

Staff Report 53

GRANTEE:

City of Long Beach

PROPOSED ACTION:

Acceptance of the Long Beach Unit Annual Plan (July 1, 2024 through June 30, 2025), Long Beach Unit, Wilmington Oil Field, Los Angeles County.

BACKGROUND:

The City of Long Beach (City), as Unit Operator and Trustee for the State, has submitted its Annual Plan (July 1, 2024, through June 30, 2025) for the Long Beach Unit (LBU) to the Commission, as required by Chapter 138, Statutes of 1964, 1st Extraordinary Session, Chapter 941, Statutes of 1991, and the Optimized Waterflood Program Implementation Agreement (OWPA).

On February 6, 2024, the Long Beach City Council adopted the proposed Annual Plan and authorized formal submission to the Commission. The Commission received the Plan on March 12, 2024. As provided by Chapter 941 and the OWPA, the Commission has 45 days to review the Annual Plan for consistency with the budget parameters of the 5-Year Program Plan, which was ordered to be revised by the Commission on April 7, 2023 ([Item 71, April 7, 2023](#)). On April 12, 2023 the Commission sent a letter requesting the City of Long Beach to revise the Program Plan (Exhibit D). The City prepared a supplement to the 2023-28 Program Plan, which the City provided to the Commission on May 25, 2023 (Exhibit E). Staff conducted a comprehensive analysis of the supplements to the Long Beach Unit (LBU) Program Plan and the Annual Plan on February 7, 2024, and provided constructive feedback to enhance the transparency and completeness of future Program Plans (Exhibit F).

Specifically, the Commission ordered that the City of Long Beach incorporate risk identification and analysis to provide the transparency necessary to evaluate the efficacy of current and future operations including:

- SB 1137;
- CalGEM Injection Gradients;
- Power Plant Operations;
- Commodity Price Volatility;
- Sea Level Rise;
- Environmental Justice;
- Well Abandonment Plan;
- Make-Up Water Sources;
- Social impacts costs and impacts of oil extraction;
- Public health impacts of oil production on local communities, including minority communities (such analysis to reflect collaboration between City and its local health department regarding this issue); and
- Anticipated abandonment and decommissioning costs for the Long Beach Unit and the balance of the oil liability trust fund.

These recommendations were addressed in the various correspondences between the City and the Commission included here as Exhibits D, E, and F. The Commission may only order changes to the Annual Plan budget where the Annual Plan is not consistent with the 5-Year Program Plan. If the Commission orders no changes within 45 days, the Annual Plan is deemed to be reviewed and accepted by the Commission. The Commission's 45-day review period ends April 26, 2024.

PROGRAM PLAN CONSISTENCY:

Pursuant to Section 3 of Chapter 941, the Annual Plan, as submitted, is subject to review by the Commission for consistency with the budget of the current Program Plan. The proposed Annual Plan is a 1-year financial summary submitted by the City covering Fiscal Year 2024-25. It is an itemized budget of anticipated expenditures to carry out the Program Plan objectives. There are five expenditure categories in the Annual Plan: Development Drilling; Operating Expense; Facilities Maintenance and Plant; Unit Field Labor and Administrative; and Taxes, Permits, and Administrative Overhead. The proposed Annual Plan's total budgeted expenditure of \$303.8 million is 3.9 percent lower than the Fiscal Year 2024-25 estimated budget of \$316.0 million set forth in the Program Plan, primarily due to reduced operating expenses. Based on the analysis below, staff believes that the proposed Annual Plan is consistent with the Program Plan.

OIL PRICE FORECAST:

In planning the expenditures needed to accomplish LBU objectives, and the revenues needed to fund those expenditures, the City has used a crude oil price forecast of \$65.0/bbl. This oil price forecast is appropriate for planning as the price for LBU crude oil in February 2024 averaged \$78.0/bbl. The City’s approach for planning purposes is intended to ensure that revenues will be sufficient to pay for the LBU proposed expenditures and still provide net income to the State, Field Contractor, Operator, and the other working interest owners. Estimates prepared by staff for State revenue projections for Fiscal Year 2024-25 use an oil price forecast that reflects the current commodity price environment.

ECONOMIC PROJECTIONS IN ANNUAL PLAN:

The economic projections within the Annual Plan are consistent with the projected operations identified in the 2023-28 Program Plan. For Fiscal Year 2024-25, the City estimates the LBU net income will be \$40.3 million after total expenditures of \$303.8 million. This net income projection is based on the City’s crude oil price forecast of \$65.0 per barrel (bbl) and a natural gas price of \$3.0 per thousand cubic feet (mcf). Most of the net income will be from oil revenues. The City forecasts oil production to average 14,198 bbl/day in Fiscal Year 2024-25. This rate assumes the continuation of development activity to involve a total of 25 wells being re-drilled from existing wellbores over the Annual Plan period.

Fluctuations in oil price, variations in production, or other economic conditions may cause adjustment to expenditure levels and the types of planned development projects. Pursuant to article 2, paragraph 2.07 of the OWPA, the Field Contractor may exceed any budget category in the approved Annual Plan budget up to 120 percent without requiring additional review from the City and the Commission.

Table 1. Annual Plan vs. Program Plan (Fiscal Year 2024-25)

All Figures are in Millions of Dollars

| Key Factors | Program Plan Fiscal Year 2024-25 | Annual Plan Fiscal Year 2024-25 | Percent of Change |
|----------------------------|---|--|------------------------------|
| Average Oil Rate (BBL/day) | 14,700 | 14,200 | -3.4% |
| Expenditure | \$316.0 | \$303.8 | -3.9% |
| Revenue | \$356.0 | \$344.2 | -3.3% |
| Net Profit | \$41.0 | \$40.30 | -1.7% |
| Oil Price \$/BBL | \$65.0 | \$65.0 | 0.0% |

REVIEW OF ANNUAL PLAN:

Because of the significant effects that fluctuating oil price may have on the LBU's budget, capital expense, drilling program, and net revenues, staff will continue to monitor and assess the City and Contractor's work over the next year and to assess the impacts these economic fluctuations may have to LBU operations. Economic variability could result in recommended changes to the next Annual Plan and the Program Plan when they are considered by the Commission during next year's mid-program update.

Staff review indicates that the Annual Plan is consistent with the budget objectives outlined in the Program Plan. The Annual Plan is based on all available engineering and geologic information at the time of preparation. Additionally, staff retains an inspector presence in the field, reviews the analysis of drilling safeguards involving blowout prevention equipment certification, participates in oil spill prevention exercises, and monitors subsidence.

ENVIRONMENTAL AND SAFETY REVIEW:

An initial safety audit of the Long Beach Unit was completed in 2002, as part of an assignment between the Atlantic Richfield Company and Occidental Long Beach, Inc. At the Commission's April 28, 2011 meeting, the Commission ordered changes to the Program Plan to include an updated environmental and safety review and assessment of the LBU, to which the City of Long Beach assented, and directed staff to conduct a second safety audit of the Long Beach Unit ([Item 01, April 28, 2011](#)). That audit was completed in 2013 and found the Long Beach Unit facilities in better condition compared to the previous audit completed in 2002. A third Safety and Oil Spill Prevention Audit of the LBU was completed in 2020 ([Item 40, April 27, 2021](#)). Since the first Audit, the total number of action items has decreased by approximately 81 percent through the last audit in 2019 (down from 3,197 actions items to 601 action items). In the 2019 Safety Audit, seventeen percent of the action items were priority two, moderate risk, and the remaining 83 percent were priority three, low risk. All of the previously identified action items have been resolved, which demonstrates the value of performing these staff-conducted safety audits.

The next Safety and Oil Spill Prevention Audit is expected to begin in early 2025.

The Safety Audits complement the Commission's monthly inspection program by performing technical analyses of safety system design, equipment specifications and condition, and safety management programs that are impracticable to inspect or evaluate on a monthly basis. Together, the monthly inspection and

safety audit programs ensure that the facilities meet the Best Achievable Protection standard mandated by PRC section 8755. These audits are repeated at 5-year intervals by staff engineers on all state oil and gas production facilities.

Overall, the Safety and Pollution Prevention Audits have found the Long Beach Unit facilities, safety systems, and equipment to be of safe design and in good condition, and operations are based on sound engineering principles that conform to good oil field practice.

OTHER PERTINENT INFORMATION:

1. This action is consistent with the “Meeting Evolving Public Trust Needs” Strategic Focus Area of the Commission’s 2021-2025 Strategic Plan.
2. Acceptance of the Long Beach Unit Annual Plan is not a project in accordance with the California Environmental Quality Act because it is an administrative action that will not result in direct or indirect physical changes in the environment.

Authority: Public Resources Code section 21065 and California Code of Regulations, title 14, sections 15378, subdivision (b)(5).

EXHIBITS:

- A. Letter from the City of Long Beach submitting the Long Beach Unit Annual Plan (July 1, 2024 – June 30, 2025) to the California State Lands Commission
- B. Long Beach Unit Annual Plan (July 1, 2024 through June 30, 2025)
- C. Oil Price Comparison (Graph and Average Price Chart 2019-24)
- D. Letter from the Commission to the City of Long Beach dated April 12, 2023, Ordered Revision of the Long Beach Unit Program Plan (July 1, 2023 through June 30, 2028) and Annual Plan (July 1, 2023 through June 30, 2024)
- E. Letter from the City of Long Beach dated May 25, 2023, Ordered Revisions of and Supplements to the Long Beach Unit Program Plan (July 1, 2023 through June 30, 2028) and Annual Plan (July 1, 2023 through June 30, 2024)
- F. Letter from the Commission to the City of Long Beach dated February 7, 2024, Staff Analysis of Supplements to the Long Beach Unit Program Plan (July 1, 2023 through June 30, 2028) and Annual Plan (July 1, 2023 through June 30, 2024)

RECOMMENDED ACTION:

It is recommended that the Commission:

AUTHORIZATION:

1. Accept the Long Beach Unit Annual Plan (July 1, 2024 through June 30, 2025), Long Beach Unit, Wilmington Oil Field, Los Angeles County.

CITY OF
LONG BEACH
ENERGY RESOURCES

2400 EAST SPRING STREET • LONG BEACH, CA 90806
(562) 570-2000 • www.longbeach.gov

March 12, 2024

Mr. Peter Regan
Division of Mineral Resources Management
California State Lands Commission
301 E. Ocean Blvd., Suite 550
Long Beach, CA 90802-4331

SUBJECT: SUBMISSION OF THE LONG BEACH UNIT ANNUAL PLAN (JULY 1, 2024 - JUNE 30, 2025)

Dear Mr. Regan,

The City of Long Beach, as Unit Operator of the Long Beach Unit, and in accordance with Chapter 138, Section 5, Chapter 941, Section 3, and the Agreement for Implementation of an Optimized Waterflood Program for the Long Beach Unit, Article 2, submits one copy of the Long Beach Unit Annual Plan (July 1, 2024 through June 30, 2025).

