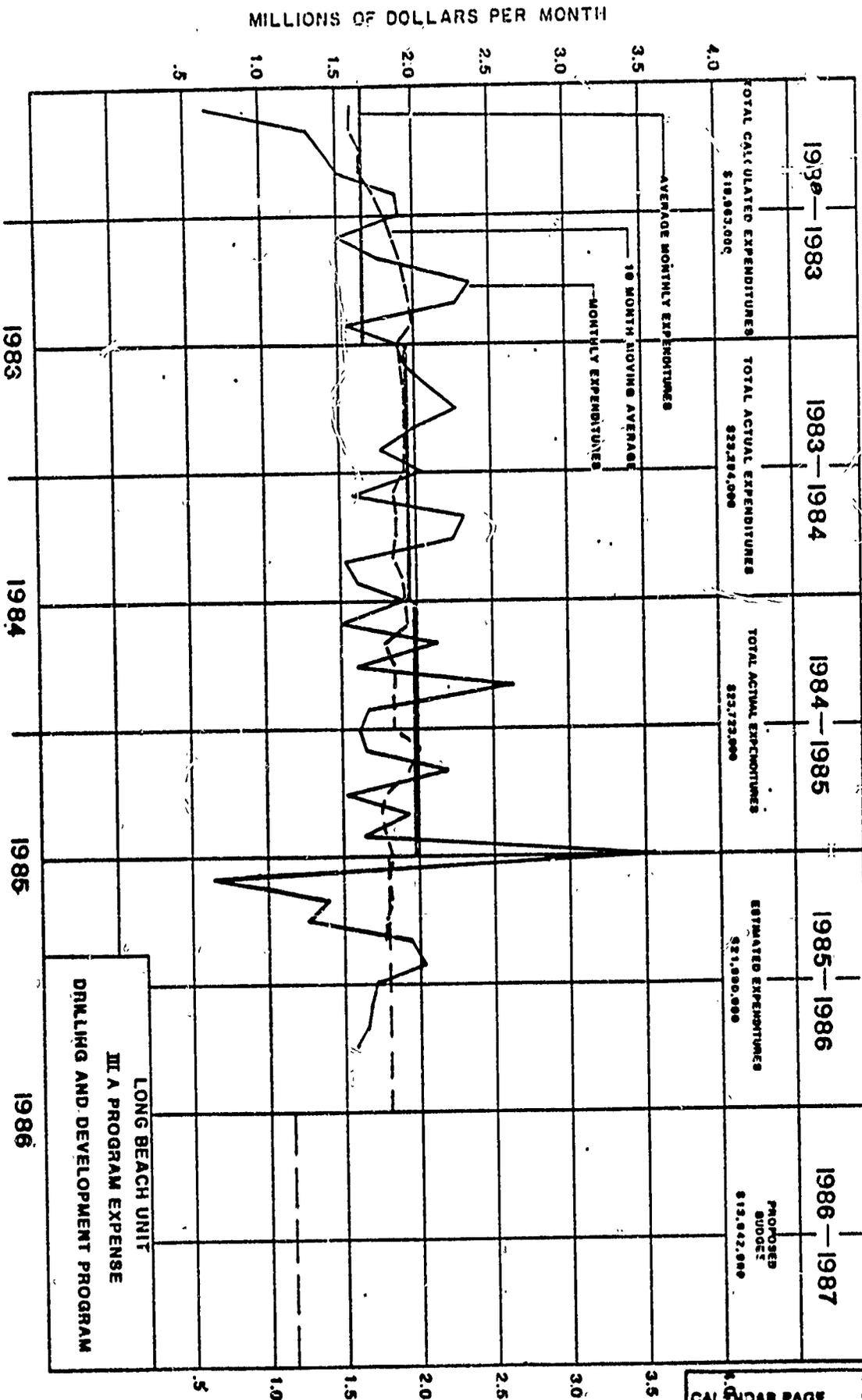
MILLIONS OF DOLLARS PER MONTH

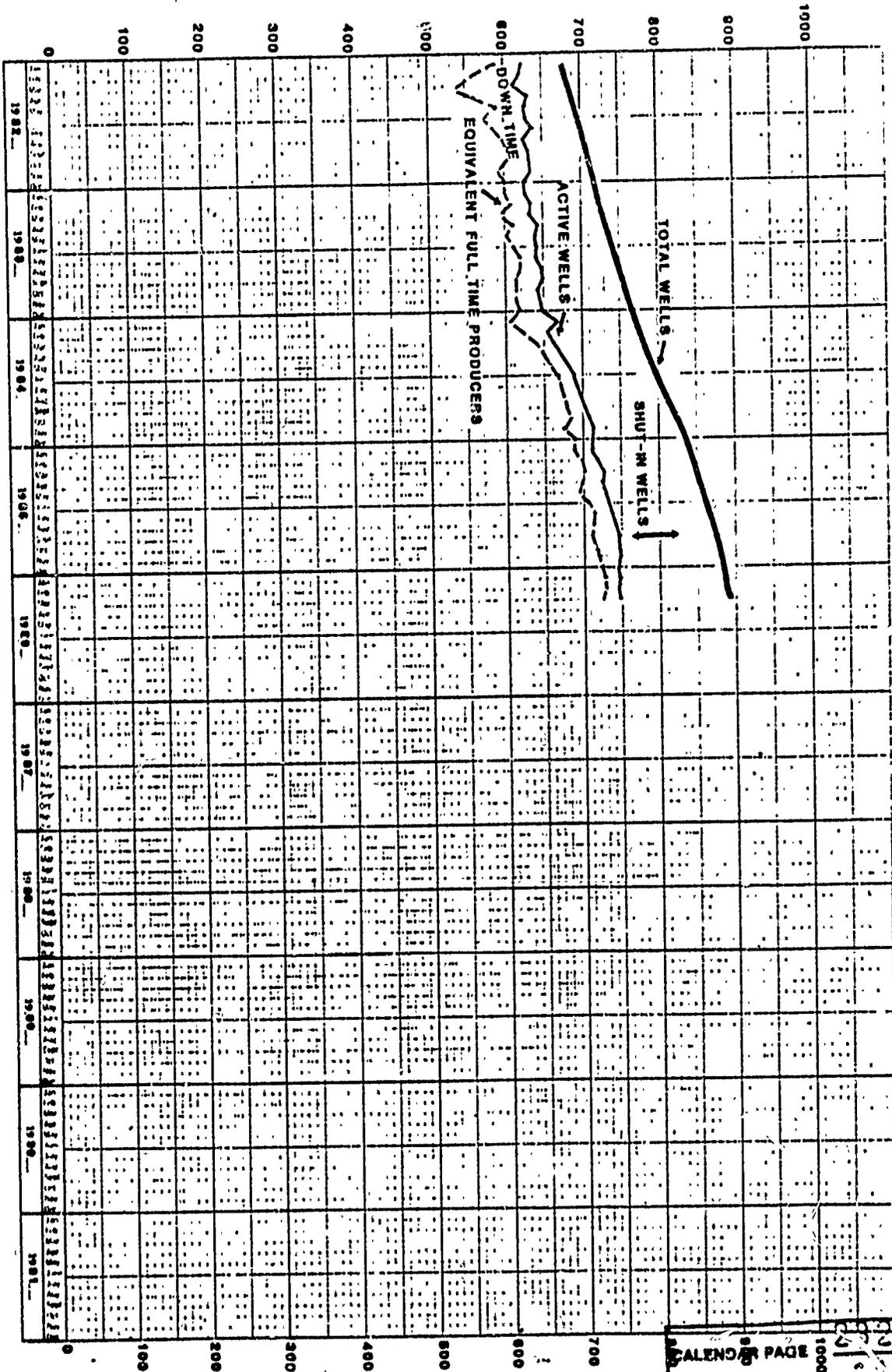
CALENDAR PAGE

232.13

MINUTE PAGE

1120

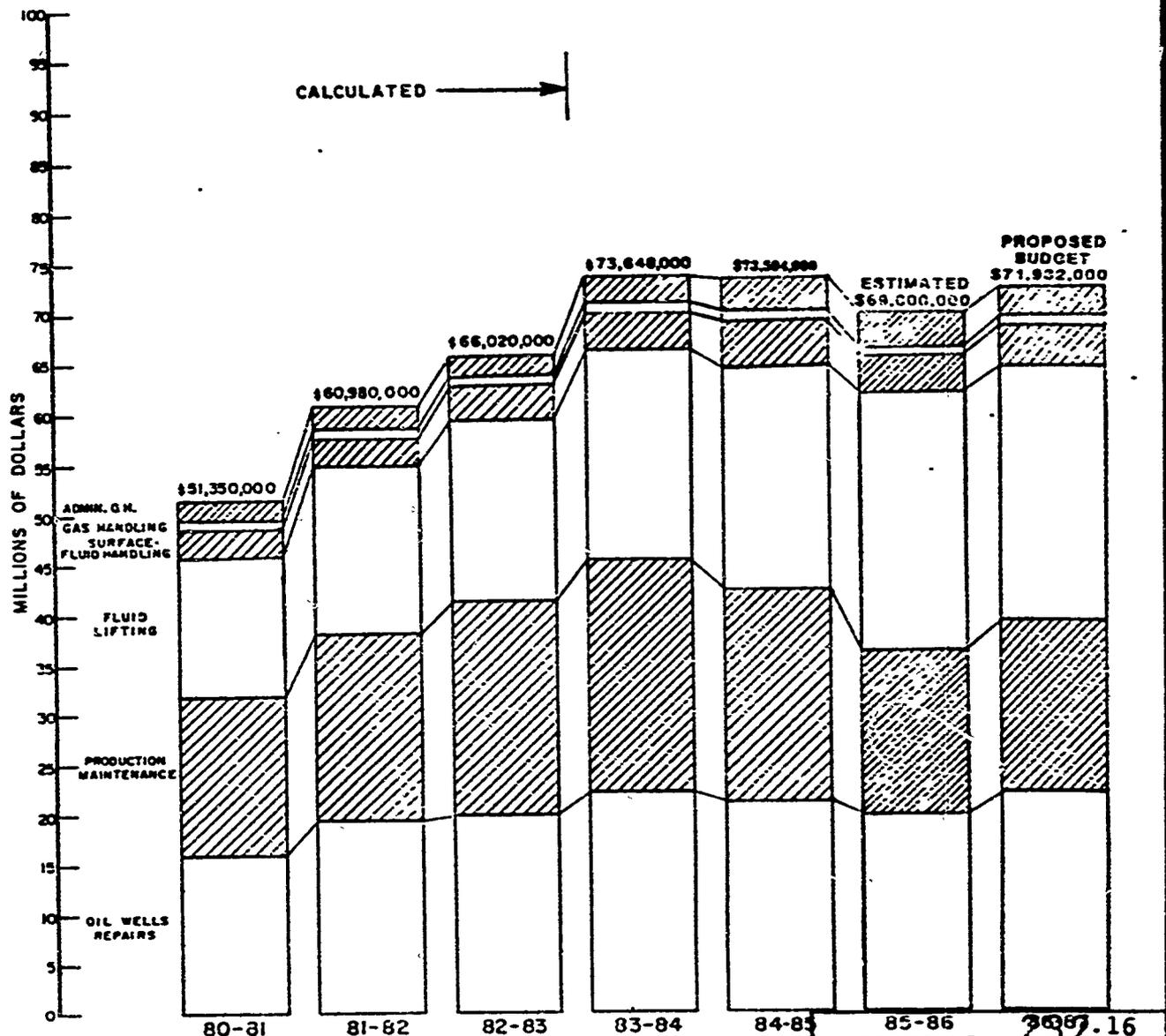


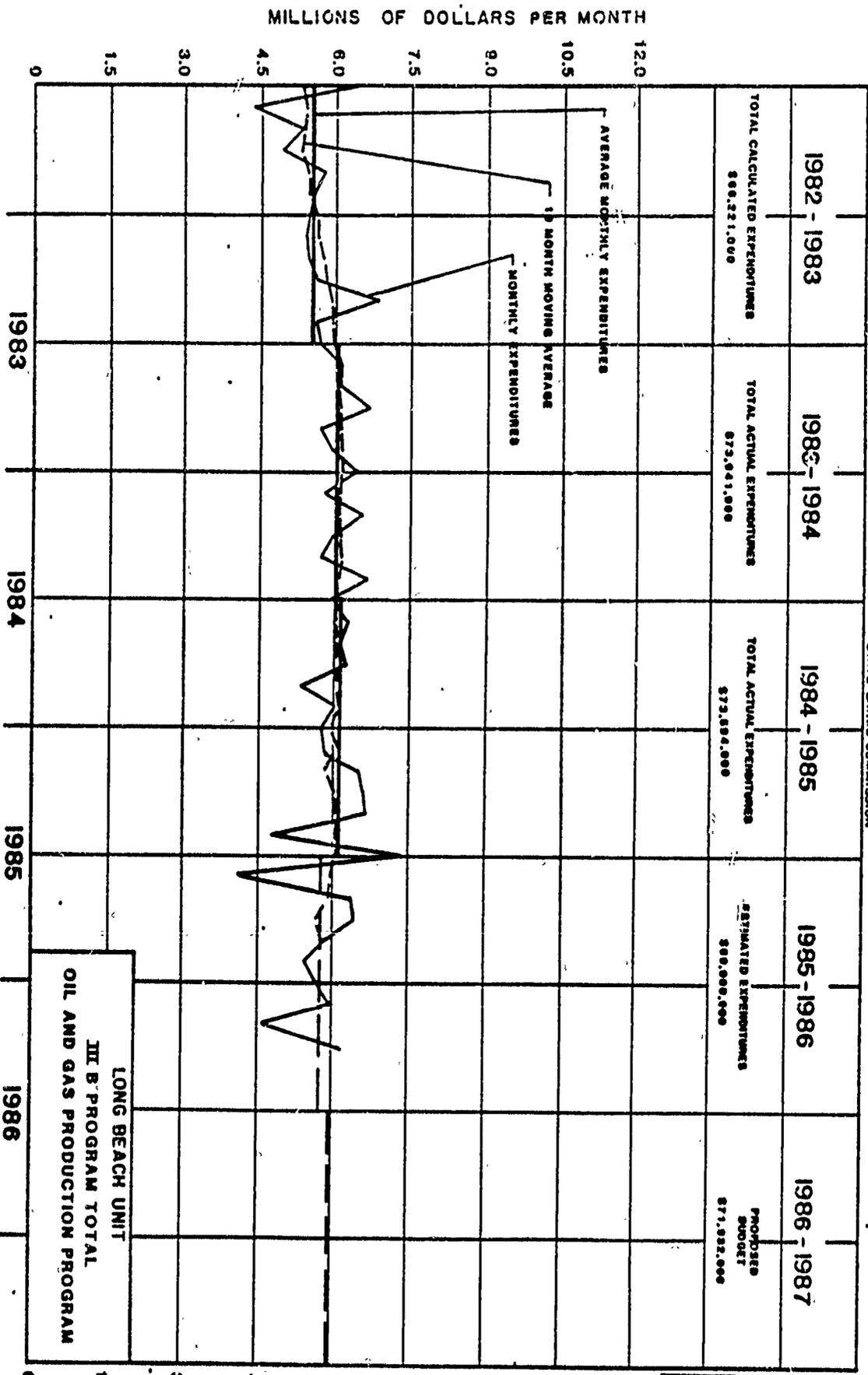


LONG BEACH UNIT
PRODUCING WELLS

LONG BEACH UNIT

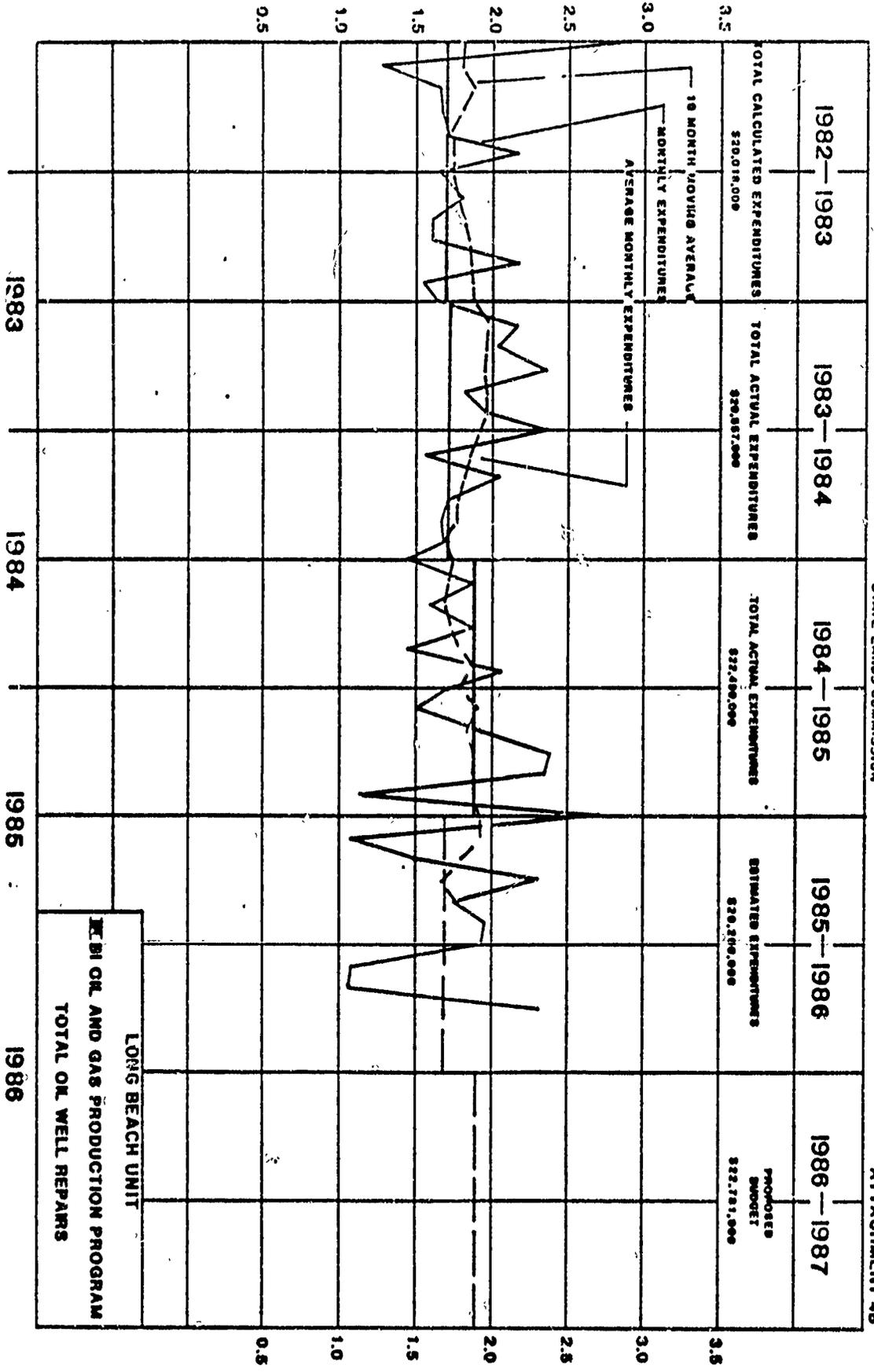
OIL AND GAS PRODUCTION
PROGRAM





LONG BEACH UNIT
III B PROGRAM TOTAL
OIL AND GAS PRODUCTION PROGRAM

MILLIONS OF DOLLARS PER MONTH

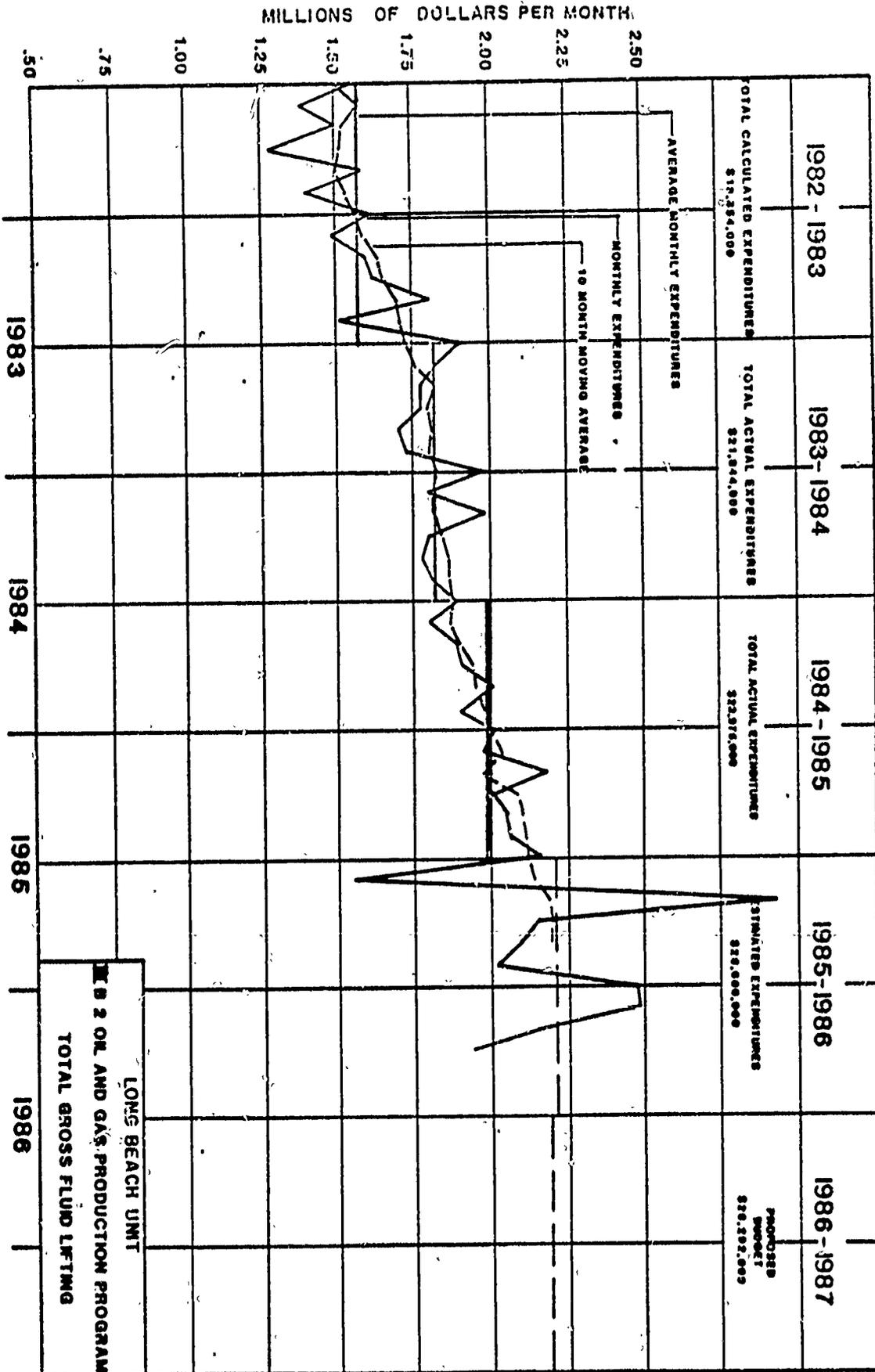