The Plan was approved by the Long Beach City Council on February 6, 2024. If you have any questions, please contact Mr. Scott Biagiotti at (562) 570-3947.

Sincerely,



Robert Dowell, Director
Long Beach Energy Resources Department

BD:kmt

Enclosures

cc: J. Lucchesi, California State Lands Commission
D. Persinger, California Resources Long Beach, Inc.
R. Anthony, City of Long Beach

EXHIBIT B

W 17166

Long Beach Unit THUMS Long Beach Company (Agent for Field Contractor)



ANNUAL PLAN

July 1, 2024 through June 30, 2025



ANNUAL PLAN

July 1, 2024 through June 30, 2025

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Part I – Introduction

This Annual Plan (“Plan”) was developed to reflect anticipated activity levels during the fiscal period from July 1, 2024 through June 30, 2025 (“FY25”). It is being submitted as required by Section 5(a) of Chapter 138, Statutes of 1964, First Extraordinary Session, and as revised by passage of Assembly Bill 227 (Chapter 941, Statutes of 1991) and the Optimized Waterflood Program Agreement executed by the State of California, the City of Long Beach, and California Resources Long Beach, Inc. (“CRC”), the Field Contractor.

This Plan provides for drilling, producing, water injection, and other associated activities from offshore and onshore locations. The budget for these activities is grouped into the following five major categories:

| Plan Category | Fiscal Year 2025 (\$ Million) |
|---|--|
| Development Drilling | \$ 50.3 |
| Operating Expense | \$ 129.0 |
| Facilities, Maintenance, and Plant | \$ 50.2 |
| Unit Field Labor and Administrative | \$ 41.6 |
| Taxes, Permits, and Administrative Overhead | \$ 32.7 |
| Total | \$ 303.8 |

A. Plan Basis

This Plan was developed based on the parameters outlined in the Program Plan for the period July 2023 through June 2028 and provides current and updated estimates of volumes, activity levels and expenditures for FY25. Additional details can be found in the Program Plan document.

Volumes

Oil and gas production volumes are predicted to average 14.2 Mbopd and 6.7 MMcfpd, respectively, in FY25. Water production for the period is expected to average 1,010 Mbwpd and water injection is expected to average 1,035 Mbwpd.

Revenue and Expenses

A projected realized oil price of \$65/bbl and gas price of \$3.00/mcf are expected to result in revenues of \$344.2 million. Budgeted expenses for FY25 total \$303.8 million. Projected net profit in FY25 is \$40.3 million.

Drilling

This Plan is based upon 25 replacement wells planned from existing cellars. The Plan sets a drilling pace equivalent to approximately 1 drilling rig over the fiscal year. The rig utilization could potentially change due to variations in oil price and program performance and additional funding might be required during the fiscal year. Workover rigs will perform drilling preparation and completion work.

The locations of production and injection wells are consistent with those given in the Program Plan (see attached Part II, Schedule 1B). Injection support for the drilling program will be provided through a combination of capital workovers (add pays and conversions), return to injection of idle injectors, and drill injectors. As per current operational and regulatory practices, injection support will continue to maintain adequate Injection-to-Gross (I/G) ratios to prevent subsidence and improve waterflood sweep efficiency.

Maintenance

The majority of the facility projects anticipated during the Plan period are required to maintain current equipment capabilities or to increase efficiency of current operations. Other projects are planned to take advantage of technological and

other improvement opportunities and to address changes in the oil field operating environment.

CRC has a Mechanical Integrity and Quality Assurance (“MIQA”) program to assess and maintain facility equipment and piping in order to ensure safety of personnel, operations, and/or the environment. The MIQA program is designed to meet internal and regulatory requirements and provide a high level of equipment integrity to reduce risk and increase reliability. Key elements include:

- Identification, evaluation, and determination of critical equipment and/or process components (i.e. their failure or malfunction could adversely affect the safety of personnel, operations, and/or the environment).
- A process to ensure equipment and components comply with material specifications, design and construction codes or standards thus providing a measure of safety and reliability.
- Methodologies for inspecting, testing and maintaining the equipment and documenting such action.

The MIQA program is an integral piece of the overall flow of maintenance, from inspection/testing through maintenance and, when necessary, repairs or replacement. The program is supported through the use of a comprehensive database and work order system that provides control and management of all maintenance activities.

Projects will be undertaken to repair or replace equipment that is nearing its useful life. Items needing to be repaired or replaced include, but are not limited to, facilities piping, tanks, and vessels. These projects are consistent with past activities to keep the Long Beach Unit (“Unit”) facilities in safe operating condition.

Abandonment

Wells and facilities with no further economic use will be abandoned to reduce the long-term Unit liability. This Plan provides funds for plugging wells to surface, in-zone, and conditional abandonments to maintain compliance with the CalGEM Idle Well Management Plan program (PRC 3206).

Safety, Environmental, and Regulatory Compliance

CRC is committed to conducting all aspects of its business in a manner that provides for the safety and health of employees, service providers and the public, and safeguards the environment in which it operates. Key aspects of the safety program includes incident reporting and investigation, safety meetings and training, Management of Change, Process Hazard Reviews, emergency response planning and drills, and a behavior-based safety observation program, PSM and OSHA safety training.

Key aspects of the environmental program include compliance with applicable laws and regulations, including South Coast Air Quality Management District (SCAQMD) requirements, CalGEM regulations, waste management and disposal requirements, PHMSA/DOT pipeline management regulations, Spill Prevention Plans (SPCC) and Business Emergency Plans.

The effectiveness and compliance of the above programs are assessed through various internal audit programs. In addition, numerous agencies conduct periodic audits, including the CA State Lands Commission, Department of Transportation (DOT), State Fire Marshal, SCAQMD, Environmental Protection Agency, Long Beach Fire and Health Departments, Port of Long Beach and City of Long Beach Energy Resources Department.

Certification and demonstration of proficiency of the Spill Management Team (SMT) was a new requirement for 2023. CRC conducted the annual oil spill drill in June 2023 and received the certification of their Spill Management Team by OSPR.

Emergency response planning and preparedness is bolstered by partnering with Marine Spill Response Corporation (MSRC). MSRC is an independent, non-profit, national spill response company dedicated to rapid response to environmental incidents. MSRC has a major west coast base of operations in the Port of Long Beach and its equipment and expertise are readily available for emergencies and are incorporated in onsite training exercises. The training exercises also involve a close working relationship with the United States Coast Guard and the California Department of Fish and Wildlife.

Environmental and community outreach is also a fundamental part of THUMS program and each of the Islands is currently certified by the Wildlife Habitat Council. In 2024 and beyond, both the Unit and CRC will continue to review opportunities to further this stewardship effort.

Projects relating to safety, environmental issues, or other situations necessary for meeting compliance with code, permit, or regulatory requirements will continue to be implemented under this Plan in accordance with all Unit agreements. In addition, CRC places additional emphasis on risk and system reviews and operational safeguards to assure reliable and compliant environmental performance.

In 2022, Senate Bill 1137 (SB 1137) was proposed to California legislation. SB 1137 prohibits most new or modified oil and gas wells within 3,200 feet of specific locations. It also requires existing wells in these areas to meet specified health, safety, and environmental requirements. The bill passed the California State Assembly and California State Senate in late August and was signed into law in September. A referendum challenging the law collected enough signatures to stay the law until the next general election in 2024 where the public will vote on the bill. If the bill becomes a law, it will likely adversely affect the development plans and maintenance on wells that require permitted operations on wells in Island Grissom, Island White, and Pier J. Incremental operating costs are also anticipated due to the additional monitoring requirements of the law.

Economic Review

Project expenditures during the Plan period are subject to economic review through the Determination and Authority for Expenditure (“AFE”) processes. All existing wells are frequently reviewed in light of changing crude prices to determine if they are economic to operate. Well servicing work is justified on economics and other conditions consistent with good engineering, business, and operating practices. CRC remains committed to careful prevention of subsidence through strict adherence to existing regulations and voidage-driven injection requirements.

B. Economic Projections

| Data in Millions of Dollars | FIRST QUARTER FY25 | SECOND QUARTER FY25 | THIRD QUARTER FY25 | FOURTH QUARTER FY25 | BUDGET TOTAL FY25 |
|--------------------------------------|--------------------------|---------------------------|--------------------------|---------------------------|-------------------------|
| <u>ESTIMATED REVENUE</u> | | | | | |
| Oil Revenue | \$85.4 | \$85.2 | \$82.9 | \$83.3 | \$336.9 |
| Gas Revenue | \$1.9 | \$1.8 | \$1.8 | \$1.8 | \$7.3 |
| TOTAL REVENUE | \$87.2 | \$87.1 | \$84.7 | \$85.2 | \$344.2 |
| <u>ESTIMATED EXPENDITURES</u> | | | | | |
| Development Drilling | \$13.6 | \$12.5 | \$11.4 | \$12.9 | \$50.3 |
| Operating Expense | \$33.4 | \$31.8 | \$32.4 | \$31.3 | \$129.0 |
| Facilities & Maintenance | \$11.4 | \$13.0 | \$13.4 | \$12.4 | \$50.2 |
| Unit Field Labor & Administration | \$9.1 | \$8.9 | \$16.5 | \$7.1 | \$41.6 |
| Taxes, Permits & Overhead | \$9.4 | \$6.9 | \$9.4 | \$6.9 | \$32.7 |
| TOTAL EXPENDITURES | \$77.0 | \$73.1 | \$83.2 | \$70.6 | \$303.8 |
| <u>NET PROFIT</u> | \$10.3 | \$14.0 | \$1.5 | \$14.6 | \$40.3 |