STATE OF CALIFORNIA
STATE LIQUID COMMISSION

ATTACHMENT 4B

LONG BEACH UNIT
OIL AND GAS PRODUCTION PROGRAM
TOTAL OIL WELL REPAIRS

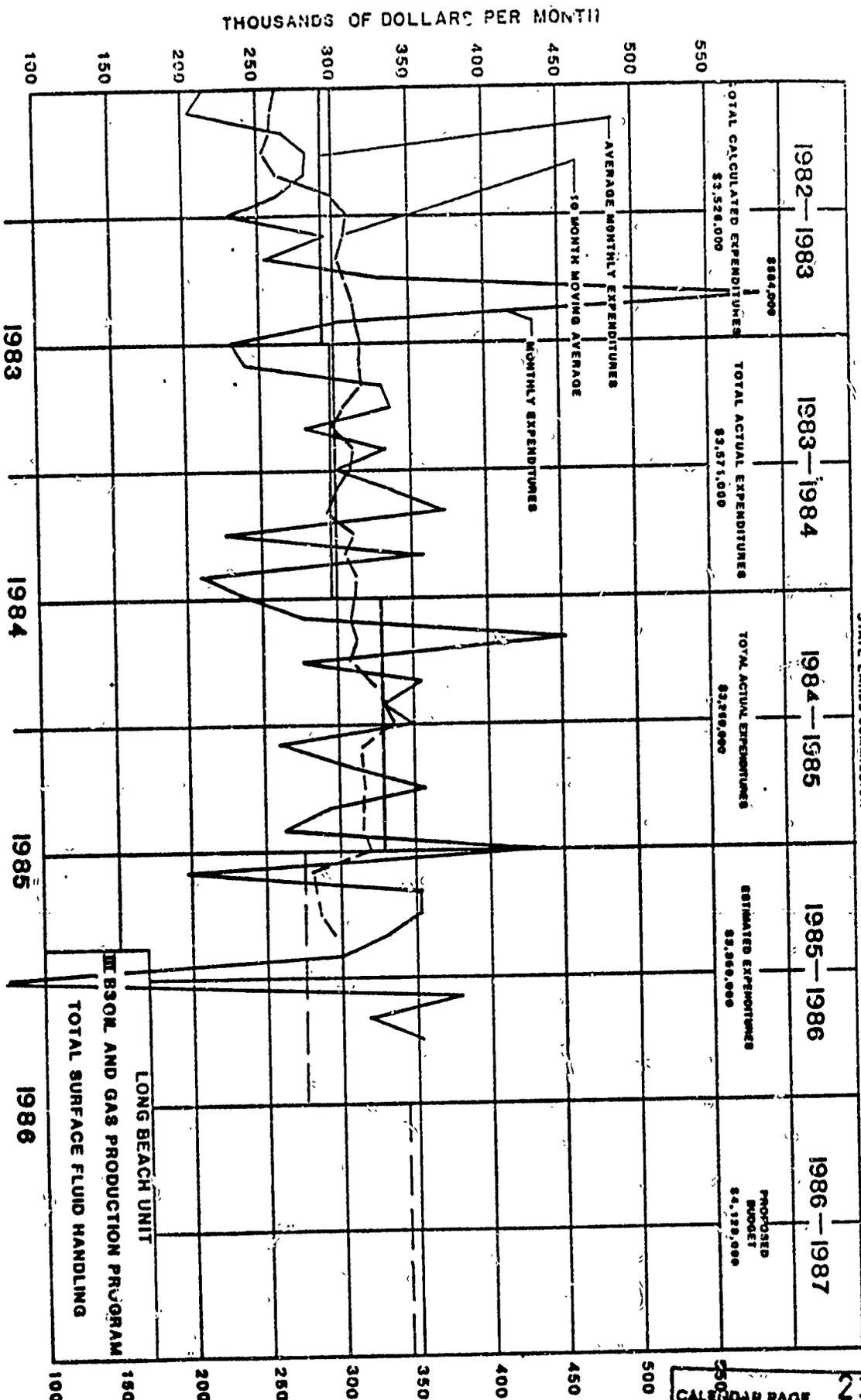
MILLIONS OF DOLLARS PER MONTH



LONG BEACH UNIT
THE #2 OIL AND GAS PRODUCTION PROGRAM
TOTAL GROSS FLUID LIFTING

STATE OF CALIFORNIA
STATE LANDS COMMISSION

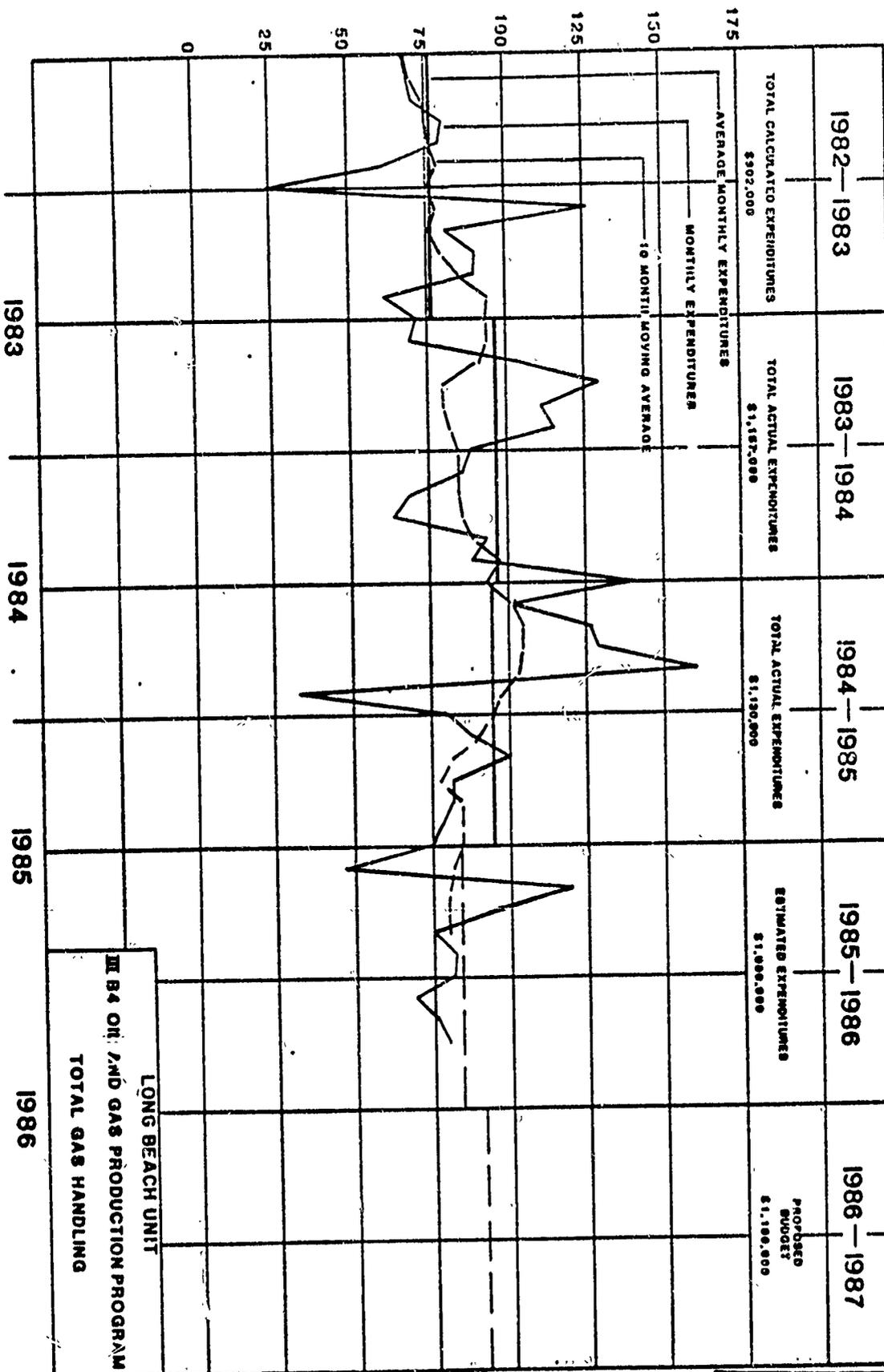
ATTACHMENT 4D



THOUSANDS OF DOLLARS PER MONTH

THOUSANDS OF DOLLARS PER MONTH

THOUSANDS OF DOLLARS PER MONTH