C. Major Planning Assumptions

| | FIRST QUARTER FY25 | SECOND QUARTER FY25 | THIRD QUARTER FY25 | FOURTH QUARTER FY25 | BUDGET TOTAL FY25 |
|--------------------------------|--------------------------|---------------------------|--------------------------|---------------------------|-------------------------|
| <u>OIL PRODUCTION</u> | | | | | |
| PRODUCED (1000 BBL) | 1,314 | 1,311 | 1,275 | 1,282 | 5,182 |
| (AVERAGE B/D) | 14,280 | 14,252 | 14,169 | 14,091 | 14,198 |
| <u>GAS PRODUCTION</u> | | | | | |
| PRODUCED (1000 MCF) | 617 | 616 | 599 | 603 | 2,436 |
| (AVERAGE MCF/D) | 6,712 | 6,698 | 6,660 | 6,623 | 6,673 |
| <u>WATER PRODUCTION</u> | | | | | |
| PRODUCED (1000 BBL) | 92,501 | 92,942 | 91,009 | 92,128 | 368,580 |
| (AVERAGE B/D) | 1,005,442 | 1,010,242 | 1,011,214 | 1,012,397 | 1,009,809 |
| <u>WATER INJECTION</u> | | | | | |
| INJECTED (1000 BBL) | 94,813 | 95,266 | 93,284 | 94,431 | 377,795 |
| (AVERAGE B/D) | 1,030,578 | 1,035,498 | 1,036,494 | 1,037,707 | 1,035,054 |
| OIL PRICE (\$/BBL) | \$65.00 | \$65.00 | \$65.00 | \$65.00 | \$65.00 |
| GAS PRICE (\$/MCF) | \$3.00 | \$3.00 | \$3.00 | \$3.00 | \$3.00 |

D. Net Profit Pricing Scenario

In Millions USD (\$MM)

| Pricing Scenario | Net Profit |
|-----------------------------|------------|
| \$85/bbl oil, \$3/Mmbtu gas | \$ 144 |
| \$75/bbl oil, \$3/Mmbtu gas | \$ 92 |

Part II – Program Plan Schedules

Schedule 1A

Range of Production and Injection

Fiscal Year 25

Long Beach Unit Program Plan, July 2023-June 2028

| FISCAL YEAR | RANGE OF PRODUCTION AND INJECTION RATES | | | |
|-------------|---|-------------|------------|-----------------|
| | OIL MBOPD | WATER MBWPD | GAS MMCFPD | INJECTION MBWPD |
| 2025 | 13.2 - 14.9 | 939 - 1,060 | 6.2 - 7.0 | 963 - 1,087 |

| FISCAL YEAR | RANGE OF INJECTION PRESSURES | | | |
|-------------|------------------------------|------------|--------------|----------------|
| | TAR PSI | RANGER PSI | TERMINAL PSI | U. P./FORD PSI |
| 2025 | 1500 | 2500 | 2500 | 2500 |

Schedule 1B

Anticipated Redrill Completions

Fiscal Year 25

Long Beach Unit Program Plan, July 2023-June 2028

| | Producers | | | | |
|------------------|------------------|--------------|----------------|----------------|---------------|
| Reservoir | Grissom | White | Chaffee | Freeman | Pier J |
| Tar | 0 | 0 | 0 | 0 | 1 |
| Ranger | 0 | 16 | 0 | 4 | 4 |
| Terminal | 0 | 0 | 0 | 0 | 0 |
| UP Ford | 0 | 0 | 0 | 0 | 0 |
| | Total | | | | |
| | 25 | | | | |

| | Injectors | | | | |
|------------------|------------------|--------------|----------------|----------------|---------------|
| Reservoir | Grissom | White | Chaffee | Freeman | Pier J |
| Tar | 0 | 0 | 0 | 0 | 0 |
| Ranger | 0 | 0 | 0 | 0 | 0 |
| Terminal | 0 | 0 | 0 | 0 | 0 |
| UP Ford | 0 | 0 | 0 | 0 | 0 |
| | Total | | | | |
| | 0 | | | | |

Part III – Itemized Budget of Expenditures

A. Development Drilling \$50.3MM

The Development Drilling category of expenditures encompasses all replacement well drilling activity, as well as maintenance and replacement of drilling equipment within the Unit. Funds for development drilling are based on the assumption that 25 wells will be developed during the Plan year using a drilling pace equivalent to approximately 1 drilling rig. Additional funding might be required during the year for any incremental drilling activity.

Drilling and completing wells account for majority of the funding provided in this category. Included in these activities is funding for rig move-in, drilling and casing, completion activities, drilling rig in-zone plugs and conditional abandonments, and unscheduled activity (fishing operations, cement squeezing, special logging, contract drilling services).

Exact specifications regarding the distribution of wells, bottom hole locations, and completion intervals will be determined by CRC. These decisions will be influenced by contributions from reservoir engineering personnel, results from ongoing engineering studies, and well performance. This information will be reviewed and approved in accordance with the various Unit agreements during regularly scheduled meetings.

B. Operating Expense \$129.0MM

The Operating Expense category of expenditures encompasses the ongoing costs of day-to-day well production and injection operations necessary for producing, processing, and delivering crude oil and gas, and for all electric power charges. Expenses for this category are based on estimated oil production of 14.2 Mbopd, estimated gas production of 6.7 MMcfpd, water injection requirement of 1,035 Mbwpd, and water production of 1,010 Mbwpd. Anticipated operating expenses were based on operating four workover rigs per month for servicing an average active well count of 670 producers and 390 injectors. These rigs will also be used for the completion of investment wellwork projects. Funding for idle well testing is also included under this category.

The day-to-day costs for production and injection well subsurface operations represent approximately 30 percent of the funding provided in this category.

Included are funds for recompletions, routine well work, well conversions, in-zone plugs, conditional abandonments, and other charges incurred for well maintenance.

Electricity makes up approximately 70 percent of the funds in this category. This cost includes all sources of Unit electrical power, including costs associated with the power plant and electric utility purchases.

C. Facilities, Maintenance, and Plant \$50.2MM

The Facilities, Maintenance, and Plant category of expenditures encompasses costs for maintenance, repairs, upgrades, additions of surface facilities and pipelines, and costs for general field services.

Approximately 40 percent of the funding in this category is for general field and operating costs. This includes, but is not limited to, charges for general labor, equipment rentals, and materials for general maintenance (painting, welding, electrical, etc.) of all Unit systems, such as oil gathering, treating, storage, and transfer; gas gathering and treating; scale and corrosion control; produced water handling; waste disposal; leasehold improvements; electrical system; fresh water system; fire protection and safety; marine operations; and automotive equipment. Funds are also provided for chemical purchases and laboratory-related charges for chemical treatment of produced and injected fluids; gas processing charges; make-up water; security; transportation; small tools; and other miscellaneous field activities.

Approximately 30 percent of the funding in this category is for facility repair and minor projects. The majority of the facility repair and project investment is on the Tank and Vessel maintenance program and the remaining investment is focused on inspection, maintenance and repair in support of the MIQA program. This work includes regulated pipeline inspection surveys and evaluation, inspection and repair of cathodic protection systems, and infrastructure piping integrity inspections not covered by regulatory control. Projects include expenditures related to replacement or relocation of existing piping, electric cables and infrastructure, rotating equipment and other infrastructure related investments.

D. Unit Field Labor and Administrative \$41.6MM

The Unit Field Labor and Administrative category of expenditures encompasses costs for Unit personnel and other Unit support activities.

Funding for Unit personnel includes costs of salaries, wages, benefits, training, and expenses of CRC employees. These costs represent approximately 90 percent of the category total.

Funding for Unit support activities includes, but is not limited to, costs for professional and temporary services necessary for the completion of support activities; charges for data processing; computer hardware and software; communications; office rent; general office equipment and materials; drafting and reprographic services; DOT drug and alcohol testing; special management projects; and other miscellaneous support charges.

E. Taxes, Permits, and Administrative Overhead \$32.7 MM

The Taxes, Permits, and Administrative Overhead category of expenditures includes funds for specific taxes, permits, licenses, land leases, and all administrative overhead costs for the Unit.

Funding is provided for taxes levied on personal property, mining rights, and oil production; Petroleum and Gas Fund Assessment; annual well permits and renewals; Conservation Committee of California Oil and Gas Producers Assessment; California Oil Spill Response, Prevention, and Administration fee; land leases; and pipeline right-of-way costs. These costs represent approximately 57 percent of the category total.

Funding is also provided in this category for all Administrative Overhead (including Unit Operator billable costs and CRC billable costs) as called for in Exhibit F of the Unit Operating Agreement.

Part IV – Definitions

This Annual Plan may be Modified or Supplemented after review by the State Lands Commission for consistency with the current Program Plan. All Modifications and Supplements to this plan will be presented by the Long Beach Energy Resources Department, City of Long Beach, acting with the consent of CRC, to the State Lands Commission in accordance with Article 2.06 of the Optimized Waterflood Program Agreement.

In addition, on or before October 1, 2025 the City of Long Beach shall present to the State Lands Commission a final report and closing statement of the FY25 Annual Plan, in accordance with the provision in Section 10 of Chapter 138.

A. Modifications

The City of Long Beach, acting with the consent of CRC, has the authority to cause the expenditures of funds for Unit Operations in excess of the amount set forth in the budget included in the Annual Plan, provided, however, that no such expenditure shall be incurred that would result in any category of expenditures set forth in the budget to exceed 120 percent of the budgeted amount for that category. A budget modification would be required for any expenditures which would cause a budget category to exceed its budgeted amount by 120 percent.

Any transfer of funds between budget categories or an augmentation or decrease of the entire budget may be accomplished by a budget modification in accordance with section 5(g) of Chapter 138 and Article 2.06 of the Optimized Waterflood Program Agreement.

Investment, facilities, and management expense projects commenced in prior budget periods, which are to be continued during the current budget period, may be added to this budget by a modification in accordance with Article 2.06 of the Optimized Waterflood Program Agreement.

B. Supplements

This Annual Plan contains all the investment and expense projects reasonably anticipated at the time the Plan was drafted and for which adequate detailed studies existed. Any significant and uncommon expenses not originally

contemplated may be added to this budget or transferred by a supplement in accordance with Article 2.06 of the Optimized Waterflood Program Agreement. The amount of the supplement shall include sufficient funds to complete the projects.