STATE OF CALIFORNIA
STATE LANDS COMMISSION

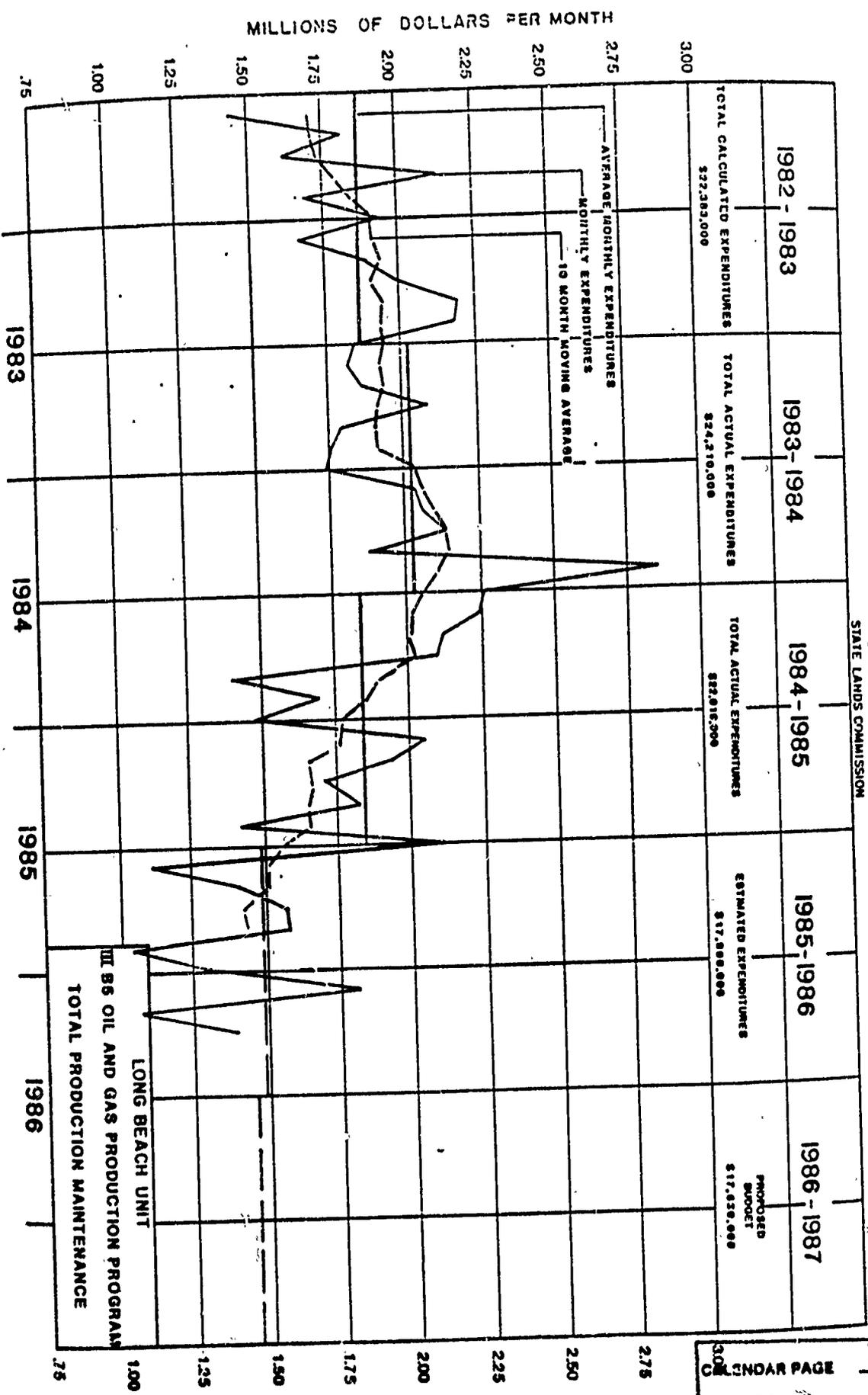
ATTACHMENT 4E

LONG BEACH UNIT
III B4 OIL AND GAS PRODUCTION PROGRAM
TOTAL GAS HANDLING

THOUSANDS OF DOLLARS PER MONTH

CALENDAR PAGE
MINUTE PAGE

232.21
128



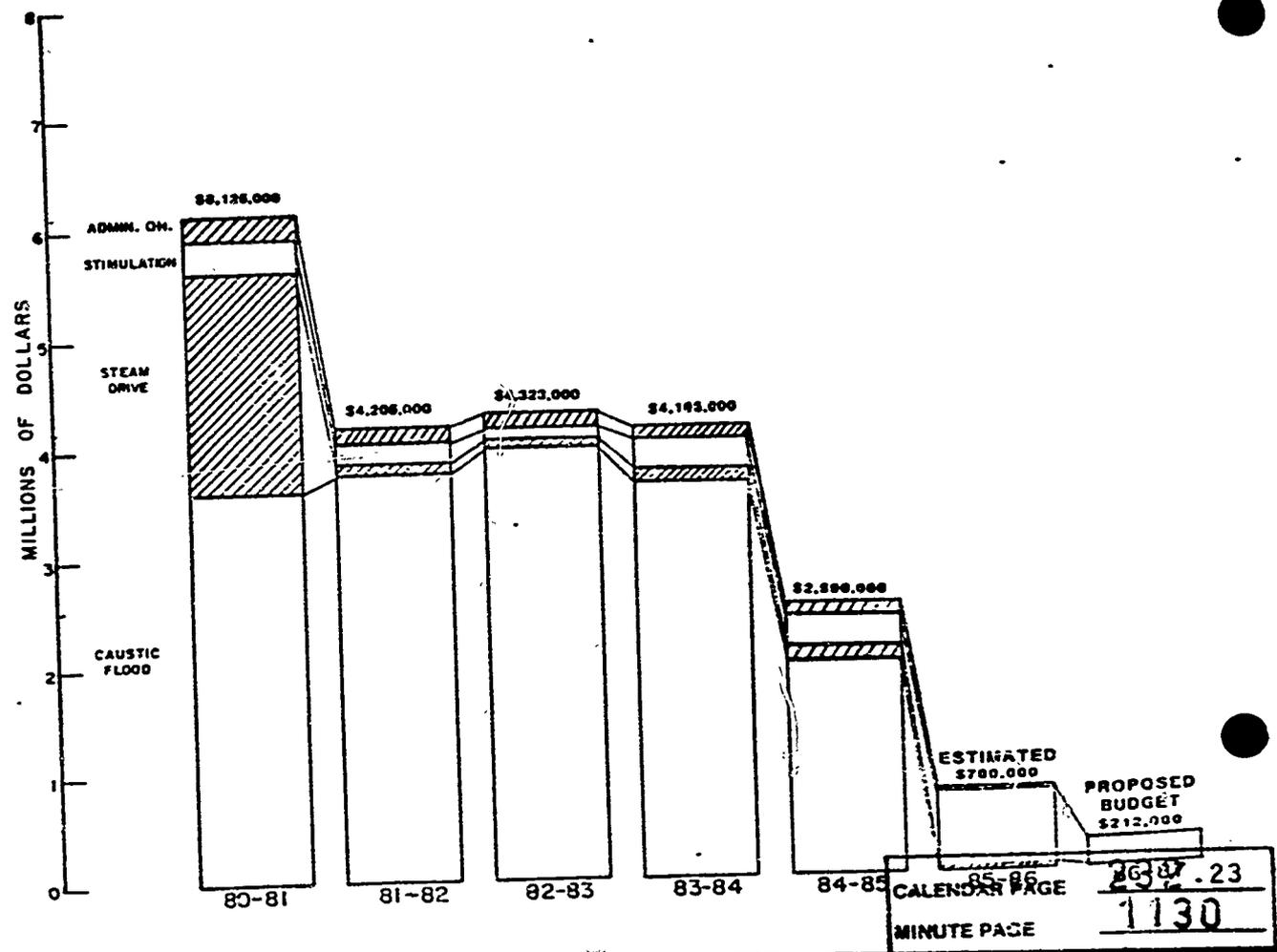
MILLIONS OF DOLLARS PER MONTH

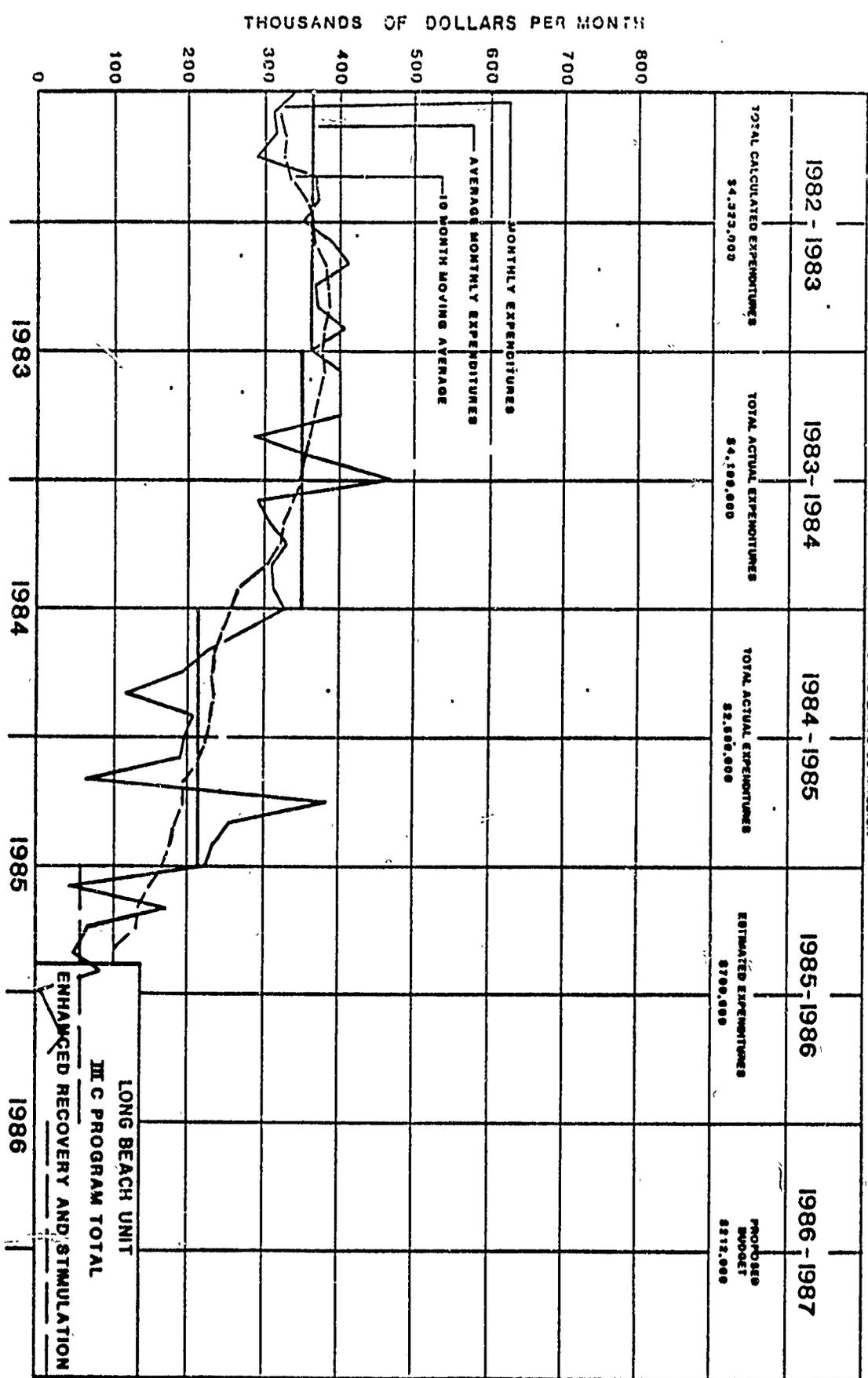
MILLIONS OF DOLLARS PER MONTH

LONG BEACH UNIT

ENHANCED RECOVERY AND STIMULATION PROGRAM

CALCULATED →