C. Final Report and Closing Statement

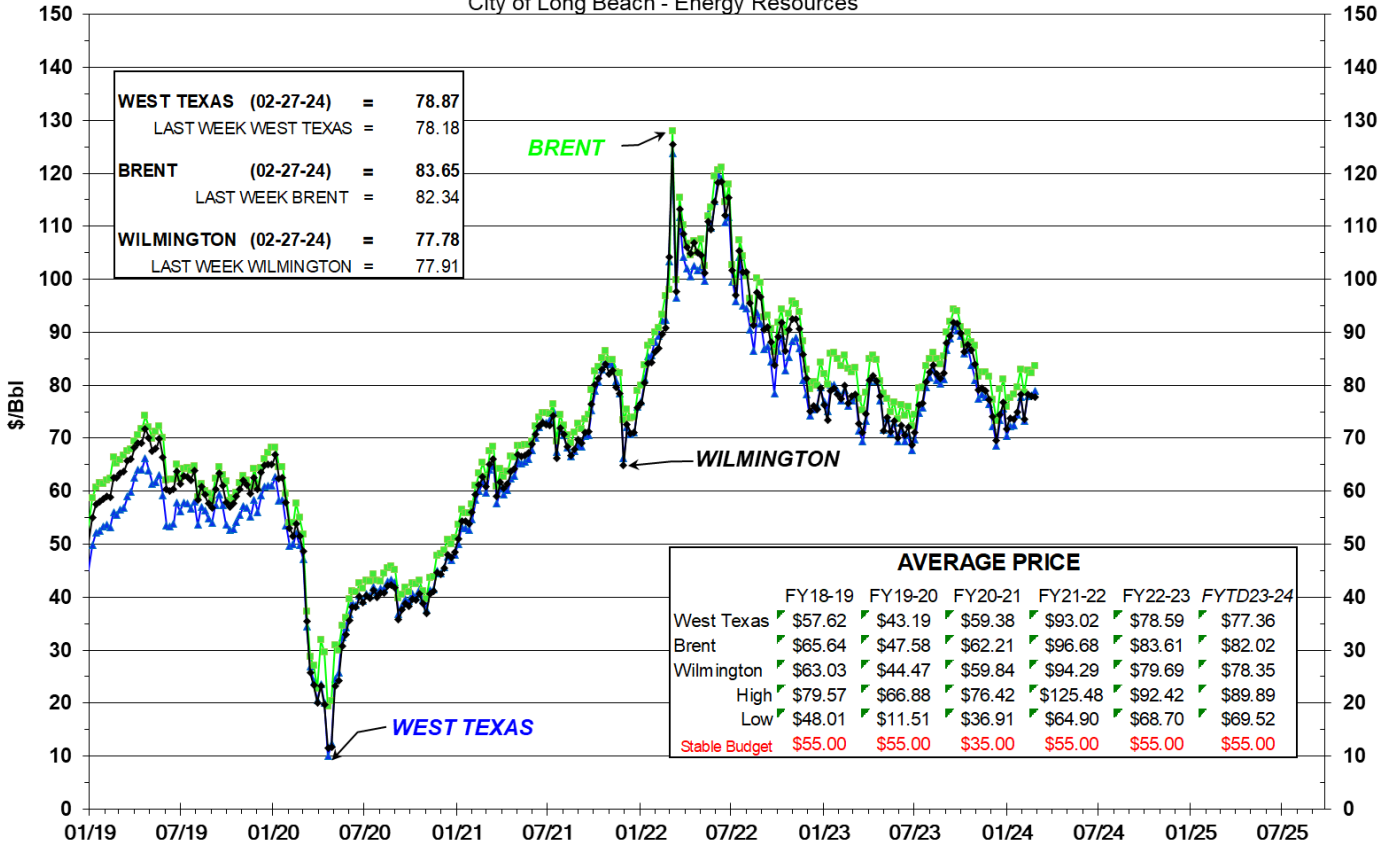
The final report and closing statement for FY25 shall contain a reconciliation by category as finally modified and the actual accomplishments, including:

1. Redrill completions by zone,
2. Facilities and capital projects,
3. Production by zone,
4. Injection by zone.

EXHIBIT C

W 17166

Oil Price Comparison City of Long Beach - Energy Resources



STATE OF CALIFORNIA

Exhibit D

GAVIN NEWSOM, Governor

CALIFORNIA STATE LANDS COMMISSION

301 E. Ocean Blvd., Suite 550
Long Beach, CA 90802-8833



Established in 1938

JENNIFER LUCCHESI, Executive Officer

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Contact Fax: 562.432.6035

April 12, 2023

File Ref: W 17166

Mr. Robert Dowell, Director
Long Beach Energy Resources
City of Long Beach
2400 East Spring Street
Long Beach, CA 90806

Subject: Ordered Revision of the Long Beach Unit Program Plan (July 1, 2023 through June 30, 2028) and Annual Plan (July 1, 2023 through June 30, 2024)

Dear Mr. Dowell:

On April 7, 2023, the Commission ordered revisions to the Long Beach Unit Program Plan (July 1, 2023 through June 30, 2028) and Annual Plan (July 1, 2023 through June 30, 2024), Long Beach Unit, Wilmington Oil Field, Los Angeles County. In addition to the eight risks identified by staff and detailed in the Staff Report and staff presentation that must be analyzed in the revision, the Commission's motion to order the revisions also included that the Program and Annual Plans be revised to address three additional issues. Consistent with the Commission's unanimous order, please revise the Program Plan and Annual Plan to incorporate risk identification and analysis to provide the transparency necessary to evaluate the efficacy of current and future operations including:

- 1) SB 1137;
- 2) CalGEM Injection Gradients;
- 3) Power Plant Operations;
- 4) Commodity Price Volatility;
- 5) Sea Level Rise;
- 6) Environmental Justice;
- 7) Well Abandonment Plan;
- 8) Make-Up Water Sources;

Mr. Robert Dowell
April 12, 2023
Page 2

- 9) Social costs and impacts of oil extraction;
- 10) Public health impacts of oil production on local communities, including minority communities (such analysis to reflect collaboration between City and its local health department regarding this issue); and
- 11) Anticipated abandonment and decommissioning costs for the Long Beach Unit and the balance of the oil liability trust fund.

These revisions are necessary to assure the Program Plan is: 1) is consistent with good oil field practice, (2) is consistent with the optimized waterflood program, (3) is consistent with the Long Beach Unit and Unit Operating Agreements, and (4) does not involve significant safety or environmental risk. The Annual Plan must be revised for consistency with the Program Plan as ordered to be revised.

If you would like a copy of the Staff Report, you may retrieve one at the Commission's website at [Item 71, April 7, 2023](#). Additionally, you can view the Commission's deliberation and adopted motion through the recorded webcast at https://cal-span.org/meeting/cslc_20230407/. Should you have any questions, please contact Jalal Abedi at 562.590.5208 or via email jalal.abedi@slc.ca.gov.

Sincerely,

DocuSigned by:

AEC65FD2888147B...

Peter Regan
Assistant Chief
Mineral Resources Management Division

cc: Jennifer Lucchesi, Executive Officer

Mr. Robert Dowell
April 12, 2023
Page 3

bcc: S. Meshkati
J. Abedi
S. Blackmon, Legal
M. Wiemer, Legal
J. Fabel, Legal
C. Workman, Legal

May 25, 2023

Peter Regan
Assistant Chief – Mineral Resources Management Division
California State Lands Commission
301 E Ocean Boulevard, Suite 550
Long Beach, CA 90802-8833

**Subject: Ordered Revisions of and Supplements to the Long Beach Unit
Program Plan (July 1, 2023 through June 30, 2028) and Annual Plan
(July 1, 2023 through June 30, 2024)**

Your letter dated April 12th ordered certain revisions and supplements to the Long Beach Unit Program Plan (July 1, 2023 through June 30, 2028) and Annual Plan (July 1, 2023 through June 30, 2024), Long Beach Unit, Wilmington Oil Field, Los Angeles County. These included eight risks identified by staff and detailed in the SLC's Staff Report and three additional issues included in the Commission's unanimous order.

The accompanying supplement is provided to incorporate the risk identification and analysis for each of the eleven issues identified in your letter. I trust that you will find this both responsive and insightful about the Long Beach Unit operations.

Sincerely,



Robert M. Dowell
Director of Energy Resources

Attachment

cc: Thomas Modica: City Manager - City of Long Beach
Linda Tatum: Assistant City Manager – City of Long Beach
Richard Anthony: Principal Deputy City Attorney - City of Long Beach
Shahed Meshkati: Chief - Planning & Development – California State Lands Commission
Jonathan Hilton: Vice President Coastal Operation - California Resources Corporation
Scott Biagiotti: Oil Operations Manager - Long Beach Energy Resources

Introduction

The Long Beach Unit (LBU or Unit) refers to oil and gas extraction operations on four man-made Oil Islands and Pier J that have supplied a portion of resident energy needs since the 1960's. Today, natural resources produced from the LBU represent approximately two-thirds of citywide oil production and an estimated 1.1% of statewide oil and gas demand.¹ Furthermore, their visibility offshore, history, and their important role in secure, affordable infrastructure makes the LBU operations a point of public interest.

The ensuing information is in response to the eleven issues raised by the State Lands Commission (SLC) during its review of the City of Long Beach's (City) LBU Program Plan (July 1, 2023 through June 30, 2028) and Annual Plan (July 1, 2023 through June 30, 2024). This is intended to supplement the published documents and, moreover, frames the manner in which the LBU operations fit into the overall challenge of meeting California's energy and natural resource demands.

SB 1137

Since the 1970's when California adopted its Environmental Quality Act (CEQA), local agencies have considered health impacts of building houses, schools, and businesses adjacent to California's oil fields. This means that for specific proposed projects, qualified professionals assessed potential health impacts of developing land next to producing oil wells and associated facilities.

Similarly, proposed oil and gas development plans also underwent health impact assessments to scrutinize potential impacts on neighboring land uses. Examples of this are the "Inglewood Oil Field Communities Health Assessment" dated February 2011 by Los Angeles County Department of Public Health and "Health Impact Assessment – E&B Oil Drilling and Production Project" dated September 2014 by Intrinsik for the City of Hermosa Beach.

In each case, project-specific settings were examined and tailored mitigation measures, where needed, were put into place. This means that the very communities who balance realistic energy needs with housing and community facility needs make local decisions about protective measures of compatibility.

That project-specific approach to land use compatibility and setbacks between oil and gas facilities and other land uses endured for decades. Then in 2017, the state legislature enacted AB 617, the Community Air Protection Program whose focus is to "reduce exposure in communities most impacted by air pollution". One year later, the California Air Resources Board rolled out a program under AB 617 known as the Study of Neighborhood Air near Petroleum Sources (SNAPS) to conduct "limited-term, intensive air quality monitoring with a particular focus on production facilities". Information gathered

¹ Long Beach Unit oil production for 2021 averaged 15,255 bopd as compared to statewide demand of 1.44 million bopd.

in SNAPS monitoring was to measure air pollution contributions associated with oil and gas production and, if needed, advise on setbacks or other mitigation measures needed to address emissions.

Only one location has undergone SNAPS monitoring as of this writing, Lost Hills located in Kern County. The monitoring reported on volatile organic carbon measurements drew no conclusions about causal effects linked to oil and gas production or any other specific activity.

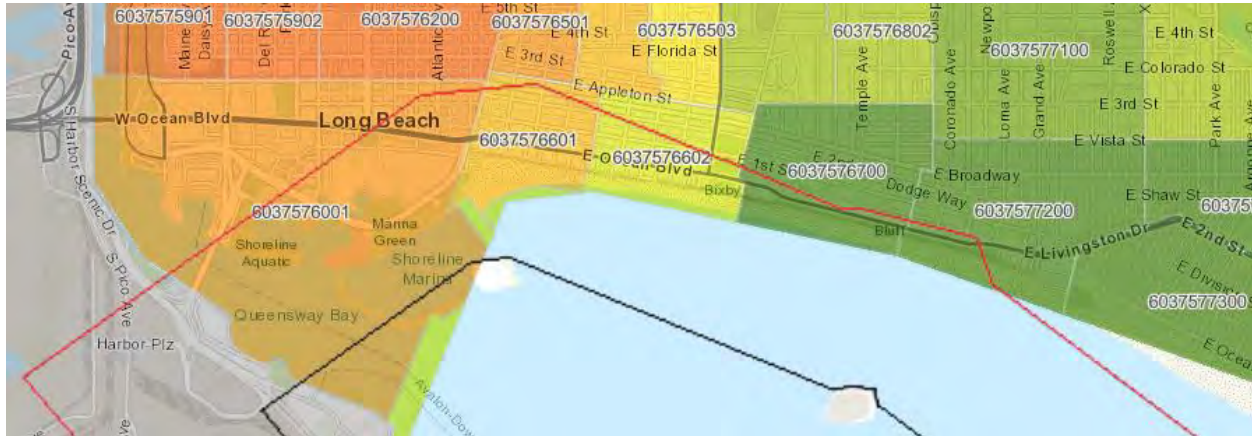
On September 16, 2022, the Governor of California signed into law Senate Bill No. 1137 (SB 1137), which established 3,200 feet as the minimum setback distance between new oil and natural gas production wells and certain sensitive receptors such as homes, schools and businesses open to the public.

Regulations to implement SB 1137 included requirements of notice to property owners and tenants regarding the work performed and offering the sampling and test of water wells or surface water before and after drilling; the contents of required notices for new production facilities; the annual submission of a sensitive receptor inventory and sensitive receptor map and the contents and format of the same; and the requirements of statements where operators have determined a location to be within the 3,200 feet setback distance. Additional provisions of SB 1137 include, among others, the imposition of health, safety, and environmental controls applicable to both current and new wells located within this distance of sensitive receptors related to noise, light, and dust pollution controls and air emission monitoring, and the immediate suspension of operations at production facilities determined to not be in compliance with certain air emission requirements.

SB 1137 was to have taken effect on January 1, 2023, but in December 2022, more than the requisite number of registered voters signed a referendum to put SB 1137 on the 2024 ballot. On February 3, 2023, the Secretary of State of California certified the signatures and confirmed that the Referendum qualifies for the November 2024 ballot. Accordingly, SB 1137 is stayed until it is put to a vote of the general electorate.

SB 1137 Impacts Specific to the LBU

While the legislation requires some level of interpretation regarding the definition of “sensitive receptor”, we currently believe that sensitive receptors may exist within 3,200 feet of both Island Grissom and Pier J and potentially some or all of Island White. The following picture depicts the areas of the City that potentially contain sensitive receptors and would be within 3,200 feet of existing LBU wells (the coastal side of the red line):



In these impacted areas, the SB 1137 requirement stipulating that a leak detection plan be submitted to the California Geological Energy Management Division (CalGEM) by January 1, 2025, with full implementation by January 1, 2027, would apply. The State Air Resources Board would set performance standards for the emissions detections systems.

While the LBU may see some preliminary costs in 2025 as a result of SB 1137, full costs are undetermined at this time because the standards have not yet been published and full implementation is over three years out given that SB 1137 is currently stayed. We are currently in the process of identifying and evaluating the various emissions detection technologies and equipment available to meet the requirements of SB 1137. Once a decision has been reached, the purchase and installation costs for that equipment will be known and can be shared in the future.

Oil and gas revenues and expenses for the LBU are not anticipated to be impacted until year two after the implementation of SB 1137 becomes effective, essentially FY 26/27 and beyond. Revisions to the July 2023 – June 2028 Program Plan economics for FY 26/27 and beyond would only be speculation at this time as the outcome of the SB 1137 vote is unknown. The next Program Plan developed covering the July 2025 – June 2030 period will include any relevant SB 1137 impacts to LBU operations if the bill is approved by the voters in November 2024.

There is a potential impact to future development of approximately 30 wells between 2025-2028. These projects are not incorporated in the Program Plan, as presented. The current five-year Program Plan drilling program, as scheduled, is not expected to be additionally impacted by the adoption of the legislation in 2025 as the Unit plans to conduct future development activities outside of the 3,200 feet minimum setback distance.

Should SB 1137 be approved by voters on the November 2024 ballot, the opportunity to redrill the approximately 30 wells excluded from the current five-year Program Plan will be eliminated. The SB 1137 would also limit the Unit's ability to maintain existing well operations and would eliminate the opportunity to redrill, repair, and convert existing wells to injectors. It is estimated that at least one-half of the Unit's current wells would be directly impacted by SB 1137. While the law does allow for Notices of Intent (NOI) to be granted

based on environmental concerns, we are not certain if subsidence management would be so interpreted by CalGEM.

For more information on the potential economic impacts of SB 1137 and the ability to fund future abandonment activities, please see <https://www.longbeach.gov/globalassets/city-manager/media-library/documents/memos-to-the-mayor-tabbed-file-list-folders/2022/december-9--2022---revenue-implications-of-sb-1137---health-and-safety-setbacks-around-new-and-reworked-existing-oil-wells>

CalGEM Injection Gradients

As is the case in the State of California's (State) mature oil fields, much of the fluid that comes to the surface during operation of the LBU is water with a smaller amount of crude oil. Oil is separated out and sent to market and produced gas is utilized in the LBU power plant. The remaining water is returned to the producing formation from which it came and those producing formations at the LBU are 2,200 feet to 5,500 feet below the surface.

The process under which produced waters are returned subsurface is known as the State's Underground Injection Control (UIC) program, a program that is designed to isolate injected fluid from the State's valuable sources of groundwater. The LBU operates its water injection project under a set of Project Approval Letters (PAL) issued by the State and consequently has succeeded in protecting underground drinking waters since injection began. Each PAL states the maximum pressure, or "injection gradient", at which water may be injected underground.

The SLC review of the Program Plan suggests that State regulators have provided guidance pointing to an injection gradient that differs from both PALs and the operator's own reservoir management strategy. However, State regulators have yet to substantiate the reasoning behind any change to the gradients.

The Wilmington Oil Field has safely operated at approved injection gradients ranging from 0.80 to 0.90 psi/ft for over 40 years. Each active waterflood injector in the Wilmington Oil Field has a production logging program which clearly demonstrates containment of injected fluids in zone – contained by massive impermeable shales well below the base of fresh water.

The impact of a dramatic reduction in the Unit's existing injection gradient, necessitating a significant reduction in overall injection volumes by approximately a half a million barrels of water per day, are unknown and could result in disastrous consequences. Issues with crossflow, compaction, or other unforeseen subsurface changes could cause irreversible damage to surface elevations, especially in downtown Long Beach which is located east of the Los Angeles River. This area has been under careful voidage management since the 1960s and has therefore never experienced the drastic subsidence that was seen west of the Los Angeles River in the mid-1900s.

Rigorous study must precede any change in the maximum allowable injection pressure gradient. The City and its contractor, a subsidiary of California Resources Corporation (CRC), continue to engage in technical dialogue with State regulators regarding the Unit's waterflood operations and are collecting further geologic and technical data to support practices that have been in place for more than four decades.

LBU Power Plant Operations

A point raised in the SLC's April 12, 2023 letter concerns the term of the land lease for the LBU power plant which is expiring in July 2024. When the Program Plan was drafted, the landowner had entered into a sales agreement with a third party which stalled LBU's lease extension negotiations. As of April 19, 2023, that sales agreement with a third party is no longer in place and negotiations have resumed with the LBU in good faith. Concurrent with these negotiations, the Unit is also exploring other options including construction of a new natural gas pipeline or potentially re-injection of the produced gas as alternative solutions.

LBU Commodity Price Volatility

The Program Plan revenue forecast for the July 1, 2023 to June 30, 2028 period is based on an assumed average oil price of \$65/bbl and a natural gas price of \$3.00/MMBtu. To address potential commodity pricing volatility, two additional scenarios were also run with oil prices at \$75, and \$85/bbl with natural gas prices fixed at \$3/MMBtu. To demonstrate the influence of natural gas pricing, two additional scenarios are also presented with varying natural gas prices at \$4, and \$7/ MMBtu and oil prices held flat at \$65/bbl.

This analysis of varying commodity pricing concludes that projected net income from the LBU operations range from \$239 million to \$764 million from fiscal year 2023/24 through 2027/28. See the table below for tabulations of those financial scenarios:

Long Beach Unit Projected Net Income
 Fiscal Years 24 thru 28
 Millions of USD (\$MM)

| Scenario | FY24 | FY25 | FY26 | FY27 | FY28 | FY24-28 |
|------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| \$85/bbl oil, \$3/MMbtu gas | \$142 | \$148 | \$163 | \$165 | \$146 | \$764 |
| \$75/bbl oil, \$3/MMbtu gas | \$88 | \$94 | \$110 | \$114 | \$96 | \$501 |
| \$65/bbl oil, \$7/MMbtu gas | \$44 | \$51 | \$66 | \$72 | \$55 | \$287 |
| \$65/bbl oil, \$4/MMbtu gas | \$37 | \$43 | \$59 | \$64 | \$48 | \$251 |
| \$65/bbl oil, \$3/MMbtu gas | \$34 | \$41 | \$56 | \$62 | \$46 | \$239 |

Sea Level Rise Impacts to the LBU

ABS Consulting prepared a tsunami hazard assessment which identified surface elevations for LBU facilities. Per their findings, “the maximum tide in the Long Beach harbor area is approximately seven feet and most times the tide is below six feet.” The surface elevation of the Oil Islands and Pier J are approximately 15 feet, leaving 8 feet of freeboard above current high tide levels. Based on this surface elevation and tide data, the “extreme risk aversion” projection of 2.6-foot sea level rise by 2050 noted in the State’s Ocean Protection Council’s 2018 Sea-Level Risk Guidance does not present a significant hazard to THUMS or the Unit’s operations.