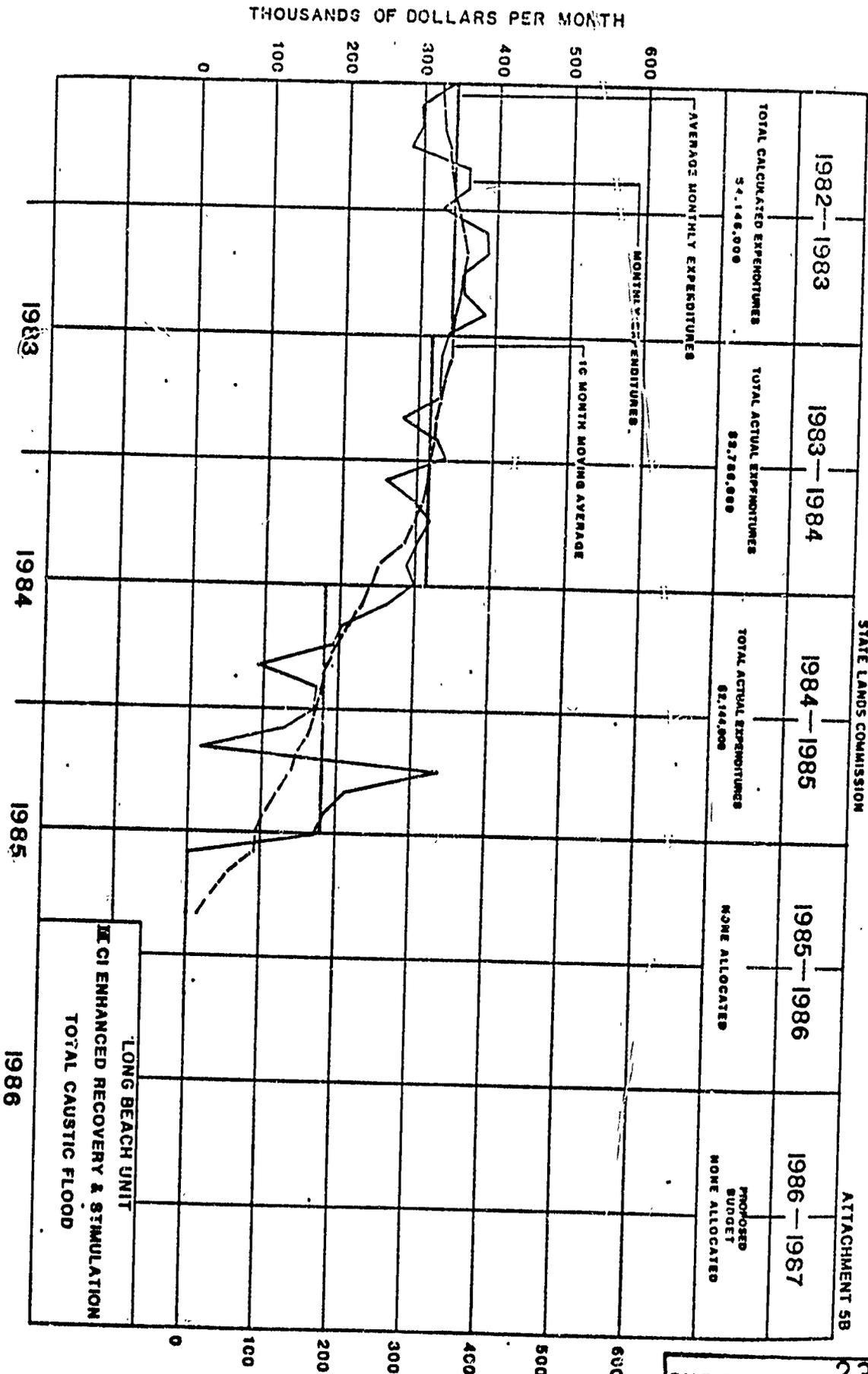




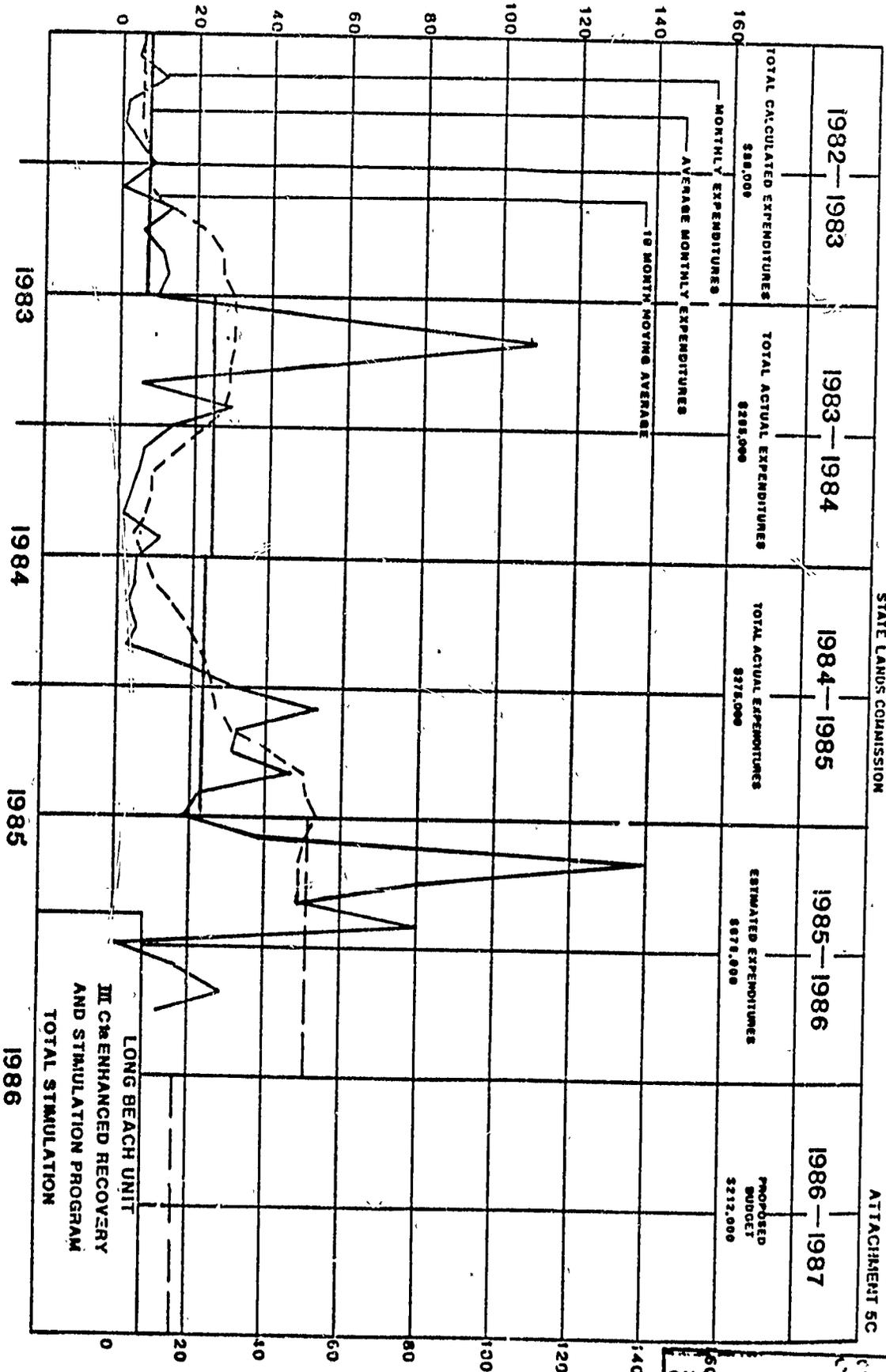
LONG BEACH UNIT
IIC PROGRAM TOTAL
ENHANCED RECOVERY AND STIMULATION

STATE OF CALIFORNIA
STATE LANDS COMMISSION

ATTACHMENT 5B



THOUSANDS OF DOLLARS PER MONTH



STATE OF CALIFORNIA
STATE LANDS COMMISSION

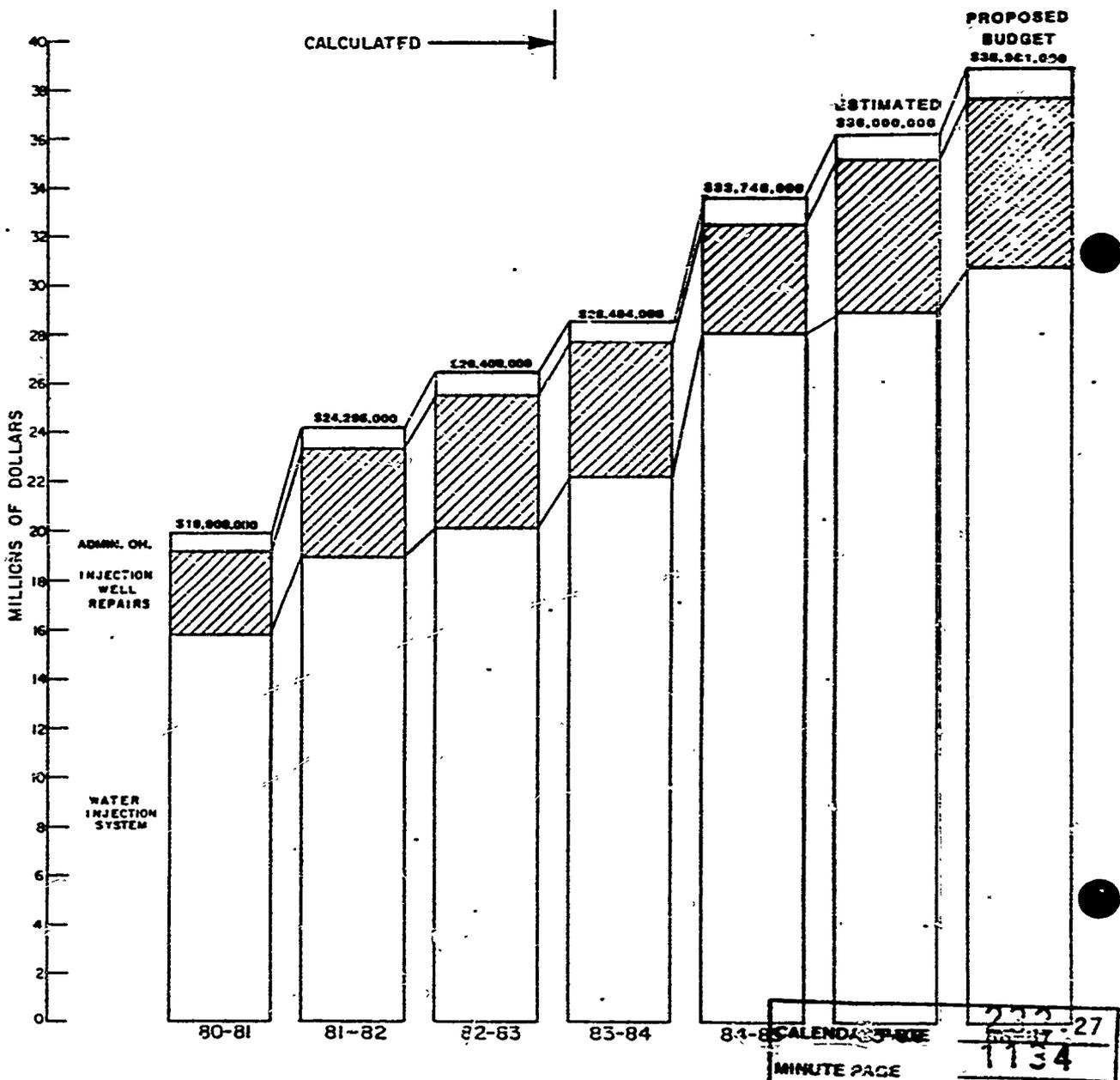
ATTACHMENT 5C

LONG BEACH UNIT
III ENHANCED RECOVERY
AND STIMULATION PROGRAM
TOTAL STIMULATION

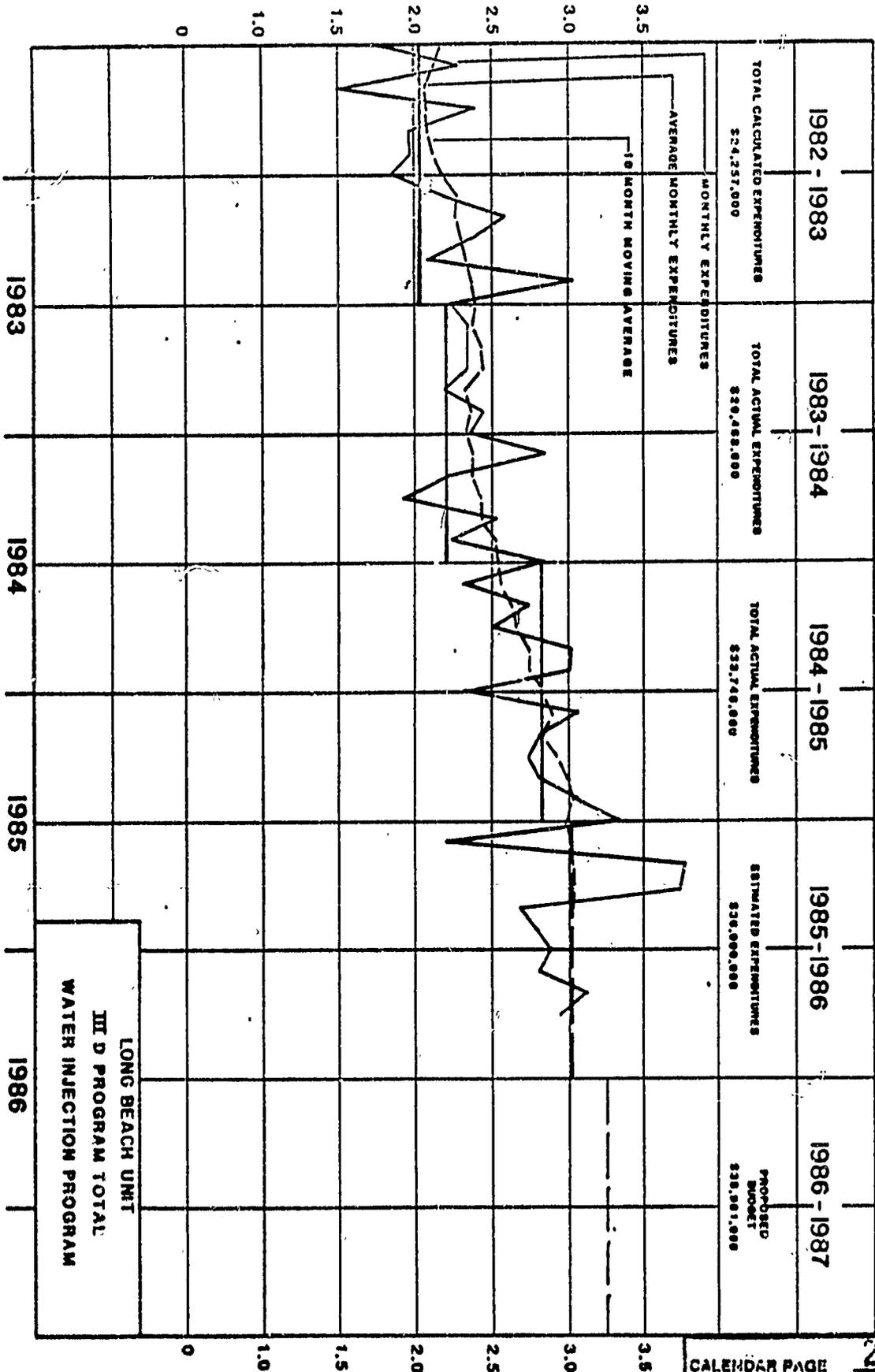
THOUSANDS OF DOLLARS PER MONTH