Vulnerability assessments (such as the screening mentioned above) and subsequent adaptation strategies (developed as needs are identified during assessments) are two of the many tools the LBU implements as part of an on-going commitment to the protecting the public and the environment.

Environmental Justice Issues Related to the LBU

The United States Environmental Protection Agency (US EPA) defines environmental justice as “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations and policies.” It goes on to state that fair treatment means “no group of people should bear a disproportionate share of the negative environmental consequences resulting from industrial, governmental and commercial operations or policies.”

In the context of the “Long Beach Unit Program Plan (July 1, 2023 through June 30, 2028) and Annual Plan (July 1, 2023 through June 30, 2024)”, Long Beach Unit, Wilmington Oil Field, Los Angeles County, the SLC remarks that “more detail should be added to ensure against significant safety or environmental risks to those communities that are disproportionately impacted by the pollution burdens of the Long Beach Unit operations”.

Pollution burdens refer to emissions of air pollutants. As will be shown in the section on Long Beach Unit GHG Emissions (see page 10), LBU’s 2022 reported emissions contributed less than 1/700th of total NO_x and less than 1/2000th of the VOCs, CO, SO_x, and PM relative to Air District-wide reported emissions. In 2023 the NO_x emissions were reduced further with an upgrade to the LBU power plant.

To further put this in perspective, the City’s Department of Health and Human Services published the “Community Health Assessment” in 2013, remarking that “Specific to Long Beach, air quality is impacted by the 710 freeway along the West, the Long Beach/Los Angeles port complex along the Southwest, State Route 103 and major oil refineries in the West, the 405 freeway through the center of the City, and major industrial sectors, mainly in the South. As noted above, improvements have been made to reduce air quality impacts, such as the use of lower emission vehicles and equipment at the Port of Long Beach and the introduction of green space along the 710 corridor. Figure 116 of the

“Community Health Assessment” shows how air quality has improved over the last 10 years with the number for “Unhealthy” and “Very Unhealthy” days decreasing by over 30 percent since 2002”.

Couple this with the California Communities Environmental Health Screening Tool (CalEnviroScreen 4.0 – October 2021) findings discussed later beginning on page 12, it is apparent that oceanside residents closest to the LBU operations are categorized as having a mid to low impact score and that public health professionals point to freeway, refining and port activity as having greater impacts on air quality.

Every barrel of oil not produced in California requires import, most of which arrives through the Ports of Los Angeles and Long Beach. These two ports are significant sources of air pollution in the region. Per the SCAQMD, 85% of the NOx emissions (nitrous oxide compounds, a significant contributor to smog) in the air basin are from mobile sources, such as ships, long haul trucking, and trains. SCAQMD has identified diesel particulate matter as the largest contributor of Toxic Air Contaminants in the Long Beach area originating from ships, commercial harbor craft, railroads, and trucks.

Further, a repeated theme in public health department reporting is that public health is more closely related to factors other than industrial activities in the physical environment. For example, the Los Angeles County Public Health Department “Community Health Improvement Plan 2015-2020” states that, “research has increasingly shown that social and economic conditions contribute to approximately 40% of our health status, followed by health behaviors (30%), clinical care (20%), and the physical environment (10%).”

Meanwhile, measures persist to mitigate emissions of pollutants at the LBU. The Unit’s wells and drilling rigs are all-electric and produce minimal emissions. Emissions of NOx, VOC, and PM reported to the Air District make up less than 1% of emissions in the South Coast Air Basin (LA County, Orange County, Riverside County, portions of San Bernardino County).

LBU Well Abandonment Plan

The LBU manages all its wells to maximize benefit to Unit participants in accordance with the Unit agreements and to maintain compliance with its approved CalGEM Idle Well Management Plan (IWMP). The Unit attempts to minimize the inventory of idle wells that have no further economic benefit. Wells with no further economic use are abandoned to reduce the Unit's future abandonment liability. Unit engineers regularly review existing idle wells and evaluate their potential value to the Unit. Those found to have no value are added to the queue of wells to be plugged or abandoned. A typical LBU well abandonment to surface is currently estimated to cost approximately \$300,000.

There are 212 idle wells in the Unit as of year-end 2022 and approximately 1,300 active wells. Approximately 65 wells are currently identified for abandonment through calendar year 2027 and the remaining idle wells are managed under the IWMP. Per IWMP requirements, the Unit is committed to eliminating a specific number of long-term idle

wells each calendar year. The IWMP and any revisions must be approved by CalGEM. The IWMP may cover a period up to 5 years and is subject to annual review by CalGEM. The rate of idle well elimination in the IWMP is based on the Unit’s idle well inventory as of January 1 on each calendar year.

The table below highlights previous year well abandonments and the projected number for the Program Plan years:

Long Beach Unit Well Abandonments

| | Actual | Program Plan |
|-----------------------|--------|--------------|
| | FY22 | FY24-28 |
| LBU Well Abandonments | 24 | 79 - 140 |

LBU Make-up Water Sources

Another point relating to field management and underground injection is the need to maintain a reliable source of make-up water for injection which is vital to the success of the LBU. Water injected into the formations serves two purposes: 1) controlling subsidence and 2) enhancing oil recovery. To meet injection-to-voidage requirements, make-up water is purchased from sources outside of the Unit. The Unit’s primary make-up water sources include Reclaimed Water from the Long Beach Utilities Department and make-up water from the Tidelands Oil Production Company. Of these sources, approximately 44% consists of reclaimed water, 36% is oilfield produced water, 17% is from source water wells that do not meet the standards for municipal water use, and the remaining 3% is from a variety of sources including Port Toe Drain Water, Harbor Co-Gen, and Storm Water. Fresh Potable Water is not used as a make-up water source in LBU’s operations.

Social Costs and Impacts of LBU Oil Extraction

In August 2022, the City adopted the Long Beach Climate Action Plan (CAP), a comprehensive planning document outlining the City’s proposed approach both to address climate impacts on the City and to reduce the City’s impact on the climate. The CAP includes “Appendix G: Long Beach Oil Gas Technical Memorandum” (Appendix G), which defines lifecycle greenhouse gas emissions associated with oil and gas in Long Beach using the Carnegie Endowment’s Oil Climate Index method and data from the California Air Resources Board’s annual Low Carbon Fuel Standards: Crude Oil Life Cycle Assessment.

Appendix G identifies the Upstream Carbon Intensity of Long Beach Oil as 33 kilograms of CO₂ equivalent per barrel of oil (kg CO₂e/bbl). For reference, oil imported to California from 2018 to 2021 averaged an Upstream Carbon Intensity of 60 kg CO₂e/bbl, nearly

double the upstream carbon equivalent footprint of oil produced by the LBU, according to data from State's Air Resources Board.

Although estimates of the social cost of GHG emissions vary widely, the US EPA currently estimates the social cost of carbon emissions at approximately \$51 per metric ton. Using these metrics, in FY 2021-22, the social cost of LBU operations was \$9.1 million. For reference, an equivalent amount of foreign oil imported to California has a social cost of \$16.6 million.

Californians consume an estimated 1.8 million barrels of oil every day, using hydrocarbons to fuel homes, cars, and aircraft, to fertilize farmlands, to pave streets, and to produce countless other products. The social benefits of local oil production as compared to tankered oil imports cannot be overstated.

Much of the profit from the LBU is shared among public agencies. In FY 2021-22, the State received \$92.7 million in profit from the LBU and the City received \$19.1 million in profit for the same period. LBU paid an additional \$10.0 million in production and ad valorem taxes that fiscal year.

Since 2003, Wilmington oil operations have generated more than \$5 billion for the State, County of Los Angeles, and the City.

The City uses its portion of profits to fund capital investments in the coastal portion of the City, community services, and public safety. Measure US Barrel Tax revenues also support climate change, community health, and youth services programs throughout the City. Other taxes paid by the LBU, including Property Tax, Sales Tax, and Utilities Users Tax, fund a variety of other services within the City.

Public Health Impacts on Local Community from the LBU

Long Beach Unit GHG Emissions

The Long Beach Climate Action Plan (CAP) – Appendix G (August 2022) assesses lifecycle emissions associated with oil and natural gas extraction operations occurring within the City boundary. Of the total oil and gas lifecycle emissions, 76% occur downstream (i.e., transport to consumers and end use of fuel), 14% occur midstream (i.e., oil refining), and 5% occur upstream (i.e., extraction); the remaining 4% are lifecycle natural gas emissions.

The CAP also quantifies GHG emissions within the City by sector. In 2015, the Transportation sector was the largest contributor, emitting 44.5% of the annual total. Energy use in Residential, Commercial, and Institutional buildings was second with 26.0%, while Manufacturing & Construction activities were responsible for an additional 14.3%. The Energy sector was responsible for 7.9% of the annual total. Waste and Fugitive Emissions accounted for the remainder.

Using the 2015 Long Beach lifecycle emissions as a starting point, the emissions associated with the activities covered under the LBU FY24 – FY28 Program and Annual Plan can be estimated. The estimation accounts for the percent of LBU production relative to the Long Beach total (which has declined since 2015) and the percentage contribution of program plan activities towards the lifecycle emission.

The estimated emissions in FY24 from the LBU Program and Annual Plan are estimated to be about 2% of the 2015 Long Beach lifecycle emissions as detailed in the table below:

| Description | Oil (bo) | Gas (mcf) | Oil Emissions (MT CO ₂ e) | Gas Emissions (MT CO ₂ e) | Total Emissions (MT CO ₂ e) | % of 2015 Long Beach Total |
|--|------------|-----------|--------------------------------------|--------------------------------------|--|----------------------------|
| 2015 Long Beach Total | 13,321,018 | 5,116,441 | 8,000,604 | 328,689 | 8,329,293 | 100% |
| 2015 LBU | 8,528,511 | 3,238,873 | 5,122,224 | 208,071 | 5,330,295 | 64% |
| FY24 LBU Forecast | 5,390,000 | 2,479,000 | 3,237,234 | 159,255 | 3,396,489 | 41% |
| FY24 LBU emissions (5% of total life cycle emissions attributable to upstream, e.g., extraction) | | | | | 169,824 | 2% |

Even though the LBU’s contribution to carbon dioxide equivalents is estimated at only 2% of citywide contributions, the City has made investments in its oil operations to reduce GHG and air pollutant emissions and to address the environmental impact of extraction activities. These investments include:

- Reducing the City’s flare hours and NOx emissions by over 60% through an investment in connecting its Tidelands processing plants to the THUMS power plant in 2014
- Investing \$2 million into the power plant to reduce its NOx emissions by 50% in the year 2024
- Utilization of electric drilling rigs on the THUMS islands

Long Beach Unit Air Emissions

Separate from GHG emissions, the LBU reports other emissions from its operations within the South Coast Air Quality Management District (SCAQMD).

These emissions include Volatile Organic Compounds (VOCs), NOx, CO, SOx, and Particulate Matter (PM). Unit operations accounted for significantly less than 1% of the Air District total for all such emissions over the last four years:

| LBU Criteria Emissions Percent of SCAQMD Totals | | | | | |
|--|-------|-------|-------|-------|-------|
| | VOCs | NOx | CO | SOx | PM |
| 2019 | 0.03% | 0.13% | 0.03% | 0.06% | 0.07% |
| 2020 | 0.03% | 0.16% | 0.04% | 0.07% | 0.08% |
| 2021 | 0.03% | 0.13% | 0.04% | 0.06% | 0.06% |
| 2022 | 0.03% | 0.14% | 0.02% | 0.04% | 0.05% |

Additionally, CRC reports other toxic emissions from its operations, which include the LBU, to the SCAQMD. In 2020, the last year for which data is available, their operations accounted for approximately 0.10% of total toxic emissions in the Air District.

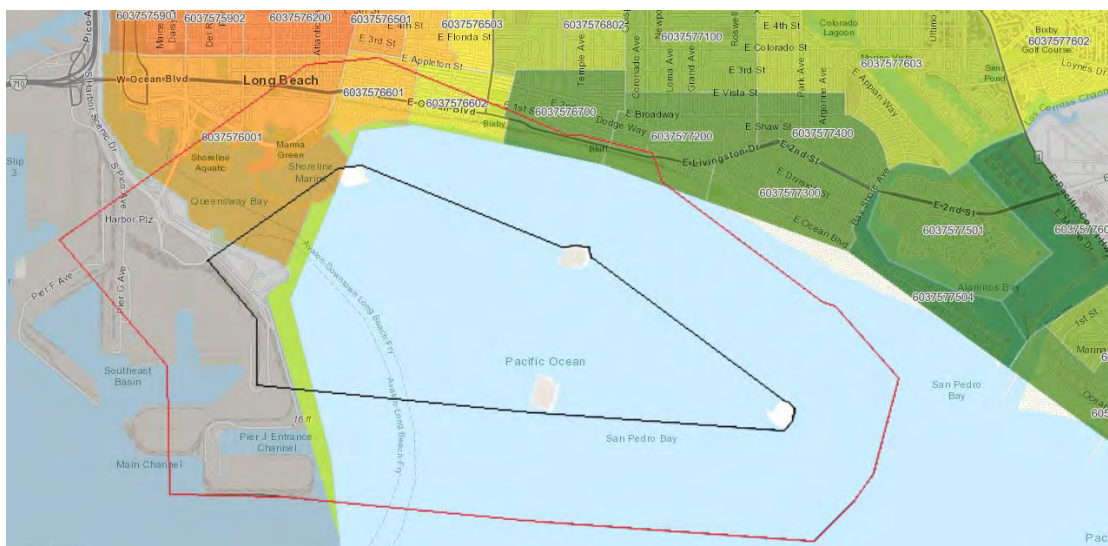
As part of the City's August 2022 CAP, seven near-term emission reduction actions were identified for implementation by the City. Specific to the LBU operations, action Item BE-8 requires identifying strategies it can devise and pursue under its own authority, those it will need to pursue through existing and/or expanded partnerships with federal, state and regional agencies that have regulatory authority, and those that it can partner on with the private sector, to reduce oil and gas extraction emissions.

Action item AQ-7 from the CAP requires the City to increase air monitoring systems to gather relevant, reliable air quality data in real time to help make informed safety decisions. As part of its implementation, the City included in the FY23 Budget a new position in the Development Services Department to support the City's annual oil well inspection program and the oil well abandonment and methane gas mitigation programs. This position will help ensure oil wells are inspected annually. Data collected from these inspections, along with the data collected from increased air monitoring, will be available to the public as well as the regulatory agencies.

California Communities Environmental Health Screen Tool

The latest iteration of the California Communities Environmental Health Screening Tool (CalEnviroScreen 4.0 – October 2021) was used to assess the community impacted by the LBU operations. The tool analyzes data on environmental, public health and socioeconomic conditions in California's 8,000 census tracts to provide a clear picture of cumulative pollution burdens and vulnerabilities in communities throughout the state.

A total of five census tracts are located within a 3,200 foot radius of the LBU wells as shown in red below:



Many factors, often referred to as stressors, contribute to an individual or a community's pollution burden and vulnerability. People are simultaneously exposed to multiple contaminants from multiple sources and have multiple stressors based on their health status as well as living conditions. The table below summarizes the population and socioeconomic factors in the five tracts:

| Parameters | Tract No. | | | | | Average* |
|------------|------------|------------|------------|------------|------------|----------|
| | 6037576001 | 6037576601 | 6037576602 | 6037576700 | 6037577200 | |
| Population | 5,174 | 4,293 | 4,423 | 3,935 | 5,848 | |

| Race/Ethnicity Profiles | | | | | | |
|-------------------------|-------|-------|-------|-------|-------|-------|
| White | 50.9% | 53.8% | 56.2% | 62.4% | 63.0% | 57.3% |
| Hispanic | 12.7% | 30.7% | 25.3% | 15.4% | 22.7% | 21.2% |
| African American | 13.7% | 10.4% | 6.9% | 8.9% | 6.9% | 9.4% |
| Asian American | 20.2% | 3.4% | 6.4% | 9.9% | 5.6% | 9.3% |
| Other | 2.4% | 1.8% | 5.2% | 3.4% | 1.8% | 2.8% |

| Age Profiles | | | | | | |
|-----------------------------|-------|-------|-------|-------|-------|-------|
| Between 10 - 64 | 86.9% | 82.2% | 82.6% | 70.2% | 85.8% | 82.2% |
| Elderly (Age 65 or Greater) | 9.2% | 12.7% | 12.2% | 23.1% | 10.7% | 13.1% |
| Children (Age 10 or Less) | 3.9% | 5.1% | 5.2% | 6.7% | 3.5% | 4.7% |

| Poverty Indicator Percentage** | | | | | | |
|--------------------------------|-----|-----|-----|-----|-----|-----|
| Poverty Indicator | 15% | 27% | 32% | 27% | 19% | 23% |

* Population-weighted average

** Percentage of people in the census tract living below twice the federal poverty level

The average population and socioeconomic factors from the five tracts immediately adjacent to the LBU wells, and within SB's 1137 prescribed 3,200 feet setback, indicate the following key results:

- The highest race/ethnic group is White at 57%, which is overrepresented compared to the City's population of 28%
- The elderly (age 65 or greater) comprises 13% of the population, slightly higher than the City's population of 12%, and
- 23% of the population live below twice the federal poverty level, lower than the City's population of 59%

Long Beach Health and Human Services Department 2021 – 2026 Strategic Plan

The City has its own Health Department and is also within the jurisdiction of the Los Angeles County Department of Public Health. In April 2021, the City's Health and Human Services Department (Health Department) issued its 2021 – 2026 Strategic Plan. The intent of this plan is to focus on the priorities and to move the City into a healthier and brighter future for all. Through this plan, the Health Department seeks to pave the way for

opportunities that will enable everyone in Long Beach to enjoy their full potential. This Strategic Plan was created with equity and trauma- and resiliency-informed lenses, utilizing a population health perspective, and an understanding of the need for health in all policies.

The Health Department stands for Equity: Everyone in Long Beach has the opportunity to be healthy, safe and thriving regardless of their race, color, sex, gender, nationality, sexual orientation, income or where they live. Equity is the lens through which the City assesses, prioritizes, and implements all policies and services. Utilizing an equity lens, the following objectives are documented in the Strategic Plan to provide the support towards the vulnerable populations in Long Beach:

- Focus efforts to improve the birth outcomes of Black women in Long Beach
- Reduce the incidence of chronic diseases (asthma, hypertension, cardiovascular disease, and diabetes) among Black residents in Long Beach
- Implement partnerships, programs and services focused on improving the social determinants of health that affect obesity, chronic diseases, and violence for the Latino/Latinx population in low income and high-density areas of Long Beach
- Improve the mental and physical health of the Cambodian population in Long Beach
- Improve the health outcomes of older adults in Long Beach
- Improve health and wellness outcomes for Veterans in Long Beach

LBU Abandonment and Decommissioning Costs

In 1999 the City created an abandonment reserve fund to cover the costs for the City's and State's ultimate abandonment and decommissioning of the Wilmington Oil Field. The abandonment reserve was funded through a continuing monthly per barrel charge based on tidelands oil production.

In 2002, the State sought to compel the City to cease withholding funds for the Wilmington Oil Field's abandonment and decommissioning liabilities and for the City to pay to the State all funds previously withheld. According to the State, the expense for well plugging and abandonment will occur "only after the revenue stream from production operations ends," and when no oil revenues will be available to pay the cost. The State ultimately lost this case and the funds remained in the State's abandonment fund thereby ensuring that the oil and gas operations pay for their future abandonment and decommissioning liabilities and not shift the cost to the State's taxpayers or the City's general fund.

Starting in 2018, the City has been accelerating the amount it reserves annually for its share of the Wilmington Oil Field's abandonment liability. The City intends to have its share of the abandonment liability fully funded (totaling \$154 million) in the 2035 timeframe, a full ten years before Governor Newsom directed the California Air Resources Board in April 2021 to evaluate how to phase out oil and gas extraction in California by 2045.

On September 25, 2022, AB 353 was approved which deleted the provision in existing law that the State's Abandonment Reserve Fund (Fund) be capped at \$300 million. Under AB 353, the State Controller now transfers to the Fund \$2,000,000 or 50 percent of remaining oil revenue, whichever is less, on the last day of each month beginning January 31, 2023.

The current estimate for the State's share of the abandonment and decommissioning costs for the Wilmington Oil Field is \$939,660,000. This estimate is taken from the "Fiscal Year 2023 Oil Field Abandonment Liability" memorandum prepared by City of Long Beach Energy Resources on September 21, 2022. The letter indicates that at the time, less than one-third of the State's abandonment liability was reserved (approximately \$300 million) in the State's Abandonment Reserve Fund.

AB 353 now directs the State to reserve a maximum of \$2 million per month beginning in January 2023. At this rate, the State's Abandonment Reserve Fund would reach the \$940 million total around the year 2050. Approximately 73% of the State's total abandonment and decommissioning liability is associated with the LBU and the remaining 27% is associated with the West Wilmington oil operations.