LONG BEACH UNIT

WATER INJECTION PROGRAM



MILLIONS OF DOLLARS PER MONTH

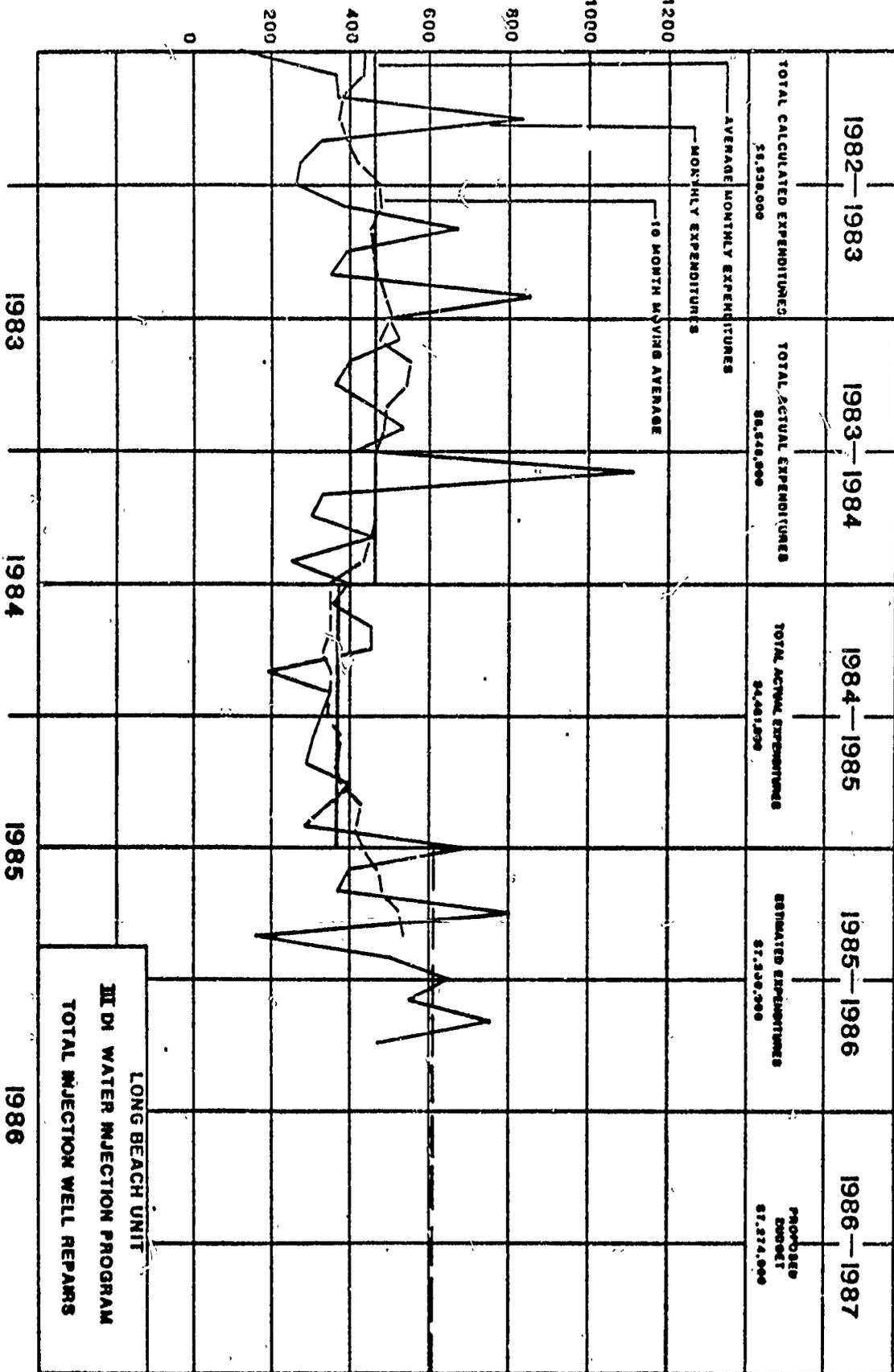


STATE OF CALIFORNIA
STATE LANDS COMMISSION

ATTACHMENT 8A

LONG BEACH UNIT
III D PROGRAM TOTAL
WATER INJECTION PROGRAM

THOUSANDS OF DOLLARS PER MONTH



STATE OF CALIFORNIA
STATE LANDS COMMISSION

ATTACHMENT 6B

LONG BEACH UNIT
III DI WATER INJECTION PROGRAM
TOTAL INJECTION WELL REPAIRS

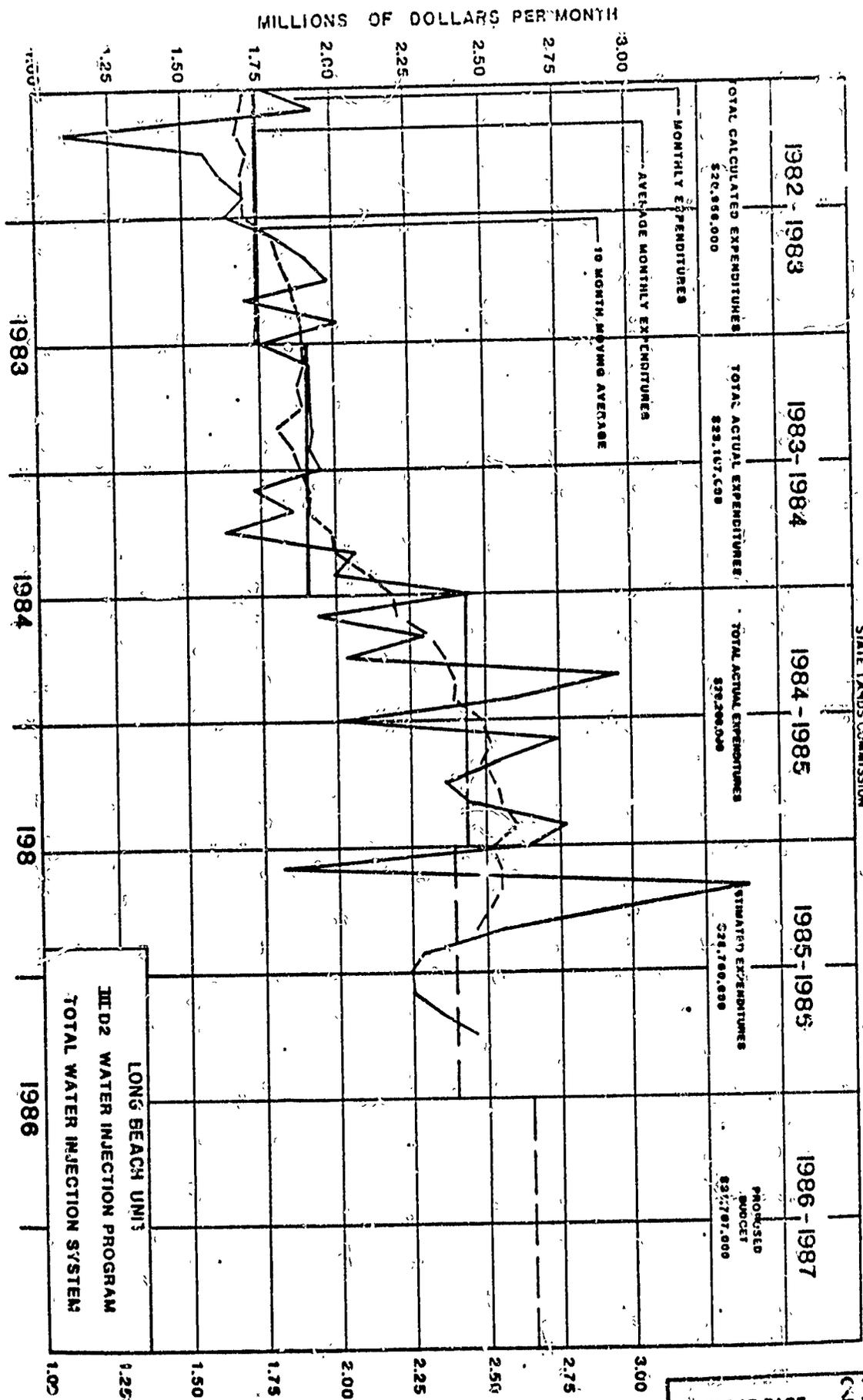
CALENDAR PAGE

MINUTE PAGE

232.29

36