The transition away from fossil fuels will require meticulous planning, funding of environmental responsibilities and recognition of the fiscal liabilities related to this transition. The revenues generated from today's oil and gas extraction operations to fund future abandonment liabilities are at risk from an evolving legislative environment at the state level.

Presently the State has less than one-third of its projected total abandonment liability reserved in its oil liability trust fund. The City has set an aggressive goal to have its share of the Wilmington Oil Field abandonment liability fully funded around 2035. Absent further action, the State is not projected to be fully funded to potentially begin abandonment and decommissioning activities in the Wilmington Oil Field until 2050, approximately fifteen years after the City would be ready. The City implores the State to consider undertaking a similar accelerated funding approach to ensure complete funding of their oil liability trust fund in the same 2035 timeframe.

STATE OF CALIFORNIA

Exhibit F

GAVIN NEWSOM, Governor

**CALIFORNIA STATE LANDS
COMMISSION**301 E. Ocean Blvd., Suite 550
Long Beach, CA 90802-8833*Established in 1938***JENNIFER LUCCHESI**, Executive Officer
916.574.1800TTY CA Relay Service: 711 or Phone **800.735.2922**
from Voice Phone **800.735.2929**
or for Spanish **800.855.3000****Contact Phone: 562.590.5201**
Contact Fax: 562.432.6035

February 7, 2024

Electronically Emailed to bob.dowell@longbeach.gov

File Ref: W 17166

Mr. Robert Dowell, Director
Long Beach Energy Resources
City of Long Beach
2400 East Spring Street
Long Beach, CA 90806**Subject: Staff Analysis of Supplements to the Long Beach Unit Program Plan
(FY 2023-28) and Annual Plan (FY 2023-24)**

Dear Mr. Dowell:

Thank you for submitting the supplement to the Program Plan and Annual Plan on May 25, 2023, incorporating the risk identification and analysis for the issues the Commission had ordered to be addressed. Staff has conducted a comprehensive analysis of the supplements to the Long Beach Unit (LBU) Program Plan and the Annual Plan and has the following recommendations:

SB 1137: Staff recommends that future Program Plans account for the impacts of SB 1137. Specifically, we request detailed information on the total number of impacted wells, leak detection plans, compliance with emission standards, associated costs, and projections of adverse impacts on subsidence management. Additionally, please provide the status of projects within the current Program Plan that remain unaffected as well as the number of partially abandoned wells within the 3,200 feet Setback.

California Geologic Energy Management Division (CalGEM) Injection Gradients: We have noted the City of Long Beach's (City) concerns regarding the reduction in injection gradient. While understanding California Resources Corporation and the City's apprehension, staff emphasize the importance of incorporating CalGEM's direction in the Program Plan. Staff recommend that future developments, included in the Program Plan, consider potential impacts and possible modifications to injection approvals during the planning phase.

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LBU Power Plant Operations: We appreciate the City's update on the power plant lease negotiations. Staff request additional details on the City's action plan, including lease renewal status updates, and further exploration of alternative solutions, including but not limited to reinjection opportunities and construction of a new pipeline. We also request updates on any new developments with respect to power plant lease negotiations.

Commodity Price Volatility: We appreciate inclusion of the revised revenue forecast, considering varying commodity prices. Staff request further analysis for scenarios contemplating decreases in oil and gas prices in the future Program Plans to ensure a comprehensive understanding of potential alternative scenarios.

Sea Level Rise Impacts: While the revisions provide reassurance that surface elevations are 5.4 feet above the 2050 sea level rise projections for "extreme risk aversion," the proposed revisions are based on a tsunami hazard assessment, not a sea level rise vulnerability assessment. As recommended in the Ocean Protection Council's 2018 Sea Level Rise Guidance and 2024 Draft Sea Level Rise Guidance, sea level rise vulnerability assessments should consider the cumulative effect of sea level rise with episodic events, such as storm surges and large waves, which could produce significantly higher water levels than sea level rise alone and are typically the drivers of the strongest impacts to coastal infrastructure. Commission staff recommend that LBU's sea level rise vulnerability assessments consider the cumulative flooding and wave heights from sea level rise and a 100-year storm event. Please refer to Ocean Protection Council's 2024 Draft Sea Level Rise Guidance, Section 4 for information and data sources for incorporating the cumulative impacts into sea level rise vulnerability assessments. Additionally, the Commission's order for the revisions to the LBU Program Plan request that the revisions address sea level rise vulnerabilities through the LBU's eventual decommissioning. The revisions only considered LBU's vulnerability to sea level rise until 2050. Since LBU's projected end of economic life is 2045, decommissioning may not be finished until after 2050. Future Program Plans must apply a conservative estimate and evaluate the vulnerabilities and adaptation to sea level rise through 2075 or the latest expected decommissioning date.

Environmental Justice Issues: While staff appreciate the discussion of cumulative pollution burdens impacting surrounding communities, it falls

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short of addressing staff's concerns. The City's Department of Health and Human Services has a more recent Community Health Assessment from 2019; the supplement should have used this report instead of the 2013 report. Communities in Long Beach are heavily exposed to pollution burdens from various sources and these forms of pollution are known to cause significant human health effects. To dismiss the interconnectedness between health outcomes and environmental exposures is a missed opportunity to address the disproportionate pollution burdens the community faces. Staff requires additional details in the Program Plan to ensure Long Beach Unit operations consider mitigating the significant safety or environmental risks to communities that are disproportionately impacted by the pollution burdens of this operation. The revisions did not mention a plan for community outreach and stewardship which was mentioned in the initial plan.

LBU Well Abandonment Plan: We appreciate the City presenting figures on well abandonments. Staff recommend inclusion of challenges or obstacles in implementing the proposed well abandonment plan for a comprehensive view.

LBU Make-up Water Sources: Revisions adequately address concerns about water shortage risks. The importance of a reliable make-up water source is emphasized, ensuring operational integrity. Please continue to address this issue in future Program Plans.

Social Costs and Impacts: We appreciate the provided context on social costs and benefits. The revision provides important context about how California is still very dependent on petroleum products, how alternatives to LBU's oil production could produce more air pollution and greenhouse gas emissions, and how LBU's profits benefit the public locally and statewide. However, staff recommend a more comprehensive calculation of the social cost of carbon, considering the entire lifecycle emissions and using the most available updated values.

The calculation for the social cost of carbon had a very limited scope, which likely underestimated the social costs. The calculation was only based on upstream emissions (e.g., venting, flaring, steam generators) and excluded emissions from the natural gas that is produced as a byproduct of the oil extraction process. To make an accurate comparison between LBU's benefits and the social costs of other oil and energy sources, it is important to consider the entire lifecycle emissions of LBU oil

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and gas extraction, as California's oil supply sources have considerably different mid- and downstream emissions. According to Long Beach's Climate Action Plan (CAP), LBU produces heavy oil that has higher mid- and downstream emissions than some foreign sources since heavy oils require additional refining processes and produce petroleum coke (a byproduct of the refining process that is used as a coal substitute for power generation), resulting in similar or higher total lifecycle emissions. Commission staff recommend that LBU's future Program Plans include the entire lifecycle emissions in estimations of LBU's social costs of carbon. This recommendation is consistent with the methodology used in Long Beach's CAP to estimate 2015 emissions.

Commission staff also recommend that Long Beach Unit use the U. S. Environmental Protection Agency's recently updated [Report on the Social Cost of Greenhouse Gases: Estimates Incorporating Recent Scientific Advances](#), which is \$190 per metric ton of CO₂. Using the carbon intensity of Long Beach's lifecycle emissions (601 kg CO₂e/bbl) and the updated social cost of carbon (\$190/metric ton of CO₂), LBU's social cost of carbon is \$615 million per year (oil production forecast for FY24 is 5.39 million barrels) before the inclusion of natural gas emissions. LBU's revision estimated the social cost to be \$9 million per year, which is a significant underestimate due to the narrow scope of LBU's analysis.

Public Health Impacts: The revisions did not directly discuss the public health impacts on the local community from the LBU. Instead of listing the actual (measured) emissions from LBU or discussing the potential health impacts, the revisions framed LBU's emissions as a small percentage of the total emissions across the City of Long Beach and South Coast Air Quality Management District (SCAQMD). The SCAQMD spans 11,000 square miles and includes all of Orange County and the urban portions of Los Angeles, Riverside, and San Bernardino counties. According to SCAQMD's website, it is the second most populated urban area in the United States and one of the smoggiest. The reporting of LBU's emissions as a percentage of SCAQMD's totals does not provide sufficient transparency about LBU's emissions or the acute effects on local communities.

We appreciate how the revisions provided helpful information about the City's investments in emissions reduction efforts, including reducing flaring and nitrous oxide emissions, and using electric drilling rigs. Appendix G of the City's August 2022 CAP recommends seven near-term strategies and eight long-term strategies for reducing oil and gas emissions, including

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increasing leak inspections and air quality monitoring, improving the energy efficiency of oil facilities, investing in carbon capture technology, and phasing out fossil fuel consumption in the city. Those strategies should be developed and implemented as soon as possible to address public health impacts and the urgent climate crisis, and future Program and Annual Plans should highlight the progress of the strategies being implemented. In particular, LBU should implement the CAP recommendations for investments in vapor-recovery, continuous methane leak monitoring and repair, carbon capture and storage, energy efficiency and electrification of all LBU operations, and eliminating all non-emergency flaring. These strategies can be the most effective for reducing upstream emissions from oil and gas operations. Additionally, the City should pursue the CAP recommendations for decreasing oil and gas consumption throughout the city by investing in renewable energy and energy efficiency projects, particularly for low-income residents.

We appreciated how the revisions summarized the City Health Department's 2021-2026 Strategic Plan to improve the health of Long Beach's vulnerable communities. Future Program Plans should provide a link to the Health Department's Strategic Plan and website so the public can learn more about the Strategic Plan and how to access the City's public health resources.

To conclude, this letter aims to provide constructive feedback for enhancing the transparency and completeness of future Program Plans. We appreciate your cooperation and commitment to ensuring the responsible and sustainable operation of the Long Beach Unit.

Should you have any questions or require further clarification, please contact Jalal Abedi at (562) 590-5208 or via email jalal.abedi@slc.ca.gov.

Sincerely,

DocuSigned by:

AEC65FD2888147B...

Peter Regan
Assistant Chief
Mineral Resources Management Division

cc: Jennifer Lucchesi, Executive Officer

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bcc: S. Meshkati
J. Abedi