THOUSANDS OF DOLLARS PER MONTH



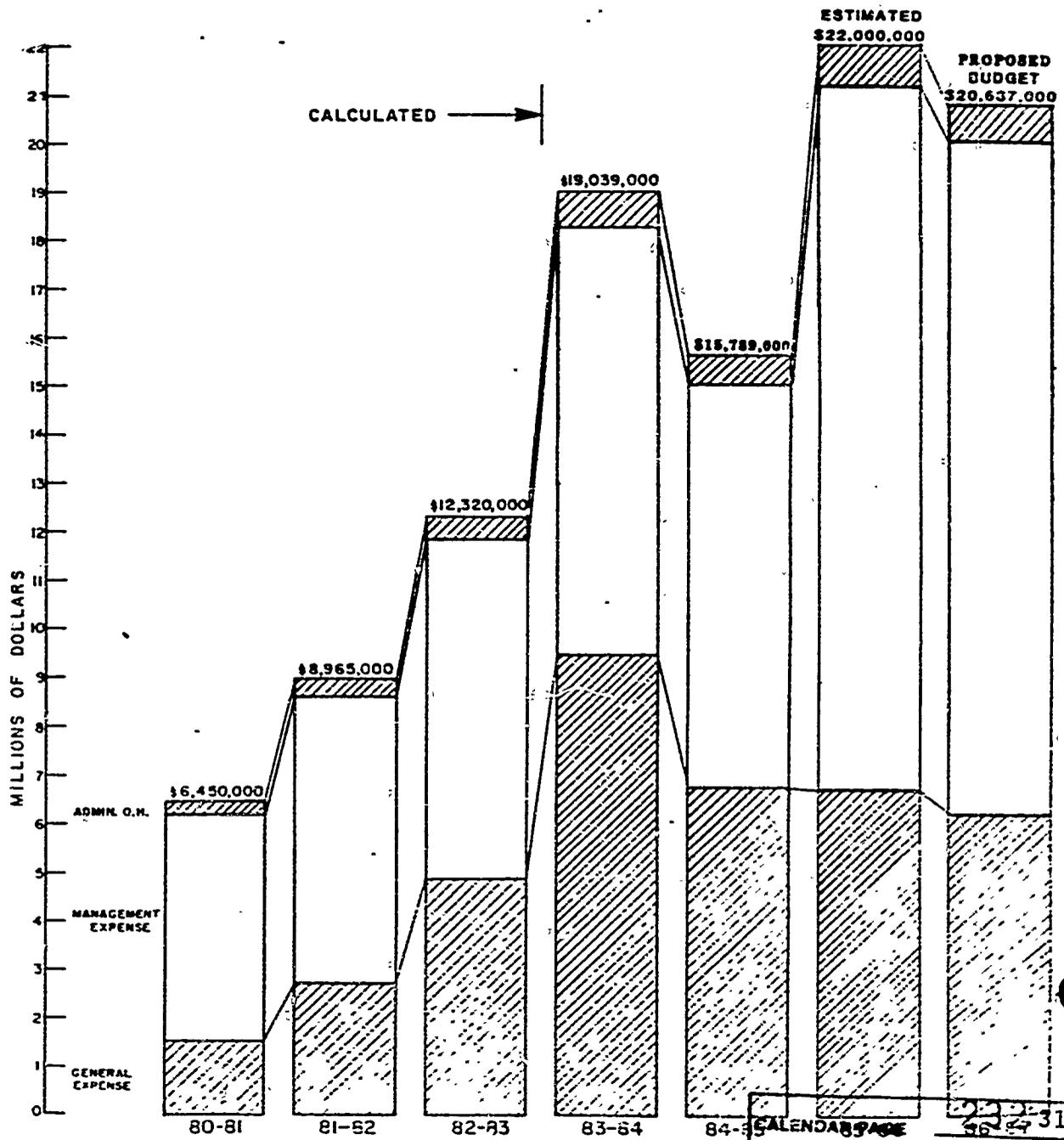
LONG BEACH UNIT
III D2 WATER INJECTION PROGRAM
TOTAL WATER INJECTION SYSTEM

MILLIONS OF DOLLARS PER MONTH

MILLIONS OF DOLLARS PER MONTH

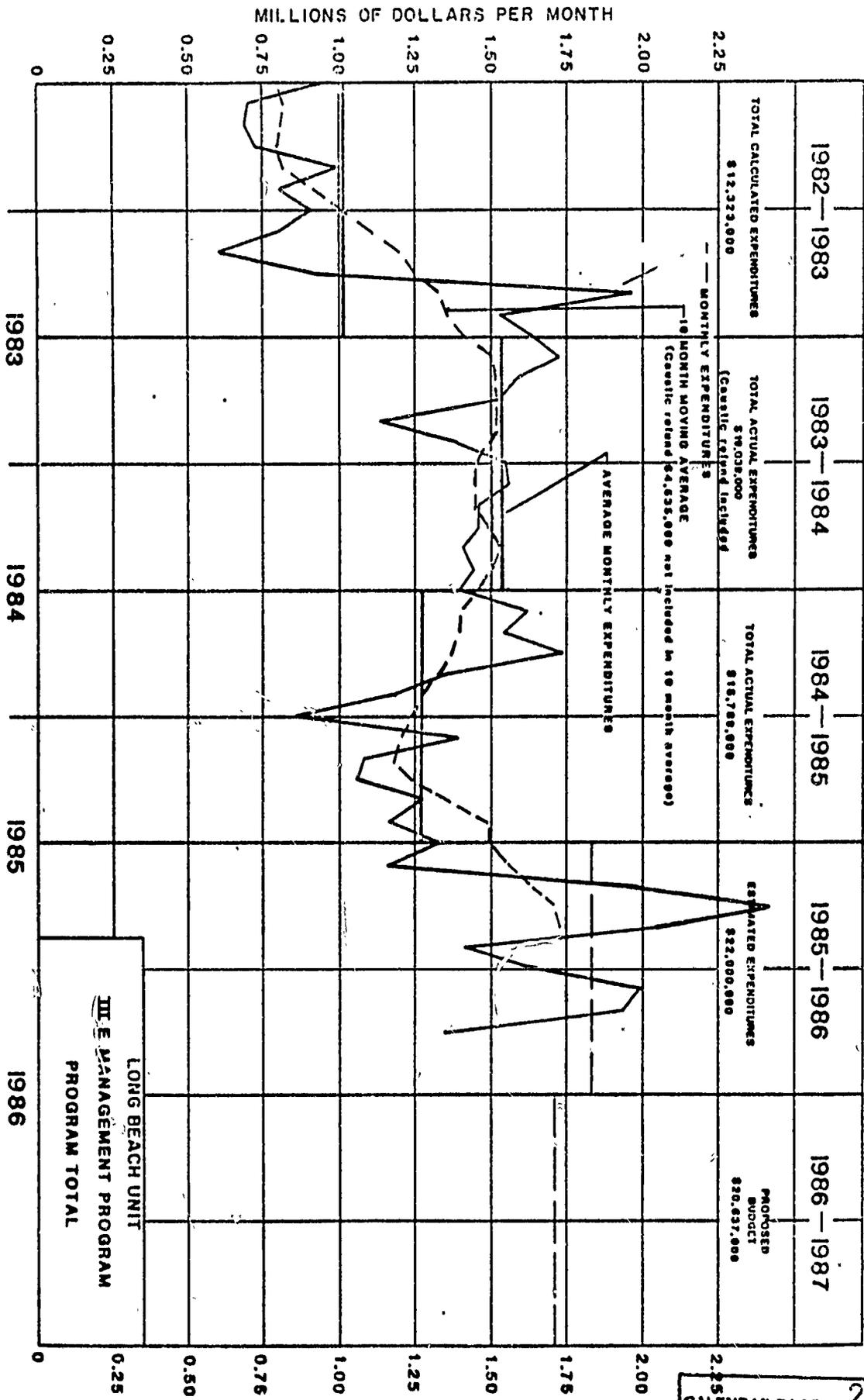
LONG BEACH UNIT

MANAGEMENT
PROGRAM



STATE OF CALIFORNIA
STATE LANDS COMMISSION

ATTACHMENT 7A

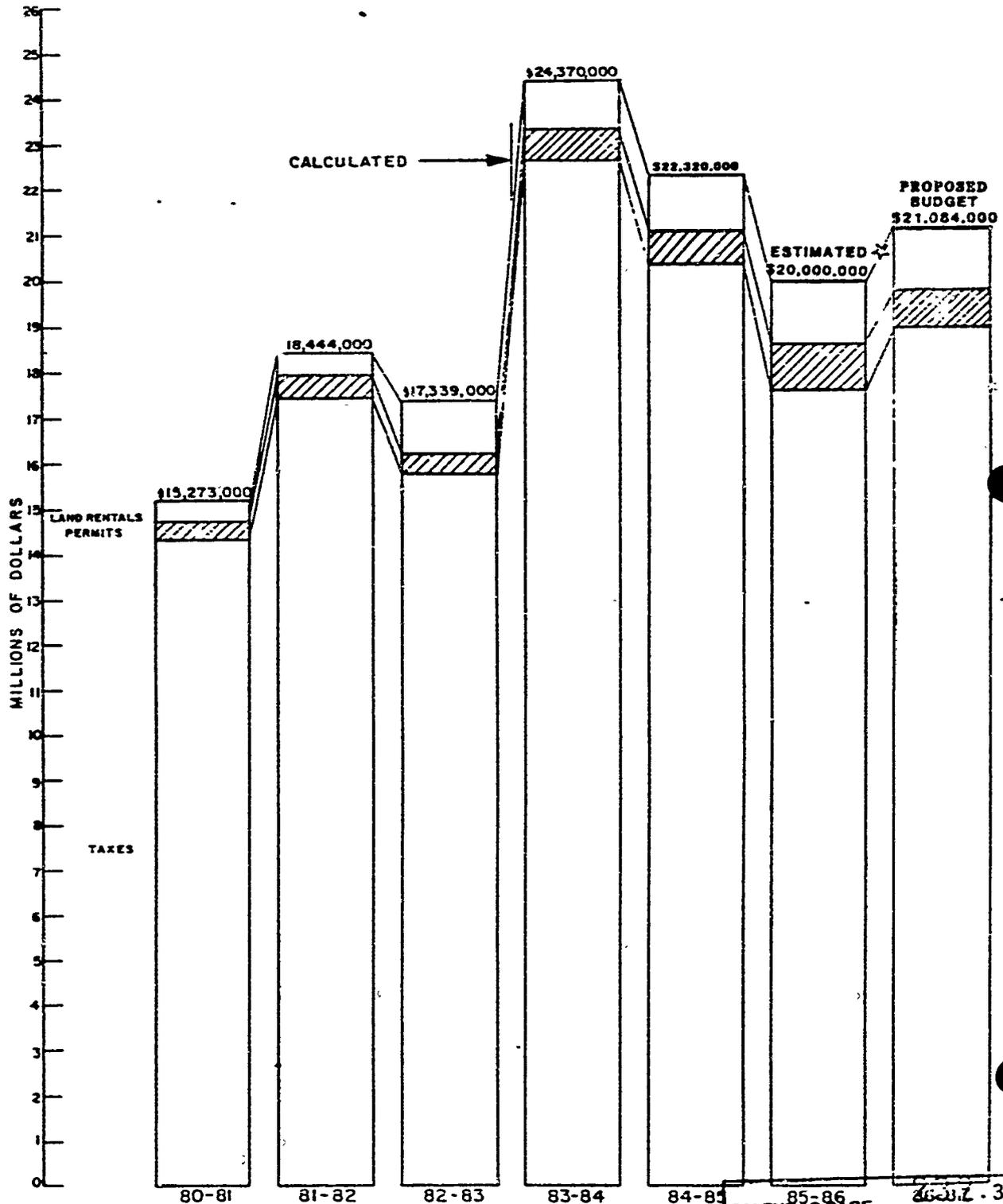


MILLIONS OF DOLLARS PER MONTH

MILLIONS OF DOLLARS PER MONTH

LONG BEACH UNIT

TAXES, PERMITS AND LAND RENTAL PROGRAM



★ INCLUDES CREDIT FOR M/R TAX

MILLIONS OF DOLLARS PER YEAR

Year	ACTUAL	ACTUAL	ACTUAL	ACTUAL	ACTUAL	ACTUAL	ACTUAL	ACTUAL	ESTIMATED	PROPOSED BUDGET
1977-1978	\$2029,446									
1978-1979	\$13,257,000									
1979-1980	\$16,234,000									
1980-1981	\$23,061,000									
1981-1982	\$26,590,000									
1982-1983	\$27,075,000									
1983-1984	\$30,930,000									
1984-1985	\$35,138,000									
1985-1986	\$36,300,000									
1986-1987	\$37,000,000									

STATE OF CALIFORNIA
STATE LANDS COMMISSION

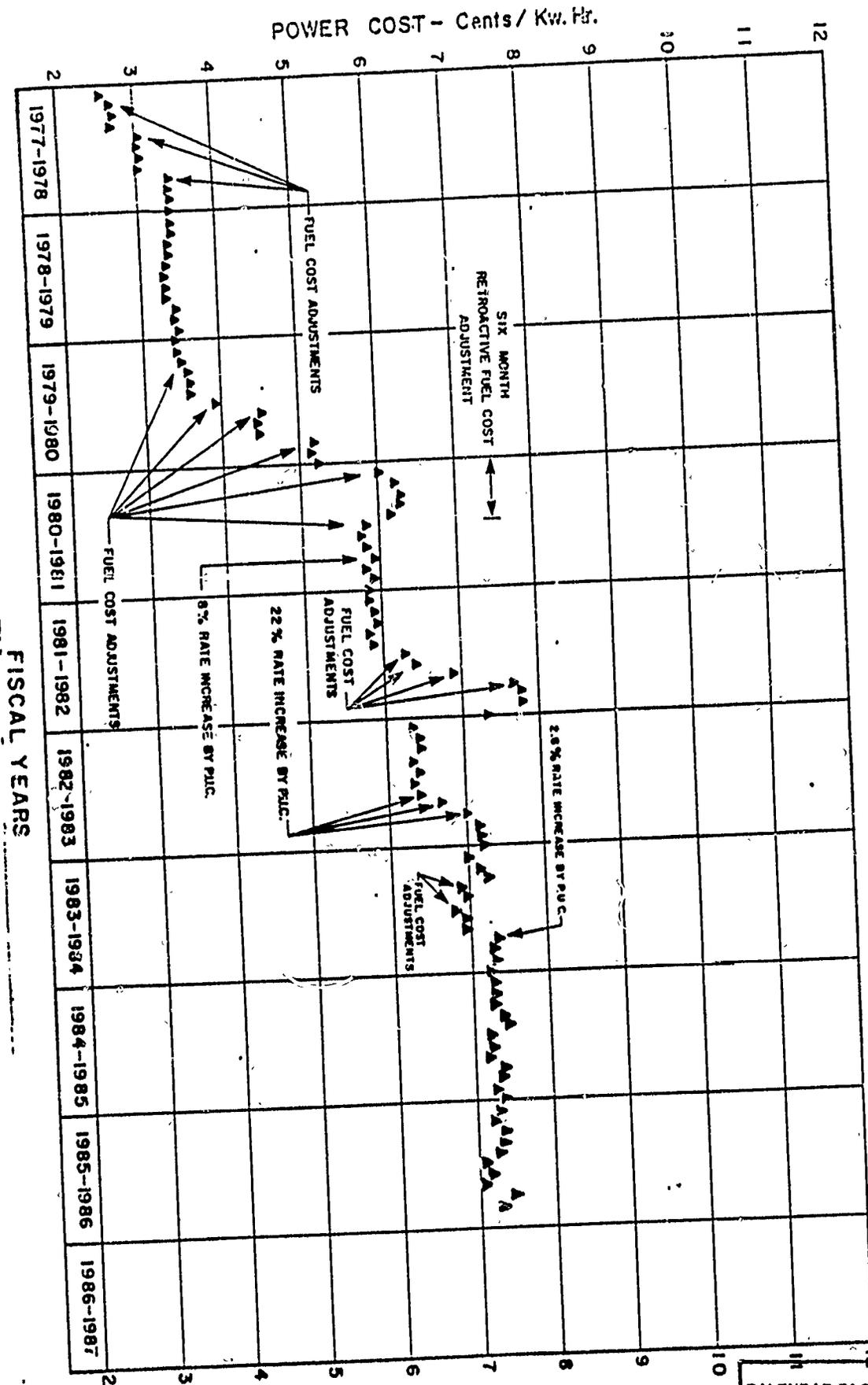
ATTACHMENT 9

LONG BEACH UNIT
ANNUAL
ELECTRICAL ENERGY CHARGES

ELECTRICAL ENERGY COSTS

LONG BEACH UNIT

ATTACHMENT 10

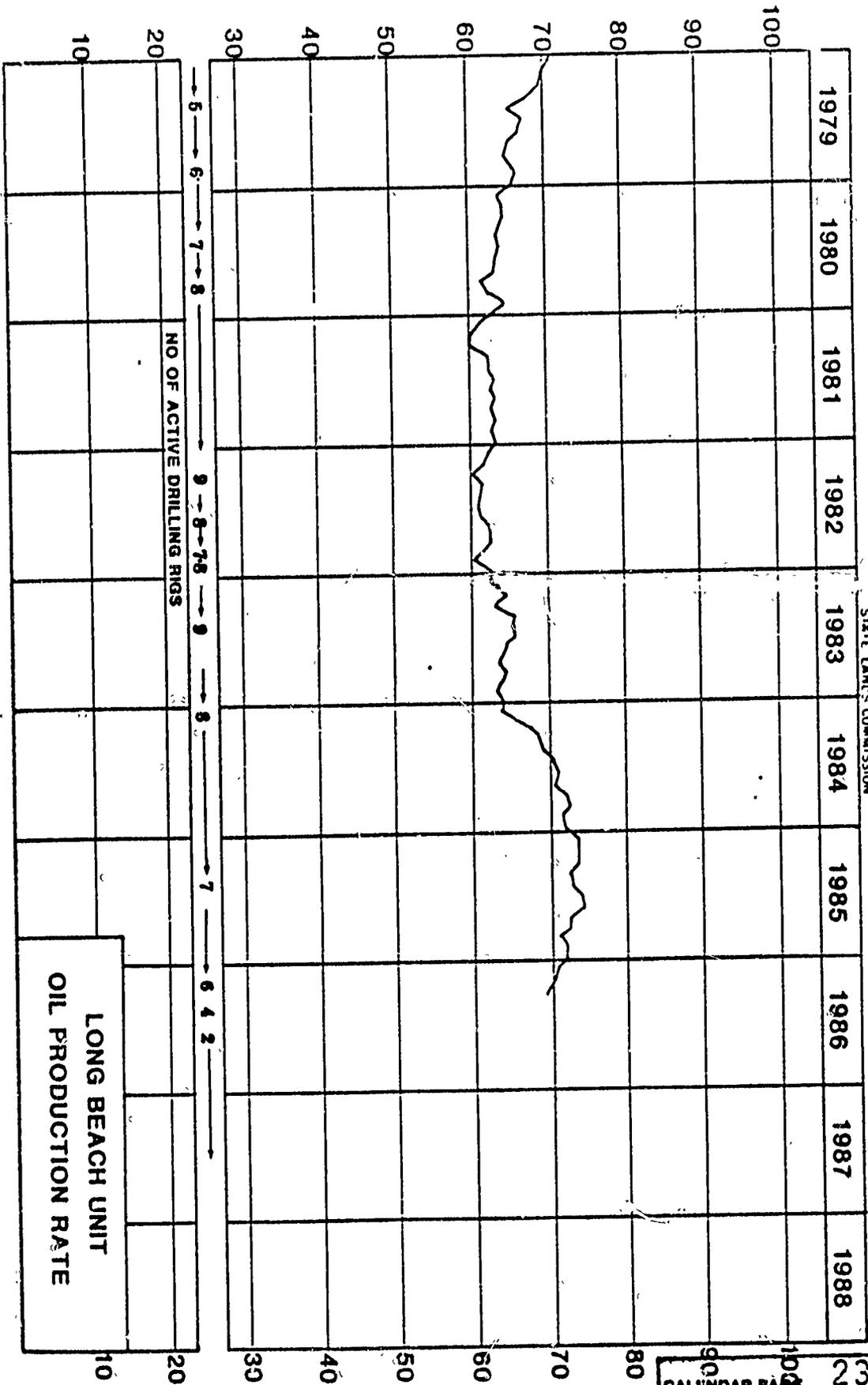


FISCAL YEARS

POWER COST - Cents/Kw. Hr.

POWER COST - Cents/Kw. Hr.

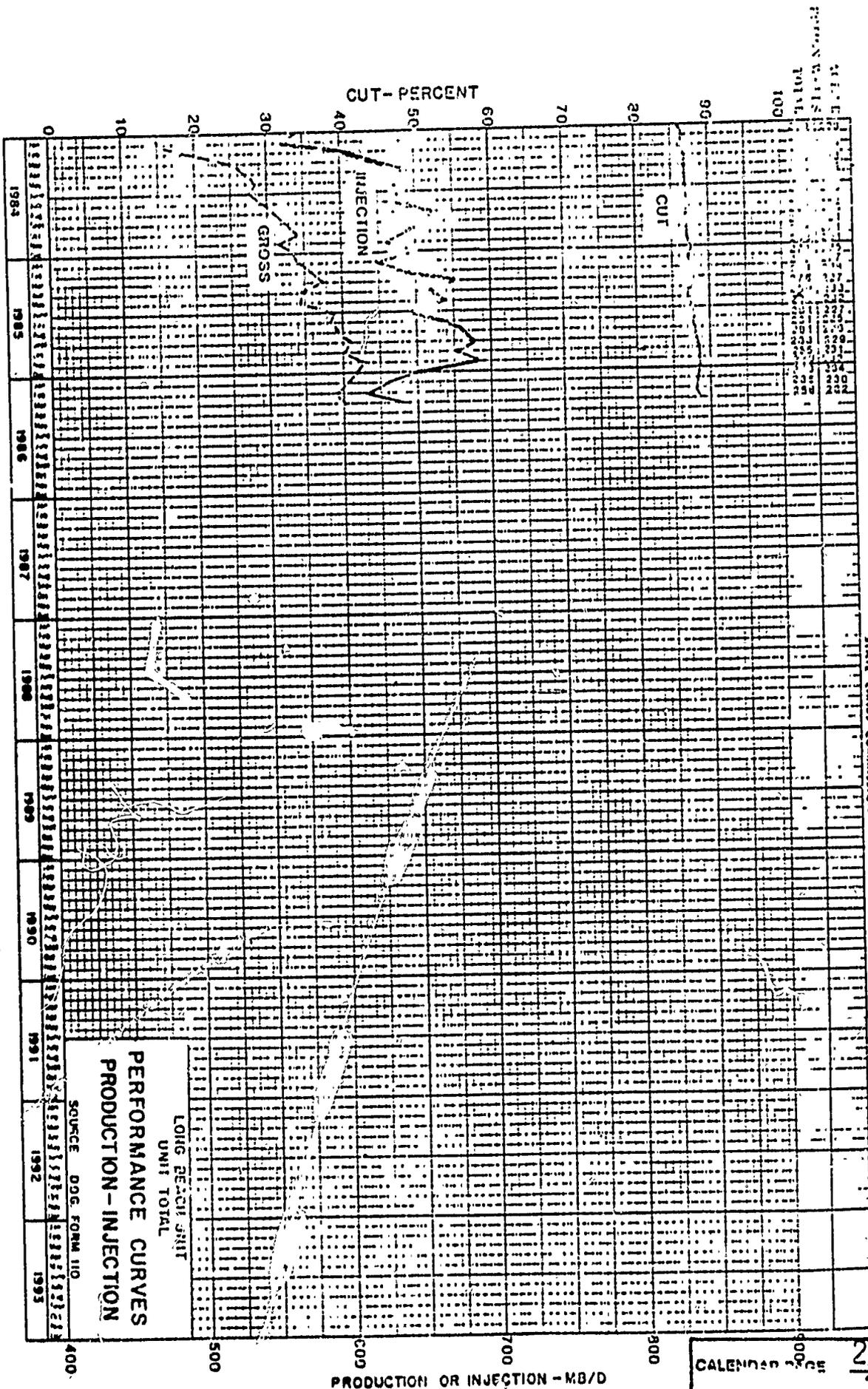
NET OIL PRODUCTION RATE-1000 B/D



STATE OF CALIFORNIA
STATE LANDS COMMISSION

ATTACHMENT 11

LONG BEACH UNIT
OIL PRODUCTION RATE



STATE OF CALIFORNIA
STATE LANDS COMMISSION

LONG BEACH UNIT

ATTACHMENT 12

LONG BEACH UNIT
UNIT TOTAL
PERFORMANCE CURVES
PRODUCTION - INJECTION

SOURCE OGG FORM 110

1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995

PRODUCTION OR INJECTION - MB/D

CALENDAR PAGE 232.37
MINUTE PAGE 1144

CUT - PERCENT

0

10

20

30

40

50

60

70

80

90

100

400

500

600

700

800

900

DATE
PERSON
TOTAL